

# REVIEW OF MARITIME TRANSPORT **2007**

UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT



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TRANSPORT  
2007***

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## ABBREVIATIONS AND EXPLANATORY NOTES

*Abbreviations*

<b>ASEAN</b>	Association of South-East Asian Nations
<b>BAF</b>	bunkering adjustment factor
<b>bcm</b>	billion cubic metres
<b>CAF</b>	currency adjustment factor
<b>c.i.f.</b>	cost, insurance and freight
<b>CSF</b>	The Special Register of Ships and Shipping Companies of the Canary Islands
<b>DIS</b>	Danish International Register of Shipping
<b>dwt</b>	deadweight tons
<b>ESCAP</b>	Economic and Social Commission for Asia and the Pacific
<b>EU</b>	European Union
<b>FDI</b>	foreign direct investment
<b>FEU</b>	40-foot equivalent unit
<b>f.o.b.</b>	free on board
<b>GDP</b>	gross domestic product
<b>GT</b>	gross tons
<b>IMF</b>	International Monetary Fund
<b>IMO</b>	International Maritime Organization
<b>ISO</b>	International Organization for Standardization
<b>ISPS Code</b>	International Ship and Port Facility Security Code
<b>LNG</b>	liquefied natural gas
<b>LPG</b>	liquefied petroleum gas
<b>mbpd</b>	million barrels per day
<b>n.a.</b>	not available
<b>NAFTA</b>	North American Free Trade Agreement
<b>n.e.s.</b>	not elsewhere specified
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>OPEC</b>	Organization of the Petroleum Exporting Countries
<b>TEU</b>	20-foot equivalent unit
<b>THC</b>	Terminal Handling Charges
<b>ULCC</b>	ultra-large crude carrier
<b>UNCTAD</b>	United Nations Conference on Trade and Development
<b>VLCC</b>	very large crude carrier
<b>WS</b>	Worldscale
<b>WCO</b>	World Customs Organization
<b>WTO</b>	World Trade Organization

*Explanatory notes*

- All references to dollars (\$) are to United States dollars, unless otherwise stated.
- “Tons” refers to metric tons, unless otherwise stated.
- 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 term *countries* refers to countries, territories or areas.
- The presentation of countries in this edition of the *Review of Maritime Transport* is different from that in previous editions. The new classification is that used by the Statistics Division, Department of Economic and Social Affairs (DESA), of the United Nations, 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 countries, developing countries and economies in transition. See annex I for a detailed breakdown of the new groupings. Any comparison with data in previous editions of the *Review* should therefore be handled with care

## SUMMARY OF MAIN DEVELOPMENTS

The *Review of Maritime Transport* is an annual publication prepared by the secretariat of the United Nations Conference on Trade and Development (UNCTAD). Its purpose is to identify the main developments in world maritime transport and to provide relevant statistical data. It focuses on developments concerning maritime activities in developing countries as compared with other groups of countries. It also highlights the correlation between the development of global trade and maritime transport activities in general. Regional developments in Asia are the subject of this year's special chapter.

### 1. Development of the world economy and seaborne trade

In 2006, strong growth in the world economy continued, fuelled by the expansion of some dynamic developing countries. World GDP grew by 4.0 per cent — the second highest increase in a decade. The strong and sustained growth of China, India and other dynamic developing countries is increasingly becoming the main driver of world economic activity. Developed countries expanded by 3.0 per cent, while developing countries and economies in transition experienced faster growth estimated at 6.9 per cent and 7.5 per cent, respectively.

During the same year, the volume of world merchandise trade recorded robust growth, increasing by 8.0 per cent. This is more than double the growth of the world economy, a fact that highlights the effect of increasing globalization and deepening economic integration. China remained in the lead, with an export growth rate of 22.0 per cent. Given the growing important linkage between economic growth, trade and demand for shipping services, world seaborne trade (goods loaded) increased in 2006, reaching 7.4 billion tons. Boosted by the need to diversify supply sources and the growing South–South trade, demand for maritime transport services measured in ton-miles increased by 5.5 per cent in 2006 and reached 30,686.

### 2. Development of the world fleet

The world merchant fleet expanded to 1.04 billion deadweight tons (dwt) at the beginning of 2007, a remarkable 8.6 per cent increase, surpassing even the 7.2 per cent growth of the previous year. The tonnage of oil tankers in 2006 increased by 8.1 per cent and that of dry bulk carriers by 6.2 per cent; these two types of ships together now represent 72.0 per cent of total

tonnage. The fleet of general cargo ships increased by 4.9 per cent in 2006. The highest growth was recorded for containerships, which increased by 17 million dwt, or 15.5 per cent.

Tonnage on order at the end of 2006 consisted of 118 million dwt of oil tankers, 79 million dwt of dry bulk carriers, 8 million dwt of general cargo vessels, 51.7 million dwt of container ships and 45.6 million dwt of other vessel types. Total tonnage on order reached 6,908 vessels with a total tonnage of 302.7 million dwt.

The estimated average age of the world fleet dropped marginally to 12.0 years in 2006. By vessel type, the youngest fleet was that of container ships, with an average age of 9.1 years. The average age of tankers remained at 10 years, the average age of bulk carriers decreased slightly from 13.1 to 12.9 years, and general cargo vessels continued to be the oldest vessel type, with an average of 17.4 years and 56.8 per cent of vessels more than 19 years old.

As regards fleet ownership, at the beginning of 2007, developing countries controlled approximately 31.2 per cent of the world dwt, developed countries about 65.9 per cent, and economies in transition the remaining 2.9 per cent.

Since UNCTAD began recording the share of foreign-flagged dwt in 1989, this share had increased every year until 2006. Between January 2006 and 2007, however, the foreign-flagged share has for the first time decreased slightly, from 66.5 to 66.3 per cent of the world total. The 10 largest open and international registries together account for 53.7 per cent of the world fleet. Of the remaining tonnage, 18.9 per cent is registered in developed countries, 1.3 per cent in countries in transition and 27.7 per cent in developing countries.

### 3. World fleet productivity and supply and demand

The main operational productivity indicators for the world fleet — tons carried per dwt and thousands of ton-miles per dwt — reached 7.3 and 30.1 respectively. Both figures represented marginal decreases from the previous year.

World total surplus tonnage increased in 2006 to 10.1 million dwt, or 0.7 per cent of the world merchant fleet — the same as the previous year. The surplus capacity in the tanker sector remained modest at 4.5 million dwt (1.4 per cent of the total tanker fleet), while overcapacity in the dry bulk sector remained at 2.0 million dwt (0.6 per cent of the dry bulk fleet).

As regards supply and demand in container shipping, in 2006, for the first time since 2001, the growth of the fleet outstripped the growth of containerized trade. With an increase in the fleet of almost 1.4 million TEUs, capacity grew by 13.5 per cent in 2006; this was 2.5 percentage points higher than the growth of containerized trade, which reached 11 per cent in the same year.

### 4. Trade and freight markets

Although 2006 was a good year for all tanker market segments, these remained below the impressive levels recorded during the two previous years. Fuelled mainly by buoyant steel production in Asia, the dry cargo freight market fared better, with steady improvements in the Capesize sector and continued strong performances in the Panamax and Handy-size sectors. Despite the downward pressure on the containership market resulting from a large tonnage delivery and a large order book, the continuing strong demand helped maintain the rates at healthy levels. In relation to containerized trade, the world container fleet expanded by 7.8 per cent in 2006, reaching about 23.2 million TEUs. The share of ocean carriers in this total amounted to 57.2 per cent higher than their share in previous years.

In 2005, the share of global freight payments in import value increased and reached 5.9 per cent — higher than the previous year. The world total value of imports (c.i.f) increased by 13.4 per cent over the previous year, while total freight paid for transport services increased by 31.2 per cent. Developing countries and economies in transition continued to record the highest freight costs. Freight costs expressed as a percentage of the value of imports in 2005 increased for both country

groups, reaching 7.7 per cent for developing countries and 7.6 per cent for economies in transition. Developed countries have the lowest freight costs, which were estimated at 4.8 per cent of the value of imports in 2005.

### 5. Port and multimodal transport developments

World container port throughput grew by 13.4 per cent to reach 440 million TEUs in 2006 after stumbling slightly in 2005 with 8.7 per cent growth after a gain of 12.8 per cent in 2004. Developing countries handled 265.4 million TEUs, or 65 per cent of the world total in 2006; this is up from 62.1 per cent for 2005. In 2006 there were 62 countries with a throughput of above 100,000 TEUs, and 24 countries with double-digit growth in 2006 compared with 22 in 2005. Together the top 20 world container ports handled 208.7 million TEUs, 51 per cent of the world total.

International rail freight transport expanded in 2006, with markets in China and India recording growth rates of 11 and 8 per cent, respectively. The global road transport market is estimated to have grown by 4.5 per cent in 2006. During the same year, the global freight forwarding and logistics market grew by 13.5 per cent. The total market size was estimated to be 93 billion euros: the European market accounted for one third, while the shares of the Asia-Pacific and North American markets stood at 27 per cent and 29 per cent each.

### 6. Legal issues and regulatory developments

Having been suspended in mid-2006, the negotiations on trade facilitation at the World Trade Organization (WTO) were resumed in February 2007. Meetings of the Negotiating Group on Trade Facilitation were very much geared to the development and discussion of text-based (or “third generation”) proposals concerning specific trade facilitation measures that would eventually form part of the anticipated agreement. Another issue was technical assistance and capacity-building, as well as “Special and Differential Treatment”.

Concerning other legal issues affecting transportation, a number of international organizations continue to be active in the preparation and refinement of standards and guidelines related to maritime and supply chain security, including the World Customs Organization (WCO), the International Maritime Organization (IMO)



and the International Organization for Standardization (ISO). For its part, UNCTAD has published the results of a wide-ranging survey on the ISPS Code-related costs and financing (UNCTAD/SDTE/TLB/2007/1).

A new International Convention on the Removal of Wrecks was adopted in May 2007 under the auspices of IMO, and work is progressing on a draft International Convention for the Safe and Environmentally Sound Recycling of Ships.

## **7. Regional economic developments: Asia**

Developing economies in Asia grew by about 7.6 per cent in 2006, while developed countries in the region grew by 2.2 per cent. The region's exports grew by an impressive 18 per cent, benefiting from healthy global demand. Azerbaijan, aided by the export of oil, recorded the highest GDP growth with a 31 per cent increase. Developing countries in the region continued to add to their already sizeable foreign exchange reserves, to reach the unprecedented sum of \$2.5 trillion.

Global terminal operators headquartered in Asia include Cosco Pacific, DP World, Evergreen, Hanjing, Hutchison Port Holdings (HPH), ICTSI, NYK/Ceres and PSA International. Together they have a throughput of over 220 million TEUs and about half of the world's total throughput of containers. Asian ports continued to grow at a significant pace, led by Yantai, China, with a

112 per cent increase, followed by Yingkou, China, with 59 per cent, and Guangzhou, China, with 40 per cent. On average mainland Chinese ports grew by 35 per cent in 2006 compared with about 29 per cent in 2005. Ports in other developing countries which made double-digit gains include Colombo up 25 per cent, Jawaharlal 23 per cent, Gwangyang 22 per cent, Ambarli 21 per cent, Incheon and Ho Chi Minh 19 per cent, Dubai 17 per cent, Tanjung Pelepas 14 per cent, Port Klang 14 per cent, Chittagong 12 per cent and Laem Chabang 11 per cent, followed by Karachi and Bangkok with 10 per cent.

About a quarter of the world's bulk carriers fly an Asian flag, and one in four general cargo vessels. Twenty-one per cent of the world's fleet of vessels above 100 GT are registered in Asia. By far the largest registries are those of Hong Kong (China) and Singapore, each with about 32 million GT registered. Next are mainland China with 23 million GT, the Republic of Korea with 10 million, India with 8 million and Malaysia with 6 million, followed by Indonesia, the Islamic Republic of Iran and the Philippines with about 5 million each. Jordan had the largest increase in its merchant fleet — an impressive 145 per cent. Kazakhstan recorded a 70 per cent increase, Viet Nam 27 per cent, and Indonesia and Oman 20 per cent each. Those countries that also recorded double-digit growth are Qatar (17), the Republic of Korea (15), Turkmenistan (15) and Malaysia (11).

## Box 1

**Vessel and registry 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.

<b>Review group</b>	<b>Constituent ship types</b>
<b>Oil tankers</b>	Oil tankers
<b>Bulk carriers</b>	Ore and bulk carriers, ore/bulk/oil carriers
<b>General cargo</b>	Refrigerated cargo, specialized cargo, ro-ro cargo, general cargo (single- and multi-deck), general cargo/passenger
<b>Container ships</b>	Fully cellular
<b>Other ships</b>	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
<b>Total all ships</b>	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	300,000+ dwt
VLCC	150,000–299,999 dwt
Suezmax	100,000–149,999 dwt
Aframax	50,000– 99,999 dwt

*Dry bulk carriers*

Cape-size	80,000 dwt plus
Panamax	50,000–79,999 dwt
Handymax	35,000–49,999 dwt
Handy-size	20,000–34,999 dwt

*Source:* Lloyd's Register – Fairplay.

## Chapter 1

# DEVELOPMENT OF INTERNATIONAL SEABORNE TRADE

*This chapter provides an overview of the demand for global maritime transport services as well as a review and forecast of developments in world seaborne trade, against the background of the world economy and global trade (by sector). In 2006, strong growth in the world economy continued, fuelled by the expansion of some dynamic developing countries. Global merchandise exports and seaborne trade, which are enablers of, and are supported by, world economic growth, have also recorded solid growth.*

### A. WORLD ECONOMIC BACKGROUND

#### 1. World output<sup>1</sup>

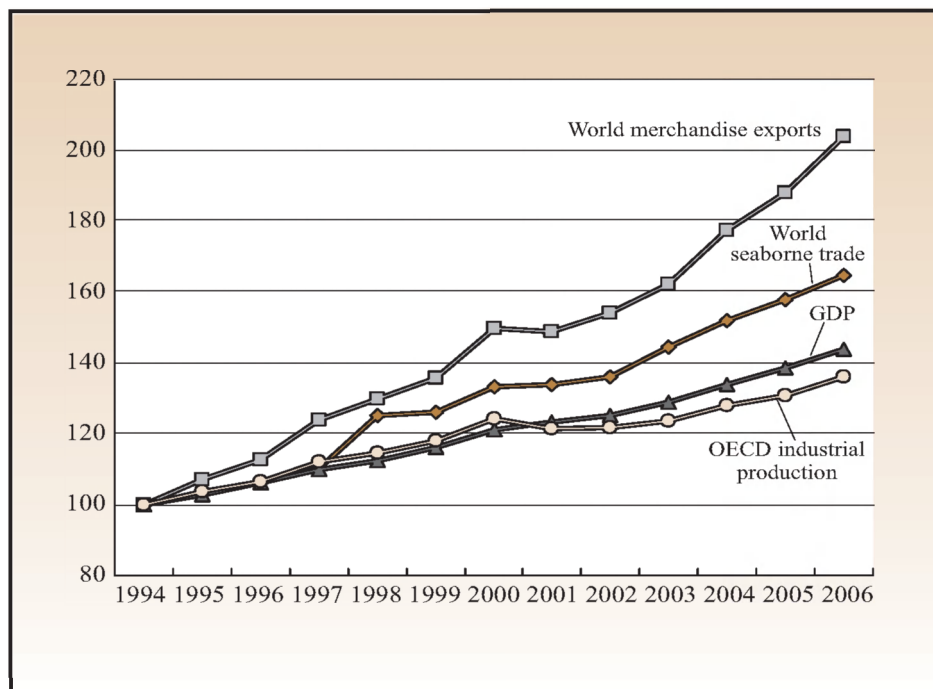
In 2006 the world economy expanded strongly, with gross domestic product (GDP) growing at 4 per cent. Growth was broad-based, with GDP in all country groupings increasing faster than the previous year. GDP grew by 3 per cent in developed countries, 6.9 per cent in developing countries and 7.5 per cent in the economies in transition. Rapid growth in emerging economies, particularly China and India, continued to set the pace. GDP in China expanded faster than in 2005, reaching 10.7 per cent, while growth remained steady at 9.2 per cent in India. With the emergence of China, India and other dynamic developing countries with strong and sustained growth, the main driver of world economic activity is no longer uniquely derived from industrial production in developed countries. This may be seen in figure 1, which shows the changing relationship between (a) world economic growth (GDP), (b) OECD countries' industrial production, (c) world merchandise exports, and

(d) world seaborne trade. While industrial production in OECD countries appears to have decelerated in recent years, world GDP, merchandise exports and seaborne shipments have continued to grow, a fact indicating that non-OECD countries are having a greater impact. Production in emerging dynamic developing countries and economies in transition is more and more driving world economic growth and seaborne trade. For example, while the 2006 average OECD industrial production index was 107.3 for the United States, 106.3 for Japan and 112.2 for Germany, it averaged 120 for Brazil, 148.6 for India and 132.8 for the Russian Federation.

In the United States, GDP grew by 3.3 per cent, while it increased by 2.2 per cent in Japan and 3 per cent in the EU (25) (see table 1). Boosted by high international prices of energy and metals and strong external demand, economies in transition grew by 7.5 per cent in 2006 as against 6.4 per cent in 2005. As for developing countries, in addition to Asia, economic expansion was fuelled by faster GDP growth in Africa (6.9 per cent) and Latin

Figure 1

**Indices for world economic growth (GDP), OECD industrial production, world merchandise exports (volume) and seaborne trade (volume), 1994–2006**  
(1994 = 100)



Source: UNCTAD secretariat on the basis of *OECD Main Economic Indicators*, April 2006; UNCTAD GlobStat, Trade in Merchandise Database, <http://uds.unctad.org/intrastat>; UNCTAD, *Review of Maritime Transport*, various issues; and WTO, *International Trade Statistics, 2006*, Selected long-term trends, table II.1.

America (5.7 per cent). These regional growth rates, however, conceal differences in individual performances. For example, while GDP growth in North Africa accelerated in 2006, it remained steady in South Africa and decelerated in sub-Saharan Africa.

Despite the positive economic performance recorded in 2006, the world economy slowed down during the second half of the year. This deceleration is expected to last through 2007, with growth remaining subject to world economic imbalances, energy security and the hard or soft landing of the United States economy.

## 2. Merchandise trade<sup>2</sup>

### *Recent developments in international trade*

In 2006, world merchandise trade recorded a robust growth of 8 per cent (see table 2). This is double the

growth rate of world GDP, and highlights the effect of globalization and the deepening of economic integration. The growth of world merchandise trade was particularly sustained by growing import demand from China and the economies in transition of the Commonwealth of Independent States (CIS). While the export growth of the economies in transition remained sluggish in 2006, exports from Asia, especially China (22 per cent), and North America (8.5 per cent) accelerated. The United States reported its best export performance in a decade (10.5 per cent) as a result of the recovery of global investment. In 2006, the United States ranked as the world's second leading exporter and first leading importer while China ranked third, in terms of both exports and imports (in value). Growing industrialization in China and the dynamic growth of other developing economies such as India have led to the emergence of new trade patterns. Developing countries and economies in transition are increasing their global market shares.

Table 1

World economic growth, 2003–2006<sup>a</sup>

Region/country <sup>b</sup>	2003	2004	2005	2006 <sup>c</sup>
<b>WORLD</b>	2.6	4.1	3.4	4.0
<b>Developed countries</b>	1.8	3.1	2.4	3.0
<i>of which:</i>				
<b>United States</b>	2.5	3.9	3.2	3.3
<b>Japan</b>	1.4	2.7	1.9	2.2
<b>European Union</b>	1.2	2.3	1.7	3.0
<i>of which:</i>				
<b>Germany</b>	-0.2	1.3	0.9	2.8
<b>France</b>	1.1	2.3	1.2	2.2
<b>Italy</b>	0.0	1.1	0.0	1.9
<b>United Kingdom</b>	2.7	3.3	1.9	2.8
<b>Developing countries</b>	5.1	7.1	6.5	6.9
<b>Developing countries, excluding China</b>	4.0	6.4	5.6	5.9
<b>Economies in transition (CIS and South-East Europe)</b>	7.1	7.7	6.4	7.5

Source: UNCTAD secretariat calculations based on UNCTAD *Handbook of Statistics* database and UN DESA LINK *Global Economic Outlook 2007* (May 2007).

<sup>a</sup> Calculations are based on GDP at constant 2000 dollars.

<sup>b</sup> Region and country groups correspond to those defined in the UNCTAD *Handbook of Statistics 2004*.

<sup>c</sup> Preliminary.

Table 2

**Growth in the volume of merchandise trade, by geographical region, 2004–2006**  
(Percentages)

<b>Exports</b>			<b>Countries/regions</b>	<b>Imports</b>		
<b>2004</b>	<b>2005</b>	<b>2006</b>		<b>2004</b>	<b>2005</b>	<b>2006</b>
8.0	6.0	8.0	<b>WORLD</b>	n.a.	n.a.	n.a.
8.0	6.0	8.5	<b>North America</b>	10.5	6.5	6.5
7.0	4.0	7.5	<b>European Union (25)</b>	6.5	3.5	6.5
8.0	5.0	1.0	<b>Africa and Middle East</b>	14.0	13.0	8.5
13.0	8.0	2.0	<b>Latin America</b>	18.5	14.0	10.5
15.5	11.5	13.5	<b>Asia</b>	14.5	8.0	8.5
24.0	25.0	22.0	<b>China</b>	21.5	11.5	16.5
12.0	3.5	3.0	<b>Commonwealth of Independent States</b>	16.0	18.0	20.0

Source: WTO Press Release, World Trade 2006, Prospects 2007, April 2007.

In 2006, 13 of the top 30 leading exporters and importers (in value), included economies in transition and developing countries, mainly from Asia. They are also reinforcing their position as important suppliers of primary commodities and raw materials, including in new markets, and are emerging as important manufacturing centres. For example, Africa and Latin America are increasingly becoming important suppliers of China's primary commodity needs, while China's consumer goods are increasingly exported to Africa and Latin America. In 2005, over 80 per cent of total African imports (in value terms) into China consisted of fuel and other mining products, while close to 100 per cent of China's exports to Africa were machinery, manufactures and textiles.

Trade in manufactured goods, which in turn determines containerized seaborne trade, continues to grow significantly, in terms of volume (7 per cent) and of value (10 per cent). In 2005, the share of manufactured goods exported globally amounted to 72 per cent of the value of world exports (\$7.3 trillion out of a total of \$10.1 trillion).

For major developed countries, export growth was driven by increased global demand for capital goods. Despite currency appreciation, European exports grew at an estimated rate of 7.5 per cent, with double-digit growth rates being registered by South-East European countries that benefited from increased trade within the EU. Exports from Japan grew by 10 per cent mainly as a result of trade in capital and automobile-related goods.

The combined exports of Africa and the Middle East stagnated in 2006 for a number of reasons, including production constraints affecting some oil-producing countries and the Israeli–Lebanese conflict in the Middle East. Exports from Latin America grew by 2 per cent as compared with 8 per cent in 2005. Except for Asia, import growth in the remaining developing regions and the economies in transition outpaced growth in exports.

Demand for transport services naturally grows in tandem with growth in world trade, and receives a boost from the fragmentation and globalization of international production. As shown in figure 1, the positive correlation between GDP, merchandise exports and maritime transport is evident. Against this background, growth in world GDP and merchandise trade directly impacts on seaborne trade and demand for shipping services. As can be seen in the following section, with strong world GDP growth in 2006 and international merchandise trade growing even faster, demand for shipping services and the volume of seaborne trade have also expanded.

## B. WORLD SEABORNE TRADE

### 1. Overall seaborne trade

In 2006, goods loaded at ports worldwide are estimated to have reached 7.4 billion tons (see table 3 and figure 2). This is equivalent to an annual growth rate of 4.3 per cent. Crude oil accounted for 26.9 per cent of total goods loaded, while petroleum products represented 9.2 per cent.

Table 3

#### Development of international seaborne trade, selected years

(Millions of tons)

Year	Tanker cargo	Dry cargo	Main bulks <sup>a</sup>	Total (all cargoes)
1970	1 442	1 124	448	2 566
1980	1 871	1 833	796	3 704
1990	1 755	2 253	968	4 008
2000	2 163	3 821	1 288	5 983
2006 <sup>b</sup>	2 674	4 742	1 828	7 416

Source: Estimated by UNCTAD secretariat on the basis of annex II and data supplied by specialized sources.

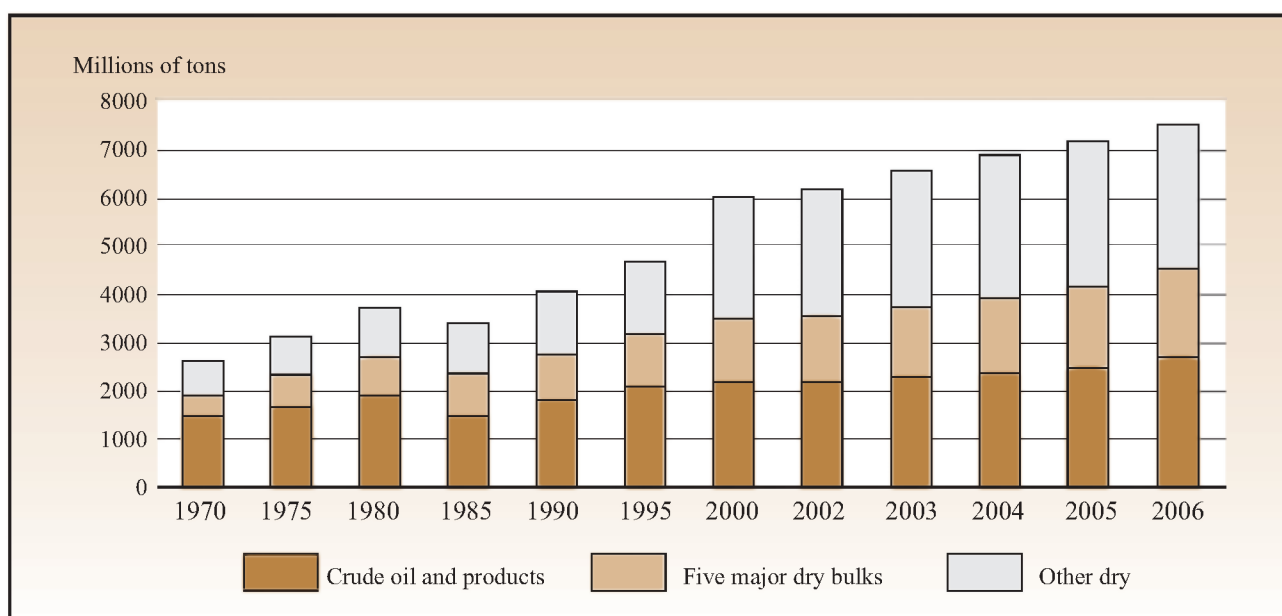
<sup>a</sup> Iron ore, grain, coal, bauxite/alumina and phosphate.

<sup>b</sup> Estimates.



Figure 2

**International seaborne trade for selected years**  
(Millions of tons loaded)



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

The larger balance of world goods loaded (63.9 per cent) was made up of dry cargo, including bulk, breakbulk and containerized goods. A geographical breakdown of total goods loaded by continent highlights the continued preponderance of Asia, with a share of 39.1 per cent followed in descending order by America (21.5 per cent), Europe (19.6 per cent), Africa (10.7 per cent) and Oceania (9.1 per cent).

## 2. World shipments by country groups

The breakdown of the 7.4 billion tons of world seaborne trade by major cargo segments and country groups is shown in table 4 and figure 3. A further breakdown providing insight into the regional distribution of those shipments can be found in annex II.

### *Developed countries*

In 2006, the share of developed countries in terms of goods loaded was 36.2 per cent, while their share of goods unloaded was 57.9 per cent. For those countries, crude oil and petroleum products accounted respectively for 5 and 27.4 per cent of world crude oil and products loaded. Europe remained the most important loading area

among developed regions, with a share of 6.3 per cent of total world oil loaded. In terms of goods unloaded, 62.2 per cent of crude oil and 51.1 per cent of petroleum products were unloaded in ports located in developed countries. North America is the largest receiver of oil (26.6 per cent), closely followed by Europe (22.3 per cent) and Japan (8.9 per cent).

In the dry bulk segment, the share of developed countries' global shipments amounted to 50.5 per cent for goods loaded and 57.2 per cent for goods unloaded. Europe remained the largest dry cargo market, accounting for, respectively, 23.3 per cent and 33.9 per cent of world dry cargo loaded and unloaded. Other loading areas included the United States (6.1 per cent), Canada (3.2 per cent), Australia (13.3 per cent) and New Zealand (0.4 per cent).

### *Developing countries*

In 2006, the share of developing countries in world goods loaded was 61.1 per cent, while their share of goods unloaded was 41.4 per cent. Shares of developing countries were 89.5 per cent for crude oil and 66.2 per cent for petroleum products. For goods unloaded, the

Table 4

## World seaborne trade in 2006, by type of cargo and country group

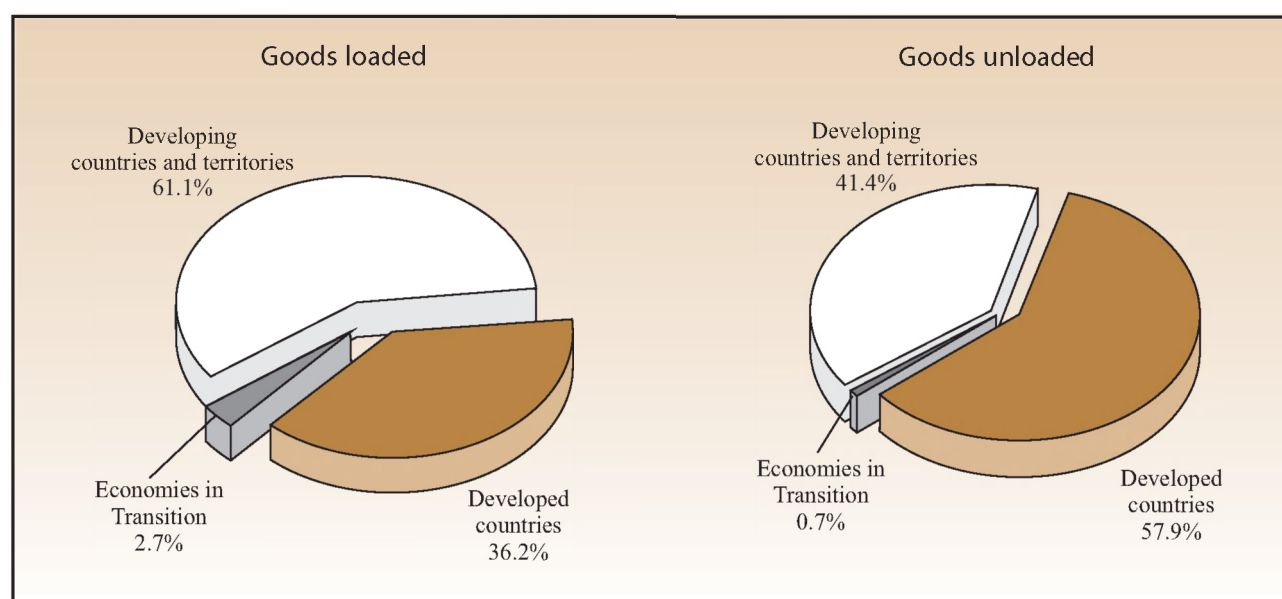
Country group	Goods loaded				Goods unloaded			
	Total	Crude	Products	Dry cargo	Total	Crude	Products	Dry cargo
<b>Millions of tons</b>								
<b>World</b>	7 415.5	1 990.8	683.0	4 741.7	7 460.4	1 940.9	683.5	4 836.0
<b>Developed countries</b>	2 683.1	100.0	187.3	2 395.8	4 323.0	1 207.4	349.6	2 766.0
<b>Economies in transition</b>	202.6	108.4	43.3	50.9	50.2	4.3	2.8	43.1
<b>Developing countries</b>	4 529.6	1 782.4	452.4	2 294.8	3 087.2	729.2	331.1	2 026.9
<b>Africa</b>	791.7	477.4	53.1	261.2	305.9	54.5	33.5	217.9
<b>America</b>	1 052.5	284.0	102.1	666.4	311.6	71.3	52.4	187.9
<b>Asia</b>	2 678.8	1 016.7	297.1	1 365.0	2 457.4	603.4	238.7	1 615.3
<b>Oceania</b>	6.6	4.3	0.1	2.2	12.3	-	6.5	5.8
<b>Percentage share</b>								
<b>World</b>	100.0	26.9	9.2	63.9	100.0	26.0	9.2	64.8
<b>Developed countries</b>	36.2	5.0	27.4	50.5	57.9	62.2	51.1	57.2
<b>Economies in transition</b>	2.7	5.4	6.3	1.1	0.7	0.2	0.4	0.9
<b>Developing countries</b>	61.1	89.5	66.2	48.4	41.4	37.6	48.4	41.9
<b>Africa</b>	10.7	24.6	7.8	5.5	4.1	2.8	4.9	4.5
<b>America</b>	14.2	14.3	14.9	14.1	4.2	3.7	7.7	3.9
<b>Asia</b>	36.1	51.1	43.5	28.8	32.9	31.1	34.9	33.4
<b>Oceania</b>	0.1	0.2	-	-	0.2	-	1.0	0.1

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries, the port industry and other specialized sources.

Figure 3

## World seaborne trade, by country group

(Percentage share in tonnage)



Source: Compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries and other specialized sources.



shares were 37.6 per cent for crude oil and 48.4 per cent for petroleum products. As to world seaborne dry cargo, 48.4 per cent of this cargo was loaded at ports located in developing regions. These countries accounted for 41.9 per cent of world unloaded dry cargo. Developing countries in Asia were the largest traders, accounting for 36.1 per cent of world goods loaded and 32.9 per cent of goods unloaded. The share of developing countries in America is estimated at 14.2 per cent of world goods loaded and 4.2 per cent of goods unloaded. The shares of African countries are estimated at 10.7 and 4.1 per cent of goods loaded and unloaded respectively. Economies in transition accounted for 2.7 per cent of world goods loaded and 0.7 per cent of world goods unloaded. Oil shipments loaded at ports in those economies are estimated to have reached 5.7 per cent of total world oil loaded, reflecting in particular oil shipped from the Black and Baltic Seas. The share of developing Oceania remained negligible, and this reflects the sizes of their economies.

A breakdown by type of trade indicates the importance of developing Asia. Its shares of 2006 world loadings of crude oil and petroleum products are estimated at 51.1 per cent and 43.5 per cent, respectively. This reflects the importance of Western Asia producers and refining activity in the Far East. The second largest crude oil exporter among developing countries was Africa, with a share of world loadings estimated at 24.6 per cent, followed by developing America, with a share of 14.3 per cent. In contrast, regarding world petroleum products loaded, the share of developing America was estimated to be higher, at 14.9 per cent as against 7.8 per cent for Africa. In terms of dry cargoes loadings, developing Asia also accounted for the largest share, estimated at 28.8 per cent, followed by developing America (14.1 per cent) and Africa (5.5 per cent).

For crude oil unloaded, the share of developing countries in Asia was 31.1 per cent of the world total. America and Africa accounted, respectively, for 3.7 and 2.8 per cent. For petroleum products unloaded, the corresponding shares for developing countries in Asia, America and Africa were 34.9 per cent, 7.7 per cent and 4.9 per cent respectively. Developing Oceania imported negligible amounts of crude oil, while its share of world petroleum products imports is estimated to have reached 1 per cent in 2006.

These figures highlight the differences in the structure of trade between the various country groupings. Unlike developing countries, developed countries accounted for a larger share of world goods unloaded.

### 3. Demand for shipping services

Table 5 provides data on total demand for shipping services measured in ton-miles. World seaborne trade is estimated to have reached 30,686 billion ton-miles in 2006, having grown by 5.5 per cent. Demand for transportation of crude oil and oil products resulted in ton-miles for those commodities increasing by 3 per cent in 2006 (5 per cent in 2005). For all dry cargoes, the ton-miles increased by 6.8 per cent. For the five main dry bulks, ton-miles increased by 7 per cent. For the remaining dry cargoes (minor bulks and liner cargoes) ton-miles expanded by 5.3 per cent. With an increasing share of China's imports of oil products originating in Latin America and West Africa, ton-miles demand associated with this trade increased. Ton-miles may be expected to grow faster, with Australia's iron ore export capacity reaching its limits and China's iron ore imports increasingly having to be sourced from distant locations such as Brazil. Furthermore, the emergence of China as a net importer of coal means that Japan, the Republic of Korea and Taiwan Province of China may have to find alternative sources for traditional coal imports from China and increase their imports from Australia and Indonesia. Again, this is expected to result in increased ton-miles, although volumes may remain unchanged. Thus, long-haul trade of energy and raw materials in support of Asia's, and particularly China's, growth has created a demand for shipping services, a trend that is expected to continue.

### C. SECTORS OF WORLD SEABORNE TRADE

As previously noted, demand for seaborne transport is driven by world economic growth and trade. The following sections consider 2006 developments affecting the various economic sectors (crude oil and petroleum products, dry bulk and other cargoes) that generate cargo to be carried by sea.

Table 5

## World seaborne trade in ton-miles, selected years (1970–2006)

(Billions of ton-miles)

Year	Oil			Iron ore	Coal	Grain <sup>a</sup>	Five main dry bulks	Other dry cargoes	World total
	Crude	Products	Crude plus products						
1970	5 597	890	6 487	1 093	481	475	2 049	2 118	10 654
1980	8 385	1 020	9 405	1 613	952	1 087	3 652	3 720	16 777
1990	6 261	1 560	7 821	1 978	1 849	1 073	5 259	4 041	17 121
2000	8 180	2 085	10 265	2 545	2 509	1 244	6 638	6 790	23 693
2001	8 074	2 105	10 179	2 575	2 552	1 322	6 782	6 930	23 891
2002	7 848	2 050	9 898	2 731	2 549	1 241	6 879	7 395	24 172
2003	8 390	2 190	10 580	3 035	2 810	1 273	7 464	7 810	25 854
2004	8 795	2 305	11 100	3 444	2 960	1 350	8 139	8 335	27 574
2005	9 239	2 510	11 749	3 711	3 124	1 385	8 615	8 730	29 094
2006	9 516	2 635	12 151	4 120	3 372	1 436	9 341	9 195	30 686

Source: Fearnleys, *Review 2006*.<sup>a</sup> Includes wheat, maize, barley, oats, rye, sorghum and soya beans.

## 1. Seaborne trade in crude oil and petroleum products<sup>3</sup>

### General developments

World shipments of tanker cargoes reached 2.67 billion tons, of which about three quarters were crude oil and the remaining share was made up of petroleum products. The share of tanker trade in total 2006 world seaborne trade amounted to 36.1 per cent. An overview presenting key oil and gas producers and major traders is provided in table 6.

### Crude oil production

Crude oil production measured in million barrels per day (mbpd) increased for four consecutive years before reaching 81.7 mbpd in 2006. Although, world crude oil output grew by 1.2 per cent in 2005, it expanded at a lower rate in 2006 (0.5 per cent). Major oil producers are located in Western Asia, North America and Africa.

The members of the Organization of the Petroleum Exporting Countries (OPEC)<sup>4</sup> accounted for 41.9 per cent of global oil production in 2005 and 2006. Their

production reached 34.1 mbpd in 2005 and 34.2 mbpd in 2006. Thus, non-OPEC countries continued to supply the largest share of global oil production (58.1 per cent). In 2005 production in the OECD countries declined by 4.3 per cent, while in 2006 it fell by 2.2 per cent. As a result, its market share dropped to 23.7 per cent in 2006 compared with 24.4 per cent in 2005.

### OPEC members

Western Asia's and Africa's major oil producers are also members of OPEC. Oil production in Western Asian OPEC countries increased in 2005 and 2006, reaching respectively, 23.7 mbpd and 24 mbpd. The largest world oil producer, Saudi Arabia, accounted for 13.3 per cent of the world total oil production in 2006. It produced 111.1 mbpd in 2005 and 108.6 mbpd in 2006. Production in Kuwait increased by 6.5 per cent in 2005 and 2.3 per cent in 2006; this resulted in market shares of 3.2 and 3.3 per cent in 2005 and 2006 respectively. The Islamic Republic of Iran maintained its production level at 4.2 mbpd before moderately increasing to 4.3 mbpd in 2006. The United Arab Emirates increased production in 2005 and 2006 to reach about 3 mbpd. Despite an impressive performance in 2004, oil production in Iraq

Table 6

**Oil and natural gas: major producers and traders, and distribution of world refineries' capacities in 2006**  
*(World market share in percentages)*

	Percentage
<b>Major oil producers</b>	
OPEC	41.9
OECD	23.7
Non-OPEC and Non-OECD	34.4
<b>Major oil exporters</b>	
Western Asia	38.6
Africa	15.6
Economies in transition	13.6
Europe	11.0
North America	10.9
Asia	7.8
<b>Major oil importers</b>	
North America	28.8
Europe	25.7
Japan	9.9
China	7.4
Other Asia-Pacific	21.2
<b>Major natural gas producers</b>	
United States and Russian Federation	39.7
Asia Pacific	21.8
West Asia	19.4
Economies in transition	16.4
Canada and Mexico	13.3
Africa	10.4
Europe	10.3
Latin America	8.3
<b>Major natural gas exporters</b>	
Qatar	14.9
Indonesia	14.0
Malaysia	13.3
Algeria	11.7
Australia	8.5
Nigeria	8.3
Trinidad and Tobago	7.7
Oman	5.5
Brunei	4.5
<b>Major natural gas importers</b>	
Asia	64.0
Europe	25.0
North America	8.3

Table 6 (continued)

	Percentage
<b>Major refinery capacities</b>	
OECD	53.4
Europe and economies in transition	27.8
United States	20.3
Canada and Mexico	4.4
Western Asia	8.5
China	8.2
Latin America	7.1
Japan	5.4
Africa	3.2

*Source:* UNCTAD secretariat on the basis on data published in BP *Statistical Review of World Energy*, June 2007, as well as other specialized sources, including the International Energy Agency and the Organization of the Petroleum Exporting Countries.

declined by 9.7 per cent in 2005, before a slight recovery in 2006, to reach 2 mbpd.

African OPEC producers increased their production in 2005 to 6.3 mbpd and maintained this level throughout 2006. Algeria produced 2 mbpd in both 2005 and 2006, while the output of the Libyan Arab Jamahiriya reached 1.7 mbpd in 2005 and 1.8 mbpd in 2006. Production in Nigeria increased by 3.1 per cent to reach 2.6 mbpd in 2005 before falling by 4.6 per cent in 2006.

OPEC members outside Western Asia and Africa (Indonesia and Venezuela) marginally increased their production in 2005 to reach about 4.1 mbpd (0.2 per cent increase). In 2006, oil output levels fell in both Venezuela and Indonesia, to 2.8 mbpd and 1 mbpd respectively.

The share of OPEC members outside Western Asia increased slightly in 2005 to 30.6 per cent before falling back to 29.8 per cent in 2006 as the result of reduced production in Nigeria, Indonesia and Venezuela.

#### *OECD members*

OECD members' production in North America dropped by 3.1 per cent in 2005 to reach 13.7 mbpd and remained steady in 2006. The United States' production fell by 4.6 per cent in 2005 and 0.3 per cent in 2006. Accordingly, its market share decreased from 9 per cent in 2004 to 8.5 per cent in 2005 and 8.4 in 2006. Similarly,

Canada's production dropped by 1.4 per cent in 2005 and 3.5 per cent in 2006, while that of Mexico decreased by 1.7 per cent in 2005 and 2 per cent in 2006. Production in the EU dropped from 2.8 mbpd in 2004 to 2.5 mbpd in 2005 and 2.3 mbpd in 2006. As a result, the group's share of global production fell back from 3.4 per cent in 2004 to 3.1 per cent in 2005 and to 2.8 per cent in 2006. Norway's production also fell — from 3.2 mbpd to 3 mbpd in 2005 and 2.8 mbpd in 2006.

#### *Other producers*

The total production of non-OPEC and non-OECD countries, including the Russian Federation, China and Brazil, reached 27.4 mbpd in 2005 before increasing by 2.6 per cent in 2006 to 28.1 mbpd. Accordingly, their market share increased slightly, reaching 34.4 per cent in 2006. The Russian Federation increased its production by 2.8 per cent to about 9.6 mbpd in 2005. Production increased further in 2006, although at a slower pace, to reach about 9.8 mbpd. These increases resulted in marginal improvements in its market share, which amounted to 11.8 per cent in 2005 and 12 per cent in 2006. Strong performances in both 2005 and 2006 included those of Angola (which joined OPEC in January 2007) and Azerbaijan. In 2005, Azerbaijan increased its oil production by 43.5 per cent to reach 4.5 mbpd, while Angola's output increased by 26.3 per cent to 1.2 mbpd. In 2006, Azerbaijan's production expanded by 44.7 per cent, while that of Angola grew at the lower rate of 14.3 per cent. Azerbaijan's market

share of world oil production doubled between 2004 to 2006. Angola's market share also increased — from 1.2 per cent in 2004 to 1.7 per cent in 2006.

Other oil producers have recorded good performances over the past two years. Brazil increased production to reach 1.8 mbpd in 2006, resulting in a market share of 2.2 per cent. China increased production by 4.2 per cent in 2005 and by 1.6 per cent in 2006. Its market share increased to 4.5 per cent in 2005 and was maintained throughout 2006. Other small producers varied in their performances, either maintaining or marginally increasing their market shares. Equatorial Guinea increased production in 2005 by 3.8 per cent and by 0.6 per cent in 2006. Despite its positive performance of 2004 (17.3 per cent increase), Viet Nam's oil production fell by 6.7 per cent in 2005 and by 7.8 per cent in 2006. Sudan increased production by 9.2 per cent in 2005 and by 11.8 per cent in 2006. Although its share of world production remains marginal at about 1.1 per cent, Peru performed well, with an increase of 18.1 per cent in 2005 and 4.5 per cent in 2006.

There were a number of developments during the year that impacted on global production trends. On the supply side, at the end of 2006, OPEC announced for the first time in two years that its members' crude oil output was going to be cut by 1.2 mbpd. It later announced another cut — of 0.5 mbpd — effective as of 1 February 2007. In terms of additional capacity, the normalization of diplomatic relations with the Libyan Arab Jamahiriya indicates a potential for increased global oil supply. During the year, the United States, restored full diplomatic relations (broken off in 1980) with that country, and lifted trade sanctions. As a result, United States investments are targeting the country's oil sector. Another development relates to the operation for the first time of Sudan's new crude oil pipeline, operated by a joint Chinese and Malaysian consortium. By linking an oil field to an export terminal and the port of Sudan, the system is expected to result in increased production.

The dominant concern in 2006 was the spike in oil prices, which reached record highs during the summer of 2006 when Brent crude reached \$78.69 per barrel. Meanwhile, the OPEC annual basket price<sup>5</sup> stood at about \$61 per barrel in 2006. There is long-term pressure on oil prices: prices tend to rise as a result of intensified demand, especially from strongly growing developing economies such as China and India, and slow adjustment of supply. Furthermore, prices rose over the last year owing to the

political tension in the Middle East and production outages in Nigeria and Alaska. High volatility resulted in oil prices dropping at the end of summer and rising again by the end of the year. The OPEC monthly basket prices fell from \$68.81 in August to \$54.97 in October before moving up to \$57.97 in December. The fall in prices was due to progress made in negotiating with the Islamic Republic of Iran, increases in non-OPEC oil supply and the easing of the political conflict in Middle East.

On the demand side, the International Energy Agency (IEA) reported that world oil demand had increased marginally by 1 per cent and averaged 84.5 mbpd in 2006. Demand from NAFTA countries decreased marginally from 30.6 mbpd in 2005 to 30.5 mbpd in 2006, while OECD Pacific, China and other Asia saw their oil demand increase from 24 mbpd in 2005 to 24.5 mbpd in 2006. Oil demand in Africa remained steady at 2.9 mbpd.

#### *Refinery developments*

Total throughput of world refineries reached about 74.4 mbpd in 2005 and close to 74.9 mbpd in 2006; this represented increases of 1.5 per cent and 0.7 per cent, respectively. Over half of the world's output is produced in OECD countries' refineries, although this share marginally decreased from 55.2 per cent in 2004 to 54.2 per cent in 2005 and 53.4 per cent in 2006.

The United States continues to be the largest producer, with a production of 15.2 mbpd in 2005 and 2006 (a 1.6 per cent decrease compared with 2004). These amounts are equivalent to a marginally lower market share of 20.5 per cent in 2005 and 20.3 per cent in 2006. Canada and Mexico recorded marginal drops in 2005 and 2006, but maintained their market shares of 2.5 per cent (Canada) and 1.9 per cent (Mexico). Together, NAFTA members are responsible for about 25 per cent of the 2005 and 2006 world refineries' output.

The second largest contributor to refineries' output was Europe and the Russian Federation, with a production of 20.9 mbpd in 2005 (a 1.9 per cent increase) and 20.8 mbpd in 2006 (a 0.5 per cent decrease). These were equivalent to a market share of 28 per cent in 2005 and 27.8 per cent in 2006. Refineries in Japan temporarily reversed the 2004 declining trend and expanded production by 2.4 per cent in 2005, before decreasing again by 2.6 per cent in 2006 to reach 4 mbpd.



In 2005, the largest increase in output was achieved by China (9.9 per cent), followed by Africa (7.1 per cent). While Africa's output in 2006 dropped by 2.9 per cent to reach 2.4 mbpd, China's production continued to expand, albeit at a slower rate (4 per cent), to reach 6.1 mbpd. Their 2006 market shares were 8.2 per cent (China) and 3.2 per cent (Africa). Refineries in Latin America saw their output marginally decrease in both 2005 (a 0.5 per cent decrease) and 2006 (1 per cent). Accordingly, the region's market share dropped from 7.4 per cent in 2004 to 7.3 per cent in 2005 and 7.1 per cent in 2006. Refineries in Western Asia and Australasia evolved in opposite directions throughout 2005 and 2006, with the former increasing output and the latter recording a marked decline. The output of refineries in Western Asia expanded in both 2005 and 2006 when it reached 6.4 mbpd. In Australasia, output dropped by 7.5 per cent in 2005, reaching 0.7 mbpd before decreasing by a further 4.2 per cent in 2006. This resulted in an increased market share for Western Asia — from 8.2 per cent in 2005 to 8.5 per cent in 2006. Australasia's market share dropped further and fell below 1 per cent in 2006.

A number of initiatives that aim to expand refinery capacity have been taken in various parts of the world. For example, over the past few years, India has increased its refinery capacity through the Reliance Petroleum Jamnagar refinery. Plans to expand the refinery seek to increase capacity from 0.6 mbpd to 1.18 mbpd in 2008. Elsewhere, Saudi Aramco signed two Memorandums of Understanding with Conoco Phillips and Total to build export-oriented refineries in Saudi Arabia. The output of those refineries is expected to meet the environmental standards of the United States and the European Union.

#### *Crude oil shipments*

In 2006, crude oil seaborne shipments continued to grow and are estimated to have reached 1.99 billion tons (see table 4). Major loading areas are mainly located in developing regions, with Western Asia continuing to be at the top of the list with 897.2 million tons, followed in descending order by West Africa (221 million tons), South America's northern and eastern seaboard (133.9 million tons), North Africa (133.8 million tons), the Caribbean and Central America (120.9 million tons), and Central Africa (109.8 million tons). Major unloading areas are located in developed regions, with North American ports estimated to have received 532.9 million tons and European and Japanese ports unloading respectively 446.9 million tons and 201 million tons. Major unloading

developing regions included South and East Asia with 439.4 million tons and South-East Asia with 126.3 million tons.

In May 2006, China received its first crude oil delivery from the new 600-mile pipeline linking it to Kazakhstan. Another development related to the Memorandum of Understanding signed by Kazakhstan and Azerbaijan to enable Kazakh crude oil exports to be routed through the recently inaugurated Baku–Tbilisi–Ceyhan pipeline. The pipeline provides an export route that is independent of the Russian pipeline system and the Bosphorus and Turkish Straits.

#### *Petroleum product shipments*

In 2006, world shipments of oil products continued to grow, and are estimated to have reached 683 million tons. Overall, shipments of oil products were affected by the global refinery capacity as well as by the milder weather conditions which impact on seasonal fuel consumption. Growth has been recorded in various parts of the world. For example, imports into North America remained strong in the first six months of 2006 owing to the continued impact of the 2005 hurricane season on United States refineries. However, during the last quarter of 2006, a drop in United States oil product imports was recorded. While imports into Europe also increased, China was the largest source of product tanker demand, with most of the supply being sourced from Latin America.

#### *Natural gas production*

World production of natural gas expanded by 2.8 per cent in 2005, and by 3.1 per cent in 2006, taking the total to 2,865.3 billion cubic metres (bcm). Expressed in million tons oil equivalent, these corresponded to 2,509 and 2,586.4 respectively. Together, the Russian Federation and the United States accounted for 39.7 per cent of total world production in 2006. These shares are slightly below the 2004 share of 41.3 per cent. Production in the United States decreased by 2.8 per cent in 2005 and grew by 2.4 per cent in 2006. The Russian Federation recorded output growth of 1.2 per cent in 2005 and 2.3 per cent in 2006, and reached 612.1 bcm. Together, the United States and the Russian Federation accounted for 39.7 per cent. Other producers supplied the balance (60.3 per cent share), thus increasing production by 5.3 per cent in 2005 and 3.6 per cent in 2006 when it reached 11,729 bcm in 2006. The share of these producers in

world total gas production increased, and reached 39.2 per cent in 2006.

Major developments in 2006 affecting the liquefied natural gas (LNG) market included the efforts to nationalize the natural gas industry in Bolivia, the second largest reservoir of natural gas in Latin America, which created concern about foreign investments in this sector.

#### *LNG shipments*

LNG shipments increased by 6.1 per cent in 2005 and grew at a faster rate in 2006 (11.8 per cent) to reach 211.1 bcm. Accordingly, LNG shipments expressed as a proportion of world production have increased over the past two years. Japan continued to be one of the main destinations of LNG shipments, with its 2005 LNG imports marginally decreasing before expanding in 2006 by 7.2 per cent to reach 81.9 bcm. The second largest importer of LNG is the Republic of Korea with 30.4 bcm in 2005 and 34.1 bcm in 2006. Together, imports into Japan and the Republic of Korea accounted for 56.5 per cent of 2005 world LNG shipments and 54.9 per cent of 2006 shipments. Other sizeable importers included the United States, Spain, France and India. The latter saw its imports treble between 2004 and 2006, reaching 8 bcm (3.8 per cent market share). During the same year, China started importing LNG (1 bcm) and is reported to have received its first shipment from Chevron at the country's first LNG-receiving terminal.

In 2005, the main LNG exporters were Indonesia (31.46 bcm), Malaysia (28.52 bcm), Qatar (27.10 bcm), Algeria (25.68), Australia (14.85 bcm), and Trinidad and Tobago (14.01 bcm). Other smaller exporters included Nigeria (12.04 bcm), Oman (9.22 bcm) and Brunei (9.15 bcm). During the same year, Egypt emerged as a new LNG supplier (6.93 bcm), the main destinations being Spain and the United States. In 2006, exports from Indonesia, Malaysia and Algeria dropped respectively by 6.0, 1.7 and 3.9 per cent. Star performers in 2006 included Egypt, whose exports more than doubled to reach 14.97 bcm, Nigeria (an increase of 46 per cent), Oman (an increase of 25.2 per cent) and Australia (a 21.4 per cent increase).

LNG capacity increased in 2006 owing to full production from projects starting up in 2005 and projects completed in 2006. For example, the Bayun Undan project in Timor-Leste started in 2006, and additional production from projects in Equatorial Guinea and Norway and more production in Nigeria and Qatar are expected to come

on stream in 2007. Qatar's LNG developments are expected to export about 77 million tons in 2011. Elsewhere, Peru LNG is constructing a liquefaction plant on Peru's Pacific coast. The facility is designed with a capacity of 4.4 million tons for export to Mexico and the United States. Meanwhile, Suez Energy International, part of the French industrial and energy company Suez, proposed a \$700 million plan to supply Chilean demand. The plan envisages the construction of a regasification terminal in northern Chile to supply local power plants. LNG production is also expected to expand in Trinidad once BP plans to add three offshore gas fields have been implemented. It should be noted that although a long list of LNG projects has been announced, many were delayed in 2006, because of delays in investment decisions and financial approval. Projects such as Stockman, Sakhalin and Gorgon have had their time plans revised.

In a separate development, a dispute over price between the Russian Federation and Ukraine, which disrupted the supply of gas to Eastern European countries, gave rise to concerns about Europe's energy security. The incident highlighted the importance for Europe of diversifying its energy sources; such diversification could, in the long term, positively impact on seaborne trade by boosting demand for shipping.

Energy is increasingly at the forefront of the international agenda since ensuring sustainability and security of future energy supply is a concern common to all nations, both developed and developing. At the same time, there is increasing recognition of negative externalities associated with growing energy use and demand, in particular in the light of concerns about climate change. Future supply of fossil fuels may be less secure than has been thought. In this context note should be taken of a detailed report that was published in July 2007 by the US National Petroleum Council. The Council is an authoritative industry association whose 175 members include the world's major oil companies.<sup>6</sup> The report, entitled "Facing the Hard Truths about Energy",<sup>7</sup> warns of a shortage of oil and gas by 2015 and suggests that, by the year 2030, 80 per cent of existing oil production will need to be replaced. Against this background, it urges that there be massive new investment in large-scale projects to develop and deliver energy over the coming years. Reference is made in this context to estimates by the IEA in its 2006 *World Energy Outlook*, according to which \$20 trillion will be required over the next 25 years (equivalent to \$3,000 per person), with more than half of this amount needed for electricity generation and distribution.

## 2. Dry cargo shipments<sup>8</sup>

### *General developments*

As shown in table 3, dry cargo shipments continued to increase in 2006 and are estimated to have reached 4.74 billion tons. These shipments accounted for 63.9 per cent of total goods loaded. The main five dry-bulk trade (iron ore, coal, grains, bauxite/alumina and rock phosphate) are estimated to have reached 1.83 billion tons. The difference is made up of minor bulks and liner cargoes, which together are estimated at 2.91 billion tons. Table 7 presents selected key players involved in the production, consumption and trade of some major bulks.

### *World crude steel production*

World crude steel production increased in 2006 (8.8 per cent) to reach 1.240 billion tons. This was the third consecutive year during which production of steel had surpassed the 1 billion ton mark. Growth was particularly driven by production in China, which expanded by 18.5 per cent and reached 418.8 million tons. This growth rate is very much in line with the 2000 rate and was the first expansion rate below 20 per cent since 2001. Accordingly, China remains the strongest growth area and the largest single market, with a share of world steel production of 33.9 per cent in 2006 (31 per cent in 2005). In addition, crude steel production in Asia benefited from production growth in India (7.6 per cent), Japan (3.3 per cent) and, to a lesser extent, the Republic of Korea (1.2 per cent). The output of those countries reached 116.2, 44 and 48.4 million tons respectively. These levels were equivalent to a market share of 9.4 per cent, 3.5 per cent and 3.9 per cent respectively.

With the exception of Latin America and Western Asia, where production levels remained steady or grew at marginal rates, other regions and countries recorded noticeable output growth in 2006. In NAFTA countries, production increased by 3 per cent, a reversal of the negative performance of 2005, when production declined by 4.8 per cent. Growth was led by the United States, which increased output by 3.6 million tons over the previous year (a 3.8 per cent increase). Canada and Mexico both reversed the 2005 trend and recorded similar growth rates (0.6 per cent). Similarly, crude steel production in Europe, including the EU (25), picked up speed and expanded by 6.2 per cent in 2006 to reach 454.4 million tons (36.6 market share). Strong growth was recorded by Luxembourg (27.3 per cent), Poland

(19 per cent), Slovakia (13.3 per cent) and Belgium (12.5 per cent). Some saw their output drop, while others maintained their production at the 2005 level. For example, production decreased by 8.5 per cent and 7.2 per cent in Finland and the Netherlands, respectively, and remained steady in Hungary (2 million tons), Portugal (1.4 million tons), Norway (0.7 million tons) and Slovenia (0.6 million tons). Major producers Italy and Germany increased production by 7.5 per cent and 6.1 per cent respectively. While Germany remained the sixth largest world crude steel producer, Italy gained one place and replaced Brazil as the ninth largest world crude producer. Other smaller European producers such as Serbia and Montenegro continued to expand production at an impressive rate of 38.5 per cent, reaching 1.8 million tons in 2006.

Producers in the economies in transition of the CIS increased production by 5.8 per cent to reach 119.7 million tons (9.6 per cent market share). The Russian Federation maintained its position as the fourth largest world crude steel producer with an increase of 6.8 per cent, reaching 70.6 million tons in 2006. Accordingly, its share of the total output of CIS economies in transition increased from 58.4 per cent in 2005 to 60 per cent in 2006. While Ukraine, Belarus and Uzbekistan recorded production growth 5.7, 10 and 16.7 per cent, respectively — production in Kazakhstan fell by 6.7 per cent.

In Western Asia, crude steel production increased marginally by 0.8 per cent to reach 15.4 million tons in 2006 (market share of 12.4 per cent). The Islamic Republic of Iran increased production by 4.2 per cent to reach 9.8 million tons (63.6 per cent of the region's total 2006 output). Saudi Arabia and Qatar registered a decline in production of 5 per cent and 9.1 per cent respectively.

Africa's crude steel output expanded by 3.3 per cent and reached 18.5 million tons in 2006 (1.5 per cent market share). South Africa, the largest regional producer, increased output by 2.1 per cent to reach 9.7 million tons. Egypt and Algeria recorded increases of 1.6 per cent and 20 per cent, respectively, while production in the Libyan Arab Jamahiriya decreased by 7.7 per cent. Together, their combined output amounted to 8.4 million tons, a 5 per cent increase over the previous year. In developed Oceania, Australia increased production by 1.3 per cent to 7.9 million tons, while production in New Zealand remained steady at 0.9 million tons. Steel production in South America remained



Table 7

**Major bulks: major producers, consumers and traders in 2006***(World market share in percentages)*

	Percentages
<b>Crude steel producers</b>	
Europe	36.6
China	33.9
Western Asia	12.4
India	9.4
Republic of Korea	3.9
Economies in transition	9.6
Japan	3.5
Republic of Korea	3.9
Africa	1.5
Latin America	3.6
Australia and New Zealand	0.7
<b>Crude steel consumers</b>	
Asia	54.1
China	32.0
EU (27)	16.6
NAFTA	13.9
Economies in transition	4.3
Western Asia	3.3
Latin America	2.5
Africa	1.9
<b>Iron ore exporters</b>	
Australia	37.7
Brazil	34.2
India	13.8
South Africa	3.9
Canada	3.1
Sweden	2.6
Mauritania	1.7
Peru	0.9
<b>Iron ore importers</b>	
China	45.6
Japan	18.9
Europe	18.8
<b>Coal exporters (thermal and coking)</b>	
Australia	32.3
Indonesia	22.0
South Africa	9.0
China	8.0
Colombia	8.0
Russian Federation	7.4
Canada and United States	6.0

Table 7 (continued)

	Percentages
<b>Coal importers (thermal and coking)</b>	
Europe and Japan	54.6
Republic of Korea	10.7
Taiwan Province of China	9.1
India	6.2
United States	4.2
Israel	1.8
China	1.3
Thailand	1.3
Chile	0.6
<b>Grain exporters (excluding soybeans)</b>	
Canada and United States	48.2
Argentina	9.4
Australia	9.5
Europe	8.8
China	3.3
<b>Grain Importers</b>	
Asia	33.3
Africa	21.7
Latin America	21.7
Western Asia	14.5
Europe	5.1

Source: UNCTAD secretariat on the basis of data supplied in Clarkson Research Services, *Shipping Review & Outlook*, Spring 2007, and *Dry Bulk Trade Outlook*, April and June 2007.

unchanged and totalled 45.3 million tons (3.6 market share). The drop in Brazil's production from 31.6 million tons in 2005 to 30.9 million tons in 2006 was offset by production increases by smaller producers such as Colombia (50 per cent), Peru (12.5 per cent), Chile (6.7 per cent) and Argentina (1.8 per cent).

It should be noted that 2006 was a year of worldwide growth and consolidation in the steel industry. During the year, Mittal Steel and Arcelor merged and consolidated. Arcelor-Mittal (Luxembourg) is now the leader in the steel industry with a crude steel production of 118 million tons, representing about 9.5 per cent of world steel output. Other recent steel mergers include Tata Steel (India) with Corus Group (Anglo-Dutch), the U.S. Steel purchase of Lone Star Technologies, Evraz (Russian Federation) and Credit Suisse stakes in Highveld Steel (South Africa) and Vanadium Corp (South Africa); SSAB Svenskt Staal AB (Switzerland) with Ipsco

(United States–Canada), Nucor (United States) with Harris Steel Group, Essar Global (India) with Algoma Steel (Canada) and Minnesota Steel (United States) and Ternium (Luxembourg) with Grupo Imsa (Mexico).

According to MEPS,<sup>9</sup> the composite price and index for all carbon steel products increased in 2006. The global index (1997 = 100) increased from 139.2 in January to 159.3 in December 2006. This is equivalent to prices increasing from \$555 per ton in January to \$635 per ton in December 2006. A similar trend was observed with respect to all carbon steel products index and prices in the EU, North America and Asia.

In a parallel development, world production of pig iron increased by 10 per cent in 2006 and reached 871.6 million tons. Growth in Asia (14.4 per cent), contributed the most to world output expansion. Asian production was led by China, with an increase of 19.8 per

cent and a world share of 46.4 per cent. Other major producers included European countries outside the EU with an increase of 15 per cent and the economies in transition with a 6.4 per cent increase. South and Central America is the only region to record a decline in output (3.9 per cent), reaching 36.8 million tons.

### *World steel consumption*

World apparent steel consumption expanded strongly in 2006 with a growth rate of 8.5 per cent, bringing the total to 1.113 billion tons. Steel use is expected to grow further in 2007 at a world growth rate of 5.9 per cent. While Asia, driven by China, remains the largest world consumer with a share of 54.1 per cent, consumption growth was stronger in other regions. Steel consumption in Asia expanded by 6.1 per cent, with China growing at 9 per cent. Steel consumption increased by 11.2 per cent in the EU (27), 14.9 per cent in other European countries, 12.9 per cent in the economies in transition, 11.7 per cent in Latin America, 11.1 per cent in NAFTA countries, 10.3 per cent in Western Asia and 9.7 per cent in Africa. In 2006, apparent steel consumption totalled 184.7 million tons in the EU (27), 154.9 million tons in NAFTA countries, 48.4 million tons in the economies in transition (4.3 market share), 36.8 million tons in Western Asia, 36 million tons in Latin America, 28 million tons in non-EU European countries and 21.6 million tons in Africa.

Forecasts for 2007 indicate a moderation in consumption in almost all regions with the exception of NAFTA countries, where consumption is expected to decline by 3.1 per cent, and Asia, where a rebound in Chinese consumption (13 per cent) is expected to drive upwards the entire region's demand (9.2 per cent).

### *Iron ore shipments*

An increase in steel production stimulates the growth of iron ore shipments, which are estimated to have reached 716 million tons in 2006. Australia and Brazil accounted, respectively, for 37.7 and 34.2 per cent of world iron ore exports and together are the source of almost three quarters of world shipments. Australian iron ore exports expanded by 12 per cent and reached 270 million tons, while exports from Brazil increased by 8.9 per cent to reach 245 million tons. The balance of world iron ore exports originated in India (99 million tons), South Africa (28 million tons), Canada (22 million tons), Sweden (19 million tons), Mauritania (12 million tons) and Peru (6.5 million tons). Those countries expanded their exports at various rates, ranging from a low of 4.8 per cent for

Canada and Peru to a high of 13.2 per cent for Mauritania.

China continues to be the main destination for world iron ore shipments, with 326.3 million tons unloaded in Chinese ports — an increase of 18.4 per cent over 2005 and a world share increase to 45.6 per cent. Other noticeable importers in 2006 included Japan with 135.3 million tons (a 2.3 per cent increase) and Western Europe with 134.6 million tons, an increase of 3.8 per cent. Lesser importers in Asia such as the Republic of Korea, Taiwan Province of China, Malaysia and Indonesia recorded marginal increases of respectively 0.4, 0.9, 0.2 and 0.1 million tons. Imports into Pakistan and the Philippines remained steady at 1.9 million tons and 4 million tons, respectively. In other parts of the world, iron ore imports either declined, as in Canada and the United States (a decrease of 12.4 per cent) and Latin America (a decrease of 3.9 per cent), or marginally increased, as in Africa (a 8.1 per cent increase) and Western Asia (a 0.7 per cent increase). Thus, 2006 imports totalled 43.9 million tons in the Republic of Korea, 15.5 million tons in Taiwan Province of China, 4 million tons in Malaysia, 15.2 million tons in Western Asia, 8 million tons in Africa, 9.2 million tons in Canada and the United States, and 7.4 million tons in Latin America.

Forecasts for 2007 indicate a continued strong world demand for iron ore, especially from China and Indonesia, the Netherlands, Spain and India. Iron ore imports into North America are expected to decrease, while Latin America is forecast to maintain its 2006 level of imports.

### *Coal shipments*

Coal shipments are estimated to have reached 728 million tons in 2006. Thermal coal is estimated at 542 million tons, representing 74.4 per cent of world coal shipments. Trade in coking coal made up the balance of coal shipments. Although shipments of coking coal have recorded no decline since 2001, their average annual growth rate over the last decade is estimated at 1.2 per cent as against 7.6 per cent for thermal coal shipments.

Together, Indonesia and Australia accounted for about 50 per cent of world thermal coal shipments. Since 2005, Indonesia has outpaced Australia as the largest thermal coal exporter, with its thermal coal exports rising by 48.7 per cent to reach 160.6 million tons in 2006 (a 22 per cent share). Thermal coal exports from Australia were estimated to have reached 110.1 million tons, an increase

of 3.5 per cent over 2005. Increased 2006 coal exports faced logistical constraints in Australia resulting in major congestion at some ports and terminals.

In addition to Indonesia and Australia, main thermal coal exporters in 2006 included South Africa (65.4 million tons), Colombia (58.3 million tons), China and the Russian Federation (53.7 million tons each), and Venezuela (7.8 million tons). With the exception of China and South Africa, which recorded a decline in their exports, the remaining exporters have either recorded growth over 2005 or maintained the same level.

Since 2005, exports of coking coal by Australia have accounted for about two thirds of world coking coal exports. Australia's exports are estimated to have marginally dropped in 2006 to 124.4 million tons as against 124.9 million tons in 2005 (a 32.2 per cent share of thermal and coking coal world shipments). A similar trend has been observed in respect of lesser exporters, such as Canada, the United States and China. Coking coal exports from those countries are said to have fallen by 2, 1.2 and 2 million tons respectively. Forecasts for 2007 point to a similar trend whereby growth in world coking coal exports is going to be stimulated by firm growth in Australian exports as well as greater expansion by minor exporters.

The main destinations of both types of coal shipments are Japan and the EU, which together accounted for about 54.6 per cent of 2006 world coal imports. In both cases, coal imports are dominated by coking coal, with a share of 65 per cent for Japan and 78.3 per cent for the EU. Lesser importers included, with respect to thermal coal, Taiwan Province of China (58.6 million tons), the Republic of Korea (56.2 million tons), the United States (30.9 million tons), India (23.4 million tons) and Israel (13 million tons). Imports into China and Thailand have almost doubled, reaching respectively 9.9 and 9.6 million tons. Imports into Chile reached 4.4 million tons, an increase of 37.5 per cent over 2005. As regards coking coal, lesser importers included India (21.9 million tons) and the Republic of Korea (21.8 million tons), which recorded a marginal increase compared with 2005, as well as Brazil, whose imports declined, reaching 10.3 million tons (a 4.6 per cent decrease).

#### *Grain market*

According to the International Grains Council (IGC), grain production, especially wheat, dropped from 1,649 million tons in 2005 to 1,602 million tons in 2006. While human consumption remained steady, industrial

demand for grain (maize) increased for biofuels production, particularly in the United States. The tight supply and the increased industrial demand resulted in higher world grain prices in 2006. Actions taken to address the shortage included, the application of greater support prices to stimulate output in India and specific measures taken by some exporters to ensure that domestic demand is adequately met. For example, it has been reported that the EU Commission reduced the rate at which it allocates grain export licences.

World grain shipments are estimated to have grown at a modest rate and were estimated to have reached 281 million tons in 2006. Wheat totalled about 109 million tons, while coarse grains such as corn, barley, soybeans, sorghum, oats, rye and millet totalled 172 million tons. In 2006, Canada and the United States accounted for 48.2 per cent of world grain exports, not including soybeans. Argentina's share amounted to 9.4 per cent, while Australia and the EU supplied, respectively, 9.5 per cent and 8.8 per cent of global exports. The balance of grain shipments was supplied by China (3.3 per cent share) and other minor exporters. Except for Australia and Argentina, all remaining exporters recorded increases during 2006.

In 2006, Asia remained the main unloading area for grain (excluding soybean) with 71.2 million tons, followed by Africa and Latin America with 46.5 million tons each, Western Asia (31 million tons), Europe including the EU (11 million tons) and the economies in transition of the CIS (6.2 million tons). Although major importers such as Japan and the Republic of Korea recorded increases in imports, the fall in China's (a 62.9 per cent drop) imports contributed to a decline of 2.6 per cent in Asia's grain imports. Despite the 6.2 per cent decrease in Egypt's imports, total 2006 imports into Africa expanded by 4.3 per cent mainly as a result of growth in the volumes of lesser importers such as Algeria (1.4 per cent increase), the Libyan Arab Jamahiriya (4.3 per cent increase), Morocco (7.3 per cent increase), Sudan (11.8 per cent increase), South Africa (23.5 per cent increase) and Tunisia (4.5 per cent increase).

Imports into Latin America in 2006 increased by 4.3 per cent. Import growth was stimulated by an increased demand from South America (15.7 per cent) especially from Peru (22.2 per cent), Colombia (16.2 per cent) and Brazil (9.7 per cent). During the same year, grain imports into Western Asia increased at a faster pace (6.7 per cent), driven mainly by strong import demand from Iraq (61.3 per cent increase), Saudi Arabia (19.2 per



cent increase) and Yemen (23.8 per cent). In 2006, grain imports into Europe fell by 16.7 per cent owing to weaker import demand in EU and non-EU countries, which dropped by 15.1 per cent and 23.1 per cent, respectively. Economies in transition recorded a 6.7 per cent import growth driven by countries other than the Russian Federation, which maintained its 2005 level of imports.

Forecasts for 2007 indicate that global grain shipments will remain steady, with a weaker import trend in Western Asia and Africa being offset by firm growth in all other regions especially, the EU and Latin America.

#### *Other bulk shipments*

World trade of bauxite and alumina is estimated to have reached 72 million tons in 2006, almost equally split between the two minerals. Guinea and Australia contain about half of the world's reserves of bauxite, while Guyana, Jamaica, Brazil and Suriname together account for 25 per cent. New reserves have been found in Viet Nam. Major loading areas of bauxite included Africa with a share estimated to be over 40 per cent, followed by the Americas (34.8 per cent) with Jamaica alone accounting for 13.2 per cent of the world total. Other exporting regions included Australia and Asia with shares of 12.4 per cent and 11.1 per cent respectively. Main importing areas were Europe and North America with world shares of 47.5 per cent and 41.7 per cent respectively. During the same year, main exporters of alumina were Australia with a share of 43.8 per cent, followed by the Americas (25.7 per cent). Jamaica alone accounted for 13.9 per cent of world alumina shipments and was mainly supplying demand in North America and Europe.

In 2006, production of world consolidated primary aluminium increased by 6.2 per cent to reach 33.2 million tons. Production in China continued its impressive expansion and increased by 19.8 per cent to reach 9.3 million tons. Production in other Asian countries also expanded, reaching 3.5 million tons, an increase of 11.3 per cent over 2005. Other regions have shown mixed results, with Africa, Latin America and Oceania increasing production by 6.3 per cent, 4.3 per cent and 1 per cent, respectively. In contrast to the previous year, production declined in both North America and Western Europe at a rate of 0.9 per cent for the former and 1.6 per cent for the latter.

In 2006, world trade of rock phosphate totalled 31 million tons. Morocco remains the major exporter, accounting

for almost half of the world shipments, which are estimated to be over 13 million tons. A large share of Morocco's shipments serves to meet the demand for rock phosphate in Europe and the Americas. Shipments by lesser exporters, such as countries in Africa and Western Asia, and the economies in transition, are estimated at about 4.0, 7.1 and 3.1 million tons respectively. Other minor exporters made up the balance. Major unloading areas included Asia, at about 13 million tons, Europe (9.5 million tons), the Americas (5.2 million tons) and Australia (0.8 million tons). To increase capacity, the Moroccan Government encourages private investment through joint ventures with European and Asian companies. It has been reported that in order to finance more developments, a 10year credit agreement worth \$20 million was signed with Proparco. Elsewhere, the potential offered by the Red Sea area as a major rock phosphate and fertilizer exporting area resulted in a spillover effect which benefits various businesses.

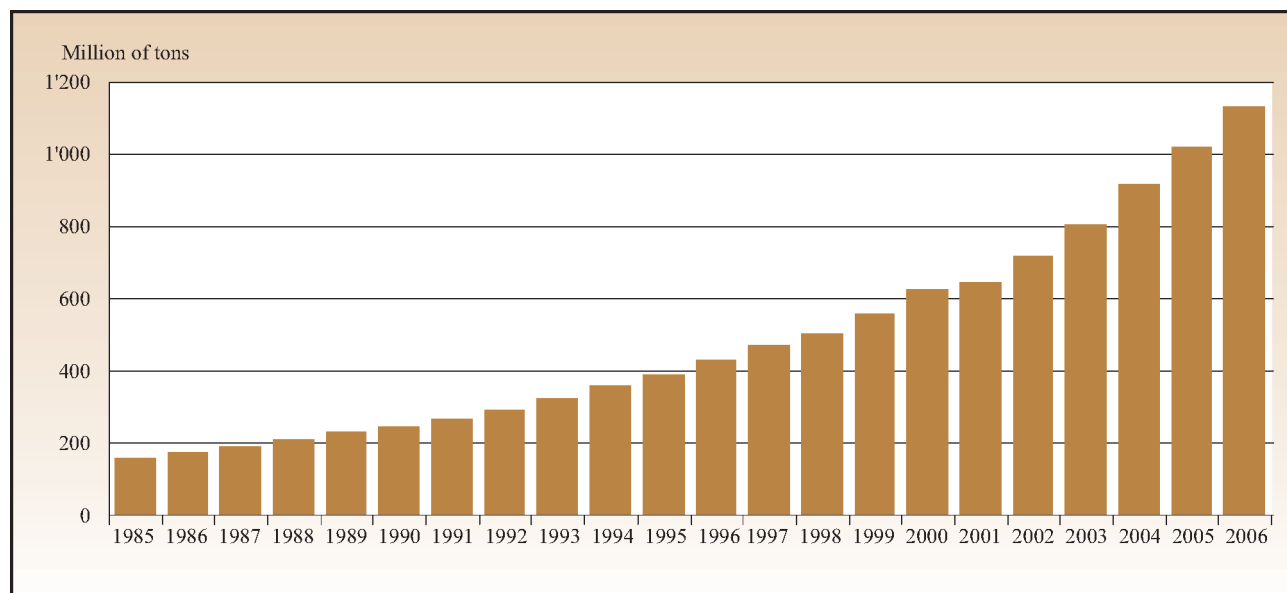
The minor dry bulks are estimated to have reached 949 million tons in 2006. The big increase came from steel products and cement exports from China. Shipments of steel and forest products are estimated to have increased by 8.3 per cent, reaching 429 million tons. Trade in steel products accounted for 59.4 per cent of this total and grew at a faster rate (12.8 per cent) than trade in forest products, which increased by 2.3 per cent in 2006. Other minor dry bulk trades involved agricultural products such as sugar, rice, tapioca and meals (oilseeds, soy and oil-cakes), as well as fertilizers (phosphates, potash, sulphur and urea). Volumes traded in 2006 are estimated to be slightly over 257 million tons, an increase of 2.8 per cent compared with the previous year. Shipments of various other minerals and bulky products (e.g. cokes, non-ferrous ores, metals, salt and cement) have also grown and were estimated to have totalled 263 million tons. Forecasts for 2007 indicate an overall steady growth, with shipments of manufactures, especially steel products, growing at a higher rate than the other specified minor bulk trades.

#### **4. Liner shipments of containerized cargoes<sup>10</sup>**

The balance of 1.96 billion tons of dry cargoes is increasingly being carried in containers along the liner trade routes. Clarkson Research Services estimated container trade, measured in cargo tons, to have grown in 2006 by 11.2 per cent, reaching 1.13 billion tons (see figure 4). Over the last two decades, global container trade (in tons) is estimated to have increased at an average annual rate of 9.8 per cent, while the share of

Figure 4

**International containerized trade growth, 1985–2006**  
(*Million tons*)



Source: Clarkson Research Services, Shipping Review Database, Spring 2007, p. 101.

containerized cargo in the world's total dry cargo is estimated to have increased from 7.4 per cent in 1985 to 24 per cent in 2006. In this context, it is important to note that trade in manufactured goods, which in terms of value accounted for 72 per cent of the 2005 world merchandise trade, is growing continuously.<sup>11</sup> According to Drewry Shipping Consultants, over 70 per cent of the value of world international seaborne trade is being moved in containers.

Against this background, containerised trade is set to expand and is likely to account for an increasingly larger share of world dry cargo. Drewry Shipping Consultants estimated global container trade in 2006 at about 129 million TEUs. A forecast ending in 2020 indicated that container trade is expected to reach 157 million TEUs in 2008, 219 million TEUs in 2012 and 287 million TEUs in 2016, and to exceed 371 million TEUs in 2020.

Developments along the major container trade routes illustrate this trend in 2006. The Pacific trade is estimated to have reached 18.5 million TEUs, an increase of

10.1 per cent over the previous year. The dominant leg, Asia–United States trade, was estimated at 13.9 million TEUs, up 12.1 per cent over the previous year. Trade in the opposite direction, United States–Asia, grew by 4.5 per cent and is estimated to have reached 4.6 million TEUs. The imbalance between the eastward and westward traffics seems to have deepened in 2006, with the Asia–United States cargo flows exceeding those in the reverse direction by 9.3 million TEUs as against 8 million TEUs in 2005. The next major trade route, the Asia–Europe, had trade estimated to have reached 18.3 million TEUs. Cargo flows on the dominant leg from Asia to Europe are estimated at 12.5 million TEUs in 2006, against 10.8 million TEUs in 2005. Traffic moving in the opposite direction grew by 5.4 per cent to an estimated total of 5.8 million TEUs.

The Transatlantic route linking Europe with North America is estimated to have reached 6.2 million TEUs in 2006. Trade on the dominant leg, with cargo moving westward from Europe to North America, increased by 2.6 per cent over the previous year, taking the total to 3.9 million TEUs. Flows in the opposite direction,

Europe–North America, expanded at a slightly slower pace and reached 2.3 million TEUs. The rapid growth of trade routes linking Asia and particularly China to North America and Europe highlights the continued role of dynamic Asian emerging economies as an engine of global trade, as well as the impact of new production processes and delocalization from conventional production centres in the West to Asian developing countries. The emergence of Viet Nam as an important contributor to this growth is worth noting, especially in the light of its recent accession to the WTO.

In addition to East–West trade routes, North–South trades and South–South trades are growing, a fact that reflects in the latter case the new geography of trade and the role of emerging developing economies as industrial centres. Total North–South trade in 2006 is estimated at 19.6 million TEUs. Cargo flows from Europe to West Africa were estimated at 0.6 million TEUs, while trade in the opposite direction amounted to 0.3 million TEUs. The former expanded at a faster rate than the latter, the estimated growth rates being 10 and 2 per cent respectively. Container trade

between Europe and Oceania is estimated to have increased by 6.3 per cent and reached 0.5 million TEUs in 2006. No major imbalances are observed in these trades. The larger trade routes linking North America and Europe to developing America are estimated at 5.2 million TEUs and 3.3 million TEUs respectively. Imbalances affecting these cargo flows are more pronounced, with trade originating in developing America amounting to double the trade departing from Europe and North America.

Container flows between and within developing regions are expanding at a faster rate. For example, intra-Asia trade is estimated to have grown in 2006 by 8.8 per cent, reaching 8.1 million TEUs. The volumes are expected to grow even faster with delocalization of production from China to less expensive Asian countries such as Viet Nam and India. In November 2006, 48 African countries signed trade agreements with China. This indicates the potential for growth that lies ahead for South–South containerized trade, with China importing raw materials and Africa importing consumer goods from China.

### Endnotes

- <sup>1</sup> For a more comprehensive overview of world economic development, see UNCTAD's *Trade and Development Report*, 2007, [www.unctad.org](http://www.unctad.org).
- <sup>2</sup> Based on information published by the WTO in the *World Trade 2006, Prospects 2007*, Press Release, April 2007; WTO Statistics Database, *International Trade Statistics, 2006*; and *World Trade Report, 2006* ([www.wto.org](http://www.wto.org)).
- <sup>3</sup> UNCTAD secretariat, based on various specialized sources, including BP *Statistical Review of World Energy*, 2005, 2006 and 2007 ([www.bp.com](http://www.bp.com)).
- <sup>4</sup> Algeria, Indonesia, Islamic Republic of Iran, Iraq, Kuwait, Libyan Arab Jamahiriya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates and Venezuela. Angola joined OPEC on 1 January 2007.
- <sup>5</sup> The OPEC Reference Basket (ORB) was implemented in June 2005 and is made up of the following: Saharan Blend (Algeria), Minas (Indonesia), Iran Heavy (Islamic Republic of Iran), Basra Light (Iraq), Kuwait Export (Kuwait), Es Sider (Libyan Arab Jamahiriya), Bonny Light (Nigeria), Qatar Marine (Qatar), Arab Light (Saudi Arabia), Murban (United Arab Emirates) and BCF 17 (Venezuela).
- <sup>6</sup> These include ExxonMobil, Chevron, ConocoPhillips, Occidental Petroleum, Shell and BP.
- <sup>7</sup> A copy of the report can be downloaded from the website of the National Petroleum Council at <http://www.npc.org>.
- <sup>8</sup> UNCTAD secretariat, based on various specialized sources, including the International Iron and Steel Institute ([www.worldsteel.org](http://www.worldsteel.org)), Clarkson Research Services, *Dry Bulk Trade Outlook*, April 2007, *Clarkson Shipping Review & Outlook*, Spring 2007, Fearnleys, *Review 2006*, International Aluminium Institute, *Historical Statistics*, 2006, and International Grains Council (IGC) ([www.igc.org.uk](http://www.igc.org.uk)).
- <sup>9</sup> MEPS International, Ltd is an independent international steel industry analyst providing steel market information ([www.meps.co.uk](http://www.meps.co.uk)).
- <sup>10</sup> Based on information published in *Shipping Review & Outlook*, Clarkson Research Services, Fall 2006 and Spring 2007; *Container Intelligence Monthly*, various issues, *Containerisation International Magazine*, various issues; and *Containerisation International Online* ([www.ci-online.co.uk](http://www.ci-online.co.uk)). Data supplied by Drewry Consultants Ltd.
- <sup>11</sup> UNCTAD, *Handbook of Statistics 2006/2007* ([www.unctad.org](http://www.unctad.org)) and WTO trade statistics data ([www.wto.org](http://www.wto.org)).

## Chapter 2

# STRUCTURE, OWNERSHIP AND REGISTRATION OF THE WORLD FLEET

*This chapter reviews the supply-side dynamics of the world maritime industry. The information and data comprehensively cover the structure, ownership and registration of the world fleet. The chapter also reviews deliveries and demolition of ships, tonnage on order, newbuilding prices and markets for second-hand tonnage.*

*The world merchant fleet expanded to 1.04 billion deadweight tons (dwt) at the beginning of 2007, a remarkable 8.6 per cent annual increase. Tonnage on order reached a total of 6,908 vessels with a total tonnage of 302.7 million dwt. As regards fleet ownership, at the beginning of 2007, developing countries controlled approximately 31.2 per cent of the world dwt, developed countries about 65.9 per cent and economies in transition the remaining 2.9 per cent. Since UNCTAD began recording the share of foreign-flagged dwt in 1989, the share of foreign-flagged tonnage increased every year until 2006. Between January 2006 and 2007, however, it stopped growing, decreasing slightly from 66.5 to 66.35 per cent of the world total.*

### A. STRUCTURE OF THE WORLD FLEET

#### 1. World fleet growth and principal vessel types

Comparative time-series data on the world fleet for 2005, 2006 and 2007 are provided in figure 5 and table 8. Towards the end of 2006, the world merchant fleet exceeded 1 billion dwt for the first time, reaching 1.04 billion dwt. Year-on-year growth on 1 January 2007 was 8.6 per cent, an increase of 82 million dwt.

The tonnage of oil tankers in 2006 increased by 8.1 per cent and that of bulk carriers by 6.2 per cent. Those two types of ships together represented 72.0 per cent of total tonnage, a slight decrease from 72.9 per cent in January 2006. The fleet of general cargo ships increased by 4.9 per cent in 2006; as this growth rate is below the world merchant fleet total growth rate, this category's share of the total world fleet has further declined to 9.7 per cent. In terms of deadweight tonnage, the fleet of containerships increased by 17 million dwt, or 15.5 per

cent, and now represents 12.3 per cent of the world total fleet. This high growth rate reflects the increasing share of trade in manufactured goods being containerized. In fact, since 1980 the share of dwt on containerships increased almost eightfold, while the share of tonnage on general cargo vessels decreased significantly from 17 per cent in 1980 to less than 10 per cent today. The share of oil tankers also declined, from almost 50 per cent in 1980 to 36.7 per cent in 2007, while the share of tonnage on dry bulk vessels has remained relatively stable since 1985.

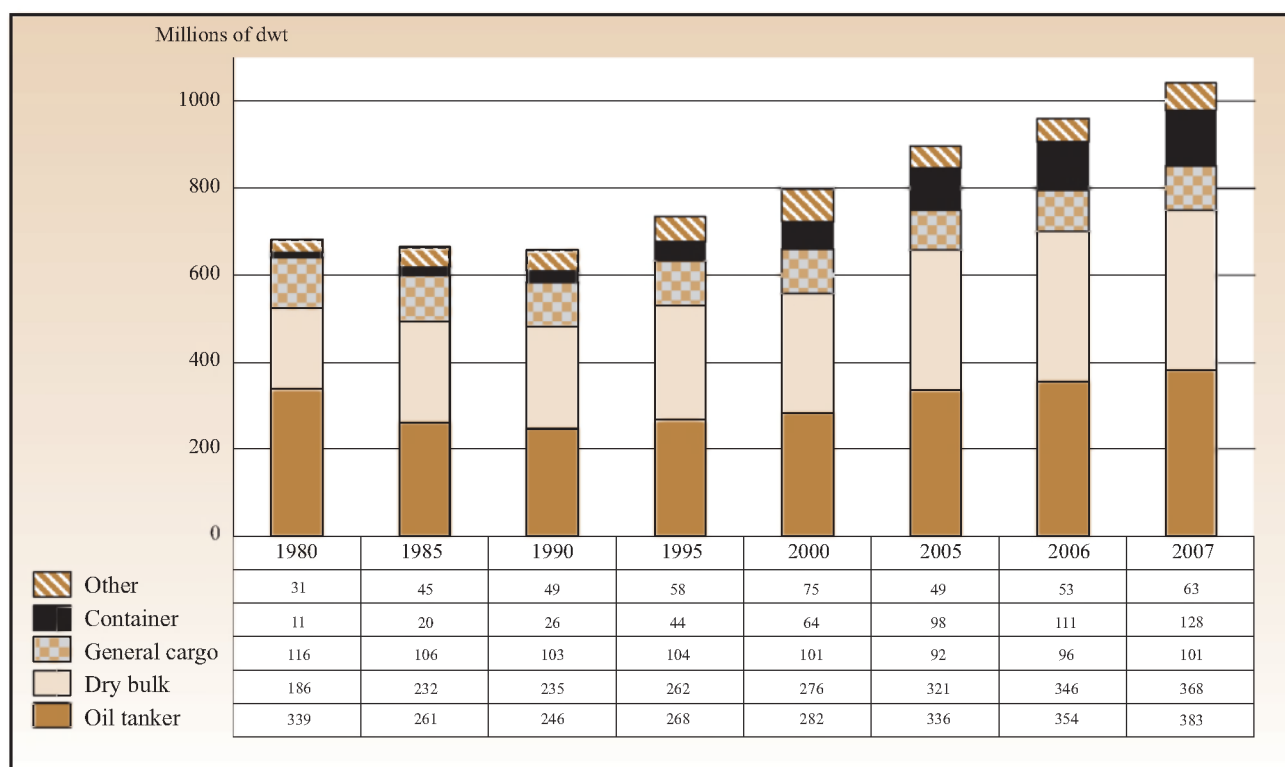
#### 2. The world containership fleet

The world fleet of fully cellular containerships continued to expand substantially in 2006 in terms of both number of ships and their TEU capacity; by the beginning of 2007 there were 3,904 ships with a total capacity of 9.4 million TEUs. This represents an increase of 11.7 per cent in the number of ships and an increase of 16.2 per cent in TEU capacity over the previous year. Ship sizes also continued to increase, with average carrying



Figure 5

**World fleet by principal vessel types, selected years<sup>a</sup>**  
(Millions of dwt)



Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Cargo-carrying vessels of 100 GT and above.

capacity per ship growing from 2,324 TEUs in January 2006 to 2,417 TEUs in January 2007 (see table 9). As regards vessel registration, 54.26 per cent of the containerized tonnage is registered in the 10 major open and international registries — 28.4 per cent in developed countries and 16.5 per cent in developing countries in Asia. The share of the other developing regions and of economies in transition is below 1 per cent each (see table 10).

During the last 20 years, the world fleet's total TEU carrying capacity has increased almost sevenfold, growing at an average annual rate of 10.8 per cent, with annual growth rates even higher in the last decade than in the previous one. In October 2007, the world containership fleet reached 12.5 million TEUs, with 135 containerships of 8,000 TEU and above in service. Seven existing ships have a reported capacity of more than 10,000 TEUs, including six 12,508 TEU containerships owned and operated by Maersk Line of Denmark. Since 1987, the average vessel size of containerships has more than doubled.

### 3. Age distribution of the world merchant fleet

Table 11 provides data on the average age distribution of the world merchant fleet by both ship types and groups of countries and territories. The estimated average age of the total world fleet dropped marginally during 2006 to 12 years. By vessel type, the youngest fleet is that of containerships, with an average age of 9.1 year; 34.7 per cent of tonnage is younger than five years and only 13 per cent is 20 years and older. The average age of tankers remained at 10 years, the average age of bulk carriers decreased from 13.1 to 12.9 years and general cargo vessels continued to be the oldest vessel type, with an average of 17.4 years and 56.8 per cent of vessels more than 19 years old. Only 10.1 per cent of general cargo vessels are younger than 5 years, a fact that reflects the trend towards the increasing containerization of general cargo.

As regards country groupings, ships registered in developed countries are the youngest (average age of

Table 8

**World fleet size by principal types of vessel, 2005–2007<sup>a</sup>***(Beginning-of-year figures, in thousands of dwt)*

Principal types	2005	2006	2007	Percentage change 2007/2006
<b>Oil tankers</b>	336 156	354 219	382 975	8.1
	<i>37.5</i>	<i>36.9</i>	<i>36.7</i>	<i>-0.2</i>
<b>Bulk carriers</b>	320 584	345 924	367 542	6.2
	<i>35.8</i>	<i>36.0</i>	<i>35.3</i>	<i>-0.7</i>
<b>Ore/bulk/oil</b>	9 695	7 817	5 614	-28.2
	<i>1.1</i>	<i>0.8</i>	<i>0.5</i>	<i>-0.3</i>
<b>Ore/bulk</b>	310 889	338 107	361 928	7.0
	<i>34.7</i>	<i>35.2</i>	<i>34.7</i>	<i>-0.5</i>
<b>General cargo ships</b>	92 048	96 218	100 934	4.9
	<i>10.3</i>	<i>10.0</i>	<i>9.7</i>	<i>-0.4</i>
<b>Containerships</b>	98 064	111 095	128 321	15.5
	<i>10.9</i>	<i>11.6</i>	<i>12.3</i>	<i>0.7</i>
<b>Other types of ships</b>	48 991	52 508	62 554	19.1
	<i>5.5</i>	<i>5.5</i>	<i>6.0</i>	<i>0.5</i>
<b>Liquefied gas carriers</b>	22 546	24 226	26 915	11.1
	<i>2.5</i>	<i>2.5</i>	<i>2.6</i>	<i>0.1</i>
<b>Chemical tankers</b>	8 290	8 919	8 823	-1.1
	<i>0.9</i>	<i>0.9</i>	<i>0.8</i>	<i>-0.1</i>
<b>Miscellaneous tankers</b>	1 001	1 261	1 168	-7.4
	<i>0.1</i>	<i>0.1</i>	<i>0.1</i>	<i>0.0</i>
<b>Ferries and passenger ships</b>	5 589	5 649	5 754	1.9
	<i>0.6</i>	<i>0.6</i>	<i>0.6</i>	<i>0.0</i>
<b>Other</b>	11 565	12 453	19 894	59.8
	<i>1.3</i>	<i>1.1</i>	<i>1.9</i>	<i>0.8</i>
<b>World total</b>	895 843	959 964	1 042 328	8.6
	<i>100.0</i>	<i>100.0</i>	<i>100.0</i>	

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Vessels of 100 GT and above. Percentage shares are shown in italics.

Table 9

Long-term trends in the cellular containership fleet <sup>a</sup>

World total	1987	1997	2006	2007	Percentage growth 2007/2006
Number of vessels	1 052	1 954	3 494	3 904	11.7
TEU capacity	1 215 215	3 089 682	8 120 465	9 436 377	16.2
Average vessel size	1 155	1 581	2 324	2 417	4.0

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Vessels of 100 GT and above. Beginning-of-year figures, except those for 1987, which are mid-year figures.

Table 10

Distribution of the world fleet and dwt capacity of containerships, by country group, in 2007<sup>a</sup>

(Beginning-of-year figures)

Flags of registration by groups of countries	Dwt	Share of world total
World total	128 321 475	100.00
Developed countries	36 475 603	28.43
Countries with economies in transition	167 314	0.13
Developing countries	22 005 522	17.15
<i>of which:</i>		
Africa	186 895	0.15
America	663 146	0.52
Asia	21 114 005	16.45
Oceania	41 476	0.03
Other, unallocated	51 364	0.04
10 major open and international registries <sup>b</sup>	69 621 672	54.26

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Vessels of 100 GT and above.

<sup>b</sup> The 10 major open and international registries are the 10 largest fleets with more than 90 per cent foreign-controlled tonnage. See table 19 for the list of registries.

Table 11

Age distribution of the world merchant fleet, by type of vessel, <sup>a</sup> as of 1 January 2007  
(Percentage of total dwt)

Country grouping	Type of vessel	0–4 years	5–9 years	10–14 years	15–19 years	20 years and over	Average age (years) 2007 <sup>b</sup>	Average age (years) 2006 <sup>b</sup>
<b>World total</b>	All ships	25.1	21.0	16.7	10.9	26.2	12.0	12.2
	Tankers	30.3	25.0	16.4	14.6	13.6	10.0	10.0
	Bulk carriers	21.6	19.0	19.1	9.0	31.3	12.9	13.1
	General cargo	10.1	12.6	10.9	9.6	56.8	17.4	17.5
	Containerships	34.7	25.7	18.6	8.0	13.0	9.1	9.4
	All others	19.6	14.4	10.7	9.1	46.3	15.1	15.3
<b>Seven major open- registry countries<sup>c</sup></b>	All ships	27.6	21.3	16.7	10.5	24.0	11.5	
	Tankers	31.1	24.9	16.6	15.7	11.8	9.8	
	Bulk carriers	24.7	19.7	18.4	7.8	29.5	12.3	
	General cargo	11.5	14.3	13.2	9.6	51.3	16.5	
	Containerships	39.0	23.5	16.0	7.9	13.5	8.9	
	All others	22.4	15.0	9.8	5.9	46.9	14.7	
<b>Developed countries</b>	All ships	28.4	29.9	17.6	7.8	16.3	9.9	
	Tankers	36.5	35.4	14.3	6.7	7.1	7.7	
	Bulk carriers	19.6	25.5	23.9	6.1	24.9	11.9	
	General cargo	14.9	23.9	15.8	12.8	32.6	13.7	
	Containerships	30.6	31.6	19.1	8.8	9.9	8.9	
	All others	22.4	19.9	15.0	10.7	31.9	13.0	
<b>Economies in transition</b>	All ships	20.1	6.2	11.5	10.3	51.8	16.2	
	Tankers	34.4	7.4	15.5	7.1	35.5	12.6	
	Bulk carriers	9.1	7.2	10.9	13.1	59.7	18.2	
	General cargo	6.7	4.3	5.0	10.1	73.8	20.1	
	Containerships	47.0	3.3	16.1	8.2	25.4	10.5	
	All others	32.0	7.0	14.8	10.0	36.3	13.1	
<b>Developing countries</b>	All ships	24.6	18.9	17.1	11.8	27.7	12.4	
	Tankers	28.0	21.0	17.7	17.5	15.8	10.8	
	Bulk carriers	23.1	18.3	18.6	9.6	30.5	12.8	
	General cargo	9.6	10.9	10.7	8.5	60.4	17.9	
	Containerships	35.9	24.4	19.3	7.2	13.1	9.1	
	All others	17.6	12.9	10.5	7.8	51.2	15.9	

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Vessels of 100 GT and above.

<sup>b</sup> To estimate the average age, it has been assumed that the ages of vessels are distributed evenly between the lower and upper limits of each age group. For the 20-years-and-over age group, the midpoint has been assumed to be 23.5 years.

<sup>c</sup> The open registries in this group are the Bahamas, Bermuda, Cyprus, Liberia, Malta, Panama and Vanuatu.

9.9 years in January 2007), followed by major open registries (11.5 years), developing countries (12.4 years) and economies in transition (16.2 years). Replacement of general cargo vessels by containerships is particularly noticeable in the fleets registered in developing countries and in economies in transition. In those country groups, containerships were introduced later than in the developed countries' fleets. As a consequence, in developing countries 35.9 per cent of containerships are younger than five years, as against only 9.6 per cent of general cargo vessels in this age group. For general cargo vessels registered in developing countries, 60.4 per cent are older than 19 years, as against only 13.1 per cent of containerships in this age group. For economies in transition, 73.8 per cent of general cargo vessels are older than 19 years, and 47 per cent of containerships are younger than 5 years.

With regard to longer term trends, the average age of all vessel types has decreased during the last decade, except that of general cargo vessels, which has remained practically constant. The average age of tankers has decreased by 32.7 per cent, the average age of bulk carriers by 11.3 per cent and the average age of containerships by 23.8 per cent. This reverses the trend of the previous decade, during which the average age of tankers and bulk carriers increased. Twenty years ago, the average age of tankers was greater than that of bulk carriers (12.1 years versus 10.7 years), whereas today tankers are on average younger than bulk carriers (10.0 years versus 12.9 years) (see table 12).

#### 4. Delivery of newbuildings

Newbuilding activities reached the highest level ever recorded in terms of deadweight tons, with deliveries totalling 71.1 million dwt in 2006 (see table 13), a further increase over the previous year's record of 70.5 million dwt. During 2006, 2,398 cargo-carrying commercial vessels of 100 GT and above were delivered — also a record, and an increase of 22 per cent over 2005. As regards tonnage and vessel types, the deliveries are approximately evenly split between oil tankers of 10,000 dwt and above (35 per cent of delivered dwt), dry bulk carriers of 10,000 dwt and above (35 per cent) and other vessels (30 per cent); the latter category includes all kinds of commercial vessels of 100 GT and above. As regards the number of vessels, 74 per cent of vessels delivered in 2006 belong to the category of "other vessels", as compared with 13 per cent for large oil tankers and 13 per cent for large dry bulk carriers.

The deliveries of oil tankers set a record in terms of vessel numbers (322 units of 10,000 dwt and above in 2006). However, as the average vessel sizes for oil tankers decreased, the dwt delivered in 2006 was 16 per cent lower than in the peak year of 2003. During the last 10 years, the average sizes of oil tankers increased until a peak of 135,065 dwt was reached in 2000, and have since decreased every year to an average vessel size of 76,578 dwt in 2006. The trend regarding dry bulk carrier vessel sizes is the opposite of the trend for oil tankers: dwt per unit have been increasing continuously

Table 12

#### Long-term trends in average age, by vessel type

	Type of vessel	1987	1997	2007	Percentage change 2007/1997	Percentage change 2007/1987
<b>World total</b>	All ships	11.7	14.9	12.0	-19.5	2.6
	Tankers	12.1	14.9	10.0	-32.7	-16.9
	Bulk carriers	10.7	14.6	12.9	-11.4	20.9
	General cargo	13.7	17.3	17.4	0.4	27.0
	Containerships	n.a.	12.0	9.1	-23.8	n.a.
	All others	n.a.	15.3	15.1	-1.3	n.a.

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

Notes: Vessels of 100 GT and above. Data for 1997 and 2007 are beginning-of-year figures; data for 1987 are mid-year figures.

Table 13

Deliveries of newbuildings, selected years <sup>a</sup>

Year	Oil tankers <sup>b</sup>			Dry bulk carriers <sup>b</sup>			Others <sup>c</sup>			Total		
	No. of vessels	Million dwt	Average vessel size	No. of vessels	Million dwt	Average vessel size	No. of vessels	Million dwt	Average vessel size	No. of vessels	Million dwt	Average vessel size
<b>1980</b>	99	7.0	70 707	135	4.7	34 815	552	4.4	7 971	786	18.0	22 901
	<i>13</i>	<i>39</i>		<i>17</i>	<i>26</i>		<i>70</i>	<i>24</i>		<i>100</i>	<i>100</i>	
<b>1985</b>	72	3.9	54 167	339	14.7	43 363	539	5.7	10 575	950	25.0	26 316
	<i>8</i>	<i>16</i>		<i>36</i>	<i>59</i>		<i>57</i>	<i>23</i>		<i>100</i>	<i>100</i>	
<b>1990</b>	81	8.7	107 407	119	9.6	80 672	523	4.0	7 648	723	23.0	31 812
	<i>11</i>	<i>38</i>		<i>16</i>	<i>42</i>		<i>72</i>	<i>17</i>		<i>100</i>	<i>100</i>	
<b>1997</b>	69	7.5	108 696	299	18.8	62 876	699	10.5	15 021	1 067	36.8	34 489
	<i>6</i>	<i>20</i>		<i>28</i>	<i>51</i>		<i>66</i>	<i>29</i>		<i>100</i>	<i>100</i>	
<b>1998</b>	120	12.6	105 000	217	11.6	53 456	704	11.1	15 767	1 041	35.3	33 910
	<i>12</i>	<i>36</i>		<i>21</i>	<i>33</i>		<i>68</i>	<i>31</i>		<i>100</i>	<i>100</i>	
<b>1999</b>	161	19.1	118 634	195	13.0	66 667	589	8.8	14 941	945	40.5	42 857
	<i>17</i>	<i>47</i>		<i>21</i>	<i>32</i>		<i>62</i>	<i>22</i>		<i>100</i>	<i>100</i>	
<b>2000</b>	154	20.8	135 065	188	13.1	69 681	1 202	10.5	8 735	1 544	44.4	28 756
	<i>10</i>	<i>47</i>		<i>12</i>	<i>30</i>		<i>78</i>	<i>24</i>		<i>100</i>	<i>100</i>	
<b>2001</b>	112	14.4	128 571	310	21.0	67 742	1 048	9.8	9 351	1 470	45.2	30 748
	<i>8</i>	<i>32</i>		<i>21</i>	<i>46</i>		<i>71</i>	<i>22</i>		<i>100</i>	<i>100</i>	
<b>2002</b>	182	23.4	128 571	226	14.1	62 389	1 131	11.5	10 168	1 539	49.0	31 839
	<i>12</i>	<i>48</i>		<i>15</i>	<i>29</i>		<i>73</i>	<i>23</i>		<i>100</i>	<i>100</i>	
<b>2003</b>	281	29.4	104 626	161	11.2	69 565	1 265	8.6	6 798	1 707	49.2	28 822
	<i>16</i>	<i>60</i>		<i>9</i>	<i>23</i>		<i>74</i>	<i>17</i>		<i>100</i>	<i>100</i>	
<b>2004</b>	294	27.0	91 837	264	13.9	52 652	1 262	7.9	6 260	1 820	49.4	27 143
	<i>16</i>	<i>55</i>		<i>15</i>	<i>28</i>		<i>69</i>	<i>16</i>		<i>100</i>	<i>100</i>	
<b>2005</b>	315	29.0	92 063	308	23.2	75 325	1 341	16.8	12 528	1 964	70.5	35 896
	<i>16</i>	<i>41</i>		<i>16</i>	<i>33</i>		<i>68</i>	<i>24</i>		<i>100</i>	<i>100</i>	
<b>2006 <sup>d</sup></b>	322	24.7	76 578	310	25.2	81 290	1 766	21.2	12 026	2 398	71.1	29 648
	<i>13</i>	<i>35</i>		<i>13</i>	<i>35</i>		<i>74</i>	<i>30</i>		<i>100</i>	<i>100</i>	

Source: Compiled by the UNCTAD secretariat on the basis of data from Fearnleys, *Review*, various issues, and Lloyd's Register—Fairplay.

<sup>a</sup> Percentage shares per vessel type are shown in italics.

<sup>b</sup> Vessels over 10,000 dwt.

<sup>c</sup> Seagoing, cargo-carrying vessels of over 1,000 GT.

<sup>d</sup> Provisional.



in recent years, reaching 81,290 dwt in 2006. In total, 310 dry bulk carriers were delivered in 2006, with a combined tonnage of 25.2 million dwt. The year 2006 also saw a record in the number and tonnage of other vessel types delivered, including car carriers, containerships, LNG tankers and general cargo ships, which reached a total of 1,766 units with a combined tonnage of 21.2 million dwt.

## 5. Demolition of ships

The trend in the demolition of ships is correlated with the trend in the delivery of ships; while 2006 saw record highs in newbuildings, it also saw record lows in demolitions. In total, demolitions were equivalent to only 0.6 per cent of the existing world fleet (see table 14). This is only one sixth of the percentage that was demolished in 2002. Tanker tonnage continues to have the highest share among vessel types, although for the first time in this decade its participation was less than half of the total demolished tonnage (2.7 million dwt,

corresponding to 45 per cent of the year's total). Other vessel types increased their share to 30 per cent, reaching 1.8 million dwt in 2006, while dry bulk carriers had a share of 21.7 per cent, with 1.3 million dwt demolished.

The average age of demolished ships in 2006 was highest for general cargo vessels (32.3 years), followed by tankers (30 years), dry bulk carriers (28.9 years) and containerships (28.1 years) (see table 15). For all vessel types the average age at demolition has increased since the beginning of the decade, albeit with some fluctuations. In general, scrapping activity is negatively correlated with developments in freight rates, as high freight rates make it less economically advantageous for owners to sell their vessels to scrapyards. India, China, Bangladesh and Turkey account for 41, 27, 14 and 9 per cent, respectively, of the world's total recycling capacity. The total tonnage of vessels scrapped in China fell from 2.3 million tonnes in 2003 to just 150,000 tonnes in 2005, increasing again — to 190,000 tonnes — in 2006.

Table 14

### Tonnage reported sold for breaking, by type of vessel, 2000–2006

(Millions of dwt and percentage shares)

Years	Million dwt						Percentage share				
	Tankers	Combined carriers	Bulk carriers	Others	Total	Total as percentage of world fleet	Tankers	Combined carriers	Bulk carriers	Others	Total
2000	13.5	1.0	4.6	3.1	22.2	2.7	60.9	4.3	20.8	14.0	100.0
2001	15.7	0.8	8.1	3.2	27.8	3.4	56.5	2.7	29.1	11.7	100.0
2002	18.1	1.6	5.9	4.9	30.5	3.6	59.3	5.2	19.3	16.1	100.0
2003	18.4	0.5	3.3	3.4	25.6	3.0	71.9	2.0	12.9	13.3	100.0
2004	7.8	0.5	0.5	1.8	10.6	1.2	73.6	4.7	4.7	17.0	100.0
2005	4.5	-	0.9	0.9	6.3	0.7	71.4	-	14.3	14.3	100.0
2006	2.7	0.2	1.3	1.8	6.0	0.6	45.0	3.3	21.7	30.0	100.0

Sources: Compiled by the UNCTAD secretariat on the basis of data supplied by Fearnleys, *Review*, various issues, and Lloyd's Register – Fairplay.

Table 15

**Average age of broken-up ships, by type, from 2000 to 2006<sup>a</sup>**  
(Years)

Year	Tankers	Dry bulk carriers	Containerships	General cargo ships
2001	28.0	26.7	26.9	27.4
2002	28.3	26.6	26.0	28.2
2003	29.3	26.5	25.5	29.3
2004	29.5	27.3	30.5	32.9
2005	31.5	28.1	30.6	31.9
2006	30.0	28.9	28.1	32.3

Source: Compiled by the UNCTAD secretariat on the basis of data in Institute of Shipping Economics and Logistics, *Shipping Statistics and Market Review*, vol. 51, no. 1/2 — 2007, table 2.2.

<sup>a</sup> Ships of 300 GT and over.

## B. OWNERSHIP OF THE WORLD FLEET

### 1. The 35 countries and territories with the largest controlled fleets

The 35 countries with the largest fleets controlled by nationals (nationality being defined as the country of domicile) are ranked in table 16 according to deadweight tonnage.<sup>12</sup> Nationals of the top 35 countries together control 95.33 per cent of the world fleet, a further increase from 95.17 per cent in January 2006, and a record high since UNCTAD started recording this market share in 1989. Greece continues to be the country with the largest controlled fleet, totalling 170.2 million dwt and 3,084 ships, followed by Japan (147.5 million dwt and 3,330 ships), Germany (85.0 million dwt and 2,964 ships), China (70.4 million dwt and 3,184 ships) and Norway (48.7 million dwt and 1,810 ships). Together, those five countries have a market share of 53.3 per cent.

The Greek-controlled fleet uses the national flag for 29 per cent of its dwt, as against 71 per cent using a foreign flag. As regards vessel types, the Greek-controlled fleet has 82.5 million tons of dry bulk carriers, 73.5 million dwt of oil tankers, 7.0 million dwt of containerships, 4.7 million dwt of general cargo vessels and 2.4 million dwt of other vessels. The largest foreign-flagged parts of the Greek-controlled fleet are 14.0 million dwt tons of Liberian-flagged oil tankers and 14.9 million dwt of Maltese-flagged dry bulk carriers. The average size of Greek-flagged ships is 70,000 dwt, compared with 51,000 dwt for Greek-controlled foreign-flagged vessels.

The Japanese-controlled fleet is 92 per cent foreign-flagged; it comprises 77.3 million dwt of dry bulk carriers, 42.1 million dwt of oil tankers, 10.5 million dwt of containerships, 8.8 million dwt of general cargo vessels and 8.8 million dwt of other vessels. An impressive total of 799 Japanese-controlled dry bulk carriers with a combined tonnage of 62.7 million dwt fly the flag of Panama. Foreign-flagged Japanese-controlled ships have an average vessel size of 52,000 dwt, which is three times as large as that of Japanese-flagged vessels; the latter include smaller ro-ro and other vessels used for cabotage traffic.

The German-controlled fleet uses a foreign flag for 85 per cent of its dwt. More than half of the German-controlled fleet is made up of containerships (46.2 million dwt), followed by 18.9 million dwt of oil tankers, 12.2 million dwt of dry bulk carriers, 6.8 million dwt of general cargo vessels and 1 million dwt of other vessels. German-controlled containerships use the flag of Liberia for 19.1 million dwt. As regards German-controlled container and general cargo vessels, 820 are registered in Antigua and Barbuda, representing 28 per cent of the German-controlled fleet in terms of vessel numbers. Foreign-flagged German-controlled ships are on average slightly smaller (28,000 dwt) than German-flagged ships (32,000 dwt).

In 2006, Norway replaced the United States as the country with the fifth largest controlled fleet, reaching a total of 48.7 million dwt. Less than 4 per cent of this fleet uses the first Norwegian registry and 25 per cent of it is registered in the Norwegian International Register

Table 16

The 35 countries and territories with the largest controlled fleets, as of 1 January 2007<sup>a</sup>

Country or territory of domicile <sup>b</sup>	Number of vessels			Deadweight tonnage in thousands of dwt						
	National flag <sup>c</sup>	Foreign flag	Total	National flag	Foreign flag	Total	Foreign flag as a percentage of total	Total as a percentage of world total	Total as a percentage of world total, 1 January 2006	Change in percentage share
Greece	707	2 377	3 084	49 771	120 411	170 181	70.75	17.39	18.02	-0.63
Japan	719	2 611	3 330	11 822	135 685	147 507	91.99	15.07	14.52	0.55
Germany	403	2 561	2 964	12 843	72 200	85 043	84.90	8.69	7.89	0.80
China	1 870	1 314	3 184	32 229	38 162	70 390	54.21	7.19	7.22	-0.03
Norway	768	1 042	1 810	13 907	34 790	48 697	71.44	4.98	5.01	-0.03
United States	847	919	1 766	22 705	25 555	48 261	52.95	4.93	5.18	-0.24
Hong Kong (China)	296	393	689	19 180	25 873	45 053	57.43	4.60	4.84	-0.23
Republic of Korea	662	379	1 041	14 486	17 802	32 287	55.14	3.30	3.27	0.03
United Kingdom	375	480	855	9 504	17 252	26 757	64.48	2.73	2.35	0.39
Singapore	499	295	794	14 887	10 836	25 723	42.12	2.63	2.53	0.09
Taiwan Province of China	97	477	574	4 076	20 781	24 858	83.60	2.54	2.69	-0.15
Denmark	306	475	781	9 817	12 061	21 878	55.13	2.24	2.16	0.08
Russian Federation	1 629	574	2 203	6 462	11 644	18 106	64.31	1.85	1.84	0.01
Italy	575	164	739	11 559	4 403	15 962	27.58	1.63	1.60	0.03
India	404	52	456	13 288	1 529	14 817	10.32	1.51	1.52	0.00
Switzerland	29	341	370	810	11 691	12 501	93.52	1.28	1.30	-0.02
Belgium	74	152	226	6 462	6 028	12 490	48.26	1.28	1.27	0.00
Saudi Arabia	63	87	150	949	10 912	11 861	92.00	1.21	1.25	-0.04
Turkey	448	426	874	6 370	4 557	10 927	41.70	1.12	1.13	-0.02
Iran (Islamic Republic of)	156	28	184	8 845	1 148	9 994	11.49	1.02	1.08	-0.06
Netherlands	501	238	739	4 338	4 407	8 745	50.39	0.89	0.97	-0.08
United Arab Emirates	51	315	366	615	6 304	6 918	91.12	0.71	0.50	0.21
Indonesia	679	114	793	4 382	2 301	6 684	34.43	0.68	0.69	0.00
Malaysia	303	54	357	6 285	372	6 657	5.59	0.68	1.06	-0.38
Sweden	161	185	346	1 888	4 530	6 418	70.58	0.66	0.70	-0.05
Cyprus	97	125	222	2 439	3 714	6 153	60.36	0.63	n.a.	n.a.
France	168	141	309	2 865	3 101	5 965	51.98	0.61	0.54	0.07
Canada	219	121	340	2 676	3 269	5 945	54.99	0.61	0.72	-0.11
Brazil	136	15	151	2 559	2 316	4 875	47.50	0.50	0.52	-0.03
Kuwait	39	29	68	3 419	1 364	4 783	28.51	0.49	0.56	-0.07
Spain	186	161	347	918	3 502	4 420	79.23	0.45	0.45	0.00
Philippines	221	35	256	2 023	1 115	3 137	35.52	0.32	0.55	-0.23
Viet Nam	322	30	352	2 542	502	3 045	16.50	0.31	n.a.	n.a.
Thailand	260	38	298	2 498	415	2 913	14.25	0.30	0.35	-0.06
Australia	46	39	85	1 338	1 531	2 869	53.37	0.29	0.29	0.00
Total (35 countries or territories)	14 316	16 787	31 103	310 758	622 061	932 819	66.69	95.33	95.17	0.15
World total	16 407	18 415	34 822	329 259	649 298	978 557	66.35	100.00	100.00	

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Vessels of 1,000 GT and above, excluding the US Reserve Fleet and the US and Canadian Great Lakes fleets.

<sup>b</sup> The country of domicile indicates where the 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 domicile for vessels owned by a Greek owner with representative offices in New York, London and Piraeus, although the owner may be domiciled in the United States.

<sup>c</sup> Includes vessels registered in second registries such as CSR (Spain), DIS (Denmark), FIS (France) and NIS (Norway). For the United Kingdom: includes vessels registered in the Isle of Man; British flag vessels are included under the national flag, except for Bermuda. For the United States: for historical reasons, the figure includes vessels registered in the Marshall Islands.

(NIS). Half of the Norwegian-controlled tonnage consists of oil tankers (24.8 million dwt), followed by 9.9 million dwt of general cargo vessels, 8.6 million dwt of dry bulk carriers, 5.0 million dwt of other types and less than half a million dwt of containerships. A total of 5 million dwt of Norwegian-controlled oil tankers are registered in the Marshall Islands, and 3.2 million dwt of general cargo vessels use the flag of the Bahamas. At 33,000 dwt, the average size of Norwegian-controlled foreign-flagged vessels is almost twice the size of the nationally flagged vessels.

As regards the largest nationally controlled fleets from developing countries, these are mostly from Asia, plus Brazil.

The Chinese-controlled fleet is 46 per cent registered in China, versus 54 per cent that uses a foreign flag. More than half of the Chinese-controlled fleet are dry bulk carriers (38.3 million dwt), followed by 14.0 million dwt of oil tankers, 9.8 million dwt of general cargo vessels, 7.1 million dwt of containerships and 1.2 million dwt of other vessels. The flags most commonly used by Chinese-controlled ships include those of Hong Kong (China), Panama and Liberia. The average vessel size of Chinese-controlled ships is 22,000 dwt, with foreign-flagged vessels being on average 70 per cent larger than Chinese-flagged ones.

Hong Kong (China) controls a fleet of 45 million dwt, and although it also has a large national vessel registry that is used by foreign vessel operators, 57 per cent of the tonnage controlled by Hong Kong (China) is registered under a different flag. The fleet controlled by Hong Kong (China) consists of 21.5 million dwt of dry bulk carriers, 16.4 million dwt of oil tankers, 3.8 million dwt of other ships, 1.8 million dwt of general cargo vessels and 1.6 million dwt of containerships. A total of 9.6 million dwt of dry bulk carriers and oil tankers are registered under the flag of Panama.

The Republic of Korea controls a fleet of 32.3 million dwt, 55 per cent of which is foreign-flagged. The fleet is composed of 16.6 million dwt of dry bulk carriers, 9.2 million dwt of oil tankers, 2.5 million dwt of containerships, 2.1 million dwt of other types and 1.8 million dwt of general cargo vessels. A total of 12.3 million dwt of oil tankers and dry bulk carriers controlled by the Republic of Korea fly the flag of Panama.

The Singapore-controlled fleet totals 25.7 million dwt, 64 per cent of which (16.6 million dwt) consists of oil tankers, followed by 4.2 million dwt of dry bulk carriers, 3.3 million dwt of containerships, 1.2 million dwt of general cargo vessels and 0.5 million dwt of other types. Although the flag of Singapore is itself used by a large number of foreign vessel operators, Singaporean companies themselves register 42 per cent of their fleet under foreign flags, including 4.5 million dwt of oil tankers that are registered in Liberia.

The Indian-controlled fleet of 14.8 million dwt is 90 per cent nationally flagged. This includes all Indian oil tankers, which make up 58 per cent (8.6 million dwt) of the country's total. The remainder of the fleet consists of 4.6 million dwt of dry bulk carriers and 1.1 million dwt of other types, as well as a small number of general cargo and containerships.

The Saudi Arabia-controlled fleet of 11.9 million dwt consists almost entirely (95 per cent) of oil tankers, most of which are registered in Liberia (6.7 million dwt) and the Bahamas (2.7 million dwt). Eight per cent of the Saudi Arabia-controlled fleet is nationally flagged.

The fleet with owners domiciled in the Islamic Republic of Iran is nationally flagged for 89 per cent of its tonnage, including 6 million dwt of oil tankers and 1.7 million dwt of dry bulk carriers.

Companies or nationals domiciled in the United Arab Emirates (UAE) control 366 ships with a total of 6.9 million dwt. This fleet includes 2.8 million dwt of oil tankers and 2 million dwt of dry bulk carriers. Vessels controlled from the UAE are registered in a particularly wide variety of flag countries, including in Belize, the Comoros, Iraq, Jordan, Kiribati, Mongolia, the Democratic People's Republic of Korea, Somalia, Saint Kitts and Nevis, and Turkmenistan. The largest foreign flag components of the UAE-controlled fleet are 1 million dwt of Bahamas-flagged oil tankers.

Indonesia is the country of domicile of vessel owners controlling 6.7 million dwt, including 3 million dwt of oil tankers, 1.6 million dwt of general cargo vessels, 0.9 million dwt of dry bulk carriers, and about 1.1 million dwt of container and other types. A total of 1.1 million dwt of the Indonesian-controlled oil tankers are registered in Singapore, and 66 per cent of the fleet is nationally flagged.

The fleet of owners domiciled in Malaysia totals 6.7 million dwt and is 94 per cent nationally flagged, including almost all oil tankers (3 million dwt) and 1.9 million out of 2.1 million of other vessel types. Brazil controls a fleet of 4.9 million dwt, including 2.1 million dwt oil tankers and 1.6 million dwt other types of vessels; 51 per cent of its fleet is nationally flagged and 1.1 million dwt are registered in Panama. The Kuwait-controlled fleet of 4.8 million dwt consists largely of oil tankers, totalling 3.2 million dwt, as well as 0.9 million dwt of containerships; the latter are registered in Bahrain, Kuwait, Saudi Arabia, the United Arab Emirates and Qatar. In total, 71 per cent of the Kuwait-controlled fleet is nationally flagged. The Philippines controls a fleet of 3.1 million dwt, consisting of 62 per cent of dry bulk carriers; 64 per cent of this fleet flies the flag of the Philippines. The Viet Nam-controlled fleet of 3 million dwt is nationally flagged for 84 per cent of its tonnage,

including 231 general cargo vessels, totalling 1.3 million dwt. The Thailand-controlled fleet is 86 per cent nationally flagged, including 1.1 million dwt dry bulk carriers; 17 containerships, totalling 0.24 million dwt, are registered in Singapore.

## 2. Participation of country groups in the control of the world fleet

Developing countries control approximately 31.2 per cent of the world dwt, developed countries control about 65.9 per cent and countries with economies in transition the remaining 2.9 per cent as shown in table 17. A total of 49 per cent of developing countries' controlled tonnage is nationally registered, while only 26 per cent of the tonnage controlled by developed countries flies the national flag.

Table 17

### Control of world fleet, main country groups, as at 1 January 2007<sup>a</sup> (Percentage shares of dwt)

Country of domicile	National flag	Foreign flag	Total
<b>Developed countries</b>	17.3	48.6	65.9
<b>Countries with economies in transition</b>	1.2	1.7	2.9
<b>Developing countries</b>	15.2	16.0	31.2
<b>Total</b>	33.7	66.3	100.0

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> UNCTAD secretariat estimation based on ownership data of the top 35 vessel-owning countries, which account for 95.3 per cent of the world dwt of vessels of 1,000 GT and above, as well as registration data for all countries.

Approximately 47 per cent of the world dwt is controlled by European countries, approximately 46 per cent by Asian and Pacific countries, and approximately 6 per cent by countries in the Americas. African countries control less than 1 per cent of the world fleet. In all regions more than half of the dwt is foreign-flagged, with 70 per cent foreign-flagged dwt in Europe, 65 per cent in Asia and 53 per cent in the Americas.

Developing countries are increasingly active in the purchase and sale of cargo ships. By way of example, in mid-2007, the Shipping Corp of India reported an

extensive fleet expansion plan. It aimed to acquire 72 vessels at a cost of \$4 billion over five years, 25 per cent of which were already on order. The first 12 vessels are scheduled to be delivered between 2008 and 2010. At the same time, a shipping conglomerate from Sri Lanka reported the sale of containerships because of the downturn in charter rates and high maintenance costs, while a Turkish company ordered two new 176,000 dwt bulk carriers from a Chinese shipyard. The Government of China is reportedly encouraging its shipyards to meet the deadline of 2010 for half of its LNG imports to be carried on Chinese-built and owned vessels.



### 3. Trends in the share of foreign flags

Since UNCTAD began recording the share of foreign-flagged dwt in 1989, this share increased every year until 2006. Between January 2006 and 2007, however, for the first time, the foreign-flagged share decreased slightly, from 66.5 to 66.35 per cent (see figure 6). Further growth in the use of foreign flags is limited by market restrictions in many countries with important cabotage traffic as well as Government-controlled trade, both of which may be reserved to nationally flagged vessels. At the same time, several countries have reduced the tax burden on nationally flagged vessels, thus achieving in some cases a return of previously foreign-flagged ships to the national flag. In general, the motivation for a vessel owner to use a foreign flag may include more favourable tax regimes, conditions to finance ships and the possibility of employing foreign seafarers. No general conclusions can be drawn as regards the safety of foreign-flagged versus nationally flagged vessels.

It should be noted that the “foreign flags” included in the calculations of this share of national and foreign flags (tables 16 and 17, and figure 6) exclude second registries,

such as the CSR (Spain), DIS (Denmark), FIS (France) and NIS (Norway), as well as ships registered under the flags of, for example, the Marshall Islands for the United States, the Isle of Man and Cayman Islands for the United Kingdom, and the Netherland Antilles for the Netherlands. If those second and international registries are included, the share of “foreign-flagged” vessels becomes more than 71 per cent of the world fleet’s dwt. Section C looks at the main flags of registration of the world fleet in more detail.

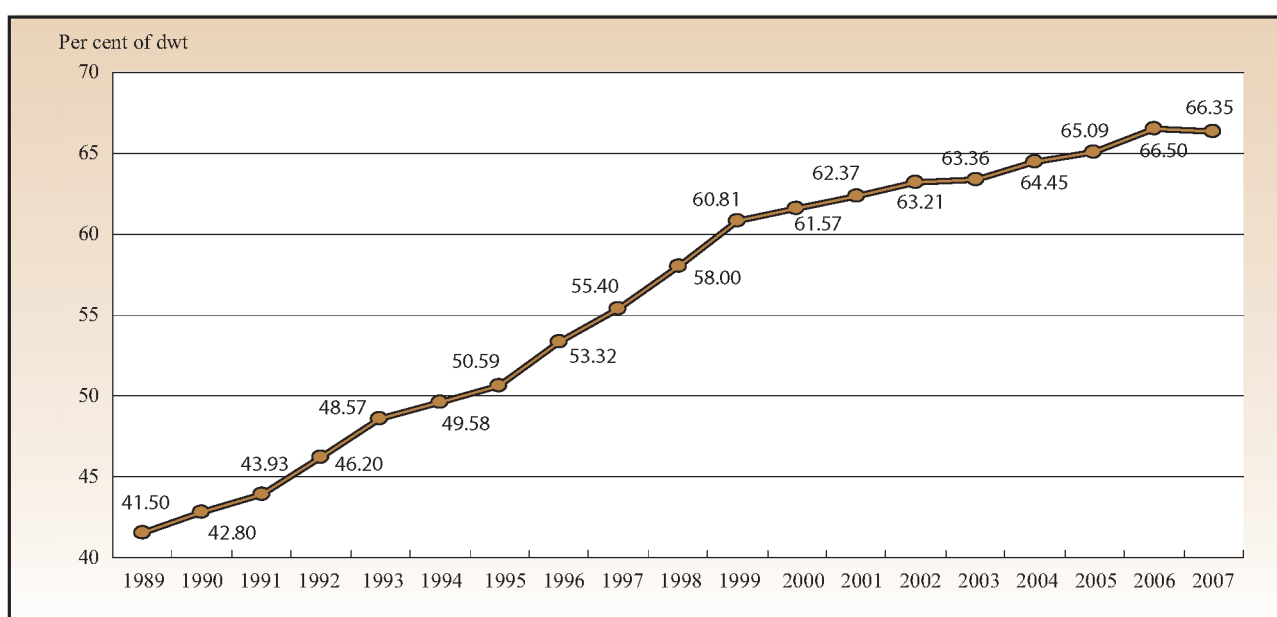
## C. REGISTRATION OF SHIPS

### 1. Flags of registration

The 35 countries and territories with the largest fleets registered under their flag are ranked in table 18 according to deadweight tonnage.<sup>13</sup> Together, they account for 959 million dwt, corresponding to 92 per cent of the world fleet. The top five registries together account for 48 per cent, and the top 10 registries for 68 per cent of the world’s dwt. The largest flag of registration continues to be Panama, with 232 million dwt (22.3 per cent of the world), followed by Liberia (105 million dwt, 10.1 per cent). These two leading registries are followed

Figure 6

Share of foreign-flagged deadweight tonnage, 1989–2007<sup>a</sup>



Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd’s Register – Fairplay.

<sup>a</sup> Cargo-carrying vessels of 1,000 GT and above.



Table 18

The 35 flags of registration with the largest registered deadweight tonnage as of 1 January 2007<sup>a</sup>

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	Share of nationals of country of registry <sup>b</sup>
Panama	7 199	7.58	232 148	22.27	22.27	32 247	0
Liberia	1 908	2.01	105 227	10.10	32.37	55 150	0
Bahamas	1 394	1.47	55 238	5.30	37.67	39 625	0
Greece	1 459	1.54	55 145	5.29	42.96	37 796	92
Marshall Islands	963	1.01	54 644	5.24	48.20	56 744	26
Hong Kong (China)	1 159	1.22	54 341	5.21	53.41	46 886	39
Singapore	2 080	2.19	51 043	4.90	58.31	24 540	30
Malta	1 287	1.36	40 201	3.86	62.17	31 236	0
China	3 700	3.90	34 924	3.35	65.52	9 439	99
Cyprus	966	1.02	29 627	2.84	68.36	30 670	8
NIS	614	0.65	20 285	1.95	70.30	33 038	61
Republic of Korea	2 829	2.98	16 540	1.59	71.89	5 847	96
Japan	6 713	7.07	15 083	1.45	73.34	2 247	100
Isle of Man	360	0.38	14 225	1.36	74.70	39 514	38
India	1 185	1.25	14 190	1.36	76.06	11 974	98
Italy	1 566	1.65	13 279	1.27	77.34	8 480	92
Germany	875	0.92	13 172	1.26	78.60	15 054	99
United Kingdom	1 596	1.68	12 810	1.23	79.83	8 026	44
United States	6 422	6.76	12 354	1.19	81.02	1 924	83
Antigua and Barbuda	1 081	1.14	10 400	1.00	82.01	9 621	0
DIS	418	0.44	10 004	0.96	82.97	23 933	97
Bermuda	149	0.16	9 361	0.90	83.87	62 829	6
Iran (Islamic Republic of)	475	0.50	8 953	0.86	84.73	18 848	100
Malaysia	1 101	1.16	8 571	0.82	85.55	7 784	76
Saint Vincent and the Grenadines	1 063	1.12	8 552	0.82	86.37	8 045	0
Russian Federation	3 650	3.84	7 612	0.73	87.10	2 085	94
Turkey	1 182	1.25	7 223	0.69	87.80	6 111	99
Belgium	233	0.25	6 995	0.67	88.47	30 019	93
Philippines	1 843	1.94	6 704	0.64	89.11	3 637	39
Indonesia	4 286	4.51	6 392	0.61	89.72	1 491	94
Netherlands	1 258	1.33	5 828	0.56	90.28	4 633	67
Cayman Islands	157	0.17	4 637	0.44	90.73	29 538	7
FIS	55	0.06	4 636	0.44	91.17	84 296	30
Taiwan Province of China	629	0.66	4 398	0.42	91.60	6 991	93
Thailand	790	0.83	4 320	0.41	92.01	5 469	66
<b>Top 35</b>	<b>62 645</b>	<b>65.99</b>	<b>959 062</b>	<b>92.01</b>		<b>15 309</b>	<b>32</b>
<b>World total</b>	<b>94 936</b>	<b>100.00</b>	<b>1 042 351</b>	<b>100.00</b>		<b>10 980</b>	<b>34</b>

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Ships of 100 GT and above.<sup>b</sup> The estimated share is based on data about vessels of 1,000 GT and above.

by five flags with between 51 and 55 million dwt (close to 5 per cent of the world fleet) each; they are the Bahamas, Greece, the Marshall Islands, Hong Kong (China) and Singapore.

The flag of the world's largest registry, Panama, is predominantly used by vessel owners of Japan, Greece, China, Taiwan Province of China and Switzerland. Japanese owners alone account for about half of the Panama registered dwt, and the other four economies together for about one quarter; together the five economies make up three quarters of Panama's registered fleet. From the perspective of the country of domicile, owners from Japan and Switzerland rely most heavily on Panama to provide the flag for their ships, each having more than 75 per cent of their nationally controlled fleet registered in Panama. As regards vessel types, 33 per cent of the world's dwt of dry bulk carriers flies the flag of Panama.

The world's second largest registry, Liberia, is predominantly used by owners from Germany (mostly for containerships) as well as from Greece, the Russian Federation and Saudi Arabia (mostly for oil tankers). Saudi Arabia relies on Liberia to provide the flag for more than half of its nationally controlled fleet. Liberia supplies the flag for more than 10 per cent of the world's dwt, albeit for just 2 per cent of the number of ships, this being due to the large average vessel size of Liberian-registered ships. Apart from Panama and Liberia, there are four other registries — the Bahamas, Malta, Antigua and Barbuda, and Saint Vincent and the Grenadines — with less than 1 per cent of registered ships controlled by interests domiciled in the same country (table 18).

Although in general open to any shipowner, most open registries effectively specialize in some countries of domicile. For example, three quarters of the dwt registered in Malta is owned by Greeks, more than 90 per cent of the fleet of Antigua and Barbuda is owned by Germans, and about 60 per cent of the dwt of Saint Vincent and the Grenadines originates from Greece and from China.

A number of vessel registries are based in currently or previously dependent territories. These include the Marshall Islands, pertaining to the United States, as well as the Isle of Man, Bermuda and the Cayman Islands, pertaining to the United Kingdom. Although special relationships may have existed between a country's shipowners and such second registries, these registries do not differ now from traditional open registries. Less

than one quarter of the fleet registered in the Marshall Islands is controlled by the United States, and only around one third of the fleet registered in the Isle of Man actually has owners domiciled in the United Kingdom. In the case of Bermuda, there are more owners from Hong Kong (China), Sweden, Germany and the United States that use the flag of Bermuda than owners from the United Kingdom. By the same token, the flag of the Cayman Islands is more often used by owners from Greece, the United States, Germany and Italy than owners from the United Kingdom. Among the top 35 flags of registration, there are three "second national registries", pertaining to Norway (NIS), Denmark (DIS) and France (FIS). Interestingly, such second national registries increasingly also cater for nationals of other countries. The shares of foreign-controlled dwt amount to approximately 40 per cent for NIS, 5 per cent for DIS and 70 per cent for FIS. In the case of FIS, there is more Belgian-owned tonnage in this registry than French-owned tonnage.

Fourteen of the top 35 flags of registration cater mostly for their own national shipowners. They are Greece, China, the Republic of Korea, Japan, India, Italy, Germany, the United States, the Islamic Republic of Iran, the Russian Federation, Turkey, Belgium, Indonesia and Taiwan Province of China. There are a further seven countries or economies that provide their flag both to their own nationals and to a significant share of foreigners. These are Hong Kong (China) (approximately 61 per cent foreign-controlled tonnage), Singapore (70 per cent), United Kingdom (56 per cent), Malaysia (24 per cent), the Netherlands (33 per cent), the Philippines (61 per cent) and Thailand (34 per cent).

There is no clear definition of "open" registries. In view of the above-described differences in terms of foreign-controlled but nationally registered fleets, any distinction between "national" or "open" registries cannot be clear-cut. The following section will look in more detail at the links between ownership and registration for the 10 major open registries and 35 major countries of domicile.

## 2. Nationality of controlling interests

Table 19 presents the controlling nationality of the dwt registered in the largest 10 open and international registries for the 35 largest countries of domicile. It has to be noted that the figures for ownership — that is, the "country of domicile" of ships' controlling interests — are not always exact. Stockholding companies may be owned by a large number of nationals from different countries. A company may be holding shares of less than

Table 19

True nationality of major open-registry fleets, as of 1 January 2007<sup>a</sup>

Country or territory of domicile	Panama			Liberia			Bahamas		
	No. of vessels	000 dwt	%	No. of vessels	000 dwt	%	No. of vessels	000 dwt	%
Greece	546	22 211	10.2	288	18 834	19.5	228	12 632	25.0
Japan	2 082	112 196	51.6	102	5 570	5.8	59	3 608	7.1
Germany	34	5 231	2.4	659	30 022	31.1	39	2 281	4.5
China	460	15 567	7.2	51	2 977	3.1	5	211	0.4
Norway	68	1 580	0.7	40	2 695	2.8	268	6 836	13.5
United States	145	2 278	1.0	105	3 610	3.7	166	10 352	20.5
Hong Kong (China)	159	10 579	4.9	23	1 116	1.2	7	638	1.3
Republic of Korea	297	15 904	7.3	4	463	0.5	0	0	0.0
United Kingdom	43	1 010	0.5	34	1 132	1.2	86	1 906	3.8
Singapore	78	2 470	1.1	42	4 833	5.0	11	389	0.8
Taiwan Province of China	306	10 202	4.7	76	5 793	6.0	2	110	0.2
Denmark	31	732	0.3	8	231	0.2	71	948	1.9
Russian Federation	12	177	0.1	86	7 265	7.5	6	37	0.1
Italy	10	138	0.1	19	1 133	1.2	8	461	0.9
India	26	751	0.3	2	154	0.2	1	8	0.0
Switzerland	234	9 431	4.3	10	280	0.3	2	97	0.2
Belgium	12	256	0.1	0	0	0.0	13	168	0.3
Saudi Arabia	12	289	0.1	26	6 660	6.9	15	2 788	5.5
Turkey	45	375	0.2	3	53	0.1	9	351	0.7
Iran (Islamic Republic of)	7	88	0.0	0	0	0.0	0	0	0.0
Netherlands	33	321	0.1	42	763	0.8	34	1 283	2.5
United Arab Emirates	111	1 719	0.8	20	1 097	1.1	19	1 147	2.3
Indonesia	42	541	0.2	1	79	0.1	3	102	0.2
Malaysia	18	91	0.0	0	0	0.0	11	73	0.1
Sweden	7	68	0.0	9	380	0.4	9	69	0.1
Cyprus	14	746	0.3	6	272	0.3	16	625	1.2
France	12	229	0.1	3	131	0.1	40	1 187	2.3
Canada	4	43	0.0	2	32	0.0	14	557	1.1
Brazil	7	1 101	0.5	3	456	0.5	1	149	0.3
Kuwait	2	109	0.0	1	42	0.0	0	0	0.0
Spain	58	422	0.2	0	0	0.0	11	1 366	2.7
Philippines	16	318	0.1	0	0	0.0	1	28	0.1
Viet Nam	9	165	0.1	1	65	0.1	0	0	0.0
Thailand	10	62	0.0	0	0	0.0	1	17	0.0
Australia	4	80	0.0	2	355	0.4	2	95	0.2
<b>Total 35 countries/territories</b>	<b>4 954</b>	<b>217 480</b>	<b>100.0</b>	<b>1 668</b>	<b>96 492</b>	<b>100.0</b>	<b>1 158</b>	<b>50 517</b>	<b>100.0</b>
<b>Percentage share among 35 countries/territories</b>	<b>15.9</b>	<b>23.3</b>		<b>5.4</b>	<b>10.3</b>		<b>3.7</b>	<b>5.4</b>	

Table 19 (continued)

Marshall Islands			Malta			Cyprus			Country or territory of domicile
No. of vessels	000 dwt	%	No. of vessels	000 dwt	%	No. of vessels	000 dwt	%	
190	11 687	23.9	473	25 832	74.2	313	15 540	54.1	Greece
5	205	0.4	1	27	0.1	19	467	1.6	Japan
190	10 185	20.8	59	1 720	4.9	185	4 998	17.4	Germany
2	72	0.1	13	216	0.6	10	238	0.8	China
66	6 582	13.5	62	503	1.4	17	791	2.8	Norway
191	12 889	26.4	8	68	0.2	7	22	0.1	United States
9	584	1.2	2	46	0.1	1	19	0.1	Hong Kong (China)
2	455	0.9	5	131	0.4	3	76	0.3	Republic of Korea
10	721	1.5	8	114	0.3	25	1 216	4.2	United Kingdom
6	330	0.7	0	0	0.0	1	30	0.1	Singapore
0	0	0.0	0	0	0.0	0	0	0.0	Taiwan Province of China
4	260	0.5	7	197	0.6	2	47	0.2	Denmark
4	75	0.2	69	788	2.3	51	1 532	5.3	Russian Federation
2	156	0.3	39	857	2.5	3	11	0.0	Italy
0	0	0.0	1	38	0.1	0	0	0.0	India
14	417	0.9	24	447	1.3	4	68	0.2	Switzerland
0	0	0.0	10	72	0.2	1	9	0.0	Belgium
3	928	1.9	0	0	0.0	0	0	0.0	Saudi Arabia
32	933	1.9	127	1 933	5.6	0	0	0.0	Turkey
0	0	0.0	14	871	2.5	2	148	0.5	Iran (Islamic Republic of)
1	2	0.0	5	32	0.1	23	159	0.6	Netherlands
9	354	0.7	11	310	0.9	11	525	1.8	United Arab Emirates
0	0	0.0	0	0	0.0	0	0	0.0	Indonesia
3	37	0.1	0	0	0.0	0	0	0.0	Malaysia
3	18	0.0	1	9	0.0	2	9	0.0	Sweden
38	1 082	2.2	16	484	1.4	97	2 439	8.5	Cyprus
0	0	0.0	4	45	0.1	0	0	0.0	France
4	143	0.3	16	64	0.2	2	60	0.2	Canada
2	605	1.2	0	0	0.0	0	0	0.0	Brazil
0	0	0.0	0	0	0.0	0	0	0.0	Kuwait
2	98	0.2	1	17	0.0	8	309	1.1	Spain
0	0	0.0	0	0	0.0	1	2	0.0	Philippines
0	0	0.0	0	0	0.0	0	0	0.0	Viet Nam
0	0	0.0	0	0	0.0	0	0	0.0	Thailand
1	73	0.1	0	0	0.0	0	0	0.0	Australia
793	48 893	100.0	976	34 823	100.0	788	28 715	100.0	Total 35 countries/territories
2.5	5.2		3.1	3.7		2.5	3.1		Percentage share among 35 countries/territories

Table 19 (continued)

Country or territory of domicile	Isle of Man			Antigua & Barbuda			Saint Vincent & the Grenadines			Bermuda		
	No. of vessels	000 dwt	%	No. of vessels	000 dwt	%	No. of vessels	000 dwt	%	No. of vessels	000 dwt	%
Greece	46	3 953	28.5	3	26	0.3	85	2 376	36.2	2	88	1.5
Japan	4	13	0.1	0	0	0.0	0	0	0.0	0	0	0.0
Germany	55	822	5.9	869	9 020	92.5	4	20	0.3	21	747	12.9
China	0	0	0.0	0	0	0.0	111	2 198	33.5	0	0	0.0
Norway	52	2 519	18.1	11	147	1.5	27	99	1.5	5	58	1.0
United States	5	289	2.1	7	20	0.2	27	198	3.0	29	381	6.6
Hong Kong (China)	0	0	0.0	0	0	0.0	6	96	1.5	15	2 127	36.6
Republic of Korea	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
United Kingdom	90	5 281	38.0	5	44	0.5	12	158	2.4	6	339	5.8
Singapore	2	94	0.7	0	0	0.0	5	77	1.2	1	155	2.7
Taiwan Province of China	0	0	0.0	0	0	0.0	3	4	0.1	0	0	0.0
Denmark	67	501	3.6	17	117	1.2	15	37	0.6	0	0	0.0
Russian Federation	0	0	0.0	5	14	0.1	25	285	4.3	0	0	0.0
Italy	2	150	1.1	0	0	0.0	19	229	3.5	0	0	0.0
India	0	0	0.0	0	0	0.0	8	120	1.8	0	0	0.0
Switzerland	0	0	0.0	4	184	1.9	17	302	4.6	0	0	0.0
Belgium	0	0	0.0	1	4	0.0	9	29	0.4	3	23	0.4
Saudi Arabia	0	0	0.0	0	0	0.0	1	3	0.0	0	0	0.0
Turkey	2	7	0.0	9	36	0.4	18	87	1.3	0	0	0.0
Iran (Islamic Republic of)	0	0	0.0	0	0	0.0	3	7	0.1	0	0	0.0
Netherlands	1	2	0.0	16	71	0.7	7	13	0.2	1	273	4.7
United Arab Emirates	0	0	0.0	0	0	0.0	18	103	1.6	0	0	0.0
Indonesia	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Malaysia	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Sweden	3	97	0.7	1	2	0.0	2	5	0.1	15	1 239	21.3
Cyprus	4	150	1.1	1	44	0.4	3	29	0.4	0	0	0.0
France	2	8	0.1	1	4	0.0	17	56	0.9	1	7	0.1
Canada	0	0	0.0	0	0	0.0	7	27	0.4	0	0	0.0
Brazil	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Kuwait	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Spain	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Philippines	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Viet Nam	0	0	0.0	3	10	0.1	0	0	0.0	0	0	0.0
Thailand	0	0	0.0	0	0	0.0	0	0	0.0	0	0	0.0
Australia	0	0	0.0	1	6	0.1	0	0	0.0	5	371	6.4
<b>Total 35 countries/territories</b>	<b>335</b>	<b>13 885</b>	<b>100.0</b>	<b>954</b>	<b>9 750</b>	<b>100.0</b>	<b>449</b>	<b>6 557</b>	<b>100.0</b>	<b>104</b>	<b>5 809</b>	<b>100.0</b>
<b>Percentage share among 35 countries/territories</b>	<b>1.1</b>	<b>1.5</b>		<b>3.1</b>	<b>1.0</b>		<b>1.4</b>	<b>0.7</b>		<b>0.3</b>	<b>0.6</b>	

Table 19 (continued)

Total major 10 open and international registries					Total national controlled fleet, 000 dwt	Major 10 registries as % of total national controlled fleet	Country or territory of domicile
No. of vessels	% of vessels	000 dwt	% of dwt	Average vessel size			
2 171	19.3	113 153	22.5	52 120	170 181	66.5	Greece
2 272	20.2	122 085	24.3	53 735	147 507	82.8	Japan
1 246	11.1	56 026	11.1	44 965	85 043	65.9	Germany
652	5.8	21 479	4.3	32 944	70 390	30.5	China
605	5.4	21 663	4.3	35 806	48 697	44.5	Norway
683	6.1	30 089	6.0	44 054	48 261	62.3	United States
222	2.0	15 203	3.0	68 484	45 053	33.7	Hong Kong (China)
311	2.8	17 029	3.4	54 757	32 287	52.7	Republic of Korea
314	2.8	11 878	2.4	37 827	26 757	44.4	United Kingdom
146	1.3	8 378	1.7	57 383	25 723	32.6	Singapore
387	3.4	16 108	3.2	41 622	24 858	64.8	Taiwan Province of China
205	1.8	2 952	0.6	14 399	21 878	13.5	Denmark
253	2.3	10 159	2.0	40 153	18 106	56.1	Russian Federation
102	0.9	3 136	0.6	30 744	15 962	19.6	Italy
38	0.3	1 071	0.2	28 178	14 817	7.2	India
305	2.7	11 042	2.2	36 205	12 501	88.3	Switzerland
48	0.4	559	0.1	11 642	12 490	4.5	Belgium
57	0.5	10 668	2.1	187 161	11 861	89.9	Saudi Arabia
236	2.1	3 738	0.7	15 840	10 927	34.2	Turkey
26	0.2	1 114	0.2	42 837	9 994	11.1	Iran (Islamic Republic of)
147	1.3	2 849	0.6	19 381	8 745	32.6	Netherlands
199	1.8	5 255	1.0	26 405	6 918	76.0	United Arab Emirates
46	0.4	722	0.1	15 699	6 684	10.8	Indonesia
32	0.3	201	0.0	6 276	6 657	3.0	Malaysia
51	0.5	1 894	0.4	37 129	6 418	29.5	Sweden
194	1.7	5 827	1.2	30 036	6 153	94.7	Cyprus
79	0.7	1 664	0.3	21 058	5 965	27.9	France
49	0.4	927	0.2	18 928	5 945	15.6	Canada
13	0.1	2 311	0.5	177 788	4 875	47.4	Brazil
3	0.0	150	0.0	50 138	4 783	3.1	Kuwait
80	0.7	2 212	0.4	27 649	4 420	50.0	Spain
18	0.2	348	0.1	19 343	3 137	11.1	Philippines
10	0.1	230	0.0	22 996	3 045	7.6	Viet Nam
11	0.1	79	0.0	7 204	2 913	2.7	Thailand
14	0.1	973	0.2	69 476	2 869	33.9	Australia
11 225	100.0	503 172	100.0	44 826	932 819	53.9	Total 35 countries/territories
36.1		53.9			100.0		Percentage share among 35 countries/territories

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Ships of 1,000 GT and above.



100 per cent in companies in third countries. Especially in container shipping, there is a clear distinction between the vessel owners, many of which are German or Greek, and the operators, which charter the vessel and sell liner shipping services under their own name. Nevertheless, for most ships it is possible to identify not only the country under whose flag it is registered, but also the country from where the ship is controlled commercially.

As can be seen from table 19, most open and international registries specialize in certain countries of domicile. Panama is the only registry that provides its flag to vessels from all 35 countries covered in the table. It has a particularly high share of Japanese-controlled vessels; the Bahamas, Cyprus, Malta and the Marshall Islands provide the flag for a high proportion of Greek-controlled vessels; and Liberia, and especially Antigua and Barbuda, register a large share of German-owned vessels.

Table 20 shows the registration of tonnage by main groups of countries, as well as the proportion of nationally and foreign-controlled dwt, that is the vessel owners' countries of domicile. As can be seen, developing countries provide the flag for 64.8 per cent of the world's dwt, developed countries have a share of 33.9 per cent and countries in transition the remaining 1.4 per cent.

Among the developing countries, those in America have the largest share (29 per cent of the world's dwt), followed by Asia (21 per cent), Africa (10 per cent) and Oceania (less than half a per cent). As regards Africa, 95 per cent of the African-flagged dwt corresponds to the flag of Liberia, whose registry is mostly managed from offices located in the United States. For the Americas, the foreign-flagged dwt includes ships registered in Panama, the Bahamas, Antigua and Barbuda, and Saint Vincent and the Grenadines, as well as numerous smaller open registries, such as Barbados, Belize, Bolivia, Dominica, Honduras, Jamaica, and Saint Kitts and Nevis. In Asia, the main foreign-controlled registrations are those using the flags of Singapore, Hong Kong (China) and increasingly the Philippines, as well as smaller open registries such as Cambodia, Mongolia and Myanmar. The majority of dwt registered in Oceania flies the flags of Tuvalu and Vanuatu, both of which are open registries. The largest registered fleet of the countries in transition is that of the Russian Federation, which caters mostly for dwt whose controlling interest is domiciled at home; there are no major open registries located in the countries in transition.

## **D. SHIPBUILDING AND THE SECOND-HAND MARKET**

### **1. Tonnage on order**

Tonnage on order as of 31 December 2006 consists of 118 million dwt oil tankers (39 per cent of the world total dwt on order), 79 million dwt of dry bulk carriers (26.2 per cent), 8 million dwt of general cargo vessels (2.6 per cent), 51.7 million dwt of containerships (17.1 per cent) and 45.6 million dwt of other vessel types (15.1 per cent). Total tonnage on order is at its highest level since the beginning of the decade — 6,908 vessels with a total tonnage of 302.7 million dwt (see table 21). Figure 7 illustrates the development of the four main vessel types over the last six years. The tonnage of containerships on order has more than tripled since December 2006 (an increase of 220 per cent), orders for oil tankers increased by 193 per cent, orders for dry bulk carriers by 154 per cent and orders for general cargo vessels by 102 per cent.

As regards average vessel sizes, the largest vessel orders continue to be for oil tankers, although the average vessel size decreased from 142,001 dwt in December 2000 to 109,470 dwt in December 2006. Given the smaller vessel sizes, the growth in oil tanker tonnage on order reflects an impressive growth in the number of ships on order, which now stands at over 1,000 oil tankers, having almost quadrupled since December 2000. Containership sizes increased until mid-2004: they reached an average size of 54,467 dwt in March of that year, reflecting an increasing share of post-Panamax tonnage. Since 2004, however, new orders increasingly also include Panamax and feeder vessel sizes; this reduced the average vessel size to 45,247 in December 2006, a reduction of 17 per cent since its peak.

By mid-2007 the global tanker newbuildings order book had reportedly reached its highest ever level. The crude oil tanker order book stood at 100 million dwt (36 per cent of the existing fleet) and the products oil carrier order book at 50 million dwt (44 per cent). The order book for dry bulk carriers had reached 125 million dwt by mid-2007, equivalent to 34 per cent of the fleet. The largest containerships under construction in September 2007 were eight 13,092 TEU units. In total, in September 2007 there were 278 containerships on order with a capacity of 8,000 TEU and above. The total order book for containerships exceeds 6.2 million TEUs after the leading ocean carriers and major charter shipowners signed numerous new contracts.

Table 20

**Flags of registration, main country groups, as of 1 January 2007<sup>a</sup>**  
*(Percentage shares of dwt)*

Flag of registration	National control	Foreign control	Total by group of countries
<b>Developed countries</b>	17.3	16.6	33.9
<b>Countries with economies in transition</b>	1.2	0.1	1.4
<b>Developing countries</b>	15.2	49.6	64.8
<b>Total</b>	33.7	66.3	100.0

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> UNCTAD secretariat estimation based on ownership data of the top 35 vessel-owning countries, which account for 95.3 per cent of the world dwt of vessels of 1,000 GT and above, as well as registration data for vessels of 100 GT and above for all countries.

## 2. Prices of newbuildings and second-hand tonnage

Newbuilding prices for all vessel types have continued to increase compared with the previous year's figures. The highest increase (+39.7 per cent) was for 110,000 dwt tankers, followed by general cargo vessels (+33.3 per cent). Since the beginning of the decade, prices for all vessel types have increased, the increases ranging from one third for LNG carriers to almost double for 110,000 dwt tankers (see table 22).

Prices for second-hand tonnage fluctuate more than prices for newbuildings. Prices for five-year-old dry bulk carriers tripled between 2001 and 2006, reaching levels that are in fact higher than the corresponding newbuilding prices (see tables 22 and 23). A five-year-old 170,000 dwt dry bulk carrier in 2006 cost \$81 million compared with just \$25 million five years earlier, and a five-year-old 300,000 dwt tanker cost \$121 million compared with \$60 million in 2001.

The most expensive new ships are LNG carriers, which in 2006 cost \$220 million, equivalent to

almost \$1,500 per m<sup>3</sup>. Prices per dwt depend heavily on ship sizes, a fact that implies significant economies of scale. At \$433, the price per dwt on a 300,000 dwt tanker was only 41 per cent of the price on a 45,000 dwt tanker. In the case of dry bulk carriers, the price per dwt on a 170,000 dwt vessel was \$412, which was the lowest of all vessel types in the table, and represents 60 per cent of the price per dwt on a 45,000 dwt vessel. Containerships are more expensive than tankers and dry bulk carriers: a 2,500 TEU containership in 2006 cost \$18,400 per TEU (corresponding to about \$1,400 per dwt). In August 2007, carriers were reportedly paying \$165 million (\$12,600 per TEU) for eight new 13,092 TEU vessels that were scheduled to be delivered by Republic of Korea shipyards in 2011. As regards new bulk carrier prices, in September 2007, these were 50 per cent higher than at the end of 2006, reaching for example \$51 million for a Panamax vessel. Second-hand prices for dry bulk carriers reached historical records at double the price level of end of 2006 figures; at \$75 million a five-year-old Panamax dry bulk carrier was almost 50 per cent more expensive than a newly ordered ship.

Table 21

World tonnage on order, 2000–2006<sup>a</sup>

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
<b>December 2000</b>	40 328	284	142 001	31 208	486	64 214	3 966	446	8 892
<b>March 2001</b>	44 361	319	139 061	27 221	439	62 007	3 963	441	8 986
<b>June 2001</b>	45 123	339	133 105	26 103	400	65 258	4 154	419	9 914
<b>September 2001</b>	48 386	381	126 998	21 944	337	65 115	3 967	393	10 094
<b>December 2001</b>	51 894	399	130 060	22 184	353	62 845	3 826	372	10 286
<b>March 2002</b>	47 836	404	118 405	19 027	300	63 425	3 758	357	10 525
<b>June 2002</b>	49 564	425	116 622	18 132	283	64 069	3 932	353	11 139
<b>September 2002</b>	47 774	431	110 845	18 869	283	66 676	3 979	369	10 782
<b>December 2002</b>	47 591	488	97 523	28 641	391	73 251	2 832	257	11 018
<b>March 2003</b>	50 284	515	97 639	32 019	441	72 605	2 958	263	11 249
<b>June 2003</b>	55 771	540	103 279	33 408	455	73 425	2 592	250	10 368
<b>September 2003</b>	57 856	580	99 752	41 499	575	72 172	2 841	269	10 562
<b>December 2003</b>	61 123	631	96 867	46 732	640	73 019	3 068	295	10 400
<b>March 2004</b>	62 096	615	100 969	48 761	671	72 670	3 021	312	9 683
<b>June 2004</b>	66 652	649	102 699	50 545	696	72 623	2 838	317	8 954
<b>September 2004</b>	66 969	661	101 314	52 768	703	75 061	2 921	323	9 043
<b>December 2004</b>	71 563	701	102 087	62 051	796	77 953	3 306	370	8 935
<b>March 2005</b>	68 667	679	101 129	63 404	792	80 055	3 312	388	8 536
<b>June 2005</b>	70 520	686	102 799	65 326	801	81 556	4 079	456	8 945
<b>September 2005</b>	68 741	693	99 193	63 495	788	80 578	4 777	521	9 170
<b>December 2005</b>	70 847	724	97 855	66 614	805	82 750	5 088	584	8 712
<b>March 2006</b>	83 385	791	105 417	63 829	784	81 415	5 798	634	9 145
<b>June 2006</b>	93 277	887	105 160	69 055	859	80 390	7 370	683	10 791
<b>September 2006</b>	106 912	987	108 321	73 226	898	81 543	7 602	715	10 632
<b>December 2006</b>	118 008	1 078	109 470	79 364	988	80 328	8 004	737	10 860
<b>Percentage of total, December 2006</b>	39.0	15.6		26.2	14.3		2.6	10.7	

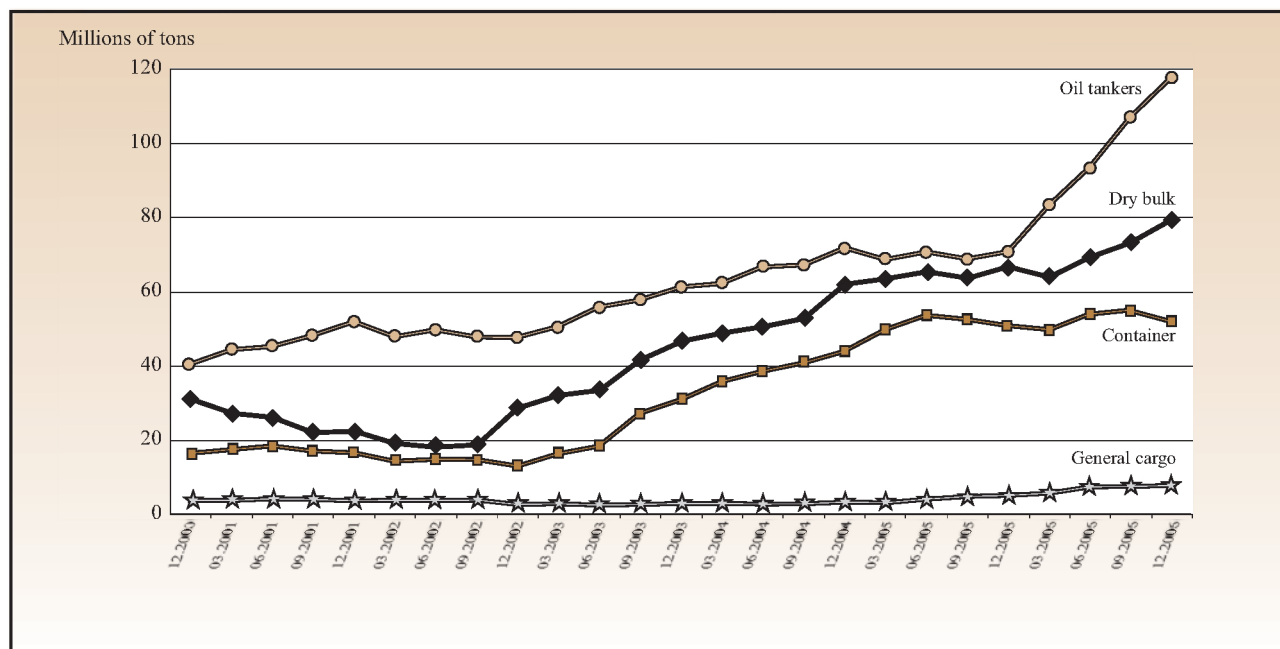
Table 21 (continued)

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	<b>December 2000</b>
17 350	435	39 884	10 154	1 132	8 970	103 048	2 766	37 255	<b>March 2001</b>
18 393	441	41 708	11 790	1 138	10 360	105 563	2 737	38 569	<b>June 2001</b>
16 943	413	41 025	12 181	1 153	10 564	103 421	2 677	38 633	<b>September 2001</b>
16 550	393	42 111	13 501	1 201	11 242	107 955	2 718	39 719	<b>December 2001</b>
14 476	355	40 776	12 839	1 200	10 700	97 936	2 616	37 437	<b>March 2002</b>
14 793	362	40 865	15 415	1 324	11 643	101 836	2 747	37 072	<b>June 2002</b>
14 509	338	42 927	15 342	1 292	11 875	100 473	2 713	37 034	<b>September 2002</b>
13 000	296	43 919	16 174	1 386	11 669	108 238	2 818	38 409	<b>December 2002</b>
16 281	326	49 943	16 199	1 365	11 868	117 742	2 910	40 461	<b>March 2003</b>
18 296	367	49 853	17 085	1 367	12 498	127 152	2 979	42 683	<b>June 2003</b>
27 216	503	54 107	18 062	1 484	12 171	147 475	3 411	43 235	<b>September 2003</b>
30 974	580	53 403	19 277	1 492	12 920	161 174	3 638	44 303	<b>December 2003</b>
35 840	658	54 468	20 068	1 520	13 203	169 786	3 776	44 965	<b>March 2004</b>
38 566	724	53 268	22 833	1 682	13 575	181 434	4 068	44 600	<b>June 2004</b>
41 172	808	50 956	24 368	1 714	14 217	188 198	4 209	44 713	<b>September 2004</b>
43 904	880	49 891	27 361	1 898	14 416	208 185	4 645	44 819	<b>December 2004</b>
49 624	1 006	49 328	27 328	1 940	14 087	212 335	4 805	44 190	<b>March 2005</b>
53 605	1 101	48 688	29 884	2 002	14 927	223 414	5 046	44 275	<b>June 2005</b>
52 378	1 132	46 271	31 209	2 158	14 462	220 600	5 292	41 686	<b>September 2005</b>
50 856	1 124	45 245	33 147	2 285	14 506	226 551	5 522	41 027	<b>December 2005</b>
49 749	1 130	44 026	36 750	2 373	15 487	239 512	5 712	41 931	<b>March 2006</b>
53 876	1 185	45 465	39 768	2 522	15 768	263 347	6 136	42 918	<b>June 2006</b>
54 676	1 199	45 601	42 322	2 714	15 594	284 738	6 513	43 718	<b>September 2006</b>
51 717	1 143	45 247	45 612	2 962	15 399	302 706	6 908	43 820	<b>December 2006</b>
17.1	16.5		15.1	42.9		100.0	100.0		<b>Percentage of total, December 2006</b>

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Ships of 100 GT and above.

Figure 7

World tonnage on order, 2000–2006<sup>a</sup>

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Ships of 100 GT and above.

Table 22

Representative newbuilding prices in selected years <sup>a</sup>

(Millions of dollars, end-of-year figures)

Type and size of vessels	1985	1990	1995	2000	2003	2004	2005	2006	Percentage change 2006/2005	Percentage change 2006/2000
45,000 dwt dry bulk carrier	11	24	25	20	22	30	28	31	10.7	55.0
45,000 dwt tanker	18	29	34	29	30	38	43	47	9.3	62.1
72,000 dwt dry bulk carrier	14	32	29	23	25	35	35	40	14.3	73.9
110,000 dwt tanker	22	42	43	41	41	56	58	81	39.7	97.6
170,000 dwt dry bulk carrier	27	45	40	40	47	61	59	70	18.6	75.0
300,000 dwt tanker	47	90	85	76	75	105	120	130	8.3	71.1
150,000 m <sup>3</sup> LNG	200	225	245	165	155	190	205	220	7.3	33.3
78,000 m <sup>3</sup> LPG	44	78	68	60	59	77	89	92	3.4	53.3
20,000 dwt general cargo	12	24	21	19	16	20	18	24	33.3	26.3
2,500 TEU full containership	26	52	50	35	38	42	42	46	9.5	31.4

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

<sup>a</sup> Vessel sizes for different years do not always coincide completely.

Table 23

**Second-hand prices for five-year-old ships, 2000–2006***(Millions of dollars, end-of-year figures)*

Vessel <sup>a</sup>	2000	2001	2002	2003	2004	2005	2006	Percentage change 2006/2005	Percentage change 2006/2000
40,000 dwt tankers	27	26	24	28	40	45.0	47.5	5.6	75.9
95,000 dwt tankers	39	33	30	38	57	59.5	66.0	10.9	69.2
150,000 dwt tankers	50	43	42	48	74	76.0	85.0	11.8	70.0
300,000 dwt tankers	71	60	53	75	107	108.0	121.0	12.0	70.4
45,000 dwt dry bulk carrier	15	12	15	21	30	25.0	37.5	50.0	150.0
70,000 dwt dry bulk carrier	16	14	17	28	41	30.0	46.0	53.3	187.5
170,000 dwt dry bulk carrier	25	25	29	46	65	58.0	81.0	39.7	224.0

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Fearnleys, *Review*, various issues.

<sup>a</sup> Vessel sizes for different years do not always coincide completely.

**Endnotes**

<sup>12</sup> Information in this chapter is based on data on vessels of 1,000 GT and above, as the country of domicile for owners of smaller ships is not always available. Vessels of 1,000 GT and above account for 93.9 per cent (978,557 dwt) of the world total of 1,042,351 dwt for all ships of 100 GT and above.

<sup>13</sup> Information in this chapter is based on data on vessels of 100 GT and above, except where the vessel owner's country of domicile is considered. For the latter case, data are for vessels of 1,000 GT and above.





## Chapter 3

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

*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. Key indicators are the comparison of cargo generation and fleet ownership, tons of cargo carried and ton-miles performed per deadweight ton, and the analysis of tonnage oversupply in the main shipping market sectors.*

*The operational productivity of the world fleet decreased slightly during 2006, reaching 7.1 tons carried per dwt and 29.4 thousand ton-miles per dwt. The world surplus tonnage increased to 10.1 million dwt, or 1.0 per cent of the world merchant fleet. As regards the supply and demand in container shipping, in 2006, for the first time since 2001, the growth of the fleet (supply) the growth outstripped of containerized trade (demand).*

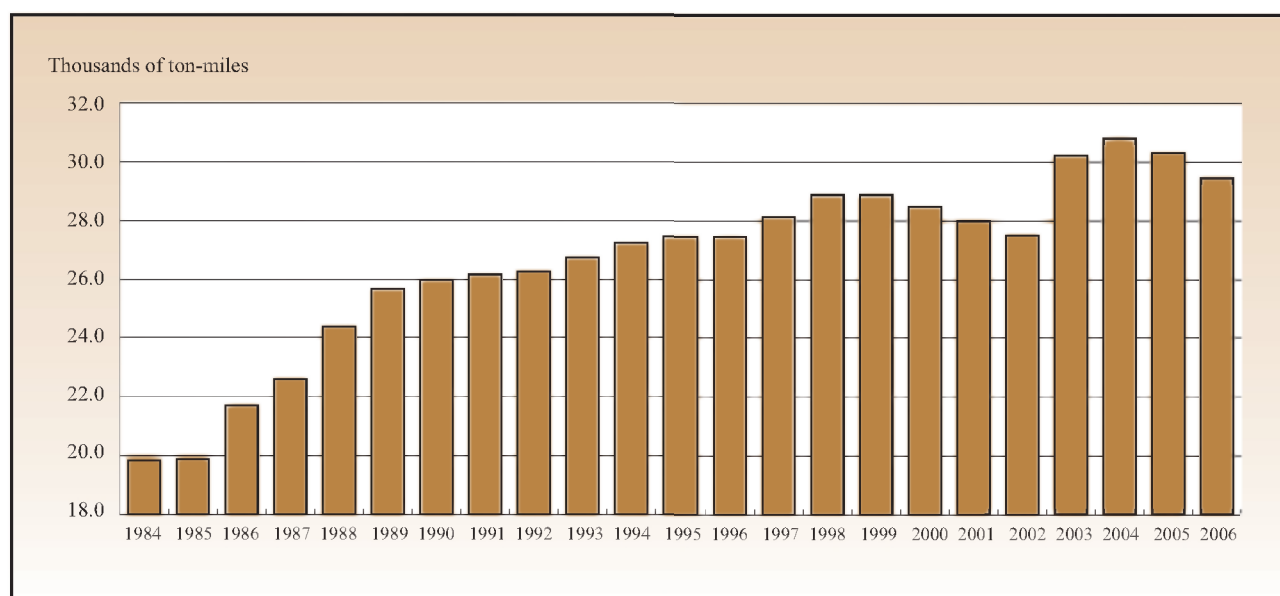
### A. OPERATIONAL PRODUCTIVITY

The main indicators of operational productivity for the world fleet in tons and ton-miles per deadweight ton (dwt) are shown in figure 8 and table 24. Tons of cargo carried per deadweight ton (dwt) in 2006 decreased slightly to 7.1, while thousands of ton-miles performed per deadweight ton decreased to 29.4. The marginal decrease in productivity measured in tons of cargo carried per deadweight ton (dwt) reflects the faster rate of fleet expansion relative to the cargo carried. The year-on-year decrease in productivity, measured in ton-miles per dwt, also resulted from fleet expansion, which slightly outweighed growth in seaborne trade and distance travelled. In spite of short-term fluctuations, there is a long-term positive trend as regards fleet productivity, which increased by 50 per cent over two decades (figure 8). Among the main reasons for this long-term positive trend are improved port productivity and shorter waiting times, which increase the proportion of vessel time spent at sea versus vessel time spent in ports.

Table 25 provides supplementary data on operational productivity in terms of cargo carried per dwt by type of vessel. Productivity in terms of tons carried per dwt for oil tankers decreased slightly from 6.4 in 2005 to 6.1 in 2006, while that for dry bulk remained at 5.1 tons per dwt. The cargo volumes carried per dwt of the residual fleet also decreased marginally from 10.3 to 9.7 tons per dwt.

Indicative data on ton-miles performed by oil tankers, dry bulk carriers and the residual fleet are provided in table 26. The thousands of ton-miles per dwt of oil tankers decreased from 33.2 to 31.7 in 2006, while the corresponding figure for dry bulk carriers decreased marginally from 25.5 to 25.4. The productivity of the residual fleet measured in ton-miles per dwt decreased slightly from 33.6 to 31.5. Apart from short-term fluctuations, the productivity of the residual fleet, which increasingly includes containerships, has experienced a long-term positive trend since 1970, while oil tankers and dry bulk carriers had greater productivity in 1970

Figure 8

**Ton-miles performed per deadweight ton (dwt) of total world fleet, 1984–2006**

Source: UNCTAD calculations.

Table 24

**Cargo carried and ton-miles performed per deadweight ton (dwt) of the total world fleet, selected years**

Year	World fleet (million dwt)	Total cargo (million tons)	Total ton-miles performed (thousands of millions of ton-miles)	Tons carried per dwt	Thousands of ton- miles performed per dwt
1990	658	4 008	17 121	6.1	26.0
1995	735	4 651	20 262	6.3	27.6
2000	808	5 871	23 693	7.3	29.3
2004	896	6 846	27 574	7.6	30.8
2005	960	7 109	29 094	7.4	30.3
2006	1 042	7 416	30 686	7.1	29.4

Sources: World fleet: Lloyd's Register – Fairplay (dwt: mid-year data for 1990, year-end data for all other years shown); total cargo carried: UNCTAD secretariat; ton-miles: Fearnleys, *Review*, various issues. Data compiled by the UNCTAD secretariat.

Table 25

Estimated productivity of tankers, bulk carriers, combined carriers and the residual fleet,<sup>a</sup>  
selected years  
(Tons carried per dwt)

Year	Tons of oil carried by tankers of over 50,000 dwt (millions)	Tons carried per dwt of tankers	Tons of dry cargo carried by bulk carriers of over 18,000 dwt (millions)	Tons carried per dwt of bulk carriers	Tons of oil and dry bulk cargo carried by combined carriers of over 18,000 dwt (millions)	Tons carried per dwt of combined carriers	Tons carried by the residual fleet (millions)	Tons carried per dwt of the residual fleet
1970	1 182	8.6	403	8.4	97	6.8	800	6.3
1980	1 564	4.8	396	2.9	282	5.8	1 406	8.3
1990	1 427	6.0	667	3.3	203	6.3	1 680	9.1
2000	2 073	7.3	1 255	4.6	122	7.9	2 533	10.5
2004	2 204	6.6	1 588	5.1	78	8.0	2 690	11.3
2005	2 279	6.4	1 717	5.1	71	9.1	2 666	10.3
2006	2 331	6.1	1 834	5.1	61	10.9	2 818	9.7

Sources: Compiled by the UNCTAD secretariat on the basis of data from Fearnleys, *Review*, various issues; *World Bulk Trades* and *World Bulk Fleet*, various issues; and other specialized sources.

<sup>a</sup> The residual fleet refers to general cargo, container and other vessels included in table 8.

Table 26

Estimated productivity of tankers, bulk carriers, combined carriers and the residual fleet,<sup>a</sup>  
selected years  
(Thousands of ton-miles performed per dwt)

Year	Ton-miles of oil by tankers (thousands of millions)	Ton- miles per dwt of tankers	Ton-miles of dry bulk cargo by dry bulk carriers (thousands of millions)	Ton- miles per dwt of bulk carriers	Ton-miles of oil and dry bulk cargo by combined carriers (thousands of millions)	Ton-miles per dwt of combined carriers	Ton-miles of the residual fleet (thousands of millions)	Ton-miles per dwt of the residual fleet
1970	6 039	43.8	1 891	39.4	745	52.5	1 979	15.7
1980	9 007	27.6	2 009	14.5	1 569	32.4	4 192	24.8
1990	7 376	30.8	3 804	18.8	1 164	36.0	4 777	26.0
2000	9 840	34.5	6 470	23.9	593	38.5	6 837	28.3
2004	11 100	33.0	8 139	26.2	418	43.1	8 335	34.9
2005	11 749	33.2	8 615	25.5	320	41.0	8 730	33.6
2006	12 151	31.7	9 341	25.4	n.a.	n.a.	9 195	31.5

Sources: Compiled by the UNCTAD secretariat on the basis of data from Fearnleys, *Review*, various issues; *World Bulk Trades* and *World Bulk Fleet*, various issues; and other specialized sources.

<sup>a</sup> The residual fleet refers to general cargo, container and other vessels included in table 8.

than today; compared with the situation in 1980, however, oil tankers and dry bulk carriers have also seen their productivity increase.

## B. SUPPLY AND DEMAND IN WORLD SHIPPING

A summary of the balance of tonnage supply and demand for selected years appears in table 27. The surplus tonnage of oil tankers, dry bulk carriers and general cargo ships in 2006 stood at 10.1 million dwt, slightly above that of the previous year. The share of surplus tonnage as a percentage of the total world merchant fleet stood at a low of 0.7 per cent in 2005 and increased to 1.0 per cent in 2006. Tonnage supply in the oil tanker sector in 2006 reached 367.4 million dwt as newbuildings delivered outweighed tonnage scrapped, laid up or lost (see table 28 and figure 9). Overcapacity increased to 6.1 million dwt, or 1.7 per cent of the total world tanker fleet. In 2006, the total dry bulk fleet supply increased by 21.8 million dwt to 361.8 million dwt. Overtonnage for this type of vessel reached 3.4 million dwt, equivalent to 0.9 per cent of the dry bulk fleet. For

the conventional general cargo fleet, overcapacity stood marginally below the level of the previous year, with supply exceeding demand by only 0.64 million dwt, or 1.4 per cent of the world fleet of this sector. The surplus tonnage of general cargo vessels has been under 1 million dwt for the last few years.

As regards the growth of supply and demand in container shipping, table 29 provides a comparison of the annual change in containerized trade (TEU) and the year-on-year growth of the container carrying capacity of the world fleet (TEU). In 2006, for the first time since 2001, the growth of the fleet again outstripped the growth of containerized trade. With an increase in the fleet of almost 1.4 million TEU, capacity grew by 13.5 per cent in 2006; this was 2.5 percentage points higher than the growth of containerized trade, which reached 11 per cent in the same year. For 2007, it is estimated that the world container carrying capacity has grown at an annual rate of 13.4 per cent, which is 2.4 per cent higher than the estimated growth in demand. The order book of container ships in September 2007 stood at 6.2 million TEUs, representing 60 per cent of the existing fleet.

Table 27

### Tonnage oversupply in the world merchant fleet, selected years (End-of-year figures)

	1990	2000	2002	2003	2004	2005	2006
<b>Million dwt</b>							
<b>World merchant fleet</b>	658.4	808.4	844.2	857.0	895.8	960.0	1 042.3
<b>Surplus tonnage<sup>a</sup></b>	63.7	18.4	21.7	10.3	6.2	7.2	10.1
<b>Active fleet<sup>b</sup></b>	594.7	790.0	822.5	846.7	889.6	952.8	1 032.2
<b>Percentages</b>							
<b>Surplus tonnage as percentage of world merchant fleet</b>	9.7	2.3	2.6	1.2	0.7	0.7	1.0

Sources: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay and *Lloyd's Shipping Economist*, various issues.

<sup>a</sup> Average annual estimates of tankers, dry bulk carriers and general cargo ships. 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.

<sup>b</sup> UNCTAD secretariat estimate. World fleet minus surplus tonnage of tankers, dry bulk carriers and general cargo ships.

Table 28

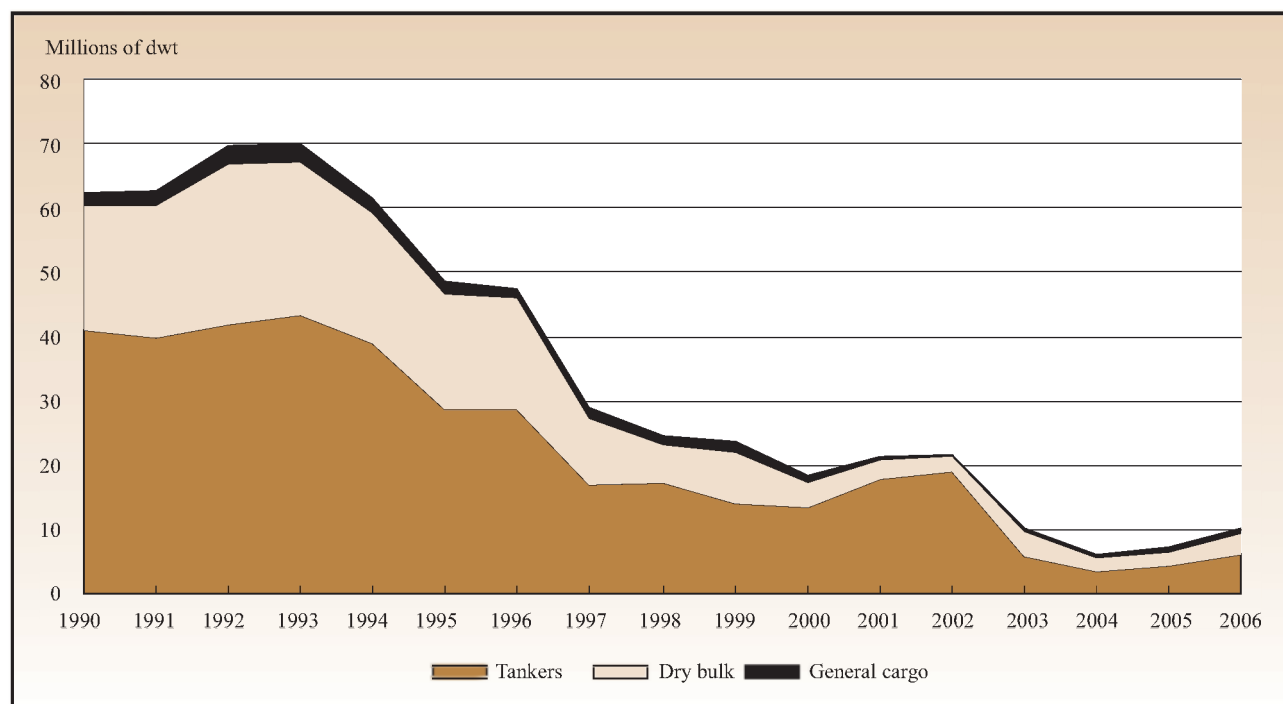
**Analysis of tonnage surplus by main type of vessel, selected years<sup>a</sup>***(Average annual figures in millions of dwt)*

	1990	2000	2003	2004	2005	2006
<b>World tanker fleet</b>	266.2	279.4	286.0	298.3	312.9	367.4
Total tanker fleet surplus	40.9	13.5	6.0	3.4	4.5	6.1
Share of surplus fleet in world tanker fleet (%)	15.4	4.8	2.1	1.1	1.4	1.7
<b>World dry bulk fleet</b>	228.7	247.7	297.5	325.1	340.0	361.8
Dry bulk fleet surplus	19.4	3.8	3.6	2.1	2.0	3.4
Share of surplus fleet in world dry bulk fleet (%)	8.2	1.5	1.2	0.6	0.6	0.9
<b>World conventional general cargo fleet</b>	63.6	59.3	43.4	43.6	45.0	44.7
Conventional general cargo fleet surplus	2.1	1.1	0.7	0.7	0.7	0.6
Share of surplus fleet in world conventional general cargo fleet (%)	3.3	1.8	1.6	1.6	1.6	1.4

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

<sup>a</sup> Aggregates for all sectors shown in this table are averages for the years indicated. 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 9

**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.



Table 29

**Growth of supply and demand in container shipping, 2000–2007<sup>a</sup>***(Annual growth rates)*

	2000	2001	2002	2003	2004	2005	2006	2007
<b>Growth in containerized trade (TEU)</b>	11.0	2.0	11.0	11.0	13.0	11.0	11.0	11.0
<b>Growth in container carrying fleet (TEU)</b>	7.8	7.8	8.5	8.0	8.0	10.5	13.5	13.4
<b>Balance</b>	3.2	-5.8	2.5	3.0	5.0	0.5	-2.5	-2.4

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

<sup>a</sup> Container carrying fleet: end-of-year figures. 2007 data: estimate.

### C. COMPARISON OF CARGO TURN-OVER AND FLEET OWNERSHIP

Information on the trade, fleet ownership and nationally flagged fleets of the major trading nations appears in table 30. The table highlights the similarities and differences among the shipping services of the leading trading nations. In 2006 the United States generated 12.2 per cent of world trade while owning 4.9 per cent of world tonnage. Germany, China and Japan are among the top four trading nations, accounting for 8.5, 7.3 and 5.1 per cent of world trade respectively; all three countries also have important shares in the controlled fleet, while only a minor proportion of the controlled fleet flies the national flag. The United Kingdom and France account for 4.3 and 4.2 per cent of world trade respectively; the United Kingdom has a 2.7 per cent share in the nationally controlled fleet, while France, with a similar share in world trade, has a much smaller share in the controlled fleet (0.6 per cent).

Together with China, Hong Kong (China), the Republic of Korea and Singapore are among the Asian developing economies with the highest share in world trade, accounting for 2.7, 2.6 and 2.1 per cent respectively. The Republic of Korea controls 3.3 per cent of the fleet as regards ownership. The only Latin American country among the major trading nations is Mexico, with a 2.1 per cent share of world trade, but only a very minor interest in vessel owning.

As regards country groups, at the beginning of 2007, developing countries controlled approximately 31.2 per cent of the world dwt while generating 61.1 per cent of world exports (tonnes). Developed countries controlled about 65.9 per cent of the world dwt while generating 36.2 per cent of global exports. Economies in transition controlled the remaining 2.9 per cent of dwt while generating 2.7 per cent of global exports.

Table 30

## Maritime engagement of 25 major trading nations

*(As at the beginning of 2007)*

Country/territory	Percentage share of world trade generated, in terms of value	Percentage share of world fleet (control) in terms of dwt
United States	12.19	4.93
Germany	8.47	8.69
China	7.29	7.19
Japan	5.06	15.07
United Kingdom	4.34	2.73
France	4.23	0.61
Netherlands	3.63	0.89
Italy	3.50	1.63
Canada	3.15	0.61
Belgium	2.99	1.28
Hong Kong (China)	2.72	4.60
Republic of Korea	2.63	3.30
Spain	2.15	0.45
Singapore	2.10	2.63
Mexico	2.09	0.14
Russian Federation	1.82	1.85
Taiwan Province of China	1.77	2.54
Malaysia	1.21	0.68
India	1.20	1.51
Austria	1.16	1.28
Switzerland	1.13	1.28
Sweden	1.13	0.66
Saudi Arabia	1.11	1.21
United Arab Emirates	1.09	0.71
Australia	1.06	0.29
<b>Total</b>	<b>79.24</b>	<b>66.78</b>

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by *UNCTAD Handbook of Statistics* (trade) and Lloyds Register – Fairplay (fleet ownership).



## Chapter 4

# TRADE AND FREIGHT MARKETS

*This chapter describes conditions and trends in trade and freight markets, covering the major liner and bulk cargo sectors; it gives liner freight rates as a percentage of selected commodity prices, and it estimates freight payments as a percentage of import value. Although 2006 was a good year for all tanker market segments, these remained below the impressive levels recorded during the two previous years. Fuelled mainly by buoyant steel production in Asia, the dry cargo freight market fared better, with steady improvements in the Cape-size sector and continued strong performances in the Panamax and Handy-size sectors. Despite the downward pressure on the containership market resulting from a large tonnage delivery and order book, the continuing strong demand helped maintain the rates at healthy levels.*

### A. CRUDE OIL AND PETROLEUM PRODUCTS SEABORNE FREIGHT MARKET<sup>14</sup>

#### 1. Seaborne trade in crude oil and petroleum products

In 2006, the tanker freight market evolved against a background of high oil prices, increased geopolitical tensions, fears about oil supply disruptions, OPEC decisions to cut production and a growing demand for oil. The main driving force for tanker shipping in 2006 continued to be the growing demand for oil. While imports into the United States and Western Europe continued to grow moderately, demand in the expanding economies, especially China, has been growing exponentially. It would appear that sustained growth of oil prices over the past few years had, so far, a limited impact on demand.

Projections for 2007 point to further increases in the global oil demand (2 per cent in 2007 compared with

1 per cent in 2006), further cuts in OPEC supply, possible disruptions to production in Nigeria, Iraq and the Islamic Republic of Iran, further growth of the tanker fleet, and uncertainty about the progressive enforcement of Regulation 13G under MARPOL Annex 1 on the phasing-out, by 2010, of single-hulled tankers.<sup>15</sup>

#### 2. Tanker freight rates

All five freight indices collected for tanker ships dropped during the year (see table 31). However, it is worth noting that the drop in tanker freight indices from January through December was less pronounced in 2006, except for smaller tonnage (25,000–70,000 dwt) and clean tankers.

Despite the downward trend observed, a closer look at the average spot rates and time charter equivalent earnings indicates that tanker owners operated at a profit. Table 32 presents the average freight rates measured in Worldscale (WS),<sup>16</sup> a unified measure for establishing spot rates in the tanker market. The table focuses on

Table 31

## Tanker freight indices, 2005–2007

(monthly figures)

	Lloyd's Shipping Economist				Baltic Tanker		
	>200	120–200	70–120	25–70	Clean	Dirty Index	Clean Index
<b>2005</b>							
October	109	186	249	376	385	1 532	1 815
November	179	225	269	358	312	2 174	1 801
December	149	257	257	286	284	2 147	1 296
<b>Average</b>	<b>100</b>	<b>157</b>	<b>191</b>	<b>271</b>	<b>287</b>	<b>1 494</b>	<b>1 331</b>
<b>2006</b>							
January	112	163	193	314	342	1 945	1 565
February	116	168	176	267	282	1 672	1 378
March	86	127	163	204	225	1 098	979
April	63	108	133	208	213	985	818
May	79	132	158	217	241	1 090	1 118
June	100	138	150	225	233	1 154	1 038
July	114	148	173	232	271	1 377	1 076
August	114	171	170	231	256	1 330	1 244
September	109	139	140	212	234	1 391	1 249
October	87	147	190	213	217	1 281	1 095
November	74	118	133	199	194	1 223	853
December	66	136	189	210	251	996	931
<b>Average</b>	<b>93</b>	<b>141</b>	<b>164</b>	<b>228</b>	<b>247</b>	<b>1 295</b>	<b>1 112</b>
<b>2007</b>							
January	63	124	187	209	219	1 316	1 185
February	65	116	159	237	226	1 190	907
March	81	112	145	220	282	1 094	1 065
April	63	122	145	229	264	1 398	1 096
May	79	108	161	235	244	1 236	1 045
June	63	110	113	211	242	1 006	1 151
July	59	91	128	216	208	1 026	941
August	52	85	97	185	174	977	900

Source: Executive Summary in *Lloyd's Shipping Economist*, several issues; Baltic Tanker indices reported for the first working day of the month. Ship sizes are expressed in deadweight capacity.

Table 32

**Tanker market summary: clean and dirty spot rates, 2006–2007**  
(Worldscale (WS))

Vessel type	Routes	2005	2006											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
VLCC/ULCC (150,000 dwt+)														
	Persian Gulf–Japan	126	110	104	83	56	74	101	112	120	109	69	68	58
	Persian Gulf–Republic of Korea	137	110	104	76	56	68	102	119	109	109	72	66	59
	Persian Gulf–Europe	122	94	100	77	60	69	80	90	95	95	75	0	58
	Persian Gulf–Caribbean/East Coast of North America	113	87	101	70	59	68	89	92	90	93	68	66	55
	Persian Gulf–South Africa	185	116	135	75	52	70	120	100	121	127	81	..	64
Suezmax (100,000–149,999 dwt)														
	West Africa–North West Europe	227	167	168	128	129	147	145	154	176	135	157	115	122
	West Africa–Caribbean/East Coast of North America	244	164	150	129	120	143	129	159	174	135	148	122	130
	Mediterranean–Mediterranean	285	178	179	125	119	144	137	150	168	146	155	130	161
Aframax (50,000–99,999 dwt)														
	North West Europe–North West Europe	243	148	154	126	101	144	123	155	140	122	180	120	151
	North West Europe–Caribbean/ East Coast of North America	264	171	197	154	175	174	175	173	191	181	173	..	200
	Caribbean–Caribbean/East Coast of North America	235	241	211	204	133	195	186	205	200	170	235	187	231
	Mediterranean–Mediterranean	271	195	148	149	149	165	154	187	176	144	197	115	178
	Mediterranean–North West Europe	257	149	137	137	145	159	138	177	182	146	202	121	207
	Indonesia–Far East	335	251	166	132	123	115	152	201	218	223	171	154	152
Handy-size (less than 50,000 dwt)														
	Mediterranean–Mediterranean	327	342	203	165	191	205	200	224	230	230	204	229	190
	Mediterranean–Caribbean/East Coast of North America	286	303	0	173	189	218	215	270	265	265	197	201	174
	Caribbean–East Coast of North America/Gulf of Mexico	272	267	228	217	216	219	231	221	238	166	211	179	243
All Clean Tankers														
70,000–80,000 dwt	Persian Gulf–Japan	298	297	167	112	146	218	180	174	227	240	165	121	172
50,000–60,000 dwt	Persian Gulf–Japan	316	355	210	157	165	229	225	202	260	255	160	155	194
35,000–50,000 dwt	Caribbean–East Coast of North America/Gulf of Mexico	248	294	251	223	211	215	220	263	258	211	202	170	282
25,000–35,000 dwt	Singapore–East Asia	398	438	399	226	208	382	298	255	406	381	222	223	302



Table 32 (continued)

Vessel type	Routes	% change 2005/2006	2007								
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
VLCC/ULCC (150,000 dwt+)											
	Persian Gulf–Japan	-54.0	58	59	82	50	81	63	63	56	54
	Persian Gulf–Republic of Korea	-57.0	58	55	81	53	72	60	55	53	52
	Persian Gulf–Europe	-52.4	54	52	66	45	69	60	50	45	43
	Persian Gulf–Caribbean/East Coast of North America	-51.3	53	48	73	49	63	60	45	45	43
	Persian Gulf–South Africa	-65.4	57	..	..	55	97	..	..	54	..
Suezmax (100,000–149,999 dwt)											
	West Africa–North West Europe	-46.2	130	107	126	128	105	108	96	78	79
	West Africa–Caribbean/East Coast of North America	-46.7	129	116	116	113	108	112	99	79	79
	Mediterranean–Mediterranean	-43.5	154	113	136	124	110	113	87	78	75
Aframax (50,000–99,999 dwt)											
	North West Europe–North West Europe	-41.2	169	168	138	139	129	105	128	87	104
	North West Europe–Caribbean/ East Coast of North America	-24.2	167	185	130	170	178	124	126	97	..
	Caribbean–Caribbean/East Coast of North America	-1.7	174	211	187	156	170	140	170	105	115
	Mediterranean–Mediterranean	-34.3	231	121	157	146	173	107	117	94	106
	Mediterranean–North West Europe	-19.4	188	110	161	140	142	103	115	91	117
	Indonesia–Far East	-54.6	149	124	125	156	142	143	129	112	120
Handy-size (less than 50,000 dwt)											
	Mediterranean–Mediterranean	-41.9	281	273	247	216	233	150	230	..	156
	Mediterranean–Caribbean/East Coast of North America	-39.2	200	213	195	203	..	..	200	167	148
	Caribbean–East Coast of North America/Gulf of Mexico	-10.7	212	205	214	207	198	161	176	161	158
All Clean Tankers											
70,000–80,000 dwt	Persian Gulf–Japan	-42.3	156	133	146	135	133	132	137	153	140
50,000–60,000 dwt	Persian Gulf–Japan	-38.6	185	161	182	172	185	168	184	188	175
35,000–50,000 dwt	Caribbean–East Coast of North America/Gulf of Mexico	13.7	209	222	288	233	223	242	201	155	133
25,000–35,000 dwt	Singapore–East Asia	-24.1	303	257	276	223	313	246	292	294	302

Source: *Drewry Shipping Insight*, various issues.

Note: Two dots (..) means that no rate was reported.

traditional benchmark routes and is not intended to be exhaustive. For example, the growing West Africa to China route, relying on large ships, has not been included in the table. 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 in the Far East, South Africa, North-West Europe, the Mediterranean, the Caribbean and East Coast of North America.

Tables 31 and 32 show a great volatility in rates and highlight an unusual counter-seasonal trend in all market segments. While the usual seasonal trend was observed during the first quarter, this was not the case for the last quarter. Average freight rates increased during the first quarter due owing to winter demand but peaked during the summer, especially in August, and slipped when a seasonal increase during the last quarter of the year would normally have been expected. The counter-seasonal peaks observed during the summer were the result of speculation about another hurricane season in the Gulf of Mexico, precautionary stockpiling in the light of concerns about potential oil supply disruptions and the opportunity offered by the relatively high production quotas maintained by OPEC.

#### *Freight markets during 2007*

At the beginning of 2007, all tanker sectors were characterized by persistent average spot rates volatility. The overall picture that emerges from table 32 is one where average spot earnings continued to weaken in January, recovered slightly on some routes in February, dipped on almost all routes in April and started recovering in May on most of the routes. Rates continued to fluctuate during the following months while showing an overall negative trend. By September rates for various tanker sectors were lower than their January 2007 levels. While average spot earnings followed a declining trend and were interrupted by sharp fluctuations, the time charter equivalent earnings fared better and maintained their levels with fewer variations, and not necessarily downwards.

The downward pressure on spot rates reflected, among other things, the reduced activity resulting from a weaker winter demand (milder temperature), excess tonnage supply in the Persian Gulf loading areas and, more specifically, single-hull tankers in the East of Suez market, refinery outages, restricted cargo supplies due to the OPEC cuts and extended refinery maintenance periods.

Meanwhile, recorded increases resulted from cuts in supply together with a decline in inventory levels. Developments during the first quarter followed a seasonal trend (end of winter demand), with activity declining in April due to refinery turnarounds in Asia-Pacific and Europe. The increase in summer demand in May (driving season in the United States and air-conditioning units) resulted in increased demand for gasoline, which in turn increased refineries' demand for crude oil.

More detailed information about developments in 2006 in relation to the various categories of tanker segments is provided in the following sections.

#### *Very large (VLCC) and ultra large (ULCC) crude carriers*

As previously noted, 2006 was marked by considerable variations in freight rates and by average returns lower than in the two previous years. On all routes, the dip in April reflected the seasonal trend, which saw the end of the winter season and the increased maintenance activity of refineries. In addition to seasonal factors, other elements have been at play. For example, rate increases recorded during the year reflected supply and demand variations. The peak recorded in August may have been linked to speculation about another hurricane season in the Gulf of Mexico and the political tensions in Western Asia, triggered by the shutdown of the BP-led Prudhoe Bay oilfield in Alaska in early August. The dip seen in October reflected VLCCs' tonnage oversupply in the Persian Gulf, while the November performance also reflected cuts announced by OPEC, higher stocks of products and refining turnarounds.

During 2006 the spread of earnings varied markedly with peaks right at the beginning of the year and during the summer and troughs at the start of the second quarter, especially in April and at the end of the year. For example, in the route from the Persian Gulf to Japan, average rates closed 2005 at WS126 and hit a dip of WS56 in April before peaking at WS120 in August and slipping back to WS58 in December. In terms of returns, the annual average time charter equivalent earnings for owners of VLCCs on this route were \$51,550 compared with \$59,070 in 2005 and \$95,250 in 2004.

Although this is not indicated in table 32, it should be noted that average rates on the West Africa to the Gulf of Mexico or from West Africa to the East performed

better than on the traditional VLCC routes as increasing volumes on those routes continue to drive up the average freight rates. For example, although displaying a declining trend, time charter equivalent earnings for ships of 260,000 dwt on the West Africa to the Gulf of Mexico route were \$43,400 per day in December 2006 which is higher than the level at which rates for trades from the Persian Gulf to Japan and the Republic of Korea and to Europe closed the year. The increased south–south trade between Africa and China due to China's increased imports of West African oil drives demand for VLCCs. The weakness seen on the VLCC spot and charter market rates was due, *inter alia*, to a decline in OECD demand, cuts in OPEC exports and mild weather in the Northern Hemisphere.

The evolution of freight rates on those routes for the coming years is difficult to predict given the uncertainty about what position the main importers such as China and India will adopt with respect to the IMO rules on the phasing-out of single-hull tankers by 2010. The VLCC/ULCC sector is likely to be the most affected by the phasing-out of such tankers. At the end of 2006, the fleet of VLCCs was estimated to total slightly over 500 ships. About 65 per cent of those ships were double-hulled and already in service — a 4.3 per cent increase over 2005. Orders are estimated at approximately 35 per cent of the existing fleet, with the majority expected to be delivered in 2008 and 2009. While exporting areas, including the Persian Gulf countries, are expected to strictly enforce the new regulations after the 2010 deadline, the situation is less clear as regards importers in the East. The United States and the European Union<sup>17</sup> have already taken measures to ban the trading of single-hull tankers.

#### *Suezmax tanker tonnage*

A particular feature of Suezmax ships is the advantage of their size, especially in size-restricted ports such as those in the United States. Suezmax ships require less lightering than VLCCs and are therefore able to attract more cargo when destinations are size-restrictive. This tonnage is deployed for trading from West Africa to North-West Europe and West Africa to the Caribbean/East Coast of North America, as well as across the Mediterranean. Rates on those routes dropped at the beginning of 2006 and fluctuated significantly during the remainder of the year, with peaks occurring in January, February and August. As in the VLCC/ULCC sector, rates in the Suezmax market were affected by seasonal

variations, dropping in March and April when the winter peak demand ended and picking up in May as the summer season took over (air-conditioning units, US summer driving season, etc). Unlike the VLCC/ULCC sector, the Suezmax market is less likely to be affected by the 2010 deadline for the phasing-out of single-hull tankers in accordance with IMO regulations. This is because the sector has fewer single-hull ships; also, the sector is less influenced by markets in the west (the United States and European Union), where single-hull tankers are already being banned from trading. Demand for Suezmax tonnage is expected to increase, especially in West Africa, the Black Sea and the Mediterranean owing to increased oil production. Average rates for trade from West Africa to Europe started the year at WS167, reached their lowest point in November (WS115) and ended the year at WS122.

On the West Africa–Caribbean/East Coast of North America route, the annual average time charter equivalent earning were \$46,000 per day in 2006 compared with \$47,550 per day in 2005, and \$64,800 per day in 2004. During 2006, the highest average rates were at the beginning of the year and the lowest point was in April. For West Africa–Caribbean/East Coast of North America traffic, average rates varied from WS164 in January, peaked at WS174 in August and dipped during the last quarter when they reached WS130 in December.

Equivalent time charter earnings for a 40,000 dwt ship were \$56,300 per day in January, \$59,500 per day in August and \$42,000 per day in December. Although at lower levels than during the two previous years, average earnings remained healthy, despite potential competition from VLCC tankers for cargo loaded in West Africa and potential disruption of production in the region due to political conflicts. Except for the North Sea, where production is declining, future demand for Suezmax tonnage may be expected to increase, especially in view of increased oil exports from West Africa.

Voyages for trade across the Mediterranean followed a similar trend, with average rates peaking at the start of the year, reaching a low of WS119 in April and recovering gradually to reach WS161 in December. These levels were lower than those achieved in 2005 due to, among other things, the fluidity of traffic in the Turkish Straits, where unlike in 2005, traffic moving through those transit points during the 2006 winter season did not encounter major disruptions or delays.

*Aframax tanker tonnage*

Aframax ships are usually deployed for trading along the following routes: (i) North-West Europe to other destinations in the region, as well as the Caribbean and the East Coast of North America; (ii) the Caribbean to other destinations in the region, as well as to destinations on the East Coast of North America; (iii) across the Mediterranean and from the Mediterranean to destinations in North-West Europe; and (iv) Indonesia to destinations in the Far East.

As shown in table 32, the seasonal impact during the preceding years in the Aframax sector was not observed in 2006. The strong peaks observed in 2004 and 2005 on the North Sea routes did not occur in 2006 owing to milder temperatures and the introduction of a number of ice-class ships for the carriage of Russian oil from the Baltic Sea. In the Mediterranean, more fluid traffic in the Turkish Straits kept rates at a lower level.

The average rates on all routes except for trade from the Caribbean to the US East Coast started the year at lower levels compared with the end of 2005. In line with the characteristics of the Aframax market, changes in freight rates were sudden and acute. In terms of earnings, the two previous years remained exceptional compared with 2006. For example, average annual time charter equivalent earnings on the cross-Mediterranean route dropped from \$43,915 in 2004 to \$39,000 in 2005 and \$31,750 in 2006.

During the year, average rates fluctuated, with voyages within the North-West Europe route registering the lowest level in April (WS101) and their highest level in October (WS180). For a ship of 80,000 dwt, these were equivalent to time charter earnings of \$21,600 per day in April and \$66,000 in October. Average rates for traffic from the Caribbean to other destinations in the Caribbean and to the East Coast of North America peaked at WS241 in January and bottomed at WS133 in April. These translated into time charter equivalent earnings moving down from \$47,000 per day in January to \$17,000 per day in April. The highest average rate for traffic across the Mediterranean was WS197 in October, while the lowest point (WS115) was reached immediately during the following month. This corresponded to a drop in time charter equivalent earnings from \$44,100 per day to \$17,000 per day for a ship of 70,000 dwt.

*Handy-size tanker tonnage*

These ships are usually deployed for trades across the Mediterranean, for trades originating in the Mediterranean with destinations in the Caribbean and the East Coast of North America, and trades from the Caribbean to the Gulf of Mexico and the East Coast of North America.

Fluctuations observed in the VLCC, Suezmax and Aframax sectors were also evident in the Handy-size sector. At the end of 2006, average rates for routes from the Mediterranean and the Caribbean were at lower levels than during the previous year. Average rates started on a stronger note in January but immediately started fluctuating, reaching their lowest point in March for trades from the Mediterranean and in September for cargoes loaded from the Caribbean. For all routes, the highest rates were observed at the start of the year. For example, the time charter equivalent earnings for the Caribbean to the East Coast of North America were, for a ship of 60,000 dwt, \$40,900 per day in December 2005 (WS272), \$42,800 per day in January 2006 (WS267) and \$22,300 per day in September 2006 (WS166). These fluctuations reflected the seasonal trend, whereby rates strengthened during the first quarter of the year as a result of the winter demand, dipped in March and April due to the end of the peak winter demand and the start of refineries' maintenance activities, and increased during the summer with the start of the driving season. Estimated 1-year time charter rates for a 5-year Suezmax vessel (95,000–110,000 dwt) were \$36,000 per day in January 2005 and \$32,500 per day in December 2006. Rates started at \$32,100 per day in January 2007 and reached \$33,000 per day in May.

*All clean tankers*

Increasing transport needs resulting from the economic expansion in Asia, especially China and India, underpinned the overall positive performance in the clean tanker sector. That being said, the average time charter equivalent earnings for product tankers decreased, compared with the two previous years. For example, average annual time charter equivalent earnings on the Caribbean–East Coast of North America/Gulf of Mexico route were \$21,400 per day in 2006 compared with \$25,240 per day in 2005 and \$24,550 in 2004.

Rates fluctuated in line with seasonal trends as well as because of variations in demand. Rates on all routes



peaked in January, reflecting the seasonal high winter demand and declined slowly during the year. March saw the lowest average rate on the Persian Gulf–Japan route for vessels of between 70,000 and 80,000 dwt (WS112), while the lowest rate for smaller clean tankers (50,000 to 60,000 dwt) trading on the same route was WS155 in November. The higher rates recorded by ships in the 70,000–80,000 dwt range reflected the building of stocks in the East and the increased demand for kerosene in Japan. At the end of 2006, average rates for voyages from the Persian Gulf to Japan and from Singapore to East Asia declined compared with their levels during the same period in 2005. For example, for ships in the range of 50,000 to 60,000 dwt, trading from the Persian Gulf to Japan, average spot rates were WS194 in December 2006 compared with WS316 in December 2005. This decline translated into lower time charter equivalent earnings for ships of 55,000 dwt of \$24,700 per day in December 2006 compared with \$45,900 per day in December 2005.

The exception to the declining trend seen on other clean tanker routes was the performance of rates on the Caribbean to the East Coast of North America/Gulf of Mexico, where average spot rates increased to WS282 in December 2006, up from the WS248 recorded in December 2005.

Consumption of gasoline is forecast to grow faster in China, where modern refineries with a capacity of 90 million tons per year are expected to come into service. This is likely to increase demand for tanker transport. In the Atlantic area, while demand for gasoline in the United States and for gas oil in Europe continues to grow, refinery capacities are limited and expansion is subject to restraints, including those related to environmental considerations. As a result, demand for tanker transport of products is expected to grow in the future with likely effects on freight rates.

#### *Tanker-period charter market*

In 2006, total chartering activity reached 27.26 million dwt with January, February, April, August and December respectively recording less than 2 million dwt, and March, May, July, September and October registering more than 2 but less than 3 million dwt. Chartering activity in July and November was particularly impressive, with total monthly chartering activity approaching 4 million dwt. The peak month was November with 3.94 million dwt, while the weakest performance was at the beginning of the year with 1.1 million dwt in January. Compared

with the chartering activity during the previous year, the 2006 performance was quite strong. In some months, such as January and May, the 2006 levels were almost double the levels achieved during the corresponding months of the previous year. While in November 2006 chartering activity was more than double that of November 2005, chartering activity in June 2006 was more than four times that of June 2005.

About 58 per cent of total chartering activity in 2006 was made up of long-term charters of 24 years or more, followed by charters of less than 6 years (24 per cent) and those with a duration of 2–24 years (14 per cent). The remaining share was made up of charters lasting between 6 and 12 years. Very large tankers (ULCC/VLCC) accounted for about 54 per cent of total chartering activity. Tankers at the lower end of the range (10,000–50,000 dwt) accounted for over 11 per cent. Chartering activity in the first half of 2007 maintained its pace, with activity reaching 3.8 million dwt—or more than three times the January 2005 level. Chartering activity grew faster in February and March, reaching respectively about 4.2 and 4.3 million dwt. Chartering slowed down in April and May, reaching about 2.3 and 1.9 million dwt respectively. Chartering activity fluctuated up and down during the following months before reaching levels below 1 million dwt in September.

Rates varied throughout the year. For example, estimated tanker 1-year time charter rates for a 5-year-old ship of 280,000 dwt went from \$56,500 per day in December 2005 to \$55,000 per day in January 2006, fluctuated during the following months and reached a high of \$64,500 per day in September, ending the year at \$54,400 per day. During the first half of 2007, those rates declined gradually, reaching a low of \$50,500 per day in February, March and April and a high of \$54,000 per day in May. Rates remained steady during the following months but dropped slightly in September to reach \$53,000 per day.

## **B. DRY BULK SHIPPING MARKET<sup>18</sup>**

### **1. Dry bulk trade**

During 2006 the dry market benefited from growth in bulk trade, with various ship sizes being deployed to service that trade. The driving force behind Capesize demand was the growth in world steel production, especially in China, which in turn stimulated iron ore trade. Demand for Panamax tonnage benefited from the steady growth of grain shipments and strong coal

trade, also driven by steel output growth and energy requirements of China and India. The demand for Handymax ships was also supported by steel products trade with, as noted in chapter 1, China becoming the largest producer and the United States and the European Union remaining the major steel-importing regions. Other cargoes stimulating the Handymax market included soybean and oilseed, bauxite and aluminium trades. Smaller ships, such as Handy-size ones, benefited from increased steel output since used to carry raw materials related to steel production, including coke and pig iron, as well as agriculture-related commodities such as rice. Reflecting the increased demand for bulk trade, at the end of 2006 shipping capacity increased, with the world dry bulk fleet growing by 8 per cent (25.3 million dwt) to reach 345.9 million dwt.

## 2. Dry bulk freight rates

At the end of 2006, freight rates for dry bulk carriers improved considerably in compared with the start of the year. The Baltic Dry Index more than doubled, moving up from its lowest performance of 2,081 in January to

its highest level of 4,397, recorded in December. The average Baltic Dry Index for 2006 was 3,239, about 0.4 per cent lower than the 2005 average. Panamax and Capesize tonnage both benefited from higher rates, with the former recording the higher increase (123.5 per cent increase).

Monthly indices for dry cargo tramp time and trip charters, showing a substantial rise over the course of the year, are presented in table 33. In December 2006, the dry cargo tramp time-charter reached 484 — an increase of 60 per cent from its January 2006 level. The dry cargo tramp trip-charter also rose significantly, doubling between January and December, reaching 594. However, despite the growth recorded, both the average indices for 2006 were significantly lower than in the two preceding years.

### *Dry bulk time-charter (trips)*

In January 2006, freight rates continued to drop for *Capesize* tonnage chartered for transatlantic round trips. Compared with the previous month, this rate was about

Table 33

### Dry cargo freight indices, 2004–2007

Period	Dry cargo tramp time-charter (1972 = 100)				Dry cargo tramp trip-charter (1985 = 100)			
	2004	2005	2006	2007	2004	2005	2006	2007
January	536	505	302	491	553	677	294	632
February	585	481	298	480	613	715	292	577
March	579	530	327	550	451	565	321	644
April	519	507	326	576	558	624	325	707
May	439	440	323	671	533	552	304	
June	385	373	331		401	412	359	
July	416	313	360		478	342	421	
August	458	290	417		562	285	475	
September	471	328	447		514	352	518	
October	499	379	450		503	391	522	
November	538	346	447		544	376	463	
December	592	320	484		701	332	594	
Annual average	501	401	376	554	534	469	407	640

Source: Compiled by Maritime Research and published by Institute of Shipping Economics and Logistics in *Shipping Statistics and Market Review*, March, 2007.

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



13 per cent lower. Rates moved up in February and March to reach \$35,330 per day and \$37,910 per day respectively and down again to reach \$29,180 per day in May, their lowest level during the January–June period. In June, the rate was \$33,370 per day — 19 per cent higher than in January. Rates improved during the second half of the year, rising to \$41,100 per day in July and peaking in August with earnings above \$60,000 per day. They dropped slightly in September and in October before rising again and ending the year at \$67,420. Rates at the end of the year were more than double the January 2006 level.

The strong upward trend that characterized rates on this route during the second half of year continued into 2007, resulting in significantly higher earnings for owners of Capesize tonnage. In January 2007, rates for the transatlantic trades increased by about 9.2 per cent to \$73,628 per day. During the following months, growth continued, before reaching a high of \$109,380 per day in May. Rates fluctuated slightly during the following months before reaching \$140,370 per day in September.

Rates on the Singapore–Japan to Australia route showed a trend similar to that observed on the transatlantic route. For Capesize tonnage deployed on the Singapore–Japan to Australia route, freight rates declined in January 2006, with owners of relevant ships receiving \$25,840 per day — a 25 per cent decline compared with the previous month. Rates rose in February and reached their highest level — \$37,440 — in March before slipping again in April and May. In June, ships trading on this route secured \$32,090 per day — 24 per cent higher than the January earnings. Rates improved during the second half of the year, increasing by approximately one-quarter in July to \$39,850 per day. From that point onward, earnings moved up, and peaked in November at \$66,625 per day — about 46 per cent higher than in the corresponding month in 2005. Rates ended the year at a slightly lower level of \$64,930, corresponding to more than double the rates at the start of the year.

In 2007, the evolution of rates on the Singapore–Japan to Australia route mirrored that of the transatlantic route: they increased to \$66,630 per day in January and fell back in February before moving up and reaching their highest level in May when earnings were \$102,570 per day — almost four times those secured in May of the previous year. Rates fell to \$78,505 per day in June before increasing again and reaching \$135,870 per day in September.

Rates for *Panamax* tonnage deployed on routes from Northern Europe to the East Coast of South America and from the Far East to Australia deteriorated at the start of 2006. In January, trade on the transatlantic route to the East Coast of South America fetched \$14,380 per day, while on the Far East to Australia route it was slightly higher, at \$16,800 per day. This rate decreased in February to a low of \$13,620 and bounced back in the following months, reaching a high of \$20,540 per day in June. On the Far East to Australia route, earnings improved in the following months reaching \$21,880 per day in June. During that month, *Alabama* was chartered by Bunge to carry 71,002 tons from Amsterdam to the East Coast of North America for \$20,000 per day.

Rates for the transatlantic route maintained steady growth during the third quarter of 2006 before weakening at the start of the fourth quarter and rising again by the end of the year. Earnings were respectively \$22,550 per day in July, \$31,700 per day in September, \$25,927 per day in October and \$32,370 per day in December.

During the first half of 2007, rates on the transatlantic route improved steadily, starting at \$34,560 per day in January and reaching a peak at \$51,945 per day in May. During the following months, rates expanded gradually to reach \$70,470 per day in September.

Earnings on the Far East–Australia route increased significantly during the second half of 2006, starting at \$23,250 per day in July, and reaching a high of \$37,400 per day in November before ending the year at slightly lower level of \$36,240 per day in December. The chartering in early November of *CMB Italia* by China Steel to carry a parcel of 76,000 tons from Japan to Australia at \$38,500 per day illustrates the improved earnings. In January 2007, rates on the Far East–Australia route dropped by about 7 per cent and in February by a further 3 per cent: they were respectively \$33,700 and \$32,630 per day. Starting March, rates went on an upward trend before reaching \$73,985 per day in September.

In January 2006, earnings for *Handymax* tonnage chartered on Far East–Australia round trip routes improved slightly over the previous month at rates of \$16,280 per day. Except in February, when there was a slight decline in rates, earnings improved steadily and reached a peak of \$31,635 at the end of the year. In early 2007, rates weakened slightly, dropping by more than 8 per cent in January, before increasing during the following months and reaching a new high of \$40,105

per day in May 2007. During the following month, rates expanded gradually and reached \$54,845 per day in September.

At the beginning of 2006, rates for *Handy-size* tonnage trade from Northern Europe to the West Coast of Africa dropped, starting at the lower rates of \$12,800 per day. Improvements were recorded over the following two months when earnings amounted to \$14,500 per day in February and \$15,150 per day in March. Rates fluctuated for the remainder of the year before reaching a peak of \$17,000 per day in December — about 21 per cent higher than the 2005 December rate. During the first half of 2007, rates maintained a positive trend, growing faster in April and reaching \$25,000 per day in May, almost double the earnings achieved in May of the previous year. During the following months, rates improved and reached \$34,000 in September.

#### *Dry bulk time-charter (periods)*

Estimates of rates for 12-month period charters (prompt delivery) indicate that rates for the first half of 2006 weakened, before recovering significantly during the second half of the year. For all ship sizes, rates fluctuated up and down throughout the year, but were significantly above the 2005 levels, in some cases by about 50 per cent. *Capesize* ships of 170,000 dwt aged 1–5 years fetched \$34,000 per day in January 2006 and \$35,000 per day in June before rising to almost double these levels (\$62,000 per day) in September. Earnings ended the year at \$61,500 per day — almost double the rate that prevailed in December 2005. Smaller ships in the range of 150,000 to 170,000 dwt with ages between 5 and 10 years started the year at \$24,000 per day, hit a low of \$23,100 per day in May before recovering to \$26,000 per day in June and doubling in September to reach \$54,000 per day. Earnings pointed downwards in the two following months closing the year at \$50,000 — almost double the December 2005 level.

Freight rates for *Panamax* ships in the range 70,000 to 75,000 dwt aged 1–5 years started at \$17,800 per day in January, dropped in February before moving up to \$17,000 per day in March, a rate sustained until May. June saw earnings increase by about 11 per cent, with rates reaching a peak of \$31,000 per day in September. Rates dropped slightly during the remaining months, ending the year at \$30,000 per day, a rate more than 50 per cent higher than for the corresponding month of the previous year. Rates for *Panamax* tonnage aged 5 to 10 years followed a similar trend, whereby the respective rates

started the year at modest levels, fluctuated during the second quarter of the year before achieving a strong recovery in the third quarter, maintained until the year's end. Rates were \$15,600 per day in January, \$27,000 per day in September and \$29,250 per day in December. Rates for tonnage aged 10–15 years were at the start of the year \$12,500 per day and peaked at \$24,000 per day in September before ending the year at \$21,250 per day.

Rates also improved for *Handymax* tonnage aged 5 to 10 years, with rates at the beginning of 2006 slightly lower than in December of the previous year. Earnings were \$14,000 per day in January before dropping in February. After that, rates experienced some recovery, which lasted until the end of the third quarter when the highest earnings were achieved. Rates were \$26,500 per day in September and fluctuated before ending the year at \$24,000 per day. The trend in rates for 1–5 year-old ships of this size mirrored that of ships aged 5–10. Rates fell to \$16,000 per day in January and \$15,750 per day in February. During the following months rates increased gradually and reached their highest level of \$28,500 per day in September before falling again in October and November and ending the year at \$27,250 per day in December.

*Handysize* tonnage aged 10–15 years followed a similar trend, with earnings at the beginning of the year dropping below the levels recorded at the end of the previous year and experiencing a good recovery from March through September, before dropping slightly during the last quarter of 2006. Rates for tonnage in the range 35,000–37,000 dwt were \$12,100 per day in January, \$21,000 per day in September and \$18,250 per day in December.

During the first half of 2007, earnings for all ship sizes, and irrespective of age, continued to grow, reaching levels that are in some cases more than double the corresponding rates achieved in 2005.

#### *Dry bulk trip-charter*

Despite some monthly fluctuations, *Capesize* tonnage recorded a positive performance in 2006, especially during the third quarter. Iron ore freight rates from Brazil to China started the year at \$22 per ton — about 7 per cent lower than the previous month — and stood at or over the \$22 per ton level throughout the year, with the highest rate of \$35.21 per ton recorded in August. The best performance was from June through September,

after which rates started to decline, while remaining at levels above those that prevailed at the beginning of the year. Rates for coal trade from Richards Bay (South Africa) to Western Europe started at \$11.15 per ton in January and improved marginally in February and March before falling again in April and May, at which time rates were, in the same order, \$12.70 and \$11.90 per ton. Rates recovered again during the following months and reached their highest level of \$23 per ton in November before ending the year at \$21.60 per ton.

In January 2006, rates for *Panamax* tonnage engaged in grain trading between North America and Western Europe dropped slightly from their previous level. Rates started to improve in the middle of the second quarter and experienced gradual and uninterrupted growth from May through September. Earnings dropped slightly in October before rising again in November and ending the year at \$32.30 in December — more than 50 per cent higher than the December 2005 level. Rates for *Handysize* tonnage carrying scrap from the US West Coast to the Republic of Korea continued the negative trend observed at the end of the previous year. Rates on this route and for this type of trade dropped to \$37.30 per ton in January and continued until March, started to recover in May when they were \$36.50 and peaked in October at \$57.25 per ton. They fell slightly again before ending the year at \$57.5 per ton.

During the first half of 2007, all these rates increased, with *Capesize* tonnage engaged in coal trade from South Africa to Western Europe and *Handysize* tonnage deployed on the US West Coast–Republic of Korea route experiencing a slight decline in February. As of May 2007, rates for *Capesize* tonnage engaged in iron ore trade from Brazil to China and coal trade from South Africa to Western Europe were more than double the May 2006 levels for both trades and tonnage types. May 2007 rates for *Panamax* tonnage carrying grain from North America to Western Europe and for *Handysize* ships moving scrap from the US West Coast to the Republic of Korea were double the corresponding rates that prevailed in May of the previous year. During the following months, rates for *Capesize* tonnage engaged in coal trade from South Africa to Western Europe dropped to \$23.6 per ton in June before increasing and reaching \$37.5 per ton in September — more than double the levels achieved in September 2006. With respect to iron trade from Brazil to China, rates dropped slightly in June before increasing to reach \$71.75 per ton in September — more than double the rates achieved in September of the previous year. Starting June, rates for

*Panamax* tonnage engaged in grain trading between North America and Western Europe increased gradually before reaching \$71.4 per ton in September.

## C. THE LINER SHIPPING MARKET<sup>19</sup>

### 1. Developments in liner markets

#### *General developments*

Overall, 2006 was characterized by supply growth (13.1 per cent) exceeding demand growth (11.2 per cent) and an important order book of container capacity. At the end of 2006, total seaborne container carrying capacity, including fully cellular capacity, increased by 1.63 million TEUs over the previous year and reached 11.72 million TEUs — an increase of 13.1 per cent. The fully cellular container ships increased to 9.43 million TEUs, this increased the share of these ships to 80.7 per cent of the world container carrying capacity — over two percentage points higher than their share in 2005. The share of general cargo ships was 13.9 per cent, with single-deck ships accounting for 1.04 million TEUs — 8.9 per cent — while multi-deck ships accounted for 0.59 million TEUs or 5 per cent. Capacity generated by ro-ro cargo and ro-ro passenger ships remained almost unchanged, accounting for about 0.3 million TEUs or 2.5 per cent. While in absolute terms, bulk carriers maintained their container carrying capacity of about 0.20 million TEUs, expressed as a proportion of the total world container carrying capacity, their share dropped from 1.9 per cent in 2005 to 1.6 per cent in 2006. The balance of the world container carrying capacity was supplied by reefer, tanker, specialized and passenger ships.

Table 34 shows that additions to the cellular container fleet during 2006 totalled 1.3 million TEUs and very little broken-up tonnage was reported. The growth of the world container cellular fleet is expected to continue with 4.36 million TEUs, representing close to 50 per cent of the existing fleet, being on order on 1 January 2007. At the end of 2006, 78.5 per cent of the capacity on order was made up of 621 cellular container ships with over 3,000 TEU capacity. Only 3.4 per cent of the capacity ordered was scheduled to be delivered in 2006, while 26.1 per cent is scheduled to be delivered in 2007 and 70.5 per cent is expected for delivery in or after 2008. In 2006, orders seemed to focus on the higher end of container ship sizes. At the end of 2006, post-*Panamax* ships accounted for 24.5 per cent of the total number of cellular container ships on order. September 2006 saw



Table 34

**Growth of the world cellular container fleet**  
(In thousands of TEU at the beginning of the year)

Year	Broken up	Additions	Fleet as of 1 January	Orders as of 1 January
2005	0	778	7 165	1 652
2006	0	955	8 120	4 259
2007	17	1 316	9 436	4 360

Source: UNCTAD secretariat on the basis of *Containerisation International*, March 2007, and data supplied by Lloyd's Shipping Register – Fairplay. World fleet and additional capacity include ships of 100 GT and above.

the entry into service of the largest containership afloat, *Emma Maersk*, for trading between China and Europe. This ship is reported to have a capacity of 14,300 TEUs, with stowage for 22 rows across; stowage for the next-largest existing container ships is 18 rows across.

#### *Concentration in liner shipping*

Over the course of 2006, the carrying capacity of the top 10 global containership operators increased by 26.5 per cent to 5.7 million TEUs — 48.5 per cent of the world's total container capacity deployed at the end of 2006 (see table 35). The share of the top 20 liner operators increased by 19.6 per cent and reached 7.6 million TEU. Together, the 20 leading operators held about 65 per cent of the total container capacity deployed. Maersk Line, MSC and CMA-CGM Group maintained their position at the top of the list. The collective share of these three leading lines was about 26.5 per cent of the world's total container capacity deployed at the end of 2006. Maersk Line continued to lead, with an individual share of 13.4 per cent, while MSC and CMA-CGM continued to strengthen their positions by taking on ships that others were discharging or subletting in 2006. Improved positions were recorded by Hapag-Lloyd (up by 8 places), COSCON (up by 3 places) and CSAV NORASIA (up 1 place). Carriers that lost ranks included Evergreen (down 3 places), APL, CSCL, Hanjin, MOL, NYK, OOCL and Wan Hai. The remaining six operators, namely Hamburg Sud, HMM, K Line, PIL, Yang Ming and ZIM, maintained their positions.

The financial impact of important consolidation in 2005 (i.e. A.P. Moller and P&O Nedlloyd, and Hapag-Lloyd and CP Ships) is reported to be more pronounced than expected. Maersk reported a loss of about \$607 million on its container services during the first half of 2006.

This was attributed to, inter alia, integration issues concerning P&O Nedlloyd, higher bunker prices and lower freight rates. Equally, K-Line reported that weaker freight rates and high bunker costs had led to a significant decrease in profits, while OOIL, the parent company of OOCL, reported a decline of \$28.2 million between the first half of 2005 and the corresponding half of 2006. OOCL itself reported a 3.9 per cent fall in average revenues per TEU in the first quarter of the year and Evergreen reported a net loss during the first nine months of the year of about \$70 million.

On the regulatory front, developments that might have a bearing on liner shipping operations included those in relation to the antitrust immunity conferred to liner conferences and the IMO work on air emissions from ships. It has been reported that Singapore had decided to issue a block exemption from section 34 of its Competition Act for liner conferences with retroactive effect from 1 January 2006, while Malaysia is expected to adopt a similar approach. In a separate development, Australia decided to maintain the antitrust immunity for liner shipping companies under its Trades Practices Act with discussion agreements being removed from the Act. Meanwhile India is reported to be preparing legislation on antitrust immunity for liner shipping. In contrast, at the European Union level, Council Regulation 4056/86 has been repealed, with the block exemption thus being abolished with effect from October 2008.<sup>20</sup> While a replacement for that Regulation is not envisaged, the European Liner Affairs Association (ELAA) has put forward a proposed alternative to the antitrust exemption mainly in the form of a trade association model.<sup>21</sup> Meanwhile, in the United States, the Antitrust Modernization Commission was reported to be reviewing options on how to proceed with existing protection for liner shipping.

Table 35

**Leading 20 service operators of containerships at the end of 2006**  
(Number of ships and total shipboard capacity deployed (TEUs))

Ranking	Operator	Country/territory	No. of ships in 2006	TEU capacity in 2006
1	Maersk Line	Denmark	484	1 573 551
2	MSC	Switzerland	320	1 019 725
3	CMA-CGM Group	France	167	517 213
4	Hapag Lloyd	Germany	136	454 526
5	COSCO	China	134	390 354
6	CSCL	China	122	387 168
7	Evergreen	Taiwan Province of China	127	377 334
8	APL	Singapore	105	342 461
9	Hanjin	Republic of Korea	78	337 378
10	NYK	Japan	85	283 109
<b>Subtotal</b>			<b>1 758</b>	<b>5 682 819</b>
11	MOL	Japan	91	281 967
12	OOCL	Hong Kong (China)	71	275 057
13	K Line	Japan	86	267 988
14	Yang Ming	Taiwan Province of China	82	240 433
15	Zim	Israel	74	203 228
16	Hamburg Sud	Germany	73	159 039
17	HMM	Republic of Korea	36	157 208
18	PIL	Singapore	67	123 084
19	CSAV	Chile	29	117 873
20	Wan Hai	Taiwan Province of China	69	113 532
<b>Total 1-20</b>			<b>2 436</b>	<b>7 622 228</b>
<b>World container cellular fleet at 1 January 2007</b>			<b>8 331</b>	<b>11 720 000</b>

Source: UNCTAD secretariat, *Containerisation International Online*, Fleet Statistics, [www.ci-online.co.uk](http://www.ci-online.co.uk).

Another regulatory development that could have a bearing on container lines operations is the current work, under the auspices of the IMO, on Annex VI of MARPOL, dealing with rules on air emission from ships, and setting limits on sulphur oxide and nitrogen oxide emissions from ship exhausts.<sup>22</sup> A number of options are being considered, including a proposal sponsored by INTERTANKO, which favours the application of an overall global cap on sulphur emissions of 1 per cent by 2010 and of 0.5 per cent by 2015, in addition to an industry-wide shift from residual distillate fuels.<sup>23</sup>

## 2. Freight level of containerized services

### *Chartering of containerships*

Global liner shipping market developments are best reflected in movements of the containership charter market. This market is dominated by German owners, with Hamburg brokers controlling about 75 per cent of containership charter tonnage available in the market. Since 1998, the Hamburg Shipbrokers' Association (VHSS)<sup>24</sup> has published the "Hamburg Index", which

provides a market analysis of containership time charter rates with a minimum of three months. Table 36 presents the average yearly and monthly charter rates for containerships published by VHSS.

In 2006, charter rates for all types of containerships fell overall by between approximately 16 and 37 per cent, although the decline was somewhat moderated by the strong demand. The largest fall in rates has been for geared/gearless containerships in the range 1,000–1,299 TEU. The containership sector that recorded the smallest drop was in the smaller gearless type in the range 200–299 TEU, with a decrease of 15.9 per cent.

During the first quarter of 2007, monthly average rates continued to fluctuate up and down. However, despite the declining trend that may characterize some of these rates, overall, with the exception of rates for gearless ships of 200–299 TEU and geared/gearless ships in the 300–500 TEU range, rate levels achieved in May were above the levels achieved at the beginning of the year. With the exception of geared/gearless ships in the range 600–799 TEU, monthly averages in September for other containership categories were higher than their May levels.

#### *Freight rates on main routes*

By the end of 2006, the level of all-in freight rates of the three main containerized routes (Pacific, Asia–Europe and Transatlantic) were all below the end-2005 levels, with the exception of the eastward leg of the transatlantic route (see table 37). During the last quarter of 2006, freight rates for transatlantic traffic from the United States to Europe increased by 5.6 compared with the same quarter in 2005. Rates for container trade moving in the opposite direction decreased by 2.9 per cent and reached \$1,762 per TEU.

The trans-Pacific and the Europe–Asia routes are the primary container trade routes that link the East to the West. On the trans-Pacific route, rates dropped for both the dominant eastbound leg (linking Asia to North America) and the westbound leg, although the latter saw some recovery in the middle of the year. During the fourth quarter of 2006, freight rates on the dominant eastbound leg of the trans-Pacific route, dropped by 11 per cent as compared with the fourth quarter of 2005. Freight rates for trade moving in the opposite direction decreased by 5.8 per cent to reach \$777 per box. Factors

Table 36

#### **Containership time charter rates** (*\$ per 14-ton slot/day*)

Ship type	Yearly averages							
	1999	2000	2001	2002	2003	2004	2005	2006
<b>Gearless</b>								
200–299	16.70	15.71	15.74	16.88	19.57	25.02	31.71	26.67
300–500	13.96	14.52	14.72	15.14	17.48	21.73	28.26	21.67
<b>Geared/Gearless</b>								
2,000–2,299	6.92	10.65	7.97	4.90	9.75	13.82	16.35	10.51
2,300–3,400 <sup>a</sup>				5.96	9.29	13.16	13.04	10.18
<b>Geared/Gearless</b>								
200–299	17.23	17.77	17.81	17.01	18.93	27.00	35.35	28.04
300–500	12.76	14.60	14.90	13.35	15.55	22.24	28.82	22.04
600–799 <sup>b</sup>				9.26	12.25	19.61	23.70	16.62
700–999 <sup>c</sup>				9.11	12.07	18.37	21.96	16.73
1,000–1,299	8.24	11.87	8.78	6.93	11.62	19.14	22.58	14.28
1,600–1,999	7.54	10.35	7.97	5.67	10.04	16.08	15.81	11.77



Table 36 (continued)

Ship type	Monthly averages for 2006											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>Gearless</b>												
<b>200–299</b>	27.18	26.75	28.33	26.08	28.72	28.60	26.10	27.00	26.90	24.30	22.80	27.40
<b>300–500</b>	22.13	23.94	17.04	17.04	20.17	21.79	26.10	18.40	25.40	23.00	23.60	20.90
<b>Geared/Gearless</b>												
<b>2,000–2,299</b>	9.88	10.92	10.73	10.86	10.55	10.98	11.00	10.70	10.80	10.40	10.40	9.00
<b>2 300–3,400<sup>a</sup></b>	12.01	9.88	9.88	10.92	10.35	8.87	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
<b>Geared/Gearless</b>												
<b>200–299</b>	19.13	32.37	30.94	28.75	31.10	28.67	27.80	28.70	27.60	27.60	27.60	26.30
<b>300–500</b>	28.12	23.23	20.69	21.47	19.75	23.47	18.90	21.20	23.00	21.10	19.80	23.70
<b>600–799<sup>b</sup></b>	16.08	17.60	15.85	17.30	18.22	17.00	16.80	16.60	16.60	17.30	15.00	15.00
<b>700–999<sup>c</sup></b>	16.86	17.05	17.08	15.98	17.80	18.41	18.70	18.00	15.70	15.10	15.40	14.80
<b>1,000–1,299</b>	15.04	15.54	14.42	15.46	15.89	15.91	14.40	14.30	14.30	13.50	11.30	10.50
<b>1,600–1,999</b>	12.32	10.67	10.99	12.25	13.19	13.91	11.70	11.70	12.10	12.10	10.50	10.50

Ship type	Monthly averages for 2007								
	1	2	3	4	5	6	7	8	9
<b>Gearless</b>									
<b>200–299</b>	26.52	28.35	28.01	27.76	27.08	26.90	27.58	25.92	28.25
<b>300–500</b>	19.29	21.91	22.59	24.23	20.83	21.80	23.20	23.17	24.84
<b>Geared/Gearless</b>									
<b>2,000–2,299</b>	8.96	9.60	10.06	10.84	11.21	11.15	12.92	12.92	12.44
<b>2 300–3,400<sup>a</sup></b>	9.15	9.51	10.50	10.95	9.98	10.18	11.04	11.04	10.82
<b>Geared/Gearless</b>									
<b>200–299</b>	26.43	28.96	29.34	30.08	28.27	28.71	31.05	29.75	32.66
<b>300–500</b>	21.42	19.88	20.38	19.07	21.32	19.91	21.23	24.63	23.49
<b>600–799<sup>b</sup></b>	13.97	15.66	16.54	15.43	16.94	17.56	16.60	16.65	16.44
<b>700–999<sup>c</sup></b>	14.20	15.70	15.86	16.18	16.55	17.17	16.79	18.08	17.33
<b>1,000–1,299</b>	11.52	12.72	13.24	12.70	13.03	14.08	14.21	15.11	14.98
<b>1,600–1,999</b>	10.43	10.99	11.56	11.87	11.97	12.82	14.06	14.05	14.05

Source: Hamburg Shipbrokers' Association, [www.vhss.de/englisch/hax.html](http://www.vhss.de/englisch/hax.html).

<sup>a</sup> This category was created in 2002. Data for the first half of the year correspond to cellular ships in the range 2,300–3,900 TEUs sailing at 22 knots minimum.

<sup>b</sup> Sailings at 17–17.9 knots.

<sup>c</sup> Sailings at 18 knots minimum.

Table 37

**Freight rates (market averages) per TEU on the three major liner trade routes**  
(\$ per TEU and percentage change)

	Trans-Pacific		Europe-Asia		Transatlantic	
	Asia-USA	USA-Asia	Europe-Asia	Asia-Europe	USA-Europe	Europe-USA
<b>2005</b>						
First quarter	1 867	800	801	1 795	886	1 544
Change (%)	-1.5	0.4	0.0	-2.5	-1.1	1.5
Second quarter	1 845	781	821	1 794	906	1 655
Change (%)	-1.2	-2.4	2.5	0.0	2.2	7.2
Third quarter	1 906	815	815	1 778	935	1 725
Change (%)	3.3	4.3	-0.7	-0.9	3.2	4.2
Fourth quarter	1 878	825	825	1 709	1 009	1 815
Change (%)	-1.5	1.2	1.2	-3.9	7.9	5.2
<b>2006</b>						
First quarter	1 836	815	793	1 454	995	1 829
Change (%)	-2.2	-1.2	-3.9	-14.9	-1.4	0.8
Second quarter	1 753	828	804	1 408	1 010	1 829
Change (%)	-4.5	1.6	1.4	-3.2	1.5	0.0
Third quarter	1 715	839	806	1 494	1 041	1 854
Change (%)	-2.2	1.3	0.2	6.1	3.1	1.4
Fourth quarter	1 671	777	792	1 545	1 066	1 762
Change (%)	-2.6	-7.4	-1.7	3.4	2.4	-5.0
<b>2007</b>						
First quarter	1 643	737	755	1 549	1 032	1 692
Change (%)	-1.7	-5.1	-4.7	0.2	-3.2	-4.0
Second quarter	1 675	765	744	1 658	1 067	1 653
Change (%)	1.9	3.8	-1.4	7.0	3.4	-2.3

Source: Containerisation International Online, [www.ci-online.co.uk](http://www.ci-online.co.uk).

Notes: The freight rates shown are all-in, that is 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.

contributing to this decline included the large number of ships that entered service and the strong competition among carriers. Carriers are reported to have applied fuel and peak season surcharges in an attempt to recover their costs. For example, during the third quarter, member lines of the Trans-Pacific Stabilization Agreement (TSA) announced their intention to extend the year's peak season surcharge of \$400 per TEU from 30 November 2006 to 28 February 2007.

On the Europe-Asia route, rates for boxes moving from Europe to Asia decreased by 4 per cent to reach \$792,

while trade moving from Asia to Europe fetched \$1,545 per box during the last quarter of 2006 — 9.6 per cent lower than in the fourth quarter of 2005.

The declining trend continued in 2007. During the first quarter of the new year, the average rate in the three trade lanes declined compared with their previous levels. The exception was the negligible increase (0.2 per cent) recorded in the dominant leg of the Europe-Asia route. Illustrating this trend was APL's reported 6 per cent drop in the average freight rate during the first quarter of 2007.

An issue of relevance to freight rates is the terminal handling charges (THC). The debate over these charges continued during the year, with the Federation of ASEAN Shippers' Council (FASC) urging national Governments to abolish terminal charges and to ensure that THC are, instead, included in general rates. It should be called that in response to shippers' demands the Indonesian Government intervened in November 2005 by adopting a lower THC (of \$95 per TEU compared with \$150 per TEU). More recently, according to press reports, the logic of THC has been called into question since they are not collected according to market mechanisms and are not in line with United Nations Code of Conduct for Liner Conferences.<sup>25</sup> In China, following the investigation of the THCs issue by the Ministry of Communication (MOC), a report was published in April. The MOC is said to be, in principle, against the collection of a unified terminal handling charge on the grounds that it is inconsistent with the basic premise of fair competition. As a follow-up to the report, the MOC sent a warning notice to six liner conferences, including the Far Eastern Conference (FEFC), the TSA and the Intra-Asia discussion Agreement (IADA), requesting that they amend their tariffs. It should be recalled that a Chinese terminal handling charges of about \$45 per TEU and \$67 per TEU were introduced by a number of liner conferences in early 2002. These charges have always been called into question.

### 3. Supply and demand in respect of main liner services

Over the last two decades, global container trade (in tons) is estimated to have increased at an average annual rate of 9.8 per cent (see chapter 1). The share of

containerized cargo in the world's total dry cargo is estimated to have increased from 7.4 per cent in 1985 to 24 per cent in 2006. Drewry Shipping Consultants estimated global container trade for 2006 to be about 129 million TEUs. A forecast ending in 2020 indicated that container trade is expected to reach 157 million TEUs in 2008, 219 million TEUs in 2012 and 287 million TEUs in 2016, and to exceed 371 million TEUs in 2020. Clarkson Shipping estimated container trade, measured in cargo tonnage, to have grown in 2006 by 11.2 per cent to 1,134 million tons.

Developments along the major container trade routes illustrate this trend (table 38). In 2006, the Pacific trade is estimated to have reached 18.5 million TEUs. The dominant leg, Asia–United States trade, was estimated at 13.9 million TEUs, up by 12.1 per cent over the previous year. Trade in the opposite direction, United States–Asia, grew by 4.5 per cent and is estimated to have reached 4.6 million TEUs. The imbalance between the eastward and westward traffics seems to have deepened in 2006, with the Asia–United States cargo flows exceeding those in the reverse direction by 9.3 million TEUs against 8 million TEUs in 2005.

Containerized trade patterns will probably be affected by the planned expansion of the Panama Canal, especially with respect to traffic to or from the East Coast of North America. As may be recalled, in October 2006, Panamanians voted in favour of a \$5.25 billion expansion plan for the Panama Canal. This is expected to almost double the annual capacity transiting the Canal, which is currently estimated to handle 40 ships per day.

Table 38

#### Estimated cargo flows on major trade routes (Million TEUs and percentage change)

Year	Trans-Pacific		Europe–Asia		Transatlantic	
	Asia–USA	USA–Asia	Asia–Europe	Europe–Asia	USA–Europe	Europe–USA
2005	12.4	4.4	10.8	5.5	2.1	3.8
2006	13.9	4.6	12.5	5.8	2.3	3.9
% percentage change	12.1	4.5	15.7	5.4	9.5	2.6
2007 (Forecast)	14.8	5.0	14.4	6.1	2.4	3.9

Source: Compiled by UNCTAD secretariat from *Containerisation International*, October 2007, p. 5.

The Asia–Europe trade route expanded at a faster rate, with trade estimated to have reached 18.3 million TEUs in 2006. Cargo flows on the dominant leg from Asia to Europe are estimated at 12.5 million TEUs in 2006, against 10.8 million TEUs in 2005. In comparison, traffic moving in the opposite direction grew at a lower rate of 5.4 per cent to an estimated total of 5.8 million TEUs. Table 39 shows the share of major lines and groupings serving this trade. The FEFC is a major player in the Europe–Asia container trade. In October 2006 MSC joined the Conference, and this resulted in an increased share of westbound capacity. The total trade from Asia to Europe carried by FEFC members reached about 6.7 million TEUs in 2006, with routes to the Northern Baltic recording the strongest growth. MSC is estimated to hold a 20 per cent share of the trade route from/to the Mediterranean. It has been reported that over 400 ships offer 50 weekly services on the Asia–Europe trade lane, with the deployment of additional 50 ships being envisaged for 2007.

Trade on the transatlantic route linking Europe with North America is estimated to have reached 6.2 million TEUs in 2006. Trade on the dominant leg of the trade lane — Europe to North America — increased to a total of 3.9 million TEUs. Flows in the opposite direction also expanded, reaching 2.3 million TEUs. The rapid growth of trade on routes linking Asia, and particularly China, to North America and Europe highlights the continued role of dynamic Asian emerging economies as engines of global trade, as well as the impact of new production processes and delocalization from conventional production centres in the West to Asian developing countries. The emergence of Viet Nam as an important contributor to this growth is worth noting, especially in the light of its recent accession to the WTO.

In addition to East–West trade, North–South trades are growing, as are South–South trades, this growth being a reflection of the new geography of trade and the role of emerging developing economies as industrial centres.

Table 39

**Europe–Far East trade: percentage slot capacity share by line/  
grouping <sup>26</sup>**  
(Percentage share)

Operator	Mid-2005	Mid-2006
<b>Maersk Sealand</b>	12.5	21.4
<b>Grand Alliance</b>	22.2	14.5
<b>New World Alliance</b>	10.7	12.9
<b>K Line and Yang Ming</b>	6.8	5.8
<b>CMA CGM/Norasia and others</b>	9.7	5.7
<b>CSAV NORASIA</b>	1.2	2.2
<b>Total</b>	63.1	62.5

Source: Compiled by UNCTAD secretariat from *Containerisation International*, September 2006.

Total North–South trade is estimated at 19.6 million TEUs in 2006. Cargo flows from Europe to West Africa were estimated at 0.6 million TEUs while trade in the opposite direction amounted to 0.3 million TEUs. The former expanded at a faster rate than the latter, with estimated growth rates of 9.9 and 2.4 per cent respectively. The main lines serving West Africa from both Europe and the Far East were Maersk Line and Safmarine, CMA CGM, Delamas and OTAL. In early 2006, COSCON and ZIM and Delmas each launched a new Mediterranean–West Africa service. Traffic on the Europe–Southern Africa route also expanded in 2006. Hapag-Lloyd announced during the second half of the year that it would enter the Europe–Southern Africa trade with a stand-alone service, while the new South Africa Independent Line was launched, offering a service that deploys two 600 TEU ships.

Container trade between Europe and Oceania is estimated to have increased by 6.3 per cent to reach 0.5 million TEUs in 2006. The larger trade routes linking North America and Europe with developing America are estimated at 5.2 million TEUs and 3.3 million TEUs, respectively. Imbalances affecting these cargo flows are more pronounced, with northbound trade amounting to double southward trade.

Container flows between and within developing regions are expanding at a faster rate. For example, trade between Oceania and North East Asia is estimated at 1.5 million TEUs in 2006, an increase of 7.1 per cent over the previous year. Intra-Asia trade growth is estimated at 8.8 per cent, reaching 8.1 million TEUs in 2006. Volumes are expected to grow even faster with delocalization of production from China to less expensive Asian countries such as Viet Nam and India. In November 2006, 48 African countries signed trade agreements with China. This indicates the potential for growth that lies ahead for South–South containerized trade, with China importing raw materials and Africa importing consumer goods from China. Seizing the potential trade opportunities that may emerge, Hamburg Sud and NYK established a dedicated Far East–Durban loop.

Trade on the Far East/South Asia/Middle East routes also experienced strong growth in 2006. Asia to India subcontinent trade grew by 9 per cent, while traffic in the opposite direction was estimated to have increased by 12.3 per cent. Trade originating in the Middle East and destined for Asia expanded by an estimated 4.9 per cent, while trade in the opposite direction grew by 9.8 per

cent. For all those trades, the dominant leg was the trade originating in the Far East, although the growth of the Asia–Middle East route has decelerated compared with the 16.6 per cent growth rate recorded in 2005.

#### **4. Liner freight index**

Table 40 indicates the development of liner freight rates on cargoes loaded or discharged by liners at ports of the German coastal range for the period 2004–2006. The average overall index for 2006 decreased by 4 points from the 2005 level to reach 100 points (1995 base year 100). The average homebound index decreased by 4 points to 93 over the year. The monthly figures indicate a gradual decline in rates, with some fluctuations up and down and rates performing better during the first three quarters of the year. In the outbound trade, the average level in 2006 declined by 4 points to reach 106 points. Again, rates that prevailed during the first three quarters of the year were higher.

#### **5. Liner freight rates as percentage of prices for selected commodities**

Table 41 provides data on liner services freight rates as a percentage of market prices for selected commodities and trade routes in certain years between 1970 and 2006. For rubber sheet, the increases in freight rates were lower than the average f.o.b. price increases and resulted in a lower freight ratio of 6.3 per cent for 2006. The f.o.b. price for jute remained steady, while freight rates moved up by 22 per cent. This explains the increase in freight ratio to 37.2 per cent for 2006. The price of cocoa beans shipped from Ghana increased by 3.5 per cent while the increase in the freight rate was 1.6 per cent. Therefore, the freight ratio dropped slightly to 3.9 per cent in 2006. The c.i.f. price of coconut oil recorded a drop of 1.6 per cent in 2006, while corresponding freight rates increased by 12.4 per cent. As a result, there is an increase in the corresponding freight ratio from 12.7 per cent in 2005 to 14.5 per cent in 2006. The ratio of liner freight to f.o.b. price for tea increased marginally from 9.2 to 9.3 per cent, owing to an increase of 12.8 per cent in freight rates combined with an increase of 11.7 per cent in prices during 2006. The price for coffee shipped from Brazil to Europe increased by 1.5 per cent, significantly lower than the impressive 49 per cent recorded in 2005. As freight rates decreased by 8.4 per cent, the freight ratio also declined from 5.7 per cent in 2005 to 5.1 per cent in 2006. The price of Colombian coffee exported to Europe from Atlantic and Pacific ports increased marginally by 1.1 per cent, a much lower rate



Table 40

**Liner freight indices, 2004–2006***(Monthly figures: 1995 = 100)*

Month	Overall index				Homebound index				Outbound index			
	2004	2005	2006	2007	2004	2005	2006	2007	2004	2005	2006	2007
January	93	96	104	88	88	89	95	89	98	101	113	86
February	93	95	105	88	88	88	95	89	98	102	113	87
March	96	95	106	86	92	88	97	88	101	102	114	85
April	100	98	105	87	96	91	96	91	104	105	113	84
May	99	103	101		96	97	92		103	108	110	
June	99	108	104		95	101	94		103	114	113	
July	100	108	105		97	102	96		103	115	113	
August	100	106	98		97	100	92		102	111	103	
September	100	106	96		98	100	92		102	112	100	
October	100	109	95		96	102	93		104	116	97	
November	96	111	91		90	104	89		101	118	93	
December	94	110	87		89	103	86		100	117	88	
Annual average	98	104	100	87	94	97	93	89	102	110	106	86

Source: Compiled by UNCTAD secretariat on the basis of information published by the Institute of Shipping Economics and Logistics, *Shipping Statistics and Market Review*, vol. 51, no. 3, March 2007, pp. 60 and 61.

Table 41

**Ratio of liner freight rates to prices of selected commodities***(Percentages)*

Commodity	Route	Freight rate as percentage of price <sup>a</sup>						
		1970	1980	1990	2003	2004	2005	2006
Rubber	Singapore/Malaysia–Europe	10.50	8.90	15.50	8.30	7.50	8.00	6.30
Jute	Bangladesh–Europe	12.10	19.80	21.20	29.00	27.60	30.50	37.20
Cocoa beans	Ghana–Europe	2.40	2.70	6.70	3.30	3.70	4.00	3.90
Coconut oil	Sri Lanka–Europe	8.90	12.60	n.a.	11.50	10.10	12.70	14.50
Tea	Sri Lanka–Europe	9.50	9.90	10.00	7.80	8.60	9.20	9.30
Coffee	Brazil–Europe	5.20	6.00	10.00	6.80	6.50	5.70	5.10
Coffee	Colombia (Atlantic)–Europe	4.20	3.30	6.80	3.90	2.30	3.10	3.00
Coffee	Colombia (Pacific)–Europe	4.50	4.40	7.40	4.80	2.60	4.10	3.70

Sources: UNCTAD secretariat on the basis of data supplied by the Royal Netherlands Shipowners' Association (data for 1970–1989) and conferences engaged in the respective trades (data for 1990–2006).

<sup>a</sup> For coffee (Brazil–Europe and Colombia–Europe) and for coconut oil prices are based on CIF (cost, insurance and freight). For cocoa beans (Ghana–Europe) the average daily prices in London are used. For tea, the Kenya auction prices are used. For the remaining commodities, prices are based on f.o.b. terms. The freight rates include, where applicable, bunker surcharges and currency adjustment factors, and a tank cleaning surcharge (for coconut oil only). Conversion of rates to other currencies is based on parities given in the *Commodity Price Bulletin*, published by UNCTAD. Annual freight rates were calculated by taking a weighted average of various freight quotes during the year, weighted by their period of duration. For the period 1990–2006, the prices of the commodities were taken from UNCTAD's *Commodity Price Bulletin* (see UNCTAD website).



than the 39 per cent growth rate recorded in 2005. Freight rates for Brazilian coffee loaded at Atlantic ports decreased by 2.4 per cent while that loaded at Pacific ports decreased by 9.1 per cent. As a result, the freight ratios decreased to 3 and 3.7 per cent, respectively.

#### **D. ESTIMATES OF TOTAL FREIGHT COSTS IN WORLD TRADE**

##### *Trends in global import value and freight costs*

Table 42 provides estimates of total freight payments for imports as a percentage of total import value by country groups. Most recent data available relate to 2005. During that year, the world total value of goods imported (c.i.f.) increased by 13.4 per cent compared with the previous year while total freight costs paid for transport services increased by 31.2 per cent. The share of global freight payments in import value stood at 5.9 per cent in 2005 — higher than the 2004 freight–import ratio. The share of freight costs in import value achieved in 1990 and 2000 were 5.3 and 5 per cent, respectively. Figure 10 shows the long-term trend that characterized the evolution of freight costs over a period of 25 years. While some volatility seems to have affected the various freight costs–import value ratios, a clear declining trend is, nevertheless, emerging.

A regional breakdown indicates that developed countries have the lowest freight costs. For 2005, the total value of imports by developed countries increased by 1.8 per cent, while total freight costs increased by 15.1 per cent. As a result, freight costs as a percentage of import value increased, reaching 4.8 per cent. This share was 4.7 per cent in 2004, 4.3 per cent in 2000 and 4.4 per cent in 1990. Developing countries saw the value of their 2005 imports increase by 16.8 per cent and their estimated freight costs go up by 49.8 per cent. The resulting ratio increased from 6 per cent in 2004 to 7.7 per cent in 2005 — down from the 8.6 and 6.6 per cent recorded in 1990 and 2000, respectively. Economies in transition, for their part, saw the value of their 2005 imports go up by 22.4 per cent, while the corresponding estimated freight costs increased by 69.7 per cent. The freight to import value ratio was 7.6 per cent in 2005, 5.5 per cent in 2004, 6.6 per cent in 2000 and 5.5 per cent in 1990. Factors potentially explaining the important rise in freight payments include the growing trade, fuel cost increases of the past few years, the boom in charter rates and the growing share of air transport services.

##### *Regional trends*

Total freight costs of developing countries increased by 49.8 per cent in 2005, an increase that partly reflected the important challenges faced in some developing regions. These include infrastructure constraints and limited access (and connectivity) to the global trading systems. In addition, for many small island developing countries, the long distance from major trading partners, low cargo volumes, and high transshipment and feeder costs also contribute to the high levels of freight costs.

Within the group of developing countries, African countries recorded an increase in freight costs of 13.4 per cent. In 2005, developing countries in Asia accounted for 77 per cent of import value and 58.9 per cent of freight payments of all developing countries. In 2004, those shares amounted respectively to 77 and 75 per cent. Africa showed the largest freight to import value ratio, which decreased slightly to reach 10 per cent in 2005. The share of developing countries in America in the group's total import value was 13.1 per cent, while their share of the estimated freight costs amounted to 7.5 per cent. These shares amounted, respectively, to 15 per cent and 11 per cent in 2004. Small island developing countries in Oceania are ranked second to Africa in terms of freight cost ratio, which amounted to 9.6 per cent in 2005 against 10 per cent in 2004. Overall, developing countries continue to register the highest freight costs, followed by economies in transition and, finally, by developed countries (see figure 11).

#### **E. CONTAINER PRODUCTION<sup>27</sup>**

Container production and leasing are influenced by developments in liner shipping and containerized trade. Over the period 2002–2006, the world container fleet expanded at an average annual growth rate of 9 per cent (see table 43). The total fleet amounted to about 23.2 million TEUs — 40 per cent higher than its 2002 level. In 2006, the fleet grew by 7.8 per cent — a lower rate than the rapid growth recorded in 2003 and 2004. During the past few years, the share of ocean carriers in container ownership has been growing gradually — from 53.5 per cent in 2002 to 54.5 per cent in 2004 and 57.2 per cent in 2006. The total fleet owned by lessors totalled 9.9 million TEUs, representing 42.8 per cent of the world fleet.

The world's container-producing industry experienced a recovery in 2006. A total of 3.1 million TEUs was

Table 42

Estimates of total freight costs for world imports, by country group <sup>a</sup>*(Billions of dollars and percentages)*

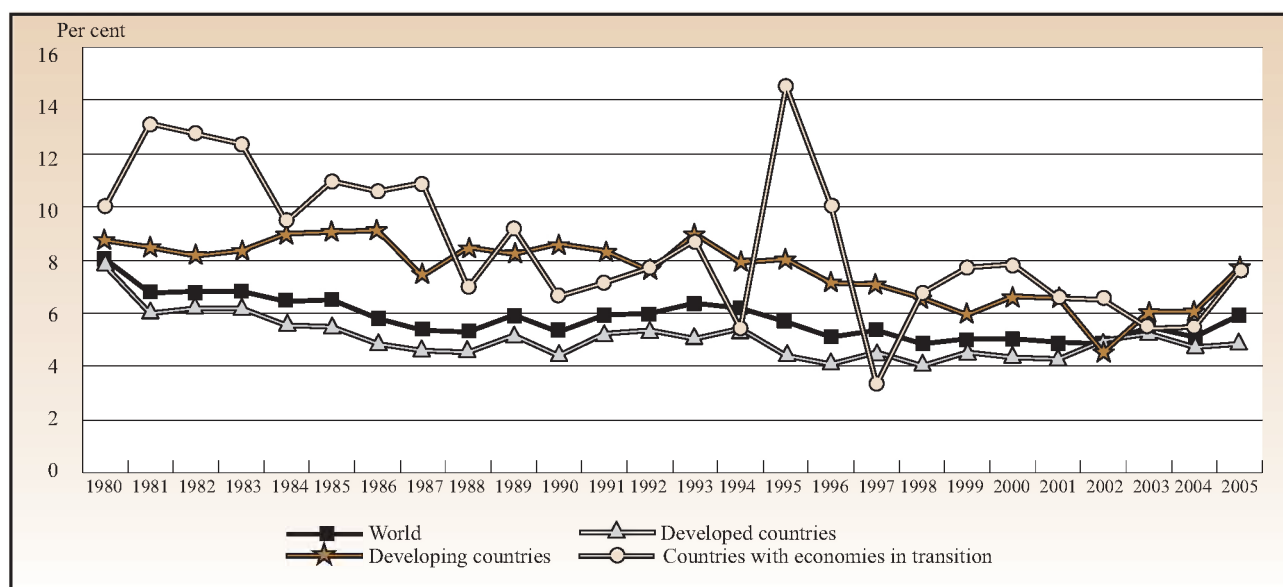
Year	Country group	Estimate of total freight costs of imports	Value of imports (c.i.f.)	Freight costs as % of import value
1990	<b>World total</b>	<b>189.8</b>	<b>3 590.2</b>	<b>5.3</b>
	Developed countries	115.2	2 635.6	4.4
	Economies in transition	10.2	154.5	6.6
	Developing countries	69.0	800.1	8.6
	<i>of which</i>			
	Africa	9.1	97.0	9.4
	America	7.6	127.2	6.0
	Asia	52.3	570.9	9.2
	Oceania	0.5	4.9	9.5
2000	<b>World total</b>	<b>333.4</b>	<b>6 642.1</b>	<b>5.0</b>
	Developed countries	200.8	4 617.7	4.3
	Economies in transition	9.4	120.0	7.8
	Developing countries	126.1	1 904.4	6.6
	<i>of which</i>			
	Africa	12.5	131.0	9.6
	America	19.5	388.9	5.0
	Asia	94.0	1 379.1	6.8
	Oceania	0.5	5.4	9.5
2004	<b>World total</b>	<b>481.8</b>	<b>9 446.6</b>	<b>5.1</b>
	Developed countries	296.3	6 909.1	4.7
	Economies in transition	14.2	259.3	5.5
	Developing countries	173.5	2 877.6	6.0
	<i>of which</i>			
	Africa	21.6	210.3	10.3
	America	19.4	444.1	4.4
	Asia	130.2	2 215.1	5.9
	Oceania	0.8	8.0	10.0
2005	<b>World total</b>	<b>632.4</b>	<b>10 712.2</b>	<b>5.9</b>
	Developed countries	341.1	7 035.7	4.8
	Economies in transition	24.1	317.5	7.6
	Developing countries	259.9	3 359.0	7.7
	<i>of which</i>			
	Africa	24.6	246.9	10.0
	America	19.4	441.1	4.4
	Asia	153.0	2 588.1	5.9
	Oceania	0.8	8.8	9.6

Source: Calculations based on the *UNCTAD Handbook of Statistics 2006/2007*, IMF *Balance of Payments Statistics* and IMF *Direction of Trade Statistics*.

<sup>a</sup> Data in this table are not comparable to those published in previous issues of this publication owing to changes in sources and methodology. World totals include all countries, but regional aggregates for imports and their freight costs during recent years might be distorted because of slow reporting by some countries.

Figure 10

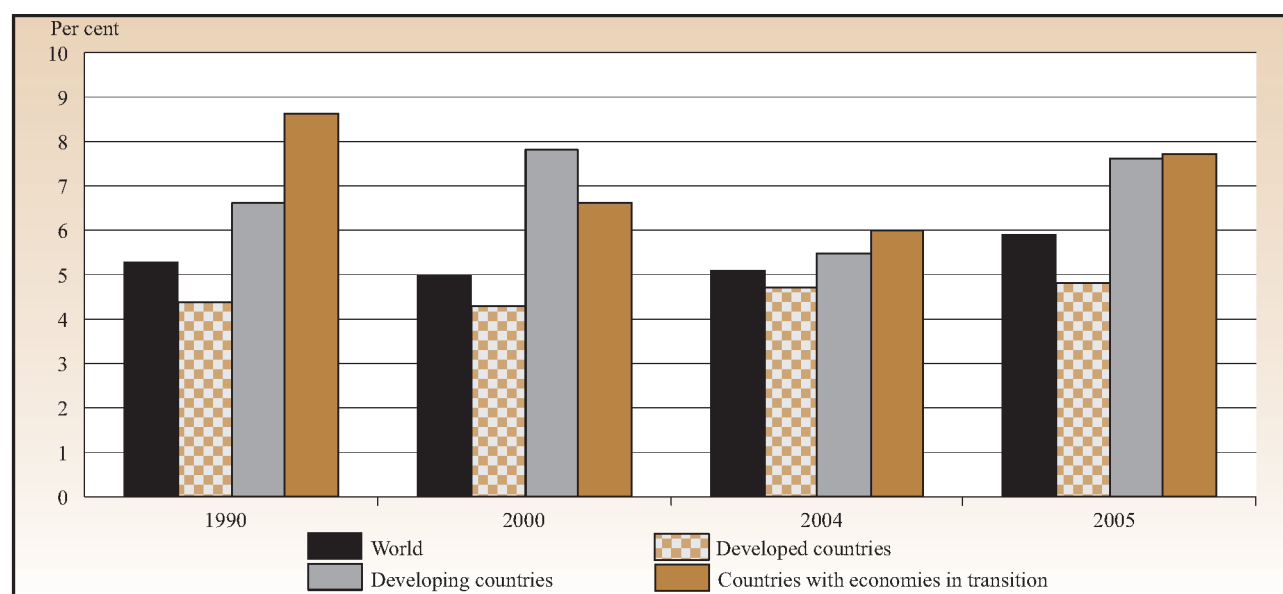
**Freight costs as a percentage of value of imports:**  
**long-term trend (1980–2005)**  
*(Percentages)*



Source: UNCTAD secretariat, based on table 42.

Figure 11

**Estimates of total freight costs as a percentage of value of imports in world trade,**  
**by country group**  
*(Percentages)*



Source: UNCTAD secretariat based on table 42.

Table 43

**World container fleet**  
(Thousand TEUs)

Year	Global	Lessor	Sea carrier fleet
2002	16 425	7 635	8 790
2003	17 960	8 370	9 590
2004	19 980	9 080	10 900
2005	21 500	9 340	12 160
2006	23 170	9 910	13 260

Source: *Containerisation International*, August 2006, p. 43.

produced, including all types of boxes (see table 44). The overall upward trend that had started in 2001 was partly driven by the strong economic recovery in Asia and the growth of China and India as major economic players. About two thirds of new boxes were usually required in order to meet the increasing number of slots in the expanding fleet of containerships. The remaining third was needed to replace old and/or damaged boxes. Therefore, demand for new boxes was particularly fuelled by the containership order book. Production took

Table 44

**World container production**  
(Thousand TEUs)

	2005	2006
Dry freight standard	2 197	2 738
Dry freight special	67	80
Integral reefer	170	165
Tank	13	15
Regional	103	102
<b>Total</b>	<b>2 550</b>	<b>3 100</b>

Source: *Containerisation International*, February 2007, p. 41.

place in the context of price volatility whereby standard box prices started the year at \$1,450 per TEU, and increased by more than half during the third quarter to reach \$2,100 per TEU. Subsequently, these prices fluctuated between \$1,800 and \$2,000. For their part, box prices were also affected by the volatility of prices for raw material used in the production of containers, namely corten steel and timber flooring. On average, the cost of raw materials accounted for about half of the final price of a new box. By the second quarter of 2006, the prices of corten steel and timber flooring had dropped by 20 per cent from their levels a year earlier. The 2006 average price of new 20 ft containers was \$1,850 (see figure 12).

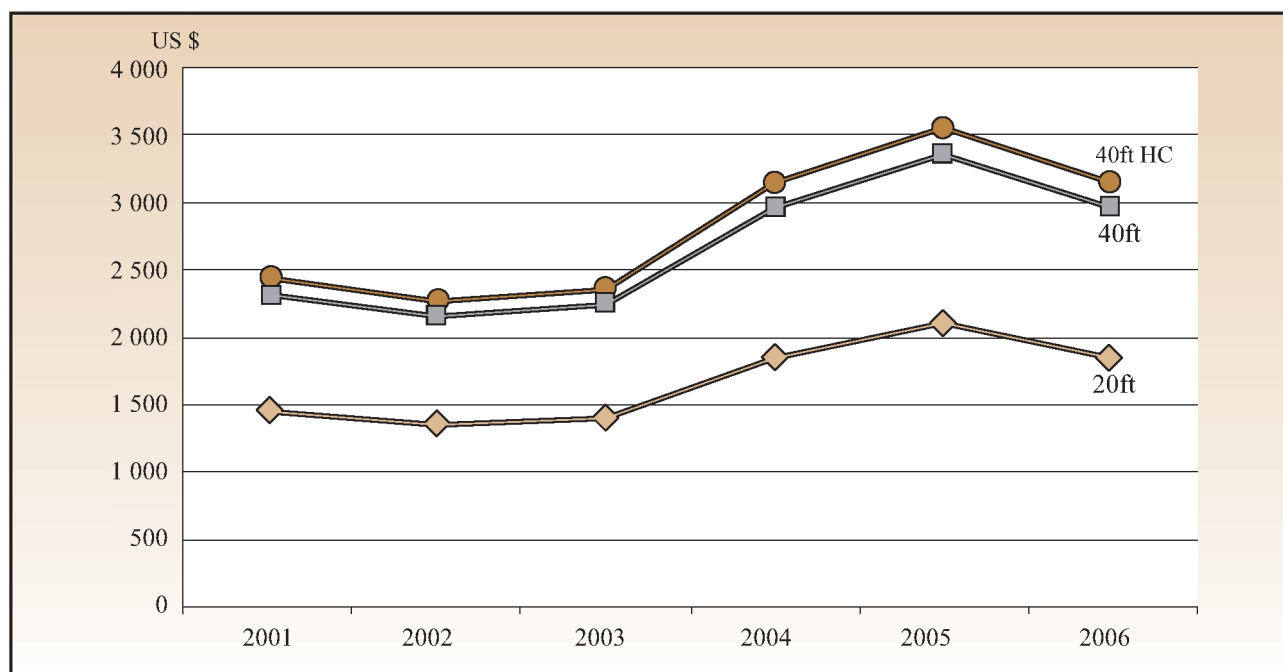
#### *Leasing containers*

The lease rate fell gradually throughout the second half of 2005, reaching a rate close to \$0.50 per day in the first quarter of 2006. The demand for lease boxes strengthened slightly in the last three quarters of 2006, increasing the rate modestly to reach \$0.70 by the end of the year (see figure 13). To ensure the profitability of their investment, lessors were cautious in developing their investment strategy for 2006. Although both leasing rate and new box prices were important determinants in an investment strategy for leasing containers, lessors exercised restraint in order to avoid repeating the experience in 2004 and 2005, when precautionary spending on new containers drove the production sector to operate to near its full capacity. This in turn gradually pushed prices up, generating an excess supply of new boxes and threatening to undermine the leasing industry.

In 2006, lessors purchased about 1.1 million TEUs, an increase of 35.4 per cent over the previous year, but lower than the total 1.3 million TEUs purchased in 2004. Less than half of the purchases were allocated to replace old and damaged boxes. It should be recalled that, in 2005, almost 70 per cent of were intended for maintenance and replacement of existing fleet.

Figure 12

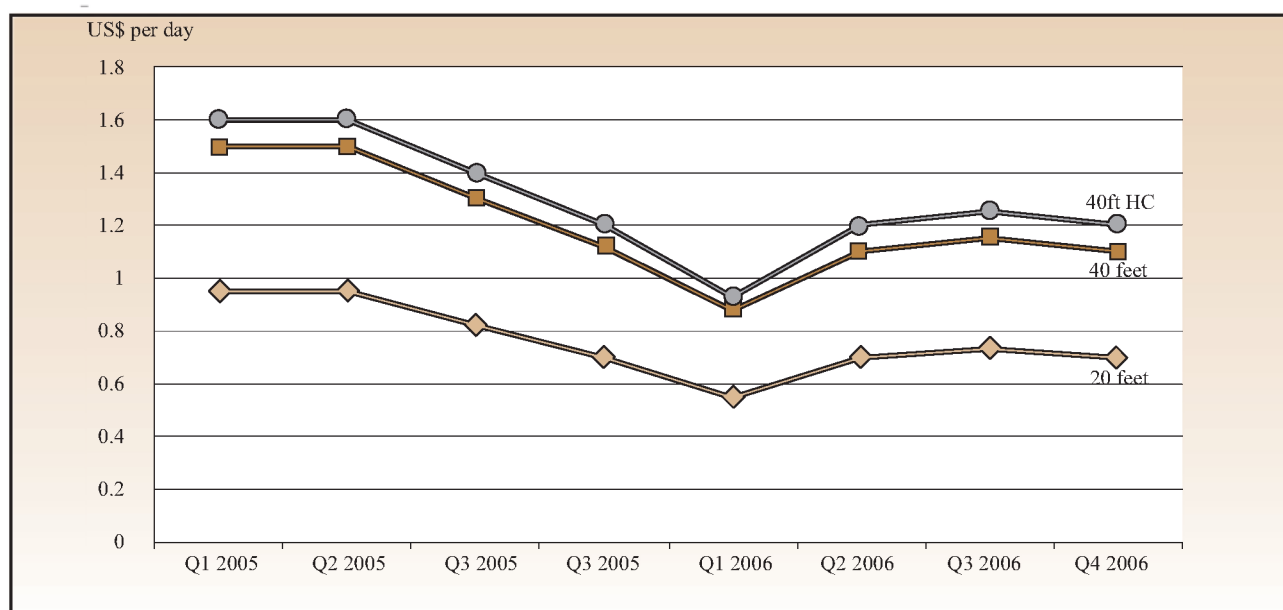
**Evolution of prices of new containers**  
(dollars per box)



Source: Containerisation International, September 2006, p. 39.

Figure 13

**Evolution of leasing rates**  
(\$ per day)



Source: Containerisation International, February 2007, August 2006 and February 2006.

## Endnotes

- <sup>14</sup> UNCTAD secretariat based on Drewry Shipping Consultants, *Shipping Insight*, various issues; Fearnleys, *Review 2006*; Clarkson Research Services, *Shipping Review and Outlook*, 2006 and 2007.
- <sup>15</sup> The revised MARPOL Annex I, entitled *Regulations for the prevention of pollution by oil*, was adopted in October 2004 and entered into force on 1 January 2007. It incorporates various amendments, including the amended Regulation 13G (Regulation 20 in the revised Annex) and Regulation 13H (regulation 21 in the revised Annex) on the phasing-in of double hull requirements for oil tankers. For more information see the IMO website, [www.imo.org](http://www.imo.org).
- <sup>16</sup> Addition information on the WS system can be found on [www.worldscale.co.uk](http://www.worldscale.co.uk). See also Worldscale Association Ltd (London) and Worldscale Association NYC Inc.
- <sup>17</sup> Regulation (EC) No 457/2007 of the European Parliament and of the Council of 25 April 2007 amending Regulation (EC) No 417/2002 on the accelerated phasing-in of double-hull or equivalent design requirements for single-hull oil tankers, *OJL 113*, 30.4.2007, pg. 1–2. This Regulation entered into force on 20 May 2007; [http://eurlex.europa.eu/LexUriServ/site/en/oj/2007/l\\_113/l\\_11320070430en00010002.pdf](http://eurlex.europa.eu/LexUriServ/site/en/oj/2007/l_113/l_11320070430en00010002.pdf).
- <sup>18</sup> UNCTAD secretariat based on Drewry Shipping Consultants, *Shipping Insight*, various issues; Fearnleys, *Review 2006*; Clarkson Research Service, *Shipping Review and Outlook*, 2006 and 2007, and Clarkson Research Service, *Dry Bulk Trade Outlook*, May and June 2007.
- <sup>19</sup> UNCTAD secretariat based on Drewry Shipping Insight, various issues; *Containerisation International*, various issues; *Containerisation International Online* ([www.ci-online.co.uk](http://www.ci-online.co.uk)); Clarkson Research Services, *Container Intelligence Monthly*, various issues, and *Shipping Review & Outlook*, 2006 and 2007; *Dynaliners Trades Review*, 2007; *Lloyds Shipping Economist*, various issues; and *Fairplay*, various issues.
- <sup>20</sup> See Article 1 of Council Regulation (EC) No 1419/2006 of 25 September 2006 repealing Regulation (EEC) No. 4056/86 laying down detailed rules for the application of Articles 85 and 86 of the Treaty to maritime transport, and amending Regulation (EC) No 1/2003 as regards the extension of its scope to include cabotage and international tramp services, *OJL 269*, 28.9.2006, p. 1–3; [http://eurlex.europa.eu/LexUriServ/site/en/oj/2006/l\\_269/l\\_26920060928en00010003.pdf](http://eurlex.europa.eu/LexUriServ/site/en/oj/2006/l_269/l_26920060928en00010003.pdf). See also the related Proposal for a European Parliament and Council Regulation repealing Council Regulation (EEC) No. 954/79 concerning the ratification by Member States of, or their accession to, the United Nations Convention on a Code of Conduct for Liner Conferences, COM/2006/0869 final of 30 January 2007; [http://eurlex.europa.eu/LexUriServ/site/en/com/2006/com2006\\_0869en01.pdf](http://eurlex.europa.eu/LexUriServ/site/en/com/2006/com2006_0869en01.pdf).
- <sup>21</sup> <http://www.elaa.net/documents/RevisedELAAProposal.pdf>.
- <sup>22</sup> The regulations in Annex VI of MARPOL were adopted in September 1997 and entered into force on 19 May 2005. They include a global cap of 4.5 per cent on the sulphur content of fuel oil. They also provide for special SO<sub>x</sub> Emission Control Areas (SECAS) with more stringent controls, where the sulphur content of fuel oil used onboard ships must not exceed 1.5 per cent. Annex VI also sets limits on emissions of nitrogen oxides (NO<sub>x</sub>) from diesel engines, prohibits deliberate emissions of ozone-depleting substances, and prohibits the incineration onboard ship of certain products. Amendments to technical annexes of MARPOL 73/78 can be adopted using the “tacit acceptance” procedure, whereby such amendments enter into force on a specified date unless an agreed number of States Parties object to them. In practice, amendments are usually adopted either by IMO’s Marine Environment Protection Committee (MEPC) or by a Conference of Parties to MARPOL. For more information on ongoing work at the MEPC on air emissions, see the IMO website, [www.imo.org](http://www.imo.org).
- <sup>23</sup> See Press Release *INTERTANKO praises swift action by IMO Secretary General*, 20 April 2007, [www.intertanko.com](http://www.intertanko.com), referring to a proposal submitted to IMO in November 2006.
- <sup>24</sup> [www.vhss.de/englisch/hax.html](http://www.vhss.de/englisch/hax.html).
- <sup>25</sup> Jati Damas, “Indonesia THC Breaks International Code of Conduct”, *Containerisation International*, 20 December 2006 ([www.ci-online.co.uk](http://www.ci-online.co.uk)).
- <sup>26</sup> The Grand Alliance comprises trades in the transatlantic, trans-Pacific and Europe–Far East routes. MISC participates only in the Europe–Far East trade. Since February 2006 the Grand Alliance has comprised Hapag-Lloyd, NYK Line, OOCL and MISC Bhd. The latter participates solely in the Europe–Far East trades. The New World Alliance (APL, MOL and HMM) covers the trans-Pacific, Asia/Europe and Asia/Mediterranean trades, cooperating with Yangming in the latter. APL and MOL were members of the Global Alliance until the replacement New World Alliance was formed in 1997. The NWA additionally has a slot charter agreement with Evergreen, covering the US/Asia market.
- <sup>27</sup> UNCTAD secretariat on the basis of information published in *Containerisation International*, 2006 and 2007 issues.





## Chapter 5

# PORT AND MULTIMODAL TRANSPORT DEVELOPMENTS

*This chapter covers container port throughput for developing countries, improvements in port performance, institutional change, port development and inland transportation. World container port throughput grew by 13.4 per cent to reach an estimated 440 million TEUs in 2006 after stumbling slightly in 2005 with 8.7 per cent growth after a gain of 12.8 per cent in 2004. Freight traffic on inland waterways increased most significantly in China. Also in China, rail freight traffic grew by 11 per cent, in India by 8.0 per cent, in Europe by 4.9 per, in the United States by 3 per cent and in Japan by 1.3 per cent. The global road transport market is estimated to have grown by 4.5 per cent in 2006.*

### A. CONTAINER PORT TRAFFIC

World growth in container port throughput (measured in TEUs — 20-foot equivalent of units) increased by 8.7 per cent in 2005. This is down from 12.8 per cent for the previous year but in line with the rate for 2002 over 2003 of 8.2 per cent. Preliminary figures for 2006 indicate an increase of 13.5 per cent over 2005.

Table 45 shows the latest figures available on world container port traffic in 62 developing countries with an annual national throughput of over 100,000 TEUs for the period from 2004 to 2006. The figures for 2005 show 387.6 million TEU moves, an annual increase of 31 million TEUs over 2004. In 2005 the container throughput growth rate for developing countries was 10.03 per cent with a throughput of 241 million TEUs; this corresponds to 62 per cent of total world throughput. The rate of growth was lower than that reached in 2004 (12.6) per cent. Preliminary figures for 2006 show a similar growth rate — 10.29 per cent — for developing countries.

The figures for developing countries reveal that their share of world container moves grew by approximately a third more than that of developed countries for the periods 2004 to 2005. There were 22 countries with double-digit growth in 2005 over 2004 out of a total of 62 developing countries listed. The top 10 countries by growth were Kuwait (77.4), Benin (61.8), Peru (40.9), Colombia (31.8), Bahrain (31.5), Panama (26.3), the United Republic of Tanzania (25.1), Egypt (24.7), Jamaica (22.8) and China (21.7). The growth rate in developing countries can be uneven from year to year, owing sometimes to strong trade fluctuations, the pendulum effect of transshipment cargo, improved reporting of data or lack of data for some years. Generally, developed countries tend to experience growth at low incremental rates, whereas developing countries tend to ride with market forces.

In 2006 preliminary figures put container growth rate in developing countries at 10.3 per cent with a throughput of 264.9 million TEUs. Currently, there are 24 countries with double-digit growth in 2006 out of the 62 developing

Table 45

## Container port traffic for 62 developing countries and territories, 2004, 2005 and 2006

(TEUs)

Country/territory	2004	2005	Preliminary figures for 2006	Percentage change 2004/2005	Percentage change 2005/2006
<b>China</b>	54 943 153	66 871 473	81 927 000	21.71	22.51
<b>Singapore</b>	21 329 100	23 192 200	24 796 000	8.74	6.92
<b>Hong Kong (China)</b>	21 984 000	22 427 000	23 539 000	2.02	4.96
<b>Republic of Korea</b>	14 173 106	14 885 942	15 521 072	5.03	4.27
<b>Taiwan Province of China</b>	13 029 492	12 791 429	13 101 870	-1.83	2.43
<b>Malaysia</b>	11 775 743	12 027 045	13 365 018	2.13	11.12
<b>United Arab Emirates</b>	9 001 636	9 845 927	10 969 305	9.38	11.41
<b>Indonesia</b>	5 716 307	5 653 176	5 737 754	-1.1	1.5
<b>Brazil</b>	5 056 793	5 410 427	6 116 889	6.99	13.06
<b>Thailand</b>	4 847 000	5 115 213	5 701 145	5.53	11.45
<b>India</b>	4 467 229	4 984 079	5 642 558	11.57	13.21
<b>Saudi Arabia</b>	3 185 699	3 732 706	3 919 027	17.17	4.99
<b>Egypt</b>	2 959 895	3 690 691	4 632 070	24.69	25.51
<b>Philippines</b>	3 701 044	3 593 544	3 973 974	-2.9	10.59
<b>Turkey</b>	2 966 972	3 170 357	3 337 403	6.85	5.27
<b>South Africa</b>	2 704 690	3 111 121	3 553 179	15.03	14.21
<b>Panama</b>	2 428 762	3 067 637	2 949 072	26.3	-3.87
<b>Viet Nam</b>	2 466 869	2 905 154	2 605 323	17.77	-10.32
<b>Oman</b>	2 515 546	2 727 341	2 543 284	8.42	-6.75
<b>Sri Lanka</b>	2 220 525	2 455 297	3 079 132	10.57	25.41
<b>Mexico</b>	1 903 581	2 145 269	2 676 749	12.7	24.77
<b>Chile</b>	1 665 925	1 813 173	1 788 879	8.84	-1.34
<b>Puerto Rico</b>	1 667 868	1 727 389	1 729 000	3.57	0.09
<b>Jamaica</b>	1 360 623	1 670 820	2 150 408	22.8	28.7
<b>Pakistan</b>	1 405 306	1 564 827	1 760 956	11.35	12.53
<b>Argentina</b>	1 485 399	1 449 508	1 649 677	-2.42	13.81
<b>Iran (Islamic Republic of)</b>	1 369 244	1 325 643	1 528 518	-3.18	15.3
<b>Colombia</b>	884 182	1 165 255	1 437 762	31.79	23.39
<b>Bahamas</b>	1 184 800	1 135 131	1 463 000	-4.19	28.88
<b>Venezuela</b>	921 205	1 120 492	1 186 798	21.63	5.92
<b>Peru</b>	703 716	991 474	1 005 000	40.89	1.36
<b>Bangladesh</b>	714 420	808 924	897 139	13.23	10.91
<b>Costa Rica</b>	917 441	778 651	828 781	-15.13	6.44
<b>Guatemala</b>	966 338	776 395	809 348	-19.66	4.24
<b>Côte d'Ivoire</b>	670 000	710 000	-	5.97	-
<b>Kuwait</b>	379 658	673 472	750 000	77.39	11.36
<b>Ecuador</b>	595 863	632 722	671 087	6.19	6.06
<b>Morocco</b>	660 713	560 682	-	-15.14	-
<b>Honduras</b>	557 998	553 013	593 800	-0.89	7.38
<b>Yemen</b>	491 171	508 085	590 981	3.44	16.32
<b>Lebanon</b>	389 876	464 976	594 601	19.26	27.88

Table 45 (continued)

Country/territory	2004	2005	Preliminary figures for 2006	Percentage change 2004/2005	Percentage change 2005/2006
Uruguay	424 791	454 531	519 218	7.00	14.23
Ghana	385 902	440 761	471 368	14.22	6.94
Kenya	438 597	436 671	479 355	-0.44	9.77
Syrian Arab Republic	416 653	422 231	-	1.34	-
Trinidad and Tobago	582 464	421 466	307 727	-27.64	-26.99
Jordan	358 723	392 177	430 000	9.33	9.64
Dominican Republic	559 906	368 230	377 352	-34.23	2.48
Cuba	290 484	317 105	-	9.16	-
Angola	288 981	316 396	-	9.49	-
Senegal	331 191	309 000	-	-6.7	-
United Republic of Tanzania	244 479	305 866	352 548	25.11	15.26
Bahrain	193 112	253 950	-	31.5	-
Mauritius	290 118	253 772	266 425	-12.53	4.99
Cambodia	213 916	211 141	221 490	-1.3	4.9
Togo	184 998	203 372	-	9.93	-
Djibouti	159 359	193 600	-	21.49	-
Benin	97 801	158 201	-	61.76	-
Guam	140 803	150 960	147 972	7.21	-1.98
Cameroon	136 605	143 284	88 248	4.89	-38.41
El Salvador	92 857	103 483	124 331	11.44	20.15
Madagascar	104 000	102 000	-	-1.92	-
<b>Subtotal</b>	<b>218 304 628</b>	<b>240 191 857</b>	<b>264 908 593</b>	<b>10.03</b>	<b>10.29</b>
<b>Other reported<sup>a</sup></b>	<b>2 992 265</b>	<b>821 154</b>	<b>540 047</b>	<b>-72.56</b>	<b>-34.23</b>
<b>Total reported<sup>b</sup></b>	<b>221 296 893</b>	<b>241 013 011</b>	<b>265 448 640</b>	<b>8.91</b>	<b>10.14</b>
<b>World total<sup>c</sup></b>	<b>356 678 110</b>	<b>387 693 380</b>	<b>440 000 000</b>	<b>8.7</b>	<b>13.49</b>

Source: Derived from information contained in *Containerisation International Online* as of May 2007, from various Dynamar B.V. publications and from information obtained by the UNCTAD secretariat directly from terminal and port authorities.

<sup>a</sup> Comprises developing countries where fewer than 100,000 TEUs per year were reported or where a substantial lack of data was noted.

<sup>b</sup> Certain ports did not respond to the background survey. While they were not among the largest ports, total omissions can be estimated at 5 to 10 per cent.

<sup>c</sup> Whilst every effort is made to obtain up-to-date data, figures for 2006 are in some cases estimated. 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 2005 are generally regarded as more reliable and hence are more often quoted in the accompanying narrative.

countries listed. Preliminary data obtained by UNCTAD show that world container moves grew by around 13.4 per cent and that container throughput reached 440 million TEUs<sup>28</sup> in 2006. According to the data available for 2006, China now has 13 ports with a throughput of over 1 million TEUs. In decreasing order of throughput these are as follows: Shanghai, Shenzhen, Qingdao, Ningbo, Guangzhou, Tianjin, Xiamen, Dalian, Lianyungang, Zhongshan, Yantai, Fuzhou and Yingkou. These ports grew on average by 18.75 per cent in 2006 over the previous year. Chinese ports (including Taiwan Province of China and Hong Kong, China) accounted for 102.1 million TEUs in 2005, representing some 26.6 per cent of world container port throughput. In 2006 preliminary figures show that throughput has increased to 118.6 million TEUs, a rise of 16 per cent over 2005.

Table 46 shows the world's leading 20 container ports. Container throughput in these ports reached 208.7 million TEUs in 2006, a rise of 14.6 per cent over 2005, which had increased 13.5 per cent over 2004. There are 13 ports from developing countries in the list, all from Asia, with the remaining from developed countries located in Europe (4) and the United States (3). From the list of 13 ports in developing countries or territories, 8 are located in China (including Taiwan Province of China and Hong Kong, China). The remaining ports are located in Malaysia (2), the Republic of Korea, the United Arab Emirates and Singapore.

The ports occupying positions 1 to 7 remain unchanged over the previous year after posting mixed results for traffic growth. Singapore ranked the second largest

Table 46

**Top 20 container terminals and their throughput for 2004, 2005 and 2006**

*(TEUs and percentage change)*

Port	2004	2005	2006	Percentage change	
				2005–2004	2006–2005
<b>Singapore</b>	21 329 100	23 192 200	24 792 400	8.74	6.90
<b>Hong Kong (China)</b>	21 984 000	22 427 000	23 539 000	2.02	4.96
<b>Shanghai</b>	14 557 200	18 084 000	21 710 000	24.23	20.05
<b>Shenzhen</b>	13 655 500	16 197 173	18 468 900	18.61	14.03
<b>Busan</b>	11 491 968	11 843 151	12 030 000	3.06	1.58
<b>Kaohsiung</b>	9 714 115	9 471 056	9 774 670	-2.50	3.21
<b>Rotterdam</b>	8 291 994	9 288 349	9 690 052	12.02	4.32
<b>Dubai</b>	6 428 883	7 619 219	8 923 465	18.52	17.12
<b>Hamburg</b>	7 003 479	8 087 545	8 861 545	15.48	9.57
<b>Los Angeles</b>	7 321 440	7 484 624	8 469 853	2.23	13.16
<b>Qingdao</b>	5 139 700	6 307 000	7 702 000	22.71	22.12
<b>Long Beach</b>	5 779 852	6 709 818	7 290 365	16.09	8.65
<b>Ningbo</b>	4 005 500	5 208 000	7 068 000	30.02	35.71
<b>Antwerp</b>	6 050 442	6 482 061	7 018 799	7.13	8.28
<b>Guangzhou</b>	3 304 000	4 685 000	6 600 000	41.80	40.88
<b>Port Klang</b>	5 243 593	5 543 527	6 320 000	5.72	14.01
<b>Tianjin</b>	3 814 000	4 801 000	5 900 000	25.88	22.89
<b>New York/New Jersey</b>	4 478 480	4 792 922	5 092 806	7.02	6.26
<b>Tanjung Pelepas</b>	4 020 421	4 177 121	5 000 000	3.90	19.70
<b>Bremen/Bremerhaven</b>	3 469 253	3 735 574	4 450 000	7.68	19.12
<b>Total top 20</b>	167 082 920	186 136 340	208 701 855	13.52	14.63

Source: *Containerisation International*, May 2007.

country, handling 24.7 million TEUs with a growth rate of 6.9 per cent in 2006 over the previous year. This growth is down from 8.74 per cent in 2005 over 2004. In 2006 the Port of Singapore could claim to have retained the title of the world's busiest container port; however, in comparison with some of its closest rivals growth rates look timid. Early indications for the first quarter of 2007 put throughput in the port at 6.6 million TEUs up by 14.2 per cent on 2006, a fact that proves that the contest for top position will be hard fought.

The second busiest port remains Hong Kong (China). Although its growth rate of 4.9 per cent is an improvement on the 2 per cent increase for 2005, the prospects are that it will continue to slip down the league table as a result of stronger growth by the competition. Early indications for the first quarter of 2007 show growth at a mere 0.8 per cent over 2006 with 5.38 million TEUs despite a particularly strong month in February. Mainland Chinese ports continued to record outstanding results: Shanghai and Shenzhen recorded yet another year of impressive increases in throughput, amounting to 20 (23.8 in 2005) and 14.3 (18.7 in 2005) per cent respectively. Early indications for 2007 show throughput growth by 44 and 40 per cent with container throughput for the month at 1.8 million and 1.4 million TEU respectively.

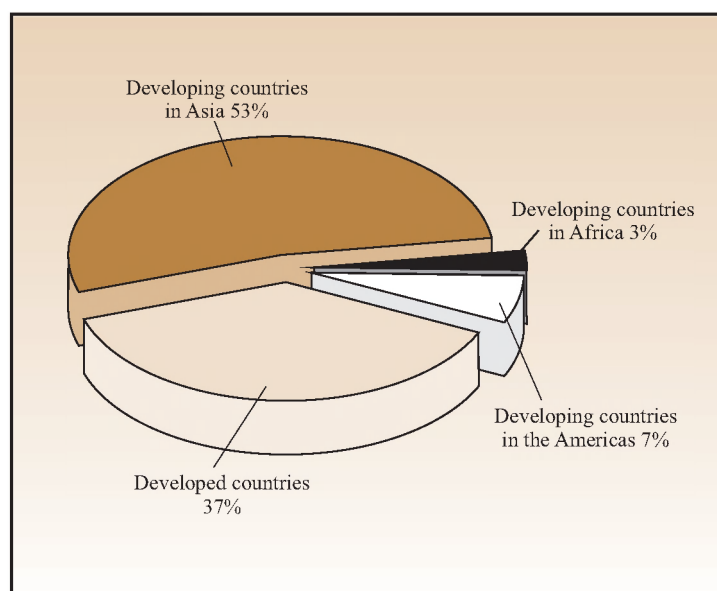
Busan recorded a modest increase of 1.6 per cent, while Kaohsiung climbed by 3.2 per cent from negative growth in 2005. Growth slowed for Rotterdam at 4.3 per cent, down from double-digit figures in 2005. Hamburg, despite its impressive 9.6 per cent increase, was overtaken by Dubai because of its even more impressive 17 per cent rise. On average between the period from 2000 to 2005 Dubai ports grew at around 20 per cent per annum. Los Angeles remained in tenth position despite achieving a 13.2 per cent increase. Of the 10 remaining ports Guangzhou moved up three places into 15th position with a phenomenal growth rate of over 40 per cent. Growth for Guangzhou port is dramatic when it is remembered that in 2005 it was a new entrant into the top 20 container ports. Qingdao and Ningbo each moved up two places. Port Klang dropped two places whilst Long Beach, Tianjin, New York and Antwerp dropped one place each. The new entry into the top 20 was Bremen/Bremerhaven in position 20, ousting the port of Laem Chabang.

These top 20 ports accounted for 48 per cent of the world container port traffic for 2005 (47.6 per cent in 2004). Preliminary figures show that they increased throughput by an average of 14.6 per cent in 2006.

Figure 14 shows the breakdown of containerized trade by region: developing countries in Asia account for approximately 53 per cent of world container throughput, up slightly from 52 per cent in 2004.

Figure 14

#### Regional breakdown of container throughput for 2005



Source: UNCTAD secretariat based on information from [www.ci-online.co.uk](http://www.ci-online.co.uk).

## B. IMPROVEMENTS IN PORT PERFORMANCE

In 2006, Shanghai reported total cargo throughput of 537 million tons, firmly establishing its position as the world's busiest port, a title which it seized the previous year from Singapore. Singapore's throughput in 2006 reached 448.5 million tons. Guangzhou achieved a 16.4 per cent increase with total cargo throughput up from 250.9 million to 300 million tons in 2006. In Europe, Rotterdam achieved a marginal increase in cargo traffic to 378.2 million tons from 370.2 the previous year, Antwerp increased to 167.4 million from 160.1 million tons and Hamburg to 134.8 million from 125.7 million tons.



Malaysia's Westport reported handling some 452 container moves per hour whilst discharging CMA-CGM's *MV Puccini* in 2006. On that occasion 3,559 containers were moved with the highest total moves being achieved during the second hour of operations. During this period, two cranes were performing at 61 moves per hour and another one at 60. The other five cranes deployed in the operation were doing between 48 and 59 moves per hour. Whilst under ideal conditions records continue to be broken, sustainability of these figures for any port over a prolonged period does not yet appear to be the norm. Some ports such as Jebel Ali Port (United Arab Emirates) have introduced tandem lift gantry cranes capable of handling two FEUs or, four TEUs simultaneously. The port in June 2006 put the tandem lift cranes into operation when discharging a single ship. In perhaps the largest single transfer of containers at any one time the port made 8,571 moves in 41 hours for the 9,000 TEU ship the *MSC Rania*. As containerships continue to increase it is likely that attention will be given by terminal operators to turnaround times in order to allay fears regarding port congestion.

At the Chiwan Container Terminal in Shenzhen, China, cranes capable of lifting six TEUs or three FEUs are in operation. In an effort to further improve container handling efficiency, a leading crane manufacturer has begun research into a concept crane capable of discharging four FEUs simultaneously, or eight TEUs.

The world's largest insurer of ports and terminals, the TT Club, reported an increase in claims in the last quarter of 2006, apparently attributable to human error. A significant occurrence in the toppling of straddle carriers was noted, with the most probable cause being excessive speed.

The Tecondi Container Terminal in Santos, Brazil, increased productivity by 17.7 per cent in 2006 over the previous year. Tecondi, the third largest box terminal in Santos, reported acquiring two post-Panamax gantry cranes at a cost of \$7 million, resulting in increased container moves of up to 42 per hour.

Shahid Rajaei's Container Terminal in Bandar Abbas, Islamic Republic of Iran, saw throughput increased to 1.4 million TEUs, up 9 per cent over 2005. Work began on the construction of a new terminal, including the delivery of eight new super post-Panamax quay cranes. With a depth of 17m it is expected capacity will triple to 6 million TEUs.

Phase one of Pusan Newport (PNP), Republic of Korea, opened in January 2006 at a cost of over \$9 billion. It is owned by a consortium consisting of Samsung Corporation, Hanjin Group and Hyundai Engineering & Construction, as well as by DP World, which also manages the operation. PNP's first major customer was MSC and during its first year of operation the port handled 238,866 TEUs against a target of 800,000 and a capacity of 3.5 million. Still to be constructed are phases two, three and four, consisting of three 50,000 dwt (3,000–4,000 TEUs) berths with a total quay length of 1.05 km and 63 ha port area. Three consortiums, led by Ssangyong Construction, Posco Construction and Hyundai Development respectively, have submitted proposals to the Republic of Korea's Ministry of Maritime Affairs and Fisheries for their construction.

PSA International-owned *Incheon Container Terminal* plans to increase capacity by 400,000 TEUs annually, by adding a second berth to its existing container facility by June 2008. In 2006 the port handled approximately 1.38 million TEUs. Concurrently, the local terminal operator *E1* is investing \$70.34 million in the construction of a new berth with an annual capacity of 185,000 TEUs, to be completed in 2009.

In Malaysia plans are underway to invest \$142 million in Port Klang's Northport in order to deepen the draught and fit post-Panamax ship-to-shore gantries with a 22-box outreach, and to extend quay length to 3,350 metres. Port Klang's Westport handled 6.3 million TEUs in 2006, up 14 on 2005. Port Klang is home to the newly-completed 405-ha Port Klang Free Zone (PKFZ).

## C. INSTITUTIONAL CHANGE AND PORT DEVELOPMENT

There is a clear trend for geographically disparate ports to be brought together under the management of one company in the form of a global terminal operator, a multi-port operator or a conglomerate of enterprises whose parent company may be a State or a financial institution. In 2006 this trend received much publicity in the form of DP World's bid for P&O Ports. Previously DP World had purchased another rival, CSX World Terminals, thrusting the company up the league tables and into the limelight. In 2006 the global port terminal operators saw Hutchison Port Holdings (HPH) maintain its lead with 59.3 million TEU moves. Closely following is PSA International with 51.3 million, APM Terminals (43 million), DP World (42 million), Cosco Pacific (32.5 million), Eurogate (12.5 million) and SSA Marine

(11.9 million). Cosco Pacific recorded growth of 24.8 per cent over the previous year, followed closely by PSA International with 24.6 per cent increase. The gap between first and second place is narrowing, and in a move that surprised the industry, PSA International purchased a 20 per cent stake in its rival HPH for \$4.4 billion plus the right to buy the remaining stake should its parent company, Hutchison Whampoa, decide to sell. Another port group showing strong signs of growth is International Container Terminal Services Inc. (ICTSI), posting a 36 per cent increase in first quarter results for 2007. Table 47 shows the share of world container throughput of leading market players in global terminal operations. HPH maintained its lead through the period

from 2004 to 2006, although the gap between its rivals has narrowed. Whereas in 2004 HPH had a 4 per cent lead over its closest rival, PSA International, this has narrowed to 1 per cent. PSA International growth can also be compared to that of DP World and APM Terminals, with which it shared a 9 per cent market in 2004, but which it has now surpassed from their present 10 per cent share.

The global terminal operators have increased their market share through better performance and the acquisition of additional concessions. A trend is emerging for ports and terminals to be brought together either by the global terminal operators or through equity funds

Table 47

**Global terminal operators' percentage share of world container throughput**  
(Percentages)

Global terminal operators	2004	2005	2006
<b>HPH</b>	13	13	13
<b>PSA International</b>	9	11	12
<b>APM Terminals</b>	9	10	10
<b>DP World <sup>a</sup></b>	9	9	10
<b>Cosco Pacific</b>	6	7	7
<b>Eurogate</b>	3	3	3
<b>SSA Marine</b>	3	3	3
<b>Total share of world throughput</b>	53	56	57
<b>World throughput (in millions of TEUs)</b>	356.6	387.7	440.0

Source: Adapted by the UNCTAD secretariat from information obtained by Dynamar B.V.

<sup>a</sup> DP World includes CSX World Terminals and P&O Ports for all three years.

managed by institutional investors. In the United Kingdom, ABP was bought by Admiral Acquisitions and PD Ports by Babcock & Brown Infrastructure Limited, while MDHC, owned by Peel Holdings, which also control the ports of Medway and Clyde, is now itself owned 49 per cent by Deutsche Bank.

The trend in the United Kingdom 25 years on from the first port privatization is that now all privatized ports are owned by financial institutions. The only exceptions are MDHC, in which Deutsche Bank has a 49 per cent stake, and Forth Ports, which is still run by a "traditional" port operating company. However, speculation remains as to when Forth Ports will follow the same path as other ports

given that it has amongst its assets the port of Tilbury, located in the fast-growing South-East of the country. Since privatization in 1993 Forth ports' share price has risen by a factor of ten.

The reason why financial institutions control ports is that in an era of ever-increasing container shipments ports are a stable business seemingly underpriced compared with other industries. The emergence of the hub and spoke port network has greatly increased the number of containers being handled and thus revenue for ports. Developing countries' ports may thus be attractive to foreign investors. If so, with investment there invariably follows an overhaul of management and operational practices, often resulting in increased efficiency.

Perhaps another emerging trend stemming from the United Kingdom is the introduction of a \$11 charge per TEU for infrastructure costs by the port of Felixstowe. The cost of paying for external road and rail connections to the port has been passed from the Government to the port and on to the customer. Traditionally, it has been accepted that national or local government should finance all infrastructure leading to the port boundary. As the United Kingdom's largest container port, the port of Felixstowe handled 3 million TEUs in 2006 and was successful in its planning application to build additional facilities, which would bring total capacity to 5.2 million TEUs.

The United Kingdom was the first country in the world to privatize its ports with the creation of ABP in 1983, a practice that has gained worldwide appeal. However, in order for port projects to be attractive to foreign direct investment (FDI) this practice may only work in developing countries with a significant volume of import/export cargo. Transshipment ports will have a limited leverage power in convincing its customers to pay for an infrastructure charge that benefits import/export cargo.

Elsewhere in Europe, the Russian Federation is planning major port reforms through its State ports body, RosMorPort, which was set up in 2003 to manage more than 40 ports. As part of this reform RosMorPort is seeking a \$96 million corporate loan through the European Bank for Reconstruction and Development. Ust Luga, one of Russian newest container ports, is expected to relieve congestion at St. Petersburg and take trade from the Baltic States to make it the largest container port in the Russian Federation. Construction work started on a container terminal in the port of Ust-Luga in early 2007. Two berths with a total length of 440 m are expected to be completed by the end of 2007, and operations to begin in early 2009. The terminal is to have an annual throughput capacity of 3 million TEUs with the growth potential up to 6 million TEUs annually. Eurogate will have a 26 per cent stake in the project, which will make it one of the very limited foreign interests involved in Russian ports. In the Black Sea port of Novorossiysk a \$700 million expansion plan is underway to construct new terminals for grain, fertilizers, timber and containers, plus a second deepwater tanker terminal. At the other end of the Russian Federation, Vladivostok is seeing growth in raw materials to China, with throughput expected to be 250,000 TEUs and capacity 300,000 TEUs by 2010. The Russian

Federation's container terminal operator, National Container Company (NCC), in partnership with the Far-Eastern Shipping Company (FESCO), will begin construction of a container terminal in Vladivostok in late 2007. The first phase will provide 120,000 TEU capacity by 2010. The second phase will start in 2011 and aim to further increase capacity to 250,000 TEUs by 2014.

The port of Illichivsk, Ukraine, in May 2007 was among the first container terminals in CIS countries and the Baltic to accommodate a containership with a capacity over 5,000 TEUs from Maersk Line. As part of a regular service between Ukraine and China eight containerships of 5,000 TEU capacity will be deployed on the service. Container moves for the port Illichivsk are around 26 moves per hour and throughput is expected to be 800,000 TEUs by the end of 2007.

In East Asia the growth in container throughput of Chinese ports continues. Throughput for all mainland Chinese ports in 2001 overtook Hong Kong (China), then the world's busiest container port. In 2007 Shanghai is likely to become the world's busiest container port. The port of Shenzhen is not far behind and is tipped to take the number two position in the near future.

The port of Ningbo, China, a natural deepwater port, is expected to take third position within a few years. Behind this growth lies the government investment programme, under which the 10th five-year plan (2001–2005) invested some \$8.7 billion of public money in ports. The figure of total investment in ports is thought to be double if private investment is included. China's investment in new port facilities seems unabated, with the announcement in its 11th five-year plan that expansion of its port network is a priority. In the port of Tianjin \$385 million is to be invested in the development of a new four-berth, 2 million TEU capacity container terminal. The new facility is to be commissioned by 2012 and will be built in the port's Dongjiang area, to be developed as a free trade zone. The port of Fuzhou handled over 1 million TEUs in 2006, and thus became the 13th Chinese port to pass the 1 million TEU mark. PSA International's Fuzhou International Container Terminal (FICT) only started operations in 2003. A third berth will be commissioned in 2007, which will bring total quay length to nearly 1,000 metres and capacity to 1.2 million TEUs. HPH and Huizhou Port Affairs Group Co. Ltd. signed a joint venture agreement on operating Huizhou Port International Container (HPIC) Terminals in Guangdong province, southern



China. The port has four multi-purpose berths and five oil berths, capable of handling non-containerized goods such as oil and LPG as well as container and bulk cargo.

In South-East Asia in 2006, there were strikes in several major Indonesian ports following the imposition of 10 per cent VAT. The Government's reform plans for ports include the changing of shipping law that prevents foreign investors from controlling more than 49 per cent of port development and operations. Other plans include condensing 141 international ports into 25 hubs in a series of port projects valued at \$1.5 billion, including Jakarta Newport, a \$500 million port construction comprising over 245 ha. In Aceh province, the Port of Dublin is investing in a 50-year concession with the Sabang port located on the island of Weh just off the northern tip of Sumatra. A natural deepwater port with a depth of 18 metres, it is positioned at the northern entrance to the world's busiest shipping lane — the Malacca Straits — ideal for transshipment traffic. Thailand announced plans to build a new container port at Pak Bara, capable of handling 2.4 million TEU when operational. Pak Bara is about 150 miles from international shipping routes and has a natural deepwater of 13 metres that could be deepened to 25 metres. Road and rail infrastructure connections to the rest of Thailand will need to be upgraded if more than transshipment cargo is targeted. Both Sabang and Pak Bara are located on the same latitude just 300 miles apart. In Brunei Darussalam, PSA International announced its withdrawal from Muara Container Terminal after only six years into a 25-year lease. In Singapore the Government announced plans to increase its port capacity to 50 million TEUs by 2018. The Government of the Philippines announced that it is offering a concession to operate the port of Batangas, and a deal is expected to be completed by the end of 2007.

In the south of Viet Nam, Saigon Port Company has signed up for a number of projects with international companies to develop potential and take advantage of its location close to international shipping lanes. APM Terminals and Saigon Port Company agreed to build a new container terminal with a draft of 14 m at Cai Mep Thuong, 15 miles south of Ho Chi Minh City, at a cost of \$186 million. SSA Marine and Saigon Port Company are to build a container port in Cai Mep Ha with a total investment of \$160 million. PSA International and Saigon Port Company are to build Thi Vai Port in Ba Ria-Vung Tau Province, and the Hiep Phuoc project in Ho Chi Minh City, planned to start operation by 2010. HPH and Saigon Investment Construction & Commerce Company

Ltd (SICC) have signed a 50-year concession to also jointly convert the existing greenfield site in Ba Ria Vung Tau province in Viet Nam into a new container terminal. The Cai Mep and Thi Vai area of Ba Ria Vung Tau province is an area designated to be a deep-sea port under the Vietnamese Government's Detailed Master Plan. The new terminal is expected to become operational in 2011 and will have a quay length of 730 m, with a depth alongside of 14 m and a total yard area of 33 ha (see box 2, country focus report on Viet Nam's port developments, in chapter 7).

In South Asia, Pakistan's largest port, Karachi, is expected to complete the first phase of its expansion plans, including a draft of 18 m, by 2009. Also, the Government has signed a 40-year concession with PSA International to operate Gwadar deep-sea terminal. Currently, Gwadar Port has a 500,000 TEU capacity, a quay length of 602 m at a depth of 14.5 m alongside, with the possibility of increasing this to 16 m. The Government aims to turn Pakistan's second deep-sea port after Karachi into a free-trade zone connected via a 700 km coastal highway between the two cities.

In India, work started in early 2007 on building a container terminal at Vallarpadam capable of handling 8,000–9,000 TEUs. Surrounding the port will be a Special Economic Zone with an area of 115.25 hectares and another at Puthuvyppeen with 285.84 hectares. A tendering process is also underway for the development of a deepwater international container transshipment terminal in Vizhinjam. The proposed project has faced difficulties with security clearance issues and lack of interest from established international operators. In an attempt to save the project, the Government announced its intentions with regard to rail and road connections. Mumbai's offshore container terminal (OCT) is planned for expansion to 1.2 million TEUs in two phases. Mumbai has been losing traffic to Jawaharlal Nehru port, which was set up in 1989 to take the pressure off Mumbai. Similarly, in Sandhead, West Bengal, plans are underway for the Government to establish a deepwater port. Similarly, the small and shallow port of Puducherry in south-east India will be part of a \$475 million joint venture between Subhas Group and Om Metals to transform it into a deepwater port by 2014. These form part of India's \$320 billion investment earmarked for infrastructure development, of which ports are due to receive \$11 billion in plans that will double the country's ports' capacity by 2012. Shipping is also expected to receive a boost of \$9 billion. In the port of Tuticorin in south-east India, the global

terminal operator PSA International adopted a work-to-rule practice following a disagreement with local authorities over a 54 per cent reduction in TEU tariffs. Annual throughput of 377,000 TEUs may be reduced to the contractual minimum of 300,000 TEUs unless the dispute can be resolved.

In Bangladesh, following the blockade by shippers of the country's ports, the Government decided to adopt reforms along the lines of a Service Operation Transfer (SOT) system for Chittagong Port's New Mooring Container Terminal. This does not require government money to be used for the terminal's operation. The sentiment of employees of the container terminal appears to be against the SOT system. Despite this, the Government has further plans to increase the role of the private sector in ports.

Sri Lanka secured a \$300 million loan from the Asian Development Bank (ADB) for the expansion of the port of Colombo to include dredging the port to a depth of 20 metres to accommodate the latest container ships and improving navigational aids. Handling capacity at the port is expected to rise from 3.3 million TEUs to 5.7 million TEUs by 2010.

In the Middle East, at the end of 2006, APM Terminals signed a 25-year concession agreement for Mina Salman and Khalifa bin Salman ports in Bahrain. The concession starts with the opening of Khalifa bin Salman Port, which is due to be ready by the end of 2008. APM Terminals will provide the operational equipment, principally four post-Panamax Gantry Cranes, and install a RTG container management system. Plans are also underway to construct a 40 km causeway linking Bahrain and Qatar. About half of the \$1.8 billion causeway will consist of bridges and the rest will be built on reclaimed land.

In Oman phase one of the Oman International Container Terminal officially opened in 2006 with four post-Panamax quay cranes, eight rubber-tyred gantry cranes, two reachstackers, and a fleet of 15 tractors and 33 trailers. The second phase is due for completion in 2007 and will provide an additional 520 m quay and 28 ha yard area. The port of Salalah revealed plans to increase capacity by more than 200 per cent to approximately 4.5 million TEUs. Work, which has already started, is expected to be finished in 2008.

In Kuwait, Shuwaikh Port expected to be privatized at the end of 2007, and plans are underway to dredge the

present 8.5 m channel to 14 m. In the United Arab Emirates, the port of Fujairah has plans to build berths to cater for general cargo. A new road project reducing the distance from Fujairah to Dubai from 120 km to 80 km bodes well for the Emirate. Khor Fakkan port opened a new 400 m container berth with a depth of 16 m. The port handled its largest container vessel, the *CMA-CGM Fidelion* at 9,414 TEUs and in the first month of 2007 container traffic was up 10 per cent on the same period in the previous year. Abu Dhabi Port plans to build a \$2.5 billion industrial complex at Khalifa bin Salman port. In 2006 a 25-year concession was signed with APM Terminals. Sharjah (the third largest of the seven Emirates), located within the Persian Gulf, is planning to increase the size of free trade zones. The port of Saqr in the northern UAE opened in January 2007 with a target of 3 million TEUs within five years.

In the Syrian Arab Republic, ICTSI signed a 10-year concession to operate the Tartous container terminal, the first port in that country to introduce foreign expertise into its container handling operations. Tartous has a 540 m quay and 250,000 square metre back-up area. ICTSI plans to invest approximately \$39 million in the new container terminal over the lifetime of the concession.

Elsewhere in the Middle East tenders are being made for the Khalifa Port and Industrial Zone (KPIZ) in Abu Dhabi. KPIZ, located on a reclaimed island in the Taweelah area between Dubai and Abu Dhabi, aims to become a major transshipment, industrial and logistics hub. The island will be connected to the mainland by a 4.5 km causeway in part of a development which will see more than 100 sq. km of industrial, logistics and commercial zones constructed. The first vessels to docks at KPIZ are expected around September 2009, at which time the port's handling capacity will be 2 million TEUs, rising to 8 million TEUs by 2015.

In Western Asia, Turkey's long-drawn-out legal disputes regarding the port privatization of Mersin inched slowly through the courts, with the calls by various unions for the privatization process to be cancelled finally being rejected. Around 50 port concessions were eagerly awaiting the outcome of this test case. HPH was the successful bidder for the 49-year concession to operate the Port of Izmir. Elsewhere in Turkey, DP World acquired the greenfield site of port of Yarimca with plans to develop it into a 1 million TEU facility.

In the Americas, Mexico plans to develop a megaport at Colonet on the Baja California peninsular, 150 miles south

of San Diego. The entire project including rail connections is expected to cost around \$9 billion and have a handling capacity of 6 to 8 million TEUs. Further south in Buenaventura, Colombia, Grup Marítim TCB of Spain bought a 30 per cent stake in Complejo Portuario Industrial de Buenaventura, SA (CPIBSA), the company that holds the concessionaire contract for the future Buenaventura Port Container Terminal (BPCT). The Ecuador port of Guayaquil granted a 20-year concession to ICTSI of Manila. ICTSI is to spend \$170 million within the first three years of operation. Also in Ecuador, the port of Manta, a natural deepwater port, saw the start of a 30-year concession agreement with HPH. The port will have a total quay length of 1,700 m and a depth of 16 m alongside, plus a total area of 63 ha. In Brazil large traffic volumes at Santos prompted expansion of the port of Imbituba in 2006 to increase capacity from 150,000 TEUs per year to 400,000 TEUs. In Chile, San Antonio lost out to Valparaíso when a number of clients, including MSC and NYK, moved their liner business. Container throughput for San Antonio for 2006 was down by around 12 per cent on the previous year. Conversely, container throughput for Valparaíso increased by 65 per cent to 217,697 TEUs in the first quarter of 2007 compared with 131,819 TEUs for the same period in 2006. Manzanillo International Terminal (MIT) at the Caribbean entrance of the Panama Canal started work on increasing handling capacity from 1.5 million to 2.2 million TEUs through the construction of a 400 m container berth, plus the purchase of container-handling equipment, including six new gantry cranes (including three super post-Panamax).

In Africa, DP World is investing \$400 million into a new container terminal at Doraleh Port, Djibouti. The first phase of the new container terminal will have six super post-Panamax gantry cranes and a quay length of 1,050 m, and is expected to be operational in late 2008 with a capacity of 1.5 million TEUs. A second phase doubling this capacity is also planned. While in Dakar, Senegal, DP World will invest more than €100 million in infrastructure and equipment which will more than double the capacity of the existing Terminal à Conteneur to around 550,000 TEUs. In the United Republic of Tanzania the port group Kuwait Gulf Link Ports International (KGLPI) was awarded a contract to redevelop the northern port of Tanga as part of a \$400 million programme which includes the construction of new quays and dredging of the port.

## D. INLAND TRANSPORT DEVELOPMENTS

### *Inland waterway transport*

Inland waterway systems remain an important transport route for many developed and developing countries where other transport systems are either underdeveloped or have become congested. Multimodal transport solutions are increasing being sought by transport operators looking to lower cost. In the Russian Federation, inland waterways cargo volumes reached 170 million tons in 2005. In Europe some 465 million tons of cargo was handled along inland waterways in 2005. In Asia, the Yangtze River handled 795 million tons in 2005 and estimates for 2006 put this figure at around 1 billion tons. Traffic levels along the Yangtze river have been growing at about 25 per cent per annum, with ports such as Taicang seeing an astounding 139 per cent increase in traffic in 2006. The world's third largest river will receive around \$1.87 billion of investment made in its ports during China's 11th five year plan (2006–2010). Most of this investment will be given to the ports of Chongqing, Wuhan and Nanjing, with Shanghai acting as the regional hub. Longtan, Port of Nanjing, is working on the second stage of construction which is expected to raise container throughput to 1.4 million TEUs. By 2010 throughput is expected to double to 3 million TEUs after the completion of the fourth stage of development. In 2006, Wuhan, 1,000 km west of Shanghai, saw throughput reach 25 million tons with 250,000 TEUs. Currently there are around 8,000 km of canals capable of handling vessels over 1,000 dwt in China; this is expected to increase to 10,000 by 2010 and to 19,000 by 2020. Elsewhere in Asia, the Irrawaddy River in Myanmar handled some 23.23 million passengers and 3.89 million tons of cargo in 2006.

### *Railway transport*

#### Market development

According to the International Union of Railways (UIC), substantial increases in world rail traffic were registered in 2006 with varied individual and regional performances.

Across Europe, freight traffic measured in tonne-km grew by 4.9 per cent over the previous year, during which the traffic declined by 2.4 per cent. Several freight



transport operators recorded double-digit growth figures. Recovery in rail transport, especially international freight traffic, in South-East Europe (an increase of 5 per cent) continues to enable further continental integration.

Growth was also strong in European economies in transition, with Russian Railways recording an increase of 5.0 per cent in freight traffic.

In Asia, Chinese Railways' positive performance continued with an expansion of freight traffic of 11 per cent, while Indian Railways recorded one of its best years in the past decade with an 8.0 per cent growth rate.

Japan's rail freight traffic expanded at a moderate rate of 1.3 per cent, much in line with previous years.

In the United States, rail freight operators also had a good year with a growth rate of 3.0 compared with 2005. US railroads together carried close to 3,000 billion tonne-km (2,788 billion in 2006).

In March 2007, in order to ensure future growth the railways, members of UIC set out a number of strategic goals, including integration of the rail freight industry in the global logistics chain, including ports, shipping lines, container transport operators and freight forwarders; development of intercontinental and intermodal rail freight networks, focusing in particular on the Asia–Europe corridors, the China–India corridor and in Asia the Trans-Asian Railway (TAR); establishment of dedicated freight networks or freight corridors; attracting new types of partners to finance the construction, modernization and operation of railways on these future corridors; and finally achieving technical and operational interoperability. It is worth noting that the Protocol of 3 June 1999 for the Modification of the Convention concerning International Carriage of Rail (COTIF) of 9 May 1980 (1999 Protocol) entered into force on 1 July 2006.<sup>29</sup>

#### Infrastructure development

In order to improve and extend rail services efforts to upgrade physical infrastructure were made in many regions in 2006.

In Asia, the TAR agreement developed by ESCAP envisages the creation of an integrated freight railway network across Europe and Asia. The network includes about 81,000 km of rail routes — the 12,600 km South-

East Asia corridor, the 32,500 km North-East Asia corridor, the 13,200 km Central Asia and Caucasus corridor, and the 22,600 km South Asia–Islamic Republic of Iran–Turkey corridor — and connects 28 countries in the region.

At the national level, Indian Railways announced that it will construct a 350 km link between Jiribam (India) and Moreh (Myanmar) linking India with Asian countries. Along the same lines the Myanmar Government announced that it will share part of the project cost. The Jiribam–Imphal–Moreh rail link will cost \$649 million, while the Tamu–Kalay–Segyi link in Myanmar will cost \$296 million. Refurbishing the Segyi–Chungu–Myohaung line has been pegged at \$62.5 million.

China expects its rail containerized cargo volume to increase to 10 million TEUs in 2010, 6.0 per cent in total rail freight. Therefore, China is focusing its attention on its landside segment of containerized transport and plans to speed up development of its rail container transport network to meet growing demand. The mainland's lack of rail capacity to cater to the rapidly expanding container volume has become a bottleneck for efficient transport. According to China's Ministry of Railways, in 2006 only 1.5 per cent of the nation's total container turnover of 75.8 million TEUs was shipped to and from ports through railways. Meanwhile, the rail containerized cargo volume on China's mainland is about 3 million TEUs annually, which accounts for about 2.2 per cent of the total rail freight, according to the Ministry of Railways. Also on the agenda, the ministry aims to build 18 large-scale pivotal rail container terminals in the mainland's 18 major cities, including Shanghai, Beijing and Guangzhou, by 2020.

In Africa, several projects were launched in 2006 to build freight railways, in particular with a view to hauling raw materials. In Senegal a \$2 billion project is planned for building a 750 km railway linking the mining area near Falémé to the port of Dakar with the aim of transporting iron ore. A similar project is being planned in Gabon linking the iron mining area of Belinga with the existing Trans-Gabon Railway, providing access to the Atlantic coast via construction of a new line. In Guinea, a 1,000 km rail line project is planned from Nimba to the deepwater port of Matakang at a cost of \$3 billion. It is foreseen that the rail line will transport both iron ore and other goods, such as coffee, cotton and bananas. Sudan is planning to establish a new railway line from Khartoum to Port Sudan on the Red Sea coast at a cost of \$2 billion. The line will run parallel to the existing single gauge line.

*Road transport*

## Market development

The global market for road freight traffic and related services may be estimated at a value of around \$600 billion in 2006.<sup>30</sup> The road transport sector, including truck rental, leasing services and passenger transport, is estimated to have generated total revenues of \$866.5 billion in 2006, representing a compound annual growth rate of 4.6 per cent. For 2011, the value of the global trucking sector (including truck leasing and rental and passenger transport) is forecast to expand by 29.8 per cent to reach \$1,124.5 billion. The compound annual growth rate of the sector in the period 2006–2011 is predicted to be 5.4 per cent. If the segment goods transport and related services maintains its 70 per cent share of the total road transport market in 2011, as was the case in 2006, it can be estimated that the road-borne goods transport segment will have a value of around \$790 billion in 2011.

The market is still largely dominated by smaller and medium-sized companies, with the four largest companies in the sector estimated to have a combined market share of the global market of only 7 per cent. These four largest companies all have global operations and have extensive logistics and supply chain operations. The market segmentation highlights the fragmented and competitive nature of the global road transport and trucking sector. In terms of geographical spread, the Asian, European and US road transport markets are each estimated to account for between a quarter and a

half of the global market measured by value, while the rest of the world accounts for around 8 per cent. A study<sup>31</sup> concludes that the Chinese and Indian markets are by far the largest in terms of number of establishments and number of employees, whereas the US market is the largest in terms of total sales measured in dollars (see table 48).

## Infrastructure development

Globalization shifted its focus towards the importance of ensuring alternatives to often congested international trade lanes. The volume cargo shipped using land transport options between Asia (China) and Europe is very limited.<sup>32</sup> Rail transport, in particular the Trans-Siberian Railway, may account for up to 3–4 per cent of the current volume. Road transport accounts for roughly the same share, while 90 to 95 per cent of the cargo in the Asia–Europe traffic is transported by sea (see table 49).

In this context, interregional infrastructure projects are flourishing, and in particular the revitalization of the “Silk Road” as a commercial land-bridge between Asia and Europe is receiving a great deal of attention. China announced in 2006 that it would build 12 highways in its north-west province of Xinjing, better connecting the Chinese road system to roads in the Russian Federation, Kazakhstan, Pakistan and other countries. The new highways plugs into the Asian Highway project, promoted by ESCAP, which has 140,000 km of road in 32 Asian countries.

Table 48

**Road transport markets: country comparisons**

	<b>Total establishments</b>	<b>Total employment</b>	<b>Total sales (million \$)</b>
<b>Brazil</b>	140.2%	152.9%	1185.7%
<b>China</b>	18.0%	19.7%	627.4%
<b>France</b>	428.7%	467.5%	553.2%
<b>Germany</b>	304.6%	332.2%	347.2%
<b>India</b>	26.2%	28.5%	1819.1%
<b>Japan</b>	200.0%	218.1%	163.2%
<b>Russian Federation</b>	165.2%	180.1%	1667.5%
<b>United Kingdom</b>	443.2%	483.3%	653.5%
<b>United States</b>	100.0%	100.0%	100.0%

Source: Barnes Reports.

Table 49

**Transport of full-load containers between China and Europe: modal split<sup>33</sup>**  
(In million full-load TEUs)

	Westbound	Eastbound	Total
Sea transport	4.5	2.5	7.0
Rail	< 0.2	< 0.1	< 0.3
Road (truck)	< 0.03	< 0.03	< 0.06

Source: US Chamber of Commerce, *Land Transport Options between Europe and Asia*.

It is expected that the improvements to the Asian Highway network and the linking to the European Highway network could lead to an increase in the cargo transported by road, in particular for some high-value goods types. However, such developments should also be considered in the context of sustainability. Therefore, particular interest is being expressed by shippers and carriers in intermodal solutions combining road and rail transport and also using the transport links via the Black Sea and the Caspian Sea. Shippers and carriers are also considering the Asia–Europe land transport bridge with onward shipping to the United States via the Atlantic Ocean as a way of bypassing congestion in the Pacific maritime trade lanes.

### Logistics

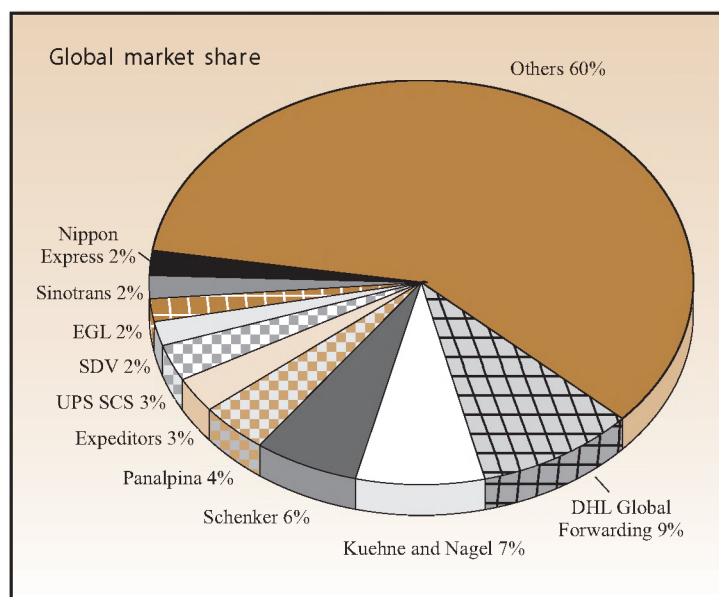
In recent years many forwarders have developed their operations to take advantage of the current trend towards outsourcing and to meet shippers' requirements for more sophisticated logistics and supply chain services, often defined as Third Party Logistics (3PL), especially on a global scale. Many of the major companies have adopted as their strategic goal the aim of becoming a globally integrated logistics provider. These companies have attempted to introduce value-added services at both ends of the supply chain, either organically or acquisitively. Data for 2006<sup>34</sup> indicate that Europe is the largest market for freight forwarding and logistics services, with a share of just over a third. Asia–Pacific (29 per cent) has moved ahead of North America (27 per

cent) as the market, both intra- and extra-Asian, continues to grow rapidly.

The global logistics and freight forwarding market is in a state of rationalization and consolidation. There are now a handful of major players that claim to have global coverage. DHL Global Forwarding is the largest logistics provider, taking into account air, sea and customs brokerage revenues. Kuehne & Nagel and Schenker make up the top three (see figure 15). There is a considerable gap separating those companies from the next largest forwarder, Panalpina. Many of the companies outside the top three are believed to be possible targets for takeover, whether by other trade buyers wishing to build scale or by private equity companies looking to take advantage of the buoyant market. In terms of market share, DHL holds about 9 per cent of the entire global freight forwarding and logistics market. The top 10 companies have a consolidated share

Figure 15

### Total freight forwarding market: market share



Source: *Transport Intelligence, Global Freight Forwarding 2007*.

of about 40 per cent of the global forwarding and logistics market. The major reason for this is the low barriers to market entry and exit, as it takes very little capital investment to establish a forwarding operation.

Consolidation has also occurred among other logistics companies such as Agility (a combination of PWC

Logistics, GeoLogistics and a number of smaller acquisitions); CEVA Logistics (former TNT Logistics), which in 2007 has made an offer to acquire EGL Logistics, another major company; Geodis, which has acquired Wilson Logistics; ABX; DSV (formerly known as DFDS Transport); C.H. Robinson; Kintetsu, which is particularly strong in Japanese trade, but lacks major presence elsewhere; and finally Sinotrans, the Chinese logistics provider, which is focused on the Chinese market, where it also operates through a number of joint ventures.

Outside the traditional freight-forwarding industry, both shipping lines, through dedicated entities such as Maersk Logistics, as well as express carriers/integrators such as Fedex, are also entering the logistics market. The levels of profitability in the market, growth prospects and the asset-light nature of freight forwarders' and logistics business models have made the sector highly attractive to outside investors.

Although at a slower pace than during the previous year, the global logistics and freight forwarding market expanded further in 2006, supported by steady growth in Europe and the Asia-Pacific trades, whilst the US economy did not slow down as much as had been feared. Intra-Asian trade was also a key driving force and has focused many companies' development strategies (see table 50). During 2006, exceptional results were achieved by most major logistics providers and freight forwarders. European-based Kuehne & Nagel saw turnover rise by 30 per cent and profits by 52 per cent. Panalpina declared a 43 per cent increase in profits, with net revenues growing by 11 per cent. DHL Global Forwarding saw the impact of its acquisition of Exel take effect. Its air freight division revenues leapt by almost 70 per cent and sea freight revenues by 40 per cent. The US freight forwarder, Expeditors, announced strong growth over the year with net revenue up by 21 per cent and net earnings up by 23 per cent at \$235 million. UTi Worldwide

Table 50

**Global freight forwarding market size and growth rate, 2003–2006**

*(In millions of €)*

	2003	2004	2005	2006
<b>Global</b>	72 530.00	81 211.00	92 862.00	105 317.00
<b>Percentage growth rate</b>		12.00%	14.30%	13.40%

*Source:* Transport Intelligence, *Global Freight Forwarding 2007*.

meanwhile saw gross revenues increase by 28 per cent to \$3.6 billion, with net revenues totalling \$1.2 billion, up by 27 per cent.

There is no doubt that logistics providers and forwarders are enjoying an exceptional period which has lasted for several years. This has seen them attract considerable attention from the financial community from the perspective of investment opportunities and mergers and acquisitions. The year 2007 is forecast to be yet another dynamic year for an industry which is still very much in a state of flux. This outlook is likely to be affected by security (15.6 per cent), technology requirements (14.9 per cent), and other factors.

Mainly driven by globalization, overall the freight forwarding market is expected to continue to grow at 9.4 per cent over the next five years. By 2010 the market

is forecast to reach €150.7 billion. This positive outlook is, however, subject to downward risks, including the cooling US economy and its potential impact on trans-Pacific and transatlantic trade. In addition, freight forwarders are negatively perceived by some customers as being a low-value-adding resource, providing a range of commoditized, cost-based services.

## **E. OTHER DEVELOPMENTS**

UNCTAD recently conducted a global study on the impact of the International Ship and Port Facility Security (ISPS) Code, which imposed wide-ranging obligations on Governments, shipping companies and port facilities. A total of 55 completed questionnaires were received from respondent ports, representing about 16 per cent of the global port cargo throughput (tonne), and based on 2004 world seaborne trade figures, and approximately



24 per cent of the global container port throughput (TEU). Reported initial cost figures from respondent ports range from a low of \$3,000 to a high of \$35 million, while reported annual costs range from \$1,000 to \$19 million. The estimated global port-related costs of the ISPS Code range from approximately \$1.1 billion to \$2.3 billion initially, and approximately \$0.4 billion to \$0.9 billion annually thereafter. These costs are equivalent to an

increase in international maritime freight payments of about 1 per cent with respect to initial expenditure and 0.5 per cent with respect to annual expenditure. The full study titled “Maritime Security: ISPS Code Implementation, Costs and Related Financing” can be downloaded from [http://www.unctad.org/en/docs/sdtetlb20071\\_en.pdf](http://www.unctad.org/en/docs/sdtetlb20071_en.pdf).

### Endnotes

- <sup>28</sup> Estimated.
- <sup>29</sup> For a list of member States, see the site of the Intergovernmental Organization for International Carriage by Rail, [www.otif.org](http://www.otif.org).
- <sup>30</sup> Datamonitor, a business information company, has made a high-level analysis of the global road transport and trucking market; <http://www.datamonitor.com/>.
- <sup>31</sup> Barnes Reports, [www.barnesreports.com](http://www.barnesreports.com).
- <sup>32</sup> US Chamber of Commerce, Report: Land Transport Options between Europe and Asia: Commercial Feasibility Study; [www.uschamber.com](http://www.uschamber.com).
- <sup>33</sup> “Modal split” describes the percentage of goods being transported using a particular transport type for road, rail or maritime.
- <sup>34</sup> Transport Intelligence, Global Freight Forwarding 2007.



## Chapter 6

# LEGAL ISSUES AND REGULATORY DEVELOPMENTS

*This chapter provides information on recent legal developments in the fields of transport and trade facilitation, together with information on the status of the main maritime conventions.*

### A. NEGOTIATIONS ON TRADE FACILITATION AT THE WTO

Having been suspended in mid-2006, the negotiations on trade facilitation at the World Trade Organization (WTO) were resumed in February 2007, together with the other negotiations that form part of the Doha Development Round. Since then, the Negotiating Group on Trade Facilitation (NGTF) has continued its work on technical trade facilitation issues, as well as on issues related to special and differential treatment (S&D) and technical assistance and capacity-building.

The technical issues that are being discussed in the NGTF cover a wide range of trade facilitation measures. Textual proposals for inclusion in a possible future WTO agreement on trade facilitation cover, inter alia, the following topics related to the GATT Article VIII on fees and formalities for the importation and exportation of goods and Article X on publication and administration of trade regulations:

- Publication and notification of trade regulations and of penalty provisions, including Internet publication, and the establishment of single national enquiry points;
- Interval between publication and entry into force;
- Advance rulings;
- Right of appeal and appeal mechanism in a Customs union;
- Specific parameters for fees and charges, their publication and notification, and periodic review;
- Periodic review of formalities and documentation requirements, aiming at their reduction;
- Acceptance of commercially available information and of copies;
- Single window and one-time submission;
- Phasing out mandatory use of Customs brokers;

- Uniform forms, documentation requirements and procedures relating to import clearance within a Customs union;
- Prohibition of consular fees and transaction requirement;
- Coordination of activities and requirements of all border agencies;
- Expedited shipments;
- Pre-arrival processing, risk management and post-clearance audit, as well as the separation of release from clearance procedures;
- Authorized traders;
- Establishment and publication of average release and clearance times;
- Objective criteria for tariff classification.

Further proposals are related to the improvement and clarification of Article V on freedom of transit. While some of the issues covered in those proposals are similar to those aimed at clarifying and improving Articles VIII and X, a number of measures proposed aim more specifically at improving transit systems and operations. They include the following:

- Promotion of regional transit agreements or arrangements;
- Simplified and preferential clearance for certain goods in transit, and limitation of inspections and controls;
- Bonded transport regimes and guarantees;
- International, regional or national Customs guarantee system;
- Quota-free transit regimes.

Meetings of the NGTF held in 2007 were very much geared to the development and discussion of text-based (or “third generation”) proposals that would eventually form part of the anticipated agreement.

Another issue that has been high on the agenda of the NGTF is technical assistance and capacity-building, as well as special and differential treatment. According to the modalities for negotiations on trade facilitation, as defined in Annex D of the 2004 WTO “July package”, developing countries are not expected to implement

commitments unless they have the capacity to do so. The capacity acquisition is further linked to the provision of adequate technical assistance as well as to S&D provisions that go beyond the granting of traditional transition periods for implementing commitments.

## B. LEGAL ISSUES AFFECTING TRANSPORTATION

### Overview of recent developments relating to maritime and supply chain security

#### (1) World Customs Organization

As reported in UNCTAD’s *Review of Maritime Transport, 2006*, the Framework of Standards to Secure and Facilitate Global Trade (SAFE Framework)<sup>35</sup> was unanimously adopted by the World Customs Organization (WCO) in June 2005. It outlines broad, overarching principles concerning security and facilitation of the global supply chain, and is based on two main “Pillars”, namely Customs-to-Customs cooperation and Customs-to-business partnership. Its four core elements are as follows:

- Harmonizing advance electronic cargo information requirements concerning inbound, outbound and transit shipments;
- Developing and implementing a common risk management approach;
- Using non-intrusive detection equipment to conduct inspection of high-risk containers and cargo;
- Defining benefits for businesses that meet minimal supply-chain security standards and best practices.

As of January 2007, 144 WCO members had expressed their intention to implement the SAFE Framework. According to information supplied by WCO, its capacity-building programme, which was launched in January 2006 to assist in the implementation of the new security framework (Columbus Programme), has so far been successful, including in relation to needs assessment of WCO members’ capacities and implementation activities, and monitoring of the programme.<sup>36</sup>

The SAFE Framework envisages the certification of Authorized Economic Operators (AEOs), who are entitled to participate in simplified and rapid customs procedures. In June 2006, the SAFE Framework

Authorized Economic Operator (AEO) Guidelines<sup>37</sup> were adopted at the WCO; they provide technical guidance for the implementation of AEO programmes at the global level, and support the effective application of the relevant standards broadly outlined in Pillar II (Customs-to-business partnership) of the SAFE Framework. These Guidelines also allow for the inclusion of supplemental national criteria that may be required by any given Customs administration.

The AEO Guidelines document identifies certain Customs-identified best security standards and best practices, which members of the trade and business community aspiring to AEO status are expected to adopt, based on risk assessment and AEO business models. A number of elements that need to be satisfied are listed, each of them accompanied by specific detailed requirements applicable to AEOs or Customs, or to both. These elements include:

- Demonstrated compliance with Customs requirements;
- Satisfactory system for management of commercial records;
- Financial viability;
- Consultation, cooperation and communication;
- Education, training and awareness;
- Information exchange, access and confidentiality;
- Cargo security;
- Conveyance security;
- Premises security;
- Personnel security;
- Trading partner security;
- Crisis management and incident recovery;
- Measurement, analyses and improvement.

In line with the SAFE Framework itself, the AEO Guidelines document reiterates the idea that “Customs administrations should not burden the international trade community with different sets of requirements to secure and facilitate international commerce. There should be one set of international Customs standards developed by the WCO that do not duplicate or contradict other recognized intergovernmental security requirements.”<sup>38</sup>

It further suggests that “verifiable compliance with security requirements and standards set by other intergovernmental organizations, such as IMO, UNECE, and ICAO, may constitute partial or complete compliance with applicable Customs-identified best security standards and best practices set forth below to the extent the requirements are identical or comparable.”<sup>39</sup> This would suggest that with respect to ocean carriers and port facilities, for instance, existing security and operational requirements established in the ISPS Code may be recognized for the purposes of the SAFE Framework.

Examples of benefits expected from obtaining AEO status include:

- Measures to expedite cargo release, reduce transit time and lower storage costs;
- Providing access to information of value to AEO participants;
- Special measures relating to periods of trade disruption or elevated threat level;
- First consideration for participation in any new cargo processing programmes.

In addition, there are overall benefits that the AEO status could provide in the longer term, such as enhanced security, safer work environment, increased efficiency and improved relationships between business and Customs.

The issues of procedures for authorization and validation by individual WCO members, as well as mutual recognition of AEO status internationally, are addressed in the SAFE Framework and in the AEO Guidelines document. Accordingly, the design of authorization and validation procedures, the granting of authorization and decisions on mutual recognition are within the competence of individual WCO members agreeing to adopt the SAFE Framework.<sup>40</sup>

From the perspective of developing countries in particular, it will be important that operators that obtain AEO status in one country will be recognized elsewhere, so that they can enjoy the benefits outlined in the SAFE Framework and be able to participate in international trade on equal terms.

A global system of mutual recognition of AEOs may, however, not be easy to achieve. Even if the investments

required from private operators and Customs administrations are made in order to restructure, modernize and unify relevant procedures and standards, and to ensure AEOs' compliance with the relevant criteria for certification, mutual recognition of the AEO status at the international level will depend on confidence and trust between individual Customs administrations. This whole process is likely to be challenging, particularly for developing countries.

With respect to mutual recognition, the AEO Guidelines state as follows: "just as it has been suggested that the SAFE Framework be implemented in a progressively "phased approach", so too should be the expectations for the future application of mutual recognition of Customs systems of control for partnership programmes. Bilateral, sub-regional or regional initiatives are being developed as useful stepping stones toward such global system."<sup>41</sup>

Moreover, according to the WCO Director of Compliance and Facilitation, "it is well understood by all that mutual recognition is evolutionary rather than revolutionary in character. It will develop over time, probably first through bilateral agreements which can mature into multilateral and even groups of interconnecting multilateral pacts. Until then, it is left to each administration to foster its own population of Authorized Economic Operators. Perhaps through the execution of pilot projects or some other means of their choosing, these populations can be recognised by other Member administrations."<sup>42</sup>

Clearly, progress on the issue of mutual recognition of AEO status remains an important challenge and will be critical in the longer term, particularly from the perspective of developing countries.

## (2) *European Union*<sup>43</sup>

At the European Union level, a new Commission Regulation (EC) No.1875/2006<sup>44</sup> was adopted on 18 December 2006. By way of amendments to the Community Customs Code, it introduces a number of measures aimed at increasing the security of shipments entering or leaving the EU, including detailed rules regarding AEOs. The AEO Certificate will be granted to reliable economic operators as of 1 January 2008.

The main conditions and criteria for achieving the status of AEO, in accordance with EC Regulation 1875/2006, include the following:

- Place of establishment in the Customs territory of the Community. However, an exception applies for airlines or shipping companies established elsewhere, but with a regional office in the Customs territory of the Community, and for recognized AEOs established in a third country with which the Community has entered into an international agreement on mutual recognition;<sup>45</sup>
- Record of compliance with Customs requirements (no serious infringement of Customs rules by responsible persons);
- Satisfactory system of managing commercial and, where appropriate, transport records (accounting system, access to records, developed logistical system, internal control system, handling of licences, archiving of records, informing Customs in cases of compliance difficulties, information technology security);
- Financial solvency;
- Security and safety requirements (buildings constructed of resistant materials, appropriate measures for control of access to shipping and cargo areas, measures for the protection of cargo units, handling of import and/or export licences connected with prohibited or restricted goods, clear identification of business partners, security screening of prospective security employees and their participation in security awareness programmes, etc.).<sup>46</sup>

Other measures introduced in the new Regulation include:

- A risk management framework for better risk analysis of goods crossing EU borders;
- Rules on advance electronic information on goods brought into, or out of, the European Community, effective as of 1 July 2009;
- Rules requiring Customs authorities to exchange information electronically on exports between the Customs offices involved in the procedure (export control system). Full implementation of this measure is expected by 30 June 2007.

Like the SAFE Framework, the new Regulation provides that "if the applicant for AEO status is the holder of an internationally recognised security and/or safety certificate issued on the basis of international conventions,



of a European security and/or safety certificate issued on the basis of Community legislation, of an International Standard of the ISO, or of a European Standard of the ESO, the criteria provided for in paragraph 1 shall be deemed to be met to the extent that the criteria for issuing these certificates are identical or correspond to those laid down in this Regulation.”<sup>47</sup>

This would suggest that certificates such as the International Ship Security Certificate issued pursuant to the requirements of the ISPS Code would be recognized, but does not appear to have any direct implications for recognition of AEO status conferred by a non-Community Customs administration on the basis of the SAFE Framework, which, as will be recalled, is not an international convention. While recognition of AEO certificates in all EU member States is expressly envisaged by the Regulations, recognition of AEO status conferred by any third country would depend on there being agreements between the Community and the country in question. Regarding mutual recognition of AEO standards with third countries, the European Commission has launched discussions with some of the Community’s major trading partners. An agreement on strengthened cooperation on security has been concluded with the United States of America, and discussions on mutual recognition of standards are ongoing. A Working Group on Mutual Recognition, composed of Customs experts nominated by both sides, was established in January 2007. This Working Group will, inter alia, prior to the formal implementation of the AEO programme on 1 January 2008, “draft a road map towards mutual recognition”, and “shall endeavour to provide recommendations for an U.S.-EU agreement on mutual recognition of their respective trade partnership programmes (EU AEO programme and C-TPAT).”<sup>48</sup>

The Commission has also launched a pilot project on “smart and secure trade lanes” with China, which initially involves the European Commission, the Customs administrations of China, the United Kingdom and the Netherlands, and focuses on three ports, with particular emphasis on sea containers.<sup>49</sup> Once successful, the cooperation is expected to be expanded step by step to the whole of the European Community. Both sides have agreed in the context of cooperation on security to exchange experiences and to develop best practices in order to better understand and prepare the implementation of the WCO Framework of Standards to Secure and Facilitate Global Trade. They have also agreed to pursue the objectives of reciprocity and mutual recognition of

measures for security and facilitation between their respective Customs authorities.<sup>50</sup>

Recently, the EU Council adopted the Customs 2013 Programme for the period 2008–end 2013. This programme will, among other things, support new security policy initiatives, the implementation of modernization of the Customs code and the further development of simplified procedures for compliant traders (AEOs).<sup>51</sup>

### (3) *International Maritime Organization*

The IMO has begun to consider proposals to integrate appropriate cargo security procedures based on or compatible with the standards of the WCO SAFE Framework into international legislation such as the 1965 Convention on Facilitation of International Maritime Traffic (FAL), as amended, and the 1974 Safety of Life at Sea Convention (SOLAS), as amended. To that end, a joint Working Group has been established by the Maritime Safety Committee (MSC) and the Facilitation Committee (FAL), (MSC/FAL Working Group). It met during the 82nd session of the MSC (29 November–8 December 2006) to begin work on container and supply chain security, and hold initial discussions on the need to develop any relevant amendments to the SOLAS and/or FAL Conventions. Although no specific decisions were taken on this issue, by MSC at its 82nd session, member Governments and international organizations were urged to consult with their experts on all aspects of the security and facilitation of maritime cargo and to submit their proposals on the security and facilitation of the movement of closed cargo units and of freight containers to the next session of the FAL Committee (FAL 34). A number of proposals were submitted at FAL 34 (26–30 March 2007). After discussion, it was suggested that a joint MSC/FAL circular be issued soon in order to raise awareness in relation to the SAFE Framework of Standards and the AEO Guidelines. A draft joint MSC/FAL circular on securing and facilitating international trade<sup>52</sup> was approved by the FAL, and the secretariat was instructed to issue it once approved by the MSC 83 (to be held from 3 to 12 October 2007). The draft circular reiterates the need to raise awareness of the SAFE Framework and AEO Guidelines among government agencies, local administrations and the shipping and port industries, and recommends that member States, when developing guidance on the implementation of the FAL Convention, SOLAS chapter XI-2 and the ISPS Code, in the context of the SAFE framework, “should include statements to the effect that:



1. SOLAS chapter XI-2 and the ISPS Code sufficiently set out the requirements on ships and port facilities with respect to the security and facilitation of the movement of closed cargo transport units and of freight containers transported by ships, taking into account the appropriate references in the ISPS Code;
2. the WCO has primacy over supply chain security, with IMO's role being limited to those aspects related to ships and port facilities;
3. port facilities and ships are not responsible for maintaining the physical integrity of closed cargo transport units and of freight containers other than those in their custody;
4. the (SAFE Framework of Standards and the AEO Guidelines), including the risk-based cargo security strategy set out therein, should be taken into account in policies and practices with respect to the FAL Convention, SOLAS chapter XI-2 and the ISPS Code; and
5. communication, co-ordination and co-operation at both national and local levels, between ships, port facilities, Customs and other competent authorities are of utmost importance."

One proposal<sup>53</sup> provided a comparison of the WCO AEO Guidelines with the ISPS Code and the FAL Convention, and suggested some focus on areas where individual elements of the AEO Guidelines, applying to a vessel or port facility, might be taken into account by these IMO instruments. After discussion, the Joint MSC/FAL Working Group agreed that there was no need to amend the FAL Convention, SOLAS chapter XI-2 or part A or part B of the ISPS Code. However, it acknowledged that there is a gap in knowledge and understanding of the relationship between the ISPS Code, the FAL Convention, and the SAFE Framework of Standards and the AEO Guidelines, and recognized that there would be value in addressing this gap. In this context, the Working Group emphasized in particular the importance of communication between ships, port facilities, Customs and other competent authorities.<sup>54</sup>

The FAL Committee also noted that the United States, had catalogued, on the basis of extensive validations and site visits, port security best practices and supply chain best practices, and had made the catalogues available online.<sup>55</sup>

According to a presentation by the observer from WCO at the FAL 34 meeting, the SAFE Framework, the seal integrity programme and the AEO Guidelines would be reviewed by the WCO Council in July 2007, and were expected to be integrated into a single document.<sup>56</sup>

It is also worth noting that several important amendments (July 2005) to the Convention on Facilitation of Maritime Traffic (FAL Convention) entered into force on 1 November 2006. They include new recommended practices to encourage the use of electronic systems for exchanging data and, generally, for simplifying procedures to enhance the facilitation of trade. The new recommended practices include transmission of data, required in connection with the arrival, stay and departure of ships, persons and cargo, to a single point (the "Single Window" concept) and use of pre-arrival data for subsequent release and clearance of passengers and cargo.

Amendments to SOLAS, adopted by the IMO in 2002, including in particular the *International Ship and Port Security (ISPS) Code*, which entered into force on 1 July 2004, continue to represent the most important international set of rules for the security of ships and port facilities.<sup>57</sup> These new rules imposed wide-ranging obligations on Governments, shipping companies and port facilities. Almost three years since its entry into force, the ISPS Code has proved to be less disruptive in terms of control measures than had been feared.

The IMO's Maritime Safety Committee (MSC) has regularly issued a number of guidance circulars to assist in the implementation of and compliance with the requirements of ISPS Code.<sup>58</sup> Most recently, at its 82nd session in December 2006, the MSC, among other things:

- Adopted a guidance circular entitled "Interim guidance on voluntary self-assessment by companies and company security officers (CSOs) for ship security" (MSC.1/Circ 1217);
- Began consideration of issues relating to the security aspects of the operation of ships which do not fall within the scope of SOLAS chapter XI-2 and the ISPS Code, including cargo ships of less than 500 grt which travel on international routes. It was agreed, inter alia, that any guidelines developed should be non-mandatory. Furthermore, the MSC agreed to recommend the inclusion, as a high-level action for the 2008–2009 biennium, of the development of model legislation on maritime security;<sup>59</sup>

- Approved the Revised recommendations to the safe transport of dangerous cargoes and related activities in port areas (MSC.1/Circ.1216), which include provisions intended to address the security of the transport of dangerous goods by sea;
- Approved amendments to the IMO/ILO/UNECE Guidelines for packing of cargo transport units (MSC/Circ.787), to address the need for security procedures to be developed and followed by all concerned. These guidelines will be transmitted to the ILO and UNECE for their consideration and acceptance;
- Made progress in the development of the technical specifications of the components of the Long Range Identification and Tracking (LRIT) System, including the technical specifications for the International LRIT Data Exchange and the International LRIT Data Centre, and for communication within the LRIT System network; protocols for the development testing of the LRIT System and for the testing of the integration into the system of new LRIT data centres; and guidance on setting up and maintaining the Data Distribution Plan;<sup>60</sup>
- Continued to make efforts to incorporate security-related provisions into other international legal instruments, such as the 1978 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention) and the STCW Code.<sup>61</sup>

Relevant IMO instruments in the context of the United Nations Global Counter-terrorism Strategy include the amendments to the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention) and its 1988 Protocol,<sup>62</sup> adopted by way of two Protocols in October 2005. Amendments introduced by the 2005 SUA Protocol to the 1988 SUA Convention included the following:

- A broadening of the list of offences, to include the offence of using the ship itself in a manner that causes death or serious injury or damage and the transport of weapons or equipment that could be used for weapons of mass destruction and inclusion of new procedures related to the transportation of WMD (Article 3 *bis*);
- Introduction of provisions for the boarding of ships where there are 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*);
- A new definition for “transport” to the effect that it “means to initiate, arrange or exercise effective control, including decision-making authority, over the movement of a person or item” (Article 1(1)(b)).

Amendments introduced by the 2005 SUA Protocol to the 1988 SUA Protocol extended the scope of provisions on the new offences to fixed platforms in the continental shelf, as appropriate.<sup>63</sup>

When implementing these amendments, particularly when boarding, States Parties should apply important safeguards, so as to avoid any possible negative effects. These include not endangering the safety of life at sea; ensuring that all persons on board are treated in a manner which preserves human dignity and in keeping with human rights law; taking due account of the safety and security of the ship and its cargo; ensuring that measures taken are environmentally sound; and making reasonable efforts to ensure that a ship is not unduly detained or delayed.<sup>64</sup>

The Protocols were open for signature from 14 February 2006 until 13 February 2007. Thereafter, they will remain open for accession. As at 13 February 2007, 18 States had signed, subject to ratification, approval or acceptance, the 2005 SUA Protocols. As at 23 March 2007, one State had deposited an instrument of accession with the IMO Secretary-General.<sup>65</sup> As also noted during the FAL 34 meeting in March 2007, the development of national legislation to implement the 2005 SUA Protocols is somewhat complex as it touches on all of the counter-terrorism conventions and needs to be in accordance with national and international law, in particular human rights law, refugee law and humanitarian law; and IMO should continue to assist States in implementing appropriate legislation.<sup>66</sup>

#### (4) UNCTAD

UNCTAD, as part of its mandate, has been monitoring developments in the field of transport security and has, over recent years, disseminated some information as part of its annual *Review of Maritime Transport*, as well as in the form of reports.<sup>67</sup>

As regards the ISPS Code, which entered into force on 1 July 2004, it should be noted that the UNCTAD secretariat has conducted a global study based on a set of questionnaires designed to obtain first-hand

information from all affected parties. The main objective was to establish the range and order of magnitude of the ISPS Code-related expenditures made from 2003 through 2005 and to gain insight into the financing mechanisms adopted or envisaged. In addition, the study sought to clarify matters relating to the implementation process, level of compliance and other less easily quantifiable impacts. A report detailing the results of the survey has since been published (*Maritime Security: ISPS Code Implementation, Costs and Related Financing*, UNCTAD/SDTE/TLB/2007/1) and is available on the UNCTAD website.<sup>68</sup>

Overall, responses received provide a useful overview of the ISPS Code implementation process as experienced by Governments and ports in both developed and developing regions. An informative pool of data on the ISPS Code compliance costs, indirect effects and financing mechanisms has been generated. These results, it is hoped, will contribute to informing the debate on transport-related security measures and help in better understanding some of their economic implications. However, further research in the field is required.

#### (5) *International Organization for Standardization*

It should be noted that the International Organization for Standardization (ISO) has been developing procedures to enhance supply chain security, consistent with the ISPS Code and the WCO Framework of Standards. Its technical committee ISO/TC 8 “Ships and marine technology” has developed a number of publicly available specifications (PAS) on supply chain security which, after being tested in the marketplace, are expected to evolve into ISO standards. They include the following:

- ISO/PAS 20858:2004 — Ships and marine technology — Maritime port facility security assessments and security plan development. Published on 1 July 2004, it is designed to assist in the uniform implementation of the ISPS Code.
- ISO/PAS 28000:2005 — Specification for security management systems for the supply chain. Published on 15 November 2005, it outlines the requirements for enabling an organization to establish, implement, maintain and improve a security management system. The aspects of ISO/PAS 28000 include, but are not limited to, financing, manufacturing, information management and the facilities for

packing, storing and transferring goods between modes of transport and locations.

- ISO/PAS 28001:2006 — Security management systems for the supply chain — Best practices for implementing supply chain security — Assessments and plans. Published in 2006, it is designed to assist the industry in meeting best practices as outlined in the SAFE Framework. It provides guidance and requirements for establishing and documenting a level of security, and conducting security vulnerability assessments, and assists in meeting the applicable AEO criteria set forth by the SAFE Framework and implementing national supply chain security programmes.
- ISO/PAS 28003:2006 — Security management systems for the supply chain — Requirements for bodies providing audit and certification of supply chain security management systems. Published in 2006, it provides guidance for accreditation of certification bodies as competent to perform certification to ISO/PAS 28000 or similar requirements. It provides customers with the necessary information and confidence about the way in which certification of their suppliers has been granted.
- ISO/PAS 28004:2006 — Security management systems for the supply chain — Guidelines for the implementation of ISO/PAS 28000. Published in 2006, it provides guidelines for the implementation of ISO/PAS 28000.
- ISO 28005 — Electronic port clearance. This is being developed and will provide for computer-to-computer data transmission using XML technology. It is a “one stop shopping” approach for “reporting activities related to ship’s clearance into or out of a port, port state controlled area and related reporting”.<sup>69</sup>

ISO standards are voluntary, but they are developed in response to market demand, and are based on consensus among the interested parties. To ensure that consensus over time, ISO reviews its standards, at least every five years, to decide whether they should be maintained, updated or withdrawn. In the field of supply chain security, the ISO standards may help in attaining some of the goals set in the WCO SAFE Framework, such as the mutual recognition of national-security-related programmes, and the application, by Customs administrations, of similar measures to companies operating throughout the supply chain.



### Legal instruments and other developments relating to the environment and climate change

With growing concerns about the effects of global climate change, environmental considerations are emerging as an increasingly important element on the international agenda. Among a broad range of environmental issues in the field of shipping currently dealt with under the auspices of the IMO mention could be made of several in respect of which significant progress has been achieved during the year under review. These include wreck removal and ship recycling, regarding which mandatory instruments were either adopted or are at an advanced stage of preparation. Other IMO important issues worth mentioning are prevention of air pollution from ships and sulphur monitoring, both closely related to the issue of climate change.

The International Convention on the Removal of Wrecks, 2007, was adopted at a diplomatic conference held in Nairobi from 14 to 18 May 2007. The Convention deals with a number of issues relating to the prompt and effective removal of shipwrecks. According to the IMO, the number of abandoned wrecks, estimated at almost 1,300 worldwide, has increased, and so have the problems these wrecks cause to coastal States and shipping in general. Abandoned wrecks may constitute hazards to navigation and, depending on the nature of their cargo and the number of bunkers on board, might cause substantial damage to marine and coastal environments. Also, the marking and removal of hazardous wrecks involves costs. The new Convention:

- Applies to wrecks in the Exclusive Economic Zone (EEZ) of a State Party, or if such a zone has not been established by that State Party, to an area beyond and adjacent to the territorial sea of that State extending not more than 200 nautical miles from the baselines (Article 3(1) and Article 1);
- Includes an optional clause enabling States Parties to apply certain provisions to their territory, including their territorial sea (Article 3(2));
- Shall not apply to measures taken under the International Convention relating to Intervention on High Seas in Cases of Oil Pollution casualties, 1969, as amended, or the Protocol relating to Intervention on the High Seas in Cases of Pollution by Substances other than oil, 1973, as amended (Article 4(1));
- Contains a provision related to reporting obligations for the master or operator of a ship, to the Affected State in the event of a maritime casualty resulting in a wreck. The report shall provide information about the registered owner of the ship, and all the relevant information for the Affected State to determine whether the wreck poses a hazard, including “a) the precise location of the wreck; b) the size, type and construction of the wreck; c) the nature of the damage to, and the condition of, the wreck; d) the nature and quantity of the cargo, in particular any hazardous and noxious substances; and e) the amount and types of oil, including bunker oil and lubricating oil, on board” (Article 5);
- Lists the criteria for determining whether a wreck poses a hazard. These include features and conditions of the wreck and cargo as well as of the sea or port areas where it is located, including environmental criteria such as damage likely to result from the release into the marine environment of cargo or oil (Article 6);
- Contains provisions regarding the warning of mariners and States concerned about the nature and location of the wreck and marking of the wreck (Article 7 and Article 8);
- Covers measures to facilitate the removal of wrecks, including rights and obligations to remove hazardous wrecks. It sets out when the shipowner is responsible for removing the wreck, and when the Affected State may intervene. In all related action taken by the Affected State — that is, for laying down conditions for the removal of the wreck, “considerations of safety and protection of the marine environment” are taken into account (Article 9);
- Contains provisions related to the liability of the owner for the costs of locating, marking and removing the wreck (Article 10);
- Requires the registered owners of ships of 300 grt and above to “maintain compulsory insurance or other financial security, such as a guarantee of a bank or a similar institution, to cover liability under the Convention”. A certificate attesting that such security is in force in accordance with the provisions of the Convention will be issued to each of those ships “by the appropriate authority of the State of the Ship’s registry”. A copy of the certificate will normally be carried on board the ship, and another copy will be deposited with the competent authorities (Article 12);

- Rights to recover costs under the Convention shall be extinguished unless an action is brought “within three years from the date when the hazard has been determined in accordance with the Convention. However in no case shall an action be brought after six years from the date of the maritime casualty that resulted in the wreck” (Article 13);
- The Convention shall be open for signature from 19 November 2007 until 18 November 2008 and, thereafter, will be open for ratification, accession or acceptance. It will enter into force 12 months following the date on which 10 States have either signed it without reservation as to ratification, acceptance or approval or have deposited instruments of ratification, acceptance, approval or accession with the Secretary-General of IMO (Article 17 and Article 18).<sup>70</sup>

Evidence of continued IMO focus on the environment was the approval by its Council, at its last session in November 2006, of the request by the Marine Environmental Protection Committee (MEPC) that provision be made for a five-day diplomatic conference on ship recycling in the 2008–2009 biennium, with a view to the adoption of the draft International Convention for the Safe and Environmentally Sound Recycling of Ships, work on which is already at an advanced stage.

Ships that reach the end of their operating lives are regularly sold for scrap and demolished. Recycling is the most environmentally friendly way to dispose of such ships, making it possible to reuse many of their parts. However, environmental standards and working practices in recycling facilities in certain parts of the world often leave much to be desired. An additional reason that increases the need for regulation of ship recycling is the phasing out of single-hull tankers, in accordance with MARPOL regulations, already underway. Some of these ships will be converted to double-hull, to conform to the new rules. Many others will inevitably be phased out and dismantled. The first category of single-hull tankers were phased out by 5 April 2005 and the process is ongoing.<sup>71</sup>

The drafting of the Convention on ship recycling is still in progress; however, it is useful to note how some of the main issues have been approached. The draft Convention aims to provide legally binding and globally acceptable regulations for international shipping and for recycling facilities. It includes a number of articles and

an annex containing the draft regulations, divided into four sections (A to D) and covering respectively general provisions, requirements for ships, requirements for ship recycling facilities and reporting requirements. Under the draft Convention:<sup>72</sup>

- *Ships* will be required to have an Inventory of Hazardous Materials, which will have to be approved by the Flag State administration, taking into account guidelines that will be developed by the IMO. This inventory will consist of three parts, dealing respectively with (1) materials contained in the ship’s structure and equipment, (2) operationally generated wastes, and (3) stores. Annexed to the Convention will be a list of hazardous materials, the use of which is prohibited or restricted. (Draft Regulation B-I-4)
- In a final *survey*, both the vessel inventory and the recycling plan to be prepared by the recycling facility must be verified by a surveyor working on behalf of the Flag State (Draft Regulation BIII-1). If such a survey is successful, the ship will be issued with a “Ready for Recycling” certificate. (Draft Regulation B-III-2)
- *Ship recycling facilities* will also have to be authorized by national authorities, in accordance with the regulations set out in the annex to the draft Convention. (Article 6)
- *Requirements for ship recycling facilities* and working conditions within these facilities are addressed through nine specific regulations (C-1 to C-9) contained in the annex to the draft Convention. These relate to issues such as controls and authorization of ship-recycling facilities, and various requirements in relation to recycling facility-management plan, as well as to accidents prevention, safe and environmentally sound removal and management of hazardous materials. The regulations also cover issues like emergency preparedness and response, worker safety and training, reporting on incidents and chronic effects. They create specific obligations on Parties to the Convention, enabling the appropriate mechanisms and infrastructures in all the relevant areas.
- Additionally, a series of *guidelines* are being developed; they will specify in great detail the ways in which the obligations set under the regulations can be met.<sup>73</sup>

In the context of action against global warming and the adverse effects of climate change, one of the areas of



IMO's focus is the *prevention of air pollution from ships*. According to a report by the IMO Council,<sup>74</sup> the Protocol of 1997 of MARPOL 73/78, which contains MARPOL Annex VI "Regulations for the Prevention of Air Pollution from Ships", as at 26 June 2006 had 36 Parties, representing approximately 70 per cent of the gross tonnage of the world's merchant shipping, a significant increase in the number of States and of tonnage since MEPC 54 (March 2006).<sup>75</sup> The MEPC noted that climate change caused by greenhouse gas emissions from burning fossil fuels was a steadily growing concern for most countries, and that scientists had found more and more proof of linkages. It also noted that although shipping is a relatively environmentally-friendly and fuel-efficient mode of transport, the industry needs to take action on greenhouse gases (GHG). It approved a work plan<sup>76</sup> to identify and develop mechanisms needed to achieve the reduction of GHG, mainly carbon dioxide emissions from ships, accompanied by a timetable. It also agreed that an update of the IMO study on greenhouse gas emissions from ships, published in 2000 (MEPC 45/8), was necessary in order to provide a better foundation for future decisions. The study estimated that ships contributed about 1.8 per cent of the world's total emissions and concluded that, at that time, there was no other mode of transport with a better record in respect of CO<sub>2</sub> emission in terms of ton-kilometres performed.<sup>77</sup>

As regards other issues relating to air pollution, MEPC 55:

- Agreed on several unified interpretations of Marpol Annex VI and the NO<sub>x</sub> Technical Code and related implementation issues;<sup>78</sup>
- Approved the standard form of the Sulphur Emissions Control Area (SECA) Compliance Certificate;<sup>79</sup>
- Agreed that there was a need to cooperate with other relevant UN bodies in considering GHG emission issues from international shipping;<sup>80</sup>
- On the issue of sulphur monitoring, agreed to allocate the necessary funding for the IMO secretariat to take over and carry out from 2006 onwards, the project on monitoring the worldwide average of sulphur content of residual fuel oils, which had been implemented on a trial basis over a number of years under the leadership of the Netherlands;<sup>81</sup>
- Recalled that the Guidelines for Exhaust Gas Cleaning Systems (EGCS), adopted by MEPC 53,

state that waste streams from such equipment shall not be discharged into enclosed ports unless it can be documented that there is no adverse impact on the ecosystems in such waters. It also called for the drafting of new guidelines setting more specific relevant criteria and recommendations.<sup>82</sup>

## Seafarers

As reported in UNCTAD's *Review of Maritime Transport, 2006*, a new consolidated Maritime Labour Convention was adopted at the ILO in February 2006. It constitutes a major legal instrument consolidating more than 65 international labour standards related to seafarers adopted over the last 80 years, setting out their responsibilities and rights with regard to labour and social matters in the maritime sector. It was designed to be an important contribution to the shipping industry, representing the "fourth pillar" of the international maritime regulatory regime, next to the three key IMO Conventions, namely the International Convention for the Safety of Life at Sea (SOLAS), the Standards of Training, Certification and Watchkeeping Convention (STCW) and the International Convention for the Prevention of Pollution from Ships (MARPOL). The Convention will enter into force after it has been ratified by 30 ILO member States with a total share of at least 33 per cent of world tonnage.<sup>83</sup> According to information from the ILO, as of July 2007, only one State, Liberia, had deposited its instrument of ratification.

## C. STATUS OF CONVENTIONS

There are a number of international conventions affecting the commercial and technical activities of maritime transport. Box 1 gives the status of international maritime conventions adopted under the auspices of UNCTAD as of 30 September 2007. Comprehensive and updated information about these and other relevant conventions is available on the United Nations website at [www.un.org/law](http://www.un.org/law). This site also provides links to, inter alia, a number of organizations' sites, which contain information on the conventions adopted under the auspices of each organization. Those organizations are the following: the International Maritime Organization ([www.imo.org/home.html](http://www.imo.org/home.html)), the International Labour Organization ([www.ilo.org](http://www.ilo.org)) and the United Nations Commission on International Trade Law ([www.uncitral.org](http://www.uncitral.org)).

## Box 1

## Contracting States parties to selected conventions on maritime transport, as of 30 September 2007

Title of convention	Date of entry into force or conditions for entry into force	Contracting States
<b>United Nations Convention on a Code of Conduct for Liner Conferences, 1974</b>	Entered into force 6 October 1983	Algeria, Bangladesh, Barbados, Belgium, Benin, Bulgaria, 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, Denmark, Egypt, Ethiopia, Finland, France, Gabon, Gambia, Germany, 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, United Kingdom of Great Britain and Northern Ireland, United Republic of Tanzania, Uruguay, Venezuela, Zambia (81)
<b>United Nations Convention on the Carriage of Goods by Sea, 1978 (Hamburg Rules)</b>	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, 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 (33)
<b>International Convention on Maritime Liens and Mortgages, 1993</b>	Entered into force 5 September 2004	Ecuador, Estonia, Monaco, Nigeria, Peru, Russian Federation, Spain, Saint Vincent and the Grenadines, Syrian Arab Republic, Tunisia, Ukraine, Vanuatu (12)
<b>United Nations Convention on International Multimodal Transport of Goods, 1980</b>	Not yet in force — requires 30 contracting parties	Burundi, Chile, Georgia, Lebanon, Liberia, Malawi, Mexico, Morocco, Rwanda, Senegal, Zambia (11)
<b>United Nations Convention on Conditions for Registration of Ships, 1986</b>	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)

Source: For official status information, see [www.un.org/law/](http://www.un.org/law/).

## Endnotes

- <sup>35</sup> See [www.unctad.org/rmt2006](http://www.unctad.org/rmt2006); and for more information and for the text of the SAFE Framework see the WCO website, [www.wcoomd.org](http://www.wcoomd.org).
- <sup>36</sup> “The Columbus Capacity Building Programme”, *WCO News*, No. 53, June 2007. It is being reported that as of 1 June 2007, the WCO and its partners had completed diagnostic missions in 60 WCO Member administrations. According to an earlier article entitled “WCO Columbus Programme: One Year On”, *WCO News*, No. 52, February 2007, 100 missions were projected to be completed by July 2007. With regard to Phase 2 of the Columbus Programme, the WCO was working closely with the diagnosed countries, and it estimated that 23 countries had reached the implementation phase. Concerning Phase 3, 98 countries had submitted the SAFE monitoring matrix report.
- <sup>37</sup> The text of the *WCO SAFE Framework of Standards, AEO Guidelines* can be found at the WCO website, [www.wcoomd.org](http://www.wcoomd.org).
- <sup>38</sup> *WCO SAFE Framework of Standards, AEO Guidelines*, chapter 1, p. 4.
- <sup>39</sup> Ibid.
- <sup>40</sup> rthe ISPS Code.
- <sup>41</sup> The SAFE framework, Pillar 2, Standard 3 (Customs-to-Business Partnerships) provides as follows: “The Customs administration, together with representatives from the trade community, will design validation processes or quality accreditation (authorization) procedures that offer incentives to businesses through their status as Authorized Economic Operators.” For more information on authorization, validation and mutual recognition, see the definitions on page 3 of the AEO Guidelines document, as well as other relevant information on pages 18–25.
- <sup>42</sup> See *WCO SAFE Framework of Standards, AEO Guidelines*, p. 24.
- <sup>43</sup> “Let’s talk about the Framework of Standards”, interview with the WCO Director of Compliance and Facilitation, *WCO News*, No. 52, February 2007 ([www.wcoomd.org](http://www.wcoomd.org)).
- <sup>44</sup> Further information on transport security issues, including a number of documents and reports, is available on the European Commission website at [http://ec.europa.eu/dgs/energy\\_transport/security/index\\_en.htm](http://ec.europa.eu/dgs/energy_transport/security/index_en.htm).
- <sup>45</sup> The Regulation entered into force at the end of December 2006. For its text see the *Official Journal of the European Union*, OJL 360, 19.12.2006, p. 64.
- <sup>46</sup> Further requirements are set out in Article 14 k (2), including the need for an internationally recognized security and/or safety certificate issued in accordance with any relevant international convention. This would include an International Ship Security Certificate issued under the ISPS Code.
- <sup>47</sup> See Commission Regulation (EC) No. 1875/2006, Section 3.
- <sup>48</sup> Ibid., Article 14 k (4).
- <sup>49</sup> Terms of Reference, EU-U.S. JCCC Working Group on Mutual Recognition, European Commission’s website, <http://ec.europa.eu>.
- <sup>50</sup> See EU Press Release IP/06/1206 of 19 September 2006.
- <sup>51</sup> For more information, see the European Commission’s website, <http://ec.europa.eu>.
- <sup>52</sup> See “Modernising customs procedures: European Commission welcomes adoption of Customs 2013 Programme by Council”, EU Press Release IP/07/531 of 19 April 2007.
- <sup>53</sup> For the text of the draft circular see *Report of the Joint MSC/FAL Working group on security and facilitation of the movement of closed cargo transport units and of freight containers transported by ships*, FAL 34/WP.5, Annex.
- <sup>54</sup> FAL 34/10/5.
- <sup>55</sup> FAL 34/WP.5, paras. 8–10, and Annex.
- <sup>56</sup> See the Report of the FAL on its thirty-fourth session, FAL 34/19, p. 39. The website addresses are as follows: <http://www.uscg.mil/hq/g-m/mp/xfqs.html>; and [http://www.cbp.gov/linkhandler/cgov/import/commercial\\_enforcement/ctpat/ctpat\\_best\\_practices.ctt/ctpat\\_best\\_practices.pdf](http://www.cbp.gov/linkhandler/cgov/import/commercial_enforcement/ctpat/ctpat_best_practices.ctt/ctpat_best_practices.pdf).
- <sup>57</sup> FAL 34/WP.5, para. 5.
- <sup>58</sup> For an overview of the responsibilities of Governments, port facilities and shipowning and ship-operating companies under the ISPS Code, see UNCTAD report *Container Security: Major Initiatives and Related International Developments*, UNCTAD/SDTE/TLB/2004/1, paras. 80–86. See also UNCTAD, *Review of Maritime Transport*, 2005, p. 84.
- <sup>59</sup> The MSC circulars are available on the IMO website, [www.imo.org](http://www.imo.org). For more information on circulars adopted recently, see UNCTAD, *Review of Maritime Transport*, 2006.
- For more information, see the Report of the MSC on its 82nd Session, MSC 82/24, 18 December 2006, p. 43.

MSC.1/Circ.1219, *Interim LRIT Technical Specifications and Other Matters*. A set of new regulations on the Long Range Identification and Tracking Systems (LRIT), to be included in SOLAS chapter V on Safety of Navigation, together with associated performance standards and functional requirements was adopted at the 81st session of the MSC in May 2006; see Resolutions MSC.202(81), MSC.210(81) and MSC.211(81). LRIT was introduced to extend significantly the tracking capabilities of SOLAS Contracting Governments. For background information and description of the LRIT see *Review of Maritime Transport, 2006*.

For an overview of other amendments to SOLAS and mandatory codes and guidelines adopted by the MSC at its 82nd session in December 2006, see the IMO website, [www.imo.org](http://www.imo.org).

Protocol for the Suppression of Unlawful Acts Against the Safety of Fixed Platforms Located on the Continental Shelf, 1988 (SUA Protocol).

Art. 1(1); Art. 2, 1(d), (2); Art. 2 bis; Art. 2 ter; Art. 3 (1), (3), (4).

The texts of the 2005 SUA Protocols are contained in IMO documents LEG/CONF.15/21 and LEG/CONF.15/22. For more information, see the IMO website, [www.imo.org](http://www.imo.org). See also UNCTAD, *Review of Maritime Transport, 2006*.

See the *Report of the Facilitation Committee on its 34<sup>th</sup> Session*, FAL 34/19, para. 7.8 (4), p. 28. The Protocols are not yet in force. The 2005 Protocol amending the SUA Convention requires adoption by 12 States Members to enter into force. The 2005 Protocol to the SUA Protocol requires adoption by only 3 State Members, but its entry into force is contingent on the entry into force of the amendments to the SUA Convention.

FAL 34/WP.5

All documents are available at [www.unctad.org/ttl](http://www.unctad.org/ttl).

[www.unctad.org/ttl/legal](http://www.unctad.org/ttl/legal).

For more information see document FAL 34/INF.6, submitted by the ISO at the last session of FAL Committee. Also see ISO website, <http://www.iso.org>. For a number of articles on ISO's recent work in the field of supply chain security, see *ISO Focus*, July/August 2006.

See LEG/CONF.16/3, of 13 November 2006, *Consideration of a Draft Convention on the Removal of Wrecks* (WRC).

For more information see "Double or quits", *Lloyd's Shipping Economist*, November 2006.

For the text of the draft Convention and the regulations see IMO document *Recycling of Ships, Report of the Correspondence Group*, MEPC 55/3/2. For more information see the report of the MEPC on its 55<sup>th</sup> session, MEPC 55/23, p. 19–28. See also "Draft new ship-recycling convention reaches advanced stages", *IMO News*, No. 4, 2006 ([www.imo.org](http://www.imo.org)).

Among them are Guidelines for authorization of ship-recycling yards, Guidelines for safe and environmentally-sound ship recycling, and Guidelines for the development of Ship-Recycling Plan.

*Report on the status of conventions and other multilateral instruments in respect of which the organization performs functions*, C 97/15/Add.1.

As at 27 October 2007, the number of Parties reported was 37; see IMO Council report, C 97/15/Add.1.

See the *Report of the MEPC on its 55th Session*, MEPC 55/23, Annex 9.

MEPC 45/8.

*Ibid.*, Annex 8.

*Ibid.*, Annex 10.

*Ibid.*, p. 33.

*Ibid.*, p. 29.

*Ibid.*

Article 8(3) of the Convention.



## Chapter 7

# REVIEW OF REGIONAL DEVELOPMENTS:

## ASIA

*This chapter reviews and analyses global intraregional maritime trade in Asia since 2004. It also covers the demographic background of the region, containerized trade, Asian terminal operators and P&I Clubs, and includes a focus report on port developments in Viet Nam. The region's merchandise exports grew at an impressive 18 per cent whilst imports increased by 11 per cent. Developing economies in Asia grew by around 7.6 per cent in 2006. Developing countries in the region continued to add to their already sizeable foreign exchange reserves, reaching an unprecedented sum of \$2.5 trillion. Global terminal operators headquartered in Asia have a throughput of over 220 million TEUs and about half of the world's total throughput of containers. Of the world's fleet of vessels above 100 GT, 21 per cent are registered in Asia.*

### A. ECONOMIC BACKGROUND

The combined countries of Asia are home to some 4 billion people, or two thirds of the world's population. Developing countries in Asia grew at around 7.6 per cent in 2006; the average from 1995 to 2005 was around 4.7 per cent (see table 51). Despite high and unstable oil prices in 2006, inflation in those countries was kept under control at around 4.3 per cent, as in the previous year. Developing countries in the region continued to add to their already sizeable foreign exchange reserves, reaching the unprecedented sum of \$2.5 trillion, of which China held \$1 trillion at the end of 2006. The region's exports grew at an impressive 17 per cent, benefiting from strong global demand. Table 51 shows the annual growth rates of GDP for selected countries in the region. At one extreme, Azerbaijan, aided by the export of oil, recorded the highest percentage growth rate of 31 per cent. At the other extreme Timor-Leste experienced a negative growth rate of -1.6 per cent.

Strong economic growth continued in South and South-West Asia, with industry and services as the major contributors. India's economy in 2006, spurred by increases in services and accelerating industrial production, is estimated to have grown by 9.2 per cent. The Islamic Republic of Iran, the only net exporter of oil in the subregion, grew by 5.3 per cent. In China growth is expected to reach 9.9 per cent in 2007, less than the 10.7 per cent growth in 2006. The Russian Federation is projected to grow by 6.4 per cent in 2007.

As a result of rising oil imports, current account balances dwindled across the region to equal their 2004 levels despite having made significant gains in 2005 (see table 52). At one end Maldives recorded a deficit of 36.2 per cent of GDP whilst at the other end Singapore recorded a surplus of 25.9 per cent. Substantial exports in many countries offset the effects of rising oil prices.

Merchandise exports from Asia grew on average over 13.3 per cent whilst imports increased by 11 per cent



Table 51

## Real GDP growth rates of selected Asian economies, 2005–2007

(Percentages)

	1994– 1995	1995– 1996	1996– 1997	1997– 1998	1998– 1999	1999– 2000	2000– 2001	2001– 2002	2002– 2003	2003– 2004	2004– 2005	2005– 2006
<b>Developing economies:</b>												
<b>Asia</b>	7.5	7.3	5.5	1.7	5.4	6.6	3.7	6.0	6.6	7.6	7.0	7.6
<b>Eastern Asia</b>	9.0	8.0	7.1	2.5	7.5	8.0	5.0	7.4	7.0	8.2	7.4	8.4
China	10.9	10.0	9.3	7.8	7.6	8.4	8.3	9.1	10.0	10.1	9.9	10.7
Democratic People's Republic of Korea	-4.1	-3.6	-6.3	-1.1	6.2	1.3	3.7	1.2	1.8	0.0	0.9	0.9
Hong Kong (China)	3.9	4.2	5.1	-5.5	4.0	10.0	0.6	1.8	3.1	8.2	4.6	6.8
Macao (China)	3.3	-0.4	-0.3	-4.6	-2.4	5.7	2.9	10.1	14.2	28.6	2.5	2.5
Mongolia	6.3	2.4	4.0	3.5	3.2	1.1	1.0	4.0	5.6	10.7	7.0	8.4
Republic of Korea	9.2	7.0	4.7	-6.9	9.5	8.5	3.8	7.0	3.1	4.7	4.0	5.0
Taiwan Province of China	6.4	6.1	6.4	4.5	5.7	5.8	-2.2	4.2	3.4	6.1	3.8	4.6
<b>South Asia</b>	6.2	6.4	3.5	5.3	5.9	4.1	4.7	4.8	8.0	6.8	7.9	8.1
Afghanistan	5.0	9.0	10.1	11.9	-5.9	-33.6	-9.4	29.7	18.6	8.0	13.8	8.0
Bangladesh	4.6	5.4	5.2	4.9	5.9	5.3	4.4	5.3	6.3	5.4	5.5	6.7
Bhutan	7.3	5.8	4.2	5.8	7.8	9.5	8.6	7.1	6.8	8.7	8.8	13.7
India	7.6	7.4	4.5	6.0	7.1	3.9	5.1	4.1	8.6	7.1	8.7	9.2
Iran (Islamic Republic of)	2.9	6.2	-0.5	3.7	2.7	5.9	5.4	7.8	8.0	6.5	5.9	5.3
Maldives	7.1	8.8	11.5	9.3	7.8	4.4	3.3	6.1	9.2	9.6	-0.2	16.1
Nepal	3.5	5.3	5.3	2.9	4.5	6.1	5.6	-0.6	3.4	3.4	2.5	1.9
Pakistan	4.8	1.0	2.6	3.7	4.3	2.7	1.9	3.2	5.0	6.4	7.8	6.2
Sri Lanka	5.5	3.8	6.4	4.7	4.3	6.0	-1.4	4.0	5.9	5.4	6.2	7.5
Turkey	7.2	7.0	7.5	3.1	-4.7	7.4	-7.5	7.9	5.8	8.9	7.4	5.5
<b>South-East Asia</b>	8.3	7.4	4.1	-8.3	3.8	6.3	2.2	4.8	5.4	6.2	5.4	5.9
Brunei Darussalam	3.0	1.0	3.6	-4.0	2.6	2.8	3.0	2.8	3.8	1.7	3.0	3.8
Cambodia	5.9	4.6	5.7	5.0	12.6	8.4	5.5	5.2	7.0	7.7	7.0	9.5
Indonesia	8.2	7.8	4.7	-13.1	0.8	4.9	3.8	4.4	4.7	5.1	5.6	5.5
Lao People's Dem. Rep.	7.5	6.9	6.9	4.0	7.3	5.8	5.8	5.9	5.8	6.9	7.3	7.6
Malaysia	9.8	10.0	7.3	-7.4	6.1	8.9	0.3	4.4	5.4	7.1	5.3	5.9
Myanmar	6.9	6.4	5.7	5.8	10.9	13.7	11.3	12.0	13.8	5.0	4.5	7.0
Philippines	4.7	5.8	5.2	-0.6	3.4	4.7	3.0	4.4	4.5	6.0	5.1	5.4
Singapore	8.0	8.2	8.3	-1.4	7.2	10.0	-2.3	4.0	2.9	8.7	6.4	7.9
Thailand	9.2	5.9	-1.4	-10.5	4.4	4.8	2.2	5.3	7.0	6.2	4.5	5.0
Timor-Leste	9.5	10.8	4.1	-2.1	-35.5	13.7	16.5	-6.7	-6.2	1.8	3.2	-1.6
Viet Nam	9.5	9.3	8.2	5.8	4.8	6.8	6.9	7.1	7.3	7.8	8.4	8.2

Table 51 (continued)

	1994– 1995	1995– 1996	1996– 1997	1997– 1998	1998– 1999	1999– 2000	2000– 2001	2001– 2002	2002– 2003	2003– 2004	2004– 2005	2005– 2006
<b>Economies in transition: Asia</b>	-5.5	1.7	3.9	2.1	4.3	7.1	9.0	7.3	8.1	8.7	9.4	11.5
<b>Armenia</b>	6.9	5.9	3.3	7.3	3.3	5.9	9.6	13.2	14.0	10.1	13.9	13.4
<b>Azerbaijan</b>	-11.8	1.3	15.8	10.0	7.4	11.1	9.9	10.6	11.2	10.2	24.3	31.0
<b>Georgia</b>	2.6	10.5	10.5	3.1	2.9	1.8	4.8	5.5	11.1	6.3	9.3	9.0
<b>Kazakhstan</b>	-8.2	0.5	1.7	-1.9	2.7	9.8	13.5	9.8	9.3	9.6	9.4	10.6
<b>Kyrgyzstan</b>	-5.4	7.1	9.9	2.1	3.7	5.4	5.3	0.0	7.0	7.0	-0.6	2.7
<b>Russian Federation</b>	-4.1	-3.6	1.4	-5.3	6.4	10.0	5.1	4.7	7.3	7.1	6.4	6.7
<b>Tajikistan</b>	-12.5	-16.7	1.7	5.3	3.7	8.3	10.2	9.5	10.2	10.6	7.5	7.0
<b>Turkmenistan</b>	-7.2	6.7	-11.4	7.1	16.5	5.5	4.3	0.3	3.3	5.0	9.6	9.0
<b>Uzbekistan</b>	-0.9	1.7	5.2	4.4	4.4	4.0	4.3	4.2	4.5	7.7	5.0	7.2

Source: UNCTAD secretariat.

(see table 53). Azerbaijan recorded the highest growth in exports with an average of 35.2 per cent, followed by Kazakhstan (25.2), Viet Nam (21.4), Cambodia (21.2) and China (19.6). Merchandise imports were the strongest in Tajikistan, at 21.3 per cent closely, followed by China (19.7), Georgia (19.6), Afghanistan (19.3) and India (18.2). Overall, these high growth rates showed the dynamism of trade in Asia.

#### *Demographic background*

Asia's demographic developments varied according to country, although they showed similar upward trends. Average fertility rates amounted to 6 children born per mother in the period 1950–1955 and declined to 2.4 in 2000–2005. This means that in some countries, particularly those in North and North-East Asia, where in 1970 the percentage of the population in the workforce was 57 per cent of the population, by 2010 that percentage will have risen to 72 per cent. With more workers paying into the economy and fewer dependants to support, there could be a significant advantage to be gained in productivity, provided that these workers are properly utilized. The North and Central Asia workforce is estimated to peak in 2010 followed by a sharp decline; the South-East and South-West workforce should peak around in 2025, while the South Asia workforce should reach a long plateau.

## **B. CONTAINERIZATION**

### *Direction of containerized trade*

The Far Eastern Freight Conference (FEFC), a group of 16 shipping lines with approximately two-thirds container vessel capacity on the Asia/Europe route, reported an increase in bi-directional volumes of traffic in 2007. It reported that westbound container trade volumes had totalled 731,360 in January 2007, increasing by 16.4 per cent over the same period the previous year. For February the same route showed a 50 per cent increase in trade volumes over the previous year, totalling 697,910 TEUs. In March the trade volume stood at 684,550 TEUs, increasing by 3.4 per cent over the same period in 2006. For the first quarter of 2007, 2.12 million TEUs were shipped westbound — 1.4 million destined for Northern Europe and about 724,890 for the Mediterranean. Trade destined for Northern Europe grew by 49.1 per cent year on year in February, while volumes destined for the Mediterranean grew by 52.1 per cent over 2006. These increases in the demand for goods from Asia led in July 2007 to the FEFC announcing a \$300 rise in the cost of freight per TEU for goods from Asia destined for Europe. This represents a 19 per cent increase on the first quarter's average price of \$1,550, the largest single quarterly price increase in the previous decade. However, this should also be compared with

Table 52

**Current account balances of selected Asian economies, 1995–2006**  
(Percentage of GDP)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Armenia	-17.0	-18.2	-18.7	-22.1	-16.6	-14.6	-9.4	-6.2	-6.7	-4.5	-3.9	-5.6
Azerbaijan	-16.6	-29.3	-23.1	-30.7	-13.1	-3.2	-0.9	-12.3	-27.8	-30.4	1.3	11.2
Bangladesh	-1.8	-3.2	-1.3	-11.7	-1.1	-1.0	-2.5	0.3	0.3	0.3	-0.9	0.9
Bhutan	-11.6	-11.9	-7.6	10.6	2.2	5.4	-5.4	-8.9	-10.7	-7.6	-22.0	-15.1
Brunei Darussalam	46.6	41.9	56.0	..	..	..	69.7	59.3	68.5	68.7	68.4	..
Cambodia	-3.2	-3.1	0.6	-5.8	-5.1	-2.8	-1.1	-1.5	-3.7	-2.3	-4.3	-5.5
China	0.2	0.9	4.1	3.3	2.1	1.9	1.5	2.7	3.1	3.5	7.2	7.1
Georgia	-19.1	-18.7	-14.4	-7.6	-7.1	-8.8	-6.5	-6.5	-9.4	-8.3	-11.7	-10.0
Hong Kong (China)	..	..	-4.5	1.5	6.4	4.1	5.9	7.6	10.4	9.5	11.1	10.1
India	-1.7	-1.2	-1.4	-1.0	-1.0	-0.6	0.7	1.3	2.4	-0.8	-1.1	-1.6
Indonesia	-3.2	-3.4	-2.4	4.3	4.1	4.8	4.2	3.9	3.4	0.6	0.3	0.8
Iran (Islamic Republic of)	3.9	1.4	-	1.1	12.0	17.5	7.1	3.1	0.6	0.9	7.5	7.4
Kazakhstan	-1.2	-3.7	-3.8	-5.8	-1.0	2.0	-6.3	-4.2	-0.9	1.1	-0.9	0.2
Kyrgyzstan	-15.7	-23.3	-7.8	-25.1	-20.2	-9.1	-3.7	-5.0	-5.2	-4.6	-8.4	-12.8
Lao People's Democratic Republic	-19.5	-18.5	-17.5	-11.7	-8.3	-0.5	-4.7	0.3	-2.0	-7.7	-6.7	-10.0
Malaysia	-9.8	-4.4	-5.9	13.2	15.9	9.4	8.3	8.4	12.8	12.6	15.7	13.2
Maldives	-4.6	-1.6	-6.8	-4.1	-13.4	-8.2	-9.4	-5.6	-4.5	-15.8	-33.6	-36.2
Mongolia	-6.8	-5.8	-5.5	-7.8	-6.7	-5.7	-7.6	-9.6	-7.5	3.9	5.5	..
Myanmar	-0.2	-0.2	0.0	-	0.2	-0.1	-0.1	0.0	0.0	0.0	0.0	0.1
Nepal	-8.1	-8.7	-8.0	-1.5	0.1	4.5	4.9	4.3	2.6	2.9	2.2	2.4
Pakistan	-3.7	-7.4	-6.0	-2.9	-3.1	-0.3	0.5	3.7	4.9	1.9	-1.4	-3.9
Philippines	-4.4	-4.8	-5.3	2.4	9.5	8.2	1.9	5.5	4.4	2.4	2.5	2.4
Republic of Korea	-1.7	-4.1	-1.6	11.7	5.5	2.4	1.7	1.0	2.0	4.1	2.1	0.4
Russian Federation	2.2	2.8	0.0	0.1	12.6	18.0	11.1	8.4	8.2	9.9	10.9	10.0
Singapore	17.5	15.0	15.6	22.3	17.4	11.6	13.7	13.4	24.1	24.5	28.5	25.9
Sri Lanka	-6.1	-4.9	-2.6	-1.4	-3.6	-6.5	-1.4	-1.4	-0.4	-3.2	-2.8	-5.3
Tajikistan	-16.9	-7.2	-5.4	-9.1	-3.1	-6.8	-6.7	-1.4	-0.3	-2.7	-0.8	2.6
Thailand	-7.9	-7.9	-2.1	12.8	10.2	7.6	5.4	5.5	5.6	4.2	-2.1	1.2
Timor-Leste	..	..	..	-	5.4	2.2	11.7	12.5	7.6	5.1	35.1	..
Turkey	-1.4	-1.3	-1.4	1.0	-0.7	-4.9	2.3	-0.8	-3.4	-5.2	-6.4	-7.9
Turkmenistan	0.2	0.1	-21.6	-34.5	-20.5	6.4	0.2	1.7	0.7	-4.4	1.9	2.6
Uzbekistan	-0.2	-7.0	-3.9	-0.6	-0.8	1.6	-1.0	1.2	8.7	9.7	11.6	10.7
Viet Nam	-9.0	-8.2	-5.7	-3.9	4.1	3.6	2.1	-1.7	-4.7	-2.0	0.4	0.9

Source: UNESCAP, *Economic and Social Survey of Asia and the Pacific 2007*, appendix table 6.

Table 53

## Asian growth rates for merchandise trade

(Percentages)

Developing ESCAP economies	Exports			Arithmetic average 1997–2006	Imports			Arithmetic average 1997–2006
	2004	2005	2006		2004	2005	2006	
<b>Afghanistan<sup>a</sup></b>	-13.3	-2.6	7.9	13.9	2.3	9.0	10.1	19.3
<b>Armenia</b>	6.0	36.2	-1.1 <sup>b</sup>	15.1	5.8	33.2	19.7 <sup>b</sup>	11.3
<b>Azerbaijan</b>	42.6	104.4	94.1 <sup>b</sup>	35.2	31.5	21.4	17.2 <sup>b</sup>	15.8
<b>Bangladesh<sup>c</sup></b>	16.1	13.8	21.6	10.9	12.9	20.6	12.2	8.1
<b>Bhutan<sup>c</sup></b>	39.7	18.0	25.3 <sup>d</sup>	12.5	29.2	67.6	18.0 <sup>d</sup>	17.3
<b>Brunei Darussalam</b>	2.0	26.6	18.0 <sup>e</sup>	8.8	22.4	0.3	25.5 <sup>e</sup>	-2.6
<b>Cambodia</b>	24.1	12.4 <sup>d</sup>	22.2 <sup>f</sup>	21.2	22.5 <sup>g</sup>	20.2 <sup>dg</sup>	22.1 <sup>ag</sup>	15.7
<b>China</b>	35.4	28.4	27.2	19.6	36.0	17.6	20.0	19.7
<b>Georgia</b>	31.4	34.8	20.7 <sup>b</sup>	19.3	36.7	33.8	56.3 <sup>b</sup>	19.6
<b>Hong Kong (China)</b>	15.9	11.6	9.7	6.7	16.9	10.5	11.6	5.8
<b>India<sup>c</sup></b>	28.5	23.4	30.0 <sup>f</sup>	15.3	48.6	32.0	31.5 <sup>f</sup>	18.2
<b>Indonesia</b>	12.6	20.1	16.2 <sup>f</sup>	7.7	28.0 <sup>g</sup>	26.2 <sup>g</sup>	15.6 <sup>fg</sup>	7.1
<b>Iran (Islamic Republic of)<sup>c</sup></b>	29.0	36.9	38.0 <sup>h</sup>	15.8	29.2 <sup>g</sup>	7.3 <sup>g</sup>	30.6 <sup>gh</sup>	14.5
<b>Kazakhstan</b>	55.7	37.4	39.0 <sup>b</sup>	25.2	44.6	30.1	32.0 <sup>b</sup>	15.0
<b>Kyrgyzstan</b>	24.2	33.3	16.3 <sup>b</sup>	11.7	24.9	98.7	47.0 <sup>b</sup>	17.8
<b>Lao People's Democratic Republic</b>	8.3	52.2	29.5 <sup>d</sup>	9.8	54.2	23.8	36.1 <sup>d</sup>	7.7
<b>Macao (China)</b>	9.0	-12.0	3.0	2.9	26.3	12.5	16.3	8.9
<b>Malaysia</b>	20.8	11.0	13.4 <sup>i</sup>	9.6	26.4	8.5	14.1 <sup>i</sup>	6.4
<b>Maldives</b>	19.1	-10.7	39.7 <sup>d</sup>	10.4	36.3	16.1	26.5 <sup>d</sup>	12.7
<b>Mongolia</b>	41.2	22.4	43.6	15.8	27.5	16.0	25.7	13.0
<b>Myanmar</b>	14.1	14.5	9.4 <sup>e</sup>	12.3	7.1	1.5	11.9 <sup>e</sup>	4.5
<b>Nepal<sup>c</sup></b>	8.9	14.8	-1.1 <sup>d</sup>	6.9	10.6	15.6	11.2 <sup>d</sup>	6.1
<b>Pakistan<sup>c</sup></b>	10.3	16.9	14.3	8.0	27.6	32.1	38.8	10.6
<b>Philippines</b>	9.5	4.0	15.5 <sup>i</sup>	11.7	8.8 <sup>g</sup>	7.7 <sup>g</sup>	9.0 <sup>bg</sup>	5.2
<b>Republic of Korea</b>	31.0	12.0	14.4	11.4	25.5	16.4	18.4	9.7
<b>Russian Federation</b>	34.8	32.9	28.7 <sup>b</sup>	15.0	28.0	28.7	36.2 <sup>b</sup>	11.9
<b>Singapore</b>	24.2	15.7	21.2 <sup>b</sup>	10.1	27.4	15.3	21.6 <sup>b</sup>	7.7
<b>Sri Lanka</b>	12.2	10.2	9.1 <sup>f</sup>	7.0	19.9	10.8	18.9 <sup>f</sup>	7.5
<b>Tajikistan</b>	14.8	15.9	55.8 <sup>b</sup>	12.7	56.1	97.0	28.9 <sup>b</sup>	21.3
<b>Thailand</b>	20.6	14.9	16.8 <sup>i</sup>	9.6	25.7	25.9	7.1 <sup>i</sup>	7.9
<b>Timor-Leste</b>	14.3 <sup>d</sup>	25.0 <sup>f</sup>	0.0 <sup>f</sup>	14.3	-8.6 <sup>d</sup>	5.9 <sup>f</sup>	1.9 <sup>f</sup>	-1.1
<b>Turkey</b>	33.7	16.3	13.4 <sup>b</sup>	14.0	40.7	19.7	17.8 <sup>b</sup>	14.2
<b>Turkmenistan</b>	6.6	27.6	9.6 <sup>d</sup>	16.3	32.2	9.6	5.3 <sup>d</sup>	15.8
<b>Uzbekistan</b>	32.4	14.9	11.8 <sup>d</sup>	8.2	27.2	13.1	15.3 <sup>d</sup>	0.5
<b>Viet Nam</b>	31.4	22.4	21.9 <sup>d</sup>	21.4	26.7	15.7	20.1 <sup>d</sup>	15.4
<b>Arithmetic average of 35 countries</b>	21.3	21.6	21.6	13.3	26.2	23.4	21.4	11.1

Source: Adapted by UNCTAD from UNESCAP, *Economic and Social Survey of Asia and the Pacific 2007*, appendix tables 8 and 9.

<sup>a</sup> All figures are estimates, except for 2006 data, which are projections. Figures exclude opium and flows associated with US Army activities and those of most international security assistance force.

<sup>b</sup> Refers to first 9 months of 2006.

<sup>c</sup> Fiscal year data.

<sup>d</sup> Estimate.

<sup>e</sup> Refers to first 3 months of 2006.

<sup>f</sup> Projection.

<sup>g</sup> f.o.b. value.

<sup>h</sup> Refers to first 6 months of 2006.

<sup>i</sup> Refers to first 10 months of 2006.

the 15 per cent reduction in rates for the first quarter of 2006.

On the eastbound route, FEFC volumes reached 272,941 TEUs in January 2007, up 21.7 per cent on the previous year. By the end of the first quarter of 2007, eastbound trade from Europe to Asia was up by 9.6 per cent over the previous year to 815,173 TEUs. Trade volume from North Europe to Asia improved by 7 per cent to 661,569 TEUs.

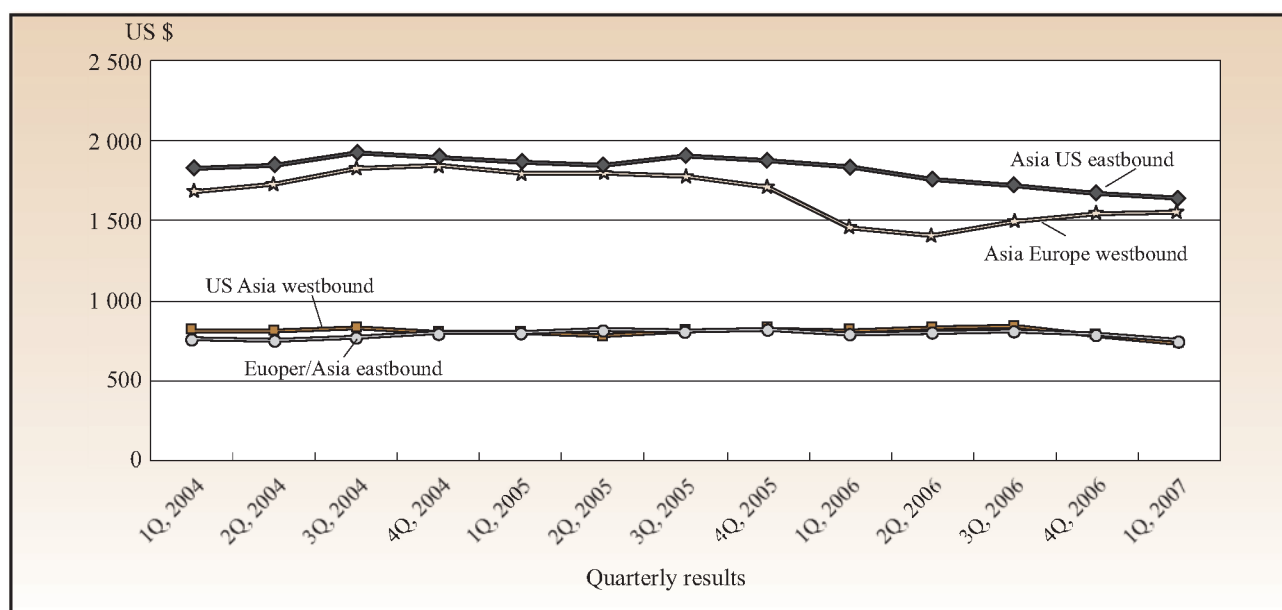
Total Asia to United States trade volumes reached 1.1 million TEUs in February, up 19.5 per cent on the same period for 2006. Volumes from China to the United States reached 771,849 TEUs in February 2007, up by 31.6 per cent. Trade from Viet Nam to the United States grew by 49 per cent in February over the same period in 2006 to reach 28,431 TEUs. Asian exports to the United States have been slightly declining, with the exception of Chinese exports to the United States, while intraregional trade has been increasing.<sup>84</sup> Annual Asia–United States trans-Pacific containerized growth in trade slowed down in recent years from 17.3 per cent growth in 2004 to 14.1 per cent in 2005, and down to 10.8 per cent in 2006. At the same time the freight rate

between Asia and the United States has been declining from its peak of \$2,203 reached in the third quarter of 1999 to \$1,643 for the first quarter of 2007. Container traffic for Asian hub ports is largely dependent on intraregional trade, with more than half of all traffic within the ports of Busan, Hong Kong (China) and Yokohama catering for the region. Between 2001 and 2005 a sample of 60 major Asian ports from across the region grew on average by 10 per cent a year.

Intra-Asia trade volumes from Japan to China totalled 74,122 TEUs in April 2007, down by 5.7 per cent compared with the same period in 2006. Volumes from China to Japan also dropped in April, by 1.3 per cent for the same period in 2006, to 191,012 TEUs.

Figure 16 shows the trend in freight rates to and from Asia for the period from 2004 to 2007. During this period freight rates generally remained constant except on the Asia to Europe route, which experienced a 15 per cent reduction in the first quarter of 2006. The rates for cargo from Europe and the United States to Asia over the period from 2004 to 2007 have remained largely parallel to each other. Freight rates for cargo from Europe to Asia varied between 51 per cent and 58 per

Figure 16  
Freight rates to and from Asia, 2004–2007



Source: [www.ci-online.co.uk](http://www.ci-online.co.uk).



cent of the cost of shipping goods in the opposite direction. Freight rates from the United States to Asia varied slightly more, between 43 per cent and 58 per cent of the cost of moving goods in the opposite direction.

#### *Container port traffic*

The top 50 Asian container ports by TEU throughput can be seen in table 54. They are similar to those of the world top container ports because of the high volume of containerized goods exported from the region. The best performers in 2006 over 2005 were the ports of Yantai with a 112 per cent increase, followed by Yingkou with 59 per cent and Guangzhou with 40 per cent. On average, mainland Chinese ports grew by 35 per cent in 2006 against about 29 per cent in 2005 over the previous year.

Ports in other developing countries which made double-digit gains include Colombo (up 25 per cent), Jawaharlal (23 per cent), Gwangyang (22 per cent), Ambarli (21 per cent), Incheon and Ho Chi Minh (19 per cent), Dubai (17 per cent), Tanjung Pelepas (14 per cent), Port Klang (14 per cent), Chittagong (12 per cent), Laem Chabang (11 per cent), and Karachi and Bangkok (10 per cent).

Table 55 shows container port traffic for 25 selected Asian countries. The average growth rate for ports in those countries was 11.6 per cent, similar to the 11.4 per cent for the period from 2004 to 2005. China represents the country with the largest TEU throughput, with around 81 million. This is up 23 per cent on the previous year, which was also up by a similar level of 22 per cent over 2004.

Table 54  
Container port traffic for the leading 50 Asian ports, 2004, 2005 and 2006  
(TEUs)

Port name	Country/territory	2004	2005	2006 <sup>a</sup>
<b>Singapore</b>	Singapore	21 329 100	23 192 200	24 796 000
<b>Hong Kong</b>	Hong Kong (China)	21 984 000	22 427 000	23 539 000
<b>Shanghai</b>	China	14 557 200	18 084 000	21 710 000
<b>Shenzhen</b>	China	13 655 500	16 197 173	18 468 900
<b>Busan</b>	Republic of Korea	11 491 968	11 843 151	12 030 000
<b>Kaohsiung</b>	Taiwan Province of China	9 714 115	9 471 056	9 774 670
<b>Dubai</b>	United Arab Emirates	6 428 883	7 619 219	8 923 465
<b>Qingdao</b>	China	5 139 700	6 307 000	7 702 000
<b>Ningbo</b>	China	4 005 500	5 208 000	7 068 000
<b>Guangzhou</b>	China	3 304 000	4 685 000	6 600 000
<b>Port Klang</b>	Malaysia	5 243 593	5 543 527	6 326 000
<b>Tianjin</b>	China	3 814 000	4 801 000	5 900 000
<b>Tanjung Pelepas</b>	Malaysia	4 020 421	4 177 121	4 770 000
<b>Laem Chabang</b>	Thailand	3 529 000	3 765 967	4 215 817
<b>Xiamen</b>	China	2 871 700	3 342 300	4 018 700
<b>Tokyo</b>	Japan	3 358 257	3 597 588	3 695 892
<b>Tanjung Priok</b>	Indonesia	3 170 000	3 281 580	3 347 000
<b>Jawaharlal Nehru</b>	India	2 371 338	2 666 703	3 298 328
<b>Dalian</b>	China	2 211 200	2 655 000	3 212 000
<b>Yokohama</b>	Japan	2 717 631	2 873 277	3 199 882
<b>Colombo</b>	Sri Lanka	2 220 525	2 455 297	3 079 132
<b>Jeddah</b>	Saudi Arabia	2 425 930	2 835 539	2 963 548
<b>Nagoya</b>	Japan	2 303 541	2 491 198	2 751 677
<b>Manila</b>	Philippines	2 696 878	2 625 000	2 638 471
<b>Ho Chi Minh City (Saigon)</b>	Viet Nam	1 868 000	2 122 000	2 532 000

Table 54 (continued)

Port name	Country/territory	2004	2005	2006 <sup>a</sup>
<b>Kobe</b>	Japan	2 176 830	2 262 066	2 413 000
<b>Salalah</b>	Oman	2 228 546	2 491 741	2 390 000
<b>Osaka</b>	Japan	1 725 565	2 094 277	2 231 630
<b>Keelung</b>	Taiwan Province of China	2 070 192	2 091 458	2 123 000
<b>Tanjung Perak/Surabaya</b>	Indonesia	1 667 868	1 850 000	1 943 000
<b>Gwangyang</b>	Republic of Korea	1 321 862	1 441 261	1 760 000
<b>Khor Fakkan</b>	United Arab Emirates	1 819 431	1 929 729	1 730 758
<b>Bangkok</b>	Thailand	1 318 000	1 349 246	1 485 328
<b>Ambarli</b>	Turkey	1 078 406	1 185 768	1 445 000
<b>Shahid Rajaee</b>	Iran (Islamic Republic of)	1 142 659	1 292 962	1 408 067
<b>Incheon</b>	Republic of Korea	934 941	1 153 465	1 380 000
<b>Lianyungang</b>	China	502 300	1 005 300	1 302 300
<b>Taichung</b>	Taiwan Province of China	1 245 185	1 228 915	1 204 200
<b>Zhongshan</b>	China	921 500	1 075 900	1 173 400
<b>Yantai</b>	China	290 000	551 000	1 169 000
<b>Karachi</b>	Pakistan	911 933	1 024 000	1 127 456
<b>Fuzhou</b>	China	707 900	750 000	1 030 000
<b>Yingkou</b>	China	1 040 438	633 600	1 010 000
<b>Dammam</b>	Saudi Arabia	743 457	894 809	941 828
<b>Chittagong</b>	Bangladesh	688 771	783 353	882 411
<b>Pasir Gudang</b>	Malaysia	805 689	836 754	880 611
<b>Penang</b>	Malaysia	772 024	795 289	849 730
<b>Izmir</b>	Turkey	804 563	784 377	847 926
<b>Chennai</b>	India	617 000	735 000	797 832
<b>Hakata</b>	Japan	611 184	666 846	710 000

Source: Derived from information contained in *Containerisation International Yearbook 2007*, from various Dynamar B.V. publications and from information obtained by the UNCTAD secretariat directly from terminal and port authorities.

<sup>a</sup> Whilst every effort is made to obtain up-to-date data, figures for 2006 are in some cases estimated. Certain ports did not respond to the background survey.

### Asian container terminal operators

Global terminal operators headquartered in Asia include Cosco Pacific, DP World, Evergreen, Hanjing, Hutchison Port Holdings (HPH), ICTSI, NYK/Ceres and PSA International. Together they have a throughput of over 220 million TEUs and around half of the world's total throughput of containers. Another terminal operator located in Asia, but not with a global port portfolio, is the China Merchants Holdings International (CMHI), which has interests in port operations in Hong Kong (China),

Ningbo, Qingdao, Shenzhen, Shanghai, Tianjin and along the Yangtze River Delta and the Bohai Economic Rim. In early 2007 CMHI bought from DP World its terminal interest in Shenzhen. CHMI also has a 30 per cent share in Shanghai International Port Group (SIPG), which built and operates the Yangshan deepwater port in Shanghai and has a stake terminal operations in the port of Zeebrugge. More recently, CMHI has branched out overseas with an investment in Ben Dinh Sao Mai port in southern Viet Nam.

Table 55

**Container port traffic for 25 Asian countries, 2004, 2005 and 2006**  
(TEUs)

Country/territory	2004	2005	Preliminary figures for 2006 <sup>a</sup>	Percentage change 2004–2005	Percentage change 2005–2006
<b>China</b>	54 517 667	66 520 473	81 927 000	22.02	23.16
<b>Singapore</b>	21 329 100	23 192 200	24 796 000	8.74	6.92
<b>Hong Kong (China)</b>	21 984 000	22 427 000	23 539 000	2.02	4.96
<b>Japan</b>	13 930 340	14 903 311	16 126 573	6.98	8.21
<b>Republic of Korea</b>	14 028 256	14 753 613	15 521 072	5.17	5.20
<b>Malaysia</b>	11 249 482	11 762 654	13 295 393	4.56	13.03
<b>Taiwan Province of China</b>	13 029 492	12 791 429	13 101 870	-1.83	2.43
<b>United Arab Emirates</b>	8 432 503	9 777 118	10 936 305	15.95	11.86
<b>Thailand</b>	4 847 000	5 115 213	5 701 145	5.53	11.45
<b>India</b>	4 228 111	4 721 321	5 625 268	11.67	19.15
<b>Indonesia</b>	5 111 899	5 413 654	5 599 500	5.90	3.43
<b>Saudi Arabia</b>	3 169 387	3 730 348	3 905 376	17.70	4.69
<b>Philippines</b>	3 255 851	3 167 486	3 556 195	-2.71	12.27
<b>Turkey</b>	2 732 950	2 907 063	3 336 742	6.37	14.78
<b>Sri Lanka</b>	2 220 525	2 455 297	3 079 132	10.57	25.41
<b>Oman</b>	2 515 546	2 727 341	2 543 284	8.42	-6.75
<b>Viet Nam</b>	1 868 000	2 122 000	2 532 000	13.60	19.32
<b>Pakistan</b>	1 405 306	1 564 827	1 760 956	11.35	12.53
<b>Iran (Islamic Republic of)</b>	1 177 265	1 325 643	1 528 518	12.60	15.30
<b>Bangladesh</b>	688 771	783 353	882 411	13.73	12.65
<b>Kuwait</b>	379 596	673 472	750 000	77.42	11.36
<b>Lebanon</b>	389 876	464 976	594 601	19.26	27.88
<b>Yemen</b>	491 171	508 085	590 981	3.44	16.32
<b>Jordan</b>	358 723	392 177	430 000	9.33	9.64
<b>Cambodia</b>	213 916	211 141	221 490	-1.30	4.90
	193 554 733	214 411 195	241 880 812	11.46	11.60

*Source:* Derived from information contained in *Containerisation International Yearbook 2007*, from various Dynamar B.V. publications and from information obtained by the UNCTAD secretariat directly from terminal and port authorities.

<sup>a</sup> Whilst every effort is made to obtain up-to-date data, figures for 2006 are in some cases estimated. Certain ports did not respond to the background survey. Negative or low growth may be attributable to the fact that country totals can sometimes mask the fact that individual port data may have been omitted.

There are signs of a trend towards greater consolidation within global terminal operations following the maturity of the market after the growth in tenders for terminal concessions in the 1980s/1990s. However, notwithstanding this, the market is still quite fragmented with many smaller players, usually related to liner shipping companies. In the last couple of years there has been a movement towards the purchase of ports by

private equity funds, which has resulted in the subsequent delisting of ports from the world's stock exchanges. For instance, P&O Ports was bought by the Dubai Government's wholly owned subsidiary DP World. The United Kingdom's Associated British Ports was bought by Admiral Acquisitions, a private equity firm. The same country's MDHC was bought by Peel Holdings, a private company (now 49 per cent owned by Deutsche Bank).

Orient Overseas Container Line, the Hong Kong (China) listed liner shipping company, sold its entire terminal operations (excluding Long Beach and Kaohsiung) to Ontario Teachers' Pension Plan Board (OTPPB) in 2006. Other non-listed port-owning companies include PSA International in Asia, Eurograte, Hamburger Hafen und Logistik AG (HHLA), Mediterranean Shipping Company (MSC) and Terminal de Contenidors de Barcelona (TCB) in Europe, and Stevedoring Services of America (SSA) in North America.

Ports still listed on the Asian stock markets include CHMI, Cosco Pacific and HPH (through its parent company Hutchison Whampoa), which are all listed in Hong Kong (China). ICTSI is listed in Manila, Hanjin in Seoul (although Macquarie Bank has a 40 per cent share of the terminal business), APL in Singapore (through its parent company NOL), Evergreen listed in Taiwan Province of China, and NYK in Tokyo.

The cost of purchasing terminals has risen in recent years. When DP World purchased CSX Terminal in 2005 the price/earnings (p/e) ratio was 14; when Admiral Acquisitions bought Associated British Ports the p/e ratio was 15; and when Deutsche Bank bought a share in Peel ports the p/e ratio was 16. However, when DP World purchased P&O Ports, less than a year after the purchase of CSX Terminals, the p/e ratio had risen to 19 times. The p/e ratio of Forth Ports in the United Kingdom, the last remaining UK port company still listed on the stock exchange, was around 20 in the middle of 2007. At the same time ICTSI was at 25 and CMHI at 36. The higher ratio for CMHI reflects the sentiment that investors have for the Chinese port sector, a business in which CMHI has approximately a 35 per cent stake. Ports are increasingly attracting the interest of investors, and so for developing countries the main issue is no longer how to finance new infrastructure projects but which partner to choose.

#### *Container manufacturing*

Container manufacturing is still dominated by China's two largest box producers, China International Marine

Containers (CIMC) and Singamas, which between them control more than 90 per cent of the market. CIMC has an annual capacity capable of producing 2 million TEUs per annum and Singamas a capacity of 1.25 million TEUs. Other container manufacturers include CXIC Group (China, with Israel's Zim holding a 25 per cent stake), Jindo Corp and Hyundai Mobis (both from the Republic of Korea). Further details can be found in chapter 5.

### **C. ASIAN FLEET DEVELOPMENT**

#### *Asian merchant fleet*

Table 56 shows the make-up of the Asian fleet by flag of registration and type of vessel. By far the largest registries are those of Hong Kong (China) and Singapore, each with around 32 million GT registered. Next is mainland China with 23 million GT, the Republic of Korea with 10 million, India with 8 million, Malaysia with 6 million, followed by Indonesia, the Islamic Republic of Iran and the Philippines with around 5 million each. Around one quarter of the world's bulk carriers fly an Asian flag, as well as one in four general cargo vessels. Approximately 21 per cent of the world's fleet of vessels above 100 GT is registered in Asia.

Table 57 shows a breakdown in the growth of the merchant fleet for 37 selected Asian countries. Jordan experienced the largest increase in its merchant fleet with an impressive 145 per cent; in actual vessel numbers the fleet increased by 325 vessels. Kazakhstan recorded a 70 per cent increase, although this is equivalent to just 33 extra vessels. Viet Nam recorded a respectable 27 per cent increase and Indonesia and Oman 20 per cent each. Countries which also recorded double-digit growth were Qatar (17), the Republic of Korea (15), Turkmenistan (15) and Malaysia (11). The age distribution of the Asian merchant fleet can be seen in table 58. Qatar had one of the youngest national fleets with an average age of 8 years, largely attributable to its young fleet of oil tankers and LNG (liquid natural gas) carriers (see chapter 1).

Table 56  
Asian merchant fleet, by flag of registration and type of ship <sup>a</sup>  
(Gross tonnage)

Flag	Bulk carriers	Container ships	General cargo	Oil tankers	Other types	Grand total
Azerbaijan			99 247	226 453	367 191	692 891
Bahrain	58 148	96 308	2 847	81 314	89 733	328 350
Bangladesh	51 632	45 193	255 697	58 805	33 033	444 360
Brunei Darussalam			1 667	1 066	475 742	478 475
Cambodia	452 600	38 479	1 290 451	79 943	89 909	1 951 382
China	9 227 147	3 246 674	4 808 133	4 575 902	1 630 571	23 488 427
Democratic People's Republic of Korea	160 551	17 436	725 968	60 046	88 625	1 052 626
Georgia	390 319	17 298	497 585	107 301	116 808	1 129 311
Hong Kong (China)	17 909 201	5 069 200	2 037 974	7 190 661	477 816	32 684 852
India	2 099 520	126 538	258 364	4 883 338	1 013 425	8 381 185
Indonesia	485 630	349 412	1 993 281	1 288 170	1 170 655	5 287 148
Iran (Islamic Republic of)	993 343	275 113	508 893	3 266 402	163 525	5 207 276
Iraq			40 380	30 308	71 537	142 225
Jordan	32 182	26 318	112 843	138 967	76 009	386 319
Kazakhstan			2 804	36 663	25 465	64 932
Kuwait	53 793	214 436	98 283	1 525 861	264 463	2 156 836
Lao People's Democratic Republic			2 853			2 853
Lebanon	50 328		96 214	842	9 573	156 957
Macao (China)					2 321	2 321
Malaysia	343 041	689 664	517 308	2 511 211	2 327 776	6 389 000
Maldives			82 237	8 126	9 568	99 931
Mongolia	137 144		247 732	25 364	16 912	427 152
Myanmar	208 206		156 740	2 935	29 382	397 263
Oman			1 585	412	18 336	20 333
Pakistan	36 098	18 012	129 768	214 822	15 920	414 620
Philippines	2 459 287	165 744	1 373 766	403 210	669 997	5 072 004
Qatar	15 071	184 168	39 176	327 918	85 947	652 280
Republic of Korea	5 845 155	1 224 068	1 142 086	1 275 509	990 300	10 477 118
Saudi Arabia		149 368	304 335	424 182	143 960	1 021 845
Singapore	6 492 161	4 639 269	3 058 171	16 119 713	1 864 608	32 173 922
Sri Lanka	7 170	24 531	113 995	8 467	19 921	174 084
Syrian Arab Republic	45 042	7 572	331 699	1 461	2 907	388 681
Taiwan Province of China	1 198 656	475 449	112 344	821 129	178 133	2 785 711
Thailand	918 540	258 839	1 143 269	370 270	191 785	2 882 703
Turkey	2 101 113	253 873	1 312 381	859 520	321 952	4 848 839
Turkmenistan	2 613		16 966	6 156	27 680	53 415
United Arab Emirates	86 531	214 436	94 902	293 913	180 544	870 326
Viet Nam	267 291	71 260	1 152 869	370 803	191 590	2 053 813
Yemen			5 461	10 710	12 998	29 169
Subtotal	52 127 513	17 898 658	24 170 274	47 607 873	13 466 617	155 270 935
Unknown	667 015	43 233	1 322 496	509 128	1 457 687	3 999 559
Grand total of world fleet	204 552 682	110 686 630	98 213 506	213 748 432	93 587 606	720 788 856
Asian percentage of world fleet	25.48%	16.17%	24.61%	22.27%	14.39%	21.54%

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Cargo-carrying vessels of 100 GT and above.



Table 57

Merchant fleet, by flag of registration, for 37 selected Asian countries/territories <sup>a</sup>*(In thousands of dwt) <sup>b</sup>*

	1 January 2005	1 January 2006	1 January 2007	Percentage change 2005–2006	Percentage change 2006–2007
<b>Azerbaijan</b>	551	568	602	3	6
<b>Bahrain</b>	380	396	410	4	4
<b>Bangladesh</b>	626	664	618	6	-7
<b>Brunei</b>	422	421	421	0	0
<b>Cambodia</b>	-	-	2 700	-	-
<b>China</b>	29 793	32 774	34 924	10	7
<b>Democratic People's Republic of Korea</b>	1 531	1 733	1 419	13	-18
<b>Georgia</b>	1 340	1 502	1 605	12	7
<b>Hong Kong (China)</b>	43 957	50 443	54 341	15	8
<b>India</b>	12 347	13 295	14 190	8	7
<b>Indonesia</b>	5 038	5 308	6 392	5	20
<b>Iran (Islamic Republic of)</b>	9 115	9 009	8 953	-1	-1
<b>Iraq</b>	210	175	176	-17	0
<b>Japan</b>	16 013	15 100	15 083	-6	0
<b>Jordan</b>	211	225	550	7	145
<b>Kazakhstan</b>	20	47	80	135	70
<b>Kuwait</b>	3 811	3 706	3 442	-3	-7
<b>Lao People's Democratic Republic</b>	-	-	5	-	-
<b>Macao (China)</b>	-	-	2	-	-
<b>Malaysia</b>	8 708	7 755	8 571	-11	11
<b>Mongolia</b>	-	-	629	-	-
<b>Myanmar</b>	656	645	574	-2	-11
<b>Oman</b>	10	11	13	10	20
<b>Pakistan</b>	472	652	673	38	3
<b>Philippines</b>	7 008	7 129	6 704	2	-6
<b>Qatar</b>	793	795	933	0	17
<b>Republic of Korea</b>	12 017	14 347	16 540	19	15
<b>Saudi Arabia</b>	2 581	1 278	1 229	-50	-4
<b>Seychelles</b>	70	136	145	94	7
<b>Singapore</b>	40 943	48 562	51 043	19	5
<b>Sri Lanka</b>	196	222	224	13	1
<b>Taiwan Province of China</b>	-	-	4 398	-	-
<b>Thailand</b>	4 383	4 591	4 320	5	-6
<b>Turkey</b>	7 048	7 621	7 223	8	-5
<b>Turkmenistan</b>	36	42	48	17	15
<b>Viet Nam</b>	2 127	2 479	3 144	17	27
<b>Yemen</b>	-	-	26	-	-
<b>World dwt total</b>	895 843	959 964	1 042 351	7	9
<b>Asian dwt</b>	212 413	231 631	252 361	9	9
<b>Asian market share of world dwt</b>	23.71%	24.13%	24.21%	0.42	0.08

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Cargo-carrying vessels of 100 GT and above.<sup>b</sup> Figures rounded to the nearest 000.

Table 58

Age distribution of the merchant fleet <sup>a</sup> for 34 selected Asian countries

Country/territory or grouping	Type	0–4 years	5–9 years	10–14 years	15–19 years	20 years and over	Average age <sup>b</sup>
<b>World fleet</b>	Bulk carriers	21.6	19.0	19.1	9.0	31.3	12.9
	Containerships	34.7	25.7	18.6	8.0	13.0	9.1
	General cargo	10.1	12.6	10.9	9.6	56.8	17.4
	Oil tankers	30.3	25.0	16.4	14.6	13.6	10.0
	Other types	19.6	14.4	10.7	9.1	46.3	15.1
	All	25.1	21.0	16.7	10.9	26.2	12.0
<b>Bahrain</b>	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	0.0	100.0	0.0	0.0	0.0	7.0
	General cargo	0.0	0.0	0.0	0.0	100.0	23.5
	Oil tankers	0.0	99.5	0.0	0.0	0.5	7.1
	Other types	36.0	14.3	6.4	3.1	40.2	12.5
	All	5.9	64.0	1.0	0.5	28.6	11.5
<b>Bangladesh</b>	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	0.0	0.0	0.0	0.0	100.0	23.5
	General cargo	0.0	0.1	0.0	14.0	85.9	22.6
	Oil tankers	0.0	0.0	0.0	5.6	94.4	23.1
	Other types	0.9	4.6	1.1	31.2	62.3	20.4
	All	0.0	0.2	0.0	9.9	89.8	22.8
<b>Brunei Darussalam</b>	General cargo	0.0	0.0	53.0	0.0	47.0	17.4
	Oil tankers	0.0	48.1	0.0	51.9	0.0	12.2
	Other types	0.0	17.4	0.3	0.1	82.2	20.6
	All	0.0	17.4	0.5	0.2	81.9	20.6
<b>Cambodia</b>	Bulk carriers	0.0	0.0	0.9	1.1	98.1	23.3
	Containerships	0.0	0.0	0.0	0.0	100.0	23.5
	General cargo	6.6	0.3	0.9	3.4	88.9	21.7
	Oil tankers	0.0	0.0	5.3	2.2	92.5	22.7
	Other types	0.0	0.0	4.3	8.2	87.5	22.5
	All	4.2	0.2	1.1	2.8	91.7	22.3
<b>China</b>	Bulk carriers	10.1	7.5	9.8	14.8	57.8	18.0
	Containerships	48.8	3.3	16.8	8.5	22.6	10.0
	General cargo	2.4	6.3	3.9	6.2	81.1	21.1
	Oil tankers	39.8	8.2	15.0	7.0	30.1	11.4
	Other types	15.2	8.3	10.7	9.2	56.6	17.0
	All	19.7	7.0	10.7	10.6	52.0	16.2
<b>Democratic People's Republic of Korea</b>	Bulk carriers	0.0	0.0	0.0	0.4	99.6	23.5
	Containerships	0.0	0.0	0.0	0.0	100.0	23.5
	General cargo	1.1	0.3	0.7	2.0	95.9	23.0
	Oil tankers	0.0	0.7	1.1	5.2	93.0	22.9
	Other types	0.0	0.0	3.5	6.9	89.6	22.6
	All	0.8	0.2	0.7	2.1	96.2	23.1
<b>Hong Kong (China)</b>	Bulk carriers	30.5	23.1	19.5	9.0	18.0	10.3
	Containerships	46.9	17.3	18.0	6.2	11.6	8.1
	General cargo	16.9	16.2	27.8	13.2	25.8	13.1
	Oil tankers	35.2	17.3	23.3	23.5	0.7	8.9
	Other types	61.1	2.1	20.0	2.6	14.1	7.5
	All	33.0	20.5	20.7	12.3	13.6	9.8

Table 58 (continued)

Country/territory or grouping	Type	0–4 years	5–9 years	10–14 years	15–19 years	20 years and over	Average age <sup>b</sup>
<b>India</b>	Bulk carriers	1.6	7.9	15.2	5.3	70.0	19.8
	Containerships	0.0	0.0	52.0	25.1	23.0	15.9
	General cargo	5.9	12.6	18.8	17.1	45.7	16.9
	Oil tankers	31.6	8.4	15.6	15.5	28.9	12.5
	Other types	3.3	5.8	1.1	26.3	63.5	20.0
	All	20.5	8.0	14.7	14.0	42.8	15.2
<b>Indonesia</b>	Bulk carriers	3.5	0.0	8.8	11.8	75.9	21.0
	Containerships	2.8	22.4	4.2	5.6	65.0	18.3
	General cargo	2.5	0.7	4.5	4.7	87.6	22.0
	Oil tankers	2.4	2.2	12.3	3.5	79.5	21.0
	Other types	4.2	5.0	14.6	11.7	64.5	19.3
	All	2.8	3.1	8.3	5.8	80.1	21.1
<b>Iran (Islamic Republic of)</b>	Bulk carriers	0.0	21.2	0.0	0.1	78.7	20.0
	Containerships	60.5	36.1	2.8	0.0	0.5	4.2
	General cargo	1.8	37.3	15.0	4.4	41.6	15.0
	Oil tankers	36.5	36.3	24.7	0.0	2.5	6.8
	Other types	1.9	0.5	2.7	4.0	90.8	22.4
	All	27.1	32.8	18.0	0.4	21.6	10.1
<b>Iraq</b>	General cargo	0.0	0.0	0.0	0.0	100.0	23.5
	Oil tankers	0.0	0.0	0.0	0.0	100.0	23.5
	Other types	0.0	0.6	4.9	0.0	94.5	22.8
	All	0.0	0.2	1.9	0.0	97.8	23.2
<b>Jordan</b>	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	0.0	0.0	0.0	0.0	100.0	23.5
	General cargo	0.0	0.0	0.0	24.9	75.1	21.9
	Oil tankers	0.0	0.0	0.0	0.0	100.0	23.5
	Other types	1.3	0.0	0.0	1.2	97.5	23.2
	All	0.0	0.0	0.0	6.6	93.3	23.1
<b>Kuwait</b>	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	0.0	44.0	0.0	0.0	56.0	16.2
	General cargo	0.4	0.0	0.5	0.0	99.1	23.4
	Oil tankers	15.2	22.4	0.0	54.9	7.5	13.0
	Other types	0.7	0.8	38.1	0.3	60.0	18.8
	All	12.4	21.0	2.9	44.3	19.5	14.2
<b>Lao People's Democratic Republic</b>	General cargo	0.0	0.0	66.6	0.0	33.4	15.8
	All	0.0	0.0	66.6	0.0	33.4	15.8
<b>Lebanon</b>	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	General cargo	0.0	0.0	0.0	0.0	100.0	23.5
	Oil tankers	0.0	0.0	53.7	0.0	46.3	17.3
	Other types	0.0	0.0	0.0	0.0	100.0	23.5
	All	0.0	0.0	0.4	0.0	99.6	23.5
<b>Macao (China )</b>	Other types	0.0	0.0	0.0	0.0	100.0	23.5
	All	0.0	0.0	0.0	0.0	100.0	23.5
<b>Malaysia</b>	Bulk carriers	14.7	32.6	25.5	6.8	20.4	11.6
	Containerships	14.1	30.0	18.8	19.0	18.0	12.1
	General cargo	3.8	3.1	11.4	6.4	75.4	20.5
	Oil tankers	41.6	22.1	9.9	14.7	11.6	8.8
	Other types	28.7	11.0	20.7	3.4	36.1	12.9
	All	31.0	19.4	14.8	11.0	23.8	11.2

Table 58 (continued)

Country/territory or grouping	Type	0–4 years	5–9 years	10–14 years	15–19 years	20 years and over	Average age <sup>b</sup>
<b>Maldives</b>	General cargo	0.0	0.0	0.1	1.3	98.6	23.4
	Oil tankers	0.0	0.0	0.0	0.0	100.0	23.5
	Other types	0.0	1.1	0.3	0.0	98.6	23.3
	All	0.0	0.0	0.1	1.1	98.8	23.4
<b>Myanmar</b>	Bulk carriers	0.0	60.7	13.7	19.0	6.6	10.7
	General cargo	0.7	12.4	16.4	17.4	53.0	18.3
	Oil tankers	0.0	0.0	0.0	0.0	100.0	23.5
	Other types	0.0	38.1	0.0	25.5	36.5	15.6
	All	0.2	43.4	14.2	18.5	23.7	13.5
<b>Oman</b>	General cargo	0.0	38.1	0.0	0.0	61.9	17.2
	Other types	6.5	14.2	15.2	2.8	61.3	17.8
	All	5.7	17.2	13.3	2.4	61.4	17.8
<b>Pakistan</b>	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	0.0	0.0	0.0	0.0	100.0	23.5
	General cargo	0.0	0.0	0.0	0.0	100.0	23.5
	Oil tankers	0.0	0.0	0.1	0.2	99.7	23.5
	Other types	6.8	18.3	0.0	0.0	75.0	19.0
	All	0.1	0.4	0.0	0.1	99.3	23.4
<b>Philippines</b>	Bulk carriers	15.4	32.1	25.2	5.1	22.2	11.7
	Containerships	0.0	0.0	95.2	0.0	4.8	12.6
	General cargo	2.7	4.8	10.7	7.2	74.6	20.4
	Oil tankers	49.1	3.1	10.9	5.6	31.2	10.8
	Other types	36.6	2.7	0.1	5.5	55.1	14.8
	All	15.8	20.7	20.9	5.5	37.0	13.9
<b>Qatar</b>	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	9.0	55.7	0.0	0.0	35.3	12.4
	General cargo	0.0	0.0	0.0	0.0	100.0	23.5
	Oil tankers	73.6	0.0	26.3	0.0	0.1	4.6
	Other types	71.0	8.5	0.0	0.0	20.5	6.8
	All	53.6	12.7	16.4	0.0	17.3	8.0
<b>Republic of Korea</b>	Bulk carriers	0.9	2.2	29.3	40.2	27.4	17.0
	Containerships	4.5	9.5	63.2	6.9	15.9	13.2
	General cargo	2.3	1.8	13.7	31.9	50.3	19.1
	Oil tankers	8.9	11.1	52.9	7.6	19.5	13.2
	Other types	3.6	3.1	8.8	25.5	59.0	19.5
	All	2.5	4.0	33.0	31.6	28.9	16.5
<b>Saudi Arabia</b>	Containerships	0.0	64.1	0.0	0.0	35.9	12.9
	General cargo	0.0	0.0	0.0	0.0	100.0	23.5
	Oil tankers	17.0	0.0	0.0	0.5	82.5	19.8
	Other types	3.0	35.0	7.4	1.1	53.6	16.2
	All	7.5	15.5	1.6	0.4	75.0	19.1
<b>Singapore</b>	Bulk carriers	26.5	22.1	28.2	16.5	6.7	9.8
	Containerships	22.0	27.9	29.2	11.0	9.8	10.1
	General cargo	20.6	14.4	14.7	3.7	46.7	14.8
	Oil tankers	20.2	14.9	18.0	30.3	16.7	12.7
	Other types	32.5	15.3	9.6	8.5	34.2	12.3
	All	22.5	18.0	21.1	22.5	15.9	11.8

Table 58 (continued)

Country/territory or grouping	Type	0–4 years	5–9 years	10–14 years	15–19 years	20 years and over	Average age <sup>b</sup>
Sri Lanka	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	0.0	0.0	0.0	0.0	100.0	23.5
	General cargo	0.0	0.0	0.0	11.4	88.6	22.8
	Oil tankers	0.0	0.0	0.0	9.2	90.8	22.9
	Other types	5.4	20.9	2.0	11.3	60.4	17.9
	All	0.4	1.4	0.1	9.0	89.1	22.6
Syrian Arab Republic	Bulk carriers	0.0	0.0	0.0	0.0	100.0	23.5
	Containerships	0.0	0.0	0.0	100.0	0.0	17.0
	General cargo	2.5	0.1	1.8	2.8	92.8	22.5
	Oil tankers	0.0	0.0	0.0	0.0	100.0	23.5
	Other types	13.6	0.0	0.0	0.0	86.4	20.6
	All	2.2	0.1	1.5	3.9	92.3	22.6
Taiwan Province of China	Bulk carriers	0.6	43.0	34.7	4.7	16.9	12.0
	Containerships	3.8	15.8	19.1	22.8	38.4	16.4
	General cargo	0.0	5.6	0.8	8.6	85.0	21.9
	Oil tankers	0.0	0.5	20.2	61.7	17.6	17.1
	Other types	0.4	0.7	9.7	62.6	26.6	18.1
	All	0.8	23.9	26.3	26.3	22.7	14.6
Thailand	Bulk carriers	0.0	8.3	21.9	6.6	63.2	19.2
	Containerships	35.8	9.4	41.8	4.4	8.6	9.2
	General cargo	0.3	5.9	11.0	7.4	75.3	20.7
	Oil tankers	1.5	0.0	2.9	13.7	81.9	21.9
	Other types	0.8	2.3	5.7	7.7	83.5	21.8
	All	3.3	6.0	15.9	7.8	67.0	19.5
Turkey	Bulk carriers	10.8	15.4	5.8	0.0	68.0	18.0
	Containerships	40.4	32.0	3.9	3.1	20.6	8.9
	General cargo	10.9	8.8	7.1	8.3	64.9	18.4
	Oil tankers	45.3	35.8	0.5	0.5	17.9	7.8
	Other types	10.9	3.4	4.9	11.6	69.1	19.3
	All	19.1	18.3	4.9	2.5	55.2	15.6
United Arab Emirates	Bulk carriers	37.9	38.0	12.9	10.8	0.5	6.9
	Containerships	0.0	44.0	0.0	0.0	56.0	16.2
	General cargo	6.1	2.9	12.6	2.1	76.3	20.1
	Oil tankers	21.6	9.8	7.3	3.4	58.0	16.2
	Other types	7.5	7.3	3.5	11.5	70.2	19.5
	All	15.9	19.3	6.5	4.6	53.7	15.9
Viet Nam	Bulk carriers	0.0	4.2	20.7	23.7	51.4	18.9
	Containerships	31.3	11.4	17.0	0.0	40.3	12.9
	General cargo	33.5	7.4	8.6	13.9	36.6	13.2
	Oil tankers	19.5	7.2	37.6	15.5	20.3	12.8
	Other types	1.4	6.6	3.1	5.6	83.2	21.4
	All	23.8	7.0	15.7	14.6	38.9	14.5
Yemen	General cargo	0.0	0.0	0.0	0.0	100.0	23.5
	Oil tankers	0.0	0.0	0.0	0.0	100.0	23.5
	Other types	0.0	3.0	19.6	18.8	58.6	19.5
	All	0.0	0.7	4.8	4.6	90.0	22.5

Source: Compiled by the UNCTAD secretariat on the basis of data supplied by Lloyd's Register – Fairplay.

<sup>a</sup> Vessels of 100 GT and above.

<sup>b</sup> To estimate the average age, it has been assumed that the ages of vessels are distributed evenly between the lower and upper limits of each age group. For the 20-years-and-over age group, the mid-point has been assumed to be 23.5 years.



## D. COUNTRY FOCUS

Box 2 contains a detailed account of recent and ongoing port developments in Viet Nam, which recently acceded to the WTO.

## E. OTHER DEVELOPMENTS

### *Quayside crane manufacturing*

Shanghai's Zhenhua Port Machinery Co. Ltd (ZPMC) has a 70 per cent share of the international port machinery market, a market which it has been leading since 1999. It employs some 30,000 people, and its output has been growing on an average of more than 50 per cent from 2001 to 2006; its output in 2006 was worth \$2.2 billion. In 2006 the company delivered 240 quayside cranes, plus 450 rubber-tyred gantry cranes.

### *Classification societies*

There are more than 50 classification societies worldwide; in Asia the largest classification societies include the Korean Register of Shipping with around 2,100 ships weighing some 25 million GT; Nippon Kaiji Kyokai or ClassNK with around 6,600 ships of 147 million GT; and the China Classification Society with around 1,700 vessels of around 18.5 million GT.

Membership of some registers is dominated by their own national tonnage — for example, the Indian Register of Shipping consists of 95 per cent Indian members.

### *Protection and Indemnity Clubs*

The international group of P&I (protection and indemnity) Clubs represents some 90 per cent of ocean-going world tonnage. There is only one Asian P&I Club — the Japan P&I Club. Outside the group there are a number of smaller niche clubs catering for national shipowners, such as the China P&I Club. However, the Britannia Club, based in London, has in effect become an Asian P&I Club, with more than 50 per cent of its membership from Asia. The American Club, based in New York, has approximately 27 per cent of its membership from Asia, whilst the SKULD P&I Club, based in Oslo, also has a significant Asian membership with 22 per cent from China alone. Most P&I Clubs have offices within the region targeted at servicing the growing Asian fleet. P&I premiums for 2006 saw a continuing trend of general rate increases ranging from zero to 12.5 per cent. However, on average shipowners experienced general rate increases of 7.11 per cent. One club reduced its deferred calls, as a result of which there was a reduction over the preceding year of minus 2.5 per cent. The general rate increase for 2007 was between 2.5 and 10 per cent, with an average of 6.65 per cent.

## Box 2

**Country focus: Viet Nam's port development programme**

Viet Nam is bounded by China to the north, the South China Sea to the east, and the Lao People's Democratic Republic and Cambodia to the west. The country's 64 provinces are centrally governed through the capital city, Hanoi, located in the north and served by the port of Hai Phong. Viet Nam's largest city, Ho Chi Minh City, formerly known as Saigon, is located in the south. The language most commonly spoken by its 85 million population is Vietnamese (86 per cent), while the remaining 14 per cent belong to 53 different ethnic groups. Viet Nam is a major exporter of rice and other agricultural products, including coffee and rubber. Fishing has also increased in importance over the last few years.

Viet Nam has approximately 114 seaports stretched along its 3,260 km long coastline, governed by its 23 port authorities. However, most of these ports tend to be in shallow water, of limited capacity and with poor hinterland connections. In a recent study of homogeneous cargo being shipped from various Asian ports to United States West Coast ports,<sup>a</sup> Viet Nam was 16 per cent more expensive than Shanghai, Ningbo or Shenzhen and 28 per cent more expensive than Hong Kong (China). This can be directly attributable to Viet Nam's lack of deepwater berthing facilities, which makes it necessary to trans-ship goods via a hub port. Currently, the largest container vessels calling at Viet Nam are around 1,500 TEUs or 25,000 GT. Although container trade has been growing on average by 19 per cent over the last decade, more growth could be expected if there were more deepwater ports catering to larger vessels. Viet Nam National Shipping lines (Vinalines) is the largest national carrier with 104 ships, of around 1.2 million tons, which in 2006 transported 20.2 million tons of cargo. In 2006 Viet Nam handled 2.8 million TEUs; more than 70 per cent of this trade was handled by ports located near Ho Chi Minh City.

**Northern Viet Nam**

In Hai Phong in 2004 work began on the second phase expansion plan to extend the container berth from 150 to 500 m to accommodate 50,000 tonne vessels and 500,000 TEUs annually. Elsewhere in Hai Phong the Dinh Vu Port, located next to Dinh Vu Industrial Zone, can handle ships of up to 30,000 dwt in size and 14 million tonnes of cargo annually. With a natural depth of 8.7 m this will be deepened to 10.2 m with dredging. In May 2007 work also began on a LPG storage depot.

In 2007 Cai Lan deepwater port in Quang Ninh Province, east of Hai Phong and bordering the Chinese province of Guangxi, completed its first phase of expansion. With a depth of 13 m the port can service ships of 30–40,000 dwt, and by 2010 it will increase its capacity to 16–17 million tonnes of cargo. Work has still to be carried out to connect the port to national road and rail systems. The container terminals will be developed and will be operated through a joint venture with Quang Ninh Port, SSA Marine and Vinalines.

In 2015 the \$1.6 billion Lach Huyen deepwater port project at Do Son, 22 km from Haiphong, is expected to become operational and capable of receiving vessels of 60–80,000 dwt. The port capacity will be around 5,060 million tonnes of cargo.

**Central Viet Nam**

Chan May deepwater port in Thua Thien-Hue Province became operational in 2003; situated next to Chan May Commercial Economic Zone, it is 55 kilometres south of Hue City, 45 kilometres north of Da Nang, near Asian Highway No 1 and the North–South railway system. The East–West Economic Corridor (EWEC) along Asian Highway No. 16 links the central region of Viet Nam, to the Lao People's Democratic Republic, Thailand and Myanmar. The port currently has a 130 m berth capable of handling vessels of 50,000 dwt. By 2010 Chan May is expected to handle 2.7 to 3.1 million tonnes of cargo a year.

Figure 17

## Map of Viet Nam



Source: UNCTAD secretariat.

Note: Estimated handling capacity along side of berth in dwt.

Construction has begun at Dung Quat deepwater seaport in Quang Ngai Province to build a second berth capable of handling vessels of up to 50,000-dwt, with \$21.7 million having been invested. The first Vietnamese private company, Gemadept-Dung Quat International Port Joint Stock Company, started work on a \$36.9 million project at Dung Quat Port. The one-year Phase One, costing \$25.3 million, began construction in July 2006. Upon completion it will be able to handle vessels of up to 30,000 dwt. Located next to the Dung Quat Economic Zone the port (company) Vinashin is building a 100,000 dwt shipyard in the region.

Ky Ha Port has been enlarged to cater for ships of 10,000 dwt and additional plans have been made to dredge the area to provide an alongside berth depth of 8.2 m. This too forms part of the overall infrastructure project for the Dung Quat Economic Zone.

Nhon Hoi Port in Binh Dinh Province is expected to have a capacity of 2 million tons per year by 2010, rising to 10 million by 2020. Ships of 30,000 dwt will be able to access the port. Like most other Vietnamese ports, it will be accompanied by an economic zone.

Approval was given in May 2006 to construct a transshipment port at the existing military port in Van Phong, in Khanh Hoa Province. Known as Van Phong International Transshipment Port, it is situated in the most easterly point of Viet Nam just 130km from international lanes. The approach channel is between 400 m and 6 km wide with a depth of 22 m. The bay has an area of approximately 43,500 ha, with depths ranging from 14 to 41 m; it can receive vessels of up to 350,000 dwt. It is already used as a ship-to-ship transshipment point for oil tankers in excess of 100,000 dwt. Phase one will cover 50 ha, comprising two berths totalling 700 m, and be capable of handling vessels up to 6,000 TEUs. Phase two, from 2010–2015, will cover 120 ha, with a total quay length of 1,700–2,300 m. This will be followed by a third and final phase of 400 ha (2015–2020) and 4,500–5,700 m quay length. The first stage of two berths is scheduled for completion in 2010 at an estimated cost of \$183 million.

### **Southern Viet Nam**

Saigon Port has entered into a number of joint ventures to establish container terminals in Ba Ria-Vung Tau Province to the south-east of Ho Chi Minh City.

Saigon Port Company and APM Terminals (owning 49 per cent) agreed to build a new container terminal with a draft of 14 m at Cai Mep Thuong, 15 miles south of Ho Chi Minh City and situated amongst eight industrial parks, at a cost of \$186 million. It is located upstream of the Cai Mep international container terminal (which is a joint venture with SSA Marine). Total quay length will be 600 m with a capacity of 1.0 million TEUs and vessels of 80,000 dwt. Construction of the first quay of 300 m started in early 2007 and should be completed by the end of the year. Phase two, construction of the second terminal, should be completed in 2010.

Saigon Port Company and PSA International (owning 49 per cent) are to build Thi Vai Port in Ba Ria-Vung Tau Province, downstream from Thi Vai International General Port, and the Hiep Phuoc project in Ho Chi Minh City planned to start operation by 2010. Phase I of the project will cost \$165 million with Phase II costing a further \$137 million and be completed by 2017. The total project will consist of four berths with an annual capacity of 1.5 million TEUs, handling vessels of up to 80,000 dwt.

Saigon Port Company and SSA Marine (owning 49 per cent) are to construct the SP-SSA International Container Terminal (SSIT), situated at Cai Mep. The \$160 million project will comprise two berths totalling 600 m. Annual throughput will be around 1.35 million TEUs and the terminal is expected to be operational by 2009.

Hutchison Port Holdings (HPH) and Saigon Investment Construction & Commerce Company Ltd (SICC) have signed a 50-year concession to jointly convert the existing greenfield site in Ba Ria Vung Tau province in Viet Nam into a new container terminal. The Cai Mep and Thi Vai area of Ba Ria Vung Tau Province is an area designated to be a deepsea port under the Vietnamese Government's Detailed Master Plan. The new terminal is expected to become operational in 2011 and will have a quay length of 730 m, with a depth alongside of 14 m, a total yard area of 33 ha and 1.1 million TEU capacity.

Tan Thuan Industrial Promotion Company and DP World (owning 80 per cent) are in a joint venture to build, equip and operate a new \$230 million development at Hiep Phuoc (SPCT). The new container terminal is situated on a greenfield site along the western shore of the Soa Rap river in Hiep Phuoc Industrial Park. The new terminal, Saigon Premier Container Terminal (SPCT), should be operational in the second half of 2008. Once completed, it will have four berths totalling 950 m with an annual capacity of 1.5 million TEU.

Phu My General Port situated on the Thi Vai River, a natural channel permitting vessels of up to 80,000 dwt, will also be home to a 33.7 ha industrial park. The port itself will be able to handle vessels of up to 60,000 dwt. A 730 m long quay, a CFS and other storage facilities will be provided at a cost of \$191.7 million.

The Sao Mai-Ben Dinh Port and Petrol Service Complex located in Ba Ria-Vung Tau Province is a Vietnamese joint venture between Vinalines and PetroVietnam (Vietnam Oil and Gas Corporation) and will include oil and gas supply, a petroleum depot, shipyard(s), oil platform assembly facilities and container handling services. The port will have an annual capacity of 50 million tons and be able to handle ships of up to 100,000 dwt. China Merchants Holdings (International) has an interest in the six new container berths.

A number of projects are planned along the Mekong River. The Tien River Seaports (Cao Lanh-Sa Dec, My Tho, Vinh Thai and Ham Luong) are to cater for vessels up to 5,000 dwt. The Hau River Seaports (Can Tho, Hoang Dieu, Cai Cui, Tra Noc, My Thoi, Dai Ngai and Tra Cu) are to cater for vessels up to 20,000 dwt.

Along the Ca Mau peninsula, the Con Dao port complex is planned for construction between 2010 and 2020. A commercial port will be developed at Ben Dam Bay.

## Conclusion

Port development in Viet Nam is being given high priority by the Government, with numerous projects either proposed or initiated. Foreign expertise provided by global terminal operators is limited to a handful of projects in the south. Connecting road and rail infrastructure from the port to the hinterland is still a concern, and the use of economic zones may be a useful initial step in order to attract foreign direct investment. Port growth will, however, in the short term be dependent on import/export cargo, which should grow following Viet Nam's accession to the WTO. Likewise, the completion of the EWEC may benefit the port of Da Nang. Transshipment cargo will not be significant until Van Phong port in central Viet Nam becomes operational in 2010.

*Source:* Derived from *Emerging Maritime Nations Report: Vietnam*, Dynamar B.V. (2007), and various other sources obtained by the UNCTAD secretariat.

<sup>a</sup> See C.W. Runckel. (2006), Ports in Viet Nam stunting amid economic development, [www.business-in-asia.com/ports-in-vietnam.html](http://www.business-in-asia.com/ports-in-vietnam.html), accessed on 16 August 2007.

## Endnotes

<sup>84</sup> In 2004 intraregional trade in Asia accounted for 29.5 per cent of global trade, whereas intraregional European trade accounted for 8 per cent.





## Annex I

Classification of countries and territories<sup>a b c d</sup>**I. Developed countries**

<b>Code 1</b>	Bermuda	Saint Pierre and Miquelon
	Canada	United States of America
	Greenland	
<b>Code 2</b>	Austria	Latvia
	Belgium	Lithuania
	Bulgaria	Luxembourg
	Cyprus	Malta
	Czech Republic	Martinique
	Denmark	Monaco
	Estonia	Netherlands
	Faeroe Islands	Norway
	Finland	Poland
	France	Portugal
	French Guiana	Reunion
	Guadeloupe	Romania
	Germany	Slovakia
	Gibraltar	Slovenia
	Greece	Spain
	Hungary	Sweden
	Iceland	Switzerland
	Ireland	United Kingdom of Great Britain and Northern Ireland
	Italy	
<b>Code 3</b>	Israel	Japan
<b>Code 4</b>	Australia	New Zealand

**II. Economies in transition**

<b>Code 5.1 In Europe</b>	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  
 Azerbaijan  
 Georgia  
 Kazakhstan

 Kyrgyzstan  
 Tajikistan  
 Turkmenistan  
 Uzbekistan

**III. Developing countries**
**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 Congo  
 Equatorial Guinea  
 Gabon  
 Sao Tome and Principe

**Code 6.5**  
**Southern Africa**

 Botswana  
 Lesotho  
 Namibia

 South Africa  
 Swaziland

<b>Code 7.1</b> <b>Caribbean</b>	Anguilla	Haiti
	Antigua & Barbuda	Jamaica
	Aruba	Montserrat
	Bahamas	Netherlands Antilles
	Barbados	Saint Kitts and Nevis
	British Virgin Islands	Saint Lucia
	Cayman Islands	Saint Vincent and Grenadines
	Cuba	Trinidad and Tobago
	Dominica	Turks and Caicos Islands
	Dominican Republic	US Virgin Islands
	Grenada	
<b>Code 7.2</b> <b>Central America</b>	Belize	Honduras
	Costa Rica	Mexico
	El Salvador	Nicaragua
	Guatemala	Panama
<b>Code 7.3</b> <b>South America -</b> <b>Northern Seaboard</b>	Guyana	Venezuela
	Suriname	
<b>Code 7.4</b> <b>South America -</b> <b>Western Seaboard</b>	Chile	Ecuador
	Colombia	Peru
<b>Code 7.5</b> <b>South America -</b> <b>Eastern Seaboard</b>	Argentina	Falkland Islands (Malvinas) °
	Bolivia	Paraguay
	Brazil	Uruguay
<b>Code 8.1</b> <b>Western Asia</b>	Bahrain	Qatar
	Iraq	Saudi Arabia
	Jordan	Syrian Arab Republic
	Kuwait	Turkey
	Lebanon	United Arab Emirates
	Oman	Yemen
<b>Code 8.2</b> <b>Southern Asia</b>	Afghanistan	Maldives
	Bangladesh	Nepal
	Bhutan	Pakistan
	India	Sri Lanka
	Iran, Islamic Republic of	

<b>Code 8.3</b> <b>Eastern Asia</b>	China	Macao, China
	Democratic People's Republic of Korea	Mongolia
	Hong Kong, China	Republic of Korea
		Taiwan Province of China
<b>Code 8.4</b> <b>South-Eastern Asia</b>	Brunei Darussalam	Philippines
	Cambodia	Thailand
	Indonesia	Timor-Leste
	Lao People's Democratic Republic	Singapore
	Malaysia	Viet Nam
	Myanmar	
<b>Code 9</b> <b>Oceania</b>	American Samoa	New Caledonia
	Christmas Island (Australia)	Papua New Guinea
	Fiji	Samoa
	French Polynesia	Solomon Islands
	Guam	Tonga
	Kiribati	Tuvalu
	Marshall Islands	Vanuatu
	Nauru	Wake Islands

### Endnotes to Annex I

- <sup>a</sup> 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.
- <sup>b</sup> The following are groups of countries or territories used for presenting statistics in this *Review*:
- Developed Countries and Territories:** Codes 1, 2, 3 and 4
- Economies in Transition:** Codes 5.1 and 5.2
- Developing Countries and Territories:** 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                           |
- <sup>c</sup> In certain tables, where appropriate, open-registry countries are recorded in a separate group.
- <sup>d</sup> 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.
- <sup>e</sup> 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 <sup>a</sup> by country groups, 2006

(In millions of tons)

Area <sup>a</sup>	Goods loaded			Total goods loaded	Goods unloaded			Total goods loaded
	Oil		Dry cargo		Oil		Dry cargo	
	Crude	Products <sup>b</sup>			Crude	Products <sup>b</sup>		
Developed countries								
North America	22.6	77.1	443.5	543.2	532.9	164.0	459.6	1 156.5
Europe	66.5	101.5	1 105.9	1 273.9	446.9	138.8	1 628.0	2 213.7
Japan and Israel	-	4.8	195.7	200.5	202.0	39.2	623.4	864.6
Australia and New Zealand	10.9	3.9	650.7	665.5	25.6	7.6	55.0	88.2
Subtotal:								
Developed countries	100.0	187.3	2 395.8	2 683.1	1 207.4	349.6	2 766.0	4 323.0
Economies in transition	108.4	43.3	50.9	202.6	4.3	2.8	43.1	50.2
Developing countries and territories								
North Africa	133.8	36.0	59.3	229.1	20.7	10.9	98.8	130.4
West Africa	221.0	8.8	38.2	268.0	5.8	12.2	54.1	72.1
East Africa	12.8	1.1	20.0	33.9	2.4	7.4	26.7	36.5
Central Africa	109.8	5.5	5.6	120.9	-	0.9	9.0	9.9
Southern Africa	-	1.7	138.1	139.8	25.6	2.1	29.3	57.0
Subtotal: Developing countries in Africa	477.4	53.1	261.2	791.7	54.5	33.5	217.9	305.9
Caribbean and Central America	120.9	24.1	71.7	216.7	28.2	35.9	82.0	146.1
South America: northern and eastern seaboard	133.9	68.3	471.3	673.5	32.3	9.4	65.3	107.0
South America: western seaboard	29.2	9.7	123.4	162.3	10.8	7.1	40.6	58.5
Subtotal: Developing countries in America	284.0	102.1	666.4	1 052.5	71.3	52.4	187.9	311.6
West Asia	897.2	112.8	162.6	1 172.6	37.7	30.5	343.5	411.7
South and East Asia (n.e.s.)	35.6	81.6	814.6	931.8	439.4	110.3	1 060.6	1 610.3
South-East Asia	83.9	102.7	387.8	574.4	126.3	97.9	211.2	435.4
Subtotal: Developing countries in Asia	1 016.7	297.1	1 365.0	2 678.8	603.4	238.7	1 615.3	2 457.4
Developing countries in Oceania (n.e.s.)	4.3	0.1	2.2	6.6	-	6.5	5.8	12.3
Subtotal:								
Developing countries	1 782.4	452.4	2 294.8	4 529.6	729.2	331.1	2 026.9	3 087.2
World total	1 990.8	683.0	4 741.7	7 415.5	1 940.9	683.5	4 836.0	7 460.4

Sources: Compiled by the UNCTAD secretariat on the basis of data supplied by reporting countries, specialized sources and ports' websites.

<sup>a</sup> See annex I for the composition of groups.

<sup>b</sup> 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, <sup>a</sup> groups of countries and types of ship <sup>b</sup>**  
**as of 1 January 2007**  
*(In thousands of GT)*

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
<b>DEVELOPING COUNTRIES/TERRITORIES OF AFRICA</b>						
Algeria	764	16	140	64	0	544
Angola	56	5	0	10	0	41
Benin	1	0	0	0	0	1
Cameroon	55	39	0	2	0	14
Cape Verde	30	3	0	9	0	17
Comoros	727	140	131	369	4	83
Congo	4	0	0	0	0	4
Democratic Republic of the Congo	14	1	0	0	0	12
Côte d'Ivoire	9	1	0	0	0	8
Djibouti	5	0	0	1	0	4
Egypt	1 142	203	448	286	48	157
Equatorial Guinea	29	0	0	3	0	26
Eritrea	21	2	0	17	0	3
Ethiopia	100	0	0	100	0	0
Gabon	14	1	0	4	0	9
Gambia	35	4	0	27	0	4
Ghana	116	3	0	12	0	101
Guinea	18	0	0	1	0	18
Guinea-Bissau	7	0	0	1	0	5
Kenya	18	5	0	3	0	10
Libyan Arab Jamahiriya	105	8	0	55	0	42
Madagascar	34	5	0	15	0	14
Mauritania	52	0	0	1	0	51
Mauritius	69	0	6	17	0	46
Morocco	527	78	0	55	86	308
Mozambique	36	0	0	6	0	31
Namibia	103	0	0	2	0	101
Nigeria	363	223	10	19	0	112
Sao Tome and Principe	33	1	4	24	0	4
Senegal	43	0	0	1	0	41
Seychelles	116	68	0	4	0	43
Sierra Leone	294	58	6	170	3	58
Somalia	10	1	0	5	0	5
South Africa	173	6	0	0	27	139
Saint Helena	2	0	0	0	0	2
Sudan	26	1	0	22	0	3
Togo	18	0	0	4	0	14
Tunisia	168	44	17	3	0	104
United Republic of Tanzania	37	8	0	20	0	10
<i>DEVELOPING COUNTRIES/ TERRITORIES OF AFRICA Total</i>	5 374	922	761	1 333	168	2 189

## Annex III (a) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
<b>DEVELOPING COUNTRIES/TERRITORIES OF AMERICA</b>						
Anguilla	1	0	0	1	0	0
Argentina	838	365	103	81	13	276
Aruba	0	0	0	0	0	0
Barbados	607	156	189	176	0	86
Belize	1 438	38	222	847	16	314
Bolivia	107	47	4	33	0	23
Brazil	2 281	1 040	480	244	195	321
Cayman Islands	2 890	1 318	1 029	423	0	119
Chile	936	291	194	149	17	285
Colombia	96	8	0	45	0	43
Costa Rica	4	0	0	0	0	4
Cuba	65	20	6	8	0	30
Dominica	614	268	204	97	5	40
Dominican Republic	10	0	0	5	0	5
Ecuador	281	168	0	2	0	110
El Salvador	7	0	0	0	0	7
Falkland Islands <sup>d</sup>	52	0	0	1	0	51
Grenada	3	0	0	1	0	2
Guatemala	6	0	0	0	0	5
Guyana	37	5	0	20	0	13
Haiti	1	0	0	1	0	0
Honduras	735	154	62	261	2	256
Jamaica	121	2	77	38	0	4
Mexico	1 162	628	19	78	0	437
Netherlands Antilles	1 412	37	159	689	295	231
Nicaragua	6	1	0	0	0	4
Paraguay	44	3	0	36	1	5
Peru	235	15	0	25	0	195
Saint Kitts and Nevis	473	128	67	261	0	16
Suriname	5	2	0	3	0	1
Trinidad and Tobago	39	4	0	3	0	32
Turks and Caicos Islands	1	0	0	0	0	1
Uruguay	97	9	0	7	0	81
Venezuela	1 034	496	164	36	3	335
British Virgin Islands	17	0	0	1	0	15
<i>DEVELOPING COUNTRIES/ TERRITORIES OF AMERICA Total</i>						
	15 653	5 204	2 980	3 574	546	3 349
<b>DEVELOPING COUNTRIES/TERRITORIES OF ASIA</b>						
Bahrain	328	81	58	3	96	90
Bangladesh	444	59	52	256	45	33
Brunei Darussalam	478	1	0	2	0	476
Cambodia	1 951	80	453	1 290	38	90
China	23 488	4 576	9 227	4 808	3 247	1 631
Hong Kong (China)	32 685	7 191	17 909	2 038	5 069	478
India	8 381	4 883	2 100	258	127	1 013

## Annex III (a) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
Indonesia	5 287	1 288	486	1 993	349	1 171
Iran (Islamic Republic of)	5 207	3 266	993	509	275	164
Iraq	142	30	0	40	0	72
Jordan	386	139	32	113	26	76
Democratic People's Republic of Korea	1 053	60	161	726	17	89
Republic of Korea	10 477	1 276	5 845	1 142	1 224	990
Kuwait	2 157	1 526	54	98	214	264
Lao People's Democratic Republic	3	0	0	3	0	0
Lebanon	157	1	50	96	0	10
Macao (China)	2	0	0	0	0	2
Malaysia	6 389	2 511	343	517	690	2 328
Maldives	100	8	0	82	0	10
Mongolia	427	25	137	248	0	17
Myanmar	397	3	208	157	0	29
Oman	20	0	0	2	0	18
Pakistan	415	215	36	130	18	16
Philippines	5 072	403	2 459	1 374	166	670
Qatar	652	328	15	39	184	86
Saudi Arabia	1 022	424	0	304	149	144
Singapore	32 174	16 120	6 492	3 058	4 639	1 865
Sri Lanka	174	8	7	114	25	20
Syrian Arab Republic	389	1	45	332	8	3
Taiwan Province of China	2 786	821	1 199	112	475	178
Thailand	2 883	370	919	1 143	259	192
Turkey	4 849	860	2 101	1 312	254	322
United Arab Emirates	870	294	87	95	214	181
Viet Nam	2 054	371	267	1 153	71	192
Yemen	29	11	0	5	0	13
<i>DEVELOPING COUNTRIES/ TERRITORIES OF ASIA Total</i>	153 330	47 231	51 735	23 554	17 881	12 929
<b>DEVELOPING COUNTRIES/TERRITORIES OF OCEANIA</b>						
American Samoa	4	0	0	0	0	4
Fiji	32	0	0	9	0	23
French Polynesia	46	0	0	21	0	26
Guam	3	0	0	0	0	3
Kiribati	28	0	16	10	0	1
New Caledonia	9	0	0	2	0	7
Papua New Guinea	85	2	6	62	0	14
Samoa	10	0	0	8	0	2
Solomon Islands	10	0	0	2	0	8
Tonga	79	1	6	57	0	15
Vanuatu	1 969	95	875	361	25	613
Tuvalu	359	101	53	143	9	53
<i>DEVELOPING COUNTRIES/ TERRITORIES OF OCEANIA Total</i>	2 635	200	956	676	35	769
<i>DEVELOPING COUNTRIES/ TERRITORIES TOTAL</i>	176 993	53 557	56 432	29 137	18 631	19 236



## Annex III (a) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
<b>DEVELOPED COUNTRIES AND TERRITORIES</b>						
Australia	1 853	240	463	141	7	1 001
Austria	34	0	0	30	4	0
Belgium	4 313	1 440	1 513	102	302	955
Bulgaria	875	21	615	126	66	47
Canada	2 788	508	1 135	130	16	998
Denmark	8 777	1 837	335	455	4 973	1 176
Estonia	417	10	0	25	0	381
Finland	1 423	255	54	416	10	687
France	6 096	2 483	176	129	1 606	1 702
French Guyana	1	0	0	0	0	0
Germany	11 364	456	156	313	9 787	652
Greece	32 048	17 511	10 034	388	2 330	1 785
Guadeloupe	8	0	0	1	0	7
Iceland	184	0	0	1	0	182
Ireland	193	13	0	90	5	86
Israel	764	2	0	4	748	9
Italy	12 571	3 357	2 132	2 366	973	3 743
Japan	12 798	2 539	2 561	2 013	425	5 261
Latvia	333	143	0	47	0	143
Lithuania	449	3	60	200	3	182
Luxembourg	780	170	205	114	80	212
Martinique	1	0	0	0	0	0
Netherlands	5 818	336	3	2 236	1 341	1 902
New Zealand	338	54	12	124	0	148
Norway	18 222	6 666	2 575	3 959	167	4 855
Poland	193	9	0	46	0	138
Portugal	1 224	452	100	283	38	351
Reunion	3	0	0	0	0	3
Romania	272	32	0	85	0	156
Slovakia	233	3	52	177	0	1
Slovenia	2	0	0	0	0	2
Spain	3 005	608	27	341	264	1 766
Saint Pierre and Miquelon	1	0	0	0	0	1
Sweden	3 876	639	33	2 149	0	1 055
Switzerland	510	21	252	64	169	4
United Kingdom of Great Britain and Northern Ireland	13 448	1 401	1 194	2 099	5 868	2 887
United States	11 209	2 703	1 216	1 453	2 928	2 909
US Virgin Islands	2	0	0	0	0	2
<i>DEVELOPED COUNTRIES/ TERRITORIES Total</i>	156 426	43 913	24 901	20 110	32 112	35 390

## Annex III (a) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
<b>COUNTRIES IN TRANSITION</b>						
Albania	75	0	0	73	0	1
Croatia	1 157	316	590	119	0	132
Moldova	16	0	0	16	0	0
Montenegro	11	0	0	9	0	1
Russian Federation	8 046	1 334	692	2 977	115	2 927
Ukraine	1 136	31	100	601	29	376
Georgia	1 129	107	390	498	17	117
Kazakhstan	65	37	0	3	0	25
Turkmenistan	53	6	3	17	0	28
<i>COUNTRIES IN TRANSITION Total</i>	11 688	1 831	1 775	4 314	160	3 608
<b>MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES</b>						
Antigua and Barbuda	7 947	23	742	2 507	4 586	89
Bahamas	40 831	14 442	7 986	6 383	1 962	10 058
Bermuda	8 413	1 072	1 852	199	782	4 508
Cyprus	19 032	3 520	9 709	1 892	3 300	611
Isle of Man	8 632	5 005	1 673	503	239	1 211
Liberia	68 405	29 522	11 722	3 626	19 480	4 055
Malta	24 850	7 740	11 900	3 275	1 224	710
Marshall Islands	32 840	18 747	6 591	1 384	4 133	1 986
Panama	154 965	33 971	66 248	20 701	23 937	10 107
Saint Vincent and the Grenadines	6 107	164	2 519	2 798	98	529
<i>MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES Total</i>	372 022	114 207	120 942	43 267	59 743	33 864
Unknown flag	4 000	509	667	1 322	43	1 458
<b>WORLD TOTAL <sup>c</sup></b>	721 130	214 018	204 717	98 151	110 689	93 555



## Annex III (b)

**Merchant fleets of the world by flags of registration, <sup>a</sup> groups of countries and types of ship <sup>b</sup>  
as of 1 January 2007**

*(In thousands of dwt)*

	<b>Total fleet</b>	<b>Oil tankers</b>	<b>Bulk carriers</b>	<b>General cargo <sup>c</sup></b>	<b>Container ships</b>	<b>Other types</b>
<b>DEVELOPING COUNTRIES/TERRITORIES OF AFRICA</b>						
Algeria	777	26	234	75	0	442
Angola	47	8	0	12	0	26
Benin	0	0	0	0	0	0
Cameroon	79	69	0	3	0	6
Cape Verde	23	4	0	13	0	6
Comoros	1 010	243	224	480	5	57
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	4	0	0	3	0	1
Egypt	1 646	345	778	332	58	134
Equatorial Guinea	19	1	0	6	0	13
Eritrea	25	3	0	19	0	3
Ethiopia	125	0	0	125	0	0
Gabon	8	1	0	4	0	3
Gambia	12	5	0	5	0	2
Ghana	87	5	0	15	0	67
Guinea	9	0	0	0	0	9
Guinea-Bissau	2	0	0	0	0	2
Kenya	16	8	0	2	0	6
Libyan Arab Jamahiriya	99	13	0	62	0	24
Madagascar	32	7	0	18	0	6
Mauritania	25	0	0	1	0	24
Mauritius	66	0	8	15	0	43
Morocco	365	113	0	41	90	122
Mozambique	27	0	0	11	0	17
Namibia	56	0	0	4	0	52
Nigeria	524	384	13	28	0	99
Sao Tome and Principe	42	1	7	32	0	2
Senegal	18	0	0	2	0	17
Seychelles	145	111	0	4	0	30
Sierra Leone	372	105	7	232	5	23
Somalia	10	2	0	5	0	4
South Africa	110	10	0	0	30	70
Saint Helena	1	0	0	0	0	1
Sudan	29	1	0	26	0	1
Togo	12	0	0	4	0	8
Tunisia	122	67	26	3	0	25
United Republic of Tanzania	39	14	0	23	0	2
<b>DEVELOPING COUNTRIES/ TERRITORIES OF AFRICA Total</b>	<b>6 007</b>	<b>1 548</b>	<b>1 299</b>	<b>1 606</b>	<b>187</b>	<b>1 367</b>

## Annex III (b) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
<b>DEVELOPING COUNTRIES/TERRITORIES OF AMERICA</b>						
Anguilla	1	0	0	1	0	0
Argentina	1 163	627	170	116	18	232
Aruba	0	0	0	0	0	0
Barbados	850	242	314	218	0	76
Belize	1 694	54	340	1 040	15	245
Bolivia	144	78	7	48	0	11
Brazil	3 315	1 663	820	286	227	319
British Virgin Islands	11	0	0	1	0	10
Cayman Islands	4 666	2 237	1 801	489	0	139
Chile	1 148	498	324	96	21	208
Colombia	121	13	0	64	0	44
Costa Rica	0	0	0	0	0	0
Cuba	82	32	9	10	0	31
Dominica	1 030	486	387	123	6	28
Dominican Republic	7	0	0	6	0	1
Ecuador	355	291	0	3	0	61
El Salvador	2	0	0	0	0	2
Falkland Islands <sup>d</sup>	37	0	0	0	0	37
Grenada	1	0	0	1	0	0
Guatemala	4	1	0	0	0	4
Guyana	37	7	0	23	0	7
Haiti	1	0	0	1	0	0
Honduras	838	281	108	348	2	99
Jamaica	172	3	131	37	0	0
Mexico	1 501	1 026	28	67	0	381
Netherlands Antilles	1 850	56	299	838	367	289
Nicaragua	3	1	0	1	0	1
Paraguay	51	4	0	43	2	1
Peru	151	27	0	37	0	87
Saint Kitts and Nevis	678	206	107	351	0	13
Suriname	7	3	0	3	0	0
Trinidad and Tobago	15	4	0	0	0	11
Turks and Caicos Islands	0	0	0	0	0	0
Uruguay	66	14	0	9	0	44
Venezuela	1 554	862.927	274.037	47.011	3.39	366.932
<i>DEVELOPING COUNTRIES/ TERRITORIES OF AMERICA Total</i>	21 555	8 719	5 120	4 307	663	2 746
<b>DEVELOPING COUNTRIES/TERRITORIES OF ASIA</b>						
Bahrain	410	154	85	4	100	67
Bangladesh	618	103	89	347	61	18
Brunei Darussalam	421	2	0	2	0	417
Cambodia	2 699	129	736	1 730	49	55
China	34 781	7 716	15 779	6 331	3 873	1 082
Democratic People's Republic of Korea	1 445	101	265	1 005	23	51
Hong Kong (China)	54 734	13 095	32 689	2 679	5 778	492
India	13 904	8 767	3 572	295	167	1 104



## Annex III (b) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
Indonesia	6 268	2 052	788	2 535	462	431
Iran (Islamic Republic of)	8 953	6 082	1 708	693	348	121
Iraq	176	51	0	55	0	70
Jordan	543	293	53	144	34	20
Republic of Korea	16 456	2 287	10 690	1 352	1 420	707
Kuwait	3 443	2 776	93	86	227	261
Lao People's Democratic Republic	5	0	0	5	0	0
Lebanon	191	1	80	102	0	8
Macao (China)	2	0	0	0	0	2
Malaysia	8 571	4 459	593	590	843	2 086
Maldives	133	18	0	110	0	5
Mongolia	627	45	230	337	0	15
Myanmar	574	5	362	194	0	14
Oman	13	1	0	2	0	10
Pakistan	673	388	66	184	21	14
Philippines	6 698	647	4 008	1 584	183	276
Qatar	933	581	22	52	202	76
Saudi Arabia	1 244	699	0	320	156	69
Singapore	50 981	28 934	12 028	2 594	5 576	1 848
Sri Lanka	224	15	12	153	32	12
Syrian Arab Republic	569	2	71	486	8	2
Taiwan Province of China	4 378	1 404	2 182	154	579	59
Thailand	4 318	656	1 514	1 655	348	145
Turkey	7 254	1 544	3 605	1 654	316	135
United Arab Emirates	1 119	491	142	101	227	158
Viet Nam	3 144	613	432	1 795	80	223
Yemen	26	17	0	2	0	6
<i>DEVELOPING COUNTRIES/</i>						
<i>TERRITORIES OF ASIA Total</i>	236 527	84 127	91 894	29 329	21 114	10 062
<b>DEVELOPING COUNTRIES/TERRITORIES OF OCEANIA</b>						
American Samoa	1	0	0	0	0	1
Fiji	15	0	0	7	0	9
French Polynesia	31	0	0	24	0	7
Guam	2	0	0	0	0	2
Kiribati	41	1	27	12	0	1
New Caledonia	5	0	0	3	0	2
Papua New Guinea	98	3	9	79	0	7
Samoa	10	0	0	9	0	1
Solomon Islands	5	0	0	2	0	4
Tonga	88	1	7	72	0	9
Tuvalu	519	173	87	222	13	25
Vanuatu	2 490	191	1 454	235	29	581
<i>DEVELOPING COUNTRIES/</i>						
<i>TERRITORIES OF OCEANIA Total</i>	3 306	370	1 584	665	41	647
<i>DEVELOPING COUNTRIES/</i>						
<i>TERRITORIES TOTAL</i>	267 395	94 764	99 896	35 908	22 006	14 822

## Annex III (b) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
<b>DEVELOPED COUNTRIES/TERRITORIES</b>						
Australia	2 125	357	717	130	10	911
Austria	44	0	0	38	6	0
Belgium	6 982	2 746	2 953	48	311	924
Bulgaria	1 248	31	984	136	78	20
Canada	3 235	848	1 735	125	17	510
Denmark	10 436	3 155	647	400	5 681	554
Estonia	126	16	0	27	0	84
Finland	1 010	417	85	346	14	147
France	7 627	4 478	346	68	1 779	956
French Guyana	0	0	0	0	0	0
Germany	13 264	756	324	404	11 453	327
Greece	54 613	32 262	18 701	446	2 576	628
Guadeloupe	5	0	0	2	0	4
Iceland	78	0	1	1	0	76
Ireland	184	18	0	123	7	35
Israel	894	4	0	5	880	5
Italy	13 279	5 533	3 950	1 473	1 067	1 256
Japan	15 096	4 729	4 584	2 185	439	3 158
Latvia	379	245	0	47	0	87
Lithuania	415	6	87	243	4	75
Luxembourg	1 052	266	364	59	96	267
Martinique	1	0	0	1	0	0
Netherlands	5 828	529	6	2 782	1 496	1 015
New Zealand	285	89	17	131	0	48
Norway	23 950	11 616	4 674	3 274	199	4 187
Poland	126	13	0	41	0	72
Portugal	1 413	826	170	217	44	156
Reunion	2	0	0	0	0	2
Romania	277	51	0	103	0	123
Slovakia	330	4	76	249	0	1
Slovenia	0	0	0	0	0	0
Spain	2 689	1 089	43	219	332	1 006
Saint Pierre and Miquelon	0	0	0	0	0	0
Sweden	2 484	979	47	1 193	0	265
Switzerland	810	29	451	90	236	5
United Kingdom of Great Britain and Northern Ireland	14 493	2 229	2 275	1 829	6 647	1 512
United States	12 410	4 694	2 323	866	3 102	1 425
US Virgin Islands	1	0	0	0	0	1
<i>DEVELOPED COUNTRIES/ TERRITORIES Total</i>	197 194	78 016	45 562	17 302	36 476	19 839

## Annex III (b) (continued)

	Total fleet	Oil tankers	Bulk carriers	General cargo <sup>c</sup>	Container ships	Other types
<b>COUNTRIES IN TRANSITION</b>						
Albania	107	0	0	106	0	1
Azerbaijan	602	315	0	112	0	175
Croatia	1 793	596	1 028	136	0	33
Georgia	1 605	180	641	696	25	63
Kazakhstan	80	62	0	2	0	16
Moldova	17	0	0	17	0	0
Montenegro	11	0	0	10	0	1
Russian Federation	7 723	1 956	985	3 321	115	1 346
Turkmenistan	48	8	3	15	0	21
Ukraine	1 131	51	160	685	27	207
<i>COUNTRIES IN TRANSITION Total</i>	13 118	3 168	2 818	5 101	167	1 864
<b>MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES</b>						
Antigua and Barbuda	10 468	35	1 198	3 264	5 861	109
Bahamas	55 395	26 447	14 133	6 675	2 263	5 878
Bermuda	9 361	2 052	3 579	191	803	2 736
Cyprus	30 068	6 252	17 248	2 337	4 034	197
Isle of Man	14 222	8 869	3 179	585	297	1 293
Liberia	105 182	53 202	21 134	3 288	23 054	4 503
Malta	40 440	13 627	21 105	3 680	1 520	509
Marshall Islands	54 278	34 205	11 903	1 597	4 944	1 630
Panama	231 993	61 200	120 256	15 807	26 726	8 005
Saint Vincent and the Grenadines	8 527	281	4 449	3 317	121	360
<i>MAJOR 10 OPEN AND INTERNATIONAL REGISTRIES Total</i>	559 936	206 170	218 184	40 741	69 622	25 219
Unknown flag	4 686	858	1 084	1 882	51	811
<b>WORLD TOTAL<sup>e</sup></b>	<b>1 042 328</b>	<b>382 975</b>	<b>367 542</b>	<b>100 934</b>	<b>128 321</b>	<b>62 554</b>

## Endnotes to Annex III

Source: Lloyd's Register–Fairplay.

- <sup>a</sup> 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.
- <sup>b</sup> Ships of 100 GT and over, excluding the Great Lakes fleets of the United States and Canada and the United States Reserve Fleet.
- <sup>c</sup> Including passenger/cargo.
- <sup>d</sup> 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).
- <sup>e</sup> Excluding estimates of the United States Reserve Fleet and the United States and Canadian Great Lakes fleets, which amounted to respectively 3.7 million GT (3.9 million dwt), 0.9 million GT (1.8 million dwt) and 1.0 million GT (1.5 million dwt).

