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Council for Trade in Services

MARITIME TRANSPORT SERVICES

Background Note by the Secretariat[1]

1. This Note has been prepared at the request of the Council for Trade in Services. It contains background information on the maritime transport sector and revises, updates and supplements documents S/C/W/62 of 16 November 1998 and S/CSS/W/106 of 4 October 2001, which relate to the same subject matter.

2. The Note covers the period since the conclusion of the negotiations of the Negotiating Group on Maritime Transport Services (3 July 1996), which was the last time Members provided detailed information on their regulatory regimes. Particular attention has been given to the economic and regulatory developments of the past decade which were not covered by the Secretariat's 1998 and 2001 sectoral papers. Where necessary, these elements will be placed in a broader historical context. The Note is not, of course, intended to provide a comprehensive account of the sector.

[1] This document has been prepared under the Secretariat's own responsibility and without prejudice to the positions of Members and to their rights and obligations under the WTO.

I. ECONOMIC STRUCTURE AND CHARACTERISTICS OF THE MARITIME TRANSPORT SECTOR

3. Maritime transport is the lifeblood of the world economy. The following Table gives an indication of the economic size of the sector and its recent growth without, of course, reflecting its impact on, and contribution to, virtually all segments of the world economy. The figures are highly aggregated, and their breakdown as well as the underlying calculation method are the subject of debate among experts. They should, therefore, be interpreted with care.

Table 1: Maritime activities (1999- 2004)

		Turnover (US$ million)			
		1999	2004	Annual growth %	Share %
1.	**Vessel operations**				
1.1	Merchant shipping	160,598	426,297	22	31
1.2	Naval shipping	150,000	173,891	3	13
1.3	Cruise industry	8,255	14,925	12	1
1.4	Ports	26,985	31,115	3	2
	Total	345,838	646,229	13	47
2.	**Shipbuilding**				
2.1	Shipbuilding (merchant)	33,968	46,948	7	3
2.2	Shipbuilding (naval)	30,919	35,898	3	3
2.3	Marine equipment	68,283	90,636	6	7
	Total	133,170	173,482	5	13
3.	**Marine resources**				
3.1	Offshore oil and gas	92,831	113,366	4	8
3.2	Renewable energy	-	159		0
3.3	Minerals and aggregates	2,447	3,409	7	0
	Total	95,278	116,933	4	8
4.	**Marine fisheries**				
4.1	Marine fishing	71,903	69,631	-1	5
4.2	Marine aquaculture	17,575	29,696	11	2
4.3	Seaweed	6,863	7,448	2	1
4.4	Seafood processing	89,477	99,327	2	7
	Total	185,817	206,103	2	15
5.	**Other maritime activities**				
5.1	Marine tourism	151,771	209,190	7	15
5.2	Research and development	10,868	13,221	4	1
5.3	Marine services	4,426	8,507	14	1
5.4	Marine IT	1,390	4,441	26	0
5.5	Marine biotechnology	1,883	2,724	8	0
5.6	Ocean survey	2,152	2,504	3	0
5.7	Education and training	1,846	1,911	1	0
5.8	Submarine telecoms	5,131	1,401	-23	0
	Total	179,466	243,898	6	18
	Total maritime activities	939,570	1,386,645	8	100

Source: Douglas - Westwood Ltd.

4. Although this Note will be concerned mainly with "vessel operations" (excluding military vessels), which in 2004 accounted for almost half of all maritime activity with a turnover in the order of US$500 billion, other activities listed in the Table also involve a significant volume of maritime

transport. The extraction of underwater gas and oil, for instance, is served by an entire fleet of specialized offshore supply vessels providing high value-added services; the same applies to submarine telecommunications and cable ships; non-cruise-related maritime tourism, with its numerous passenger vessels; and, to a lesser extent, the extraction and transport of mineral resources and aggregates.

5. It is interesting to note the extraordinarily rapid increase in merchant shipping activity, over 22 per cent a year compared to only a few per cent in the other subsectors, reflecting the boom in maritime transport at the turn of the century. As will be shown below, the boom continued until the end of 2008.

6. Another measure of the importance of the maritime transport sector is provided in the international trade statistics published by the WTO.[2] These show the relative share of maritime transport in exports of transportation services. In recent years, maritime transport's share has grown considerably, up from 36 per cent in 1996 to 43 per cent in 2006, and today accounts for around 10 per cent of total services exports. In 2006, the most recent year for which figures by mode of transport are available, world maritime transportation exports accounted for US$322 billion of the transportation services exports total of US$750 billion. In 2008, following another two years of strong growth, exports of all transportation services totalled US$890 billion. Although maritime transport's share of the total is unknown, it has probably increased significantly.

7. In 2005, in terms of jobs and equipment, merchant shipping accounted for 50,000 cargo vessels[3] and between 20,000 and 30,000 passenger and service vessels (port, offshore and cable vessels), crewed by over 1.3 million seamen and serviced by hundreds of thousands of dockers, crane operators and auxiliary service workers, for which no global data exist. Maritime and port activities generate millions, if not tens of millions, of jobs.

8. For a more detailed description, maritime transport in the strict sense of the term must be distinguished from port services. The two sectors, while obviously linked, follow a different economic logic (for instance, greater financial security in the case of ports, but also a longer time horizon, externalities and public service considerations) and do not usually involve the same actors.

A. MARITIME TRANSPORT SERVICES

9. Given its particular nature, *passenger* transport needs to be discussed separately from other segments of the maritime transport sector. The vessels providing maritime passenger transport services can be grouped into three main categories: small pleasure craft, ferries operating services to islands and across narrow stretches of water, and cruise ships. The first two categories, for which no overall figures exist, usually operate under the legal regime governing cabotage and are, for the most part, national flag vessels. Cruise ships, on the other hand (category 1.3 in Table 1), generally operate in an international context that is totally open in terms of market access. The economic health of the maritime passenger transport sector depends strongly on the general economic situation and intermodal competition (tunnels, aviation). Subsidization is a determinant in the case of non-profitable island routes which are often operated on concession, with subsidies being contingent upon route and capacity requirements. The regulatory characteristics and economic development of the

[2] WTO, International Trade Statistics 2008, p. 117.

[3] These fleet-related figures are not necessarily consistent with those which appear later on in this Note, which are for the most part taken from UNCTAD's annual review of maritime transport. This may be explained by the tonnage threshold used for the various data. While UNCTAD data cover ships of more than 1,000 gross registered tonnage (GRT), the respective threshold is unknown for the data from Douglas Westwood Limited.

passenger transport sector therefore differ largely from those governing the cargo vessel sector, which constitute the main focus of this Note.[4]

10. Shipping remains by far the leading mode of transport for goods and carries more than 90 per cent of global trade.[5] Without shipping, according to the international Chamber of Shipping, "half the world would starve and the other half would freeze". The road transport sector also claims to carry 90 per cent of world trade, but this involves significant double counting since most maritime consignments travel overland before and after being shipped. Air transport is in direct competition with maritime transport for the carriage of products with a high unit value.

11. The structure of the sector is summed up well by the OECD Secretariat:[6] "The cargo shipping industry is not a homogenous entity. It consists of several discrete sectors, each of which is served by different types of purpose built vessels. Each sector is marked by specific performances and structural features, and they are governed by a complex array of national and international regulations responding to specific issues that have arisen as the international trading system has evolved. The operations within liner and bulk shipping differ greatly. Liner services are provided for numerous shippers by shipping companies operating (mostly) containerships on a regular basis between scheduled, advertised ports of loading and discharge. On the other hand, bulk shipping operations are undertaken by vessels designed to carry homogeneous unpacked dry cargoes (for example grain, iron ore and coal), or liquid cargoes (such as oil, liquefied gas or chemicals). Bulk shipping operations are ordinarily carried out for individual shippers on non-scheduled routes."

12. An exhaustive description should also include the specialized shipping services that have survived the wave of containerization, such as those provided by timber carrying vessels, reefers for refrigerated cargoes, pure car and truck carriers (PCTC) and tween-deckers for miscellaneous merchandise. However, for the purpose of this Note, such activities may be ignored. On the whole, they are little affected by market access restrictions and have even, in some cases, been pioneers of liberalization. A case in point is the third-party transport of Central American bananas to the United States by Scandinavian vessels, which began in the early 20th century.

13. The maritime goods transport sector has experienced highly uneven economic development for the past 15 years, with two periods of moderate growth interrupted by two similarly moderate recessions, followed by a boom of unprecedented duration and scale, and then a massive crash. This situation partially conceals certain structural developments which, although significant, have been going on over the past 30 years.

1. Economic trends in the sector over the last decade

14. Maritime transport activities are closely correlated with developments in international merchandise trade of which they are the main vector. The links between industrial production, trade and transport are clearly illustrated in the following Chart, though subject to certain caveats.[7] Similar

[4] For more information on passenger vessels see document S/CSS/W/106, paragraphs 43-53, pages 11-14.

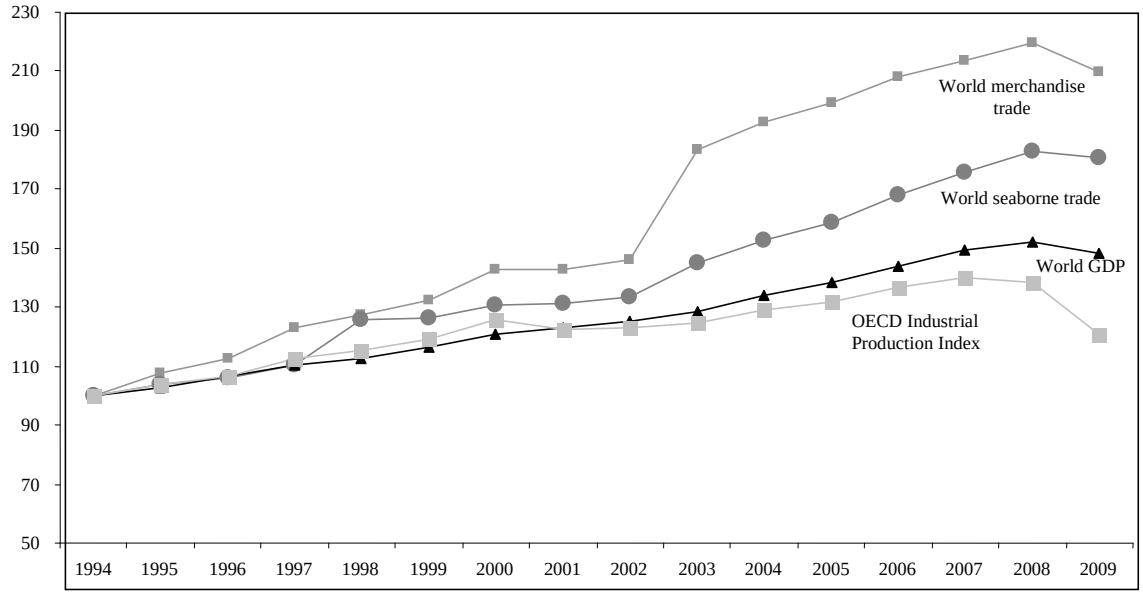
[5] For a more detailed explanation of this figure, see UNCTAD Transport Newsletter No. 38 (Fourth quarter 2007/ First quarter 2008), pages 14-16.

[6] See report on "Regulatory Issues in International Maritime Transport", August 2001, available for consultation at http://www.oecd.org/dataoecd/0/63/2065436.pdf.

[7] According to UNCTAD, the methodology employed (seaborne trade in tonnes - which conceals the significance of low-tonnage, but high-value and rapidly growing containerized traffic - and merchandise trade as indices reflecting value less inflation rather than volumes as such) tends to underestimate the growth in seaborne trade. Moreover, the reference to only the OECD Industrial Production Index - for historical reasons - has lost relevance in the light of the growing industrial strength of emerging countries, in particular China.

Charts, using different indices[8], show growth in seaborne trade to exceed that of total international trade.

Chart 1: Comparative trends in world GDP, the OECD Industrial Production Index, world merchandise trade (volume) and world seaborne trade (volume), 1994-2009
(1994 = 100)



Source: UNCTAD Review of Maritime Transport 2009.

15. In any case, there are compelling explanations for the significant growth in seaborne trade since the beginning of this decade, as reflected in Chart 1; first and foremost, the increasing demand by emerging economies for raw materials involves longer-haul transport. At the same time, their growing industrial strength, coinciding with increasingly complex assembly processes and expanding consumer markets, also entails more frequent and longer-haul transport. The profitability of the sector depends, however, not only on the demand for transport (world trade), but also on supply (capacity) trends in the sector itself and on its competitive relationship with other means of transport (Table 2).

Table 2: Ten variables in the 'shipping market model'

Demand		Supply	
1.	The world economy	1.	World fleet
2.	Seaborne commodity trades	2.	Fleet productivity
3.	Average haul (tonnage and distance)	3.	Shipbuilding production
4.	Random shocks	4.	Scrapping and losses
5.	Transport costs	5.	Freight revenue

Source: Martin Stopford, *Maritime Economics* (3rd Edition, 2009, Routledge), page 136.

16. The first two recessions experienced by the sector during the period under review (in 1997, the Asian financial crisis and in 2000 the burst of the "dot.com" bubble) were relatively limited in

[8] For example, the special report in *Isemar/Le Marin* of 31 October 2008, "Shipping 2008: Les clefs du transport maritime mondial" which compares trends in GDP (value), world trade (value) and solely containerized maritime cargo (volume). See the figure at the bottom left of p. 4.
Available at http://www.nxtbook.fr/lemarin/lemarin/DSSHIPPING081031/index.php#/0.

scope and in any case not comparable to the present crisis. The period 2002 to 2008 saw a boom of historic magnitude far exceeding the two peak periods of maritime prosperity in the 20th century, which came in the wake of the First World War and the Korean War, respectively.[9] Table 3 seeks to capture the interaction of demand and supply trends over the past three decades.

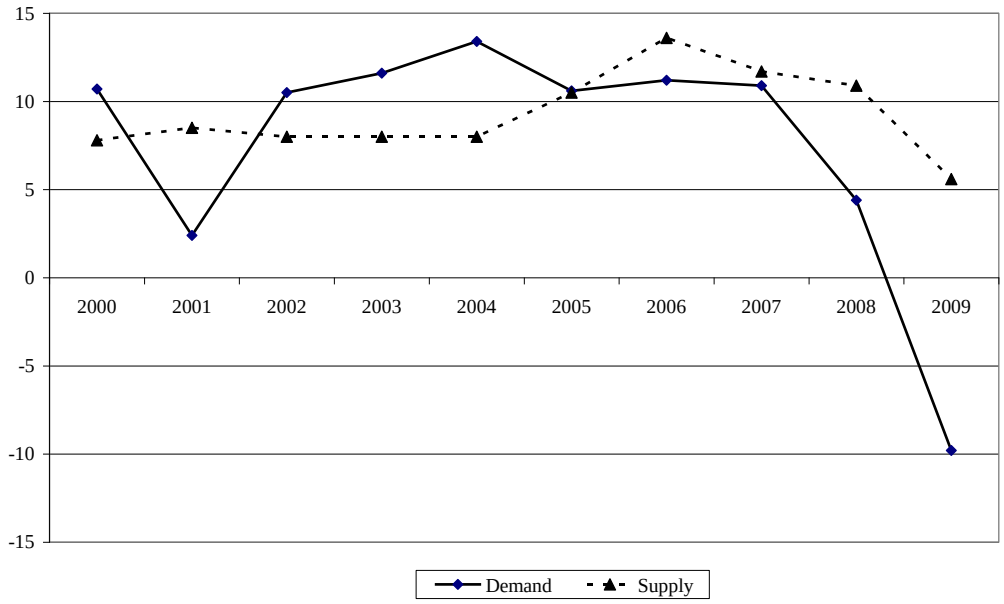
Table 3: Shipping market fundamentals (1973-2007)

	Demand growth	Supply tendency	Market tone
1973-1988	Falling	Overcapacity	Depressed
1988-1997	Slow	Expanding	Competitive
1998-2007	Very fast	Shortage	Prosperous

Source: *op cit*, page 131.

17. The following Chart illustrates maritime transport supply and demand relationships up to 2009.

Chart 2: Growth of demand and supply in container shipping, 2000 – 2009 (annual growth rates)



Source: UNCTAD Review of Maritime Transport 2009, updated with data from Clarkson Container Intelligence Monthly, January 2010.

18. Although operators and analysts were expecting a crash around 2005, as evidenced by press articles of the time, this never came to pass. Liner operators, counting on rapidly rising demand for containerized transport, not least from China, ended up, like bulk operators, believing in a "soft-

[9] For more information on the history of maritime transport since the mid-18th century see Martin Stopford (*op. cit.*) and "Shipping and Trade 1750-1950: Essays in International Maritime Economic History" edited by Lewis R. Fischer and Helge W. Nordvik, Lofthouse Publications, 1990.

landing" scenario at worst or at best in the inception of a virtuous, never-ending and self-sustaining growth cycle.[10]

19. The surge in late 2007 and early 2008 in the price of fuel, which accounts for a very significant proportion of shipowners' operating expenses, led, as it did with air transport, to the first slowdown in sector growth. The financial crisis, which broke out in October 2008, had only a relatively marginal impact on shipowners' accounts that year. The full force of this crisis was, however, felt in 2009, as shown by the examples below:

(a) A 90-per-cent collapse, within a matter of days, of the Baltic Dry Index (BDI), the spot market indicator for dry bulk cargoes.[11]

(b) A similar situation in respect of liquid bulk, given the decline in oil consumption triggered by the crisis. (However, there has been a slight recovery due to the recent increase in oil prices; in the end, one tanker out of 12 was converted into a floating storage unit.)

(c) A fall of around 20 per cent in liner and bulk trade in terms of volume, with significant variations between regions (intra-regional trade faring better, the US suffering a greater decline than Europe, etc.) and types of cargo (e.g, the virtual disappearance for several months of vehicle carrier trade).

(d) A reduction in turnover of 40 per cent for liner trade, driving the accounts of all shipping lines into the red. The industry lost between US$11 and 20 billion overall in 2008, depending on the source consulted.[12]

(e) Threat of bankruptcy for certain major operators of scheduled liner services and the entire maritime cluster and chain of maritime services.

20. The scale of this crisis in relation to previous ones can basically be attributed to overcapacity. Buoyed by what now appears to be irrational exuberance, many shipowners placed huge orders for new and increasingly large vessels and became heavily indebted in the process.[13] For example, in 2009, one of the leading operators, CMA-CGM, reportedly had increased the tonnage of its fleet by 185 per cent compared with 2004 and by 289 per cent taking into consideration the vessels ordered and due to enter its fleet by 2013. More 'conservative' competitors scheduled tonnage increases of 40 to 95 per cent by 2013 in relation to 2004.[14]

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[10] There are a few notable exceptions, such as Chinese Taipei's liner operator and shipowner Evergreen, which ranks fourth in the world and has maintained a conservative capacity expansion policy that was considered overly cautious at the time.

[11] Admittedly, this Index is not entirely representative (the majority of contracts being medium- or long-term), is highly volatile (given that it is extremely compartmentalized in terms of vessel size and cargo volume and is reliant on a highly speculative futures market), and had just a little earlier reached totally unrealistic levels as a result of short-lived undercapacity. However, the BDI fell well below the break-even point and its numerous swings since then only very occasionally rise above this threshold.

[12] US$20 billion according to Erik Lund, Research Director of the Danish firm Carnegie, and US$12 billion according to the AXS Alphaliner database of French shipbroker Barry Rogliano Salles (admittedly restricted to the top 20 companies).

[13] The maximum size of a liner vessel has increased from 4,000-5,000 containers in the mid 1990s to up to 14,000 containers, and there are realistic plans for 20,000-container units. (The container or "box" or TEU (twenty-foot equivalent unit) corresponds to a 20-foot long container and constitutes the standard unit of capacity measurement for the containerized transport sector.) In practice, modern container ships increasingly load 40-foot-long boxes.

[14] The latter include Cosco (China), MSC (Italy-Switzerland), Hamburg Süd (Germany), Yang Ming (Chinese Taipei), CSCL (China) and ZIM (Israel) are not much lower. Evergreen (Chinese Taipei), Hapag-

21. Overcapacity has therefore reached unprecedented levels, reportedly reaching almost 70 per cent in the bulk sector. By way of comparison, 20 per cent was considered a high figure a decade or so ago. The gradual reduction will inevitably take several years.

22. Shipowners have adopted a number of strategies to address this crisis: not renewing or renegotiating charter-parties with tonnage providers; cancelling or renegotiating already processed orders for new vessels; taking vessels out of service; cancelling services; reorganizing loops, occasionally by pooling resources (for example, instead of several companies each using one vessel per week on a given line, slots are chartered on a single vessel supplied by each company in turn); reducing cruising speed (a reduction of merely a few knots yields fuel cost savings of more than 25 per cent); and in the case of Europe-Asia links, re-routing via the Cape of Good Hope rather than passing through the Suez Canal.

23. These are, nevertheless, stopgap measures. They have been complemented by diversification strategies as in the case of Maersk, the leading liner shipping company, which invested heavily in extra-maritime activities, in particular oil, supermarkets and pharmaceuticals.

2. Other economic characteristics of the sector

(a) Trends in cargo volume and origin

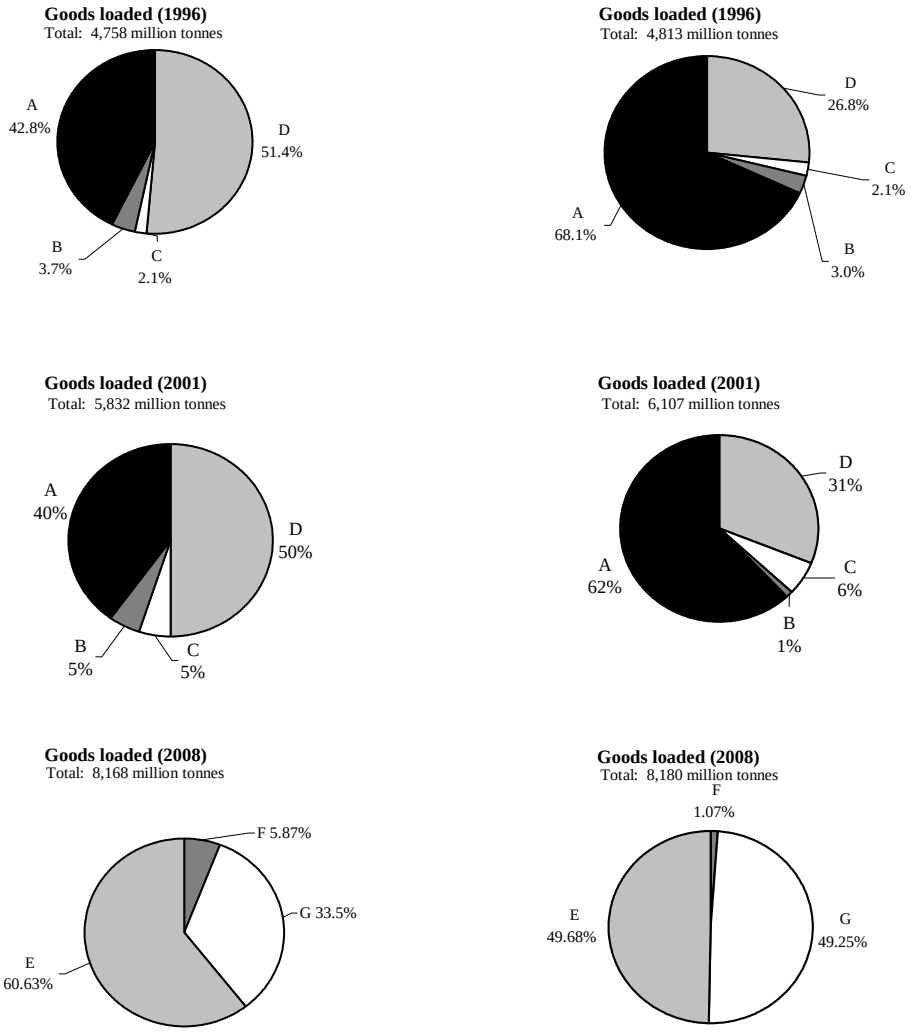
24. Cargo volumes have almost doubled in less than 15 years, coinciding with a significant increase in developing countries' share of global maritime trade. As far as loaded goods are concerned, this reflects both the importance of developing countries as a source of commodities (agricultural products, hydrocarbons, coal, iron ore, bauxite, etc.) and their increasing industrialization, which generates significant trade in manufactured exports. The rise in the volume of goods unloaded in developing countries reflects their growing imports of commodities and capital goods, as well as increasingly significant import flows of consumer goods as a result of economic and demographic growth. Chart 3 summarizes cargo origin, distribution and volume at the beginning, midpoint and end of the period under review.[15]

25. Table 4 clearly shows the explosion of traffic, in particular originating in Asia, and the correlative emergence of Asian ports, notably the relentless growth of ports in mainland China. The tendency for traffic to be focused in a few major ports - the "super hubs" - can be discerned. These being the only terminals with a trade volume sufficient to satisfy the 8,000-plus container capacity of super post-Panamax vessels. As far as bulk is concerned, a significant increase can be seen in cargo to emerging country ports in general, and China in particular. Also of note is the fact that pure transshipment hubs without a significant hinterland (Dubai, Gioia Tauro, Algeciras and, to a certain extent, the Port of Tanjung Pelepas) rise or fall in the rankings in line with the number of call contracts they obtain from the various shipowners. Other salient points include the reduction by almost one-half of the number of - highly fragmented - European ports, the concomitant disappearance of Japanese ports and the absence of African and Latin American ports.

Lloyd (Germany), Maersk (Denmark), NYK (Japan) and OCCL (Hong Kong, China). For further details, see *Containerisation International*, January 2010, p. 37.

[15] For a more in-depth study, for example, by continent and by type of goods, the scale of which would go beyond the narrow confines of this document, see the annual *UNCTAD Review of Maritime Transport* (1997, 2001 and 2009 editions, Chapter 1.B).

Chart 3: World seaborne trade by country groups
(percentage distribution of tonnage, 1996, 2001 and 2008)



A	Developed market-economy countries	D	Developing countries	F	Transition economies
B	Eastern Europe	E	Developing economies	G	Developed economies
C	Socialist Asia				

Note: The terminology used is that of the initial source. Furthermore, UNCTAD has changed the country categories in response to geopolitical developments. For the classification of countries and territories, see, for example, *UNCTAD Review of Maritime Transport 1997*, Annex I, page 105, and *UNCTAD Review of Maritime Transport 2009*, Annex 1, page 181.

Source: UNCTAD Review of Maritime Transport, 1997, 2002 and 2009 editions.

Table 4: Top 20 container terminals (1998, 2001, 2008)

1998				2001			2008			
Ranking	Port	Country or territory	Traffic (TEU million)	Ranking	Port	Country or territory	Traffic (TEU million)	Ranking	Port	Country or territory	Traffic (TEU million)
1	Singapore	Singapore	15.10	1	Hong Kong, China	Hong Kong, China	17.90	1	Singapore	Singapore	29.91
2	Hong Kong, China	Hong Kong, China	14.65	2	Singapore	Singapore	15.52	2	Shanghai	China	27.98
3	Kaohsiung	Chinese Taipei	6.27	3	Busan	Republic of Korea	7.90	3	Hong Kong, China	Hong Kong, China	24.24
4	Rotterdam	Netherlands	6.03	4	Kaohsiung	Chinese Taipei	7.54	4	Shenzhen	China	21.41
5	Busan	Republic of Korea	5.32	5	Shanghai	China	6.34	5	Busan	Republic of Korea	13.42
6	Long Beach	United States	4.10	6	Rotterdam	Netherlands	5.94	6	Dubai	United Arab Emirates	11.82
7	Hamburg	Germany	3.56	7	Los Angeles	United States	5.18	7	Ningbo	China	11.22
8	Los Angeles	United States	3.38	8	Shenzhen	China	5.07	8	Guangzhou	China	11.00
9	Antwerp	Belgium	3.27	9	Hamburg	Germany	4.68	9	Rotterdam	Netherlands	10.80
10	Shanghai	China	3.05	10	Long Beach	United States	4.46	10	Qingdao	China	10.32
11	Dubai	United Arab Emirates	2.80	11	Antwerp	Belgium	4.21	11	Hamburg	Germany	9.70
12	New York	United States	2.51	12	Port Klang	Malaysia	3.75	12	Kaohsiung	China	9.67
13	Tokyo	Japan	2.45	13	Dubai	United Arab Emirates	3.50	13	Antwerp	Belgium	8.66
14	Felixstowe	United Kingdom	2.36	14	New York	United States	3.31	14	Tianjin	China	8.50
15	Gioia Tauro	Italy	2.12	15	Bremerhaven	Germany	2.89	15	Port Klang	Malaysia	7.97
16	Yokohama	Japan	2.04	16	Felixstowe	United Kingdom	2.80	16	Los Angeles	United States	7.84
17	Kobe	Japan	1.94	17	Manila	Philippines	2.79	17	Long Beach	United States	6.48
18	Tanjung Priok	Indonesia	1.89	18	Tokyo	Japan	2.77	18	Tanjung Pelepas	Malaysia	5.60
19	Bremerhaven	Germany	1.85	19	Quingdao	China	2.64	19	Bremen/Bremerhaven	Germany	5.50
20	Algeciras	Spain	1.82	20	Gioia Tauro	Italy	2.48	20	New York/New Jersey	United States	5.26
Total			86.56	Total			111.74	Total			247.36

Source: UNCTAD, Review of Maritime Transport, 1999, 2002 and 2009.

26. Another striking trend, though not illustrated, is the intensification of intra-regional traffic, a phenomenon related both to the proliferation of free-trade agreements and to new multi-source assembly processes

(b) Changes in fleet size and distribution

27. 'Cargo geography' does not correspond exactly to 'carrier geography'. Some countries or territories which generate and/or absorb a large volume of cargo, such as Australia, Canada and, to a certain extent, the United States, do not have a national flag fleet or even a controlled fleet proportional to the magnitude of their foreign trade. On the other hand, maritime countries or territories without significant hinterlands, such as Norway; Greece; Denmark; Singapore; Hong Kong, China and, to certain extent, Chinese Taipei, have historically developed a comparative advantage in cross-trade maritime transport (i.e. third-party shipments). They control fleets the capacity of which far exceeds their foreign trade volume. Between these two extremes, lie numerous countries and territories which have both a significant amount of foreign trade and a controlled fleet (if not a national flag fleet) used not only for domestic trade, but for cross trade liner and bulk traffic. For cost reasons, controlled fleets may be registered under "open registries", to use a euphemism, or "flags of convenience", to use a more common, but pejorative term.

28. Table 5 features the fleets and registrations of the 35 leading maritime States or territories, which together control over 95 per cent of the world fleet. Half of these 35 countries or territories are developing nations, a proportion which has increased slightly. On the whole, the ranking over the 1996/2008 period remained more or less stable, with the listed countries or territories often moving only one to three places. Japan, a distant second in 1996, has recently taken the number one spot from Greece, with 92 per cent of its fleet registered outside Japan.

29. Notable progress has also been made by Germany, which has risen from 9th to 3rd place, Denmark (14→9), Italy (16→13), Belgium (27→20), Malaysia (30→21) and Kuwait (35→28). Also noteworthy is the appearance in 2008 of Canada in 16th place, with 85 per cent of its fleet registered outside the country, the United Arab Emirates (22nd), Cyprus (24th), Vietnam (29th) and Bermuda (35th). The steepest falls in the ranking include those of the United States (3→7), the Russian Federation (10→14), Sweden (12→25), Brazil (18→30), France (20→27) and Switzerland (23→33), while Australia, Ukraine, the Philippines, Romania and Finland have disappeared from the ranking altogether.

30. The share of the controlled fleet in countries/territories total fleet has increased by some 15 points, from around 55 per cent to around 70 per cent. This reflects the switching of liner fleets to open registries - hitherto comprised mainly of bulk vessels - due to increased competition in the liner sector, which enjoyed partial protection in the past. As in the case of bulk shipping, the national flag, with the costs it entails, has to some extent become a luxury that shipowners feel they can no longer afford. There are, of course, considerable national variations in the share of the controlled fleet, from 16 per cent in the case of India to almost 93 per cent in the case of Japan, and yet, with an average of almost 70 per cent, the phenomenon is clearly general and widespread. Interestingly, this proportion exceeds 40 or 50 per cent in numerous developing countries, although their national flag fleets generally benefit from labour costs.[16]

31. Table 6 is in some ways symmetrical to Table 5, as it gives the true nationalities of the fleets of the main "open" and "international" registries. To clarify the dividing line between these two categories, UNCTAD defined (in 2006) a registry as "open" when more than 90 per cent of its vessels

[16] It should, however, be noted that the situation of developing countries in terms of labour costs varies greatly in particular as regards intra-regional trade. A Thai crew, for instance, will be more costly than a Burmese crew.

are foreign-owned. This has become the conventionally agreed criterion. A lower threshold would have included in this category the registries of Cyprus; Hong Kong, China; Singapore; and the United Kingdom. The second category - "international" or "second" registries - is made up of registries created by countries wishing to maintain a national flag fleet for strategic reasons (possibility of mobilization, desire to keep maritime expertise in the country, etc.). These registries offer fiscal and labour benefits comparable, if not identical, to those of open registries (a high proportion of foreign sailors are paid at the globalized international market rate, i.e. around US$600 a month, and not in line with the social and wage conditions of developed countries).

Table 5: The 35 leading maritime countries and territories (1996-2008)

1996					2008				
	Deadweight tonnage (million tonnes)					Deadweight tonnage (million tonnes)			
Country or territory of domicile	National flag	Foreign flag	Total	Foreign flag (%)	Country or territory of domicile	National flag	Foreign flag	Total	Foreign flag (%)
1 Greece	46,444	71,954	118,398	60.77	1 Japan	12,199	161,085	173,284	92.96
2 Japan	22,116	65,171	87,287	74.66	2 Greece	52,833	116,593	169,426	68.82
3 United States	13,134	35,994	49,128	73.27	3 Germany	17,428	87,525	104,953	83.39
4 Norway	28,127	20,781	48,908	42.49	4 China	37,204	55,594	92,798	59.91
5 China	23,162	13,095	36,257	36.12	5 Norway	11,542	38,673	50,215	77.01
6 Hong Kong, China	5,401	28,079	33,480	83.87	6 Korea (Rep. of)	20,858	25,764	46,622	55.26
7 Korea (Rep. of)	10,253	12,869	23,122	55.66	7 United States	20,606	19,358	39,964	48.44
8 United Kingdom	5,269	15,875	21,144	75.08	8 Hong Kong, China	18,296	15,427	33,723	45.75
9 Germany	6,140	11,918	18,058	66.00	9 Denmark	11,958	19,636	31,594	62.15
10 Russia	12,231	5,113	17,344	29.48	10 United Kingdom	11,175	19,741	30,916	63.85
11 Chinese Taipei	7,577	7,534	15,111	49.86	11 Chinese Taipei	4,068	25,735	29,803	86.35
12 Sweden	2,099	12,490	14,589	85.61	12 Singapore	16,482	11,747	28,229	41.61
13 Singapore	8,876	5,544	14,420	38.45	13 Italy	12,853	6,896	19,749	34.92
14 Denmark	7,215	5,337	12,552	42.52	14 Russia	5,944	12,343	18,287	67.50
15 India	11,172	1,252	12,424	10.08	15 India	14,389	2,822	17,211	16.40
16 Italy	7,654	4,359	12,013	36.29	16 Canada	2,454	14,716	17,170	85.71
17 Saudi Arabia	1,078	9,749	10,827	90.04	17 Turkey	6,803	8,647	15,450	55.97
18 Brazil	7,178	2,538	9,716	26.12	18 Saudi Arabia	1,234	13,676	14,910	91.72
19 Turkey	8,997	0,107	9,104	1.18	19 Iran	1,357	13,202	14,559	90.67
20 France	4,313	3,446	7,759	44.41	20 Belgium	6,283	7,164	13,447	53.28
21 Iran	6,133	0,206	6,339	3.25	21 Malaysia	7,717	3,842	11,559	33.24
22 Netherlands	3,597	2,196	5,793	37.90	22 United Arab Emirates	0,701	8,331	9,032	92.23
23 Switzerland	0,618	4,549	5,167	88.03	23 Netherlands	4,217	4,186	8,403	49.81
24 Ukraine	3,587	1,261	4,848	26.02	24 Cyprus	3,196	5,162	8,358	61.76
25 Philippines	4,507	0,095	4,602	2.07	25 Sweden	1,740	5,697	7,437	76.60
26 Romania	3,506	0,978	4,484	21.82	26 Indonesia	4,956	2,064	7,020	29.41
27 Belgium	0,148	4,105	4,253	96.52	27 France	2,988	3,576	6,564	54.48
28 Indonesia	3,060	1,154	4,214	27.39	28 Kuwait	3,846	2,602	6,448	40.36
29 Thailand	2,505	1,537	4,042	38.04	29 Vietnam	3,629	1,938	5,567	34.82
30 Malaysia	3,561	0,131	3,692	3.57	30 Brazil	2,444	2,266	4,710	48.11
31 Spain	0,657	2,764	3,421	80.79	31 Spain	1,562	2,885	4,447	64.88
32 Finland	1,136	2,249	3,385	66.43	32 Thailand	3,506	0,620	4,126	15.03
33 Croatia	0,696	2,591	3,287	78.83	33 Switzerland	1,012	2,816	3,828	73.57
34 Australia	2,807	0,479	3,286	14.58	34 Croatia	2,311	0,985	3,296	29.88
35 Kuwait	2,863	0,351	3,214	10.92	35 Bermuda		3,227	3,227	100.00
Total (35 countries)	277,817	357,851	635,668	56.29	Total (35 countries)	329,791	726,541	1,056,332	68.78
Percentage	43.7%	56.3%	100%		Percentage				
World total	303,417	376,626	680,044	55.38	World total	347,007	757,952	1,104,959	68.60
Percentage	44.6%	55.4%	100%		Percentage				

Source: UNCTAD, Review of Maritime Transport, 1997 and 2009.

32. Shipowners registering their vessels under such "second" or "international" registry enjoy legal security (in respect of maritime mortgages, risk of arrest, arbitration clauses, etc.) and the reputation afforded by the national flag in terms of inspection and security (IMO white lists, Equasis database or US Coast Guard black lists). Operating costs are slightly higher than those of open registries, but much lower than those pertaining to a "full" developed country flag.

33. Fifteen of the 35 leading registries almost exclusively consist of vessels belonging to their own nationals: Greece, China, the Republic of Korea, India, Germany, Japan, Italy, the United States, Malaysia, Turkey, the Russian Federation, Indonesia, Belgium, the Islamic Republic of Iran, the Chinese Taipei, and Thailand. There appear to be two reasons for the low proportion of vessels controlled by foreign nationals. First, the legislation of the country concerned might not allow the national flag to be flown unless there is an adequate "authentic link" between flag and property.

Secondly, even where the country's registry is, in theory, open to foreigners, the fiscal or employment regime, or other types of regulation, may make it of little interest to owners of foreign ships.

34. Some countries register under their flag both national vessels and a significant proportion of foreign vessels. The most notable countries in this regard are Hong Kong, China, and Singapore, where almost two thirds of registered tonnage are controlled by foreigners, nine tenths of which from Cyprus. Almost half of the tonnage registered under the United Kingdom flag is owned by foreigners, as is 40 per cent of that registered in the Netherlands.

35. Three of the 35 leading maritime nations have a "second registry" or "international registry" in the narrow sense, i.e. a registry which allows the national flag to be flown, but under conditions that are different to those of the principal national registry. The registries concerned are the Norwegian International Ship Register (NIS), the Danish International Register of Shipping (DIS) and the French International Registry (RIF). While the DIS is used almost exclusively by ships controlled by Danish nationals, the NIS and the RIF are also used for the registration of certain ships controlled by foreigners.

Table 6: True nationality of major open-registry fleets, as at 1 January 2009 (number of ships)

Country or territory	Panama	Liberia	Marshall Islands	Bahamas	Malta	Cyprus	Isle of Man	Antigua & Barbuda	Bermuda	Saint Vincent & G.	Total
Japan	2 292	115	23	87	6	20	7		2	3	2 555
Greece	503	387	282	217	408	249	52	4	2	64	2 168
Germany	95	857	233	43	95	174	52	952	21	2	2 524
China	558	12	10	9	12	8			16	87	712
Norway	134	49	86	231	100	31	52	10	5	15	713
Rep. of Korea	324	5	13		28	1		1			372
United States	172	105	170	111	29	6	4	8	26	21	652
Hong Kong, China	127	60	7	25	2	2			5	5	233
Denmark	40	9	9	60	44	4	46	21		17	250
United Kingdom	56	30	16	73	21	23	95	10	7	14	345
Chinese Taipei	332	92	1							4	429
Singapore	92	36	20	19		2	1			2	172
Italia	31	48	3	12	53	7				16	170
Russian Federation	24	95	9	3	57	52		4		25	269
India	25	1	2	2	2	3				6	41
Canada	11	5		85	1	2				1	105
Turkey	96	12	57	7	188		2	8		17	387
Saoudi Arabia	8	28	4	18							58
Iran	8				86	10				2	106
Belgium	3	1	1	13	16	2				13	49
Malaysia	17		8	14							39
United Arab Emirates	118	27	16	22	3	10				13	209
Netherlands	29	6	10	32	4	49	3	16		6	155
Cyprus	14	38	42	28	30	126		17		1	296
Sweden	7	10	6	8	3	2	1	1	19	2	59
Indonesia	26	2		2							30
France	7	4		23	5		1		1	23	64
Kuweit	9			2	1						12
Viet Nam	35	4									39
Brazil	8	3	1	1							13
Spain	51		1	9	6	8					75
Thailand	11			5							16
Switzerland	32	11	11	1	16			7		10	88
Croatia	3	2	8	1	10					11	35
Bermuda			11	11							22
Total 35 countries	5 298	2 054	1 060	1 174	1 226	791	316	1 059	104	380	13 462

Source: UNCTAD, Review of Maritime Transport, 2009.

36. It needs to be noted that the distinction between second registry and full national registry is sometimes blurred. For instance, the requirement whereby, for registration under the "full" Greek flag, a vessel's crew had to be 100 per cent Greek or from the European Union was modified back in 2004, and the use of a high proportion of foreign sailors is now authorized, thus aligning the costs of the Greek registry with those of international or indeed open registries. Interestingly, the phenomenon of second registries, initially limited to Europe, has spread geographically to North America and the Pacific (Marshall Islands registry) and to Asia (Chaeju Island registry for Korea), and many developing country shipowners are lobbying their authorities to adopt comparable regimes primarily for fiscal reasons.

(c) Privatization

37. The trend towards privatization of publicly-owned maritime companies continued during the period under review. The privatization of the Compagnie Générale Maritime Française and its merger with the Compagnie Marseillaise d'Affrètement to form the CMA-CGM is in this respect emblematic. (CMA-CGM become a major player after rising from 20th place in 1996 to 3rd place since 2006.) Public ownership now appears to be limited to developing countries in certain geographical areas, such as Asia (India, China, Singapore) and Africa. African companies hardly have any fleet left and operate as non-vessel operating common carriers (NVOCCs). Where public ownership still exists, it often takes an indirect or composite form involving a holding company or sovereign fund, or partial quotation on the stock exchange. There is also at least one case of multinational public ownership, a model popular in the 1970s and more common to airline companies, that of the UASC shipping line which is owned by several Arabian-Persian Gulf States.

(d) Concentration

38. Until the beginning of the 1980s, concentration occurred mainly within national borders and remained confined to the liner sector.[17] At the beginning of the 1990s, however, the phenomenon became transnational, with three major mergers/acquisitions: P&O with Nedlloyd, Maersk with Sea-Land (United States) and Neptune Orient Lines (Singapore) with American President Lines (United States). In the last fifteen years, the trend towards transnational concentration has become even more pronounced in the liner sector (with the share of the top twenty operators increasing from 48 per cent of capacity in 1997 to 69 per cent in 2009)[18] and has spread to the highly internationalized, but hitherto unconcentrated, bulk sector.

[17] Cases in point are the gradual regrouping of all or almost all British liner shipping companies under P&O, French liner shipping companies under CMA-CGM, Dutch companies under Nedlloyd, German companies under Hapag, and Danish companies under Maersk.

[18] CP Ships (Canada) successively acquired Contship (United Kingdom), TMM (Mexico) and Lykes (United States) before being taken over by Hapag-Lloyd. Hapag-Lloyd was then sold in 2009 by its German owner TUI to another German operator, the Hamburg-based public-private consortium Albert Ballin, which narrowly edged out Neptune Orient Lines (Singapore), itself the owner of American President Lines (United States). CMA-CGM (France) has taken over Delmas (France), OT Africa Lines (United Kingdom), Australia National Line, MacAndrews (United Kingdom), Comanav (Morocco), US Lines (United States) and Cheng Lie Navigation (Chinese Taipei). Maersk (Denmark) has bought out Sea-Land (United States), CMB (Belgium), Safmarine (South Africa), Torm Line (Denmark) and most notably P&O/Nedlloyd, previously the second largest liner shipping company in the world. Evergreen (Chinese Taipei) has taken over Lloyd Triestino (Italy) and Hatsu Marine (United Kingdom). CSAV (Chile) has bought out Norasia (Hong Kong, China), while Hamburg Süd (Germany) has acquired Alliança (Brazil).

39. These trends reflect the disappearance of traditional mercantilist model, under which a shipping company was almost exclusively dedicated to its own country's trade,[19] and the major carriers' decision to fill gaps in their network coverage by making acquisitions abroad. In this context, the direction taken by acquisitions was not only north-north or north-south, but also south-north and south-south. This led to a major reshuffle in the ranking of the leading ocean shipping companies, with the top 10 or 20 shipowners expanding significantly in size, as is shown in the Table 7. Nonetheless, liner maritime transport does remain less heavily concentrated than many industrial sectors.[20]

Table 7: Top 20 liner shipping companies (1997-2009)

1997					2009				
Rank	Operator	Country or Territory	Number of vessels	Capa-city (TEU)	Rank	Operator	Country or Territory	Number of vessels	Capa-city (TEU)
1	Maersk Line	Denmark	106	232	1	Maersk Line	Denmark	426	1 740
2	Evergreen	Chinese Taipei	108	228	2	MSC	Italia/ Switzerland	431	1 510
3	P&O Nedlloyd	United Kingdom/ Netherlands	106	221	3	CMA-CGM	France	280	864
4	Sea-Land	United States	95	215	4	Evergreen	Chinese Taipei	181	629
5	COSCO	China	139	201	5	Hapag Lloyd	Germany	132	496
6	Hanjin/DSR Senator	Rep. of Korea/ Germany	62	174	6	COSCO	China	141	491
7	MSC	Italia/Switzerland	100	154	7	NOL/APL	Singapore	128	470
8	MOL	Japan	62	115	8	CSCL	China	121	431
9	NYK	Japan	68	128	9	MOL	Japan	109	387
10	HMM	Rep. of Korea/ Germany	36	112	10	Hanjin	Rep. of Korea	83	365
11	Zim	Israel	59	98	11	OOCL	Hong Kong, China	90	364
12	Yangming	Chinese Taipei	42	96	12	NYK	Japan	82	358
13	CMA-CGM	France	64	89	13	Yang Ming	Chinese Taipei	85	317
14	OOCL	Hong Kong, China	30	85	14	K Line	Japan	99	309
15	NOL	Singapore	36	85	15	HMM	Rep. of Korea	58	258
16	CP Ships	Canada	46	85	16	Hamburg-Süd	Germany	81	256
17	K Line	Japan	45	84	17	Zim	Israel	82	251
18	APL	United States	38	79	18	UASC	Kuweit	43	155
19	Hapag-Lloyd	Germany	23	73	19	PIL	Singapore	76	147
20	Cho Yang	Rep. of Korea	30	55	20	CSAV	Chili	56	141
Total			1 295	2 609	Total			2 784	9 939
World fleet			n.d.	5 454	World fleet			9 447	14 429

Source: UNCTAD, Review of Maritime Transport, 1998 and 2009 editions.

40. While the number of vessels operated by the top 20 shipowners has grown by 2.5 per cent, their capacity has expanded by 4.5 per cent: a clear indication of the increasing size of ships. Maersk, closely followed by Evergreen in the past, is the outright leader in terms of capacity, if not in

[19] This model had already come under strain following the emergence of third-party transport and the organization of liner transport under the hub and spoke system and the transhipments it involves. The abolition of liner conferences and the disappearance of the United Nations Code of Conduct for Liner Conferences, which used to have a "bilateralizing" effect on the organization of traffic, delivered the final coup de grace.

[20] For a detailed comparison of levels of concentration in the various subsectors of the maritime cluster, see UNCTAD Transport Newsletter No. 24, Second Quarter 2004, p. 7.

the number of vessels. Most of its growth has been achieved through operations abroad. Many companies, including major ones, have been bought out by competitors and disappeared.[21]

41. Companies gaining ground have done so through spectacular takeovers, entailing risks when recession hit, as was the case for CMA-CGM (13→3), Hapag Lloyd (19→5) and Neptune Orient Lines (15→7). Others, however, moved upwards without making major acquisitions (OOCL and MSC). New entrants include China Shipping Container Lines (CSCL, 8th), a grouping of shipowners from the region; two companies from emerging economies (the multinational UASC operating in the Arabian/Persian Gulf, 18th, and CSAV of Chile, 20th); and a carrier specializing in intra-regional feeder traffic (PIL, 19th) which shoes the extent to which this form of trade is expanding.

42. Interestingly, the current crisis has not yet led to new concentrations, although declining market capitalization and desperate attempts to find "white knights" have created potential prey. For the first time in years, the top 20 companies' share in total liner traffic declined in 2008, though only 1 per cent from 70 to 69 per cent.

43. The bulk cargo sector is traditionally less heavily concentrated because it is frequently organized on the basis of the "one-ship company"[22] model for tax reasons and to deliberately minimize statutory liability.[23] Nevertheless, as shown in Table 8, some movement towards concentration through mergers/acquisitions has occurred, at least in subsectors (crude oil, LNG carriers, handy-size dry bulk).

Table 8: Leading bulk cargo shipping lines (2007)

Top 10 oil carriers (2007)				Top 10 LNG carriers (2007)			Top 5 dry bulk carriers (2007)		
Shipowner	Country or territory	Number of ships	Tonnage (DWT[a] million)	Shipowner	Country or territory	Number of ships	Shipowner	Country or territory	Tonnage (DWT million)
Frontline	Bermuda	82	19.2	MOL	Japan	62	Cosco	China	19.3
Teekay Shipping	Canada	115	14.2	NYK	Japan	46	NYK	Japan	12.9
MOL	Japan	41	10.98	K Line	Japan	33	MOL	Japan	11.8
NYK	Japan	41	9.88	Stasco	United Kingdom	32	K Line	Japan	10
OSG	United States	53	9.49	MISC	Malaysia	24	Zodiac Maritime	United Kingdom/ Israel	6
NITC	Iran	33	8.9	BG Group	United Kingdom	21			
Euronav	Belgium	36	8.8	GDF-Suez	France	18			
MISC	Malaysia	62	8.78	Teekay Corp.	Canada	13			
Vela Int. Marine	Dubai	22	6.73	Golar LNG	Bermuda	12			
Hyundai Merchant Marine	Korea (Rep. of)	26	6.58	BW Gas	Norway	11			

a Dead Weight Tonnes.

Source: ISEMAR/Le Marin, special issue, 31 October 2008, Shipping 2008: Les clés du transport maritime mondial. Available for consultation at: http://www.nxtbook.fr/lemarin/lemarin/DSSHIPPING081031/index.php#/0

[21] For example, P&O/Nedlloyd, 3rd in 1997, and Sea-Land, 4th in 1997, were both absorbed by Maersk; while CP Ships, 16th in 1996, was taken over by Hapag Lloyd and American President Line (APL), 18th, by Neptune Orient Lines (NOL). Another operator, Cho Yang, went bankrupt in 2001.

[22] The one-ship company model also serves as a framework for ship financing packages, which is why it is increasingly used in the liner sector (the German KG system, for example).

[23] For further details on the subject, see the OECD study on "Ownership and Control of Ships", DSTI/DOT/MTC(2002)/7 of 5 January 2003.

(e) Technical developments

44. Although the sector has not seen any groundbreaking technological developments over the past 15 years, there has been incremental progress, marked by the competitive drive towards giant vessels, in that current technology has not yet exhausted its potential. Information technology has pervaded the entire transport chain, from the design of vessels by CAD to fine-tuned management of energy consumption and centralized load management (both from a technical standpoint, i.e. load distribution on board ship, minimizing the number of crane moves necessary for unloading, and from a commercial standpoint, i.e. profitability threshold calculation, yield management, tracking, computerization of data required by customs and the police, etc.).

45. While the Internet has become the prime tool for communication between shippers and shipowners, online freight platforms have not replaced the various maritime transport intermediaries, such as freight forwarders, shipping agencies, customs agents and other ancillary transport personnel. Only two multi-carrier platforms, GT-Nexus and INTTRA, have truly emerged, but they appear to be tools for existing professionals rather than actual new intermediaries. Attempts are being made to develop on-demand software (e.g. Software as a Service (SaaS)) as in other industrial sectors, but it is too early to gauge the extent of their success. In the bulk cargo sector, business is still being handled by shipbrokers, both by telephone and onscreen, but the sophistication of the electronic tools available to brokers has increased, especially as regards freight forward agreements, an area in which brokers work in much the same way as other trading professionals.

46. Further significant developments have included modular construction of ships and the gradual marginalization of vessels with their own handling equipment, as ports gradually modernized and acquired container cranes. The size of bulk cargo ships has remained more or less unchanged with a slight increase at the end of the reporting period - for commercial rather than technical reasons (oil tankers of over 500,000 tonnes were built in the 1970s, but the largest tankers operating today do not exceed 250,000-300,000 tonnes). As regards liner traffic, however, maximum ship size has increased almost four-fold over the past 15 to 20 years (from 4,000 to 12,000-14,000 container units) in a constant drive towards greater productivity (in both cases a 20 man crew is necessary to operate the ship) and to cope with the exponential growth in traffic mentioned above. Realistic designs of 20,000 container-unit ships were on the drawing board when the crisis broke.

47. However, the trend towards giant vessels has been hampered by:

(a) problems of draught depth (such ships require 16-18 m draught berths, which very few ports can provide without costly dredging work) and inter-ocean canal passage (ships exceeding 5,000 container capacity cannot currently pass through the Panama Canal nor the proposed 20,000 container ships through the Suez Canal); and

(b) organizational problems of a logistical and commercial nature (very few ports have thousands of containers to load on board a ship on any given day, and the size of the load may have adverse effects on cost and loading time).

48. Alongside the constant drive for greater productivity, two key factors driving technological development have been stronger security legislation (for the IT chain) and environmental considerations, particularly when they coincide with energy saving concerns. Several companies, including CMA-CGM, have started experimenting with kite/auxiliary sail technologies. While projects for rapid and ultra rapid container carriers, put forward by a number of shipyards in Germany and France, never came to fruition, high-speed passenger vessels have proved relatively popular. Weather routing techniques are also being developed.

B. PORT SERVICES

49. The port terminal sector has shown remarkable development over the past 15 or 20 years. As from the late nineteenth century at least, the predominant model was that of the tool port, that is, a government-owned port directly providing most port services, including those of a purely commercial nature, and responsible for a large proportion of cargo handling. Handling - even light handling - equipment belonged to the port; crane operators used the equipment as port employees, while stevedoring companies only leased the equipment and employed workers to unload the ships with the help of teams of dock workers. The latter were managed, under the closed-shop principle, by a central office linked to the port, and followed strict employment rules established and enforced jointly by the dockers' associations and the port authorities. There were of course varying degrees of flexibility, depending on the country.

50. Private management of port handling operations was limited to a few geographically isolated instances, e.g. terminals leased by the US port authorities to mostly small-scale operators, British ports privatized under the Thatcher Government, and a few ports in the Asia-Pacific region. The latter saw the emergence of the first major private terminal operator, P&O Australia, which was to become P&O Ports and subsequently Dubai Port World.

51. The last 15 to 20 years have seen a complete reversal of the situation. The predominant model today, accounting for more than two thirds of container movements, is that of the 'landlord port', where the operator:

- operates under a concession agreement (generally for a period of five to 60 years);
- directly employs and coordinates the work of crane operators and dock workers answerable to a single management; and
- invests in the superstructures (stacking areas, cranes, forklifts, etc.)

52. These changes have occurred in developing and developed countries alike. The speed at which they have been accomplished can be explained by very significant productivity gains. The specialized literature regularly cites gains of more than 60 per cent over a period of just a few years and, overall, the figure of 15 container moves per hour (the sector's standard physical benchmark) has risen to more than 25, regardless of latitude. According to the Economic Commission for Latin America and the Caribbean (ECLAC), experience suggests that private-sector involvement in port terminals may translate, via reduced tariffs, into savings in international seaborne transport, but more importantly there is a significant lowering of costs for the ship operator due to faster delivery, better security and more certainty that the itinerary will be adhered to.[24]

53. Competition played a major role in this context - ports are natural monopolies in appearance only. As an example, the Antwerp hinterland extends as far as Lyon, and under the hub and spoke system imposed by container super-carriers (super post-Panamax), vessels are not allowed to put into port more than three or four times at either end of their routes (in northern Europe at one end and the Far East at the other, for example). However, there are as many as 15 to 20 ports capable of serving as ports of call at either end of the itinerary.

54. In a matter of just a few years, major operators have emerged, in addition to a multitude of medium-size, often purely domestic, operators. However, it is important to distinguish between private management and private ownership: three of the six operators listed in Table 9 below have

[24] ECLAC, "The cost of international transport, and integration and competitiveness in Latin America and the Caribbean", FAL Bulletin 191, July 2002, available in English and Spanish only.

one public shareholder (PSA, COSCO Pacific and Dubai Port World) and these three operators control 60 per cent of the traffic covered by this list.

55. Global figures for the industry are scarce, piecemeal, and contradictory. This is because of a constantly shifting environment and because most of the data (terms and conditions and duration of contracts, traffic commitments, actual productivity levels) are protected by business secrecy. On the other hand, there is a wealth of micro data, port by port and operation by operation, that can be used to prepare an initial outline. Table 9 presents information pertaining to the top six port operators and the basic geographical spread of their activities, it includes only international operators with a global presence.[25]

56. It is interesting to note that terminal operators from North America (where the sector is highly fragmented) do not appear on the list. The operators cited are from Asian or developing countries, with the exception of one European operator. The Table mentions two shipowners (APM Terminals, a subsidiary of the Maersk Group, and COSCO Pacific, a subsidiary of China's national carrier), while the remainder are pure port operators. Nonetheless, until the crisis prompted many shipowners to revert to their primary activity, i.e. transport, they assiduously took stakes (often no more than a minority stake) in terminals, viewed as strategic assets in times of congestion (e.g. CMA–CGM in Malta, France, Morocco, Viet Nam, China, etc.).[26]

Table 9: Operations of the top six international container lines (2008)

Operator	Traffic handled in 2008 (TEU million)	Turnover in 2008 (US$ million)	Net profits in 2008 (US$ million)	States/territories of operation and number of terminals operated in each case in 2009[a]
1 HPH (Hong Kong, China)	67.6	5.109	n/a	Germany (1); Argentina (1); Australia (1); Bahamas (1); Belgium (1); China (13); Korea (2); Egypt (2); Hong Kong, China (4); Indonesia (2); Italy (1); Malaysia (1); Mexico (4); Myanmar (1); Oman (1); Pakistan (2); Netherlands (4); Panama (2); Saudi Arabia (1); United Kingdom (3); Sweden (1); Tanzania (1); Thailand (3); Viet Nam (1)
2 PSA (Singapore)	63.2	3046	721	Argentina (1); Belgium (2); China (6); Korea (2); India (5); Italy (2); Japan (1); Panama (1); Netherlands (1); Portugal (1); United Kingdom (1); Singapore (1); Thailand (1); Turkey (1); Viet Nam (1)
3 COSCO Pacific (China)	45.9	338	280	Belgium (1); China (15); Egypt (1); Greece (1); Singapore (1)
4 APMT (Denmark)	34	3119	161	Germany (2); Angola(1); Argentina (1); Bahrain (1); Belgium (1); Brazil (2); Canada (1); Cameroon (1); China (10); Congo (1); Côte d'Ivoire (1); Denmark(1); Egypt (1); Ecuador (1); Spain (1); United States (11); France (2); Ghana (1); India (2); Italy (3); Japan (2); Jordan (1); Malaysia (1); Morocco (1); Nigeria (2); Oman (1); Netherlands (2); Sri Lanka (1); Chinese Taipei (1); Thailand (1); Viet Nam (2)
5 Dubai Port World	27.7	3283	621	Germany (1); Saudi Arabia (1); Australia (5); Algeria (1); Argentina(1); Belgium (2); Canada (1); China (4); Korea (1);

[25] Not covered are regional players such as the German/Italian Eurogate Contship, which handled traffic totalling 14.2 million containers in 2008 but whose operations are confined to four European countries and Morocco; or domestic players such as Shanghai International Port Corporation, which does have projects abroad (in Zeebrugge, Belgium, for instance), but whose operations are currently limited to China; or HHLA, whose activities do not extend beyond the port of Hamburg, but with container traffic totalling 7.3 million units.

[26] The issue as to whether or not the disciplines pertaining to access to and use of port infrastructure proposed in the model schedule for maritime transport (document Job 1872) could apply to private port operators has been discussed, inconclusively, by Members on several occasions.

(United Arab Emirates)				Djibouti(2); Egypt (1); United Arab Emirates (4); Spain (1); France (3); Hong Kong, China; India (5); China (3); Indonesia (1); Mozambique(1); Pakistan (1); Philippines (1); Dominican Republic (1); Romania (1); United Kingdom (3); Senegal(1); Thailand (1); Venezuela (1); Viet Nam (1); Yemen (1)
6 ICTSI (Philippines)	3.7	432	57.5	Brazil (1); China (1); Ecuador (1); Georgia (1); Indonesia (1); Japan (1); Madagascar (1); Malaysia (1); Philippines (6); Poland (1); Syria (1)

a Terminal operator portfolios vary considerably from one year to another because of short-term concessions, occasionally turbulent contractual relations, and the cancellation or postponement of some projects in the wake of the economic and financial crisis.

Note: The ranking concerns only container terminals, excluding bulk cargo or specialized (timber, vehicles) terminals, for which no global data exist.

Source: Containerisation International, May 2009, and company websites.

57. Investors from outside the maritime transport community, such as construction firms, banks, and insurance and real estate companies, have invested to varying degrees in the sector. Until recently, these investments were among the most profitable infrastructure investments, along with airports.

58. The economic crisis hit the port operator sector somewhat more slowly than it did the maritime transport sector proper. Traffic, and hence port and associated handling fees, plunged by nearly 20 per cent in the last quarter of 2008 and throughout 2009, albeit with very significant regional, time- and traffic segment-related variations. For example, dry bulk traffic levels declined sharply to begin with, only to rebound as Chinese imports of iron ore from Australia resumed; similar trends were observed in the pure car and truck carrier (PCTC) segment, where the traffic base had shrunk to almost zero for several months. Likewise, regional and intra Asian traffic in particular were less severely affected. Some observers note the beginnings of a revival in liner traffic, where - failing volume increases - freight rates are said to be returning to profitability threshold levels. However, the build-up of surplus tonnage remains yet to be absorbed.

59. In addition to the income losses they had suffered, a few months later port operators were faced with requests from their shipowner customers, caught in a stranglehold as a result of the crisis, to lower their charges. They were also compelled to cut back on their investment plans and to cancel or at least postpone some of their projects. As in the case of airports, the sector is structurally set for expansion in the medium-term. Yet, in the short-term, there is a considerable amount of localized surplus capacity. There is talk of 30 to 40 per cent excess capacity in the Strait of Gibraltar, for example, which is a strategic location for hub and spoke traffic, and where, following the example of APMT Algeciras, all major shipping companies were involved in the staged development of a gigantic project in Tangier.

60. In the meantime, bank financing for such projects has largely dried up (down to 10 per cent of its level only two years before, according to some sources), whilst revenue to pay off the debt is becoming increasingly scarce. In spite of these difficulties, most major port operators still experienced marginal growth in 2008, ending the year with a positive balance. For 2009, data are still too few for useful comments.

61. The international terminal operator sector expanded whilst simultaneously undergoing a process of concentration. Thus, the market share of the top six operators (Hutchison Ports Holdings – HPH, Port of Singapore Authority – PSA, AP Möller Terminals – APMT, SSA Marine, P&O Ports,

and Eurogate) rose from 14.1 per cent in 1991 to 35.6 per cent in 2005.[27] Unfortunately, no estimates based on the same methodology are available for 2009, but the recent figures provided by UNCTAD show that in spite of these mergers, concentration in this sector remains relatively low.[28]

II. REGULATORY CHARACTERISTICS OF THE MARITIME TRANSPORT SECTOR

62. Recent developments in this area relate mainly to security, the environment, maritime safety, and competition. Regulatory activity concerning market access and liberalization has progressed at a slower rate.

A. SECURITY

63. Since the tragic events of 11 September 2001, security measures have increased at both national and international level. Despite the significant impact of these measures on trade, they will be referred to only very briefly in this document, given their particular nature.

64. While most measures were initially taken at national level and unilaterally, it soon became clear that international cooperation was needed to prevent conflict of laws, the accumulation of operationally incompatible standards, and the costs associated therewith. To this end, both the International Maritime Organization (IMO) and the World Customs Organization (WCO) developed key multilateral standards in an unusually short space of time. In addition, specialized bilateral forums have been established in some cases, such as the bilateral working groups on transport security between the European Union on the one hand and the United States, Japan, China, Korea, Russia and, in the near future, the Caspian and Mediterranean Sea countries, on the other.

65. In terms of content, security-related measures can be grouped into four categories. The first category seeks to ensure, in the port of arrival, that neither the vessel nor its cargo is being used for terrorist purposes and that no terrorists are hiding among the vessel's crew. Such measures include the posting of guards in ports, security audits, lighting and fencing requirements, the installation of detection systems - including radiological and nuclear detection systems - and communication systems, the definition of levels of alert and alert procedures, procedures for the screening and identification of port workers, and the appointment and training of port security personnel.[29]

66. The second category of measures covers the vessel and its equipment: pilot projects concerning electronic seals and geo-localized container tracking;[30] introduction of a "black box" identification system (IMO Automatic Identification System (AIS)); vessel audits and security plans, including the appointment and training of security officers, administrative authority approval,

[27] Midoro, R., Musso, E. and Parola, F. (2005), "Maritime liner shipping and the stevedoring industry: market structure and competition strategies".

[28] UNCTAD, Review of Maritime Transport 2009, p. 7. Thus, the Herfindalh Hirschmann index stands at 219, far below the 1,000 and 1,800 marks that point, respectively, to a very concentrated and a highly concentrated sector.

[29] US Coast Guard Security Guidelines for Waterfront Facilities (updated in 2002) and final implementing regulations (2003) for the Maritime Transportation Security Act; IMO International Ship and Port Facility Security Code (ISPS) of December 2002, which came into force on 1 July 2004; Regulation (EC) No. 725/2004 of 31 March 2004 transposing the ISPS Code; Directive 2005/65/EC of 26 October 2005 on port security; and ILO Convention No. 185 of 2003 laying down new rules governing the creation of falsification-proof seafarers' identity documents, which replaced ILO Convention No. 108 of 1958 on seafarers' identity documents, etc.).

[30] US programmes "Smart and Secure Trade Lanes" and "Operation Safe Commerce"; APEC electronic container tracking project; ASEAN shipping movements database; and ISO standards on electronic seals (2008).

introduction of an alert system, and overall monitoring by the State in which the vessel puts in to port (IMO ISPS Code), and obligation to provide full details of the content of the vessel's before its arrival at the port of destination (Japan) or its departure from the port of origin.[31]

67. The third category of measures involves "exporting" security obligations to the port of origin: targeted or general preshipment inspection programme conducted by customs officials from the destination country in collaboration with customs officials from the country of origin.[32]

68. The fourth category of measures seeks to ensure the security of the entire transport chain, from the production facility in the country of origin right through to the port exit point in the destination country, and to place responsibility on the chain's private actors, who, in return for subjection to the financial and administrative constraints linked to these security measures, will benefit from "fast lane" cargo clearance.[33]

69. UNCTAD, the World Bank and the OECD have produced several studies assessing the financial impact of these measures on the various stakeholders and on trade, in particular in relation to developing countries.[34] Reportedly, the costs may reach several hundred million US dollars for both initial investment and operation, equivalent to 1 to 3 per cent of the total value of traded goods. The trade journal Fairplay, which recently reviewed the five-year implementation of the IMO ISPS Code, estimates that the Code's initial investment costs amount to US$3.1 billion, while its annual cost are in the order of US$570 million.

70. Meanwhile, regulators are tending to relax the measures introduced immediately after 11 September, or to revise regulations so as to take more effective account of the needs of operators and the risks of conflict of laws.[35] It is, however, too early to confirm the existence of a persistent trend towards the easing of security measures.

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[31] US "24-Hour Rule" and "10+2 Rule"; Commission Regulation (EC) No. 312/2009 of 16 April 2009, due to enter into force on 31 December 2010.

[32] The targeted US Container Security Initiative (CSI) programme; the five US pilot projects conducted in the United Kingdom; Pakistan; Oman; Honduras and Hong Kong, China, under the 2006 Safe Port Act; and the US "100 per cent scanning" law of July 2007, due to enter into force on 1 July 2012, etc.

[33] This category of measures includes the US C-TPAT (Customs Trade Partnership Against Terrorism) and C-TPAT+ programmes of 2002 and 2005, the European Community's Authorized Economic Operator (AEO) status of 2006, which came into effect in 2008, and the WCO SAFE Framework of Standards to Secure and Facilitate Global Trade of June 2007.

[34] UNCTAD: Transport Newsletter, February 2002, and "Maritime Security: ISPS Code Implementation, Costs and Related Financing", 14 March 2007, UNCTAD/SDTE/TLB/2007/1; World Bank: "Global Economic Prospects 2004", p. 186, which cites two other studies: Leonard, J., 2001, "Impact of the September 11, 2001, Terrorist Attacks on North American Trade Flows", and Walkenhorst, P., and Dihel, N., 2002, "Trade Impacts of the Terrorist Attacks of 11 September 2001: A Quantitative Assessment", OECD, July 2003, cited in the Financial Times of 2 June 2004.

[35] Examples are: (a) The announcement made in November 2009 by the US Coast Guard concerning a forthcoming new regulation aimed at easing the procedures and reducing the escort fees applicable to foreign seafarers' shore visits at US ports; (b) Commission Regulation (EC) No. 1875/2006 on the regime governing the advance declaration of cargo, due to enter into force on 1 July 2009, was amended by Regulation No. 312/2009 of 16 April 2009, which takes into account specialist comments and postpones the entry into force until 31 December 2010; and (c) the decision taken by the US Department of Homeland Security to postpone, under existing law, by two years until January 2014, the entry into force of the "100 per cent scanning" legislation, on account of the lack of available technology, logistical challenges, and the shortage of skilled manpower to read and interpret images. At the same time, the Government Accountability Office (GAO) recommended that the Department of Homeland Security evaluate whether 100 per cent scanning was feasible regardless of the time frame. For further details see Containerisation International, January 2010, p. 18.

B. COMPETITION POLICIES

71. Following a brief convergence in the late 1990s, maritime transport-related competition policies of WTO Members have once again diverged considerably over the last decade. The following discussion is structured according to the form of cooperation involved.

1. Shipping conferences

72. Shipping conferences, which first appeared in 1870, are the oldest form of cooperation between shipowners. A conference is a group of shipowners that fixes departure frequencies and common prices for a given geographical area.

73. When competition laws were developed in the United States at the end of the 19th century and elsewhere after the Second World War, these groups benefited from anti-trust immunities (such as the block exemption afforded by Council Regulation (EEC) No 4056/86 of 22 December 1986). These immunities were very broad in "ship-owning countries" (Japan, European Community, etc.) and of a more conditional nature in "shipper countries" (Australia, Canada, United States), with obligations in respect of agreement filing, the opening of conferences to any shipowner wishing to participate, and equal treatment for shippers, and the right to fix tariffs independently of conferences (Independent Rate Action (IRA)).

74. Conferences, weakened not only by such legislation, but by the emergence of large independent shipowners ("outsiders") and the concentration of the liner sector, gradually lost the almost exclusive influence control over shipping traffic in the course of the 1980s and 90s. They then had less than 60 per cent of traffic under their control.

75. Some regulatory convergence occurred when the United States introduced a system of confidential "services contracts", freely negotiated between individual shipowners and shippers (Ocean Shipping Reform Act (OSRA), 1999). In the meantime, the Directorate General for Competition of the European Communities, through a series of prosecutions for abuse of dominant position, gradually reduced the ability of conferences to fix tariffs and regulate capacity, thus forcing European shipowners, too, to resort to individual services contracts.[36]

76. In 2006, the Council of the European Communities abolished, through Regulation No. 1419/2006, the block exemption and the shipping conference system as of 31 October 2008. All joint price fixing activity for services from or to the European Union and the European Economic Area is now therefore illegal. With regard to individual capacity regulation, the situation is a little more complex. The Regulation recognizes that the specific nature of maritime transport calls for the exchange of a certain amount of data, albeit at a much more aggregated level than was previously practised by conferences, in order to plan investments and take individual informed decisions regarding capacity.[37]

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[36] On 1 December 2009, the Treaty of Lisbon amending the Treaty on European Union and the Treaty establishing the European Community (done at Lisbon, 13 December 2007) entered into force. On 29 November 2009, the WTO received a Verbal Note (WT/L/779) from the Council of the European Union and the Commission of the European Communities stating that, by virtue of the Treaty of Lisbon, as of 1 December 2009, the European Union replaces and succeeds the European Community.

[37] To this end, on 1 July 2008, the Commission published guidelines on the application of Article 81 of the EC Treaty to maritime transport services, which provide general information on the types of data that can be lawfully exchanged (see http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2008:245:0002:0014:FR:PDF). Shipowners serving the European Union have since introduced an information system to this effect.

77. According to numerous observers, the disappearance of conferences had much less of an impact than had been feared by the professionals, because the sector's concentration and technical organization in the form of consortia and alliances, and the generalization of services contracts had in fact already rendered conferences - which had already lost their rate-fixing and route coordination functions - largely obsolete. Some industry representatives[38] have called for a temporary suspension of competition rules and of the European Community's abolition of liner conferences in particular, so as to provide shipowners with the levers needed to collectively restore what they consider equilibrium to the market, that is, price fixing and capacity adjustment. In a survey published in December 2009, customers acknowledged that, in the face of recently plummeting freight rates, it was very difficult to apportion responsibility between the economic crisis and the abolition of the conference system, since the two phenomena occurred almost simultaneously in October 2008.[39]

78. The European Community is the only jurisdiction, until now, in which conferences have been prohibited. Elsewhere they are authorized under various, increasingly strict, conditions.

79. In the United States, conferences are treated like any other group of shipowners. In practice, they have disappeared on routes to and from the United States. The last one, the Trans-Atlantic Conference Agreement (TACA) covering traffic with Europe, was dissolved on 1 October 2008 upon the entry into force of Council Regulation (EC) No 1419/2006.

80. In Australia, the two most recently revised versions of Part X of the Trade Practices Act (1999 and 2005) have maintained anti-trust immunity for conferences. However, in line with the recommendations issued by the Productivity Commission, the Government has prohibited all shipowner groups (including, therefore, conferences) from in any way inhibiting their members' capacity to conclude services contracts. Penalties and provisions concerning the lodging of complaints by shippers have been reinforced and a net public benefit requirement has been introduced.

81. In Japan, questions raised by the Japan Fair Trade Commission concerning adjustments to the current regulatory system resulted, in 2007, in the Ministry of Infrastructure and Transport undertaking in-depth studies on the competition policy of other countries, changes in the maritime transport sector, the stabilizing function of agreements between shipowners, and the impact that the abolition of immunity would have on the Japanese economy. In Canada, the Shipping Conference Exemption Act was most recently amended in 2001 in order to introduce the notion of confidential services contracts. In India, in May 2007, a commission appointed by the Government recommended the abolition of the shipping conference system. In September 2007, the Competition Commission of India ordered shipping companies to desist from anti-competitive behaviour. Legislation is envisaged to reinforce the powers of this commission.

82. In China, maritime competition legislation (International Maritime Transport Regulations of December 2002, consolidated in 2007) stipulates that conference agreements or any other agreements between shipowners are to be filed with the Shanghai Shipping Exchange, which has been designated as the delegated authority for this purpose.[40] It also prohibits undeclared shipper discounts, introduces sanctions for abuses of dominant position, stipulates that shipping companies are to have a local representative in China (provision introduced in April 2007) and sets forth requirements concerning

[38] CEO Jacques Saadé of CMA-CGM, the world's third largest liner company, and CEO C.C. Tung of Orient Overseas Lines, the ninth largest liner company.

[39] Containerisation International, December 2009.

[40] Pursuant to the Implementing Rules on the Filing of Freight Rates by the International Container Liner Service, which came into effect on 1 August 2009.

shipper consultations.[41] Four groups have already been penalized to various degrees for not having complied with this legislation. In 2008, China also introduced a general competition law banning horizontal price-fixing agreements (and therefore, potentially, conferences), although how this links in with legislation of a specifically maritime nature is not yet clear.

83. In Singapore, a 2006 Ministry of Transport decision confirmed anti-trust immunity for all liner agreements (including conferences, consortiums, and discussion agreements).

84. In July 2009, APEC discussed a consultant's report which advocated the continuation of anti-trust immunity for shipowner agreements not involving price fixing and an agreement filing and information exchange system for APEC members. In this context, conferences would still be permitted providing that members were free to conclude services contracts.

2. "Discussion" and "stabilization" agreements :

85. "Stabilization" or "discussion" agreements (the terms are equivalent) are a more recent and flexible form of cooperation prompted by the emergence of independent shipowners. Such agreements used to be known as "tolerated outsider agreements" and sought to establish a *modus vivendi* between conference members, on the one hand, and independent shipowners, on the other, through capacity and price coordination - outsiders undertaking not to apply rates below a given margin in relation to those practised by the conference.

86. With the decline and occasional dissolution of conferences, such agreements have gradually gained in importance, because they are often the only forum where the players concerned can still coordinate amongst themselves (on the trans-Pacific route, for instance). The agreements vary greatly in status from one jurisdiction to another.

87. In particular, capacity stabilization agreements have always been banned for traffic to and from the European Community, and now also in Australia, pursuant to the 2005 revision of Part X of the Trade Practice Act. Elsewhere, they are tolerated under terms which, overall, are becoming increasingly stringent. Thus, acting on a complaint filed by shippers in the United States, in October 2003 the Federal Maritime Commission (FMC) ruled that the Transpacific Stabilization Agreement (TSA) was to refrain from discussion and reach collective agreement on freight rates and the negotiation of contract terms for non vessel operating common carriers (NVOCCs, that is, freight forwarders which serve as maritime transport wholesalers on behalf of the shippers), particularly as regards the scheduling of rate increases and surcharges.[42] As mentioned earlier, under the legislation of Japan, Singapore and China stabilization agreements are treated in the same way as conferences.

88. From a regulatory standpoint, the distinction between the conferences on the one hand and the stabilization/discussion agreements on the other (where they continue to be applied side by side) is tending to fade and competition authorities are seeking, on the one hand, to promote individual services contracts and, on the other, to prevent any group of shipowners from coordinating services contracts, freight rates and capacity regulation.

[41] The implementing authority has assigned itself two tasks. The first is to control abuses of dominant position by carriers. The second is to maintain the stability of the sector and more generally the efficiency of export traffic. Such stability and efficiency could in fact be threatened by excessive competition in periods of recession. See Containerisation International, November 2009, p. 21.

[42] The TSA undertook to refrain from discussing capacity utilization for a period of three years, from exchanging information concerning individual shippers and from extending its geographical scope; and to pay a fine of US$5.3 million. The undertaking has since been extended *nolens volens*. Along similar lines, NVOCCs were authorized in 2005 to enter into individual services contracts with shipowners. The FMC closely monitors this kind of agreement, and in September 2008, for example, it initiated an inquiry concerning the Oceania Vessel Sharing Agreement, which covers traffic with New Zealand and Australia.

3. Consortia

89. Consortia are a form of purely technical cooperation between shipowners operating joint services by means of technical, operational or commercial coordination (e.g. joint use of vessels, port installations and marketing organizations). They do not appear to fall under any specific legal category elsewhere than in European law and, other than in Europe, are treated like any other group of shipowners. In the European Community, they were granted block exemption under regulations that were amended and extended on a regular basis since 1995.[43]

90. Of key importance in this period of overcapacity is the fact that consortia retain the right of joint decision-making in respect of capacity adjustment.

4. Vessel sharing agreements

91. Vessel sharing agreements (VSAs), which are in fact a consortium subcategory or modality, have become a very frequent form of cooperation in the current economic crisis. The aim is to maintain a commercial presence on a specified loop, or maritime route, whilst withdrawing a ship and redeploying it by reserving space on the vessel of a partner company, the partner in turn proceeding in the same way on another loop. From the shippers' standpoint, the integrity of the service appears to be maintained, albeit at a slightly slower pace because of the reduced number of ships; from the shipowners' standpoint, capacity trimming prevents price collapse while allowing further economies of scale through the use of super Panamax vessels, capable of carrying more than 6,000 containers. In this connection, the VSA recently signed between the world's top three liner shipping companies - i.e. Maersk, MSC and CMA-CGM, which had not operated under any alliance before - for the purposes of trans-Pacific traffic is an event of major significance.

5. Alliances

92. As in the air transport sector, global alliances have emerged and in the main began to stabilize as from 1999.[44] They are far less integrated than in air transport, however.

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[43] Commission Regulation No. 906/2009 of 28 September 2009, due to enter into effect in April 2010, takes account of the abolition of the liner conference system and the ban on all joint fixing of freight rates (by, for example, repealing the provisions on joint voting in conferences and on independent tariff action, and prohibiting revenue, cargo and performance pools); extends regulatory coverage beyond container services alone (and hence includes consortia of roll-on roll-off vessels, cold-storage ships, conventional vessels carrying a variety of goods, and break-bulk ships); unifies and lowers the market share threshold below which consortia enjoy a 30 per cent presumption of legality (under the previous system the threshold was set at 35 per cent for non-conference consortia and at 30 per cent for conference consortia); widens the market share calculation base by taking account of the shares held by each consortium member in other consortia operating on the same routes (consortia exceeding the threshold do not automatically become unlawful but are subject to a system of self-assessment of compatibility with the Treaty establishing the European Community); extends the lock-in period from 18 to 24 months; and eases procedural provisions.

[44] The only developments since then have been the withdrawal of the Anglo-Dutch PONL from Grand Alliance following its purchase by Maersk Denmark, the recent closure of services by DSR Senator Line, the German subsidiary of Korea's Hanjin shipping company which also operated within the CKYH alliance, and the withdrawal of MISC, Malaysia's national carrier, from Grand Alliance, which was announced in June 2009 and became effective at the end of 2009.

The three main alliances are CKYH, made up of COSCO (China), K Line (Japan), Yang Ming (Chinese Taipei) and Hanjin (Republic of Korea); New World Alliance, i.e. Neptune Orient Lines (Singapore), its US subsidiary American President Lines (Singapore/United States), Mitsui OSK Line (Japan) and Hyundai (Republic of Korea); and Grand Alliance, consisting of Hapag–Lloyd (Germany), NYK (Japan), OOCL (Hong Kong, China) and MISC (Malaysia).

93. Alliances cooperate with each other on occasion. New World Alliance and Grand Alliance, for example, exchange slots on Asia-Europe routes and use common services on the route between Asia and the east coast of the United States via the Panama Canal and on Asia-Black Sea voyages. Furthermore, unlike airlines, the sector's top three companies (in terms of vessel numbers, tonnage and turnover), i.e. Maersk Denmark, the Italian-Swiss group MSC and France's CMA-CGM, are not alliance hubs but prefer to cooperate on an ad hoc basis depending on geographical location. They often operate independently and tend to favour, at least as far as Maersk and CMA-CGM are concerned, external growth over cooperation.

94. Depending on the jurisdiction concerned, alliances may be likened to consortia or a set of consortia (as in the European Union, where share in the alliance is measured in each regional market) or regarded as agreements between shipowners that do not fix freight rates.

6. Tramp pools and cabotage

95. A tramp pool brings together a number of vessels that are under different ownership but of a similar type and is operated under a single administration. Cabotage means all kinds of traffic from port to port within a single State. Apparently only the European Union has laid down specific rules governing these particular forms of cooperation and traffic. The United States, for instance, treats or bans them, as the case may be, as it would treat any shipowner agreement.[45]

96. The European Communities, pursuant to Regulation (EC) No. 1419/2006 of 25 September 2006, applies the EC Treaty's general rules on competition to both segments. In 2008, a set of guidelines recalled that such forms of cooperation would not be entitled to individual exemption unless they fulfilled the following four cumulative conditions: Efficiency gains; passing through part of the gains to the shippers in the form of lower prices or new logistical solutions; no less restrictive solution available for achieving such gains; and no elimination of competition for a substantial share of the market.

7. Mergers and acquisitions

97. Even though concentration in the maritime transport sector has accelerated sharply, as outlined above, the level of concentration remains relatively low in comparison with other industrial or services sectors. This explains why there has been moderate intervention by regulators under general competition rules. (There is no maritime-specific legislation.) The only noteworthy case to date is a requirement that Maersk sell its interests in the SAECS consortium operating the South Africa and Indian Ocean routes following its takeover of PONL, because of what was deemed to be Maersk's newly dominant position in the area.[46]

98. On certain routes, however, concentration may have led to a lowering of competition. The Liner Connectivity Index developed by UNCTAD provides detailed information in this respect.[47]

C. REGULATORY DEVELOPMENTS IN RELATION TO THE ENVIRONMENT, MARITIME SAFETY AND MARITIME SOCIAL LEGISLATION

99. These three apparently disparate regulatory areas can be dealt with together because they come under the same implementing authority ("Port State Control" and the related national legislation

[45] See, for example, proceedings to prevent abuse of dominant position in the tanker sector (Jo Tankers/Odjfell/Stolt-Nielsen case, 2005-2007), and in traffic between the continent and Puerto Rico (proceedings ongoing since 2008).

[46] See http://ec.europa.eu/competition/mergers/cases/decisions/m3829_20050729_20212_en.pdf

[47] See http://www.unctad.org/en/docs/sdtetlbmisc20072_en.pdf, page 4.

and plurilateral standards). Two of these areas, moreover, are regulated by the same body, the International Maritime Organization (IMO).

1. Work of the International Maritime Organization (IMO)

100. From an institutional perspective, it is difficult to separate maritime safety and environmental issues, since global standards in both areas are issued by one and the same organization, the IMO. Over the last fifteen years, the IMO has adopted numerous amendments to its major conventions: the International Convention for the Safety of Life at Sea (SOLAS Convention) of 1960, the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention), the International Convention for the Prevention of Pollution from Ships (MARPOL Convention) of 1973, and the International Convention on Civil Liability for Oil Pollution Damage (CLC Convention).

101. Of particular note among these amendments are those to Annex VI to the MARPOL Convention of April 2008, which seek to reduce sulphur oxide (SOx) and nitrogen oxide (NOx) emissions.[48] IMO activities with a notable commercial impact on the sector include the adoption in May 2009 of the Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships. This Convention is based on standards applied to ship dismantling facilities and on the regular and particularly rigorous surveying of individual vessels with regard to hazardous materials used in their construction, with a final survey being conducted prior to recycling. The ratification threshold for the entry into force of this Convention has yet to be reached.[49]

102. The Kyoto Protocol mandated the IMO to identify mechanisms for the limitation and reduction of greenhouse gas emissions. According to the Second IMO Greenhouse Gas (GHG) Study 2009, international shipping accounts for 2.7 per cent of CO_2 emissions (3.3 per cent when taken together with domestic shipping and fisheries) and this volume is expected to increase dramatically (by 150 to 250 per cent by 2050, according to the same study) unless remedial action is taken. In the framework of the aforementioned mandate, the IMO has developed three sets of measures to cut vessel energy consumption by means of advanced information technology, manage vessel weight, reduce speed and introduce weather routing.[50]

103. The IMO has also discussed the introduction of market-based instruments to reduce emissions and has fixed December 2011 as the deadline for reaching an agreement on such instruments. Talks have so far come up against two stumbling blocks. The first is the choice of the type of instrument: whether this should be an upstream tax on fuel, a cap-and-trade emission trading scheme or a hybrid system. The second is how to dovetail the principle under the Kyoto Protocol of "common but differentiated responsibilities" with the IMO's "no more favourable treatment" clause, which

[48] With regard to SOx emissions, the Convention establishes both a global sulphur cap and a lower sulphur limit applicable in environmentally sensitive areas (Emission Control Areas, ECAs), such as the Baltic Sea and, in the near future, the North American coastlines. The Convention provides for a gradual reduction of these limits by 2025, with an interim review in 2018. As far as NOx emissions are concerned, emission reduction kits will be required to be installed on vessels constructed between 1990 and 1999 in order to bring them to a pre-determined level; vessels constructed as of 2011 will be required to reduce their NOx emissions by between 15.5 and 21.8 per cent depending on engine cruising speed; and finally vessels constructed in or after 2016 will be required to reduce NOx emissions by 80 per cent in relation to 2008 levels.

[49] The Convention enters into force 24 months after the date on which 15 States, representing at least 40 per cent of the world fleet, with their combined maximum annual ship recycling volume constituting not less than three per cent of their combined tonnage, have ratified it without reservation.

[50] The IMO has put these three measures (Guidance for the development of a Ship Energy Efficiency Management Plan (SEEMP), the Energy Efficiency Operational Indicator (EEOI) and the Energy Efficiency Design Index (EEDI)) to its Members with a view to their implementation on a voluntary, trial basis.

postulates equality of treatment for all vessels. The Climate Change Conference in Copenhagen in December 2009 failed to achieve specific results on maritime transport emissions. The IMO schedule for addressing this issue therefore remains unchanged.

104. These three examples do not by any means exhaust the IMO's environmental activities, which also include work on the regulation of ballast waste disposal, the composition of anti-fouling paint and waste treatment.

2. Work of the International Labour Organization (ILO)

105. In 2005, the ILO adopted the Maritime Labour Convention, a so-called "super Convention", which consolidates the maritime social standards adopted over a period of more than fifty years. The ratification thresholds for its entry into force have not yet been reached.

3. Regional and national developments

106. A major development in relation to the implementation of safety, environmental and social regulations is the proliferation of memoranda of understanding on "Port State Control". An informal data exchange system provides MoU members with the results of inspections conducted in their ports to ensure compliance with IMO safety standards and ILO social standards. Such systems enable vessels that are repeat offenders to be targeted and detained in port until violations have been remedied. Launched in Europe in 1980 with the Paris Memorandum of Understanding on Port State Control[51], this practice has become almost universal given that the nine memoranda currently in force (Paris MoU, Black Sea MoU[52], Caribbean MoU[53], Indian Ocean MoU[54], Abuja MoU[55], Viña del Mar Agreement[56], Mediterranean MoU[57], Tokyo MoU[58] and Riyadh MoU[59]) encompass the majority of coastal and/or maritime States.

107. In the United States, coastguards apply *mutatis mutandis* the same safety regulations as the regional MoUs and cooperate closely with them.[60]

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[51] Current members: Belgium; Bulgaria; Canada; Croatia; Cyprus; Denmark; Estonia; Finland,; France; Germany; Greece; Iceland; Ireland; Italy; Latvia; Lithuania; Malta; Netherlands; Norway; Poland; Portugal; Russian Federation; Slovenia; Spain; Sweden and United Kingdom.

[52] Current members: Bulgaria; Georgia; Romania; Russian Federation; Turkey and Ukraine.

[53] Current members: Anguilla; Antigua and Barbuda; Aruba; Bahamas; Barbados; Bermuda; British Virgin Islands; Cayman Islands; Cuba; Dominica; Dominican Republic; Grenada; Guyana; Haiti; Jamaica; Montserrat; Netherlands Antilles; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Suriname; Trinidad and Tobago; and Turks and Caicos Islands.

[54] Current members: Australia; Eritrea; France; India; Iran; Kenya; Maldives; Mauritius; Oman; South Africa; Sri Lanka; Sudan; Tanzania and Yemen.

[55] Current members: Benin; Cape Verde; Congo; Côte d'Ivoire; Gabon; Gambia; Ghana; Guinea; Liberia; Mauritania; Namibia; Nigeria; Senegal; Sierra Leone; South Africa and Togo.

[56] Current members: Argentina; Bolivia; Brazil; Chile; Colombia; Cuba; Ecuador; Honduras; Mexico; Panama; Peru; Uruguay and Venezuela (Bolivarian Republic of).

[57] Current members: Algeria; Cyprus; Egypt; Israel; Jordan; Lebanon; Malta; Morocco; Tunisia and Turkey.

[58] Current members: Australia; Canada; Chile; China; Fiji; Hong Kong, China; Indonesia; Japan; Korea (Rep. of); Malaysia, New Zealand; Papua New Guinea; Philippines; Russian Federation; Singapore; Thailand; Vanuatu and Viet Nam.

[59] Current members: Saudi Arabia; Bahrain; United Arab Emirates; Kuwait; Oman and Qatar.

[60] The California Air Resource Board (CARB) has placed a 0.5 per cent restriction on sulphur emissions within a 29-mile radius of its coasts. This regulation was overturned by a court decision in February 2008. Moreover, the ports of Long Beach and Los Angeles have offered shipowners subsidies to cover the cost differential involved in using low-sulphur-content fuel. The use of cold ironing is now mandatory in California.

108. In the wake of the Ievoli Sun, Erika and Prestige disasters, the European Union adopted a myriad of environmental and maritime safety measures. Of particular note are the three Erika "legislative packages", which have helped bring forward the original IMO schedule for the elimination of single-hull oil tankers.[61] With regard to greenhouse gas emissions from maritime transport, the European Union, in preparation for the Copenhagen Conference, had set itself the goal of achieving a 20 per cent reduction in emissions in 2020 in relation to 2005.[62] Finally, it is worth noting the growing impact of European environmental directives on port development projects; which have been affected by complaints over their failure to comply with these directives.

D. REGULATORY DEVELOPMENTS IN RELATION TO DOMESTIC SUPPORT

109. To the Secretariat's knowledge, there is no global inventory of maritime transport sector support schemes.[63] However, a number of general trends may be identified. In particular, while direct subsidies have become scarce, fiscal instruments have come into general use.

110. One explanation for this phenomenon is the increasingly widespread use of the tonnage tax system, whereby the corporate tax of shipping companies is not calculated on the basis of their profits, but as a flat rate based on fleet tonnage. This system is at least partially modelled on the tax systems applied by open registries, such as Panama and Liberia. It is most frequently independent of the national flag, given that the bulk of international shipping activity is carried out by the controlled fleet, not by domestically flagged vessels. The system also benefits the flagged vessels of other Members. Another explanation for the relative importance of tax measures amid the array of support mechanisms is the existence of tax exemption schemes for high-revenue maritime investments, under joint-ownership (vessel-share) arrangements managed by specialized financial institutions.

111. The importance of "duty-free inputs and free zones", as mentioned earlier on, is explained by the fact that vessels are often imported free of customs duties and that the ports of registry are sometimes located in free zones. A pattern which is emerging, is the increase in environmental subsidies, for example those granted by certain American ports to encourage emission control or by the European Union to encourage a transfer from road to maritime transport, which is less polluting and less harmful to infrastructure (Marco Polo programme, the trans-European transport network policy (TEN-T) programme, Motorways of the Sea, Short Sea Shipping). Several countries are considering adopting similar support programmes.

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[61] For further details see http://europa.eu/legislation_summaries/transport/waterborne_transport/l24230_en.htm for the Erika I package; http://europa.eu/legislation_summaries/transport/waterborne_transport/l24242_en.htm for the Erika II package; http://ec.europa.eu/transport/maritime/safety/third_maritime_safety_package_en.htm for the Erika III package; and http://europa.eu/legislation_summaries/transport/waterborne_transport/index_en.htm; for EU maritime safety policy as a whole.

[62] Prior to the Conference, the Commission had also indicated that, in the absence of significant progress at those talks, it would table in 2010, for implementation in 2011/2012, legislative proposals for a regional emission trading scheme similar to the one set up in 2008 for air transport.

[63] The closest approximation to such an inventory is contained in WTO Trade Policy Reviews (WTO document S/WPGR/W/25/Add.5 of 27 March 2007, "Subsidies for Services Sectors, Information Contained in WTO Trade Policy Reviews"). It lists 32 WTO Members which apply various types of support schemes: direct grants (Australia; Solomon Islands; Czech Republic; Pakistan; India; Turkey; Singapore; Israel; US), preferential credit and guarantees (Thailand; US; India), tax incentives (Egypt; India; Jamaica; Peru; Singapore; Turkey; US; Brazil; Japan; Mauritius; Mexico; Barbados; Australia; Venezuela; Hong Kong, China; Indonesia; Honduras; Sri Lanka; EU; Philippines; Malaysia; Djibouti; Tanzania), duty-free inputs and free zones (Egypt; Jamaica; Papua New Guinea; Peru; Turkey; Pakistan; Barbados; Indonesia; Honduras; Philippines; Djibouti; Chinese Taipei; Tanzania) and other and unspecified measures (EU; Republic of Korea; US; Mauritius; India; Australia; UAE).

112. The current economic crisis has already had an impact on sector support. In Korea and China, for example, maritime investment funds owned/controlled by the public sector have been set up to purchase vessels from, and then lease them back to, national shipowners.[64] In Germany, the plan to rescue the company Hapag-Lloyd by its shareholders, which include the Land of Hamburg, has been backed by State guarantees, and this system could shortly be applied to other shipowners and certain *Kommanditgesellschaften*.[65] The Singapore shipping company Neptune Orient Lines benefited from a billion-dollar recapitalization by its major shareholder, the sovereign fund Temasek.[66] Reports suggest that the French and Argentine shipping companies CMA-CGM and Maruba could also benefit from in the near future support measures, the terms and conditions of which have yet to be precisely determined.[67]

113. "Second registries", discussed above (paras 30, 31,and 34), could also be deemed to come under the heading of support measures.

E. DEVELOPMENTS AFFECTING MARKET ACCESS

114. The port sector deserves special attention because, as mentioned earlier, major steps have been taken over the past ten years towards privatization and opening up to foreign participation. This has given rise to considerable regulatory action. Conversely, the regulatory framework for ocean-borne or land based maritime transport activities does not appear to have undergone any significant changes, other than that the trend towards broader liberalization has continued - albeit at a slower pace than in the 1980s and 1990s and with reversals.

1. Regulatory developments in the port sector

115. Regulatory activity in the port sector has chiefly consisted in turning service ports into landlord ports, that is, moving from a situation where ports provided all port services, in particular cargo handling, to a situation where they merely supply and manage heavy infrastructure (wharves, jetties, lighthouses, navigational aid system). Light infrastructure such as cranes, forklifts and hard standing stacking areas are left in the hands of concessionaires or private operators. Ports also assume responsibility for traffic control inside the perimeter of the harbour and other tasks falling within their purview (quarantine, disinfection, management of compulsory ballast disposal facilities, etc.), but they no longer perform any operational functions.

116. This not only presupposes the existence of general legislation authorizing the establishment of a framework of this kind, but also intense contractual activity to negotiate the terms and conditions of concessions. It also generally presupposes a great deal of negotiation with the social partners to establish social schemes, redefine the status of workers/personnel and organize labour (centralized management of dock-workers and crane operators, round-the-clock availability seven days a week, team numbers and rules of employment, and so forth).[68]

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[64] For Korea see notably Fairplay Magazine August 2009 p. 28 and October 2009, p. 30; Financial Times, 8 July 2009 and Containerization International, August 2009, p. 24. For China Fairplay Magazine October 2009, p. 43 and Bloomberg 3 July 2009.

[65] Among other sources see Fairplay Magazine, 19 November 2009 p. 15, 21 January 2010, p. 34, 4 February 2010, p. 18; Financial Times, 9 October 2009 and 27 October 2009.

[66] See for instance http://www.reuters.com/article/idUSSGC00116720090602.

[67] For Maruba see Containerization International, November 2009, p. 15, and Fairplay Magazine, 18 February 2010, p. 16; for CMA-CGM among other sources see Financial Times, 30 September 2009, and Containerization International, January 2010, p. 9.

[68] For further details see the World Bank's Port Reform Toolkit, which provides a comprehensive overview of the sector and the regulatory and contractual activities to be undertaken by States seeking to privatize and open up their port activities to foreign investors.

117. In 2001, the European Commission's attempted to liberalize port services, *inter alia*, by authorizing self-handling by ship crews in EC ports and harmonizing concession terms and conditions. After long debates, in 2007 the Commission opted for a soft law approach in the form of a "toolbox" including, among other things, environmental guidelines, measures to streamline administrative aspects of the logistics chain, guidelines on State aid, extension of the "transparency" directive (Directive 2000/52/CE) and a document specifying how the Treaty applies to port handling and techno-nautical services.

118. The difficulties encountered in some countries by foreign port operators (no pre-qualification for tendering, compulsory resale of assets acquired following a merger/acquisition) point to continued political and economic sensitivities.

2. Regulatory developments in the maritime transport sector

119. The only systematic attempt to identify GATS-consistent market access, national treatment and MFN treatment schemes applied to maritime transport was made by the Negotiating Group on Maritime Transport Services between 1994 and 1996, using a questionnaire sent out by the WTO Secretariat.[69] The 15 year-old replies to this questionnaire, which are already incomplete in terms of geographical coverage, can no longer be used as a reliable information base. In addition, the respective shares of the major suppliers have changed considerably.

120. In a preliminary analysis carried out in 1998, the WTO Secretariat considered the sector as being highly liberalized compared to many other services sectors, including transport sectors. In the main, bulk transport was not subject to restrictions, other than in a couple of countries. Unfortunately, however, the number of available resources has dwindled significantly since the late 1990s.[70]

121. As regards liner services, the UN Convention on a Code of Conduct for Liner Conferences[71], which entered into force in 1983 to open the restricted "club" of existing conferences through a cargo sharing arrangement (the famous 40-40-20 formula) largely proved a failure. In spite of its wide membership (more than 70 contracting parties), the Code was not actually applied to more than a marginal part of global traffic, i.e. that between Western Europe and West Africa, which accounts for less than 3 per cent of the world liner trade. Finally, in 1988 application of the Code to this particular traffic was deemed unlawful by the EC's competition authorities, on the grounds of abuse of dominant position by the conferences. In other regions, the conference system - which today has all but disappeared - coexisted with a series of bilateral cargo sharing agreements that either were the result

[69] WTO document S/NGMTS/W/2 of 21 October 1994. The questionnaire received 37 replies (the European Communities counting as one). At the time this represented 47 per cent of global tonnage in terms of registration and more than 80 per cent in terms of ownership.

[70] The Consultative Shipping Group (CSG) is an informal grouping of several OECD member States with maritime interests, whose aim is to coordinate diplomatic initiatives in response to protectionist measures or actions (http://cottonclubdc.org/CSG.htm); GSG's archives are not open to the general public. The Council of European and Japanese National Shipowners' Associations (CENSA), which used to produce a "list of sins", discontinued this activity at the turn of the century. The OECD's Maritime Transport Committee (CTM-MTC), which provided a forum for exchanging views on market access issues and produced publicly available documents, was disbanded in 2003. One of the most recent OECD studies on access to maritime transport markets was carried out between 1998 and 2002. It examines the practices of OECD members, among other things, but does provide concrete data. See: Regulatory Issues in International Maritime Transport, OECD Report, August 2001, available at: http://www.oecd.org/dataoecd/0/63/2065436.pdf. (In particular: paras 146-152 (pp. 36-37) on the various bilateral cargo access regulations; paras 153-156 (pp. 37-38) and Annex C, paras 53-58 (pp. 88-90), on the respective shares of unilateral cargo reservations; paras 157-165 (pp. 38-39) on registration conditions; paras 166-174 (pp. 39-41) on cabotage; and paras 175-178 (p. 41) on national security measures.

[71] United Nations Treaty Series, 1983.

of historical or colonial links or were developed to deal with then State trading economies such as China and the USSR. Some bilateral agreements were also inspired by import substitution concepts similar to those underpinning the liner code (Latin America). These frameworks have gradually eroded as well.[72]

122. In terms of market access, maritime transport is the sphere par excellence of dormant legislation (regarding domestic, international unilateral, or international bilateral cargo reservation in particular) and waivers. There are at least two explanations for this situation. First, obsolete legislation was not necessarily repealed or denounced (in the case of bilateral cargo-sharing agreements, for example, when policies changed).[73] Second, even where such measures are still applied, lobbying pressure, including from adversely affected domestic user industries, has translated into a wide array of exceptions. The impact of maritime protectionism thus tends to be overestimated in studies that rely on information describing formally existing regimes.

123. As stated by the then Secretary of the OECD Maritime Transport Committee at the seminar on logistics services held at the WTO on 29 September 2004: "The OECD undertook an extensive review of regulatory issues in maritime transport and concluded that, by and large, maritime transport was already quite liberal, at least in practice if not always with commensurate legal obligations. On most trades there is relatively free trade access to cargo and relatively few impediments to the provision of blue water shipping services. For example, while the UN liner code of conduct and its cargo sharing provisions is still in force, very few States are applying it. Equally, the reservation of cargoes under bilateral agreements or government- or national security-linked cargoes is very limited these days. Cabotage remains in place in many economies, even if not always rigidly applied, although in some cases it can cause serious disruptions to efforts to provide door-to-door services."[74]

124. Nevertheless, in some cases, cargo reservation clauses are still strictly applied without being called in question either at the political level or by affected companies, which may view them as a normal feature of the operating environment. And the effects may be significant.[75]

125. The general state of affairs does not appear to have changed vastly in recent years, apart from certain legal adjustments. A case in point is Regulation (EC) No. 1490/2007 of 11 December 2007, repealing Regulation (EEC) No. 954/79, known as the "Brussels package", which had harmonized the reservations filed by those EC members that had ratified the Code of Conduct. In other words, since the Code governs liner conferences - which no longer exist on the routes to and from the EC - the signatories are no longer able to meet their obligations under the Code (i.e. Belgium, Czech Republic, Finland, France, Italy, Netherlands, Portugal, Slovakia and Spain).[76] The member States concerned are about to begin the process of denunciation of this instrument which, in some respects, marks the end of an era.

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[72] For further details, see WTO document S/C/W/62 of 16 November 1998.

[73] There are also cases, however, where actually applied regimes are more restrictive that what is on the books. According to Kheir-El-Din, Ghoneim and Sakr, "[t]he major problem related to the maritime sector is the non-transparency where the laws stipulate certain liberal issues, however reality shows restrictive practices". See "Maritime Transport Sector in Egypt", Research No. FEM22-02, Bilkent University, Centre for International Economics. Available at: http://www.femise.org/PDF/ao22/FEM2202.pdf

[74] Statement by Mr Daniel Scorpecci at the seminar on logistics services held at the WTO on 29 September 2004, available from the WTO Secretariat on request.

[75] As stated in a 2003 UNCTAD document, "[i]n maritime transport, cargo reservation regimes tend to make it impossible to use available capacity efficiently because it is prohibited to combine national, regional and intercontinental liner services so that they form part of a single global network". (Development of Multimodal Transport and Logistics Services, Report by the UNCTAD Secretariat, TD/B/COM3/EM20/2, 16 July 2003.)

[76] Norway was in a similar situation in view of its obligations within the European Economic Area.

126. A closer examination of the preferences granted under regional trade agreements (RTAs) suggests that these may prove significant in relation to GATS commitments.[77] RTAs tend replace sectoral bilateral agreements, which have almost entirely disappeared, and extend coverage in terms of subsectors (in particular auxiliary services) and modes of supply (in particular mode 3). They no longer involve cargo reservations, but mainly govern land transport conditions and access to auxiliary services. The same paradigm shift can also be seen in recent bilateral agreements of a strictly maritime nature, such as those concluded between the United States and China, and the European Union and China.

3. Studies on the determinants of transports costs (including regulation) and their impact on trade

127. Over the past 15 years there has been a genuine growth of awareness among governments, multilateral institutions and researchers of the impact of transport costs on trade. A range of OECD and World Bank studies compare tariff levels with transport costs. This provides some useful information, bearing in mind, however, that some of these costs are unavoidable and, unlike customs duties, not susceptible to government action (volume of traffic, distance, shipowners' production costs and profits, and so on).

128. Econometric research has advanced at an unequal pace. On the one hand, considerable progress has been made in modelling transport cost determinants and their impact on trade. These costs are no longer roughly estimated in relation to distance, but take into account parameters such as time, trade imbalances, vessel size, trade volume, competition, infrastructure and risk. A recently created database brings together, through extrapolation, data on maritime traffic at the HS-6 digit level for all country pairs, in order to assess, through regression, the impact of each of these factors individually and combined.[78]

129. The modelling of the impact of policy measures, however, has not yet developed to the same extent. Available studies address the subject generically either in conjunction with competition policy considerations (Fink, Mattoo, Neagu, 2002)[79], by calculating restrictiveness indices on the basis of GATS concepts (McGuire, Schuele, Smith, 2000)[80] and estimating tariff equivalent on this basis (Kang, 2000, and Kimura, Ando and Fuji, 2004)[81] or through case studies such as those relating to

[77] Marchetti and Roy scored, on a scale of 1 to 100, GATS commitments (12), offers made in current negotiations at the WTO (23) and 'best' preferential trade agreement commitments (57). Maritime transport is one of the sectors in which the difference between the scores for GATS commitments and preferential trade agreements is the greatest. See Juan Marchetti and Martin Roy, "Opening Markets for Trade in Services. Countries and Sectors in Bilateral and WTO Negotiations", Cambridge University Press, 2009, Table 2.8, p. 90,

[78] See, for example, TAD/TC/WP(2008)10/REV1, "Clarifying Trade Costs in Maritime Transport", 2010. Earlier research in this area include the studies by Limão and Venables, "Infrastructure, Geographical Disadvantage, Transport Costs and Trade", World Bank Economic Review, Vol. 15 No. 3, paragraphs 451-479, 2001; Clark, Dollar and Micco, "Port Efficiency, Maritime Transport Costs, and Bilateral Trade", Journal of Development Economics, No. 75, 2004; as well as Wilmsmeier, Hoffman and Sanchez, "The Impact of Port Characteristics on International Maritime Transport Costs" in Port Economics, Research in Transportation Economics, volume 16, edited by Kevin Cullinane and Wayne Talley, Elsevier, 2006.

[79] "Trade in International Maritime Services: How Much Does Policy Matter?", World Bank Economic Review, Vol. 16, 2002.

[80] "Restrictiveness of International Trade in Maritime Services", in Impediments to Trade in Services: Measurement and Policy Implications, edited by C. Findlay and T. Warren, London, Routledge, pp. 172-188.

[81] Kang (2000), "Price Impact of Restrictions on Maritime Transport Services", in Impediments to Trade in Services: Measurement and Policy Implications (*op.cit.*) and Kimura, Ando and Fujii (2004), "Estimating the *Ad Valorem* Equivalent of Barriers to Foreign Direct Investment in the Maritime and Air Transportation Service Sectors in Russia", working paper, World Bank, Washington.

Egypt, Morocco, Tunisia and Turkey (Achy, Boughzala, Kheir-El-Din and Togan, 2005).[82] The results of these studies are striking. Restrictive government policies considerably influence not only transport costs, but the economy as a whole. The results of these studies are striking. Given the strategic role of the sector, restrictive government policies considerably influence not only transport costs, but the economy as a whole.[83]

130. A study to be published shortly examines the development of maritime preferences between 1960 and 2009 on the basis of a sample of 30 countries or territories. The study looks at 224 bilateral maritime agreements, one multilateral instrument (the UN Code of Conduct for Liner Conferences), and 49 free trade agreements containing maritime transport clauses. [84] The results suggest, *inter alia*, the absence of a direct line and of a flag-flying vessel (and/or of vessels operated by a national shipping company) on bilateral routes makes reservations legally and materially impracticable in 37 of 45 cases. In effect, the authorities concerned do not have the means to impose cargo sharing agreements on the third countries which tranship the goods. In other words, hub and spoke systems and the transhipments they involve have largely deprived bilateral cargo sharing agreements of practical significance.

131. Based on currently available information, it is virtually impossible to develop a reasonably comprehensive typology of measures that, according to shipowners, adversely affect maritime trade. Nevertheless, based on specialized journals[85] and some official sources it may be inferred that: (a) such measures are, for the most part, concentrated in developing countries and, in particular, West Africa, East Africa, South Asia and, more generally speaking, countries that are not WTO Members; (b) that they include both maritime measures proper and measures relating to on-shore establishments; and (c) that include difficulties with customs treatment and the like as well as market access difficulties in the strict sense of the term.

III. GATS COMMITMENTS AND MFN EXEMPTIONS

132. Commitments undertaken in respect of international maritime transport, auxiliary services and access to and use of port infrastructure, unlike existing commitments in other sectors, are not necessarily definitive. The negotiation of commitments and lists of MFN exemptions in the maritime transport sector is subject to particular conditions as specified in the Decision of the Council for Trade in Services of 3 July 1996 (S/L/24).

133. This Decision provides that the maritime negotiations would resume with the commencement of comprehensive negotiations on services five years after the entry into force of the results of the Uruguay Round, which has now become the Doha Round, on the basis of "existing or improved" offers. It also stipulates that "a Member may improve, modify or withdraw all or part of its specific commitments in this sector, during a period of sixty days the end of which shall coincide with the

[82] "Impact of Liberalization of Trade in Services: Banking, Telecommunications and Maritime Transport in Egypt, Morocco, Tunisia and Turkey", Research No. FEM22-02, Bilkent University, Centre for International Economics, Turkey. Available at: http://www.femise.org/PDF/ao22/FEM2202.pdf

[83] Relevant observations are also contained in the reports of government auditors in various countries. For examples, see footnote 72 above and Chuyang Liu, "Maritime Transport Services in the Law of the Sea and the World Trade Organization", Peter Lang, 2009, pp. 15-18. The World Bank is trying to model the impact of restrictions on trade in services and to this end has begun, within a broader framework that goes beyond the maritime transport sector, to collect data systematically not only on market access (in the broad sense of the term) but on certain aspects of internal regulations such as licensing procedures. This work is still in progress.

[84] Fabien Bertho, "Preferential Agreements in Maritime Transport, the Current and the Outdated", to be published shortly at: http://www.gem.sciences-po.fr/content/research_topics/trade/transportation_EN.htm. Bertho's study dwells on the methodology used by Marchetti and Roy, footnote 77 above.

[85] See, in particular, the trade journals Fairplay and Containerisation International and the annual reports of the European Community Shipowners' Associations (ECSA).

conclusion of the negotiations referred to in paragraph 1" and that "during the same period, Members shall finalize their positions relating to MFN Exemptions in this sector". A similar approach had already been used once for maritime transport and twice for financial services.

134. Furthermore, the Decision suspends, until the conclusion of the negotiations, the application of the MFN clause to the subsectors concerned, except in those subsectors where Members have undertaken commitments. It also provides for a peace clause and review by the Council for Trade in Services.

135. The analysis of maritime transport commitments is made difficult by two sector-specific classification problems.

136. The first problem relates to the coexistence of two commonly used forms of classification: (a) systems combining the Central Product Classification (CPC) system and the Services Sectoral Classification List (MTN/GNS/W/120); and (b) the Maritime Model Schedule (MMS). Though there is a certain degree of convergence between the services listed in each of the classification systems, in the absence of an official correspondence table approved by Members, the commitments undertaken under each of the systems must be presented separately.[86] With Members sometimes using the two classifications simultaneously, fortunately in a limited number of cases only, the entries listed in the following Tables are therefore purely indicative. The situation is further complicated by the fact that some Members have added their own *sui generis* definitions; such cases will be examined separately.

137. Second, there are differences in treatment of auxiliary services. While the draft model schedule refers to auxiliary services in a purely maritime context, the CPC/W/120 system views them in some cases as exclusively maritime-focused (11.A.c. Rental of vessels with crew, 11.A.d. Maintenance and repair of vessels, 11.A.e. Pushing and towing services, and 11.A.f. Supporting services for maritime transport) and in other cases as auxiliary to all modes of transport (headings under 11.H. Services auxiliary to all modes of transport).[87] Where a commitment on services auxiliary to all modes of transport (section 11.H. of document MTN.GNS/W/120) does not explicitly exclude the maritime sector (by stating, for example, "except for maritime transport"), it should, in principle, be read as covering services auxiliary to maritime transport as well. The section 'Services auxiliary to all modes of transport' most notably includes port handling, a subsector fundamental to maritime transport, which, as explained above, has developed considerably over the last 15 years.[88]

138. Tables 10 and 11 provide an overview of market access and national treatment commitments regarding maritime transport; additional commitments made in respect of access to and the use of port infrastructure and multimodal services; and additional *sui generis* commitments on maritime transport.

[86] This consideration does not, however, apply to the international maritime transport sector, where a correlation exists between the two classification systems. Members using the CPC have, for the most part, defined maritime transport as excluding cabotage, as in the MMS.

[87] a. Cargo handling services; b. Storage and warehouse services; c. Freight transport agency services; and d. Other.

[88] In order to avoid any undue interpretation of the scope of commitments, this Background Note refrains from describing generic commitments under section 11.H. as these are, in any case, covered by the Note on Logistics Services. For the same reason, the latter Note does not include commitments on auxiliary services in cases where schedules specify that such commitments are limited to maritime transport services alone.

Table 10: Market access and national treatment commitments regarding maritime transport

Sector or subsector	Member	Total
1. International maritime transport (11.A. a. and b. less cabotage / "first pillar" of model schedule)		
1.a. International maritime passenger transport	Aruba; Australia; Benin (+ cabotage not excluded); Cape Verde; China; Croatia (+ cabotage excluded only for mode 1); Cuba (+ cabotage not excluded); Egypt; Gambia; Ghana; Iceland; Indonesia; Jordan; Korea; Kyrgyz Republic (+ cabotage not excluded); Latvia (+ cabotage not excluded); Malaysia; Malta; Moldova; Netherlands Antilles; New Zealand; Norway; Oman (+ cabotage not excluded); Papua New Guinea (+ cabotage not excluded); Peru; Philippines; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Saudi Arabia; Sierra Leone; Thailand; Turkey; Ukraine; Viet Nam.	35
1.b. International maritime freight transport	Antigua and Barbuda; Aruba; Australia; Benin (+ cabotage not excluded); Cape Verde; China; Croatia (+ cabotage excluded only for mode 1); Cuba; Egypt; Ghana; Hong Kong, China; Iceland (+ cabotage explicitly included); Indonesia; Jamaica (+ cabotage not excluded); Jordan; Korea; Kyrgyz Republic (+ cabotage not excluded); Latvia (+ cabotage not excluded); Malaysia; Malta; Moldova; Netherlands Antilles; New Zealand; Nigeria; Norway; Oman (+ cabotage not excluded); Papua New Guinea (+ cabotage not excluded); Philippines; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Saudi Arabia; Sierra Leone; Singapore; Thailand; Turkey; Ukraine; Viet Nam.	38
2. Other maritime transport services (11. c., d., e., f. / "second pillar" of model schedule / *sui generis* commitments)		
2.a. CPC 11.A. c., d., e. and f		
11.A. c. Rental of vessels with crew, CPC 7213	Albania; Australia; Benin; Cape Verde; Croatia (+ cabotage excluded only for mode 1); Gambia; Hong Kong, China; Jordan; Kyrgyz Republic; Latvia; Moldova; Nigeria; Saudi Arabia; Sierra Leone; Turkey; Philippines.	16
11.A. d. Maintenance and repair of vessels, CPC 8868	Albania; Antigua and Barbuda; Croatia; Cuba; Estonia; Gambia; Hong Kong, China; Hungary; Jordan; Korea; Kyrgyz Republic; Latvia; Moldova; Nigeria; Saudi Arabia; Sierra Leone; Slovak Republic; Trinidad and Tobago; Turkey.	19
11.A. e. Pushing and towing services, CPC 7214	Croatia; Gambia; Japan; Kyrgyz Republic; Latvia; Lithuania; Moldova; Sierra Leone.	8
11.A. f. Supporting services for maritime transport, CPC 745**	Albania; Cape Verde; Croatia; Gambia; Japan; Kyrgyz Republic; Latvia; Moldova; Oman; Senegal; Sierra Leone; Trinidad and Tobago.	12
2.b. "Second pillar" of model schedule: Maritime auxiliary services		
Maritime cargo handling services	Aruba; Benin; Cape Verde; China; Cuba; Ecuador; Ghana; Hong Kong, China; Iceland; Korea; Netherlands Antilles; Norway; Ukraine; Venezuela; Viet Nam.	15
Storage and warehousing services	Aruba; Australia; Benin; Canada; Cape Verde; Cuba; Ecuador; Ghana; Hong Kong, China; Iceland; Jordan; Korea; Netherlands Antilles; New Zealand; Norway; Ukraine; Venezuela.	17
Customs clearance services	Canada; Cape Verde; China; Hong Kong, China; Iceland; Korea; Norway; Ukraine; Vietnam.	9
Container station and depot services	Canada; Cape Verde; China; Ghana; Hong Kong, China; Iceland; Korea; Norway; Ukraine; Viet Nam.	10
Maritime agency services	Aruba; Cape Verde; China; Hong Kong, China; Iceland; Japan; Korea; Netherlands Antilles; Norway; Ukraine.	10
Maritime freight forwarding services	Netherlands Antilles; Aruba; Australia; Canada; Cape Verde; Korea; Iceland; New Zealand; Norway; Thailand; Ukraine.	11
3. Services defined in a *sui generis*	Australia (preshipment inspection); Benin (freight transport agency services, customs clearance services, forwarding services); Ecuador (freight transport	11

Sector or subsector	Member	Total
manner or in other parts of the CPC but limited to maritime transport	agency services, other supporting and auxiliary transport services); Egypt (dredging); Iceland (other supporting and auxiliary transport services); Korea (ship brokerage); Lithuania (maritime agency services); Norway (other supporting and auxiliary transport services); Singapore (maritime agency services, ship brokerage services); Thailand (international towing, shore reception facilities - collection of waste/oily water from ships, port captain's services attached to specific foreign vessels, marine surveys and classification societies for the purpose of providing accurate documentation and certification of vessels); Trinidad and Tobago (navigational aid and communication /meteorological services for maritime purposes).	

Table 11: Additional commitments on maritime transport

Services	Member	Total
1. Provision of port services as defined in model schedule		
Pilotage	Albania; Cape Verde; China; Hong Kong, China; Iceland; Japan; Korea; Malaysia; Norway; Oman; Saudi Arabia; Singapore; Ukraine; Viet Nam.	14
Towing and tug assistance	Albania; Cambodia; Canada; Cape Verde; China; Hong Kong, China; Iceland; Japan; Jordan; Korea; Malaysia; Norway; Oman; Singapore; Ukraine; Viet Nam.	16
Provisioning, fuelling and watering	Albania; Cambodia; Canada; Cape Verde; China; Hong Kong, China; Iceland; Japan; Jordan; Korea; Malaysia; Norway; Oman; Singapore; Ukraine; Viet Nam.	16
Garbage collecting and ballast waste disposal	Albania; Cambodia; Canada; Cape Verde; China; Hong Kong, China; Iceland; Japan; Jordan; Korea; Malaysia; Norway; Oman; Singapore; Ukraine; Viet Nam.	16
Port Captain's services	Albania; Cape Verde; China; Hong Kong, China; Iceland; Japan; Jordan; Korea; Malaysia; Norway; Oman; Singapore; Ukraine; Viet Nam.	14
Navigation aids	Albania; Cape Verde; China; Hong Kong, China; Iceland; Jordan; Korea; Malaysia; Norway; Oman; Saudi Arabia; Singapore; Ukraine; Viet Nam.	14
Shore-based operational services essential to ship operations including communications, water and electrical supplies	Albania; Cape Verde; China; Hong Kong, China; Iceland; Japan; Jordan; Korea; Malaysia; Norway; Oman; Singapore; Ukraine; Viet Nam.	14
Emergency repair facilities	Albania; Cambodia; Canada; Cape Verde; China; Hong Kong, China; Iceland; Japan; Jordan; Korea; Malaysia; Norway; Oman; Singapore; Ukraine; Viet Nam.	16
Anchorage, berth and berthing services	Albania; Cape Verde; China; Hong Kong, China; Iceland; Japan; Korea; Malaysia; Norway; Saudi Arabia; Singapore; Ukraine; Viet Nam.	13
2. Provision of port services defined in a *sui generis* manner	Saudi Arabia (port and waterway operation services, vessel salvage and refloating services, other supporting services for water transport); Cambodia (lightering and water taxi services, ship agencies, custom brokers, stevedoring and terminal services, and surveying and classification services); Canada (*idem*); Ghana (fire-fighting and ambulance services); Iceland (container handling and storage services, freight transport); Norway (*idem*); Tonga (lightering and water taxi services, ship agencies, custom brokers, stevedoring and terminal services, and surveying and classification services).	7
3. Access to and use of multimodal transport services	Canada; Iceland; Norway; Tonga; Viet Nam (only through maritime agencies).	5
4. Other additional commitments	Albania (privatization).	1

139. The relatively low number of commitments (i.e. between 10 and 38 depending on the subsector) is remarkable, given that maritime transport is generally considered as one of the most highly liberalized services. A closer look at Tables 10 and 11 reveals a considerable degree of dispersion among the options offered not only by the combination of two classification systems, each providing for a vast number of services as well as sub-options in the market access, national treatment and additional commitments columns, but also by the addition of *sui generis* services defined by Members. It is thus impossible to identify clear patterns of commitments as is the case in the logistics sector, for example (see Background Note on Logistics Services).

140. The diversity of commitments may reflect the specificities of national legislation, firmly entrenched over time, particularly as regards the granting of flag rights and port operation requirements. It is nonetheless surprising in view of the harmonization in this highly globalized sector that has taken place over the last 50 years. The question may arises whether commitments simply reflect legislation or international agreements that may still exist, but are no longer applied, such as the United Nations Code of Conduct for Liner Conferences.

141. Two schedules contain limitations across the whole transport sector, including maritime transport as well. In one case, the limitations are on ownership only, while in the second case they relate not only to ownership but also to mode 4 and the training of personnel recruited locally.

142. As regards the international maritime transport sector, 35 Members have undertaken commitments with respect to the passenger transport and 38 for freight transport. In ten cases cabotage has not been excluded.[89]

143. Concerning mode 1, two Members having made commitments in the sector have not bound passenger transport, and three have done likewise with respect to freight transport. One Member has not bound modes 1 or 2 as regards national treatment, but has undertaken commitments, without limitations, in the market access column.

144. Five Members have registered unilateral cargo reservations either on government shipments, in four cases, or, in another case, on a series of specific products coming under bulk shipping. In one case, the reservation takes the milder form of a right of first refusal. Two Members have made bilateral cargo reservations, in the first case under the UN Code of Conduct for Liner Conferences and in the second, under bilateral agreements (market access, mode 1). In the market access column, one of these Members has excluded traffic between its territory and two specifically named countries, and has also entered an MFN exemption limited to ten years to cover such traffic and maritime relations with a third country. As regards national treatment, one Member has scheduled a nationality requirement for all general agents representing foreign ship-owners.

145. In mode 3, the wording of the commitments varies widely. Commercial presence is sometimes described in general terms without any distinction between establishment for the purposes of national flag registration and on shore establishment.[90] There is a wide variety of entries covering

[89] Sometimes, especially where the full MMS has been used, the scope of cabotage is defined in a footnote. One Member has specified in the body of its schedule that it includes under cabotage shuttle services between shore and offshore oilrigs. Another has limited its passenger transport commitments to tourist traffic alone, which is subject to authorization and licensing.

[90] In this connection, one Member has scheduled a joint venture requirement and a 49 per cent limitation on capital ownership, whilst another has entered a licensing and registration requirement. Conversely, in other cases the commitments specify national flag registration requirements, either in the market access or in the national treatment column. These entries do not necessarily reflect the use of the MMS, and are sometimes accompanied by details pertaining to the on-shore commercial presence requirement. In some cases it is difficult to see exactly what pertains to one system or the other.

such registration requirements. In one case, the possibility has been left unbound, while in another, the system has been divided into "conventional" national flag (more restrictive) and "second" or "international" flag registration. In three cases, ownership by a domestic company is required, without any stated restrictions on foreign ownership in the company or potentially relevant details of the legislation in question. One Member has scheduled a minimum tonnage requirement, coupled with the requirement that the ships be used solely for international traffic. In a fair number of cases, nationality requirements apply in the case of natural persons, or a majority domestic shareholding and/or joint venture requirement in the case of legal persons, and sometimes there is a nationality requirement for the majority of members of the board of directors and the general manager, reflecting the "conventional" state of maritime legislation. With this in view, the MMS suggests that the national flag registration requirement be "unbound", a recommendation which most of the Members concerned have followed. Eight Members have nonetheless bound national flag registration requirements without limitations.

146. Three Members have entered nationality requirements for ships' crews or part of ships' crews such as captains and officers in mode 3, whereas the MMS for example deals with such issues under mode 4. As a national treatment limitation, one Member has scheduled the requirement of residence of a representative for the purposes of implementing liner traffic competition policy. Another Member has entered a similar limitation in the market access column, without specifying the aim of the government policy pursued. Several cases refer to general legislation relating either to the merchant marine or to establishment in general, without specifying any restrictions that might be stipulated in such legislation.

147. Commitments on onshore commercial presence are subject to significant variation. Many Members have scheduled full commitments in that regard, following the recommendations contained in the model schedule. In contrast, one Member has not undertaken bindings, while another has limited its commitments to branch offices alone, and a third has entered a joint venture requirement with a 51 per cent foreign equity limitation, coupled with limitations on the scope of operations and on the number of licences (restricted to eight).

148. Four Members have scheduled a national treatment limitation to cover business tax treatment, and another has done likewise to cover the lower rates benefiting domestic ship-owners for pilotage services, berthing services and docking fees.

149. Commitments on mode 4 reflect a significant degree of sectoral specificity. The MMS suggests breaking them down into two parts, i.e. the status of ships' crews, which the MMS recommends entering as "unbound", and "other forms of commercial presence", defined as shore-based establishments of ship-owners.

150. While distinguishing between crews and shore-based establishments, one Member has bound neither; another has set a 95 per cent nationality requirement for crews, along with the requirement that 90 per cent of the amount of wages be allocated to nationals; a third has entered the requirement that four-fifths of personnel employed be nationals; and a fourth has scheduled a length of employment requirement for foreign sailors aboard certain vessels. Numerous Members have not bound crew-related requirements and have referred to horizontal commitments with respect to shore-based personnel.

151. Sixteen Members have undertaken commitments on rental of vessels with crew. One has limited the scope to international traffic alone; another to voyage and time charters; two Members have not bound mode 1; one has entered the requirement, in mode 3, to employ 50 per cent of national personnel; a further Member has scheduled a national treatment limitation to cover business tax treatment; and one has reserved the right to grant authorization on a case-by-case basis. The other Members have bound this subsector without any particular limitations.

152. Maintenance and repair of vessels has been committed by 19 Members. Two have limited the sectoral scope to certain types of repair; and five have not bound mode 1. In mode 2, one Member has subjected its carriers to an authorization regime, entered in the national treatment column. In mode 3, one Member refers to general legislation on establishment without specifying any restrictions that might be stipulated in such legislation; another has restricted access to nationals, whether physical or legal persons; and a third has stipulated a joint-venture requirement or incorporation as a joint-stock company. The other Members have bound this subsector without any particular limitations.

153. As regards pushing and towing services, eight Members have undertaken commitments in this subsector. Two have not bound trade in mode 1, and a further Member has left mode 3 unbound. One Member has inscribed a domestic incorporation requirement and referred to limits in port capacity which might call for restrictions; also, a concession was required to supply such services. The other Members have undertaken commitments without any particular limitations.

154. Supporting services for maritime transport (CPC745**) have been scheduled by 12 Members. Three have limited their commitments to segments of this subsector, namely: shipping agency, cargo handling and forwarding and ship handling services in the first case; tonnage measurement services in the second; and vessel salvage and refloating, watering, fuelling and garbage collecting services in the third. One Member has not bound these services in mode 1. In mode 3, one Member has entered the same limitations concerning domestic incorporation, limits in port capacity and concession requirement as noted above. Another Member has scheduled a 51 per cent foreign equity limitation regarding the supply of such services. The other Members have bound this subsector without any particular limitations.

155. As regards cargo handling services, 15 Members have undertaken commitments. In terms of sector-specific reservations, two Members have limited their commitments to transhipment operations - one of the two also having restricted operations to two ports only and to certain products; a third has excluded certain types of product; and a fourth has limited its commitments to container handling. One Member has referred to limits in port capacity and any ensuing restrictions as well as to a concession requirement. Nine Members have not bound port handling services in mode 1. Three Members have scheduled monopolies in mode 3; and, also under mode 3, one Member has entered a 50 per cent minimum share of national personnel. Two Members have stipulated a joint-venture requirement - one of the two specifying a 50 per cent foreign equity limitation. The other Members have not scheduled any particular limitations.

156. Storage and warehousing services have drawn commitments from 17 Members. One has limited operations to a single type of product and another to a single type of operation; eleven have not bound mode 1. In mode 3, one Member has entered a national preference with respect to acquisition and new establishment. Another has scheduled a monopoly. Two Members have indicated that limited port capacity might call for restrictions and that a concession was required to supply such services. The other Members have bound this subsector without any particular limitations.

157. As regards customs clearance services, nine Members have undertaken commitments. One has indicated, again, that limited port capacity necessary might call for restrictions and that a concession was required; another has entered, under modes 1 and 2, a commercial presence requirement for legal persons and a residency requirement for natural persons; six Members have not bound mode 1. In mode 3, one Member has entered a domestic incorporation or partnership requirement; another has not bound this mode; and two Members have stipulated a joint-venture requirement - one of them specifying a 51 per cent foreign equity limitation. The other Members have not inscribed any particular limitations.

158. Ten Members have undertaken commitments on container station and depot services. In one case this was subject, again, to limitations concerning port capacity and a concession requirement; four Members have not bound mode 1; one Member has scheduled a monopoly in mode 3; and two Members have imposed a joint-venture requirement - one of them specifying a 51 per cent foreign equity limitation. No other particular limitations have been scheduled.

159. Ten Members also scheduled maritime agency services. One has not bound mode 1; another has entered a 50 per cent of national personnel requirement in mode 3; a third has imposed a joint-venture requirement with a 50 per cent foreign equity limitation; and a fourth has stipulated a joint-venture requirement or incorporation as a joint-stock company. In one case, where the definition is consistent with the CPC (in that it excludes other modes of transport) but not the MMS, the Member has scheduled an authorization requirement coupled with a requirement to speak the national language. Other Members have bound this subsector without any particular limitations.

160. Eleven Members undertook commitments on maritime freight forwarding services. One has not bound mode 1; another has entered a 50 per cent of national personnel requirement in mode 3; and a third has stipulated a joint-venture requirement or incorporation as a joint-stock company.

161. Eleven Members have undertaken commitments on services defined either *sui generis* or using the CPC/W/120 codes under section 11.H. (Services auxiliary to all modes of transport), but have limited them to maritime transport.

162. As regards additional commitments on access to and the use of port infrastructure, three groups of services can be identified. Sixteen Members have undertaken commitments in respect of the first group, comprising *towing and tug assistance, provisioning, garbage collecting, and emergency repairs*. Fourteen commitments have been made for the second group, which covers more "sensitive" services, and where a certain amount of discrimination may exist in terms of national treatment (*pilotage, port captain's services, navigation aids, essential shore-based services*). The most sensitive of the nine categories proposed in the MMS (one which appears in square brackets in that document) is *anchorage, berth and berthing services*, with 13 Members having undertaken commitments in this area. There are also additional commitments on services defined *sui generis*.

163. Interestingly, no more than five Members have undertaken additional commitments on access to and the use of multimodal services.

164. With regard to MFN exemptions, a sector-specific feature needs to be recalled. Paragraph 4 of Decision S/L/24, which concluded the work carried out by the Negotiating Group on Maritime Transport Services (NGMTS) from 1995 to 1996, suspended the MFN requirement - and, thus, the need to list departures - in three subsectors: international shipping, auxiliary services, and access to and use of port facilities. As an exception to this suspension, paragraph 5 of the same Decision stipulates that the suspension "shall not apply to any specific commitment on maritime transport services which is inscribed in a Member's Schedule".

165. Many Members, however, have not withdrawn the exemptions that they scheduled during the Uruguay Round or the NGMTS negotiations, even though some of these exemptions are no longer necessary in the absence of a maritime commitment. Nonetheless, whatever their legal status, these MFN exemptions give some idea of the type of non-MFN treatment that may be encountered with regard to maritime transport.

166. Statistically, preferential access to cargo appears to be the main motive for MFN exemptions in maritime transport services. It should be noted that several African member countries of the Ministerial Conference of West and Central African States on Maritime Transport (MINCONMAR) have jointly scheduled a number of exemptions: one relating to regional preferential treatment in

respect of cabotage for a renewable ten-year period (eight Members); one covering the 40/40/20 cargo sharing formula stipulated in the UN Code of Conduct for Liner Conferences (eight Members); one covering the 50/50 sharing of bulk cargo (seven Members) and specialized cargo; and one covering all legislation that seeks to promote the infant maritime transport industry (seven Members).

167. Four other WTO Members, parties to the UN Code of Conduct for Liner Conferences, have also listed related MFN exemptions. Other MFN exemptions cover bilateral or regional cargo-sharing agreements or provisions on reciprocal or preferential access to international cargo outside the scope of the UN Code of Conduct for Liner Conferences (a total of eight exemptions scheduled by six Members).

168. Further, there are two MFN exemptions covering various modes of transport, including maritime transport, one of which concerns regional preferential access to cargo, and the other non-MFN treatment in an even broader, unspecified context. In a third case, the MFN exemption is purely maritime-related, but covers a very broad area ("procedures, charges and [...] regulations [...] applicable for ships" operating in a certain geographical zone) which may possibly encompass cargo reservations.

169. In addition to the pan-African exemption already mentioned, six MFN exemptions concern preferential and/or reciprocal access to cabotage. These exemptions are sometimes consolidated into a single text covering bilateral or multilateral cargo reservations in international traffic, under the UN Code of Conduct for Liner Conferences; in one case they also cover non-MFN treatment in respect of port access and commercial presence.

170. One Member has scheduled an MFN exemption covering preferential treatment granted to certain foreign shipping companies for a five-year period. Another Member has entered an exemption covering bilateral agreements that allow for the establishment of "entities to engage in usual business [...] for ships owned or operated by carriers of the parties concerned". One Member has scheduled an exemption covering the reciprocity requirement applicable to the renting of vessels with crew. Another has registered an exemption regarding certain shore-based activities and more specifically storage and warehouse services, freight forwarding services, inland trucking services linked to maritime transport, and container station and depot services, so as to cover treatment based on reciprocity as well as existing and future bilateral agreements.

171. One Member has scheduled an exemption covering reciprocity provisions on self-handling. Another Member has registered an MFN exemption covering possible retaliatory measures. Three exemptions have also been entered to cover preferential treatment or treatment subject to reciprocity in relation to taxation. Lastly, there is one MFN exemption relating to mode 4 and the preferential recruitment of merchant navy officers from a limited number of listed countries.