Panama Canal Commission
Long Term Transportation Forecast

Prepared for:

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EXECUTIVE SUMMARY

The Panama Canal Commission (PCC) selected ICF Kaiser International (ICF Kaiser) to carry out a long term projection of cargo flows through the Canal, an analysis of the types and sizes of the vessels that will likely carry the cargo, the number of Canal transits implied by the projected growth in trade volumes, and the implications for Canal capacity expansion. ICF Kaiser has been involved in Canal cargo projections over the last year, and the individuals who carried out this work have been involved in various aspects of Canal cargo forecasting for the last ten years.

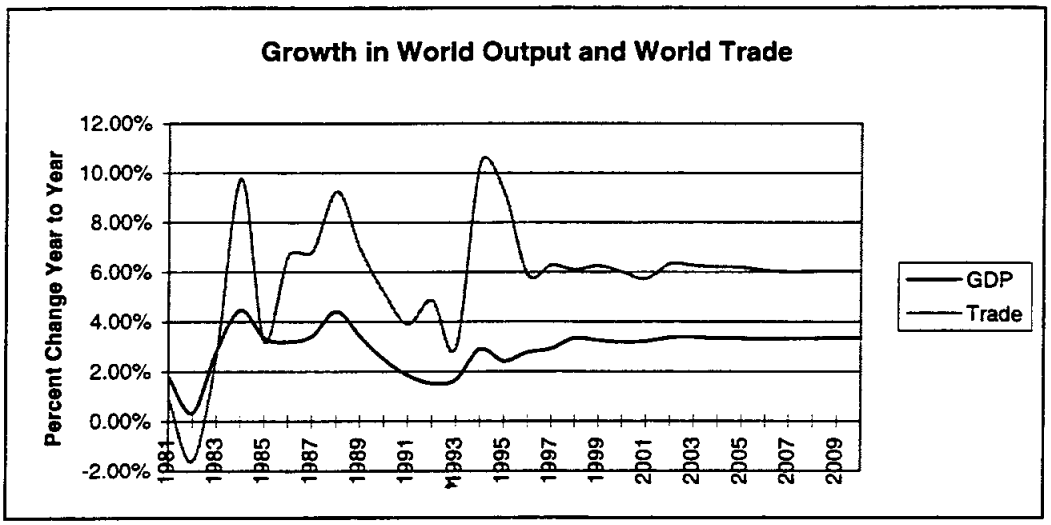
MACROECONOMIC AND TRADE OUTLOOK

The macroeconomic outlook for the world's industrialized and developing nations drives international trade. In turn, the international trade outlook drives the forecast of Canal cargo volumes and transits, coupled with other factors that are detailed in the report.

Through the 1980s and 1990s, worldwide growth in output and GDP has averaged between 3% and 4%. Trade in manufactured products grew at a rate of between 6% and 7.5% (1980 through 1995). This relationship of trade to real GDP growth is due to the impact of a steady decline in barriers to entry and gradual acceptance of American views on free and open access to markets, which promotes more rapid economic growth.

International trade generally grows faster than real economic output, as shown in the chart below.

Chart ES-1: Growth in World Output and World Trade



This relationship of trade to real GDP is assumed to hold throughout the forecast period. As in this chart, real GDP growth will stabilize in the forecast shown here, and, at the same time, total international trade will also stabilize. While rolling recessions in more advanced nations and in Latin America have led to extreme volatility in trade growth along major trade lanes in the past, a more stable macroeconomic climate in the latter part of the 1990's should lead to a more stable and predictable growth in total world trade and along major world trade lanes. The reasons why international trade should, at least over the next several years, remain strong and grow at a more steady rate along major trade lanes, include the following:

- Recoveries underway in Europe and Japan
- Relatively strong growth in most of the emerging markets of Asia and Latin America
- Fewer tariffs and other barriers to trade
- The internationalization of world production.

Liner trade is expected to grow even faster than total world trade, as has been the case historically. Overall, world trade in containerized cargo has averaged 6 percent per year historically, and, as shown in the table below, the growth in total TEUs trade has been even faster, as containerization penetration continues to occur in fast-growing markets.

Table ES-1: Growth in World Trade in TEUs

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pacific-North America	5.4%	4.7%	1.9%	9.3%	5.5%	6.0%	5.4%	5.2%	5.6%	5.8%
Asia-Latin America	19.5%	13.3%	8.3%	22.1%	8.3%	9.0%	9.0%	8.3%	8.3%	8.3%
North Atlantic	-3.4%	1.4%	0.0%	17.8%	6.5%	5.1%	5.3%	5.3%	4.4%	4.6%
Europe-Latin America	10.4%	10.8%	8.4%	16.8%	6.9%	7.0%	7.6%	7.1%	7.1%	7.3%
Europe-Asia Pacific	9.5%	5.5%	13.0%	5.5%	9.5%	6.8%	6.6%	6.4%	7.0%	7.3%
North America-Latin America	8.3%	5.2%	6.8%	10.7%	10.3%	5.8%	6.6%	6.2%	6.1%	6.6%
Intra-Asia Pacific	17.2%	12.7%	9.2%	14.8%	10.6%	8.5%	9.0%	8.8%	9.0%	9.0%
Intra-Latin America	19.8%	28.9%	19.2%	16.0%	9.8%	9.4%	10.9%	9.7%	9.0%	9.2%
Total by Major Routes	**8.6%**	**7.4%**	**6.8%**	**11.9%**	**8.3%**	**6.9%**	**7.1%**	**6.8%**	**7.0%**	**7.2%**

There are a number of strong reasons why containerized trade is expected to continue to grow faster than total world trade in the forecast:

- Containerized trade has remained relatively robust despite the difficulties experienced over the first part of this decade in some of the key trading nations.

- Containerized cargo is likely to continue to grow in importance in value and volume terms. As more countries adopt open markets, increased

specialization into higher value products is encouraged. The increased competition for market share promotes increased international exchange.

- International trade in manufactures, which tend to be containerized, appears to be less sensitive to economic downturns than more traditional trade. With few alternatives and with the continued substitution of foreign for domestic production, there was only a limited decline in imports of containerized cargoes into both Europe and Japan despite economic stagnation in these economies in the mid-1990's.

For dry bulk and tanker trades throughout the world, the forecast calls for continued steady growth but at a rate that is less than for liner trades. This is shown in the following table.

Table ES-2: World Growth in Dry Bulk and Tanker Trade

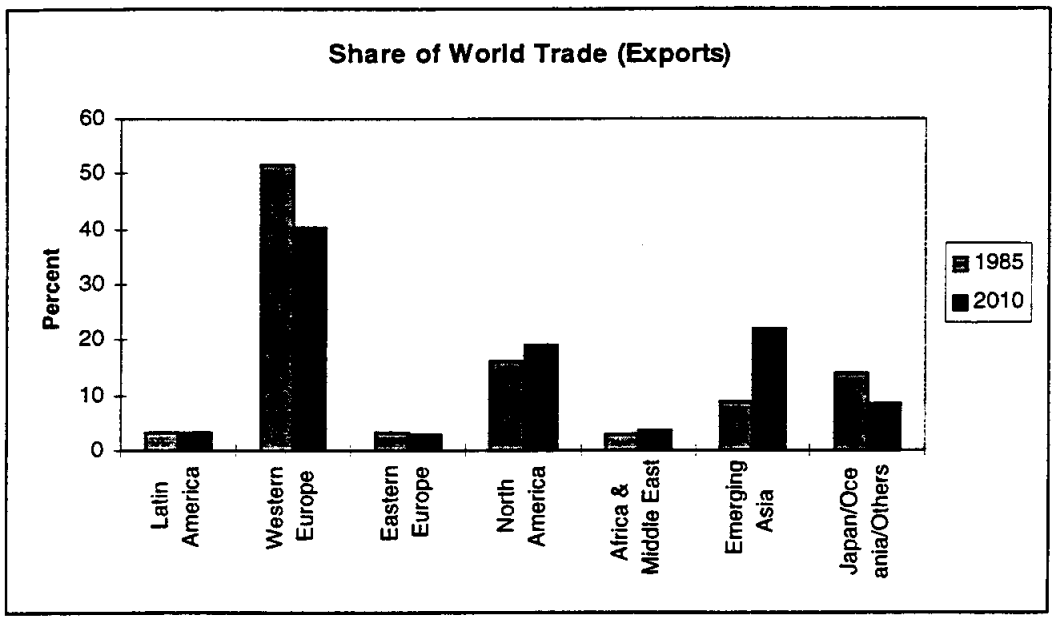
	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pacific-North America	-1%	-3%	-1%	0%	15%	0%	3%	3%	3%	3%
Asia-Latin America	17%	1%	8%	5%	6%	7%	5%	5%	5%	5%
North Atlantic	-3%	3%	-8%	10%	8%	3%	3%	3%	3%	3%
Europe-Latin America	7%	4%	3%	4%	3%	3%	3%	3%	3%	3%
Europe-Asia Pacific	21%	10%	5%	2%	1%	4%	2%	3%	4%	4%
North America-Latin America	-1%	7%	10%	9%	4%	1%	5%	6%	6%	6%
Intra-Asia Pacific	16%	7%	6%	-6%	4%	7%	5%	6%	6%	6%
Intra-Latin America	19%	16%	11%	16%	10%	10%	7%	6%	6%	7%
Total by Major Routes	**7%**	**5%**	**4%**	**3%**	**6%**	**4%**	**4%**	**5%**	**5%**	**5%**

The growth in emerging Asia, both in terms of economic growth and trade growth, has outpaced the rest of the world and is expected to continue to do so. In 1985 Asia's share was 8.8%, it had risen to 14.2% by 1990 and to nearly 18% by 1995, and is expected to reach 22% by 2010. Asia's share of world production was just 5.4% in 1985 and by 2010 is forecast to reach over 17%. This is a three fold increase in market share consistent with its new, and more important place in the world.

Similarly, Latin America's importance to the world will also increase but at a rate that is well below the rate of growth achieved by Emerging Asia. In 1985, Latin America's share of industry-wide sales and exports was quite similar at about 3.4% of world output or world trade. This share barely increases in the forecast. While output grows slightly to 4.3% in 2010, Latin America's export share remains fixed at 3.4%. Eastern Europe's share continues to decline as does Europe's share.

These shifts in trade share can be seen in the chart below.

Chart ES-2: Share of World Trade (Exports)



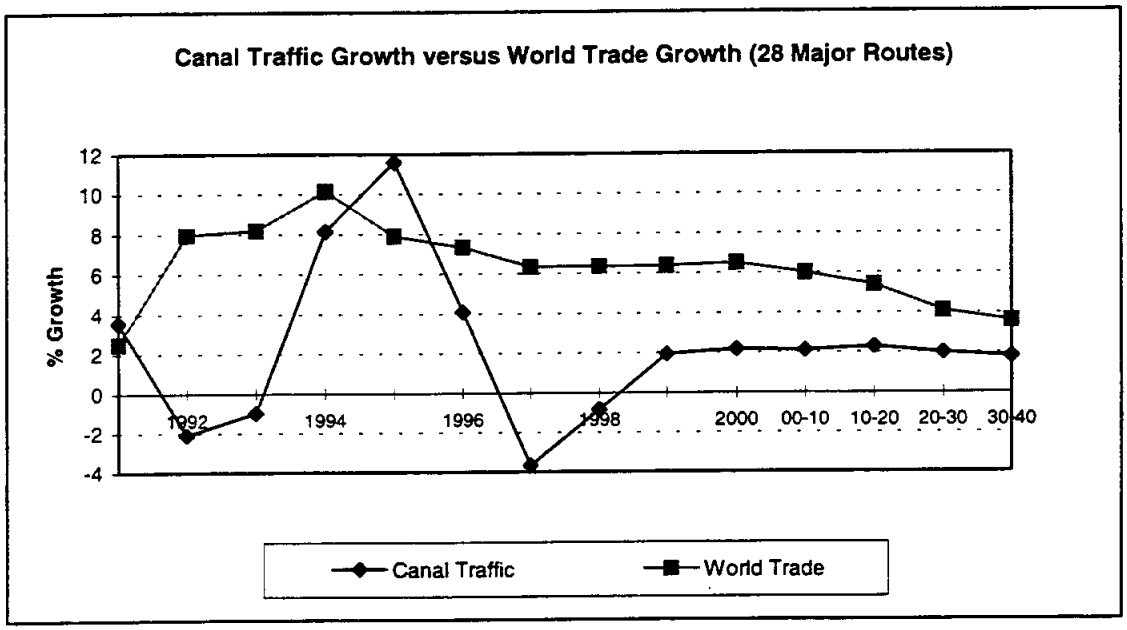
The 28 major PCC routes used in projecting Canal traffic volumes do not include some of the fastest growing trade lanes in the long term such as the fast-growing trade within the Asia market itself. The potential for growing trade between Europe and an emerging Africa is also excluded. The fastest growing trade among the 28 remains the US to Asia which continues to grow at about 5%. Canada to Europe also grows at close to this rate. Some small volume trades such as South Africa East to Central America, which potentially can transit the Canal, are also growing rapidly (5.3% in 2020-30 and 4.7% over the 2030-40 time frame). However, the model forecasts a slowing of the growth in the Asia to South America East trade. This route grew from a low base over the 1990-2000 period at 14% per year; the forecast call for slowing to 7% in the next decade and then to 5.4% and 3% in the succeeding decades. A similar pattern of slowing growth from the 1990's can be observed in the US trade with South America West, US with Central America, and South America East to South America West. This route, however remains a key trade growing in importance. Even in 2040, we estimate that it will be growing at a rate that is about half of 1% above the rate for the aggregate of the 28 routes.

Because of the variation in the projected growth in individual trade lanes, it is important to avoid predicting Canal tonnage as a fixed percentage of total world trade. Instead, the route-specific and commodity-specific approach yields a more realistic picture of the dynamics of international trade.

PANAMA CANAL TRAFFIC FORECAST

Canal traffic growth has been tied closely to the strong growth in world trade. However, Canal volume is limited by physical limits on lock capacity. Delays at the Canal can reroute some traffic. Moreover much of world trade growth has been on routes that are non-Canal routes (as mentioned above) As the chart below illustrates, growth through the Canal is limited both by the size of the locks and the pattern of the trade.

Chart ES-3: Panama Canal Traffic Growth versus World Trade Growth (28 Major Routes)

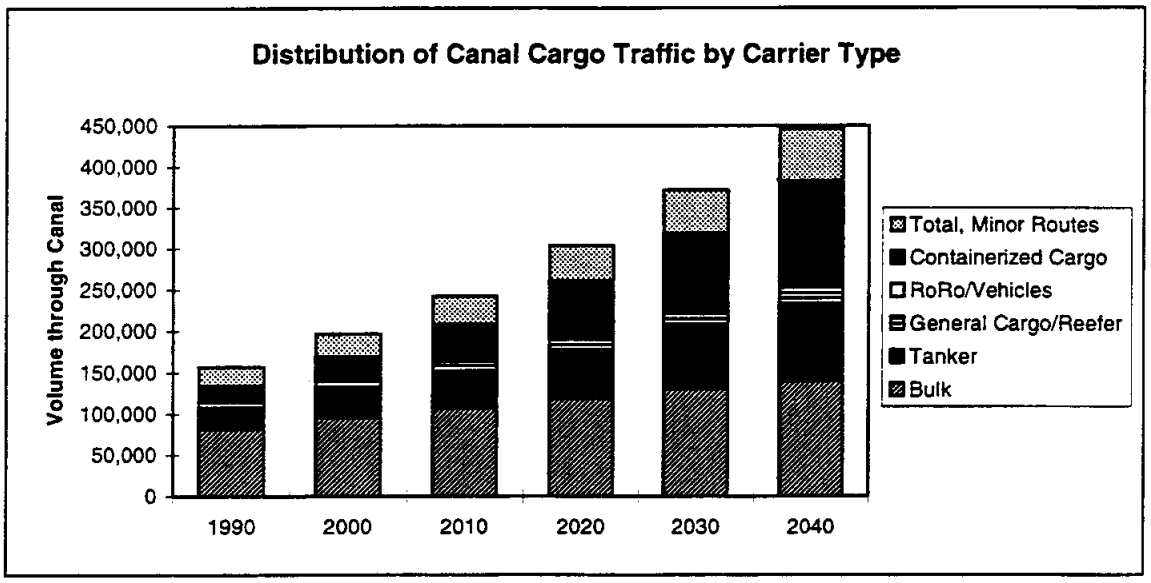


In 1997 the drop can be attributed to a steep decline in sales of American corn and grains to China as well as to the increase in tolls. The growth peaks in 1995 after the trough caused by the US recession. What is clear is that Canal traffic is tied more closely to some key bulk commodities even if revenues are tied closely to liner trade, automobile carriers, and passenger cruise ships (36% of total Canal tolls in 1996).

The long term forecast calls for a steady 2% growth the decades from 2000 to 2040, assuming that the Canal has sufficient capacity to accommodate the cargo. Overall volume through the Canal, without impediments due to limits on available capacity, would more than double from 198 million long tons (1996) to over 440 million long tons (2040). This growth in cargo is considerably lower than the growth in world trade and reflects the general diversion that has occurred in PCC "potential" cargoes to alternative transportation options – from land-bridge for higher-value US bound cargoes, to the growing penetration of air transport in some trades.

The mix of cargo passing through the Canal is expected to change, more or less in line with expected shifts in trading patterns, sourcing patterns, and the trend to further containerization of a broader array of cargo types. As shown in the chart below, a higher proportion of the traffic will be concentrated in containers.

Chart ES-4: Distribution of Canal Cargo Traffic by Carrier type



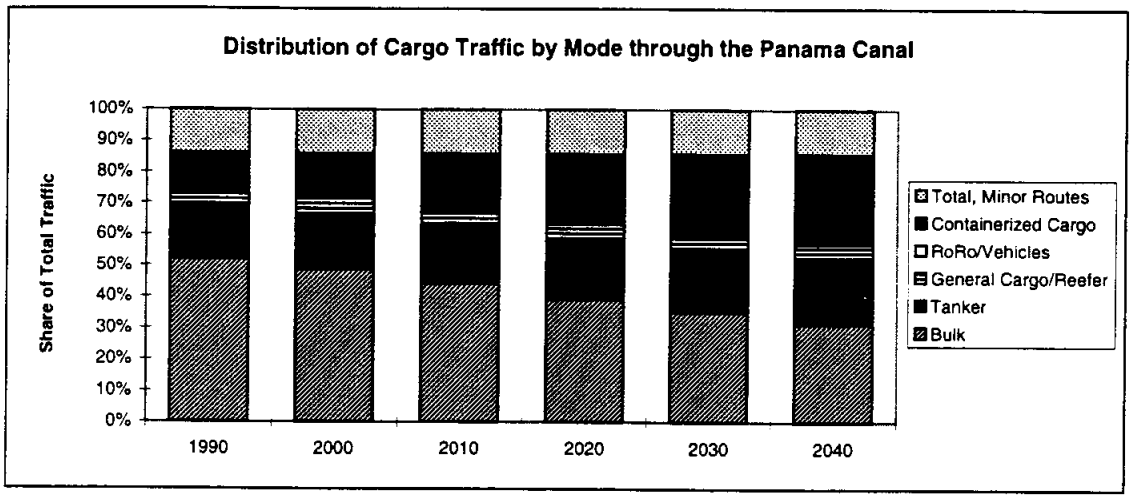
The growth in these cargo segments over the full forecast period can be seen in the table below in thousands of long tons. It is clear that the major shift is from dry bulk to containerized cargoes, with liquid bulks also gaining some share of the total.

Table ES-3: Canal Traffic by Cargo Type (thousands of long tons and % of total)

Cargo Type	1997 / % of Total		2040 / % of Total	
Dry Bulk	95,187	50%	139,581	30%
Tanker	34,574	18%	91,523	20%
General Cargo/Reefer	9,233	5%	22,435	5%
Ro/Ro	1,382	1%	2,881	1%
Containerized	23,488	12%	126,839	27%

The shares of total traffic shown in this table are depicted in the chart below for the intervening years. The trend toward greater share of containerized cargo is clear.

Chart ES-5: Distribution of Cargo Traffic by Mode Through the Panama Canal



As overall traffic grows, there will be some adjustments in the traffic by route. On some of the routes where trade is destined for more developed regions, e.g. US and Europe, the long term growth in traffic through the Canal will be reduced from current growth rates. The strong growth on other major routes reflects mainly the strong growth in routes to emerging markets in Asia. In cases where most of the mature routes show a decline in real rates of growth in the long-term, there will likely emerge stronger growth in some of the less important bilateral flows. The seven most important PCC routes accounted for 58% of the traffic through the Canal in 1990, but by 2040 we expect that these same seven routes will only account for about 43% of the total traffic through the Canal. Some of these other routes that are growing quickly and will continue to grow in the future include US East Coast to South America West Coast, Europe to South America West Coast, and South America East Coast to US West Coast.

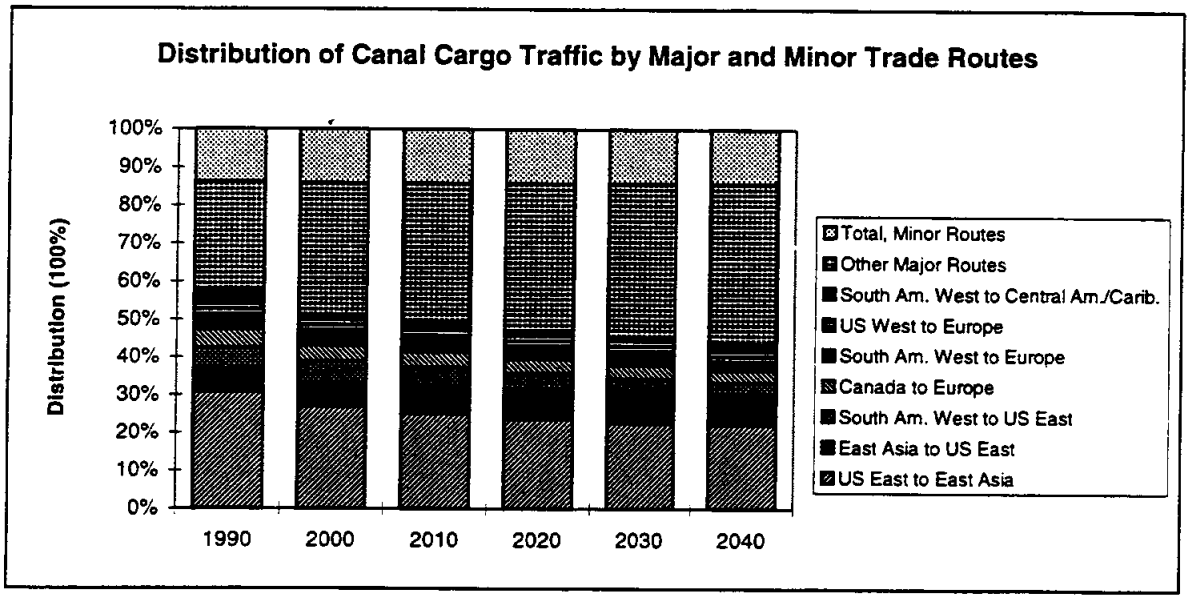
The table below shows some of the major routes, the long tons on the route, and the share of total Canal traffic for 1997 and for 2040.

Table ES-4: Canal Traffic by Major Route (thousands of long tons and % of total)

Major Route	1997 / % of Total		2040 / % of Total	
US East to East Asia	51,151	27%	99,482	22%
East Asia to US East	11,849	6%	35,351	8%
S. Amer West to US East	11,738	6%	14,037	3%
US East to S & SE Asia	8,062	4%	34,967	8%
US East to S. Amer West	7,482	4%	34,333	8%

More details of the route structure and how it is forecast to change by the year 2040 are shown in the chart below. Here, is it clear that the US East to East Asia route will decrease in significance, and other major routes grow faster and as some of the routes shown in the table grow in importance.

Chart ES-6: Distribution of Canal Cargo Traffic by Major & Minor Trade Routes



IMPLICATIONS FOR THE CANAL

The growth in world trade will add potentially more than 250 million tons to the market that could be served by the Canal over the next 43 years. This amount is more than double the nearly 200 million tons that is currently passing through the Canal (1996). About 450 million tons could pass through the Canal in 2040 based on the international economic and trade projections for the Canal assumed in this analysis. *This is not unreasonable when put into the perspective of the historical growth of the Canal traffic. The volume of cargo grew from 7.1 million long tons in 1917 to 49.7 million in 1957, a seven fold increase over 40 years. The next 40 years to 1997 saw nearly a four fold increase.*

Over the period 1990-1996, volume through the Canal rose by 40,000 tons while the number of voyages increased by 1,518. The Canal's throughput and its ability to handle larger volumes has stemmed from :

- Steady *growth in average tonnage* of the ships
- Steady increase in the *utilization* of most ship types.

These factors also affect directly the number of transits of vessels through the Canal.

ICF Kaiser developed a vessel utilization model to help in the translation of cargo volumes to Canal transits. This model, based on sampling of actual PCC data (10,000 transits) and on ship characteristics data, predicts vessel utilization on each Canal route and incorporates the trends in vessel sizes that are predicted as part of this study. In short, the forecast calls for larger vessels and more slightly higher rates of vessel utilization; therefore, transits are not likely to increase at the same rate as Canal trade volumes.

Canal transits can be analyzed by:

- Commodity (29 PCC definitions)
- Route (PCC defined: 28 primary ones, 144 in total)
- Ship type (7 primary ship types; 60 combinations of type and size) over time.

In the past, there has been no year when total transits through the Canal exceeded 15,000 laden and unladen voyages.

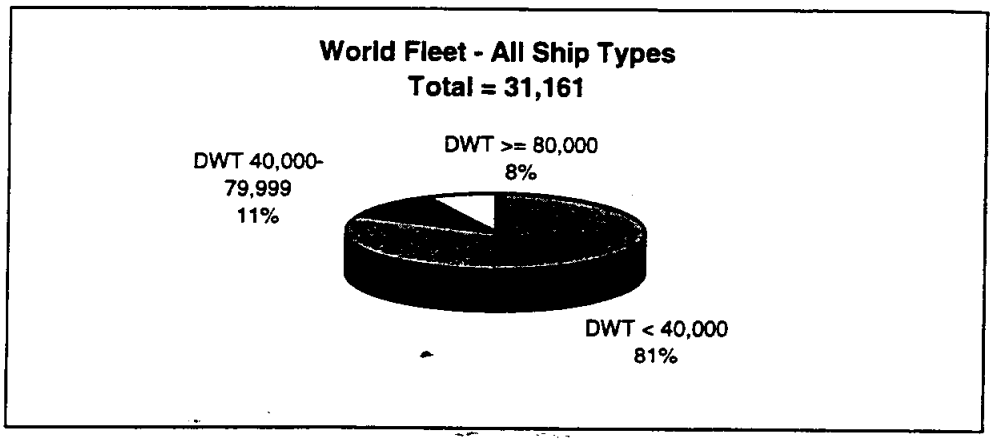
MARITIME INDUSTRY

The Current World Fleet

The development of the world fleet is an important factor for the future of the Panama Canal. ICF Kaiser consultants reviewed the composition of the current world fleet and order book in terms of size and type of vessel, in order to determine the portion of vessels that could potentially use the Canal.

The current world fleet is shown below by dead weight category.

Chart ES-7: World Fleet – All Ship Types

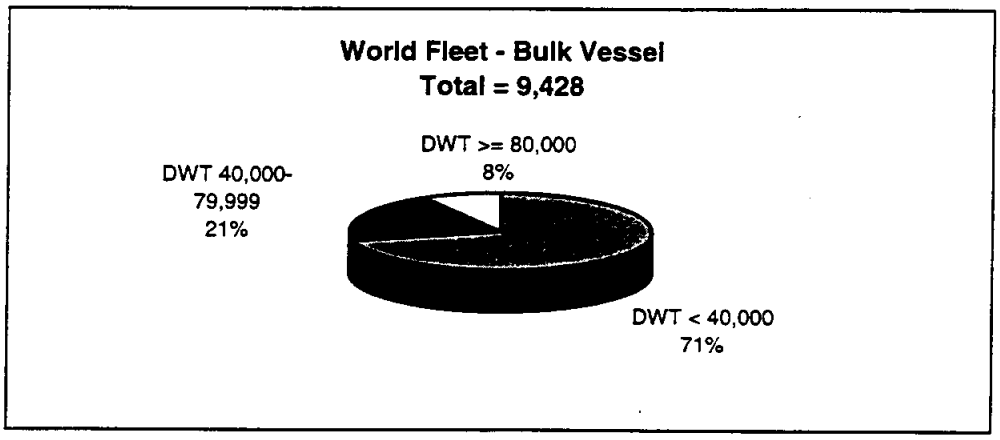


Remarkably, 92 percent of the active world fleet and order book is below 80,000 tons deadweight. Of this, fully 81 percent is below 40,000 DWT. There is a strong case here for suggesting that the physical configuration of the Panama Canal today is sufficient for the physical dimensions of the current world fleet.

Each of the three principal ship types (bulk vessels, tankers, container ships) in the current world fleet is shown below by size category.

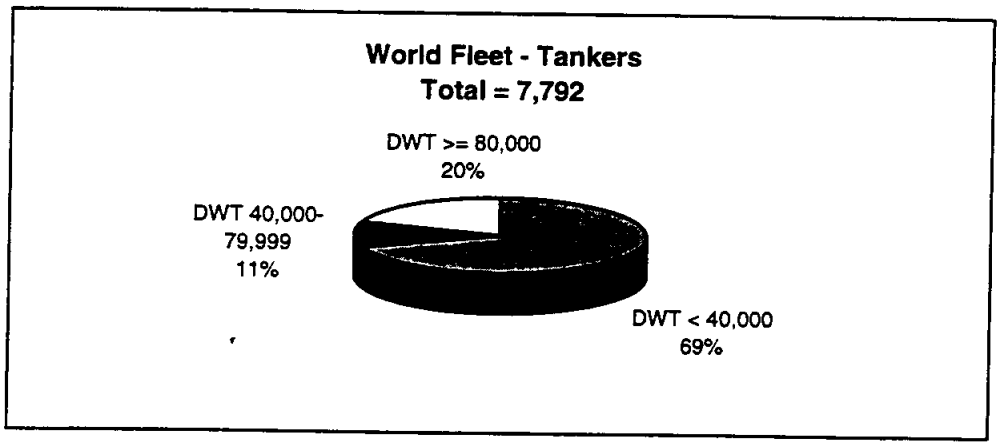
The dry bulk fleet mirrors the distribution of the overall world fleet, with 92 percent below 80,000 DWT although a higher proportion of the vessels are in the 40-79,999 tonnage range. The majority of the larger size bulk vessels trade on routes that are not typically within the Panama Canal routing.

Chart ES-8: World Fleet – Bulk Vessel



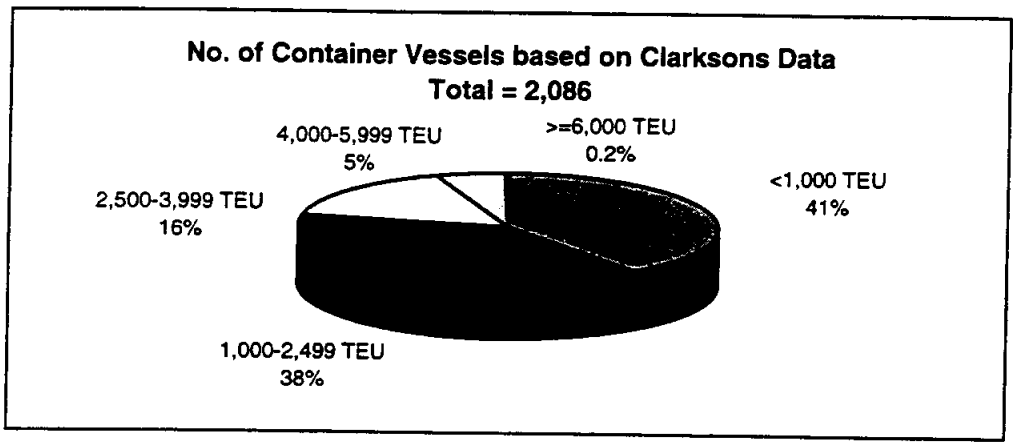
The tanker fleet has 80 percent below 80,000 DWT and a smaller proportion of the fleet below 40,000 tons. This is commensurate with the global distribution of supply and demand for crude oil which is on routes that are not constrained by the Panama Canal.

Chart ES-9: World Fleet – Tankers



The world container fleet (Chart III-4) is predominantly below 50,000 tons. It has been only in recent years that the vessel sizes have moved beyond the 50,000 DWT mark.

Chart ES-10: World Fleet – Container Vessels



Today, only slightly more than 5% of the container fleet is above 4,000 TEU. It should be noted that although this ratio is increasing, fully 95% (or more) of the fleet is within the constraints of the Panama Canal.

The Future World Fleet and Canal Transits

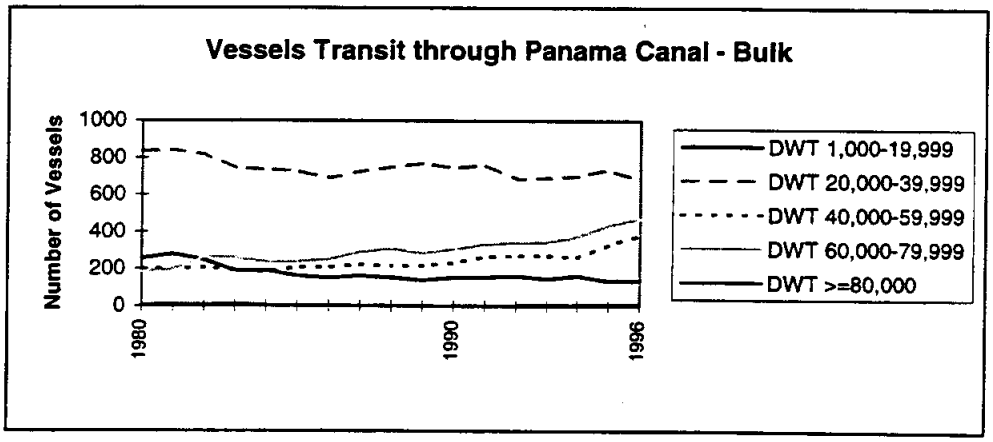
Using statistical evidence available from PCC data, Lloyd's, Clarksons Research, and Fairplay, a relationship was created of increasing vessel size over time based on historical evidence.

The global container vessel fleet will continue to grow in average size with the additional capacity benefiting the shippers moving their cargo on these larger ships. The expected proportion of large ships, in the 4,000+ TEU range, in the next building cycle (2005-2010) will be higher than in the current fleet. This will come as a result of the industry restructuring taking place today, with fewer carriers and greater rationalization through vessel sharing. This restructuring has already led to larger ships being introduced (greater capacity, but little, if any growth in voyages) on the European - Asian, Europe - India and transpacific trade.

ICF Kaiser analyzed the size distribution of the vessels transiting the Canal (Chart III-9). The discussion that follows considers the distribution of the actual vessels but it does not constitute a transit count. Twelve percent of the global fleet, or 3,849 individual commercial cargo vessels, were identified as using the Canal during 1996. Over time, the size of vessels transiting the Canal has increased, particularly since 1990, in line with the distribution of the world fleet. During 1996, transits of vessels under 40,000 DWT represented 71 percent of the total, a figure not significantly different from the global fleet distribution (81 percent). The trend of increasing vessel sizes is likely to continue over time at a relatively slow pace.

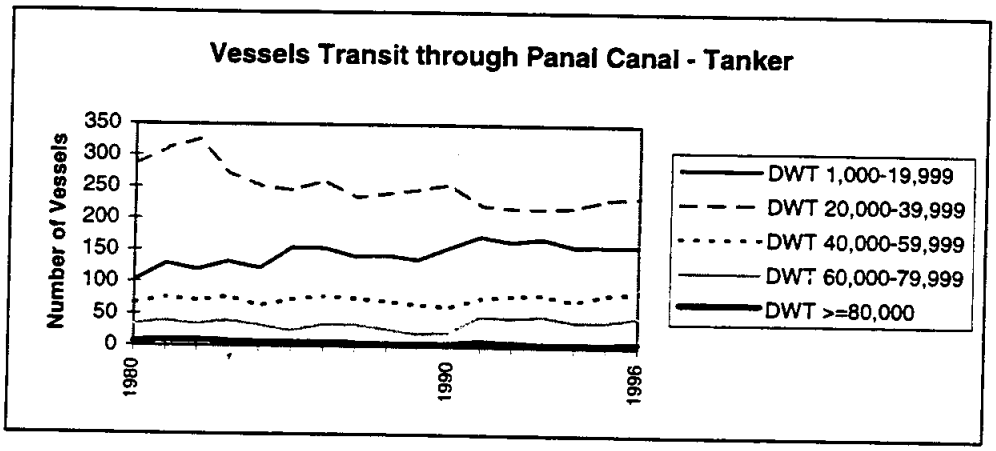
The distribution of bulk ships is very indicative of the trend toward larger ships transiting the Canal, particularly from 1990 onwards, mirrored by a decline of the smallest size range. During 1996, 49% of the transits were by vessels below 40,000 DWT. Some 18% of the world dry bulk fleet transited the Canal during this period.

Chart ES-11: Vessels Transit through Panama Canal – Bulk



The trend towards larger ships is also clearly indicated by the tanker size profile below. Tanker transits are dominated by local traffic within the immediate geographic region given that only 537 vessels were identified in 1996 representing only 7% of the world fleet. Of these, fully 74 percent were below 40,000 DWT.

Chart ES-12: Vessels Transit through Panama Canal – Tanker



The trend toward increasing vessel size is dramatically apparent for container ships, with the sharp increase in the proportion in the 40-60,000 DWT range. In 1996, a total of 346 container vessels were identified, representing 16% of the total world fleet. Of these, 62% were below 40,000 DWT and 36 % were in the 40-60,000 DWT range.

The conclusion that can be drawn from the above analysis is that there is a discernible trend towards larger vessels transiting the Panama Canal; however, this trend will not create a larger pool of vessels that cannot pass through the Canal. Rather, it is indicative of ship operators' finding opportunities to maximize their cargo loads and to achieve better economies of scale. The world fleet remains predominately a "Panamax " capable fleet.

The pressure for greater Canal transit capacity will be one of transit volumes rather than outsize vessels.

Ship Size and Utilization - Allowing for Growth

In order to provide a realistic measure of transits we allow for changing ship size and for growth in ship utilization of the larger ships. Of course shifts from smaller vessels to larger occur and smaller ships may be eliminated in the competitive environment.

To develop a better future forecast we need to assume that these adjustments will continue to take place. As ship size and utilization increase, the number of transits needed to carry the same cargo is reduced. The rate of growth of transits varies depending upon the route. Based on historical data and expected trends in ship size, the following assumptions were made in the Canal transit model (table below).

Table ES-5: Average Utilization and DWT by Ship Type

Average Utilization by Ship Type													
	1980	1990	2000	2010	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
Bulk	0.75	0.81	0.80	0.80	0.80	0.81	0.81	0.9%	-0.1%	0.0%	0.0%	0.0%	0.0%
Container	0.45	0.50	0.49	0.52	0.54	0.55	0.55	1.1%	-0.1%	0.6%	0.3%	0.1%	0.1%
General Cargo	0.50	0.51	0.54	0.58	0.63	0.67	0.68	0.2%	0.5%	0.8%	0.8%	0.6%	0.1%
Tanker	0.84	0.80	0.77	0.79	0.81	0.81	0.82	-0.5%	-0.3%	0.2%	0.2%	0.1%	0.0%
RoRo	0.32	0.43	0.55	0.61	0.64	0.66	0.67	2.9%	2.6%	1.1%	0.5%	0.3%	0.2%
Reefer	0.36	0.30	0.31	0.31	0.31	0.31	0.32	-1.9%	0.5%	0.0%	0.1%	0.0%	0.1%
Vehicle	0.26	0.26	0.24	0.24	0.24	0.23	0.23	0.0%	-0.9%	0.1%	-0.1%	0.0%	0.0%
Average DWT by Ship Type													
	1980	1990	2000	2010	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
Bulk	33,737	37,852	44,575	53,886	63,278	67,188	68,867	12.2%	17.8%	20.9%	17.4%	6.2%	2.5%
Container	21,995	32,827	36,579	40,513	43,654	45,012	46,452	49.2%	11.4%	10.8%	7.8%	3.1%	3.2%
General Cargo	10,635	12,402	13,334	14,648	15,853	16,741	17,469	16.6%	7.5%	9.9%	8.2%	5.6%	4.3%
Tanker	36,626	31,351	37,427	45,106	53,159	59,679	65,972	-14.4%	19.4%	20.5%	17.9%	12.3%	10.5%
RoRo	14,116	16,370	20,915	23,784	24,685	26,153	28,188	16.0%	27.8%	13.7%	3.8%	5.9%	7.8%
Reefer	6,426	7,628	8,698	9,477	10,357	11,156	11,715	18.7%	14.0%	9.0%	9.3%	7.7%	5.0%
Vehicle	14,468	14,270	15,203	15,990	16,787	16,640	16,554	-1.4%	6.5%	5.2%	5.0%	-0.9%	-0.5%

As more ships reach their theoretical maximums for DWT and utilization, the aggregate rate of change declines. By 2040, for example, the average bulk carrier moving through the Canal would have to be 69,000 DWT which is less than the 80,000 maximum. It reflects, however, the fact that there will be many vessels that are at 80,000 now moving through the Canal. A similar pattern is apparent for all other vessel types. Utilization rates are more limited and cannot grow as fast as DWT.

CANAL TRANSIT PROJECTIONS

To assess the feasibility of the present Canal carrying increasing volumes of cargoes, we have used the demand forecasts with a detailed model, developed from PCC traffic flow data, to measure the number of vessel transits associated with this demand.

From the statistics received from the Panama Canal Commission, transit data are available for three major categories of vessels. These are:

1. Laden commercial cargo vessels
2. Ballast commercial cargo vessels
3. Others, including passenger, naval, yachts, supply, barges, etc.

Transits by these categories make up the full count of transits that need to be considered for a full capacity assessment. In the analysis carried out here, however, the

focus has been on translating the projected volume of trade into transits of laden commercial cargo vessels and a factor for the ballast transits based on the historical ratio.

Three different forecasts of commercial cargo vessel transits were developed:

1. A ***baseline forecast*** that assumes that the current rate of growth in ship size and ship utilization continues up to a maximum size (Panamax size) and a maximum ship utilization of 90%
2. An ***alternative (#1)*** that allows for ship growth for bulk and oil carriers to reach a maximum of 120,000 DWTs
3. An ***alternative (#2)*** which is a completely unconstrained forecast allowing ship size to grow in line with the historical trend but without limits.

The first two forecasts place limits on ship size by function (the *baseline* and *Alternative #1*); ship size is allowed to grow unimpeded by any constraints in the third forecast.

In each of these forecasts, the consultants assume that the growth rate of transits by ship type and by route is at the rate of growth observed historically by the Panama Canal and that the maximum ship utilization achievable is 90%.

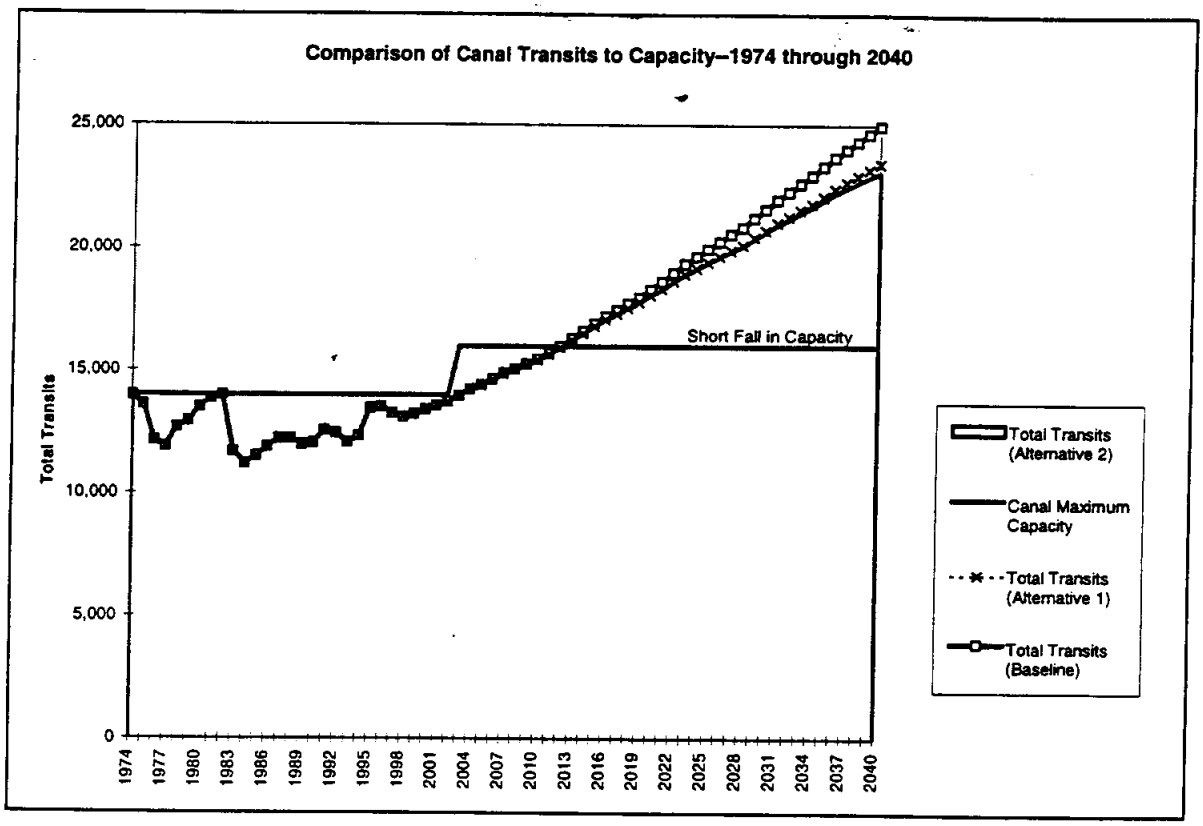
The chart below shows the potential transits through the Canal assuming that ship size and weight are allowed to grow to specific maximum size and weight classes.

Transits through the Canal reflect the average size allowed for ships passing through the Canal. When size is not a constraint, then the natural migration toward larger ships will permit a greater volume of cargo to pass through the Canal, since the number of transits needed will be less. The number of transits is reduced by allowing for larger sized ships to pass through the Canal, but the Canal would remain constrained under any circumstances without the addition of a third set of locks.

Comparing the Baseline forecast, in which ships remain below Panamax size, with the forecast in which the Canal's locks are widened, lengthened, and deepened to accommodate unconstrained growth in ship sizes (Alternative 2), the unconstrained alternative produces 1,877 fewer transits in 2040 than in the Baseline (see Table ES-6 below) or 5 transits per day. Stated differently, the constrained Baseline actually produces more transits per day. However, it is extremely important to note that under all three forecasts, the Canal is short of sufficient capacity in the long term to meet demand without a third set of locks.

The following Table ES-6 compares all three forecasts by 5-year increments in terms of commercial transits, average deadweight per transit, and the number of transits per day.

Chart ES-13: Comparison of Canal Transits to Capacity – 1974 through 2040



Missed Opportunities

A failure to increase Canal capacity after 2010 will force a significant amount of the "potential" Canal traffic to alternative routes. The chart below shows the lost opportunity associated with this trade as a share of total potential Canal trade volume. For the baseline case, assuming no change in Canal capacity, this lost share reaches over 35 percent of potential Canal trade. Chart ES-14 shows this same pattern in terms of volume of trade (long tons).[1]

Alternatively, lost cargo through the Canal in tonnage terms can be seen in Chart ES-15. In this chart, in the Baseline forecast, in the year 2040, more than 200 million tons of potential Canal cargo will not use the Canal. Again, Table ES-6 shows the three forecasts compared in terms of commercial vessel transits, tons per laden transit, average DWT per laden transit, and the daily average number of transits in 5-year increments.

[1] Potential trade lost is measured by taking the average tons per laden voyage and the maximum number of laden voyages (a share of the maximum number of total transits up to the assumed limit through 2002 (14,000) and after 2002 (16,000).

Chart ES-14: Missed Opportunity – Share of Total Potential Traffic Lost Due to Capacity Limits

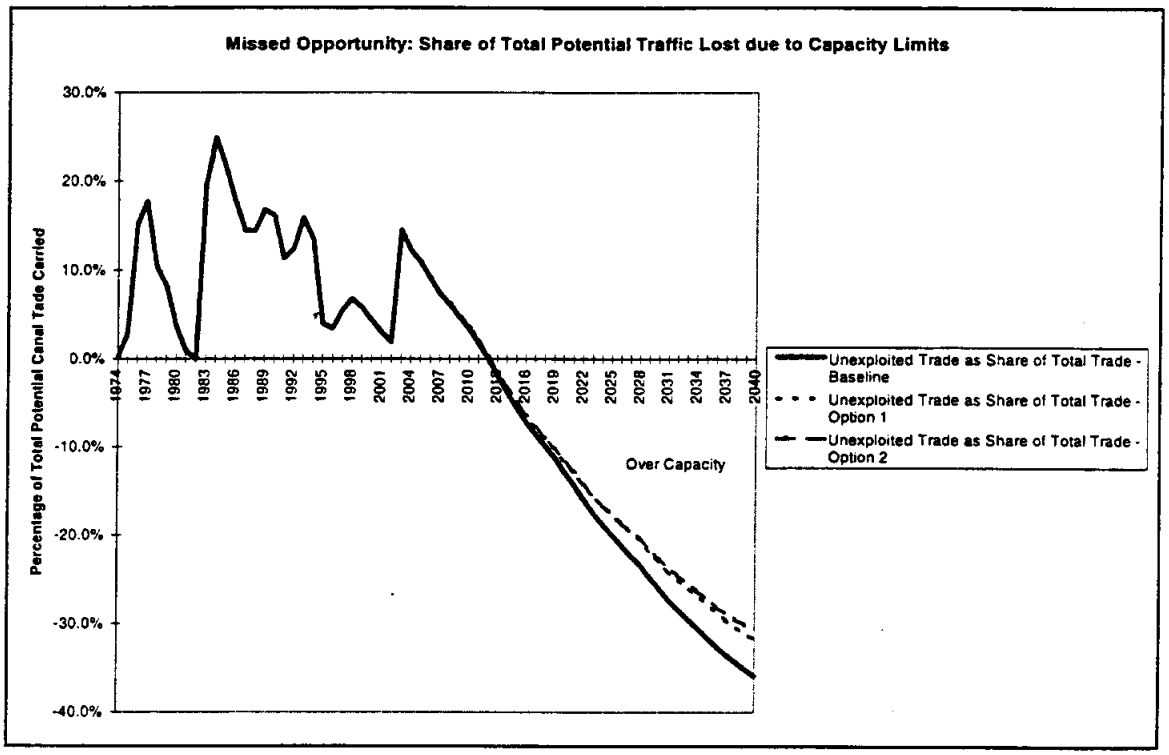


Chart ES-15: Capacity Constraints on Canal Traffic

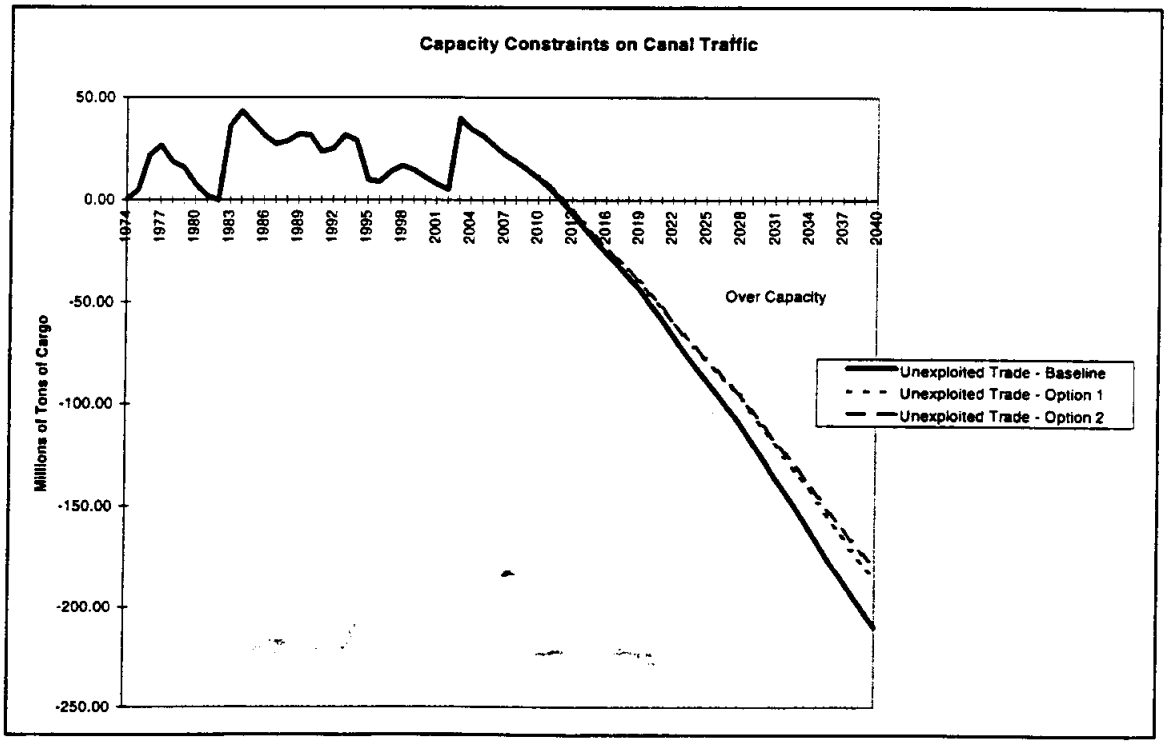


Table ES-6: Commercial Transit Forecasts for the Baseline, Alternatives 1 and 2

Baseline	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
Total Cargo ('000 Long Tons)	190,303	197,067	218,846	242,435	272,522	304,030	337,103	371,870	409,333	446,278
Total Commercial Transits	**13,459**	**13,413**	**14,420**	**15,477**	**16,937**	**18,338**	**19,971**	**21,597**	**23,329**	**24,971**
Laden Transits	10,435	10,246	11,015	11,823	12,938	14,008	15,256	16,498	17,821	19,075
Ballast Transits	3,024	3,167	3,405	3,654	3,999	4,330	4,715	5,099	5,508	5,896
Other Transits	1,272									
Total Transits	14,731									
Tons per Laden Transit	18,237	19,234	19,868	20,505	21,064	21,704	22,096	22,540	22,969	23,396
Average DWT per Laden Transit	26,377	29,210	31,179	33,222	35,076	36,869	38,031	38,769	39,456	40,197
Daily Average Number of Commercial Transits	37	37	40	42	46	50	55	59	64	68

Option 1	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
Total Cargo ('000 Long Tons)	190,303	197,067	218,846	242,435	272,522	304,030	337,103	371,870	409,333	446,278
Total Commercial Transits	**13,459**	**13,413**	**14,409**	**15,437**	**16,826**	**18,092**	**19,430**	**20,741**	**22,109**	**23,448**
Laden Transits	10,435	10,246	11,007	11,792	12,853	13,820	14,842	15,844	16,889	17,912
Ballast Transits	3,024	3,167	3,402	3,645	3,973	4,272	4,588	4,897	5,220	5,536
Number of Transits vs. Baseline	0	0	-10	-41	-111	-246	-542	-856	-1,220	-1,522
Tons per Laden Transit	18,237	19,234	19,882	20,559	21,203	21,999	22,713	23,471	24,237	24,915
Average DWT per Laden Transit	26,377	29,317	31,903	34,800	37,852	41,077	44,492	47,350	49,919	51,866
Daily Average Number of Commercial Transits	37	37	39	42	46	50	53	57	61	64

Option 2	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040
Total Cargo ('000 Long Tons)	190,303	197,067	218,846	242,435	272,522	304,030	337,103	371,870	409,333	446,278
Total Commercial Transits	**13,459**	**13,413**	**14,409**	**15,437**	**16,826**	**18,088**	**19,403**	**20,665**	**21,948**	**23,094**
Laden Transits	10,435	10,246	11,007	11,792	12,853	13,817	14,822	15,786	16,766	17,641
Ballast Transits	3,024	3,167	3,402	3,645	3,973	4,271	4,581	4,879	5,182	5,453
Number of Transits vs. Baseline	0	0	-10	-41	-111	-250	-568	-932	-1,381	-1,877
Tons per Laden Transit	18,237	19,234	19,882	20,559	21,203	22,004	22,743	23,557	24,414	25,298
Average DWT per Laden Transit	26,377	29,317	31,903	34,800	37,852	41,233	45,194	49,477	54,176	59,403
Daily Average Number of Commercial Transits	37	37	39	42	46	50	53	57	60	63

RISK AND UNCERTAINTY ISSUES

Risk and uncertainty are major factors when considering a forecast for a period of over 40 years covering world trade in commodities that are driven by the following:

- Consumer demand in the case of the major bulk items,
- Weather in two different continents (origin, destination),
- Changes in the size distribution of the world fleet.

Itemized below are the key elements of uncertainty that one needs to bear in mind, particularly when looking into the period after 2015.

1. World trade has been expanding rapidly as globalization and free trade has have progressed. In this forecast, economic growth has been assumed to remain robust over this period. Economic disturbances in the world could disrupt these patterns of trade, or, alternatively, technologies may replace trade in finished manufactures (a major category of Canal revenue). Worldwide conventions on Greenhouse Gases may limit trade in coal products, and droughts could force countries to block exports of grains. The long term forecasts are in fact relatively conservative, but with a sustained growth over 40 years on a trend line basis, there is inevitably a significant upswing. The risk and effects of recessions will certainly play a role but cannot reliably be forecast.

2. The world fleet today, and for the next five to ten years will almost certainly be made up of vessels that are predominantly in sizes that are capable of transiting the Panama Canal. Over 90 percent of the current fleet is in this category. The current order book, port physical constraints, and commercial practices in the bulk trades all indicate that there is no reason to expect profile to change over medium term. On the other hand, the closure of the Suez Canal in 1973 led to a surge in the growth of tankers and bulk carriers reaching as much as 300,000 DWT, targeted at by-passing the Suez Canal; therefore it is reasonable to consider the idea that a Panama Canal without physical constraints might stimulate the building of larger vessels. The scenario would be that perhaps the world fleet might shift up in size with more "Cape-size" vessels being added to the bulk and tanker fleet. Container ships on the long-haul routes are increasingly over 5,000 TEU, and there are indications that 8,000 TEU ships will appear early in the next century. Due to port draft restrictions, these ships will be longer and wider than current ships.

3. The assumption of continued migration from smaller to larger ships, even though based on observed trends by ship type and by route, may be too conservative. A more rapid shift from smaller to larger ships may reduce transits during the earlier part of the period 2010 through 2040 to a point where the number of transits recorded is less than Canal capacity with the third set of locks. An unconstrained Canal may encourage this change in ship economics just as a constrained Canal may be self

limiting with fewer ships showing up to transit, if they perceive the risks of extended wait times are higher.

4. New players will develop and new routes will be established that by-pass the Canal. New, faster, larger ships will be developed that make these alternative routes superior compared to passage through the Canal. This risk is greater, however, if the Canal is fully utilized, as it likely will be by 2010, and the risk is less if additional capacity is available. For example, trade growth via the Panama Canal grows below the average trade growth for the partner countries. This may well be partly due to the perception of capacity constraints, and, as a result, by-pass options are utilized. Conversely, if in the future there is a perception that there are no physical constraints, then growth of traffic, and hence transits, may be more rapid than indicated in the forecasts.

5. The transit forecasts do not take into account the effect of a successful "Hub' port at either end of the Panama Canal linked by a double track, double stack railroad and a major highway. Depending upon the cost variables of the three different modes of transportation (water, rail, road), there is a significant risk that up to 2000 transits annually might be lost due to intermodal transfers between the Atlantic and Pacific ports.

6. U.S. grain exports to Asia make significant use of the Mississippi River and the Port of New Orleans. Exports through the Pacific Northwest are determined by the rail cost and the availability of sufficient grain elevators. Any significant change in these determinants will have a marked effect on port choice as the PNW has deeper draft ports and freight charges are cheaper.

7. The actual number of ships may be considerably greater if the size migration slows. Canal traffic would be more constrained, but the volume of cargo moving through the Canal would be less. The value of cargoes on these smaller ships would be lower and ship operating costs higher, reducing the potential "rent" earned by the Canal on the new locks.

CONCLUSIONS

Without adding additional capacity, in the post 2010 environment the Canal will find itself unable to meet the demand of the market place for transit of the Isthmus.

Specific conclusions follow:

1. By 2010, assuming only a modest 2 percent per year growth in Canal traffic (nearly 4% less than corresponding growth in world trade), the Canal will be out of capacity, even assuming that an additional 2000 ship transits per year are allowed after 2002 with the widening of the Gaillard Cut. This conclusion is based on a fairly conservative approach to ship management and assumes that ship owners continue to shift cargoes from smaller to larger vessels in response to rising demand and that capacity on existing ships reaches a maximum of 80 percent for some categories.

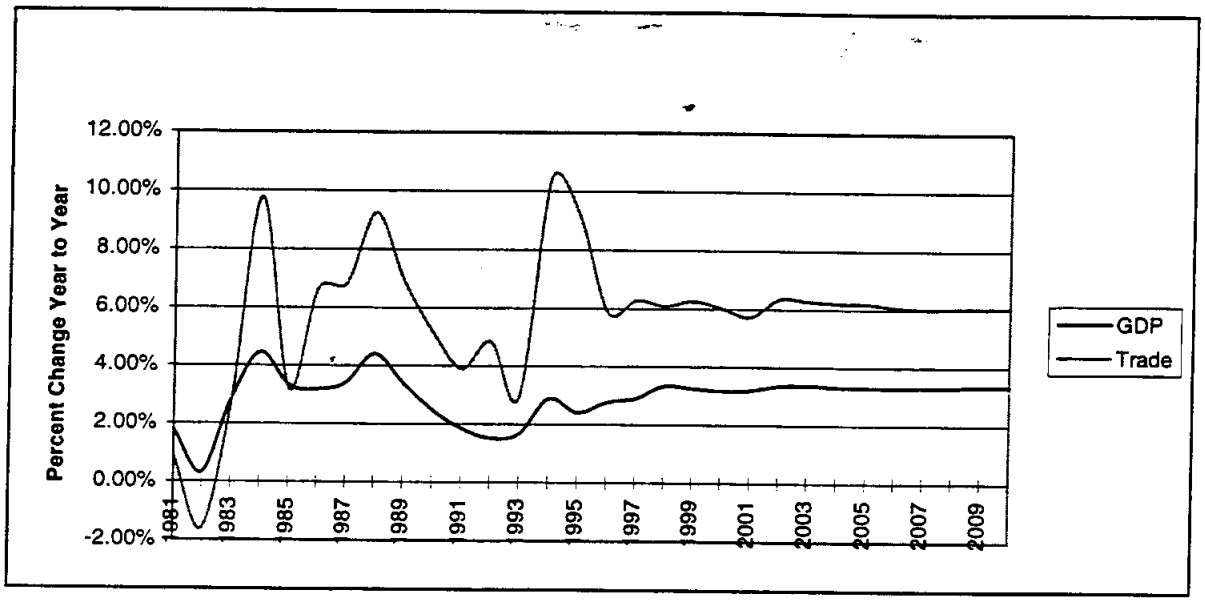
2. The average cargo per transit will likely grow at a slower rate than the number of required transits due to changes in the mix of traffic through the Canal. The faster growing intra-Latin American routes use smaller ships which increase demand on the Canal's resources without allowing additional volumes of cargo through the Canal. This changing mix is most apparent after 2010.

3. Assuming that ship size is not limited by current Panamax dimensions or by the proposed dimensions of the third set of locks, the net impact is not that significant in terms of reducing the number of transits. This result is due to the fact that the majority of ships that currently do and will likely in the future transit the canal are smaller ones.

Size of the post-Panamax fleet is less important in determining if a third set of locks is needed than is the overall traffic demand.

The financial viability of adding additional capacity will depend upon a number of factors, not the least of which is the variability of traffic projections through the Canal. For this reason, additional studies including the use of Monte Carlo type simulation tools and quantifying various global scenarios, may be necessary to insure that the risks associated with the expenditure do not outweigh the benefits to Panama and the world.

Chart I-1: Comparison of Growth in World GDP to World Trade



Rolling recessions in more advanced nations and in Latin America have led to extreme volatility in trade growth along major trade lanes. A more stable macroeconomic climate in the later part of the 1990s should lead to a more stable and predictable growth in world trade and trade along major world trade lanes.

TRADE IN CONTAINERIZED CARGOES

Maritime trade increasingly is dependent upon the continued growth and vitality of the liner shipping industry. The Panama Canal's future depends largely on the projected rate of growth of liner-type service given the importance of this trade to the Canal's total revenues. Containerized cargoes and similar cargoes carried on liner type ships (for example automobile carriers, RO-RO vessels, etc.) accounted in 1996 for 25 % of total Canal toll revenues and 14 % of total cargo volume. Despite this growth and the importance of containerized cargoes, however, the majority of the traffic will remain concentrated in bulk type commodities.

Tables I-1 and I-2 show the growth in liner trade volume in metric tons and in TEUs. Looking at trade likely carried on liner vessels when measured in metric tons, we see that world trade growth has remained quite strong over most of the 1980s and into the 1990s while extremely volatile on a route-by-route basis. Despite the extreme variation in the rate of growth on key routes, the overall trend has remained extremely smooth growing at around 6% per year.

Table I-1: Liner Volume in Metric Tons - Year-to Year Change

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pacific-North America	4.4%	3.3%	0.6%	8.4%	7.2%	5.7%	4.9%	4.9%	5.2%	5.4%
Asia-Latin America	16.7%	8.6%	8.1%	18.6%	8.5%	8.6%	8.0%	7.4%	7.7%	7.7%
North Atlantic	-3.8%	1.9%	-0.3%	20.9%	5.5%	5.2%	5.1%	5.2%	4.1%	4.4%
Europe-Latin America	9.1%	9.8%	5.6%	17.1%	7.0%	6.1%	7.1%	6.6%	6.6%	6.8%
Europe-Asia Pacific	9.5%	5.6%	13.7%	6.2%	9.0%	6.6%	6.4%	6.2%	6.6%	6.9%
North America-Latin America	7.0%	2.9%	6.0%	13.2%	9.8%	4.8%	5.2%	5.6%	5.4%	6.1%
Intra-Asia Pacific	17.4%	12.5%	9.5%	14.1%	10.2%	8.4%	9.0%	8.6%	8.8%	8.8%
Intra-Latin America	17.1%	26.3%	16.2%	16.5%	9.7%	8.7%	10.3%	9.1%	8.5%	8.8%
Total by Major Routes	**7.8%**	**6.7%**	**6.2%**	**12.5%**	**8.4%**	**6.6%**	**6.7%**	**6.5%**	**6.6%**	**6.8%**
Rest of World (Unclassified Trade)	2.4%	11.5%	14.0%	11.7%	8.5%	7.7%	8.4%	7.8%	7.9%	8.0%

Table I-2: Liner Trade Volume - In Twenty-food Equivalent Units

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pacific-North America	5.4%	4.7%	1.9%	9.3%	5.5%	6.0%	5.4%	5.2%	5.6%	5.8%
Asia-Latin America	19.5%	13.3%	8.3%	22.1%	8.3%	9.0%	9.0%	8.3%	8.3%	8.3%
North Atlantic	-3.4%	1.4%	0.0%	17.8%	6.5%	5.1%	5.3%	5.3%	4.4%	4.6%
Europe-Latin America	10.4%	10.8%	8.4%	16.8%	6.9%	7.0%	7.6%	7.1%	7.1%	7.3%
Europe-Asia Pacific	9.5%	5.5%	13.0%	5.5%	9.5%	6.8%	6.6%	6.4%	7.0%	7.3%
North America-Latin America	8.3%	5.2%	6.8%	10.7%	10.3%	5.8%	6.6%	6.2%	6.1%	6.6%
Intra-Asia Pacific	17.2%	12.7%	9.2%	14.8%	10.6%	8.5%	9.0%	8.8%	9.0%	9.0%
Intra-Latin America	19.8%	28.9%	19.2%	16.0%	9.8%	9.4%	10.9%	9.7%	9.0%	9.2%
Total by Major Routes	**8.6%**	**7.4%**	**6.8%**	**11.9%**	**8.3%**	**6.9%**	**7.1%**	**6.8%**	**7.0%**	**7.2%**
Rest of World (Unclassified Trade)	2.8%	11.3%	14.3%	9.7%	8.8%	7.8%	8.6%	8.1%	8.1%	8.2%

A number of important points can be made about liner trade.

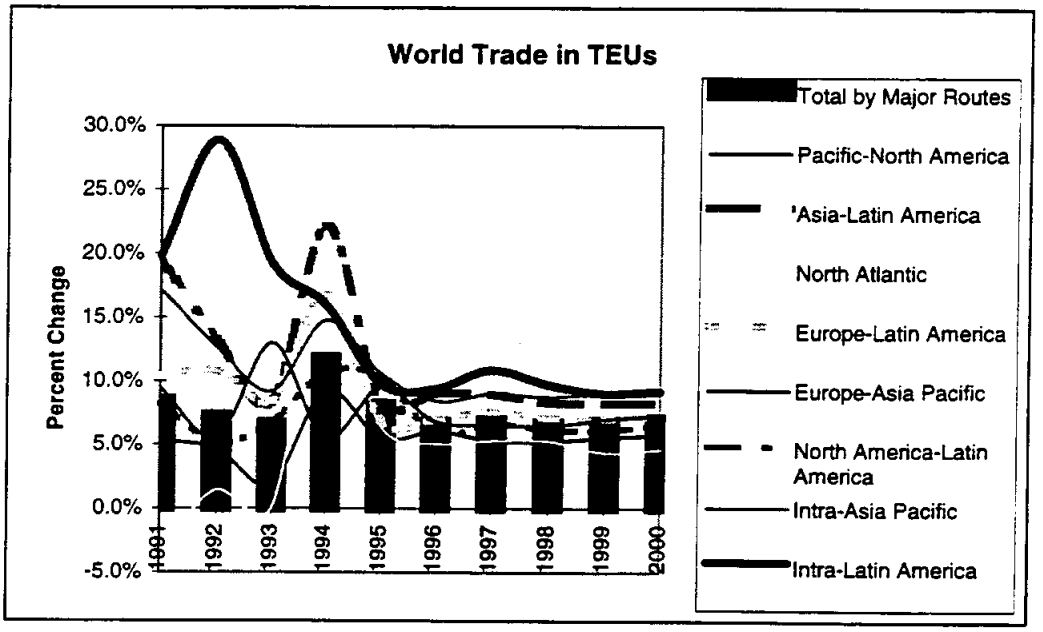
- First, it has remained relatively robust despite the difficulties experienced over the first part of this decade in some of the key trading nations. The English speaking world entered a shallow recessionary period starting in 1991 and lasting through 1993, while Japan and Western Europe continued to grow. Starting in 1993, however, monetary policy tightened in both Europe and Japan, as Central Banks reduced credit and worried about the extremely volatile banking sectors as a result of the boom in real estate speculation (as well as the costs of German reunification). Real rates of interest increased and the boom became a bust. Despite this, trade grew strongly. In the case of Western Europe the continued integration and the attractiveness of this rich, high cost, market drew in foreign sellers while the recession weakened domestic producers; and in Japan long standing informal prohibitions against imports fell by the wayside a victim of new aggressiveness on the part of the

Americans, the oversight of an organization like the WTO, and the growth of new "discount" outlets willing to stock and sell foreign-made consumer items.

- Second, containerized trade volumes are likely to continue to grow in importance both in terms of value of trade and volume. As more countries adopt open markets, this encourages increased specialization. The increased competition for market share promotes increased international exchange.

- Third, international trade in manufactures appears to be less sensitive to economic downturns than more traditional trade. With few alternatives and with the continued substitution of foreign for domestic production, there was only a limited decline in imports of containerized cargoes into both Europe and Japan despite economic stagnation in these economies in the mid-1990s. Where substitution is total, as is the case in some products in North America, we expect greater sensitivity to business cycles.

Chart I-2: World Trade in TEUs



TRADE IN BULK PRODUCTS

While containerized trade grew strongly, demand for internationally traded primary products, with the exception of food grains, generally showed less robust growth. Higher prices charged by energy producers and greater efficiency in the use of raw materials have led reductions in overall demand per dollar of output. Demand for agricultural products, however, has remained high. There has been a steady increase in demand due to pressures of increasing population size and increasing affluence. Thus

over the period 1990-95, as Asian demand for feed grains, meats, fish, dairy, and citrus products exploded, real growth in agricultural trade was over 6.5% per year (well above the .5 to 1% growth achieved in the 1985-90 time frame).

Table I-3: Growth in Trade of Bulk and Tanker Commodities By Major World Trade Lanes

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Pacific-North America	-1%	-3%	-1%	0%	15%	0%	3%	3%	3%	3%
Asia-Latin America	17%	1%	8%	5%	6%	7%	5%	5%	5%	5%
North Atlantic	-3%	3%	-8%	10%	8%	3%	3%	3%	3%	3%
Europe-Latin America	7%	4%	3%	4%	3%	3%	3%	3%	3%	3%
Europe-Asia Pacific	21%	10%	5%	2%	1%	4%	2%	3%	4%	4%
North America-Latin America	-1%	7%	10%	9%	4%	1%	5%	6%	6%	6%
Intra-Asia Pacific	16%	7%	6%	-6%	4%	7%	5%	6%	6%	6%
Intra-Latin America	19%	16%	11%	16%	10%	10%	7%	6%	6%	7%
Total by Major Routes	**7%**	**5%**	**4%**	**3%**	**6%**	**4%**	**4%**	**5%**	**5%**	**5%**
Rest of World (Unclassified Trade)	9%	9%	8%	0%	3%	5%	4%	4%	4%	5%
World	**8%**	**7%**	**6%**	**1%**	**4%**	**5%**	**4%**	**4%**	**5%**	**5%**

The strong growth in bulk cargoes observed over the 1994-96 period corresponds to a weakness in grain production in China and a surge in US exports of grain. In general, on major routes, growth in bulk cargoes has been between 1.5 and 2% less per year than containerized cargoes when measured in metric tons and TEUs.

FORCES OF CHANGE: FACTORS BEHIND GROWTH IN WORLD TRADE

We can observe the steady progress that the world has made in developing more regions both in the strength of the macroeconomic indicators and in the increases forecast in sales of industry and apparent consumption of manufactured products. Much of this growth can be attributed to countries gaining a foothold in the industrial age by adopting better, more consistent, economic philosophies and policies. Some of this comes from foreign investments and international trade and the importance that these nations attach to ensuring open and free markets for their manufactured exports. The increased openness of the world economy, a by-product of liberalization, has allowed world trade to grow by ensuring international corporations can take advantage of differences in labor costs, availability of raw materials, and institutional incentives when determining location of their productive assets worldwide.

Measured in terms of Gross Domestic Product or in terms of Total Industry-wide Gross Output – i.e. Sales of All Industries – economic growth should be 1 to 1.5% more than growth achieved in the first half of the decade (2.1% growth in real GDP for the

world in the first half compared to 3.1% in the second half or 2.2% growth in Gross Output compared to 3.8%).

Chart I-3: Industry-wide Sales Gross Output

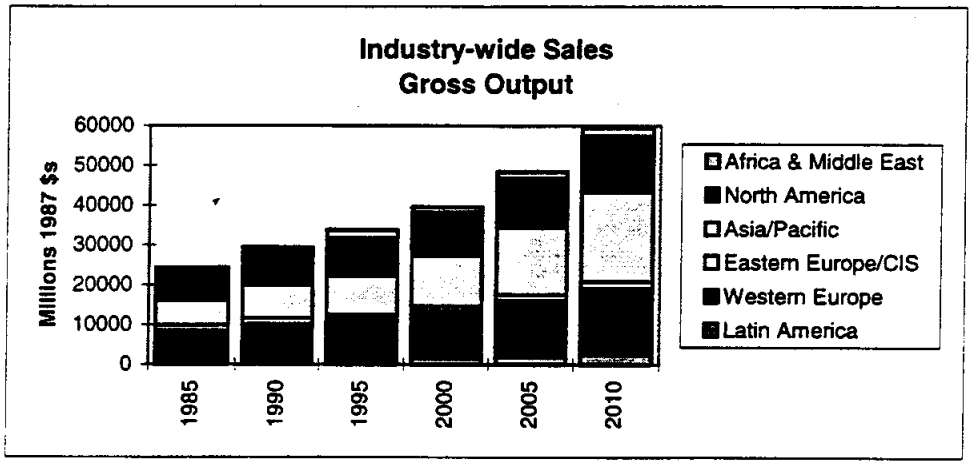
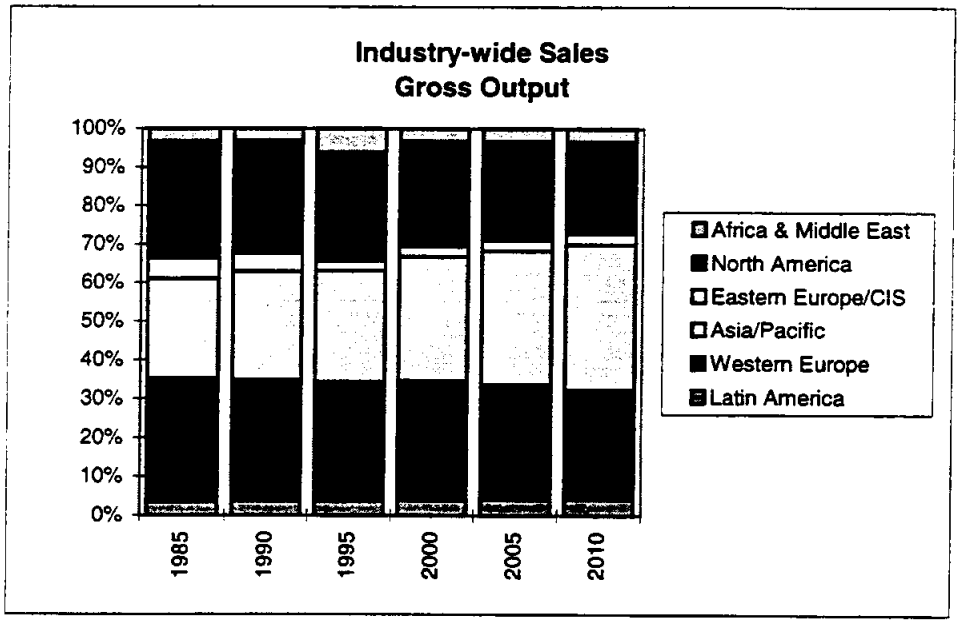


Chart I-4: Industry-wide Sales Gross Output



In part this higher rate of growth can be attributed to the increased share of world industry and related services now accounted for by formerly poor countries. Look at the two charts and note the steady growth in world output rising towards $ 60 trillion dollars in 1987 constant value or $ 160 trillion in current dollars. Asia's share of world output will increase from 25% (including Japan) to 38%, while that of Western Europe falls from 32% to 28% share and North America declines from 30% to 24%. In a sense, the

central focus of the world is shifting even if the average income, per capita, in most of Asia remains well below that of the more advanced regions. Still, there will be real progress in improving living standards in countries that had previously been considered to be lost causes.

Asia's rapid rate of economic growth can be observed in the differential between growth in industry-wide output in the Emerging Asian countries of East and South Asia compared to the slow growth forecast for the advanced OECD nations. Where OECD-wide output increased barely 2.0% over the period 1990-95, Emerging Asia's rate of economic expansion was closer to 9%. Despite this rate of growth, Asia's share of total world output remains small compared to that of the more advanced nations (9% share versus 79% share for the OECD). This huge differential, despite the growth differential, is not likely to be bridged soon. Even if Asia's output is compared in terms of its purchasing power parity rate of exchange – close to 2 times that of the OECD due to differences in relative prices (but not necessarily quality of life), the gap remains large. Elsewhere, outside of the fast growing Asian countries and the more advanced, developed market economies of the OECD, real growth fell over the 1990-95 period, and even in recovery the growth is only about 4% or just about 2 to 2.5% above that of the more advanced nations. These "Other" nations' share of world industrial output only increases from 12% to 14% (compared to Asia's share that increases from 9% to over 17%).

Table I-4: Industry-Wide Production and Trade

Industry-Wide Production and Trade	Share by Region 1995	Share by Region 2010	%1985-90	%1990-95	%1995-00	%2000-10
World – Industry Sales	100%	100%	3.3	2.2	3.8	4.2
World -- Consumption	100%	100%	3.3	2.4	3.8	4.0
World -- Exports	100%	100%	5.1	7.6	6.6	6.2
World – Imports	100%	100%	5.1	7.3	6.4	6.1
OECD -- Industry Sales	78.6	68.5	3.2	2.0	3.1	3.1
OECD -- Consumption	78.0	68.7	3.3	2.2	3.0	3.0
OECD -- Exports	68.5	64.5	4.9	5.9	6.1	5.9
OECD -- Imports	70.0	61.8	5.4	5.5	5.4	5.4
Asia LDC -- Industry Sales	9.1	17.1	6.6	8.9	8.6	8.5
Asia LDC -- Consumption	9.2	16.0	6.6	9.2	8.1	7.7
Asia LDC -- Exports	17.9	22.0	11.4	12.8	8.5	7.5
Asia LDC -- Imports	17.3	22.4	9.6	13.8	8.9	7.6
Other LDC -- Industry Sales	12.2	14.4	2.4	-.6	4.7	5.4
Other LDC -- Consumption	12.5	15.2	2.2	-.2	5.0	5.5
Other LDC -- Exports	13.5	13.5	1.2	10.8	6.7	6.2
Other LDC -- Imports	12.8	15.9	.4	10.5	8.6	7.4

Emerging Asia's share of world trade increased dramatically over the 1985 to 1995 period. In 1985 Asia's share was 8.8%, it had risen to 14.2% by 1990 and to nearly 18% by 1995, and is expected to reach 22% by 2010. Asia's share of world production was just 5.4% in 1985 and by 2010 is forecast to reach over 17%. This is a three-fold increase in market share consistent with its new, and more important place in the world (the United States in 1985 accounted for 30% of world output and will likely account for only 23% in 2010). Latin America's importance to the world will also increase but at a rate that is well below the rate of growth achieved by Emerging Asia. In 1985 the share of Latin America in terms of industry-wide sales and exports was quite similar at about 3.4% of world output or world trade. This share barely increases. While output grows slightly to 4.3% in 2010, export share remains fixed at 3.4%. Eastern Europe's share continues to decline as does Europe's share. Looking at the chart below we can see this visually. Emerging Asia has grown at the expense of North America, of Europe, and of Japan.

Chart I-5: Share of World Output-Agriculture, Mining, Manufacturing and Services

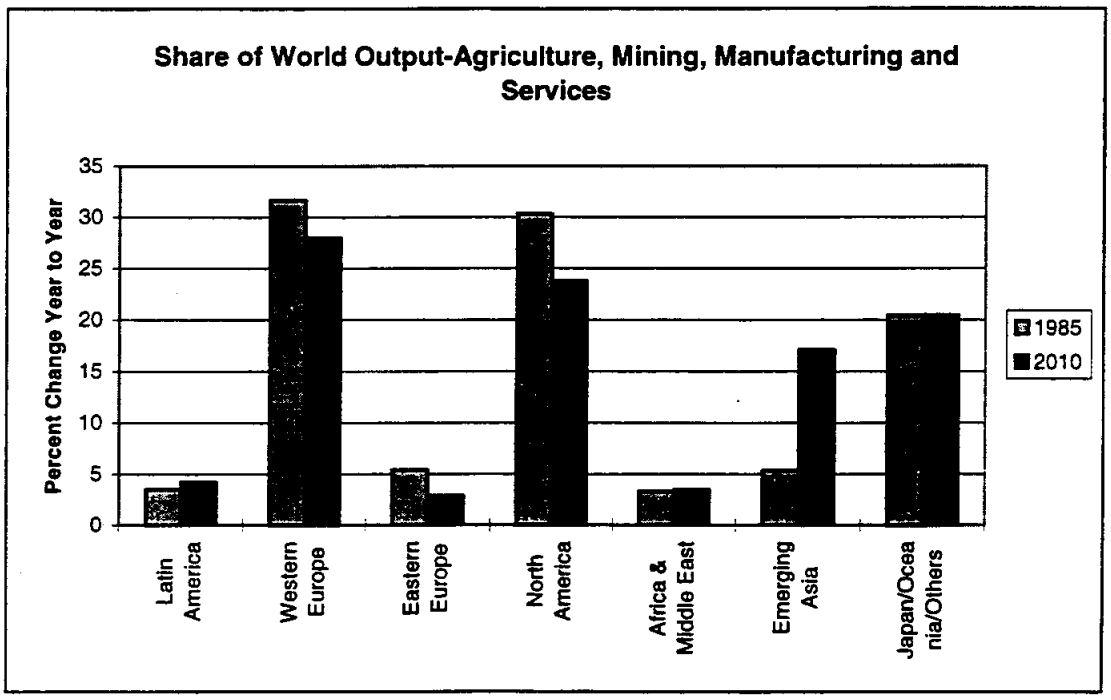
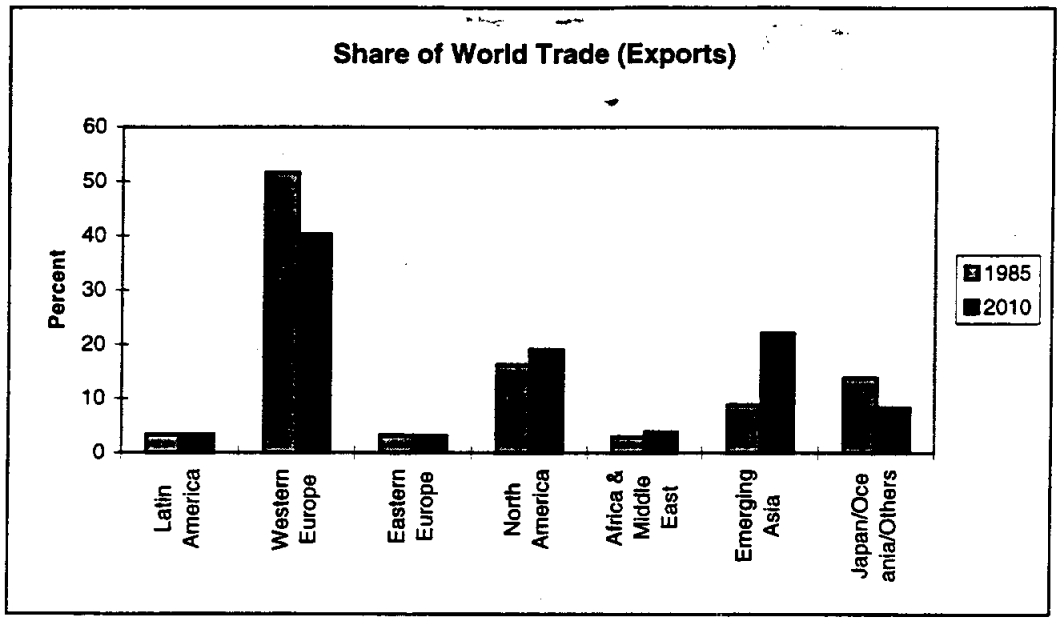


Chart I-6: Share of World Trade (Exports)



THE LONG TERM ECONOMIC AND TRADE FORECAST

A dynamic, pooled-cross-sectional model for forecasting long term macroeconomic trends. This model, based on a detailed model of both production, consumption, investment trends, government spending, and international trade, reflects the changing pattern of worldwide demand that is likely to occur as more advanced developing economies mature and as developed market economies reach long-term equilibrium levels. As an example of this transition we expect many of the rapidly growing, more advanced, developing countries to slow as the period extends beyond the current time frame. For more advanced nations, like the United States or Germany, the long term growth path is flat reflecting a mature economy.

The approach taken to the long-term reflects the complexity of the relationships that are existing today. It thus is based on several assumptions:

1. that current trends towards globalization continue without pause, thus international companies are free to optimize production in locations that are appropriate;

2. that the trend towards greater concentration of output in non-traded services continues both in more advanced and developing economies;

3. that consumption levels, while satiated, are not fully satiated and that there will always be a new "wave" of products that will be desired and thus imported (exported);

4. that advances in automated production may make some inroads in certain productive processes thus slowing the growth in trade by allowing more focused local production of internationally developed products, i.e. designing a product in one country and manufacturing it in many countries;

5. that population trends remain relatively fixed;

6. that more advanced nations that are food exporters continue to export but at a lower rate and that other nations, not currently exporters, enter markets from time to time;

7. that North Sea oil gives way by about 2015-20 reducing exports of crude oil from Western Europe, and increasing Europe's imports;

8. that conservation trends in energy spill-over to other areas of the world only gradually.

Since this forecast has been developed using a dynamic, simultaneous model that reflects medium to long-term trends based on a cross-country sample drawn from 68 countries, understanding fully the interrelationships apparent in the model entirely is likely impossible. There are more than 100 equations for each country that are embodied in the pure, macroeconomic model; these forecasts are combined with the trade model, and are run for more than 40 commodities of interest to the PCC traffic growth projection model. The potential complexity is multiplied many fold. Moreover this research into the very distant future is on going and refinements are being made in the macroeconomic and the trade modules regularly. Thus the summary conclusions offered here reflect our first impressions after only a short time to examine the myriad of relationships involved in studying the long-term interrelationship.

As a result of these long term simulations we have derived a number of broad scale indicators of economic development. Table V-1 shows the Macroeconomic Variables used in the Long Term Trade Model. These include personal consumption expenditures, business investment spending, consumption of traded goods share of total consumption, import share of traded goods consumed, and population size. There is no assumption about relative prices in the long-term model.

Emerging Patterns of Long-term Economic Growth

Long-term growth in the United States averages less than 2%.[1] Europe also comes in at about 2%, but East Asia, including China, shows a slightly accelerating trend as the share of emerging markets including China overcomes the slower growth of Japan (which dominates the earlier period). Southeast Asia has a slowly declining trend from 6% to

[1] Canada comes in at 3% which appears to be high relative to the strengths of the Canadian economy. This may be a characteristic of the special relationship between Canada and the United States, the importance of trade (especially with the United States), and the mix of Canadian industries (with its abundant agriculture and raw materials sectors).

about 5%. Oceania, another developed economy, comes in at about 2.3%. In Latin America the rate of growth starts the next century near 5% range and declines slightly to about 3.5-4%. Growth in Central America is robust at about 4 to 5%. Africa, including sub-Saharan and North Africa, grows at closer to 5%, while the Middle East growth is forecast at about 3.5% per year.

These differential trends reflect differences in starting points, population growth rates, as well as forecasts for international trade growth (initial, non-binding trended growth rather than dynamic, route and product specific forecasts.) They illustrate the range and also suggest that for many poor nations the steady state of low economic growth in the long term may not be appropriate. In most of the countries where the trend is growing the existing population size is large and the relative wealth per capita low. It may takes forty years before these nations fully reach economic take-off.

Finally, the dynamics of an open economy may make the more traditional boom and bust cycles of the past fifty years less damaging. If this is the case given better knowledge of the forces at work and the free flow of capital (and possibly labor), stronger longer term growth may be achieve in the poorest countries in these regions. Despite all this progress the gap between rich and poor will likely remain large except in a few, isolated cases per capita incomes approach those of more advanced nations. If present trends continue, for example, Singapore would surpass the United States in per capita income in 2005, Hong Kong and Taiwan in 2015, but China—with its much larger and predominantly rural population – would never exceed a per capita income of 1/10th of the US even in 2040.

Table II-1 shows the trade forecast for the routes of importance to the PCC Traffic Model. These represent the Major Routes and there are a collection of minor routes as well. As can be noted in the table the real growth in world trade along these major routes when measured in constant US dollars, rather than volumes (a generally more reliable method for showing real activity levels since metric tons are skewed by heavy products such as coal and other ores), real growth in world trade after the end of the US recession has averaged on these major routes close to 7% per year with growth in 1994 over 10%. The forecast calls for real growth to average about 7% through 2000, 6% between 2000 and 2010, then decline to about 5.4% between 2010 and 2020, dropping to between 3.5 and 4% in the remaining twenty year period. These rates are adjusted ones and not necessarily the pure forecasts that might have come from the trade models. As we noted above we have assumed that short term models may miss changes in technology as well as measure properly the tendency for more advanced and rich economies to substitute services for goods at higher levels of income. Without adjustment these rates while higher would have also shown the same slowing down trends although there are regional patterns that can skew real growth higher.

The choice of the 28 major PCC routes also excludes the strong growth achieved within the growing Asian market itself. Intra-Asian trade is excluded as this trade does not pass through the Canal. The potential for growing trade between Europe and an

emerging Africa is also excluded. The fastest growing trade among the 28 remains the US to Asia which continues to grow at about 5%. Canada to Europe also grows at close to this rate. Some small volume trades such as South Africa East to Central America, which potentially can move through the Canal, are also growing rapidly (5.3% in 2020-30 and 4.7% over the 2030-40 time frame). The model forecasts, however, a slowing down of the growth in the Asia to South America East trade. This route grew from a low base over the 1990-2000 period at 14% per year, slows to 7% in the next decade and then drops to 5.4% and 3% in the succeeding decades. A similar pattern of slowing growth from the 1990's can be observed in the US trade with South America West, US with Central America, and South America East to South America West. This route, however remains a key trade growing in importance. Even in 2040 we estimate that it will be growing at a rate that is about half of 1% above the rate for the aggregate of the 28 routes.[2]

[2] It is interesting to note that the value of the trade from Eastern South America to Western South America in 1990 is about 2 times that of Western South America to Eastern South America. This ratio remains true even through 2040 ($ 83.4 billion in 1987 $s versus $ 40.4 billion).

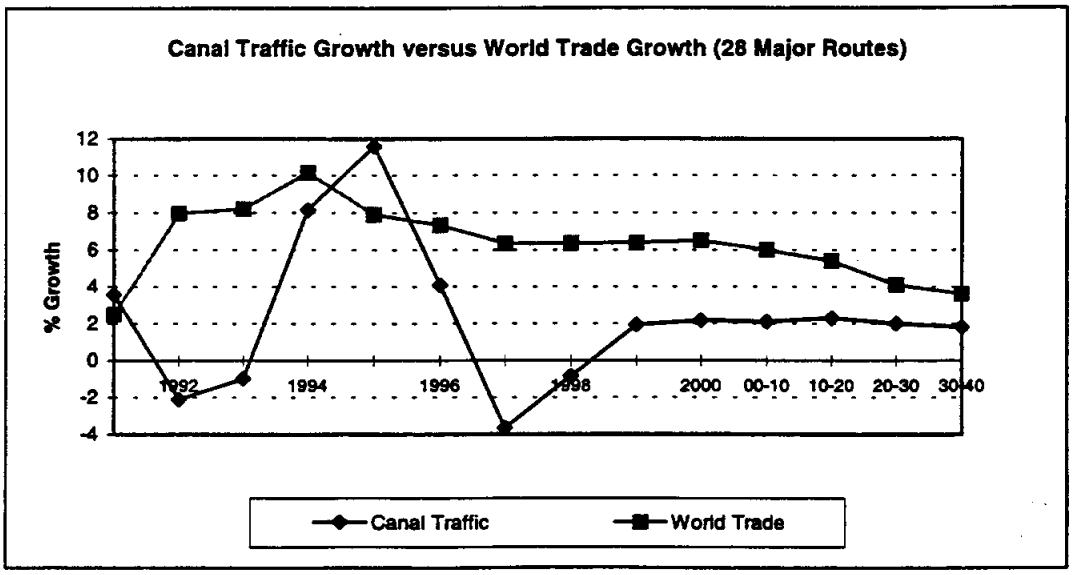
CHAPTER II THE IMPACT OF TRADE ON THE CANAL

Canal traffic growth has been tied closely to the strong growth in world trade. Traffic through the Canal, however, is limited by physical limits on lock capacity. Delays at the Canal can reroute some traffic. Moreover much of world trade growth has been on routes that are non-Canal routes (as the earlier analysis suggests). As the chart below illustrates, growth through the Canal is currently limited both by the size of the locks and the pattern of the trade. Capacity is assumed to increase after 2002 as the Gaillard cut widening project will have been mainly accomplished by that year. We assume that traffic through the Canal will be allowed to grow by 20% as a result (from 15,000 transits maximum to 18,000 transits).

In 1997 the drop can be attributed to a steep decline in sales of American corn and grains to China as well as the increase in tolls. The growth peaks in 1995 after the trough caused by the US recession and the increase in Canal tolls in 1992 may be due to the surge in US exports of grains to Asia. What is clear from a study of PCC traffic is that it is tied more closely to some key bulk commodities even if revenues are tied closely to liner trade, automobile carriers, and passenger cruise ships (30% of total Canal tolls in 1996).

The long term forecast calls for a steady 2% growth over most of this period, assuming that the Canal has sufficient capacity to meet this challenge. Overall volume through the Canal, without impediments due to limits on available capacity, would more than double going from 198 million long tons in 1996 to over 440 million long tons by 2040. In the following sections we will examine the plausibility of this forecast for long term growth in light of changes in ship size characteristics, utilization rates, mix of commodities, and other factors that will affect the Canal's operations.

Chart II-1: Canal Traffic Growth versus World Trade Growth (28 Major Routes)



International trade on major PCC routes drives the forecast of traffic through the Canal. Looking at the forecast for trade and comparing this to the forecast of Canal traffic it is clear that strong growth in world trade, when there is sufficient capacity in the Canal, can lead to simultaneous increases in Canal traffic. This is not universally true, and Canal routes and products may differ somewhat from the general ebb and flow of goods on world markets. Moreover, the strong growth in intra-Asian trade over the 1980's and 1990's bypassed the Canal as did at least some of the Europe-Asia trade. We can see from the chart below the tight relationship between Canal traffic and overall traffic for the 28 major routes of importance to the PCC Traffic Model. The strong growth through the Canal in 1994 and 1995 can be accounted for by the strong growth in trade and the two dips in PCC traffic can be attributed to both tariff changes and also to changes in patterns of trade. Much of the strength of the 1994-95 period came from surges in trade in food grains. Corn increased between 1994 and 1995 by almost 10 million tons through the Canal as demand in Asia exploded. The reciprocal of this has been the fall-off in trade mainly in corn that occurred in 1997 with volumes of 6.3 million tons less than the 1996 total. The surge occurring in world trade growth in the mid-1990 period cannot be accounted for by a stronger growth in demand for food grains in Asia but rather is due to a strong growth in manufactures trade and the interrelationship between buyers and sellers worldwide.

In examining our forecast for the very long term a number of factors need to be taken into account. The continued strength of Asia's emerging markets leads to a growing trade mainly in manufactures between the older leaders – Japan, the United States, and Western Europe – and the new leaders in Asia (Taiwan, Singapore, Korea, and China). On routes into Asia the long term growth of trade remains relatively strong. We can see, for example, that the forecast for 1990-2000 for trade of US to Asia was 8.8% growth in 1987 US $s, 6.2% for the next 10 years, 5.7% in the succeeding years, and then dropping to about 5% for the remaining 20 year period. For Asia to the US the expected slower growth in the US economy leads to a pattern that shows a rapid fall-off in the growth as time passes. The growth falls from 6.2% in 1990-2000 to just about 2.5% real growth in 2030-40. One of the strongest new routes is between South America East and South America West. There is a larger volume of trade through the Canal from East to West than West to East. Much of this inter-coastal trade is made up of Colombian and Venezuelan trade. With Colombia, due to geography, sending products by ship through the Canal from one side of the country to the other. Also important are manufactured products of iron and steel from Brazil—800,000 long tons in 1996. Real growth of 13% is estimated for the 1990's and this drops by 2040 to about 4% real growth. South America West to South America East grows quickly off a smaller base over the 1990's (again in the double digits) and then declines to about 3.5% growth forecast over the 2030-40 decade.

ADJUSTMENTS TO THE LONG-TERM PCC FORECAST

These broad based trends hide detailed commodity patterns that are of some importance to the future growth through the Canal. The PCC traffic model picks up the

trends at a commodity level based on a detailed route structure. In developing our traffic forecast we have made a number of adjustments to reflect our belief in the potential for supply or the likelihood of continued demand. Among the corrections the following standout.

1. We have adjusted down by about 25% the growth rate forecast for imports of bananas from all sources into all markets on the belief that in the very long term, the demand will slow from historical rates as these historical and even current forecast rates reflect the growth from new markets (i.e. in Europe and Eastern Europe). Mature markets will grow at a slower rate in the long-term. Our forecast for imports into the US market for bananas from all sources declines from the 6-7% rate of the 1990's and 2000-10 period to just 3.5% per year in the 2020-40 time period. World market demand for bananas declines from over 7% in the 1990's to just 2.5% overall in the last ten year period. As time evolves, bananas will most certainly become fully containerized, a trend that is already very prominent.

2. We have adjusted potential growth in exports of the United States, Western Europe, and Oceania for Wheat and Other Grains by about 25% for the period 2015 to 2030 and by 50% from the forecast growth over the 2030-40 time period. This pushes the US export growth from 5% to just between .5 of 1% and 1% per year by the end of the period. Europe's exports decline from 5% to about 1.5% per year over this period, and Oceania from 6% to 1%. This severe decline is meant to reflect the limits of scientific agriculture to continually improve crop yields and limits on the availability of land. Continued high growth from already large grain exporters is unreasonable.

3. We made a smaller adjustment in growth for pulp wood. Similar reasons as point 2 pertains thus there will likely be physical limits on availability of supply in the future.

4. Growth in fertilizer exports were reduced by 25% from forecast growth rates for exporters from the United States and Western Europe. This reduces the real growth marginally (about 3% by the end of the period). It is based on an assumption that fertilizer production is tied closely to availability of gas and oil which will be in short supply. There are also new alternatives to chemical fertilizers that are likely to make in-roads into the world market in the future. At the same time the pressure of ever larger populations on land and water will encourage the increase in supply. World population by 2040 will approach 9.5 billion by 2040 or double today's population.

5. Adjustments were made in supply potential for Other Ores and for Petroleum. We slowed the long term growth of Western Europe for crude petroleum on the assumption of a gradual playing out of the North Sea oil fields. Europe goes from 7% real growth in exports for the 1990-2000 period to the world to zero growth by the end of the period. It is probable that the actual pattern could be negative as oil fields dry up but a more severe adjustment would do little to the traffic through the Canal and was not applied.

6. Real growth in exports of corn from the United States to the world were reduced by 25% over the period 2016 to 2040. Again we have assumed that the ability to even a large exporter like the United States to continue to expand its trade may be limited in the long term by the availability of arable land for growing and improvements in seeds and agricultural techniques. Real growth in corn exports average about 2% over most of the period with growth of about 1.5% for US exporters in the last decade included (2030-40).

Aside from these adjustments in trade we have also tended to reduce growth in manufacturing trade over the long run. Our adjustment has taken in small increments ($1/10^{th}$ of 1% per year from the projected growth cumulating over the twenty years between 2020 and 2040.) This has depressed the long term growth in manufactured trade while allowing differences in products and across markets. Our assumption for this is that there will be changes in technology than can lead to new approaches to production. Moreover at least for some major markets and some products consumer growth will slow as markets become saturated. In general the models forecast a slower growth on their own, based on a slower growth in GDP for importers over this longer time period. These adjustments further reduce trade in intermediate and manufactured products. The net result is that long term growth in world trade for all products measured in real value falls from the 7% growth achieved in the 1990's to just about 3.6% growth in the last decade (2030-40).

IMPACT OF LONG TERM TRADE TRENDS ON CANAL TRAFFIC GROWTH

The effect of this traffic growth on the Canal is mixed. On the one hand the rate of growth in world trade and for specific cargoes on individual routes has a differential impact on Canal traffic. The Canal has not picked up all of the trade and the elasticities that relate traffic growth through the Canal to trade are less than 1.0 confirming this observation. As the table below shows on the 28 major routes, when measured in real value (a way to measure volume growth across many different products with varying weights and measures), the real growth of these trade routes has been generally higher and more consistent than the growth in traffic through the Canal. In part, the Canal traffic is constrained by the mix of products that move through the Canal, by the size of ships that can make the transit, by the cost of the transit in both ship time and in tolls, and by diversion to alternative modes of transportation – rail or truck across the United States or diversion to traffic moving by air.

Table II-1: Forecasts of International Trade by PCC Route (in millions of real 1987 US dollars)

PCC Major Routes	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2010	2020	2030	2040	%90-00	%00-10	%10-20	%20-30	%30-40
US to Asia	90,198	94,336	99,181	107,074	120,279	147,924	166,546	173,662	184,297	196,743	209,738	381,614	666,250	1,106,494	1,831,427	8.8%	6.2%	5.7%	5.2%	5.2%
Asia to US	175,365	175,272	188,557	205,767	228,450	240,850	254,310	270,172	285,930	302,453	320,751	553,373	898,982	1,245,295	1,595,501	6.2%	5.6%	5.0%	3.3%	2.5%
South Am. West to US	5,619	5,881	6,143	6,862	7,716	8,523	8,738	9,119	9,531	9,955	10,469	16,928	29,199	45,217	64,325	6.4%	4.9%	5.6%	4.5%	3.6%
Canada to Europe	12,288	12,636	13,145	10,597	11,467	12,945	13,734	14,632	15,497	16,480	17,546	30,505	52,501	88,391	141,602	3.6%	5.7%	5.6%	5.3%	4.8%
South Am. West to Europe	7,208	7,652	8,131	7,639	9,580	10,281	10,930	11,535	12,158	12,821	13,578	23,838	39,937	55,905	71,382	6.5%	5.8%	5.3%	3.4%	2.5%
US to Europe	92,653	96,155	97,886	98,960	99,547	111,641	117,462	123,136	129,135	136,379	144,650	249,647	414,876	596,072	763,272	4.6%	5.6%	5.2%	3.7%	2.5%
US to South Am. West	5,146	5,641	6,373	7,279	8,148	9,767	10,348	11,434	12,518	13,511	14,811	30,408	55,687	86,281	121,510	11.2%	7.5%	6.2%	4.5%	3.5%
US to Central Am./Carib.	31,122	35,773	46,324	49,315	57,404	53,608	60,007	67,087	74,393	82,387	90,613	195,016	355,784	585,223	910,555	11.3%	8.0%	6.2%	5.1%	4.5%
South Am. West to Central Am./Carib.	1,257	1,290	1,149	1,231	1,551	1,506	1,672	1,837	2,003	2,185	2,380	4,812	8,364	12,764	17,963	6.6%	7.3%	5.7%	4.3%	3.5%
South Am. East to South Am. West	2,681	2,972	3,640	4,860	5,682	6,445	6,981	7,651	8,242	8,722	9,438	18,192	33,623	55,723	83,458	13.4%	6.8%	6.3%	5.2%	4.1%
US to Oceania	7,695	7,691	8,085	8,674	9,822	10,497	11,242	12,113	12,846	13,609	14,442	26,260	43,557	61,317	78,645	6.5%	6.2%	5.2%	3.5%	2.5%
Europe to US	91,504	85,330	89,786	106,659	118,675	118,288	124,405	132,318	140,190	146,997	153,899	241,145	377,930	508,866	628,344	5.3%	4.6%	4.6%	3.0%	2.1%
South Am. East to US	17,043	15,015	16,286	17,121	18,317	18,865	19,633	20,711	22,107	23,606	25,385	49,157	86,315	130,283	180,912	4.1%	6.8%	5.8%	4.2%	3.3%
Centl Am./Carib. to Centl Am./Carib.	1,866	1,881	2,046	2,129	2,374	2,512	2,773	2,967	3,162	3,383	3,616	6,238	9,700	13,312	16,910	6.8%	5.6%	4.5%	3.2%	2.4%
Oceania to US	4,577	4,991	5,479	5,513	5,487	5,329	5,523	5,800	6,102	6,433	6,869	12,471	21,935	33,522	47,202	4.1%	6.1%	5.8%	4.3%	3.5%
South Am. East to Central Am./Carib.	4,237	4,950	5,441	5,784	5,598	5,880	6,517	7,127	7,727	8,382	9,094	18,681	34,932	58,578	92,566	7.9%	7.5%	6.5%	5.3%	4.7%
Central Am./Carib. to US	4,207	4,738	5,468	5,762	6,146	6,047	6,455	6,895	7,318	7,758	8,231	14,566	24,580	36,508	49,564	6.9%	5.9%	5.4%	4.0%	3.1%
Europe to South Am. West	3,980	4,061	4,772	6,332	7,015	8,067	8,626	9,488	10,270	10,964	11,967	23,714	45,247	79,288	125,804	11.6%	7.1%	6.7%	5.8%	4.7%
South Am. East to Asia	7,541	8,008	7,899	8,504	9,866	10,693	11,457	12,142	12,831	13,612	14,442	25,701	44,708	73,296	129,226	6.7%	5.9%	5.7%	5.1%	5.8%
Central Am./Carib. to Asia	1,083	1,071	1,095	934	992	1,041	1,092	1,135	1,183	1,240	1,299	1,951	3,002	4,634	6,686	1.8%	4.1%	4.4%	4.4%	3.7%
Central Am./Carib. to South Am. West	517	622	661	545	658	708	770	827	879	938	1,003	1,665	2,876	4,900	7,767	6.9%	5.2%	5.6%	5.5%	4.7%
Asia to Central Am./Carib.	7,677	9,920	12,391	14,492	15,629	16,297	17,578	18,945	20,303	21,801	23,427	43,697	71,361	106,292	150,756	11.8%	6.4%	5.0%	4.1%	3.6%
South Am. West to South Am. East	1,469	1,945	2,476	2,580	2,871	3,153	3,414	3,794	4,141	4,507	4,899	10,120	18,281	28,509	40,396	12.8%	7.5%	6.1%	4.5%	3.5%
US to South Am. East	8,027	10,751	12,383	13,045	15,289	17,964	19,252	21,060	22,813	24,588	26,419	53,892	91,914	136,896	189,006	12.7%	7.4%	5.5%	4.1%	3.3%
Asia to South Am. East	3,671	4,698	6,486	7,275	7,801	8,891	9,546	10,387	11,246	12,119	13,000	26,561	45,081	66,895	91,944	13.5%	7.4%	5.4%	4.0%	3.2%
Central Am./Carib. to South Am. East	1,018	1,133	1,170	947	1,139	1,228	1,316	1,408	1,498	1,596	1,701	3,024	5,133	7,883	11,366	5.3%	5.9%	5.4%	4.4%	3.7%
Total, Major Routes	**589,649**	**604,410**	**652,456**	**705,878**	**777,503**	**838,950**	**900,327**	**957,385**	**1,018,320**	**1,083,170**	**1,153,669**	**2,063,173**	**3,481,756**	**5,228,346**	**7,448,088**	**6.9%**	**6.0%**	**5.4%**	**4.1%**	**3.6%**
% Change		**2.5%**	**8.0%**	**8.2%**	**10.2%**	**7.9%**	**7.3%**	**6.3%**	**6.4%**	**6.4%**	**6.5%**									

Source : ICF Kaiser International Inc.

The PCC traffic model has been developed to provide a sophisticated linkage between demand or cargo growth and growth in traffic through the Canal. It integrates both demand and price into a multi-equation model, route specific, that measures cargo volume through the Canal for 29 commodity categories. Both trade and price elasticities are considered in this model. In developing our long-term forecast we have assumed that only trade will impact Canal traffic growth, thus ignoring the impact of small changes in ship operating costs (time delays associated with these costs coming from passage through the Canal). We have thus forecast traffic growth through the Canal using only the estimated price elasticities for trade by route.

Equation II-1: Forecasting Canal Traffic Growth Using Elasticities

$$\text{Canal Traffic}_{k,r,t} = \text{Canal Traffic}_{k,r,t-1} \times [1 + E_{rs}] \times \text{Trade}_{,Rt,}$$

where Canal Traffic is measured by commodity type, by route, in time t and is based on traffic in time t - 1 adjusted by the estimated Canal Traffic Elasticity $\left[\frac{\partial CT}{\partial T}\right]$ by route and by shiptype (Bulk, Tanker, Container, Other) time Trade by Major Route, R at time t.

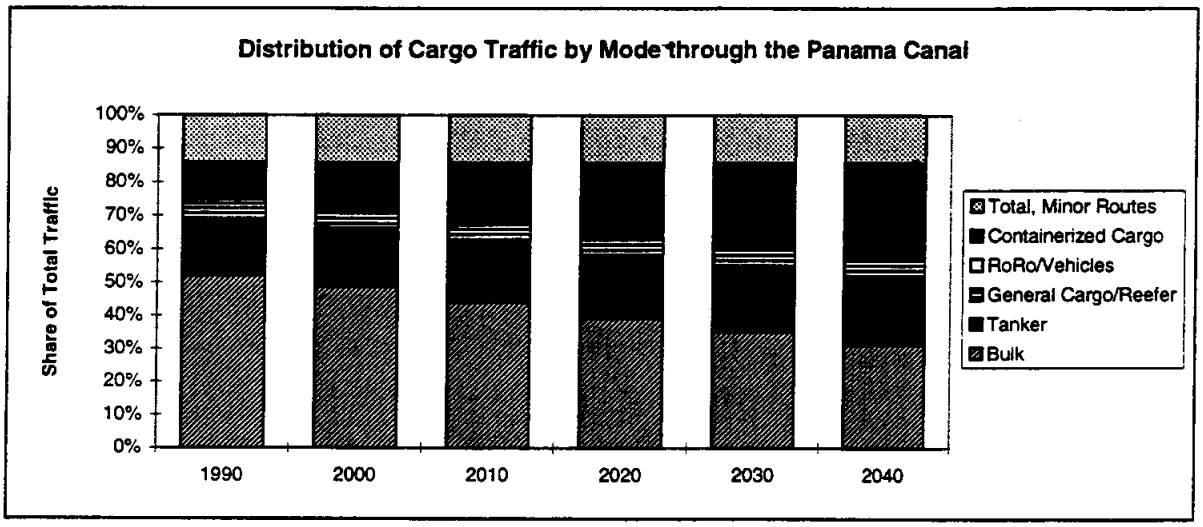
The elasticity has been calculated based on Canal traffic growth as it relates to the world trade growth by major routes. The 28 important Canal routes are measured against selected trade routes from the ICF forecast along major trade routes.[1]

In the chart below we can see the correlation at the aggregate level of traffic growth through the Canal and change in trade on the 28 major PCC routes. We can see that while the traffic did peak during 1994 and 1995, reaching 11.6% in volume terms, traffic growth came after a period of slower growth in the early 1980's. Thus while the traffic along the major corridors of world trade of importance to the Canal in 1992 and 1993 was quite positive, traffic through the Canal was actually declining. Moreover, a closer look at the spike in traffic reveals that most of the surge came from the increased trade in primary products and food grains bound for Asia from the East coast of the United States. The variability of Canal traffic due to sometimes weather related phenomenon makes planing more difficult. Surging bulks in one year can, if monsoons come on time and water is plentiful, lead to steep declines the next.

Trade between the US East Coast to East Asia (including China) increased by 10 million tons between 1994 and 1995. It remained high in 1996 and in 1997 declined. All of this surge can be attributed to a single product category (corn, wheat, other grains and soybeans—the total increase in food grains to East Asia in that one year was 11.3 million

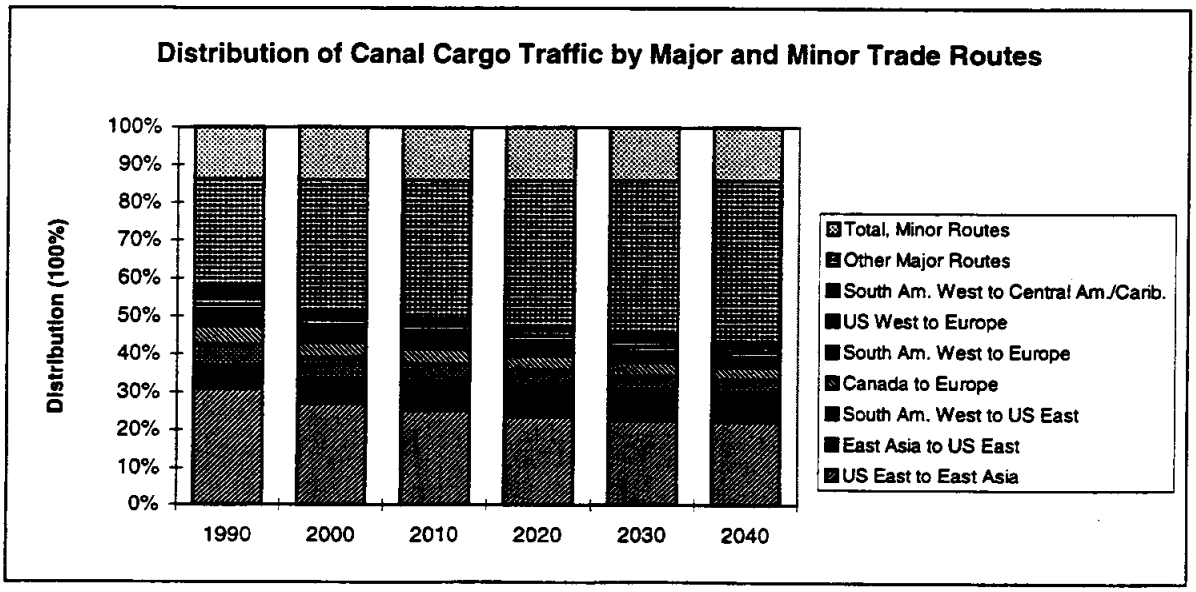
[1] The general ICF Trade model structure covers a 60 x 60 matrix of trade routes for 84 commodities. In developing the PCC long-term forecast we have used this system and collapsed it to a 12 x 12 matrix of routes (144 as compared to 3600). These routes, designated R, are slightly broader based than the routes included in the PCC data (the 28 major routes). Since PCC traffic flows are recorded generally with less accuracy in terms of origin and destination of final cargoes than is trade information (PCC volumes often exceed reported trade volumes due to the failure to properly and accurately record true origin and destination rather than next port of call after the Canal) using broader based trade flows is a better approach.

Chart II-3: Distribution of Cargo Traffic by Mode Through the Panama Canal



Traffic demand by route varies over time. As overall traffic grows there will be some adjustments in the traffic by route. What is clear is that at least on some of the routes where trade is destined for more developed regions, i.e. US and Europe, the long term growth in traffic through the Canal will be reduced from current growth rates. The strong growth on "Other Major Routes" reflects mainly the strong growth in routes to emerging markets in Asia.

Chart II-4: Distribution of Canal Cargo Traffic by Major and Minor Trade Routes



Where most of the mature routes show a decline in real rates of growth especially in the long-term, there will likely emerge stronger growth in some of the less important bilateral flows. The seven most important PCC routes in 1990 accounted for 58% of the traffic through the Canal, but by 2040 we expect that these seven routes will only account for about 43% of the total traffic through the Canal. Some of the other routes that are growing quickly and will continue to grow in the future (although at a slightly reduced rate) include US East Coast to South America West Coast, Europe to South America West Coast, and South America East Coast to US West Coast.

In the following sections we will study the current canal capacity to handle the growth in Cargo suggested by these long-term forecasts of traffic growth through the Canal. The projected increase from the 198,000 long tons of cargo carried in 1996 to the 446,000 long tons expected to be carried by 2040, will be translated using a statistical methodology into the number of transits through the Canal needed to carry this volume of cargo. In the next section the methodology for translating tonnage by type into cargo carried by ship through the Canal will be outlined.

Table II-2: Baseline Estimates of PCC Traffic by Major Commodities (in thousands of Long Tons)

Predominant Ship Type/Product	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2010	2020	2030	2040	%90-00	%00-10	%10-20	%20-30	%30-40
Major Routes																				
Bulk	**81,719**	**85,584**	**82,484**	**78,595**	**85,625**	**100,811**	**102,600**	**95,187**	**93,883**	**94,797**	**95,875**	**106,846**	**119,100**	**130,653**	**139,581**	**1.6%**	**1.1%**	**1.1%**	**0.9%**	**0.7%**
Coal and Coke	7,893	8,041	8,504	7,482	8,961	10,926	10,709	10,194	9,992	10,137	10,319	11,906	13,280	14,318	14,867	2.7%	1.4%	1.1%	0.8%	0.4%
Soybeans	6,090	6,267	7,220	7,863	7,103	8,407	8,537	12,348	12,283	12,378	12,475	13,334	14,400	15,445	16,013	7.4%	0.7%	0.8%	0.7%	0.4%
Wheat	5,504	5,731	5,397	3,981	4,220	5,541	4,172	1,667	1,566	1,565	1,565	1,469	1,421	1,421	1,304	-11.8%	-0.6%	-0.3%	0.0%	-0.9%
Corn	13,980	15,013	14,344	16,007	15,847	23,623	24,150	17,802	17,732	17,950	18,171	20,364	22,147	23,578	24,353	2.7%	1.1%	0.8%	0.6%	0.3%
Other Grains	2,880	3,086	3,136	3,008	2,646	3,706	2,835	2,813	2,790	2,819	2,851	3,177	3,650	4,201	4,425	-0.1%	1.1%	1.4%	1.4%	0.5%
Lumber Products	5,165	5,594	5,416	5,142	5,150	5,678	6,649	6,351	6,280	6,311	6,345	6,761	7,345	8,045	8,716	2.1%	0.6%	0.8%	0.9%	0.8%
Pulpwood	2,818	2,812	3,505	3,496	3,362	3,903	3,547	3,797	3,717	3,779	3,840	4,472	5,214	6,125	7,053	3.1%	1.5%	1.5%	1.6%	1.4%
Iron and Steel	6,127	6,920	5,656	4,607	6,997	8,209	7,367	7,470	7,262	7,315	7,406	8,739	10,628	12,183	13,457	1.9%	1.7%	2.0%	1.4%	1.0%
Misc. Minerals	4,318	4,209	3,269	3,154	5,206	4,743	6,801	7,074	6,973	7,013	7,084	7,514	8,057	8,713	9,164	5.1%	0.6%	0.7%	0.8%	0.5%
Phosphates	6,951	8,090	7,412	6,045	7,591	7,326	7,482	5,718	5,682	5,682	5,682	5,657	5,625	5,600	5,582	-2.0%	0.0%	-0.1%	0.0%	0.0%
Other Fertilizers	4,872	4,243	4,245	4,540	5,240	5,497	5,538	5,671	5,558	5,583	5,618	5,857	6,058	6,350	6,666	1.4%	0.4%	0.3%	0.5%	0.5%
Alumina/Bauxite	2,249	1,661	725	539	585	427	565	523	514	525	540	696	999	1,522	2,121	-13.3%	2.6%	3.7%	4.3%	3.4%
Other Ores	4,019	4,701	4,974	4,713	4,956	5,667	6,171	6,776	6,686	6,871	7,074	9,645	12,584	15,110	17,614	5.8%	3.1%	2.7%	1.8%	1.5%
Scrap Metals	2,051	2,029	1,376	2,482	1,614	1,646	1,688	1,289	1,280	1,281	1,281	1,281	1,276	1,273	1,268	-4.6%	0.0%	0.0%	0.0%	0.0%
Sugar	2,737	2,838	2,711	1,928	1,819	2,148	2,236	2,187	2,098	2,089	2,084	2,031	2,039	2,040	1,976	-2.7%	-0.3%	0.0%	0.0%	-0.3%
Petroleum Coke	3,004	2,970	3,250	2,357	2,848	2,209	2,784	2,278	2,262	2,267	2,276	2,392	2,519	2,590	2,611	-2.7%	0.5%	0.5%	0.3%	0.1%
Paper	1,061	1,379	1,346	1,252	1,481	1,154	1,368	1,227	1,207	1,232	1,263	1,551	1,856	2,139	2,389	1.8%	2.1%	1.8%	1.4%	1.1%
Tanker	**26,482**	**25,982**	**26,414**	**29,483**	**31,551**	**33,582**	**36,886**	**34,574**	**33,366**	**34,207**	**35,134**	**44,710**	**58,572**	**73,789**	**91,523**	**2.9%**	**2.4%**	**2.7%**	**2.3%**	**2.2%**
Chemicals	3,964	4,686	4,922	5,257	5,591	5,960	6,128	5,981	6,100	6,438	6,798	10,022	14,964	19,165	24,154	5.5%	4.0%	4.1%	2.5%	2.3%
Petroleum Chemicals	1,457	1,841	1,211	1,694	2,301	1,967	2,580	2,459	2,586	2,740	2,913	5,021	7,731	10,515	13,069	7.2%	5.6%	4.4%	3.1%	2.2%
Crude Petroleum	8,933	7,646	7,590	7,995	9,360	10,664	12,876	11,463	10,607	10,689	10,786	11,566	12,561	13,468	14,260	1.9%	0.7%	0.8%	0.7%	0.6%
Petroleum Residual	4,194	3,566	4,434	4,102	2,848	2,528	2,497	1,651	1,577	1,620	1,665	2,405	3,782	6,507	11,157	-8.8%	3.7%	4.6%	5.6%	5.5%
Petroleum Products	5,778	6,260	6,271	8,264	8,646	9,346	10,509	10,563	10,110	10,295	10,500	12,552	15,163	17,968	20,407	6.2%	1.8%	1.9%	1.7%	1.3%
Other Food & Agriculture	2,155	1,983	1,986	2,171	2,807	3,118	2,296	2,456	2,385	2,425	2,472	3,143	4,371	6,166	8,476	1.4%	2.4%	3.4%	3.5%	3.2%
General Cargo/Reefer	**7,513**	**8,129**	**7,851**	**7,904**	**8,212**	**8,690**	**9,035**	**9,233**	**9,089**	**9,252**	**9,438**	**11,526**	**14,683**	**18,249**	**22,435**	**2.3%**	**2.0%**	**2.5%**	**2.2%**	**2.1%**
Bananas	1,149	1,563	1,647	1,446	1,686	2,093	2,086	2,133	2,120	2,172	2,225	2,797	3,309	3,589	3,676	6.8%	2.3%	1.7%	0.8%	0.2%
Other Reefer	2,964	2,975	2,744	2,569	2,822	3,059	3,193	3,145	3,138	3,223	3,323	4,261	5,798	7,320	8,703	1.1%	2.5%	3.1%	2.4%	1.7%
Other Metals	1,935	1,912	1,696	1,823	1,746	1,582	1,599	1,847	1,795	1,796	1,805	1,943	2,222	2,635	3,135	-0.7%	0.7%	1.4%	1.7%	1.8%
All Others	1,466	1,679	1,764	2,066	1,958	1,956	2,156	2,108	2,037	2,060	2,085	2,525	3,354	4,705	6,921	3.6%	1.9%	2.9%	3.4%	3.9%
RoRo/Vehicles																				
Automotives	1,580	1,500	1,490	1,488	1,561	1,629	1,328	1,382	1,421	1,438	1,475	1,803	2,186	2,570	2,881	-0.7%	2.0%	1.9%	1.6%	1.1%
Containerized Cargo																				
Containerized Cargo	18,021	18,573	19,197	18,918	19,922	21,603	22,312	23,488	24,724	25,940	27,317	43,315	66,557	94,097	126,839	4.2%	4.7%	4.4%	3.5%	3.0%
Total, Major Routes	**135,315**	**139,768**	**137,436**	**136,388**	**146,871**	**166,315**	**172,160**	**163,863**	**162,482**	**165,635**	**169,239**	**208,201**	**261,097**	**319,358**	**383,259**	**2.3%**	**2.1%**	**2.3%**	**2.0%**	**1.8%**
Total, Minor Routes	**21,757**	**22,927**	**21,837**	**21,316**	**23,667**	**23,988**	**25,908**	**26,944**	**26,717**	**27,235**	**27,828**	**34,234**	**42,932**	**52,512**	**63,019**	**2.5%**	**2.1%**	**2.3%**	**2.0%**	**1.8%**
Total, PCC Traffic	**157,071**	**162,695**	**159,273**	**157,704**	**170,538**	**190,303**	**198,068**	**190,807**	**189,199**	**192,870**	**197,067**	**242,435**	**304,030**	**371,870**	**446,278**	**2.3%**	**2.1%**	**2.3%**	**2.0%**	**1.8%**
% Change		**3.6%**	**-2.1%**	**-1.0%**	**8.1%**	**11.6%**	**4.1%**	**-3.7%**	**-0.8%**	**1.9%**	**2.2%**									

Note : Assumed no change in vessel operating cost after 2015
Source : ICF Kaiser International Inc.

Table II-3: Baseline Estimates of PCC Traffic by Major Routes (in thousands of Long Tons)

Routes	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2010	2020	2030	2040	%90-00	%00-10	%10-20	%20-30	%30-40
Major Routes																				
US East to East Asia	48,402	53,643	51,080	50,664	50,695	60,920	59,364	51,151	51,604	52,294	53,015	60,912	71,975	84,402	99,482	0.9%	1.4%	1.7%	1.6%	1.7%
East Asia to US East	9,692	9,683	9,933	10,213	12,221	12,519	11,036	11,849	11,856	12,228	12,665	17,913	24,448	30,139	35,351	2.7%	3.5%	3.2%	2.1%	1.6%
South Am. West to US East	8,705	6,243	5,178	5,381	9,378	9,006	11,729	11,738	11,137	11,155	11,197	11,691	12,477	13,301	14,037	2.5%	0.4%	0.7%	0.6%	0.5%
Canada to Europe	7,537	7,466	6,592	5,530	6,360	8,074	7,979	7,842	7,578	7,763	7,956	9,860	11,655	13,402	14,857	0.5%	2.2%	1.7%	1.4%	1.0%
South Am. West to Europe	6,280	6,350	6,156	6,327	7,008	7,642	7,922	8,178	8,017	8,112	8,215	9,266	10,312	10,924	11,249	2.7%	1.2%	1.1%	0.6%	0.3%
US West to Europe	5,647	5,918	6,933	5,584	5,387	5,096	5,395	4,841	4,885	4,977	5,084	6,607	9,420	12,721	15,717	-1.0%	2.7%	3.6%	3.1%	2.1%
US East to South & SE Asia	3,611	5,339	5,089	5,739	6,084	7,105	7,763	8,062	8,268	8,644	9,042	13,300	19,451	26,378	34,967	9.6%	3.9%	3.9%	3.1%	2.9%
US East to South Am. West	4,360	4,709	4,786	5,229	5,537	7,440	7,832	7,482	7,513	7,804	8,182	12,308	18,572	26,011	34,333	6.5%	4.2%	4.2%	3.4%	2.8%
US East to Central Am./Carib.	4,396	4,171	4,360	3,639	3,312	3,949	4,377	4,755	4,642	4,836	5,041	6,828	8,310	9,519	10,155	1.4%	3.1%	2.0%	1.4%	0.6%
South Am. West to Central Am./Carib.	5,001	3,818	2,928	4,324	2,953	2,589	3,866	3,298	3,095	3,101	3,106	3,164	3,235	3,299	3,353	-4.7%	0.2%	0.2%	0.2%	0.2%
South Am. East to South Am. West	1,845	3,104	3,300	2,990	3,287	5,272	8,497	8,302	7,953	8,068	8,242	9,656	11,444	13,285	14,884	16.1%	1.6%	1.7%	1.5%	1.1%
US East to Oceania	2,692	3,003	3,040	3,099	3,442	3,986	3,786	3,380	3,374	3,418	3,466	4,081	4,837	5,482	6,007	2.6%	1.6%	1.7%	1.3%	0.9%
Europe to US West	3,698	3,196	2,695	2,415	3,246	2,965	3,193	3,686	3,723	3,812	3,903	5,001	6,673	8,456	10,259	0.5%	2.5%	2.9%	2.4%	2.0%
South Am. East to US West	1,926	3,149	3,036	2,476	3,305	3,869	4,130	4,039	3,974	4,137	4,318	6,661	9,958	14,662	21,265	8.4%	4.4%	4.1%	3.9%	3.8%
South & SE Asia to US East	2,799	2,855	2,925	2,982	3,135	2,984	3,063	3,223	3,205	3,247	3,300	4,000	4,939	5,856	6,636	1.7%	1.9%	2.1%	1.7%	1.3%
Centl Am./Carib. to Centl Am./Carib.	2,446	2,074	3,012	2,939	2,784	3,304	3,714	3,316	3,044	3,005	2,970	2,773	2,781	2,978	3,284	2.0%	-0.7%	0.0%	0.7%	1.0%
Oceania to US East	3,844	3,315	2,307	2,091	2,096	1,925	1,821	1,885	1,859	1,864	1,874	1,991	2,145	2,280	2,376	-6.9%	0.6%	0.7%	0.6%	0.4%
South Am. East to Central Am./Carib.	1,845	1,878	2,161	2,420	3,213	3,222	1,990	2,008	2,008	2,075	2,145	2,692	3,331	4,087	4,931	1.5%	2.3%	2.2%	2.1%	1.9%
Central Am./Carib. to US East	1,580	1,847	2,330	2,454	3,107	3,003	3,469	3,124	3,091	3,144	3,214	3,655	4,316	4,992	5,505	7.4%	1.3%	1.7%	1.5%	1.0%
Europe to South Am. West	2,093	1,715	1,764	2,217	2,751	3,062	2,709	2,679	2,705	2,809	2,961	4,070	5,747	8,005	10,722	3.5%	3.2%	3.5%	3.4%	3.0%
South Am. East to East Asia	1,923	1,457	1,871	1,981	1,263	2,035	2,102	2,263	2,179	2,212	2,246	2,586	3,031	3,677	4,332	1.6%	1.4%	1.6%	1.9%	1.7%
Central Am./Carib. to East Asia	1,968	1,912	1,945	1,305	1,641	1,463	1,639	1,369	1,287	1,277	1,267	1,193	1,149	1,131	1,122	-4.3%	-0.6%	-0.4%	-0.2%	-0.1%
Central Am./Carib. to South Am. West	1,021	755	1,017	890	1,470	1,651	1,498	1,769	1,765	1,783	1,802	1,987	2,258	2,622	3,067	5.8%	1.0%	1.3%	1.5%	1.6%
East Asia to Central Am./Carib.	1,127	1,048	1,164	1,283	864	869	1,085	1,315	1,386	1,475	1,566	2,657	3,991	5,623	7,602	3.3%	5.4%	4.2%	3.5%	3.1%
South Am. West to South Am. East	224	328	860	1,075	1,189	1,067	937	1,119	1,143	1,187	1,230	1,798	2,668	3,641	4,720	18.5%	3.9%	4.0%	3.2%	2.6%
US West to South Am. East	344	378	376	444	274	522	496	551	542	554	566	742	974	1,256	1,557	5.1%	2.7%	2.7%	2.6%	2.2%
East Asia to South Am. East	162	268	302	374	333	399	357	274	269	268	272	314	348	384	423	5.3%	1.4%	1.0%	1.0%	1.0%
Central Am./Carib. to South Am. East	144	145	296	323	536	378	411	366	379	387	394	493	652	844	1,067	10.6%	2.3%	2.8%	2.6%	2.4%
Total, Major Routes	**135,315**	**139,768**	**137,436**	**136,388**	**146,871**	**166,315**	**172,160**	**163,863**	**162,482**	**165,635**	**169,239**	**208,201**	**261,097**	**319,358**	**383,259**	**2.3%**	**2.1%**	**2.3%**	**2.0%**	**1.8%**
Total, Minor Routes	**21,757**	**22,927**	**21,837**	**21,316**	**23,667**	**23,988**	**25,908**	**26,944**	**26,717**	**27,235**	**27,828**	**34,234**	**42,932**	**52,512**	**63,019**	**2.5%**	**2.1%**	**2.3%**	**2.0%**	**1.8%**
Total PCC Traffic	**157,071**	**162,695**	**159,273**	**157,704**	**170,538**	**190,303**	**198,068**	**190,807**	**189,199**	**192,870**	**197,067**	**242,435**	**304,030**	**371,870**	**446,278**	**2.3%**	**2.1%**	**2.3%**	**2.0%**	**1.8%**
% Change		**3.6%**	**-2.1%**	**-1.0%**	**8.1%**	**11.6%**	**4.1%**	**-3.7%**	**-0.8%**	**1.9%**	**2.2%**									

Note : Assumed no change in vessel operating cost after 2015

Source : ICF Kaiser International Inc.

CHAPTER III MARITIME INDUSTRY ENVIRONMENT

The development of the world fleet is an important factor for the future of the Panama Canal. ICF Kaiser consultants reviewed the composition of the current world fleet and order book in terms of size and type of vessel, in order to determine the ratio of vessels that could potentially use the Canal. The vessels that are post-Panamax are considered by their service routes and the likelihood of potential transits if there were no physical constraints.

Taking into account the current vessel order book and newly built vessels, ICF Kaiser consultants analyzed the characteristics of the cargo vessel in the near and long term. Assumptions include that the largest container ships such as the C11 in service on the transpacific stay there at least up to 2010, and that Europe - Far East trade moves only via Pendulum service (i.e. COSCO and Mitsui continue with the same size vessels they are operating now.) The current vessel order book and deliveries scheduled through the year 2000 for container ships were examined, and it was determined that the next big construction cycle will occur between 2005 and 2010.

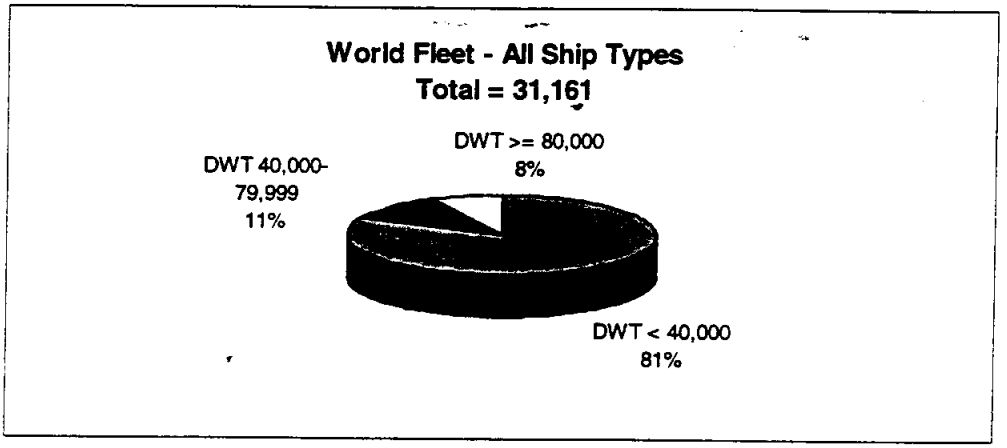
Information from Clarksons Research was used to examine individual operations of the largest container ships. The global container vessel fleet will continue to grow in average size with the additional capacity benefiting the shippers moving their cargo on these larger ships.

The expected proportion of large ships, in the 4,000 TEU plus range, in the next building cycle will be higher than that apparent to date. This will come as a result of the industry re-structuring that is taking place today, with fewer carriers and greater rationalization through vessel sharing.

This restructuring has already led to larger ships being introduced (greater capacity, but little, if any growth in voyages) on the European - Asian, Europe - India and transpacific trade. It would be unreasonable to expect the low-profit transatlantic trade not to go the same way within the foreseeable future. One would therefore expect to see increasing numbers of vessels in the 2,500 - 3,999 TEU range as well as an expansion of voyages with vessels in the 4,000 - 5,000 TEU range in the period covering the next ten years. Thereafter, as the ratio of larger 5,000 TEU plus vessels to all containerships increases after 2010, the trend will likely continue.

The distribution of the world fleet by size and vessel type was then compared to the profile of the commercial cargo vessels transiting the Canal in order to assess whether or not the Canal-transiting vessels were representative of the world fleet.

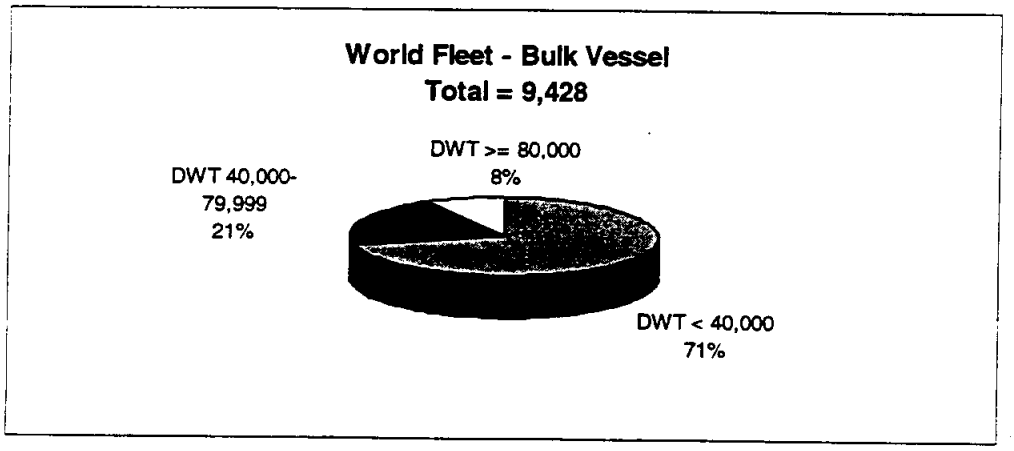
Chart III-1: World Fleet - All Ship Types by DWT



Remarkably, 92 percent of the active world fleet and order book is below 80,000 tons deadweight. Of this, fully 81 percent is below 40,000 DWT. There is a strong case here for suggesting that the physical configuration of the Panama Canal today is sufficient for the physical dimensions of the world fleet. One can argue of course that the "Panamax" restrictions have been one of the major influences in vessel design. Be that as it may, only approximately 8 percent of the world cargo fleet is outside the dimensions of the Canal.

In order to better gauge the profile of the ships using the Canal against the world fleet, the ICF Kaiser consultants considered the three major ship types that transit the Canal. These are dry bulk vessels, tankers and container ships. These were analyzed both in tonnage terms and by TEU design size ranges.

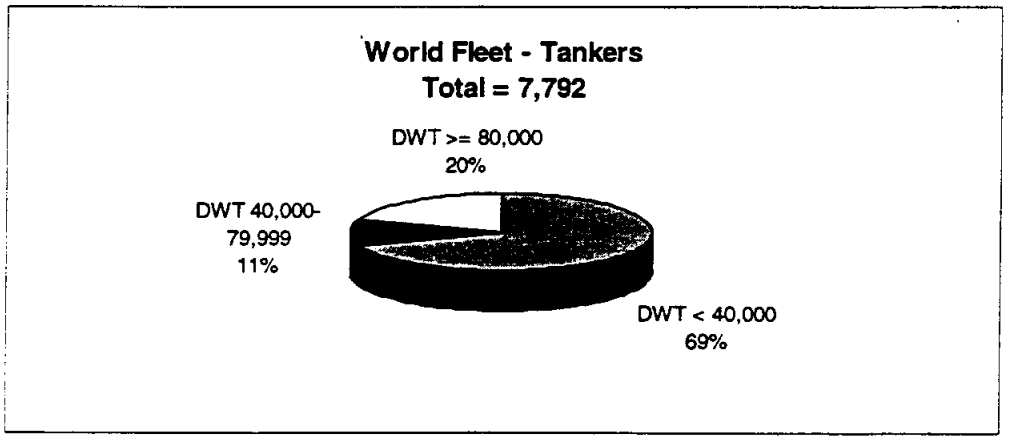
Chart III-2: World Fleet - Bulk Vessel



The dry bulk fleet mirrors the distribution of the overall world fleet, with 92 percent below 80,000 DWT although a higher proportion of the vessels are in the 40-79,999 tonnage range. The majority of the larger size bulk vessels trade on routes that are not typically within the Panama Canal routing.

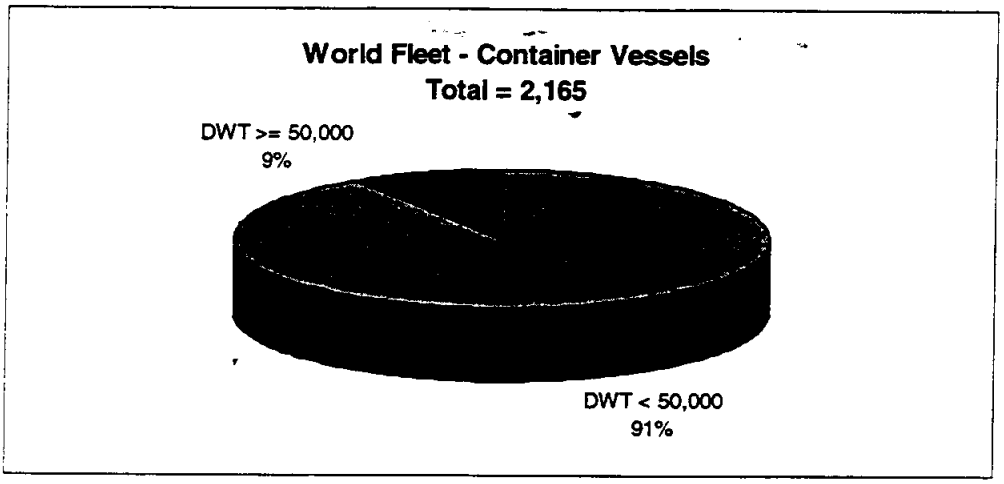
The two major commodities that move in these large ships are coal and iron ore, primarily sourced in Australia, South Africa and Brazil. All three countries benefit from deep water access channels and ports. Most of the other countries that serve as marginal suppliers of these products do not have deep water access and are themselves restricted to loading smaller "Panamax" vessels. In order to assess whether an unrestricted Canal might create Canal transits from the Brazil ports to Asia, both the distances and the costs were considered. Based on this analysis, the Canal is not considered a viable alternative for these vessels. The general conclusion, therefore, is that the 8% of vessels that are post-Panamax are not likely to use the Canal even under unconstrained conditions.

Chart III-3: World Fleet - Tankers



The tanker fleet (Chart III-3) has 80 percent below 80,000 DWT and a smaller proportion of the fleet below 40,000 tons. This is commensurate with the global distribution of supply and demand for crude oil which is on routes that are not constrained by the Panama Canal. The Suez Canal restrictions allow for larger ships to pass through and the existence of the SUMED Pipeline provides route alternatives for supplying Europe from the Arabian Gulf.

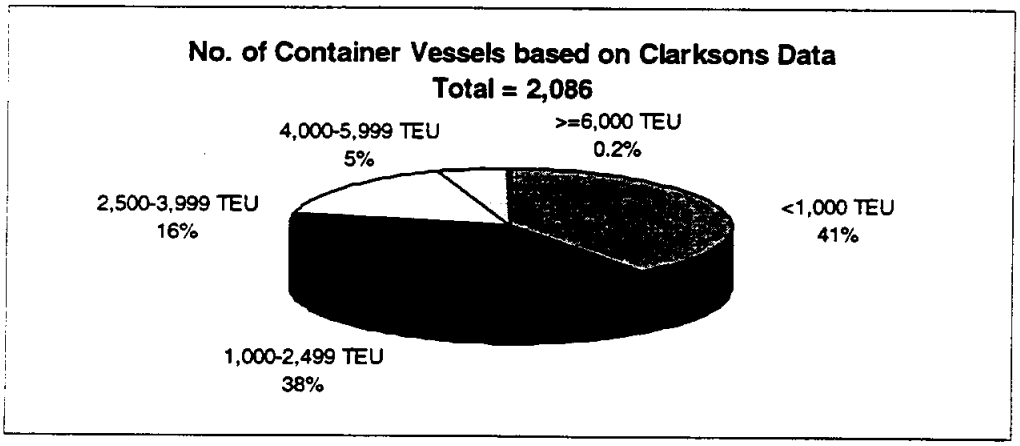
Chart III-4: World Fleet - Container Vessels



The world container fleet (Chart III-4) is predominantly below 50,000 tons. It has been only in recent years that the vessel sizes have moved beyond the 50,000 DWT marker. The trend toward larger ships has been discussed elsewhere in this document. It must be noted again, however, that the trend toward increasing vessel sizes continues apace in this sector as international trade volumes grow in an environment of globalization and liberalization while ship operators want to achieve better economies of scale and improved financial results.

The distribution of the container fleet in tonnage terms as shown above is not particularly illustrative. The Consultants have therefore used the databases available from Clarksons in order to provide a more meaningful breakdown of the fleet.

Chart III-5: No. of Container Vessels Based on Clarksons Data



Today, only slightly more than 5% of the container fleet is above 4,000 TEU. It should be noted that although this ratio is increasing, fully 95% (or more) of the fleet is within the constraints of the Panama Canal. It must be remembered that the very large vessel sizes are active only on those routes (Europe-Asia and Asia-North America) that provide sufficiently large volumes of cargo over a fairly narrow range of ports. Part of the size configuration is also driven by the nature of the goods moving, with predominantly light, volumetric (high TEU requirement) cargo originating in Asia.

The design draft of the vessels has kept pace with the increase in TEU capacity. There is a strong relationship between DWT and draft, but this is mitigated by both length and beam. For example, a relatively large TEU size vessel, such as those operated by Hapag Lloyd, may still be Panamax, but their beam will be comparatively narrow, creating a deeper draft requirement compared to a larger ship with a broader beam.

The recent introduction of the vessel, Regina Maersk, began the second phase of post-Panamax container ships operating in world trade. The most important functional characteristics of these *Post II* vessels, is their ability to accommodate 14 rows of containers under deck with 17 rows across on-deck. In comparison, *Post I* vessels, with capacities of 4,500 - 5,500 TEUs accommodate 15 rows, and a Panamax container ship accommodates only 13 rows. Along with the new vessels' greatly expanded carrying capacity, their draft requirements are greater than current operating depths of the smaller vessels.

Chart III-6: Average Current Container Ship Design Draft

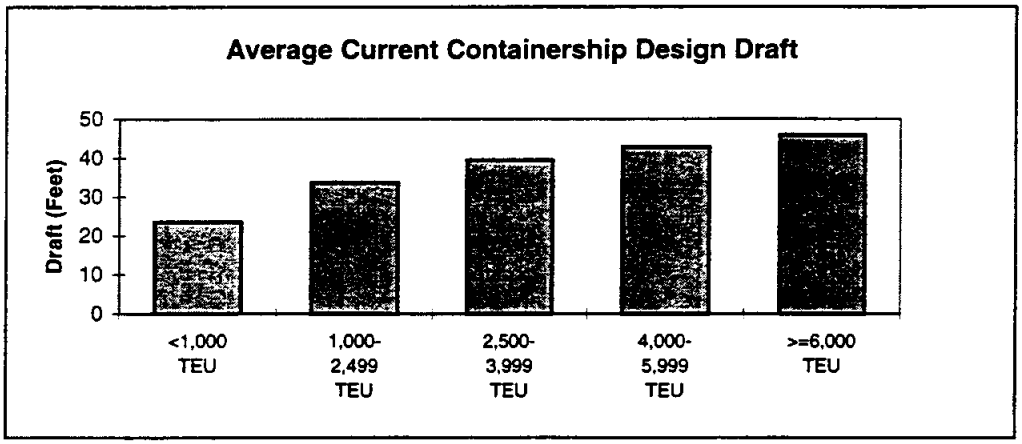
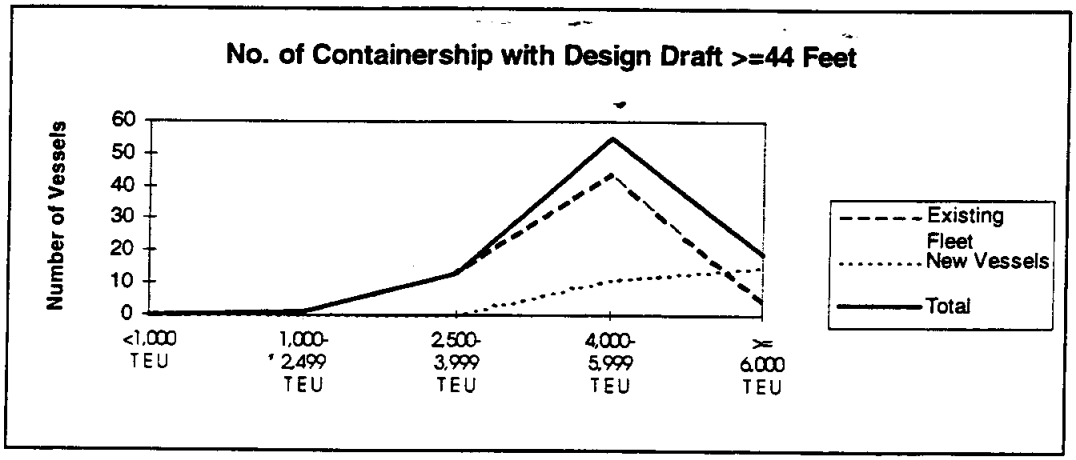


Chart III-7: No. of Container Ships with Design Draft >= 44 Feet



As can be seen in the chart above, the vessels currently under construction will raise the ratio of large to small ships and will increasingly put pressure on ports to deepen their channels and berth facilities.

The age profile of the ships is also illustrative; it indicates that the majority of the vessels currently in service will continue to be active for a considerable period of time. Many of the first generation container ships built in 1969 are still active today, many having been re-engineered from steam to diesel, prolonging their life span.

Chart III-8: Average Ages and DWT of Containerships

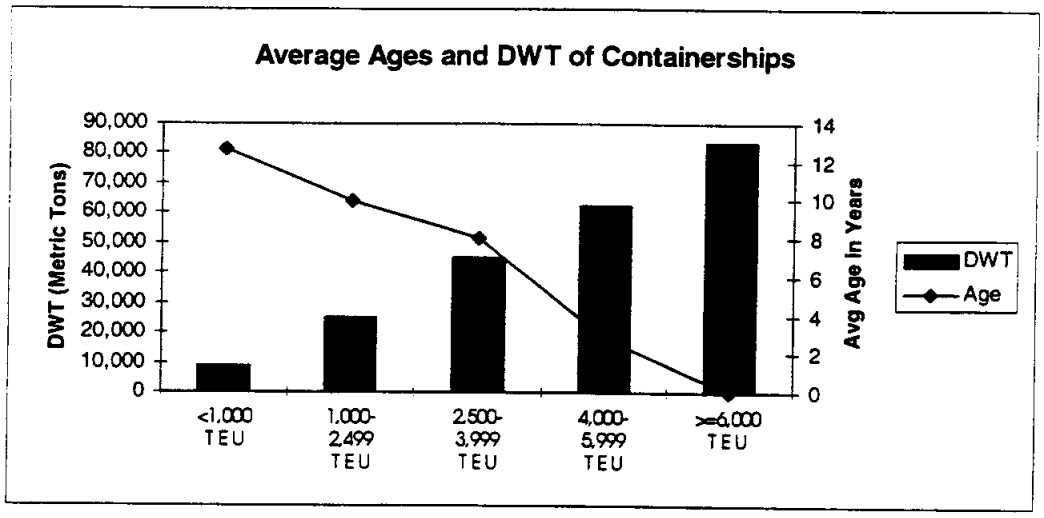
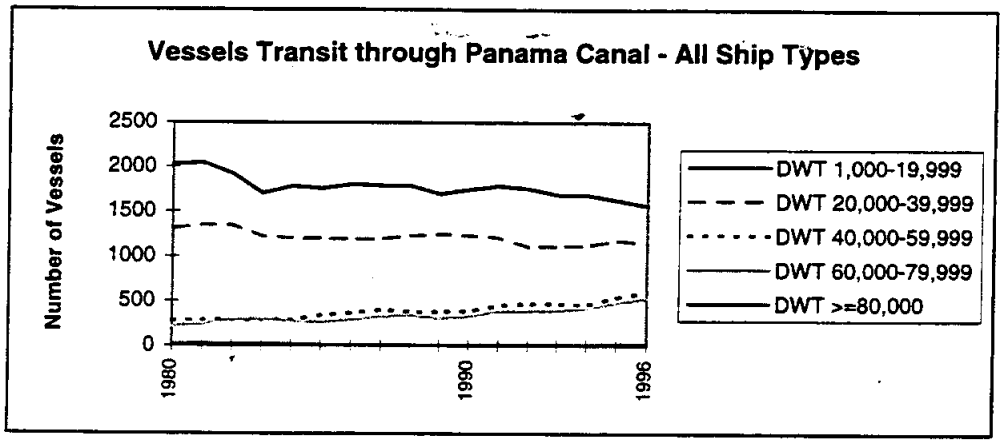


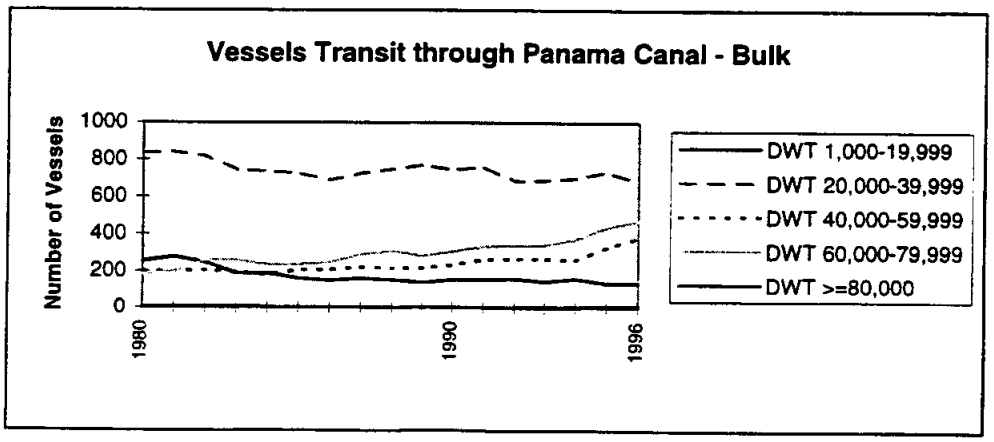
Chart III-9: Vessel Transit through Panama Canal - All Ship Types



ICF Kaiser analyzed the size distribution of the vessels transiting the Canal (Chart III-9). The discussion that follows considers the distribution of the actual vessels but it does not constitute a transit count. Twelve percent of the global fleet, or 3,849 individual commercial cargo vessels, were identified as using the Canal during 1996. Over time, the size of vessels transiting the Canal has increased, particularly since 1990, in line with the distribution of the world fleet. During 1996, transits of vessels under 40,000 DWT represented 71 percent of the total, a figure not significantly different from the global fleet distribution (81 percent). The trend of increasing vessel sizes is likely to continue over time at a relatively slow pace, and this trend has been incorporated into the future transit projections in the following chapter IV.

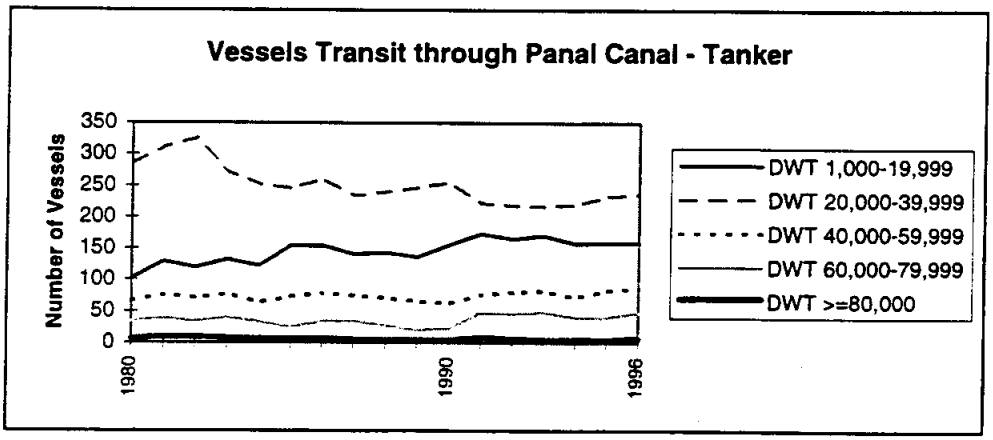
The distribution of bulk ships (Chart III-10) is very indicative of the trend toward larger ships transiting the Canal, particularly from 1990 onwards, mirrored by a decline of the smallest size range. During 1996, 49% of the transits were by vessels below 40,000 DWT. Some 18% of the world dry bulk fleet transited the Canal during this period.

Chart III-10: Vessels Transit through Panama Canal - Bulk



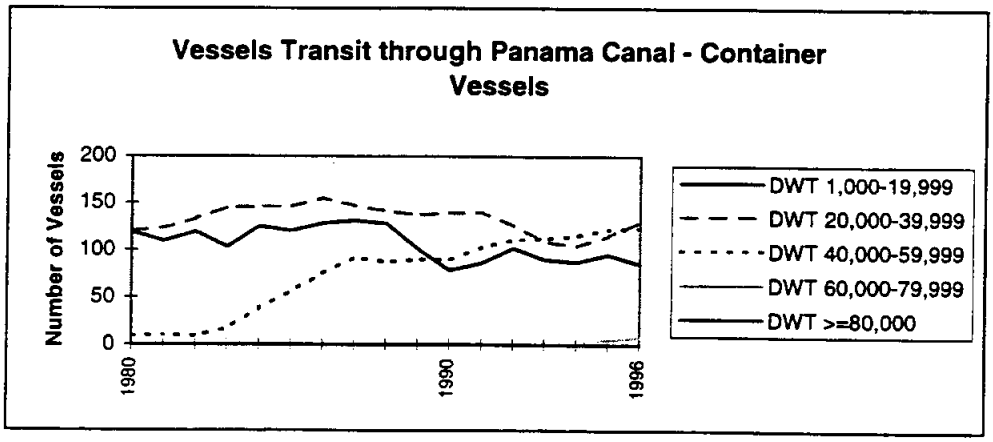
The trend towards larger ships is also clearly indicated by the tanker size profile below (Chart III-11). The transits are dominated by local traffic within the immediate geographic region given that only 537 vessels were identified in 1996 representing only 7% of the world fleet. Of these, fully 74 percent were below 40,000 DWT.

Chart III-11: Vessels Transit through Panama Canal - Tanker



The trend toward increasing vessel size is dramatically apparent for container ships (Chart III-12), with the sharp increase in the proportion in the 40-60,000 DWT range. In 1996, a total of 346 container vessels were identified, representing 16% of the total world fleet. Of these, 62% were below 40,000 DWT and 36 % were in the 40-60,000 DWT range.

Chart III-12: Vessels Transit through Panama Canal - Container Vessels



This profile for container ships is not dissimilar from the profile of the world fleet where the majority of ships have a design draft below 12 meters. This is shown in detail below:

Table III-1: Analysis of Container Vessels Based on 1996 Clarkson Data

Analysis of Container Vessels Based on 1996 Clarkson Data

	Beam (AVG)	Beam (STDDEV)	Design Draft	DWT	PCNET	Vessel Age	Existing Fleet	New Vessels
CONT <1,000 TEU	64.1	11.4	23.6	8,855	7,884	12.9	845	144
CONT 1,000-2,499 TEU	91.0	10.0	33.7	24,977	17,068	10.0	793	251
CONT 2,500-3,999 TEU	105.5	1.2	39.4	45,166	32,139	8.1	341	58
CONT 4,000-5,999 TEU	115.1	11.2	42.8	62,251	47,179	2.8	114	62
CONT >=6,000 TEU	139.1	1.5	45.9	83,543	NA	0.0	4	19
ALL CONTAINER VESSELS	83.9	20.3	31.1	23,901	20,201	10.4	2,097	534

Number of Container Vessels by Vessel Age Calculated Based on 1996 Clarkson Data

	All Years	>= 25 Years	20 - 24 Years	15 - 19 Years	10 - 14 Years	< 10 Years
CONT <1,000 TEU	845	65	122	202	179	277
CONT 1,000-2,499 TEU	793	48	69	119	152	405
CONT 2,500-3,999 TEU	341	NA	21	34	68	218
CONT 4,000-5,999 TEU	114	NA	NA	NA	9	105
CONT >=6,000 TEU	4	NA	NA	NA	NA	4
ALL CONTAINER VESSELS	2,097	113	212	355	408	1,009

The conclusion that can be drawn from the above analysis is that there is a discernible trend towards larger vessels transiting the Panama Canal; however, this trend will not create a larger pool of vessels that cannot pass through the Canal. Rather, it is indicative of ship operators' finding opportunities to maximize their cargo loads and to achieve better economies of scale. The world fleet remains predominately a "Panamax" capable fleet.

The pressure for greater Canal transit capacity will be one of transit volumes rather than outsize vessels.

FAST SHIPS AND THE PANAMA CANAL

A potential issue for future Panama Canal traffic could be the introduction of fast cargo vessel technology in international maritime cargo operations. Though no such

services currently exist, there is a considerable amount of attention and planning in the maritime industry

Fast ships, with proposed operating speeds of as high as 50 knots, are conceived to fill a niche in inter-continental freight transportation that can be described as the less time-sensitive freight that currently moves by air and the more time-sensitive freight that currently moves on conventional container ships. There are several fast vessel projects now in planning or awaiting funding, including the FastShip Atlantic project envisioned to carry Volvo products and other high-value cargo between Zeebrugge in Northern Europe and the Port of Philadelphia in the United States, the Australian Incat Cargo Express project, and the Japanese TSL project. Numerous other fast ship designs are on the drawing board or at a conceptual stage of development.

Though fast ship vessel design is not a primary focus of this assessment, it is necessary to understand some characteristics of fast ships designs, in order to understand how they may operate in trade lanes that could affect the Panama Canal. Based on our research, there are at least four basic designs being advanced at present:

- The FastShip Atlantic design, which is a semi-planing monohull type vessel. This vessel features an upward curve towards the stern of the vessel (concave hull), developing lift as additional thrust is applied. This design allows the vessel to operate with greater stability in rough seas.
- The Australian Incat Cargo Express design. It is understood that this would be a quadramaran type, an evolutionary development of the fast catamaran ferries in operation in various parts of the world today.
- A long, narrow vessel design (slender monohull), as proposed by Bath Iron Works.
- A surface effect vessel design as proposed by Engels. This is a sidewall craft design, which uses a trapped sheet of air beneath the vessel (not to be confused with a hovercraft).

As many of these designs are very preliminary, specific design dimensions for only the FastShip Atlantic vessel are available at present. The FastShip Atlantic vessel is designed to carry 1448 TEU (724 FEU) with cargo stowed on two broad internal decks that run the length of the vessel from behind the bow, to the stern of the ship, with stern-unloading. Double-stacked containers will be arrayed in longitudinal rows on each deck, corresponding to tracks built into the deck, used in loading and unloading the vessel. The method of loading and unloading the vessel is most similar to an ocean-going ferry, or more specifically a railroad car ferry, with strings of 40' containers, over 700' long being rapidly rolled on and off the vessel. The cargo stowage and capacity design makes the vessel rather wide of beam at 131 feet, making it Post Panamax. The vessel is 863 feet in length.

Though specific details are not available on the dimensions of the other three types of fast ships (or of other, less well developed concepts which might include very large hydrofoil vessels, or novel kinds of surface effect vehicles), both the quadramaran and the sidewall/surface effect vehicle types would also have a wide, flat vessel configuration to allow a loading/unloading scheme similar to that of FastShip Atlantic. These are also likely to be Post Panamax vessels. The fourth type, with its long, narrow hull design, might be capable of fitting through the Panama Canal. All of the designs are considerably more expensive to build for a given cargo capacity than conventional container ships. Operating costs due to limited capacity, expensive propulsion systems, and high fuel consumption are much higher per deadweight ton than conventional container ships.

The planned deployment of these fast ships is on long transoceanic trade lanes where the difference between air cargo and conventional container vessel delivery times is greatest. Fast ships will not likely operate in traditional liner rotations along ports on a coast, instead they will sail back and forth hub port to hub port only, fed from other ports by feeder vessels or surface transportation. The most likely trade lanes are also those that have the greatest density of transoceanic air freight. Given the designs and expected operating patterns of the fast ships, it is unlikely that the fast ships would serve routes that transit the Panama Canal. The target cargo market for the fast ships is not cargo currently transiting the Canal either, so no diversion to fast ships of Panama Canal cargo is expected either.

LANDBRIDGE COMPETITION

A number of competitive modes of traffic movement to the Panama Canal are either currently possible, or under development or consideration. These are:

1. The Cross-Isthmian Railroad being developed by Kansas City Southern
2. The Colombia "Dry Canal" across the Darien Province
3. The Nicaraguan "Dry Canal"
4. The U.S. Rail landbridge.

Of these, only the first and last offer, on first inspection, any clear alternative to the Panama Canal. Of the other two, the Colombian Government is beginning to study the feasibility of building a road/rail/pipeline link between the two oceans. In Nicaragua, a group of private investors is seeking support for an overland link, but the Government has withdrawn support for the concept focusing instead on the existing road link between Corinto and the Honduran port of Cortez. However, at an overland trucking cost of $1100 per container it is not competitive with the Canal.

Cross-Isthmian Transshipment

The Consultants assessed the cost of transshipping 500 containers from Balboa to Cristobal by truck or rail versus a ship calling at both ports. Taking into account Canal

transit tolls and 2 days additional vessel time, additional wharfage and demurrage costs, the balance of the costs favors a Canal transit for a typical feeder vessel.

Table III-2: Comparison of Panama Canal Transit vs. Transshipment

	Balboa & Cristobal Calls (Feeder Vessel)	Single Port Transshipment (Rail or Truck)	2 Port Calls (R-T-W Vessel)
Lift x 2	$125,000	$125,000	$125,000
Canal fee x 2	$62,000	$0	$0
Add. port call	$5,000	$0	$5,000
Transshipment cost 2x500 (TEU)	$0	$75,000	$0
Canal delay time	$20,000	$0	$0
Total Cost	**$212,000**	**$200,000**	**$130,000**

Assumptions:
1250 TEU Ship at $10,000 per day
Panama Canal Toll $31,000
500 TEU for transshipment
$125 per container lift
$75 transshipment cost

The figures are close enough to be considered equal between the first two potential modes of operation. Operational issues such as customs, pilferage etc. may make the difference. For ships on a Round-The-World service, a two port strategy clearly dominates.

One nevertheless has to consider the potential for overland transshipment utilizing the railway and the new autopistas being built. If the railroad is fully developed, within the single track facility currently available, then we estimate that the maximum TEU capacity will be around 350,000-400,000. This equates to 400 vessel transits if one assumes an average container ship carrying 1,000 TEU. A smaller figure, say 200,000 TEU per annum, for the Autopista, assuming two TEUs per truck load, would save a further 200 transits.

U.S. Landbridge and By-Pass Options

The time value of money plays a role with regard to cargo destined to the eastern United States region. This was shown in a previous Study carried out on behalf of the Panama Canal Commission by the ICF Kaiser consultants. The price differential of using the landbridge indicated that it was significantly more expensive than the all water route via the Canal, yet there remains significant support for this type of service.

Conversely, the cost via water, but by-passing the Canal, although lower, was not generally used. The competitive effect of the overland Mini Landbridge route has been accounted for in the trade forecasts which indicate that the Panama traffic trade growth is at a lower level than the average world trade growth.

The consultants also considered the option of attracting additional cargo under the assumption that there would be no constraints to traffic in terms of vessel size and draft in the Canal. Two potential commodity types were taken into consideration: the first bulk (grains and iron ore from Argentina and Brazil) and crude oil from the Arabian Gulf.

In the case of the crude oil, there were no destinations that would be competitive from a distance point of view that might potentially transit the Canal, nor were there any ports in the range of the West Coast of South America that could take deep draft vessels of the VLCC size range.

For bulk cargoes the distance discriminated against the Canal in all cases. Therefore if Canal time delays and tolls were added, there would be no incentive for these vessels from Argentina or Brazil to utilize the Panama Canal.

Table III-3: Representative Distances on Potential Panama Canal Routes

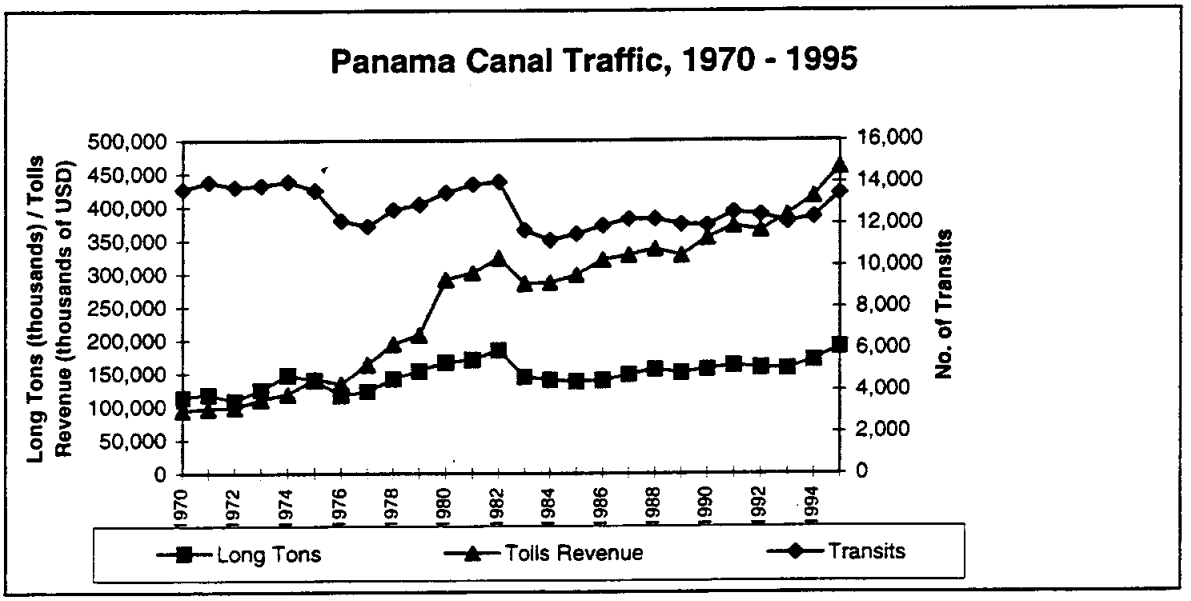
From	To	Good Hope	Panama	Magellan	Suez	Direct
Vitoria, Brazil	Kobe	**11307**	17664	14458		
Montevideo	Kobe	11711	13253	**10701**	14980	
Montevideo	Singapore	**9173**	15781	10780	12293	
Montevideo	Hong Kong	**10479**	17702	12678	14114	
Valparaiso	Singapore	11235			13906	**9988**
Balboa	Singapore	12044			11291	**10495**
Balboa	Valparaiso					**2615**
Balboa	Napier, N.Z.					**6397**
Cristobal	Miami		**1200**			
Tokyo	Miami		**8938**			
Miami	Napier, N.Z.	14346	**7636**			
Cristobal	Rio de Janeiro					**4246**
Freeport	Rio de Janeiro					**4432**

PROJECTING FUTURE PANAMA CANAL TRAFFIC

The growth in world trade will add potentially more than 300 million tons to the market that could be served by the Canal over the next 43 years. This amount is more than double the nearly 200 million tons that is currently passing through the Canal (1997 forecast). Over the period 1990 through 1996 volume through the Canal rose by 40 million tons while the number of voyages increased by 1,518. The chart below shows

this relationship over the period 1970 through 1995. This trend in ability of the Canal to handle larger volumes has come entirely from a steady growth in average tonnage of the ships transiting the Canal and a steady increase in the utilization of most ship types.

Chart III-13: Panama Canal Traffic, 1970 - 1995



To assess the feasibility of the present Canal carrying increasing volumes of cargoes, we have used the demand forecasts with a detailed model, developed from PCC traffic flow data, to measure the number of vessel transits associated with this demand. Three different forecasts for transits were developed:

1. A *baseline forecast* assumes that the current rate of growth in ship size and ship utilization continues up to a maximum size (Panamax size) and a maximum ship utilization of 90%
2. An alternative that allows for ship growth for bulk and oil carriers to reach a maximum of 120,000 DWTs
3. A completely unconstrained forecast allowing ship size to grow in line with the historical trend but without limits.

In each of these forecasts, the consultants assume that the rate of growth by ship type and by route is at the rate of growth observed historically by the Panama Canal and that the maximum ship utilization achievable is 90%.

ASSESSING PCC TRANSITS – A STATISTICAL APPROACH

The relationship between traffic volume moving through the Canal, as defined by the PCC Traffic Model projections, and number of voyages is a complex one. Each route

has its own special characteristics with respect to the vessels that serve it. Some routes tend to support larger vessels while others cater to smaller, feeder vessels. The model that we have developed represents the state of the art in traffic modeling as it is based on real time data collected over the period 1974 through 1996 from PCC traffic records. It has been organized in a way that allows the ready conversion of commodity data into ship voyages through the Canal by vessel size class and by route. The methodology allows for the natural migration from smaller vessels to larger vessels as demand increases. At the same time, the model incorporates the increased ship utilization that can be anticipated as a result of the growth in demand. Both of these factors affect the number of Canal transits over time.

The Consultants have previously developed a methodology that translates cargo demand into a derived voyage requirement to carry that demand. This same methodology has been applied to this project in order to determine the number of transits required for the projected cargo flows. This has been done at the route and ship type level, built up by commodity.

The large amount of statistical information available from the Panama Canal Commission was used to further refine the methodology as discussed below. The fleet forecasting methodology is based on combining the vessel details, such as their dead weight and maximum design draft, with an understanding of the operating patterns, to calculate voyages.

TRANSLATING TRAFFIC VOLUME TO TRANSITS

Three factors define transits—the volume of a cargo through the Canal, the ship size and the utilization of ships carrying these cargoes. The consultants developed a table that shows for each commodity the average cargo carried.[1] The ship characteristic is the important element in the analysis, not the cargo itself. Sufficient information is available to develop a reasonably accurate, statistically based model of traffic flows or transits through the Canal. In the PCC Transit Model (an adjunct to the PCC Traffic Demand model) we have carried the analysis of transits through the following dimensions of the PCC data:

Transits by:

- k — Commodities (PCC commodities 1 through 29)
- r — PCC routes (1 through 144, of which 28 are primary routes and the remainder are minor routes)
- S — Ship types (there are 7 primary ship types and within each a range of size classes, ultimately the data was divided into more than 60 different ship types by size)

[1] For example, in 1996 Ship 1 had just 1000 tons of cargo of cotton. We assume it carried, however, 7000 tons of other cargo for a total of 8000 tons of cargo. If this 8000 tons was on a ship that had a rated dead weight tons of 15000 then the utilization of that vessel would be 53%. We can develop factors that represent the average size and utilization of vessels carrying these same cargoes.

t Time (covering historical data from 1974 through 1996/97 and forecast data from 1997 to 2040).

Equation III-1

$$\text{Transit}_{rSt} = \sum_{k=1}^{29} \frac{\text{Trade}_{krt}}{\text{AC}_{kSrt}},$$

$$\text{AC}_{kSrt} = \text{ADWT}_{kSrt} \times \text{AUtil}_{kSrt}.$$

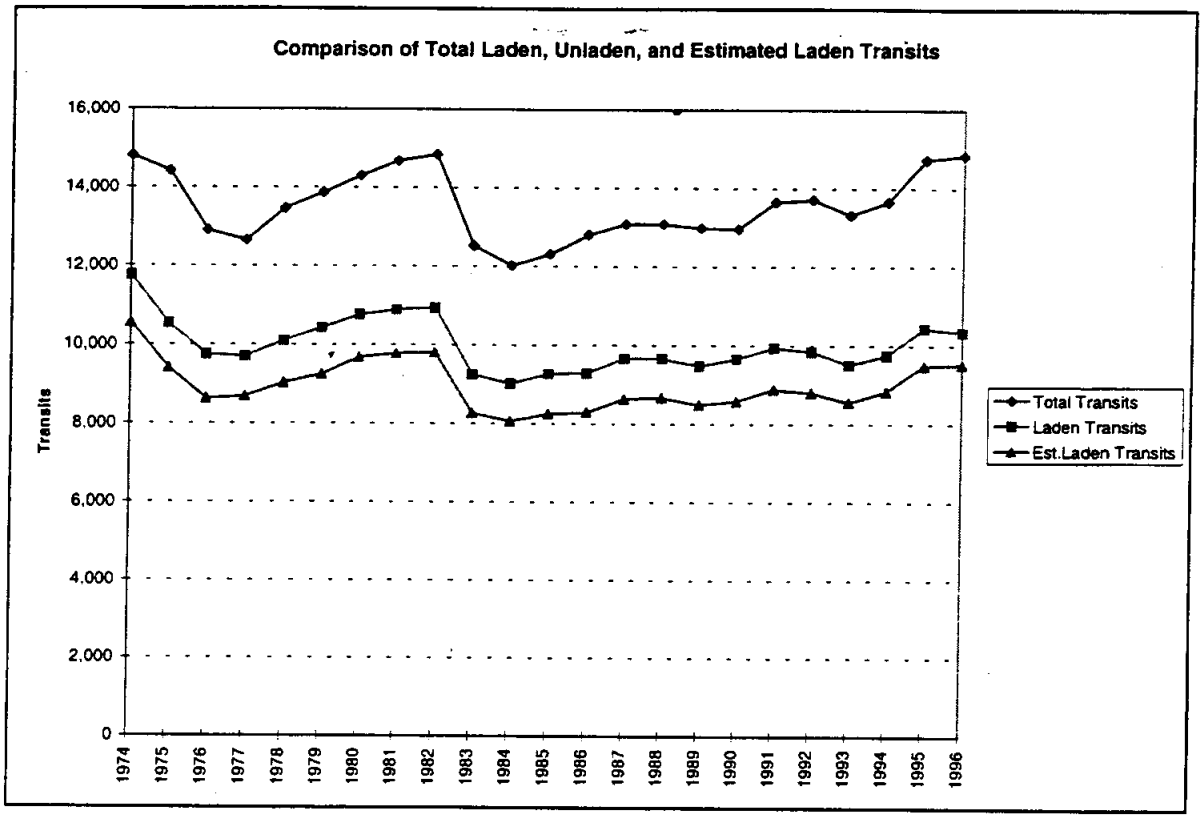
where Average Cargo, DWT, and Util are based on the weighted average by cargo type k of all ships through the Canal carrying cargo type k on route r and ship type s at time t. Trade is the volume of trade through the Canal of type k for route r and at time t.

$$\text{Total Transits}_t = \sum_{r=1}^{144} \sum_{S=1}^{61} \text{Transits}_{rSt}.$$

The averages calculated in the model, when applied to the actual data, serve to cover the total volume of traffic since the sample universe is sufficiently large (10,000 laden transits). In reality this is not exact since we are basing these on statistical averages rather than exact amounts. We are weighting and comparing all 29 commodities and taking into account all ships in the averages. At the total level, the result is approximately equal to the actual number of voyages. We expect that the estimate from the average approach will be fewer transits. The pattern, however, fairly mimics the transits through the Canal. Over the past several years, the error is about 10 percent, but the error may be above or below this depending upon the route.

We can see that this is the case and also that there has been no period since 1974 when the total transits exceeded 15,000 laden and unladen voyages. The ratio of laden to unladen transits is close to 3 to 2; therefore, 40% of the transits are in vessels which do not carry cargo. The transit forecast developed here is for ocean-going commercial cargo vessels. The additional transits from non-commercial vessels must still be factored in when considering the total potential traffic.

Chart III-14: Comparison of Total Laden, Unladen, and Estimated Laden Transits



SHIP SIZE AND UTILIZATION – ALLOWING FOR GROWTH

In order to provide a realistic measure of transits we allow for changing ship size and for growth in ship utilization of the larger ships. Table III-4 confirms this adjustment historically, and the change varies by route and by ship size. Of course shifts from smaller vessels to larger occur and smaller ships may be eliminated in the competitive environment. The ship averages reflect weighted averages from the PCC ship files.

Table III-4: Ship Utilization and DWT – Historical Period Only

Utilization									
Ship Type	**1976**	**1980**	**1985**	**1990**	**1995**	**%75-80**	**%80-85**	**%85-90**	**%90-95**
Bulk	0.75	0.75	0.75	0.81	0.82	0.0%	0.0%	8.0%	1.2%
Container	0.41	0.45	0.47	0.50	0.52	9.8%	4.4%	6.4%	4.0%
General Cargo	0.55	0.50	0.50	0.51	0.55	-9.1%	0.0%	2.0%	7.8%
Tanker	0.82	0.84	0.79	0.80	0.78	2.4%	-6.0%	1.3%	-2.5%
RoRo	0.18	0.32	0.48	0.42	0.49	77.8%	50.0%	-12.5%	16.7%
Reefer	0.38	0.36	0.29	0.30	0.33	-5.3%	-19.4%	3.4%	10.0%
Vehicle	0.21	0.26	0.23	0.26	0.25	23.8%	-11.5%	13.0%	-3.8%
Average DWT									
Ship Type	**1976**	**1980**	**1985**	**1990**	**1995**	**%75-80**	**%80-85**	**%85-90**	**%90-95**
Bulk	31,750	33,737	36,220	37,852	40,421	6.3%	7.4%	4.5%	6.8%
Container	25,136	21,995	27,684	32,827	31,865	-12.5%	25.9%	18.6%	-2.9%
General Cargo	11,133	10,635	11,095	12,402	12,645	-4.5%	4.3%	11.8%	2.0%
Tanker	23,315	36,626	32,162	31,351	32,496	57.1%	-12.2%	-2.5%	3.7%
RoRo	2,780	14,116	16,952	16,370	17,692	407.8%	20.1%	-3.4%	8.1%
Reefer	6,223	6,426	6,784	7,628	8,484	3.3%	5.6%	12.4%	11.2%
Vehicle	11,653	14,468	14,155	14,270	14,837	24.2%	-2.2%	0.8%	4.0%

To develop a better future forecast we need to assume that these adjustments will continue to take place. As ship size and utilization increase, the number of transits needed to carry the same cargo is reduced. We have assumed that the changing average can be applied to each cargo vessel by size class. As the DWT of the ships used in the trade increases and as the utilization increases this reduces the needed number of ship transits. The rate of growth of transits will vary depending upon the route. Growth rates have been determined from the growth observed in ship size on average by route, by class of ship, and by commodity type. A theoretical maximum utilization is also imposed. The table below explains the rules used and the limits imposed on the base case. It is important to recognize that Table III-5 shows the results of these in terms of weighted average cargoes carried through the Canal. It is a summary drawn from individual adjustments in DWT and utilization rates across all ship sizes, all commodities, and all routes.

Table III-5: Forecast Utilization and DWT by Ship Type (Base Case)

Average Utilization by Ship Type													
	1980	1990	2000	2010	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
Bulk	0.75	0.81	0.80	0.80	0.80	0.81	0.81	8.0%	-1.2%	0.0%	0.0%	1.3%	0.0%
Container	0.45	0.50	0.49	0.52	0.54	0.55	0.55	11.1%	-2.0%	6.1%	3.8%	1.9%	0.0%
General Cargo	0.50	0.51	0.54	0.58	0.63	0.67	0.68	2.0%	5.9%	7.4%	8.6%	6.3%	1.5%
Tanker	0.84	0.80	0.77	0.79	0.81	0.81	0.82	-4.8%	-3.8%	2.6%	2.5%	0.0%	1.2%
RoRo	0.32	0.43	0.55	0.61	0.64	0.66	0.67	34.4%	27.9%	10.9%	4.9%	3.1%	1.5%
Reefer	0.36	0.30	0.31	0.31	0.31	0.31	0.32	-16.7%	3.3%	0.0%	0.0%	0.0%	3.2%
Vehicle	0.26	0.26	0.24	0.24	0.24	0.23	0.23	0.0%	-7.7%	0.0%	0.0%	-4.2%	0.0%
Average DWT by Ship Type													
	1980	1990	2000	2010	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
Bulk	33,737	37,852	44,575	53,886	63,278	67,188	68,867	12.2%	17.8%	20.9%	17.4%	6.2%	2.5%
Container	21,995	32,827	36,579	40,513	43,654	45,012	46,452	49.2%	11.4%	10.8%	7.8%	3.1%	3.2%
General Cargo	10,635	12,402	13,334	14,648	15,853	16,741	17,469	16.6%	7.5%	9.9%	8.2%	5.6%	4.3%
Tanker	36,626	31,351	37,427	45,106	53,159	59,679	65,972	-14.4%	19.4%	20.5%	17.9%	12.3%	10.5%
RoRo	14,116	16,370	20,915	23,784	24,685	26,153	28,188	16.0%	27.8%	13.7%	3.8%	5.9%	7.8%
Reefer	6,426	7,628	8,698	9,477	10,357	11,156	11,715	18.7%	14.0%	9.0%	9.3%	7.7%	5.0%
Vehicle	14,468	14,270	15,203	15,990	16,787	16,640	16,554	-1.4%	6.5%	5.2%	5.0%	-0.9%	-0.5%

The rate of growth allowed in both utilization and DWT slows as the period progresses (Table III-5). As more ships reach their theoretical maximums for DWT and utilization, the aggregate rate of change declines. By 2040, for example, the average bulk carrier moving through the Canal would have to be 69,000 DWT which is less than the 80,000 maximum. It reflects, however, the fact that there will be many vessels that are at 80,000 now moving through the Canal. A similar pattern is apparent for all other vessel types. Utilization rates are more limited and cannot grow as fast as DWT.

Table III-6: Rules for Calculating Maximum Adjustments in Average Ship Size and Ship Utilization Factors for the Base Case Forecast

From the historical data, we observe that for most cargo ship types there is a positive growth trend in utilization (defined as cargo tonnage over DWT) and in the average DWT (defined as total DWT divided by the total number of transits for a particular ship type). We assume that the trend would continue so long as the utilization and average DWT do not exceed some reasonable limits. The limits are set out as follows:

Ship Type	*Utilization*	*Average DWT*
Bulk	0.85	80 000
Container	0.60	50 000
General Cargo	0.80	30 000
Tanker	0.90	80 000
RoRo	0.60	50 000
Reefer	0.40	20 000
Vehicle	0.30	20 000

Methodology

At the detailed route level, historical annual compound growth rates (1990-1996) for Utilization and for Average DWT are calculated for each ship type.

$$\text{GR-UTIL}_{sr} = (\text{Utilization}_{sr} \text{ in } 1996/\text{Utilization}_{sr} \text{ in } 1990)^{1/6} - 1$$
$$\text{GR-ADWT}_{sr} = (\text{Average DWT}_{sr} \text{ in } 1996/\text{Average DWT}_{sr} \text{ in } 1990)^{1/6} - 1$$

where s = Ship Type, r = Route.

They are compared to the historical annual compound growth rates for each ship type (GR-UTIL_s and GR-ADWT_s) and are constrained to 1.5 percent point above or below the latter.

If $\text{GR-UTIL}_{sr} < \text{GR-UTIL}_s - 1.5\%$ then $\text{GR-UTIL}_{sr} = \text{GR-UTIL}_s - 1.5\%$
If $\text{GR-UTIL}_{sr} > \text{GR-UTIL}_s + 1.5\%$ then $\text{GR-UTIL}_{sr} = \text{GR-UTIL}_s + 1.5\%$

GR-ADWT_{sr} is constrained similarly.

The future Utilization and Average DWT are then estimated by applying the GR-UTIL_{sr} and GR-ADWT_{sr} onto the historical series. When the forecast Utilization or Average DWT reach the limits as shown above, they would be held at that level. For example, for bulk carriers from West Coast of South America to East Coast of U.S., the average DWT increases from 24,000 in 1990 to 47,000 in 2010 to 80,000 in 2030. This reflects the displacement of smaller ships by larger ones.

The final step is to allocate the forecast tonnage from the Long Term PCC Trade Forecasting Model into number of transits using this new set of Utilization and Average DWT estimates.

UPPER AND LOWER BOUNDS ON CANAL TRANSITS

Three different forecasts for maximum throughput were developed. In the *baseline forecast* we have assumed the rate of growth continues for each ship type and each route but that the maximum size of a ship is limited to Panamax sized vessels as set out above. Assumptions included are that these trends continue and that ship owners continue to shift from less efficient, smaller vessels, to larger vessels. If they fail to do

this, then the average size will not increase and the number of ships seeking transit through the Canal will increase.

The unconstrained forecast, *Alternative 1*, assumes that vessel sizes increase over time to a maximum of 120,000 DWT for bulk carriers and tankers, to 100,000 DWT for container vessels, to 70,000 DWT for RoRo vessels, to 50,000 DWT for general cargo vessels, to 40,000 DWT for reefers, and to 30,000 DWT for vehicle carriers. This allows for growth beyond Panamax sized vessels but assumes that the third set of locks leads to some constraints on the maximum vessel size allowed.

Alternative 2 assumes that there is no constraint on vessel size in any category on any route. In all three cases, we assume that all markets adjust properly to the constraints coming from increased volume and a bottlenecked Canal. In the estimation of potential traffic through the Canal, we have assumed that Canal Waters Time (CWT) does not increase as traffic grows; however, if there were increased demand for Canal services, this would lead to some increase in the average CWT which would reduce the growth of cargo through the Canal.

Changing CWT to determine its likely effect on Canal transits may be something to do later. For this forecast exercise, holding CWT at current levels would appear to be reasonable.

CHAPTER IV ANALYSIS OF CANAL TRANSIT PROJECTIONS

The transit forecast assumes that there is sufficient capacity to carry all traffic through the Canal. Thus Tables II-2 and II-3 do not take into account limits on ship size or numbers.[1] Cargo projected in the PCC Traffic Model is therefore independent of capacity constraints and depends, instead, upon the mix of traffic by route and cargo type alone. In developing a forecast of transits through the Canal we have had to take account of a variety of different factors while allowing for a migration of ships from smaller to larger vessel sizes.[2]

We have developed one baseline and two alternatives – one where there are implicit limits on ship size by function; and the second, where ship size is allowed to grow unimpeded by constraints. It is important to note, however, that the rate of growth for each size class for each route is, itself, a function of the rate of growth on average for these type of ships passing through the Canal over the historical period (1974 through 1996). Thus the Canal's own limits in terms of beam, length and draft may have biased these growth rates. Without limits it is possible (but not probable) that the rate of growth may be faster than that observed. In any case, however, even at the rates assumed, the projections exceed the maximum capacity by 2010. Maximum size classes for the baseline, Alternative 1, and Alternative 2 are given in Table IV-1. In the chart below we can compare for the baseline forecast the potential transits through the Canal assuming that ship size and weight is allowed to grow up to maximum size and weight classes.

One needs to define the term transits used in this analysis. From the statistics received from the Panama Canal Commission, ICF Kaiser developed forecasts of two major categories of transit, the third has not been projected. These are:

1. Laden commercial cargo vessels
2. Ballast commercial cargo vessels
3. Others, including passenger, naval, yachts, supply, barges, etc.

The combination of these makes up the full count of transits that need to be considered for a full capacity assessment. In the analysis carried out here, however the focus has been on translating the projected volume of trade into transits of laden

[1] It is important to note that the seasonal pattern of traffic may also limit the potential transits for when traffic builds up at the entrance this can lead to a diversion of traffic to alternative routings. Thus there is some random element at work in determining maximum throughput. The 15,000 maximum assumed is based on experience of the PCC engineering department and assumes that there is some periods of downtime when capacity is constrained in order to carry out maintenance activities.

[2] The undercount is a product of the statistical nature of our factors. These are based on a sampling of cargo by type by route and an average ship size by route. A majority of the undercount can also be explained by the Around the World Transits where there is no cargo noted. We have carried out the adjustment by route and by ship type. On many routes there the adjustment is close to or equal to zero. Overall a 9% adjustment in total transits is applied to insure that the 1996 transits through the Canal from the model equal the observed transits in that year.

commercial cargo vessels and a factor for the ballast transits based on the historical ratio. The discussion below is based on ballast and laden commercial cargo vessels only.

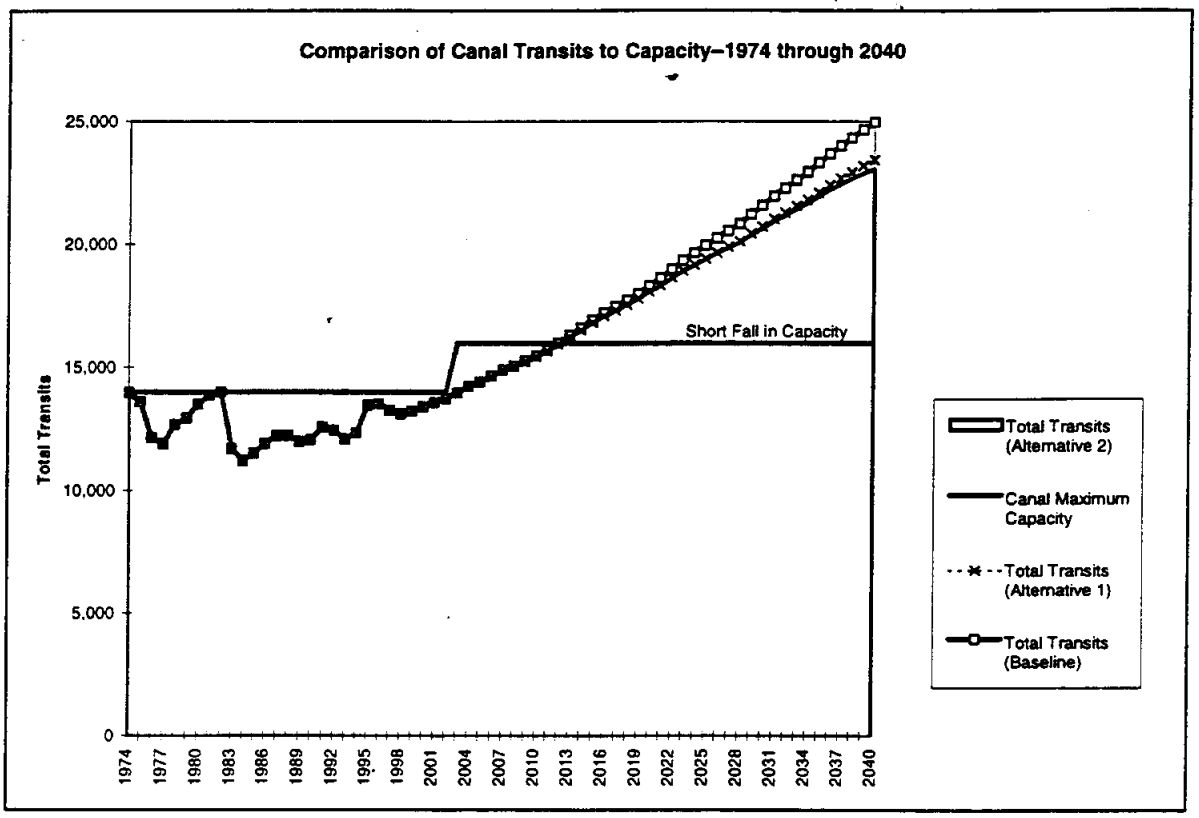
Transits through the Canal reflect the average size allowed for ships passing through the Canal. When size is not a constraint, then the natural migration towards larger ships will allow a greater volume of cargo to pass through the Canal since the number of transits needed will be less. The number of transits needed to accommodate the forecast cargo is reduced by allowing for larger sized ships to pass through the Canal but the Canal would remain constrained under any circumstances without the addition of a third set of locks. Stated differently, if the current set of locks could be widened, deepened and lengthened, the effect would be minimal in terms of numbers of potential additional transits, as the total number of transits assuming no constraint on lock dimensions (Alternative 2) is only slightly less than the required transits assuming ships remain below Panamax size vessels (Baseline). The net difference is about 1,900 transits in 2040, from 24,971 in the Baseline to 23,094 in the fully unconstrained case (Alternative 2). See Table IV-4 for annual figures through 2040.

CANAL CAPACITY CONSTRAINTS

The Panama Canal has been operating at a historically high rate of utilization in terms of total transits through the Canal for the last several years. This surge in transits – reaching a maximum of about 13,500 commercial ocean-going transits in 1995 and 1996 – has placed limits on the Canal's capacity to grow. With the widening of the Gaillard cut completed by 2003, the number of potential transits through the Canal increases by about 2000 per year. Of course, the mix of ships arriving at the Canal will also have an impact on the maximum throughput. For purposes of this analysis, however, we have assumed that the capacity for the number of transits of ocean-going commercial vessels is 14,000 per year through 2002 and 16,000 per year thereafter.

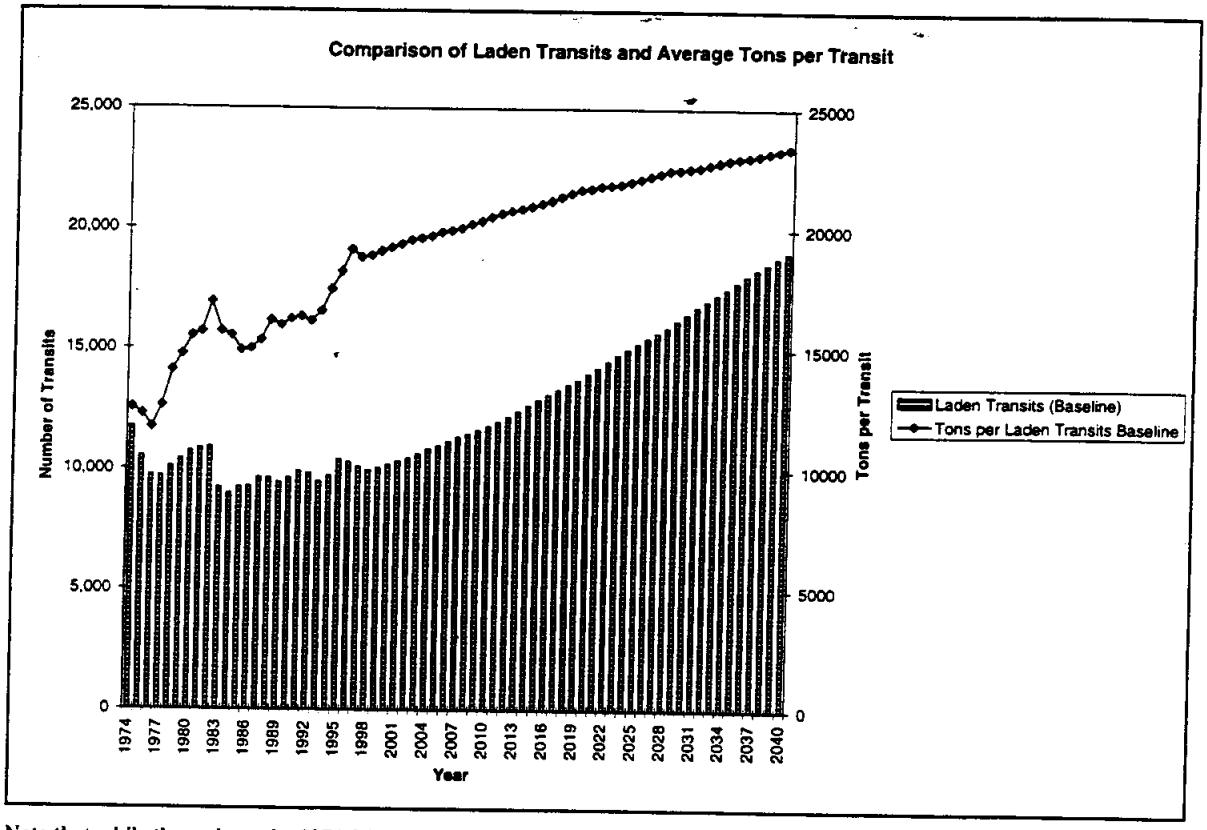
In Chart IV-1 we can see that the Canal would become fully utilized by 2010 in terms of average number of transits per year. There is a significant difference in slope between the unconstrained transits associated with the projected traffic that would "like to use" the Canal and the allowed traffic through the Canal. For much of the period, capacity is greater than the number of ship transits. There have been, however, periods when this was not true. Moreover, as the volume of world trade grows, the Canal will face an increasingly difficult problem of meeting world demand for services. Thus, while the traffic model is based on an unconstrained view of trade that could move through the Canal, the transit model assumes certain implicit operational limits will reduce the volume that could pass through the Canal even assuming that there is a steady growth in cargo volume carried by ship transit.

Chart IV-1: Canal Transits Total (Laden and Ballast) and Maximum Canal Throughput



One can see the relationship between laden transits and average tonnage carried in the next chart. There is an important message from this relationship which is built from the mix of cargoes carried and routes served. The forecast rate of transits rises at a faster rate than the average tons per transit. This suggests that the smaller routes using less efficiently sized ships (from the point of view of maximizing throughput in the Canal) will dominate. There is risk here in that as the economies develop and trade grows rapidly, the vessel sizes will also grow more rapidly than has been the case historically. Given the increasing concentration of Canal traffic (in terms of transits) in the intra-Latin American trade routes this changing pattern will put further pressure on the Canal's capacity.

Chart IV-2: Comparison of Transits to Average Tons per Transit (Laden)



Note that while throughout the 1974-96 period the number of transits was relatively flat (due to constraint on the Canal's capacity) the average tons per transit increased. In the future, however, the projected number of "potential transits" increases rapidly as more of the smaller routes predominate in the Canal traffic while the average volume per transit increases at a slower rate.

All three alternatives assume that there will be a steady increase in ship size. Thus in the unconstrained case the average size of a bulk carrier (Table IV-1) increases from an average of about 42,000 DWT in 1997 to 99,000 DWT by 2040 (89,300 in Alternative 1). A container ship increases from 46,500 to 75,000 in Alternative 1 and 100,300 in Alternative 2. (As we saw in Chart IV-1, however, these increases have only a small impact on the number of ship transits projected primarily because ship transits by the larger vessels are fewer while those of smaller vessels more.)

Table IV-1: Average and Max. DWT – Baseline, Alternative 1, and Alternative 2

Ship Type	1997 Average DWT by Ship Type	Baseline		Alternative 1		Alternative 2	
		2040 Average DWT by Ship Type	Maximum Average DWT	2040 Average DWT by Ship Type	Maximum Average DWT	2040 Average DWT by Ship Type	Maximum Average DWT
Bulk	41,930	68,867	80,000	89,351	120,000	99,112	None
Container	34,173	46,452	65,000	74,938	100,000	100,322	None
General Cargo	12,913	17,469	30,000	18,562	50,000	18,557	None
Tanker	35,498	65,972	80,000	75,831	120,000	79,935	None
RORO	19,425	28,188	50,000	30,091	70,000	38,026	None
Reefer	8,483	11,715	20,000	12,726	40,000	12,726	None
Vehicle	14,960	16,554	20,000	20,700	30,000	21,235	None

Missed Opportunities

A failure to increase the Canal capacity after 2010 will force a significant amount of the "potential" trade that might have passed through the Canal to find alternative routes. Chart IV-3 shows the lost opportunity associated with this trade as a share of total potential Canal trade volume. For the baseline case, assuming no change, the share reaches over 35% of trade carried through the Canal. Chart IV-4 shows this same pattern in terms of volume of trade (millions of long tons).[3]

The potential traffic through the Canal depends upon the mix of ships assumed to transit the Canal in any one year. This mix will change over time. Our analysis assumes that there is a growth in both cargo and ship size. In the fully unconstrained case there are no implicit limits on this growth. The ability of the Canal to carry more will depend upon the rate of change in these ship characteristics. Examine the rate of adjustment observed for a weighted average of ships that potentially transit the Canal assuming there are no implicit limits on throughput we can see that there is a gradual adjustment in ship size. Over the period 1980-90 this growth for bulk carriers was 12% per average DWT per transit. The changing mix of routes led over the 1990-2000 time frame to a faster rate of growth of about 17.8% for bulk carriers. Without facing constraints the rate reaches a maximum growth of about 21% through 2010, but thereafter as the size limits impose constraints the average rate slows to 6.2% for the period 2020 to 2030 and then to 2.5% in the 2030-40 period. Compare this to the Option 1, where the maximum size limit is allowed to reach 120,000 DWTs. We can see that the average size per transit for bulk carriers would be 30% greater by 2040 and the rate of growth allowed would remain above 20% per year through 2030 before slowing over the 2030-40 time period.

[3] Potential trade lost is measured by taking the average tons per laden voyage and the maximum number of laden voyages (a share of the maximum number of total transits up to the assumed limit through 2002 (14,000) and after 2002 (16,000).

Chart IV-3: Potential Trade Lost as a Share of Total Canal Potential Trade (Baseline, Alternative 1, and Alternative 2)

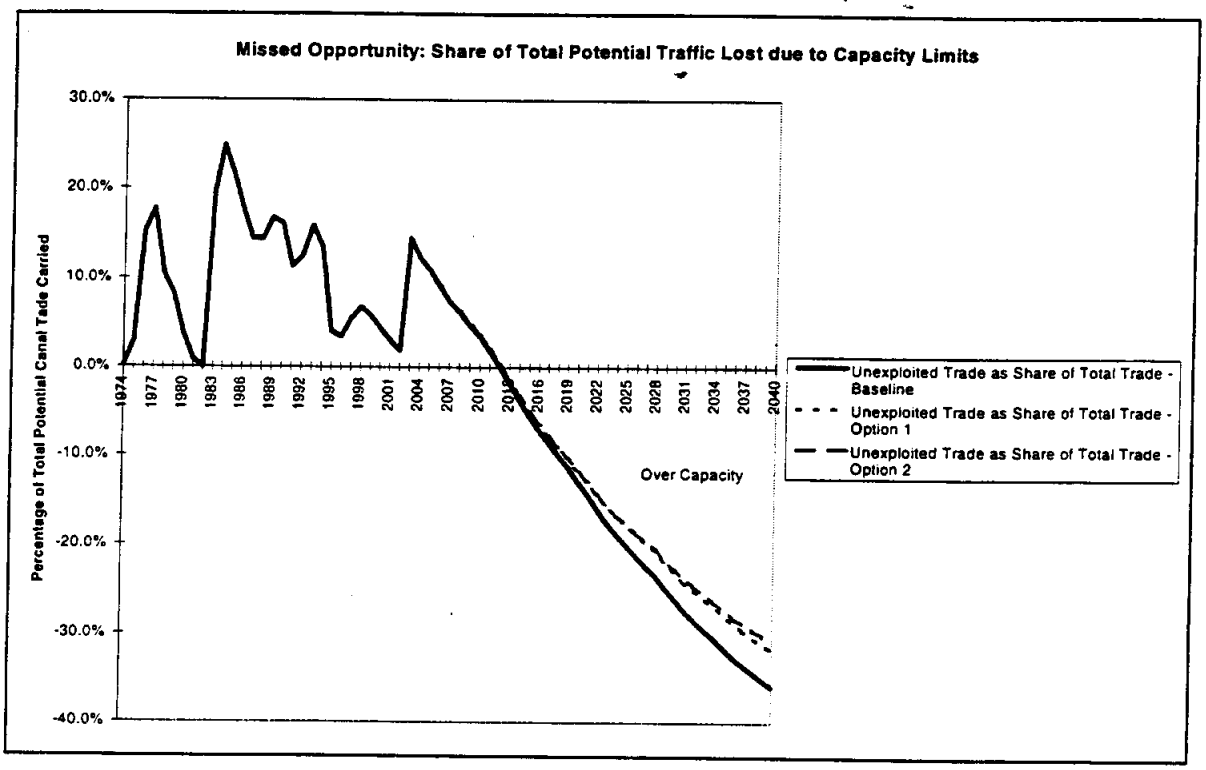
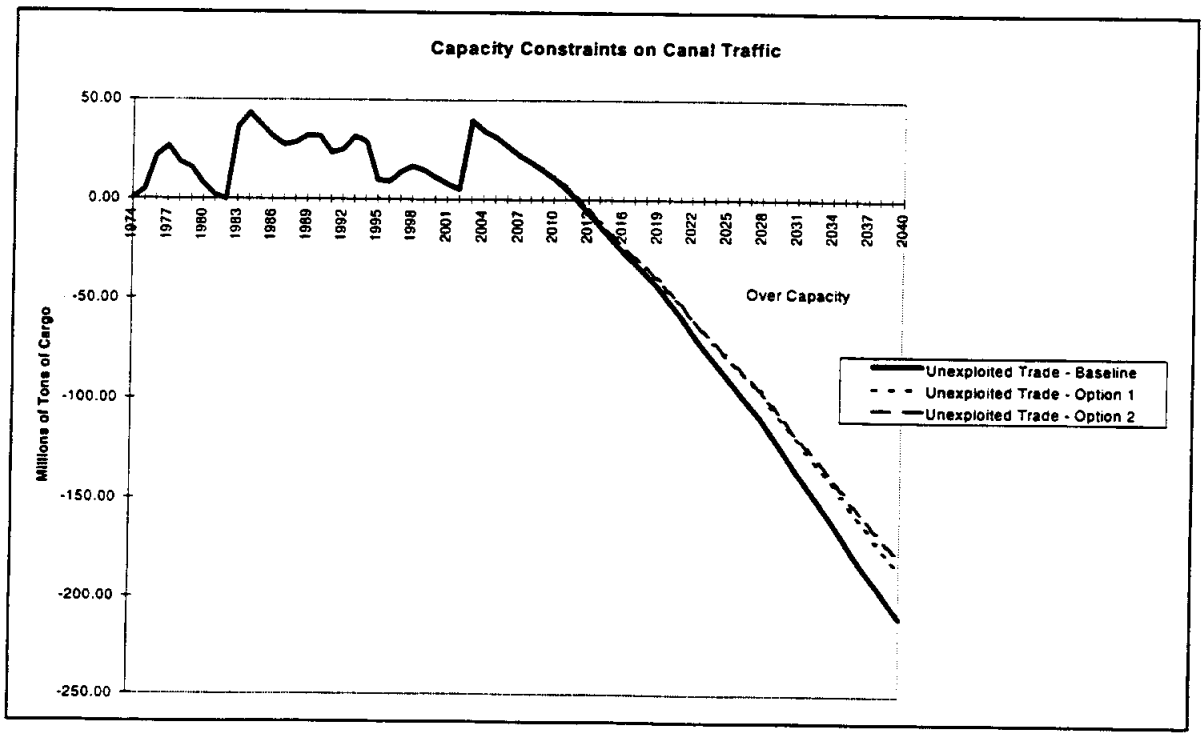
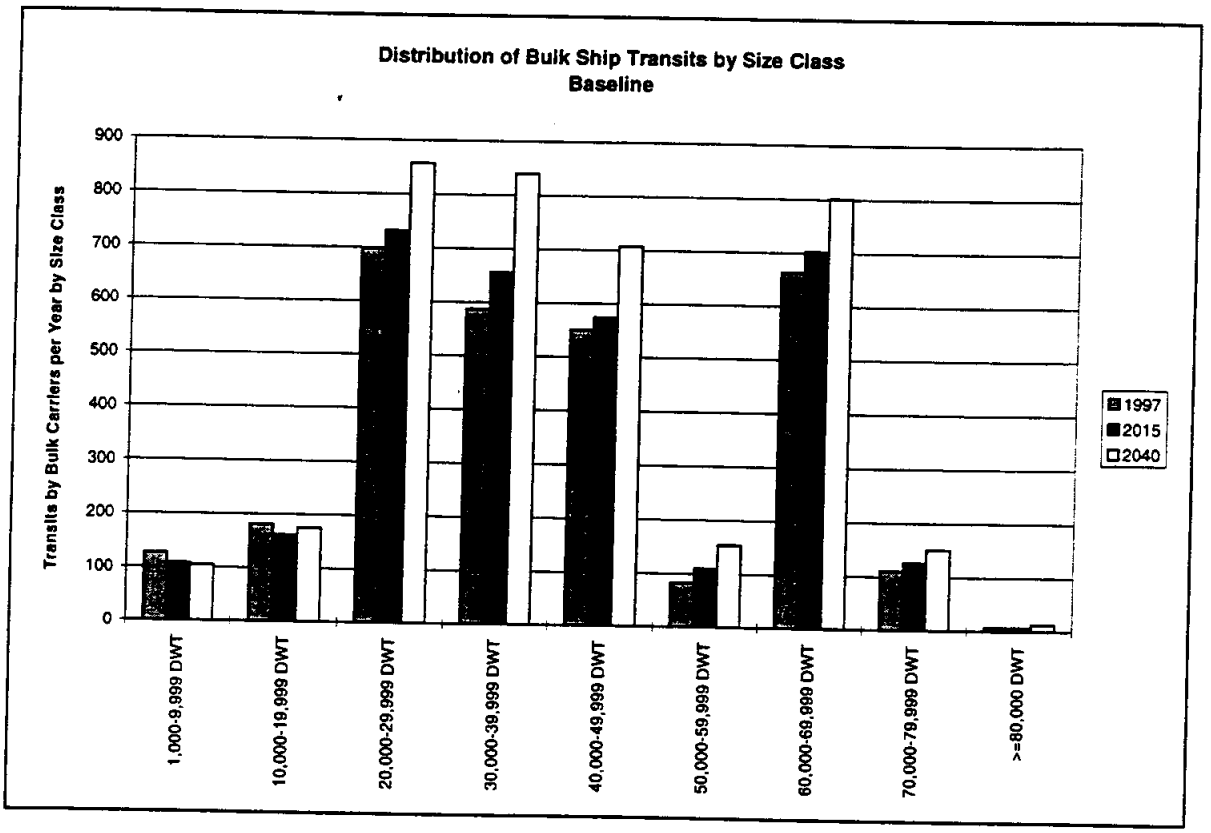


Chart IV-4: Potential Trade Lost as a Share of Total Canal Potential Trade



An alternative way to observe the pattern of traffic through the Canal is to see the distribution of transits by size class of ships. We can see that over time, in our baseline case, there would be more ships of the middle size and fewer (as a share of total transits) of the smaller ships. This chart, however, is misleading for the ships remain in their original size ranges. In reality, however, they would migrate.

Chart IV-5: Distribution of Bulk Ship Transits by Size Class: Baseline Only



From the table below, we can observe for bulk shipping how the continued growth in ship size will push more of the transits into higher categories. For example, the constrained case assumes that 13 ships will be greater than 80,000 DWTs in the bulk category. The continued growth in ship size pushes the estimated average for this category to over 120,000 DWTs. This is above the maximum allowed for bulk carriers. Our test for limits on size growth were sophisticated but worked at an average by commodity by ship-type rather than on a ship-by-ship basis. Thus the projected size patterns in the table below reflect averages of transits. In any case, even during the historical period, there were some bulk carriers of greater than 80,000 DWT that did transit the canal. What the table does show is that we can expect a progressive shift towards a greater number of transits by larger sized bulk carriers. Thus, the 30,000 to 40,000 size class would migrate to the 40,000 to 50,000 size. For the baseline case, an increase of approximately 10,000 DWTs is observed.

Table IV-2: Baseline and Average Estimated DWTs per Transit Based on 70%, 75%, and 80% Utilization

Baseline									
Year	1,000-9,999 DWT	10,000-19,999 DWT	20,000-29,999 DWT	30,000-39,999 DWT	40,000-49,999 DWT	50,000-59,999 DWT	60,000-69,999 DWT	70,000-79,999 DWT	>=80,000 DWT
1997	127	181	698	587	550	83	663	111	7
2015	108	162	732	656	574	110	702	126	7
2040	105	175	858	840	707	154	801	151	13
Average Estimated DWTs per Transit Based on 70%, 75%, and 80% Utilization									
Year	1,000-9,999 DWT	10,000-19,999 DWT	20,000-29,999 DWT	30,000-39,999 DWT	40,000-49,999 DWT	50,000-59,999 DWT	60,000-69,999 DWT	70,000-79,999 DWT	>=80,000 DWT
1997	6,273	19,146	30,922	41,110	52,895	65,602	76,498	79,860	97,621
2015	7,554	22,917	33,068	44,009	56,537	65,086	75,889	79,018	122,638
2040	9,495	26,644	34,897	44,205	55,727	61,659	71,472	80,387	124,522

The table below (Table IV-3) provides further information on the pattern of change in Canal ship size associated with no change in lock size. Gradually as more traffic passes through the Canal the general trend would be to force more ships to find alternative routes. The steady migration of ships that did transit the canal would be one from smaller vessels to larger vessels but that this would be insufficient to insure that the Canal could process all of the trade. The appendix provides further information and pictures showing the patterns of distribution forecast for Canal traffic by the six types of ships.

Table IV-3: Average Estimated DWT by Ship Type – Baseline, Alternative 1, and Alternative 2

Average DWT by Ship Type
Baseline

	1980	1990	1997	2000	2010	2015	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
BULK	33,737	37,852	41,930	44,575	53,886	58,859	63,278	67,188	68,867	12.2%	17.8%	20.9%	17.4%	6.2%	2.5%
CONT	21,995	32,827	34,173	36,579	40,513	42,020	43,654	45,012	46,452	49.2%	11.4%	10.8%	7.8%	3.1%	3.2%
GC	10,635	12,402	12,913	13,334	14,648	15,261	15,853	16,741	17,469	16.6%	7.5%	9.9%	8.2%	5.6%	4.3%
TANKER	36,626	31,351	35,498	37,427	45,106	49,056	53,159	59,679	65,972	-14.4%	19.4%	20.5%	17.9%	12.3%	10.5%
RORO	14,116	16,370	19,425	20,915	23,784	23,975	24,685	26,153	28,188	16.0%	27.8%	13.7%	3.8%	5.9%	7.8%
REEFER	6,426	7,628	8,483	8,698	9,477	9,878	10,357	11,156	11,715	18.7%	14.0%	9.0%	9.3%	7.7%	5.0%
VEHICLE	14,468	14,270	14,960	15,203	15,990	16,391	16,787	16,640	16,554	-1.4%	6.5%	5.2%	5.0%	-0.9%	-0.5%

Average DWT by Ship Type
Option 1

	1980	1990	1997	2000	2010	2015	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
BULK	33,737	37,852	41,930	44,575	53,902	59,523	65,764	79,481	89,351	12.2%	17.8%	20.9%	22.0%	20.9%	12.4%
CONT	21,995	32,827	34,241	37,158	48,480	54,748	61,276	70,174	74,938	49.2%	13.2%	30.5%	26.4%	14.5%	6.8%
GC	10,635	12,402	12,914	13,338	14,661	15,308	15,930	17,236	18,562	16.6%	7.5%	9.9%	8.7%	8.2%	7.7%
TANKER	36,626	31,351	35,498	37,427	45,182	49,539	54,375	65,169	75,831	-14.4%	19.4%	20.7%	20.3%	19.9%	16.4%
RORO	14,116	16,370	19,425	20,915	24,719	26,174	27,255	28,255	30,091	16.0%	27.8%	18.2%	10.3%	3.7%	6.5%
REEFER	6,426	7,628	8,483	8,698	9,477	9,878	10,349	11,452	12,726	18.7%	14.0%	9.0%	9.2%	10.7%	11.1%
VEHICLE	14,468	14,270	15,002	15,279	16,313	16,849	17,593	19,056	20,700	-1.4%	7.1%	6.8%	7.8%	8.3%	8.6%

Average DWT by Ship Type
Option 2

	1980	1990	1997	2000	2010	2015	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
BULK	33,737	37,852	41,930	44,575	53,902	59,523	65,764	80,354	99,112	12.2%	17.8%	20.9%	22.0%	22.2%	23.3%
CONT	21,995	32,827	34,241	37,158	48,480	54,748	61,976	79,045	100,322	49.2%	13.2%	30.5%	27.8%	27.5%	26.9%
GC	10,635	12,402	12,914	13,338	14,661	15,308	15,909	17,234	18,557	16.6%	7.5%	9.9%	8.5%	8.3%	7.7%
TANKER	36,626	31,351	35,498	37,427	45,182	49,539	54,375	65,961	79,935	-14.4%	19.4%	20.7%	20.3%	21.3%	21.2%
RORO	14,116	16,370	19,425	20,915	24,719	26,174	28,369	32,528	38,026	16.0%	27.8%	18.2%	14.8%	14.7%	16.9%
REEFER	6,426	7,628	8,483	8,698	9,477	9,878	10,349	11,452	12,726	18.7%	14.0%	9.0%	9.2%	10.7%	11.1%
VEHICLE	14,468	14,270	15,002	15,279	16,313	16,849	17,593	19,245	21,235	-1.4%	7.1%	6.8%	7.8%	9.4%	10.3%

Comparing the Baseline forecast, in which ships remain below Panamax size, with the forecast in which ships are assumed to increase in size and the Canal's locks are sufficiently wide, long, and deep to accommodate unconstrained growth in ship sizes, the number of lost transits in 2040 is 1,877 (see Table IV-4 below) or 5 transits per day.

As mentioned above, it is important to note that under all three forecasts the Canal is short of sufficient capacity in the long term to meet demand without a third set of locks.

The following Table IV-4 compares all three forecasts by year in terms of commercial transits, average deadweight per transit, and the number of transits per day.

Table IV-4: Transits Under the Baseline, Alternative 1, and Alternative 2

Baseline	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total Cargo ('000 Long Tons)	190,303	198,068	190,807	189,199	192,870	197,067	201,103	205,193	209,463	214,539	218,846	223,406
Total Commercial Transits	**13,459**	**13,536**	**13,270**	**13,109**	**13,230**	**13,413**	**13,588**	**13,744**	**13,973**	**14,249**	**14,420**	**14,664**
Laden Transits	10,435	10,340	10,137	10,014	10,106	10,246	10,380	10,499	10,674	10,885	11,015	11,202
Ballast Transits	3,024	3,196	3,133	3,095	3,124	3,167	3,208	3,245	3,299	3,364	3,405	3,462
Other Transits	1,272	1,292										
Total Transits	14,731	14,828										
Tons per Laden Transit	18,237	19,156	18,823	18,893	19,085	19,234	19,374	19,544	19,624	19,710	19,868	19,943
Average DWT per Laden Transit	26,377	27,959	27,878	28,304	28,782	29,210	29,609	29,971	30,392	30,746	31,179	31,627
Daily Average Number of Commercial Transits	37	37	36	36	36	37	37	38	38	39	40	40

Option 1	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total Cargo ('000 Long Tons)	190,303	198,068	190,807	189,199	192,870	197,067	201,103	205,193	209,463	214,539	218,846	223,406
Total Commercial Transits	**13,459**	**13,536**	**13,270**	**13,109**	**13,230**	**13,413**	**13,586**	**13,740**	**13,969**	**14,243**	**14,409**	**14,647**
Laden Transits	10,435	10,340	10,137	10,014	10,106	10,246	10,378	10,496	10,671	10,880	11,007	11,189
Ballast Transits	3,024	3,196	3,133	3,095	3,124	3,167	3,208	3,244	3,298	3,363	3,402	3,458
Number of Transits vs. Baseline	0	0	0	0	0	0	-3	-4	-4	-7	-10	-17
Tons per Laden Transit	18,237	19,156	18,823	18,893	19,085	19,234	19,378	19,550	19,629	19,719	19,882	19,967
Average DWT per Laden Transit	26,377	27,959	27,891	28,334	28,827	29,317	29,811	30,270	30,823	31,321	31,903	32,506
Daily Average Number of Commercial Transits	37	37	36	36	36	37	37	38	38	39	39	40

Option 2	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total Cargo ('000 Long Tons)	190,303	198,068	190,807	189,199	192,870	197,067	201,103	205,193	209,463	214,539	218,846	223,406
Total Commercial Transits	**13,459**	**13,536**	**13,270**	**13,109**	**13,230**	**13,413**	**13,586**	**13,740**	**13,969**	**14,243**	**14,409**	**14,647**
Laden Transits	10,435	10,340	10,137	10,014	10,106	10,246	10,378	10,496	10,671	10,880	11,007	11,189
Ballast Transits	3,024	3,196	3,133	3,095	3,124	3,167	3,208	3,244	3,298	3,363	3,402	3,458
Number of Transits vs. Baseline	0	0	0	0	0	0	-3	-4	-4	-7	-10	-17
Tons per Laden Transit	18,237	19,156	18,823	18,893	19,085	19,234	19,378	19,550	19,629	19,719	19,882	19,967
Average DWT per Laden Transit	26,377	27,959	27,891	28,334	28,827	29,317	29,811	30,270	30,823	31,321	31,903	32,506
Daily Average Number of Commercial Transits	37	37	36	36	36	37	37	38	38	39	39	40

Table IV-4: Transits Under the Baseline, Alternative 1, and Alternative 2, cont.

Baseline	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Cargo ('000 Long Tons)	228,065	232,672	237,333	242,435	247,952	253,695	259,666	265,942	272,522	278,663	284,999	291,334
Total Commercial Transits	**14,903**	**15,075**	**15,280**	**15,477**	**15,723**	**15,998**	**16,313**	**16,623**	**16,937**	**17,220**	**17,479**	**17,742**
Laden Transits	11,384	11,516	11,672	11,823	12,011	12,221	12,461	12,698	12,938	13,154	13,352	13,553
Ballast Transits	3,519	3,559	3,608	3,654	3,712	3,777	3,852	3,925	3,999	4,066	4,127	4,189
Other Transits												
Total Transits												
Tons per Laden Transit	20,034	20,204	20,334	20,505	20,644	20,759	20,838	20,944	21,064	21,185	21,345	21,496
Average DWT per Laden Transit	32,024	32,429	32,844	33,222	33,600	33,946	34,339	34,705	35,076	35,453	35,802	36,197
Daily Average Number of Commercial Transits	41	41	42	42	43	44	45	46	46	47	48	49

Option 1	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Cargo ('000 Long Tons)	228,065	232,672	237,333	242,435	247,952	253,695	259,666	265,942	272,522	278,663	284,999	291,334
Total Commercial Transits	**14,880**	**15,051**	**15,251**	**15,437**	**15,671**	**15,941**	**16,237**	**16,525**	**16,826**	**17,090**	**17,334**	**17,567**
Laden Transits	11,367	11,497	11,650	11,792	11,971	12,177	12,403	12,623	12,853	13,055	13,241	13,419
Ballast Transits	3,513	3,554	3,601	3,645	3,700	3,764	3,834	3,902	3,973	4,035	4,093	4,148
Number of Transits vs. Baseline	-22	-25	-29	-41	-52	-58	-76	-98	-111	-130	-145	-175
Tons per Laden Transit	20,064	20,238	20,372	20,559	20,713	20,834	20,936	21,068	21,203	21,345	21,524	21,711
Average DWT per Laden Transit	33,066	33,658	34,255	34,800	35,375	35,953	36,613	37,239	37,852	38,490	39,102	39,729
Daily Average Number of Commercial Transits	41	41	42	42	43	44	44	45	46	47	47	48

Option 2	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Total Cargo ('000 Long Tons)	228,065	232,672	237,333	242,435	247,952	253,695	259,666	265,942	272,522	278,663	284,999	291,334
Total Commercial Transits	**14,880**	**15,051**	**15,251**	**15,437**	**15,671**	**15,941**	**16,237**	**16,525**	**16,826**	**17,090**	**17,334**	**17,567**
Laden Transits	11,367	11,497	11,650	11,792	11,971	12,177	12,403	12,623	12,853	13,055	13,241	13,419
Ballast Transits	3,513	3,554	3,601	3,645	3,700	3,764	3,834	3,902	3,973	4,035	4,093	4,148
Number of Transits vs. Baseline	-22	-25	-29	-41	-52	-58	-76	-98	-111	-130	-145	-175
Tons per Laden Transit	20,064	20,238	20,372	20,559	20,713	20,834	20,936	21,068	21,203	21,345	21,524	21,711
Average DWT per Laden Transit	33,066	33,658	34,255	34,800	35,375	35,953	36,613	37,239	37,852	38,492	39,120	39,777
Daily Average Number of Commercial Transits	41	41	42	42	43	44	44	45	46	47	47	48

Table IV-4: Transits Under the Baseline, Alternative 1, and Alternative 2, cont.

Baseline	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Cargo ('000 Long Tons)	297,661	304,030	310,481	317,005	323,614	330,314	337,103	343,971	350,912	357,886	364,834	371,870
Total Commercial Transits	**18,008**	**18,338**	**18,648**	**19,013**	**19,369**	**19,672**	**19,971**	**20,275**	**20,576**	**20,859**	**21,241**	**21,597**
Laden Transits	13,756	14,008	14,245	14,524	14,796	15,027	15,256	15,488	15,718	15,934	16,226	16,498
Ballast Transits	4,252	4,330	4,403	4,489	4,573	4,645	4,715	4,787	4,858	4,925	5,015	5,099
Other Transits												
Total Transits												
Tons per Laden Transit	21,639	21,704	21,796	21,826	21,872	21,981	22,096	22,209	22,326	22,460	22,485	22,540
Average DWT per Laden Transit	36,538	36,869	37,158	37,427	37,691	37,840	38,031	38,169	38,334	38,449	38,629	38,769
Daily Average Number of Commercial Transits	49	50	51	52	53	54	55	56	56	57	58	59

Option 1	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Cargo ('000 Long Tons)	297,661	304,030	310,481	317,005	323,614	330,314	337,103	343,971	350,912	357,886	364,834	371,870
Total Commercial Transits	**17,804**	**18,092**	**18,340**	**18,662**	**18,950**	**19,190**	**19,430**	**19,676**	**19,914**	**20,133**	**20,447**	**20,741**
Laden Transits	13,600	13,820	14,010	14,256	14,476	14,659	14,842	15,030	15,212	15,379	15,619	15,844
Ballast Transits	4,204	4,272	4,330	4,406	4,474	4,531	4,588	4,646	4,702	4,754	4,828	4,897
Number of Transits vs. Baseline	-204	-246	-308	-351	-419	-482	-542	-600	-662	-727	-795	-856
Tons per Laden Transit	21,887	21,999	22,161	22,237	22,355	22,533	22,713	22,886	23,068	23,271	23,358	23,471
Average DWT per Laden Transit	40,391	41,077	41,706	42,456	43,160	43,815	44,492	45,111	45,725	46,220	46,820	47,350
Daily Average Number of Commercial Transits	49	50	50	51	52	53	53	54	55	55	56	57

Option 2	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Total Cargo ('000 Long Tons)	297,661	304,030	310,481	317,005	323,614	330,314	337,103	343,971	350,912	357,886	364,834	371,870
Total Commercial Transits	**17,804**	**18,088**	**18,329**	**18,647**	**18,933**	**19,169**	**19,403**	**19,639**	**19,868**	**20,078**	**20,380**	**20,665**
Laden Transits	13,600	13,817	14,001	14,244	14,463	14,643	14,822	15,002	15,177	15,337	15,568	15,786
Ballast Transits	4,204	4,271	4,328	4,403	4,470	4,526	4,581	4,637	4,691	4,741	4,812	4,879
Number of Transits vs. Baseline	-204	-250	-319	-367	-436	-503	-568	-636	-708	-782	-861	-932
Tons per Laden Transit	21,887	22,004	22,176	22,255	22,375	22,558	22,743	22,928	23,121	23,335	23,435	23,557
Average DWT per Laden Transit	40,474	41,233	41,955	42,803	43,617	44,354	45,194	46,008	46,870	47,682	48,634	49,477
Daily Average Number of Commercial Transits	49	50	50	51	52	53	53	54	54	55	56	57

Table IV-4: Transits Under the Baseline, Alternative 1, and Alternative 2, cont.

Baseline	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Total Cargo ('000 Long Tons)	379,251	386,682	394,189	401,736	409,333	416,677	424,049	431,444	438,856	446,278
Total Commercial Transits	**21,984**	**22,304**	**22,635**	**22,965**	**23,329**	**23,700**	**24,028**	**24,341**	**24,665**	**24,971**
Laden Transits	16,793	17,038	17,291	17,543	17,821	18,104	18,355	18,594	18,841	19,075
Ballast Transits	5,191	5,266	5,344	5,422	5,508	5,596	5,673	5,747	5,824	5,896
Other Transits										
Total Transits										
Tons per Laden Transit	22,584	22,695	22,797	22,900	22,969	23,016	23,103	23,203	23,293	23,396
Average DWT per Laden Transit	38,881	39,051	39,164	39,288	39,456	39,618	39,730	39,899	40,018	40,197
Daily Average Number of Commercial Transits	60	61	62	63	64	65	66	67	68	68

Option 1	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Total Cargo ('000 Long Tons)	379,251	386,682	394,189	401,736	409,333	416,677	424,049	431,444	438,856	446,278
Total Commercial Transits	**21,053**	**21,295**	**21,570**	**21,823**	**22,109**	**22,423**	**22,696**	**22,952**	**23,209**	**23,448**
Laden Transits	16,082	16,267	16,477	16,670	16,889	17,129	17,337	17,533	17,729	17,912
Ballast Transits	4,971	5,028	5,093	5,153	5,220	5,294	5,359	5,419	5,480	5,536
Number of Transits vs. Baseline	-931	-1,009	-1,066	-1,143	-1,220	-1,276	-1,333	-1,389	-1,456	-1,522
Tons per Laden Transit	23,582	23,771	23,924	24,099	24,237	24,326	24,459	24,608	24,754	24,915
Average DWT per Laden Transit	47,889	48,505	48,987	49,429	49,919	50,419	50,762	51,139	51,483	51,866
Daily Average Number of Commercial Transits	58	58	59	60	61	61	62	63	64	64

Option 2	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**
Total Cargo ('000 Long Tons)	379,251	386,682	394,189	401,736	409,333	416,677	424,049	431,444	438,856	446,278
Total Commercial Transits	**20,957**	**21,177**	**21,439**	**21,675**	**21,948**	**22,232**	**22,456**	**22,680**	**22,888**	**23,094**
Laden Transits	16,009	16,177	16,377	16,557	16,766	16,983	17,154	17,325	17,484	17,641
Ballast Transits	4,948	5,000	5,062	5,118	5,182	5,249	5,302	5,355	5,404	5,453
Number of Transits vs. Baseline	-1,026	-1,127	-1,197	-1,291	-1,381	-1,467	-1,572	-1,661	-1,776	-1,877
Tons per Laden Transit	23,690	23,903	24,070	24,264	24,414	24,535	24,720	24,903	25,100	25,298
Average DWT per Laden Transit	50,367	51,282	52,185	53,098	54,176	55,222	56,159	57,246	58,267	59,403
Daily Average Number of Commercial Transits	57	58	59	59	60	61	62	62	63	63

RISK AND UNCERTAINTY ISSUES

Risk and uncertainty become major factors when considering a forecast for a period of over 40 years covering world trade in commodities that are driven by consumer demand and in the case of the major bulk items, weather in two different continents, and changes in the size distribution of the world fleet. Itemized below are the key elements of uncertainty that one needs to bear in mind, particularly when looking beyond the period after 2015.

1. World trade has been expanding rapidly as globalization and free trade has have progressed. Growth has been assumed to remain robust over this period. Economic disturbances in the world could disrupt these patterns of trade or technologies may replace trade in finished manufactures (a major category of Canal revenue). Worldwide conventions on Greenhouse Gases may limit trade in coal products and drought may force countries to block exports of grains. The long term forecasts by the Consultants are in fact relatively conservative, but with a sustained growth over 40 years on a trend line basis, there is inevitably a significant upswing. The risk and effects of recessions will certainly play a role but cannot really be modeled effectively.

2. The world fleet today, and for the next five to ten years will almost certainly be made up of vessels that are predominantly in sizes that are capable of transiting the Panama Canal. Of the current fleet, over 90% is in this category. The current orderbook, port physical constraints and commercial practices in the bulk trades would indicate that there is no reason that this profile will change over medium term. Yet if one recalls that the closure of the Suez Canal in 1973 led to a surge in the growth of tankers and bulk carriers resulting in vessels reaching 300,000 DWT, that were intended to by-pass the Canal, then the corollary that if the Panama Canal were to be available without physical constraints, a similar phenomenon might occur. The scenario would be that perhaps the world fleet might shift up in size with more "cape-size" vessels being added to the bulk and tanker fleet. Container ships on the long-haul routes are increasingly over 5,000 TEU and there are indications that 8,000 TEU ships will appear early in the next century. Due to port draft restriction these ships will be longer and wider than current ships.

3. The assumption of continued migration from smaller to larger ships is based on observed trends by ship type and by route which may be too conservative. A more rapid shift from smaller to larger ships may reduce transits during the earlier part of the period 2010 through 2040 to a point where the number of transits recorded is less than Canal capacity with the third set of locks. An unconstrained Canal may encourage this change in ship economics just as a constrained Canal may be self limiting with fewer ships showing up to transit if they perceive the risks of extended wait times are higher.

4. New players will develop and new routes will be established that by-pass the Canal. New, faster, larger, ships will be developed that make these alternative routes superior

to passage through the Canal. This risk is greater, however, if the Canal is fully utilized as it likely will be by 2010 and the risk is less if additional capacity is available. For example, trade growth via the Panama Canal grows below the average trade growth for the partner countries. This may well be partly due to the perception of capacity constraints and as a result by-pass options are utilized. Conversely, if in the future there is a perception that there are no physical constraints, then growth of traffic, and hence transits, may be more rapid than indicated in our forecasts.

5. The transit forecasts do not take into account the effect of a successful "Hub' port at either end of the Panama Canal linked by a double track, double stack railroad and a major highway. Depending upon the cost variables of the three different modes of transportation, there is a significant risk that up to 1,900 transits might be lost due to intermodal transfers between the Atlantic and Pacific ports.

6. U.S. grain exports to Asia make significant use of the Mississippi River and the Port of New Orleans. Exports through the Pacific Northwest are determined by the rail cost and the availability of sufficient grain elevators. Any significant change in these determinants will have a marked effect on port choice as the PNW has deeper draft ports and freight charges are cheaper.

7. The actual number of ships may be considerably greater if the size migration slows. Canal traffic would be more constrained but volume of cargo moving through the Canal would be less. Value of cargoes on these smaller ships would be lower and ship operating costs higher reducing the potential "rent" earned by the Canal on the new locks.

In the post-2010 environment the Canal without adding additional capacity will find itself unable to meet the needs of the market place for transit of the Isthmus. The risks from diversion and alternatives will be greater the greater the risk that ships reaching the Canal will face long wait times.

The financial viability of adding additional capacity will depend upon a number of factors, not the least, the variability of traffic projections through the Canal. For this reason additional studies including using Monte Carlo type simulation tools as well as quantifying various global scenarios may be necessary to insure that the risks associated with the expenditure do not out weigh the benefits to Panama and the world.

APPENDIX A LONG-TERM ECONOMIC AND TRADE FORECASTS

STEPS IN THE PROCESS OF DEVELOPING LONG-TERM TRADE FORECASTS

1. A consistent, long-term macroeconomic model is developed and forecasts of key macroeconomic variables for each of the 68 countries in the ICF Kaiser international trade data base is developed. This long-term forecast is based on a dynamic, multi-equation model, of the world economy including price, exchange rates, trade, manufacturing and service production, investment trends, population and employment growth patterns, and personal consumption spending (by category).

2. The long-term macroeconomic model is used to extend baseline macroeconomic forecasts available from the WEFA Group (the start point for this long-term forecast will vary depending upon the last year of the WEFA forecast (2010 or 2015) depending upon the country.

3. Long-term macroeconomic indicators are reviewed and adjusted as needed to insure that they are consistent. In general we assumed that long-term trends will be for growth to slow or only grow slightly from growth forecast at the end of the WEFA baseline forecast interval.

4. The PCC trade model is exercised using forty separate commodity forecasts covering the key bulk products and a more detailed sub-sample of liner-type products. Estimates are based on a 12 x 12 matrix of world trade.

5. Results from the PCC trade models are used in the PCC traffic model after adjustments. Adjustments involve a scaling down of long-term trends in world trade to reflect assumptions about changing tastes and technologies that will shift additional trade from maritime freight to air freight. In addition, we assume that over time there will be less need to ship products long distances as computer aided design and automated factories will shift production closer to final destinations and allow additional customization.

6. The PCC traffic model was solved using inputs from the PCC specific trade models. One general assumption was that after 2015 (the end of the current PCC baseline) the general price adjustments associated with increasing ship cost indices are not applied. The forecast reflects only the volume of world trade by route.

The Long-term Macroeconomic Baseline

Table A-1 summarizes for the 12 PCC Trade Model regions the short, medium and long-term trends used in developing detailed, commodity specific, trade forecasts to be simulated in the PCC traffic model. Four structural variables define trade in this

model. International trade depends upon private consumption expenditures, business investments, traded goods share of total consumption, and import share of goods consumed. These are "general" rather than specific factors reflecting the relative stage of economic development attained by the countries or regions in the model. There is a wide gap, on a per capita base, between spending on personal consumption in the United States and spending in Africa.

Table A-1: Macroeconomic Variables Used in the Long Term Model, cont.

	1990	2000	2010	2020	2030	2040	%80-90	%90-00	%00-10	%10-20	%20-30	%30-40
East Coast of South America												
Private Consumption Exp. (billions of 87 Real USD)	294.1	458.4	709.6	1,024.4	1,426.6	1,993.7	0.43	4.54	4.47	3.74	3.37	3.40
Investment (billions of 87 Real USD)	87.9	147.4	229.2	371.8	579.2	910.1	-2.16	5.30	4.51	4.96	4.53	4.62
Goods Share of Total Consumption (%)	46.4	43.6	42.7	43.0	51.6	65.6	-0.15	-0.62	-0.20	0.07	1.84	2.42
Import Share of Goods Consumption (%)	7.5	16.1	12.6	11.1	9.6	7.9	-6.88	7.93	-2.46	-1.22	-1.44	-1.96
Population in millions	209.0	243.9	278.5	309.3	339.8	372.7	1.99	1.56	1.34	1.06	0.94	0.93
West Coast of South America												
Private Consumption Exp. (billions of 87 Real USD)	69.0	113.7	179.1	263.0	379.5	546.9	1.48	5.13	4.65	3.92	3.74	3.72
Investment (billions of 87 Real USD)	19.0	43.0	73.1	122.1	198.7	320.2	-0.22	8.50	5.44	5.27	4.99	4.89
Goods Share of Total Consumption (%)	52.4	54.4	53.4	53.6	54.6	54.8	-0.41	0.38	-0.20	0.03	0.19	0.03
Import Share of Goods Consumption (%)	17.7	24.2	26.2	29.6	37.2	46.6	-1.39	3.19	0.79	1.25	2.30	2.29
Population in millions	85.0	105.2	122.0	137.8	154.2	172.1	2.21	2.16	1.49	1.22	1.14	1.10
Central America												
Private Consumption Exp. (billions of 87 Real USD)	128.2	171.9	287.9	438.2	669.1	1,075.4	1.43	2.98	5.29	4.29	4.32	4.86
Investment (billions of 87 Real USD)	37.2	64.5	121.8	199.4	344.5	611.8	-1.16	5.66	6.56	5.05	5.62	5.91
Goods Share of Total Consumption (%)	42.8	50.7	57.9	76.1	118.8	184.7	0.27	1.70	1.34	2.77	4.55	4.52
Import Share of Goods Consumption (%)	35.3	69.0	65.4	49.6	36.5	26.6	2.37	6.93	-0.52	-2.74	-3.01	-3.11
Population in millions	113.1	139.0	163.6	186.2	209.4	235.0	2.39	2.09	1.64	1.30	1.18	1.16
Caribbean Basin												
Private Consumption Exp. (billions of 87 Real USD)	34.8	45.8	64.9	91.2	132.0	191.0	2.61	2.80	3.54	3.46	3.77	3.77
Investment (billions of 87 Real USD)	9.0	13.8	21.9	34.7	56.4	91.7	1.57	4.38	4.73	4.71	4.98	4.98
Goods Share of Total Consumption (%)	30.8	29.2	28.1	28.5	29.0	29.5	-1.08	-0.52	-0.40	0.14	0.17	0.17
Import Share of Goods Consumption (%)	50.2	58.3	65.2	67.8	68.5	69.3	0.08	1.52	1.12	0.38	0.11	0.11
Population in millions	22.0	25.8	30.2	34.3	38.2	42.5	1.69	1.65	1.58	1.27	1.07	1.08
Africa												
Private Consumption Exp. (billions of 87 Real USD)	271.9	385.3	596.4	935.3	1,484.7	2,396.9	1.42	3.55	4.47	4.60	4.73	4.91
Investment (billions of 87 Real USD)	84.2	109.7	194.0	352.1	650.9	1,224.0	-1.12	2.68	5.87	6.14	6.34	6.52
Goods Share of Total Consumption (%)	36.0	34.8	36.6	40.6	45.4	50.1	-1.64	-0.33	0.52	1.03	1.14	0.98
Import Share of Goods Consumption (%)	31.8	38.8	43.5	47.5	53.2	61.4	-1.55	2.00	1.14	0.90	1.13	1.45
Population in millions	614.1	810.0	1,043.4	1,324.2	1,670.5	2,094.8	2.81	2.81	2.57	2.41	2.35	2.29
Middle East												
Private Consumption Exp. (billions of 87 Real USD)	273.6	391.4	581.8	844.9	1,193.2	1,707.2	1.16	3.64	4.04	3.80	3.51	3.65
Investment (billions of 87 Real USD)	79.2	140.9	236.3	387.3	616.7	1,052.9	-1.64	5.94	5.31	5.07	4.76	5.49
Goods Share of Total Consumption (%)	32.8	35.6	39.4	42.1	41.1	39.9	-0.17	0.85	1.00	0.68	-0.26	-0.27
Import Share of Goods Consumption (%)	43.8	64.4	84.3	103.2	126.6	152.5	-1.66	3.92	2.73	2.04	2.06	1.88
Population in millions	270.1	343.3	429.8	513.2	602.3	706.1	2.88	2.43	2.27	1.79	1.61	1.60

APPENDIX B ANALYSIS OF WORLD TRADE FOR SELECTED COMMODITIES

World trade growth has been quite strong for both Panama Canal and non-Panama Canal routes over the past several years. In the following pages we will examine the trade worldwide for 19 individual commodities. The PCC transit model uses 29 categories of which one, containerized, is not distinguished by the commodities carried. To understand some of the forces at work underlying the PCC transit forecasts for containerized or manufactured trade, we have emphasized containerized categories in this grouping. For routes that are primarily canal, i.e. East to West Coast South America there is the potential to avoid the Canal although it is generally assumed that for most of this trade the Canal is the preferred route.

SELECTED COMMODITY REPORTS

Grain and Oil Seeds

The world trade in grain and oil seeds has been growing at a modest rate over the past ten years. Between 1990 and 1995 international trade increased by about 2.7% per year. We expect that with the growth of population increasing and living standard improvements the rate will increase to about 3.7% over the next ten years. Total volume of trade in grain and oil seeds reached 288.5 million metric tons in 1995. Of this total, 57% is on routes that are highly unlikely to transit the Canal and the remaining 43% is shipped on routes that could go through the Canal.

Fifty-five percent of the world trade in grains originates in North America. This share will decline, however, to only about 49% by 2015. The loss of share for North America is made up by growth in Europe, Asia/Pacific, and Africa/Middle East. The majority of the American grain that passes through the Canal is destined for markets in Asia and given railroad rates on freight, much of this American grain is likely to continue to transit through the Canal. In 1985 the Canal share – as measured by the volume likely routed through Panama – was 22.5% of world trade. This rose to 32% by 1995, but changes in trading patterns will reduce this Panama potential share of world trade to just 25% by 2015. Overall the Panama potential share of world trade in grains will decrease slightly from 43% to 40%. Growth in world trade in grains, however, averages 3.7% over the 1995-2005 period and 4.1% over the 2005 to 2015 period.

Coal and Coke

The development of new coal mines in Latin America – both in Colombia and Venezuela – has increased the Latin American share of world trade in coal dramatically. Where in 1985 the share was just about 1.1% of total world trade in coal, by 1995 the Latin American share had increased to over 5%. We forecast a slight increase to about 5.6% share by 2015. At the same time the North American share of the world coal market has declined from a high of 41% in 1985 to 32% in 1995. It reaches a forecast low of only about 19% by 2015. Asia's share, on the other hand, has increased from only

27.5% in 1985 to 39.5% in 1995 and we expect this to reach 53% by 2015. The gain has come from additional exports from China and India. Exports from Latin America do not pass through the Canal with most of Colombian coal shipped to Europe through Atlantic ports.

The implications of these changing patterns of trade for the traffic through the Panama Canal is dramatic. As more of Asia's coal requirements are met through Asian exports, the American sales in the region are reduced.. Actual Canal tonnage of coal from West Coast to East Coast Latin America is only 13,500 tons in 1996 and from West Coast Latin America to Europe it was just 21,600 tons in 1995 and zero in 1996.

Bulk Chemicals, Other than Organic

World trade in bulk chemicals in 1995 totaled 41.4 million tons. Only about 1.3 million tons would have to pass through the Canal while 18.9 million tons was shipped on routes that could use the Canal. The remaining 21.2 million tons was on routes that would be unlikely to use the Canal. Over the period 1985-95 the growth in trade for Canal and potential Canal routes was significantly greater (5-6% for these routes compared to 1.6% for the non-Canal routes). Over the forecast period, the overall growth of 5% is fairly constant across all routes.

Looking at the pattern on a route-by-route basis, we can see that the fastest rate of growth will be within the Asia-Pacific region. The emergence of chemical production facilities in this region has changed the dynamics. Of the growth projected in potential Canal routes the faster pace of Asian growth will likely drive the increase in exports of Europe all of which would be counted in the potential trade moving through the Canal (despite the fact that much of the European trade goes via the Suez Canal). The overall share of potential Canal traffic grew from 38.6% in 1985 to 48.7% in 1995, but it is forecast to remain fairly constant over the remaining periods at 49.2%.

Automobiles and Auto Parts

The trade in automobiles and parts reflects one of the larger and more important trade flows. Automobile production is booming in many parts of the world and the increasing globalization of automobile manufacturing means that parts are being shipped worldwide. In many developing economies finished vehicles are assembled from imported parts. For the very critical United States market, the strongest period of growth was in the early 1990s when the high value of the Japanese yen and the German D-mark encouraged the development. Over the period 1985 through 1995 there was some change in the worldwide pattern of this trade. The trade to North America declined from all sources of supply. At the same time trade of nearly all regions to South America was in the high double digits (greater than 20%).

Of the 13.7 millions metric tons in reported trade worldwide, 11 million originate in Europe or in the Asia/Pacific Region and only 1.4 million in North America. The development of in-country production facilities by Japanese and even European producers

in the United States and the growth in production facilities in Mexico has contributed to the relatively slow growth projected in through-Canal traffic. And while growth of traffic in automobiles and parts that are likely to go through the Canal is forecast over the 2005-15 period to expand at about 5% (compared to 4% for world trade), the share is small -- only about 5% of total trade.

Iron and Steel

The demand for iron and steel shipped by sea grew at a rate of about 3.9% over the period 1985-95. A slightly stronger growth is forecast between 1995-2005 before slowing down slightly for the period 2005-2015. Japan, which had dominated the production and trade in iron and steel into and out of North America and to a lesser extent Western Europe, has suffered from a mix of older technology and an overvalued yen/$ rate. It has also faced some barriers and voluntary restraints on exports of iron and steel --both in the US market and in Europe. Thus Asia's exports of iron and steel to non-Asian markets showed a negative trend over the 1985-95 time frame. Only the very significant trade within the Asia Pacific (including Korea, Taiwan and even India as well as Japan) increased (at a rate over 5%).

Our forecast calls for a recovery in the 1995-2005 period. Trade in iron and steel from North America to Asia-Pacific grew strongly between 1985-95, but the volume is relatively low due to the nature of the trade which is mainly specialty rather than structural steel. European iron and steel is likely routed via Suez, not through Panama. There is only a small trade in iron and steel that can be considered to be a pure Panama route, i.e. between East and West Coast of Latin America.

Paper

There has been a strong and continuing growth in world trade in paper and paper products. Real growth measured in metric tons increased over the 1985-95 time period at a rate of 7.4%. Our forecast calls for real growth of over 9% for the 1995-2005 period before declining to about 7% in the final ten years (2005-15). As a result of the higher rate of growth recorded on non-Panama routes, the share of the potential trade that could be expected to move through Panama or might move through the Canal declines while the share for the non-Panama routes increases (from just over 50% to 60% by 2015).

The demand for paper in Asia that comes from waste paper generated in North America will likely grow but at a rate that is slower than the general trade in paper within Asia proper. And while the volume from North America to the world remains high (16 million metric tons) compared to Asia's export of just 6 million tons, Asia's growth rate is more than 3% higher than that of North America. As a result the North American share of the important Asian market declines from 21% in 1985 to just 21% in 1995, 16% in 2005 and only 12% in 2015. At the same time the Asia Pacific share of its own market increases from 7% to nearly 16% between 1985-2015.

Textiles

In 1995 world trade in textiles shipped by sea totaled more than 20 million metric tons. North America accounted for about 5% of total exports to the world, Europe for 20%, and the Asia-Pacific region for more than 63%. Latin America's share of world trade is negligible—only about 3 %. The majority of this trade—more than 39% of the world trade – is within Asia, thus not of potential interest to the Panama Canal. North America accounts for a diminishing share of world trade in textiles from Asia and elsewhere in the world. Latin America's share of Asian exports is minuscule.

Textile trade that moves through the Canal accounts for only about 1.7% of total world trade in textiles. It grows slightly in share over this period. Non-Panama Canal trade accounts for 77% of the total and grows to about 82% by 2015. Again this shows the strong concentration of textile trade within Asia proper. Of the traffic that could move through the Canal, the growth declines over this period from 7.6% over the 1985-95 period to 4% in the 2005-15 period. Asian exports of textiles to Africa and the Middle East will increase in line with the increasing share of this region in total exports of clothing. Africa/Middle East's share of world trade in clothing increases from 9.6% in 1985 to 12% in 1995.

Machinery, Other Vehicles & Transport Equipment

Heavy capital equipment trade accounted for 48.7 million tons of world trade in 1995. Growth was constrained over the period 1985-95 by the rolling recession in the more advanced, industrialized economies. Still world trade in this commodity was a respectable 5.5%. It is forecast to accelerate to nearly 8.4% over the period 1995-2005 as increasing amounts of world infrastructure are built and renewed both in advanced and emerging markets. Europe accounts for 42% of world trade in 1995, Asia Pacific for 42%, and North America for only about 9.4%. The rest of the world regions, including Latin America, for the remainder—about 6% in total. Eastern Latin America, including Brazil and Argentina, account for 3.4% of world trade in these type of products. World trade growth is relatively uniform between the major exporters over the baseline period suggesting few major shifts in comparative advantage. In part this is due to the wide range of products included in this group.

Only about 2.5% of total world trade in 1995 was on routes that move through the Canal. This share is not expected to grow, but rather will remain, nearly fixed at this small amount. The share of potential Panama trade declines over the forecast period from 40% in 1995 to 36% in 2015. The stronger growth in trade within Asia is partially responsible. While Asia-Pacific to the world declines in total share, Asia-Pacific to Asia-Pacific increases from 20.6% (only 10% in 1985) in 1995 to 24.4% in 2015. Exports from Europe to Asia also show strong growth relative to the world total. The European share of world trade to Asia increases from 14% in 1995 to more than 16% by 2015. Intra-Latin American trade is small relative to the world trade. South America West to South America East accounts for less than .1 of 1% of total world trade and South America East to South America West for only about .3 of 1%.

Food, Beverages, and Tobacco

Total metric tons traded in processed food, beverages and tobacco totaled 38.3 million tons in 1995. This trade has grown at a steady rate of about 6.7% and the forecast is for growth to decline only slightly to about 6% per annum over the next two decades. This stability of growth, however, hides some changes in trade patterns. North America's share of world trade declines from a high of 14.4% in 1995 to only about 11.6 % by 2015. Europe's share drops only slightly, while that of Asia increases by about 3% over the period 1995-2015. For other regions there is only a small adjustment in their shares.

Trade in processed foods is a product of tastes and even migratory patterns. At least some of the trade from Asia-Pacific to North American can be attributed to the concentration of Asian immigrants. Looking at the potential impact of changing patterns on the Canal we see that the share of Canal routes is small -- only about 2.5% in 1995 growing to 3.2% in 2015. Non-Canal routes remain relatively constant at 68% of total world, and there is a slight decline noted in potential Canal routes from 30% in 1995 to 28.5% in 2015. The potential gain to the Canal from growth in world trade in this category appears to be limited by the small share of intra-Latin American trade in total world trade and by the relatively slow rate of growth in trade in general.

Pharmaceuticals and Other Chemical Products

International commerce in pharmaceuticals and specialty chemical products has grown strongly at more than 8% per year over the 1985-95 period. It is expected to continue to grow at about this pace through the next decade and only to slow by about 1% per year over the final decade. This reflects the great need for these products and the tendency to specialize production outside the main consumer nations and those engaged in research and development. Trade is concentrated in the three main export centers -- North America with nearly 20% of world commerce in 1995, Europe with 41% (down from 51% in 1985); and Asia at 28% (up from 20%). South America including Central, East and Western Latin America only accounted for about 5.2% of total world commerce in 1995. Despite this low share the trade within the region is growing strongly both within geographical regions and among regions. Trade between South America East to West grew at about 12% per year 1985-95, and from South America West to East by about 27% over this same period. Intra-trade within these regions also was quite strong.

Pure Panama Canal routes reflect these trends and grew at about 10% per annum over the period 1985-95 compared to 8% for worldwide trade. They reflect, however, only about 2.9% of total world trade. They hold this share throughout the period. Panama potential routes also grew at about ¾ of 1% above the world trade growth over the historical period. They grow at about the rate of the world trade in the future. Pure Panama routes benefited from the strong growth out of North America to Western Latin America (assumed to go through the Canal but may move from West Coast ports). This trade grew at a rate of over 10% but the growth in the medium to longer term is lower growing just about 6.4%. Asia's growth of 9% in 1995-2005 and 7.6% in 2005-15

coming from a large base is critical. Of the Asian exports that would likely move through the Canal total volume is a negligible 15,400 tons compared to 3.8 million tons total in 1995. For Panama potential routes from Asia the volume is greater about 1/3rd of total Asia, but the majority of this goes to the United States with most of this trade moving through West Coast ports.

Computers, Electrical and Electronic Products

Volume growth in computers, electrical and electronic products was quite strong over the period 1985-95. It grew at over 12% and is forecast to continue growing at close to 10% in the next ten years before slowing to 7.5% in the last decade. At least some of this trade is now shipped by air, not by sea. This diversion has potentially an impact on traffic through the Canal although in terms of volume it is small, but in value quite large (up to 30 to 40% of the value). Asia Pacific controls more than 73% of total world trade in metric tons in this category. Fully 23% of world trade goes to North America (about 1/3rd of Asia's total exports to the world). About 20% goes to Europe, and 40% to other Asia Pacific countries and regions. The growth in intra-Asia trade in electronics – both finished and intermediate parts – is evident in the growth achieved on a large base of 18% per year over the 1985-95 period. Asia's long-term growth is projected to be close to 10% over the 1995-2005 and then slow to about 8% over the next decade. Latin America's share of world trade (exports) is low relative to the world trade in these products. Its combined share of world exports of electronics in 1995 was just 1.5% of total world trade. And while real growth is strong over the following twenty years (at slightly greater than world rates), the share of total world trade will remain low. The fastest paced growth comes from Mexico and Central America where the share rises from close to .47 of 1% in 1995 (up from only about .2 of 1 % in 1985) to .53 of 1% in 2015.

The relatively small share of Latin America in world trade (exports) is mirrored in Latin America's small share of world imports (about 5.5% in 1995). Pure Panama Canal routes the total trade is about 2 % of world trade. The shift in electronics production from Northern Asia to Southeast Asia (and in the future to the Indian subcontinent) will further reduce the potential of this trade. Trade between Japan and Western Europe would have an even chance of moving through the Canal while trade from Southeast Asia is far less likely to move that way since the all-water route to South Asia to Europe is typically through the Suez Canal.

Clothing

Clothing production has moved from a local to an international industry due to a number of factors, not the least of which, is the availability of low cost labor and the low entry costs for new manufacturing. We can observe the shift in production that has occurred in the increasing share of world trade (exports) accounted for by Africa/Middle East (up from 9.65% to 12.01% in 1995) and Central America and the Caribbean rising from 3.2% to 5%. North America's share of world exports has also, paradoxically, increased slightly from 2.3% to 4% due primarily to the strength of US exports of specialty sports cloths. The net loser is Asia and Europe. The European share of world

exports declined by 2.5% and Asia by 3.5% over these same periods. Asia's share of world exports remains far above that of the rest of the world at 63% in 1995.

These changes in share have had some impact on the Canal traffic growth. For example we noted that in terms of textile manufactures there is a growing trade between Asia and Africa-Middle East. Cloth from Asia is used in cloths made in the Middle East and Africa and then shipped as finished goods to Western Europe and the United States. To the extent that these trends continue this leads to a bypass of the Canal.

Footwear

Worldwide trade in footwear has shown the greatest variation over the past ten years (1985-95). In part this revolution has come from a number of trends including the changing taste in types of shoes. The shift from leather to canvas products, even for everyday wear, has meant that traditional producers in Latin America, Africa/Middle East[1], and Europe of leather shoe products have faced slower growth. The shift towards healthy leisure time activities such as running, climbing and hiking has had a decided impact on the pattern of world trade in shoes. We can observe this in the share of world trade accounted for by Asia Pacific that has increased from 47.8% in 1985 to 76.8% in 1995 while that of Western Europe has declined from 33% to 14%, Eastern Latin America (mainly Brazil) from 7.6% to 3.7%, and Africa/Middle East from 9.3% to 2.3%.

The changing pattern of trade has meant that imports of footwear to Eastern Latin America have increased over the past ten years. Real growth in metric tons coming from Asia, likely through the Canal, to Eastern Latin America increased at an annual rate of 33.7% over the 1985-95 period. Looking at the table showing Canal versus potential canal traffic growth we can see that the share of potential canal has increased as the pattern of trade has changed. The pure Canal share has also increased . Thus the pure Canal traffic grew by 28.6% over the 1985-95 period on a yearly basis but represents a small base in terms of total tons (26,000 tons).

Photographic Equipment, Watches and Clocks

The demand for photographic equipment, clocks and watches has steadily increased. Real growth has been fairly constant at about 6.8% and even the distribution of world market shares has remained relatively constant. The demand for fine timepieces and sophisticated optical and photographic equipment has remained roughly constant at 6.9% over the past ten years. It is forecast to grow at a similar rate over the next twenty years. This stability has also been paralleled by a relative stability in sources of world supply. Europe's share has risen by about 5% to 25% of total in 1995, Asia's share has declined by 5% but remains dominant at 67%, and North America's share has remained

[1] India/Pakistan have been included in Asia Pacific, while Bangladesh, Burma, Afghanistan have been grouped with Africa/Middle East. Leather tanning has been long a specialty of the Indian subcontinent due to the availability of cowhide although in later years raw cowhide has been imported from the United States as tanneries there have been closed and as demand for finished leather has increased.

go through Suez (or around Africa). Forecast growth in fertilizers on Canal routes and potential Canal routes is modest – about 4%.

Crude Oil

In terms of volume of trade crude oil is one of the largest flows in the world. There are considerable exports of crude oil from both Central and South America although only a small fraction of the potential trade in this commodity passes through the Canal. The majority of the oil from Central America comes from Mexico and goes to the United States. The Middle Eastern crude remains outside of the Canal with the exception of a small flow between Africa and the West Coast of South America. Exports of crude from Venezuela are the major potential flow going to both West Coast of South America and to Central America and the Caribbean. The majority of Venezuelan crude, however, goes to North America, again by passing the Canal. Brazilian crude oil imports come primarily from Africa and the Middle East. Exports from new sources in Western Latin America (mainly Ecuador) tend to remain on the West Coast of South America or go to the West Coast of North America. Overall exports from West Coast South America are, however, only 15 million tons compared to more than 121 million tons from the more mature oil fields in the Caribbean and in Venezuela.

Worldwide growth in trade in crude oil is forecast to grow modestly at a rate under the worldwide growth in trade. A growth of about 4% in volume terms is forecast. Exports from South America East and South America West are forecast to grow at rates nearly twice this rate.

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Bulk Chemicals, Other Than Organic Chemicals

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	2,673.69	6.42	7.51	6.91	4.00	4.96	5.88	6.92
	Europe	1,448.75	-1.69	3.98	4.34	4.78	2.69	2.28	2.10
	Asia/Pacific	2,246.24	4.04	5.63	4.57	4.21	4.17	4.14	3.91
	South America, East	395.48	7.54	6.11	5.05	0.53	0.73	0.76	0.75
	South America, West	195.34	10.23	7.17	6.13	0.21	0.36	0.42	0.45
	Central Am. & Caribbean	690.23	9.00	8.23	6.26	0.81	1.28	1.62	1.80
	Africa/Middle East	233.05	6.61	6.56	6.01	0.34	0.43	0.47	0.51
	World	7,882.77	3.96	6.36	5.75	14.88	14.63	15.57	16.44
Europe	North America	2,431.71	-1.16	2.92	3.27	7.61	4.51	3.46	2.88
	Europe	22,124.22	3.75	4.52	4.43	42.62	41.06	36.68	34.14
	Asia/Pacific	5,152.45	4.85	5.93	5.06	8.93	9.56	9.77	9.65
	South America, East	513.46	4.79	6.50	5.29	0.90	0.95	1.03	1.04
	South America, West	262.10	4.16	6.70	5.59	0.49	0.49	0.53	0.56
	Central Am. & Caribbean	287.38	4.21	7.03	4.87	0.53	0.53	0.60	0.59
	Africa/Middle East	2,093.03	-2.48	5.90	5.99	7.49	3.88	3.96	4.27
	World	32,864.35	2.93	4.81	4.63	68.56	61.00	56.02	53.11
Asia/Pacific	North America	770.35	6.86	5.95	5.64	1.10	1.43	1.46	1.53
	Europe	1,165.79	10.51	6.93	5.83	1.19	2.16	2.43	2.58
	Asia/Pacific	5,779.15	12.59	8.44	6.03	4.92	10.73	13.85	15.01
	South America, East	44.80	10.77	7.95	5.90	0.04	0.08	0.10	0.11
	South America, West	19.83	12.89	8.49	6.48	0.02	0.04	0.05	0.05
	Central Am. & Caribbean	37.24	9.55	8.70	6.12	0.04	0.07	0.09	0.10
	Africa/Middle East	353.27	9.58	9.12	7.14	0.39	0.66	0.90	1.08
	World	8,170.43	11.42	8.05	6.03	7.71	15.16	18.88	20.46
South America, East	North America	114.00	5.46	4.59	2.60	0.19	0.21	0.19	0.15
	Europe	151.98	3.40	5.39	5.09	0.30	0.28	0.27	0.27
	Asia/Pacific	93.53	12.43	8.29	9.54	0.08	0.17	0.22	0.33
	South America, East	162.02	9.50	9.09	7.38	0.18	0.30	0.41	0.51
	South America, West	91.61	3.60	7.34	6.05	0.18	0.17	0.20	0.22
	Central Am. & Caribbean	32.66	-2.71	7.00	4.73	0.12	0.06	0.07	0.07
	Africa/Middle East	29.56	10.76	8.31	7.76	0.03	0.05	0.07	0.09
	World	675.36	5.69	7.14	6.53	1.08	1.25	1.43	1.63
South America, West	North America	70.25	12.06	5.40	5.57	0.06	0.13	0.13	0.13
	Europe	83.81	12.30	4.28	4.63	0.07	0.16	0.14	0.13
	Asia/Pacific	39.35	22.20	5.58	4.86	0.01	0.07	0.07	0.07
	South America, East	39.17	7.76	5.99	5.28	0.05	0.07	0.07	0.08
	South America, West	36.87	7.47	6.49	5.73	0.05	0.07	0.07	0.08
	Central Am. & Caribbean	9.79	24.46	9.08	6.70	0.00	0.02	0.02	0.03
	Africa/Middle East	1.97	52.44	7.12	6.61	0.00	0.00	0.00	0.00
	World	281.20	11.86	5.51	5.28	0.26	0.52	0.51	0.52
Central Am. & Caribbean	North America	468.11	4.84	4.79	5.34	0.81	0.87	0.80	0.81
	Europe	68.95	-5.75	5.72	5.24	0.35	0.13	0.13	0.13
	Asia/Pacific	110.44	23.95	4.52	4.25	0.04	0.20	0.18	0.17
	South America, East	90.95	9.99	8.09	6.01	0.10	0.17	0.21	0.23
	South America, West	38.09	14.54	8.77	6.25	0.03	0.07	0.09	0.10
	Central Am. & Caribbean	90.39	8.63	7.69	6.25	0.11	0.17	0.20	0.22
	Africa/Middle East	17.32	14.30	7.53	8.02	0.01	0.03	0.04	0.05
	World	884.24	5.48	5.78	5.54	1.44	1.64	1.65	1.71
Africa/Middle East	North America	163.78	-3.05	4.59	3.93	0.62	0.30	0.27	0.24
	Europe	1,064.77	-1.04	3.25	3.43	3.29	1.98	1.56	1.32
	Asia/Pacific	1,356.94	8.29	6.62	5.64	1.70	2.52	2.75	2.87
	South America, East	36.91	10.54	7.34	6.37	0.04	0.07	0.08	0.09
	South America, West	1.92	-1.02	5.86	4.92	0.01	0.00	0.00	0.00
	Central Am. & Caribbean	11.55	12.43	6.16	4.76	0.01	0.02	0.02	0.02
	Africa/Middle East	483.53	13.13	9.15	7.84	0.39	0.90	1.24	1.59
	World	3,119.40	3.66	5.95	5.55	6.06	5.79	5.92	6.13
World	World	53,877.75	4.14	5.70	5.18	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Coal & Coke

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	634.82	-3.77	-1.17	-0.28	5.31	3.15	1.88	1.28
	Europe	2,271.68	0.45	0.36	-0.51	12.38	11.28	7.86	5.23
	Asia/Pacific	2,105.46	-1.20	3.01	2.84	13.54	10.45	9.45	8.75
	South America, East	399.41	0.43	-0.91	-0.11	2.18	1.98	1.22	0.84
	South America, West	19.50	-0.59	-1.36	1.01	0.12	0.10	0.06	0.04
	Central Am. & Caribbean	65.63	3.75	3.79	0.60	0.26	0.33	0.32	0.24
	Africa/Middle East	170.86	2.12	4.27	2.05	0.79	0.85	0.87	0.74
	World	5,667.36	-0.68	1.36	1.23	34.58	28.13	21.65	17.12
Europe	North America	22.64	20.46	10.10	6.19	0.02	0.11	0.20	0.25
	Europe	3,260.61	-4.03	1.83	2.64	28.03	16.18	13.04	11.84
	Asia/Pacific	281.72	3.05	4.11	3.19	1.19	1.40	1.41	1.35
	South America, East	62.85	-7.52	-1.68	-1.33	0.78	0.31	0.18	0.11
	South America, West	0.06	9.25	0.54	1.11	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	0.44	15.16	3.00	2.66	0.00	0.00	0.00	0.00
	Africa/Middle East	78.94	-12.08	5.97	4.54	1.63	0.39	0.47	0.51
	World	3,707.26	-3.96	2.14	2.77	31.65	18.40	15.29	14.06
Asia/Pacific	North America	261.68	22.32	3.62	2.51	0.20	1.30	1.25	1.12
	Europe	1,744.68	6.34	2.86	3.84	5.38	8.66	7.71	7.87
	Asia/Pacific	5,595.64	5.86	6.99	4.81	18.04	27.77	36.67	41.08
	South America, East	241.13	15.92	5.31	3.50	0.31	1.20	1.35	1.33
	South America, West	91.44	15.26	4.36	1.96	0.13	0.45	0.47	0.40
	Central Am. & Caribbean	14.57	14.45	9.25	7.81	0.02	0.07	0.12	0.17
	Africa/Middle East	149.45	10.26	5.91	4.41	0.32	0.74	0.88	0.95
	World	8,098.58	6.58	6.01	4.55	24.40	40.20	48.45	52.93
South America, East	North America	39.78	NA	1.06	3.26	0.00	0.20	0.15	0.14
	Europe	93.54	50.75	3.73	3.88	0.01	0.46	0.45	0.46
	Asia/Pacific	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	South America, East	1.29	37.38	2.20	1.06	0.00	0.01	0.01	0.00
	South America, West	3.40	NA	2.23	3.32	0.00	0.02	0.01	0.01
	Central Am. & Caribbean	4.05	NA	2.44	2.67	0.00	0.02	0.02	0.02
	Africa/Middle East	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	World	142.06	56.64	2.95	3.68	0.01	0.71	0.63	0.64
South America, West	North America	89.97	14.20	0.00	2.10	0.14	0.45	0.30	0.26
	Europe	373.47	17.27	5.88	4.83	0.43	1.85	2.21	2.47
	Asia/Pacific	7.59	13.08	8.87	6.15	0.01	0.04	0.06	0.08
	South America, East	18.66	8.73	3.90	1.76	0.05	0.09	0.09	0.08
	South America, West	26.50	57.12	0.69	0.82	0.00	0.13	0.09	0.07
	Central Am. & Caribbean	9.82	-2.24	0.79	0.40	0.07	0.05	0.04	0.03
	Africa/Middle East	21.49	28.56	-1.27	-0.23	0.01	0.11	0.06	0.04
	World	547.49	15.97	4.55	4.25	0.71	2.72	2.85	3.03
Central Am. & Caribbean	North America	1.56	8.04	-1.69	1.17	0.00	0.01	0.00	0.00
	Europe	0.04	-0.51	1.05	2.39	0.00	0.00	0.00	0.00
	Asia/Pacific	0.03	-33.30	4.81	3.03	0.01	0.00	0.00	0.00
	South America, East	0.01	-11.34	2.92	4.56	0.00	0.00	0.00	0.00
	South America, West	0.01	-2.84	3.90	3.74	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	0.11	12.56	-0.20	1.42	0.00	0.00	0.00	0.00
	Africa/Middle East	0.02	0.00	7.76	5.62	0.00	0.00	0.00	0.00
	World	1.77	-3.64	-1.19	1.45	0.01	0.01	0.01	0.00
Africa/Middle East	North America	4.69	-19.50	4.98	2.90	0.23	0.02	0.03	0.02
	Europe	1,052.86	1.16	3.72	4.02	5.35	5.23	5.06	5.26
	Asia/Pacific	655.29	2.42	7.14	4.88	2.94	3.25	4.36	4.91
	South America, East	63.40	73.07	5.57	3.82	0.00	0.31	0.36	0.37
	South America, West	44.36	NA	5.96	5.16	0.00	0.22	0.26	0.31
	Central Am. & Caribbean	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	Africa/Middle East	161.21	24.01	6.94	6.25	0.11	0.80	1.05	1.35
	World	1,981.81	2.73	5.34	4.61	8.63	9.84	11.12	12.22
World	World	20,146.32	1.39	4.05	3.63	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Grain and Oil Seeds

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	1,943.82	11.40	5.39	5.14	1.14	2.29	2.65	2.88
	Europe	7,025.46	-2.34	1.85	2.36	15.40	8.29	6.82	5.64
	Asia/Pacific	13,341.73	5.68	1.45	2.55	13.29	15.74	12.44	10.51
	South America, East	804.05	-3.62	4.92	3.59	2.01	0.95	1.05	0.98
	South America, West	932.13	7.28	4.75	4.50	0.80	1.10	1.20	1.22
	Central Am. & Caribbean	2,902.89	6.16	6.88	4.27	2.76	3.42	4.56	4.55
	Africa/Middle East	6,100.90	6.02	5.73	5.79	5.88	7.20	8.60	9.90
	World	33,050.97	3.31	3.41	3.84	41.29	38.98	37.32	35.68
Europe	North America	174.21	2.22	5.84	6.29	0.24	0.21	0.25	0.30
	Europe	16,466.12	1.71	2.44	3.54	24.04	19.42	16.92	15.73
	Asia/Pacific	1,420.77	19.09	5.38	4.69	0.43	1.68	1.94	2.01
	South America, East	174.88	17.63	2.50	2.14	0.06	0.21	0.18	0.15
	South America, West	109.73	19.44	6.56	5.58	0.03	0.13	0.17	0.19
	Central Am. & Caribbean	340.51	11.13	6.77	5.84	0.21	0.40	0.53	0.61
	Africa/Middle East	3,690.49	2.74	6.54	5.52	4.87	4.35	5.62	6.31
	World	22,376.69	2.62	3.55	4.18	29.88	26.39	25.60	25.29
Asia/Pacific	North America	274.36	14.39	3.69	4.17	0.12	0.32	0.32	0.31
	Europe	2,865.67	7.65	4.32	4.40	2.37	3.38	3.53	3.56
	Asia/Pacific	6,617.40	6.38	4.35	4.43	6.17	7.81	8.18	8.28
	South America, East	90.42	-0.41	2.77	1.66	0.16	0.11	0.10	0.07
	South America, West	233.00	22.42	5.33	3.52	0.05	0.27	0.32	0.29
	Central Am. & Caribbean	166.07	4.60	6.02	4.80	0.18	0.20	0.24	0.25
	Africa/Middle East	3,075.83	1.71	6.28	5.86	4.49	3.63	4.57	5.30
	World	13,322.75	5.45	4.84	4.79	13.55	15.71	17.25	18.08
South America, East	North America	46.55	9.41	6.38	5.89	0.03	0.05	0.07	0.08
	Europe	6,451.84	2.22	2.14	3.02	8.96	7.61	6.44	5.69
	Asia/Pacific	985.91	4.71	4.00	4.95	1.08	1.16	1.18	1.25
	South America, East	1,337.51	14.49	6.09	3.13	0.60	1.58	1.95	1.74
	South America, West	453.90	12.12	5.41	4.21	0.25	0.54	0.62	0.61
	Central Am. & Caribbean	328.19	-3.04	5.19	3.75	0.77	0.39	0.44	0.42
	Africa/Middle East	782.06	2.16	7.80	9.06	1.09	0.92	1.34	2.09
	World	10,385.97	3.47	3.68	4.17	12.78	12.25	12.04	11.88
South America, West	North America	58.47	2.56	6.08	6.30	0.08	0.07	0.09	0.10
	Europe	387.99	5.67	1.61	4.08	0.39	0.46	0.37	0.36
	Asia/Pacific	689.90	14.77	6.29	8.35	0.30	0.81	1.03	1.50
	South America, East	28.01	40.75	3.97	3.83	0.00	0.03	0.03	0.03
	South America, West	239.67	22.57	4.81	3.73	0.05	0.28	0.31	0.29
	Central Am. & Caribbean	61.54	15.84	7.94	7.75	0.02	0.07	0.11	0.15
	Africa/Middle East	143.96	7.58	7.45	10.10	0.12	0.17	0.24	0.41
	World	1,609.54	11.16	5.24	7.18	0.97	1.90	2.17	2.84
Central Am. & Caribbean	North America	110.79	6.95	7.13	6.50	0.10	0.13	0.18	0.22
	Europe	184.86	28.92	-0.02	-0.07	0.03	0.22	0.15	0.10
	Asia/Pacific	13.03	4.85	4.68	5.19	0.01	0.02	0.02	0.02
	South America, East	19.75	47.01	2.02	0.97	0.00	0.02	0.02	0.01
	South America, West	2.13	6.31	2.97	1.62	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	61.25	10.67	5.55	5.66	0.04	0.07	0.08	0.10
	Africa/Middle East	129.19	23.82	6.97	6.12	0.03	0.15	0.20	0.24
	World	521.01	15.98	4.53	4.85	0.20	0.61	0.66	0.69
Africa/Middle East	North America	32.26	17.92	6.55	8.54	0.01	0.04	0.05	0.07
	Europe	730.15	5.50	2.58	2.86	0.74	0.86	0.76	0.66
	Asia/Pacific	1,700.11	31.52	6.13	5.35	0.19	2.01	2.49	2.75
	South America, East	20.84	12.49	5.30	4.15	0.01	0.02	0.03	0.03
	South America, West	37.66	48.69	3.51	1.74	0.00	0.04	0.04	0.03
	Central Am. & Caribbean	20.08	24.01	6.19	3.99	0.00	0.02	0.03	0.03
	Africa/Middle East	971.36	16.62	7.15	6.67	0.36	1.15	1.56	1.96
	World	3,512.44	16.51	5.76	5.44	1.32	4.14	4.96	5.53
World	World	84,779.38	3.91	3.86	4.30	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Automobiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	41,786.70	4.24	3.49	2.85	16.96	16.05	14.30	12.87
	Europe	2,577.87	22.91	5.57	4.62	0.20	0.99	1.08	1.15
	Asia/Pacific	5,147.13	26.98	6.69	4.98	0.29	1.98	2.39	2.64
	South America, East	989.50	19.45	6.26	5.35	0.10	0.38	0.44	0.50
	South America, West	600.06	15.36	6.71	5.34	0.09	0.23	0.28	0.32
	Central Am. & Caribbean	1,512.87	18.31	7.26	4.60	0.17	0.58	0.74	0.79
	Africa/Middle East	2,013.08	12.60	7.61	5.07	0.38	0.77	1.02	1.13
	World	54,627.21	6.32	4.32	3.50	18.19	20.99	20.24	19.40
Europe	North America	10,319.12	-4.21	1.90	0.30	9.75	3.96	3.02	2.12
	Europe	105,306.89	7.71	4.68	4.30	30.79	40.46	40.38	41.80
	Asia/Pacific	13,600.72	14.01	6.24	4.67	2.25	5.23	6.05	6.49
	South America, East	2,308.83	27.22	6.14	4.66	0.13	0.89	1.02	1.09
	South America, West	825.36	14.99	6.50	5.12	0.13	0.32	0.38	0.42
	Central Am. & Caribbean	727.82	6.36	7.17	5.45	0.24	0.28	0.35	0.41
	Africa/Middle East	6,768.32	-0.59	6.54	5.01	4.41	2.60	3.10	3.43
	World	139,857.05	6.07	4.81	4.21	47.69	53.73	54.30	55.75
Asia/Pacific	North America	18,929.35	-5.34	2.32	1.22	20.13	7.27	5.78	4.43
	Europe	11,243.21	4.17	4.61	4.70	4.59	4.32	4.28	4.61
	Asia/Pacific	13,692.72	5.27	6.10	4.39	5.04	5.26	6.01	6.28
	South America, East	1,082.97	22.08	6.68	5.24	0.09	0.42	0.50	0.57
	South America, West	1,551.17	18.12	5.48	4.31	0.18	0.60	0.64	0.67
	Central Am. & Caribbean	676.02	1.54	6.58	4.09	0.36	0.26	0.31	0.31
	Africa/Middle East	4,944.60	2.46	6.99	4.70	2.38	1.90	2.36	2.54
	World	52,120.03	-0.23	4.63	3.68	32.77	20.02	19.89	19.40
South America, East	North America	9.92	-18.91	1.08	1.02	0.05	0.00	0.00	0.00
	Europe	444.55	3.28	5.69	4.43	0.20	0.17	0.19	0.20
	Asia/Pacific	101.98	13.52	7.21	5.22	0.02	0.04	0.05	0.06
	South America, East	1,225.73	22.89	6.72	4.64	0.10	0.47	0.57	0.61
	South America, West	736.01	17.86	5.76	4.31	0.09	0.28	0.31	0.32
	Central Am. & Caribbean	205.36	23.19	7.83	5.03	0.02	0.08	0.11	0.12
	Africa/Middle East	91.87	-16.45	6.33	4.17	0.34	0.04	0.04	0.04
	World	2,815.42	7.96	6.39	4.57	0.80	1.08	1.27	1.35
South America, West	North America	0.25	21.78	3.37	2.69	0.00	0.00	0.00	0.00
	Europe	0.72	19.89	6.06	5.16	0.00	0.00	0.00	0.00
	Asia/Pacific	2.75	NA	6.26	4.58	0.00	0.00	0.00	0.00
	South America, East	76.06	68.80	7.46	5.17	0.00	0.03	0.04	0.04
	South America, West	107.90	25.23	5.72	4.20	0.01	0.04	0.05	0.05
	Central Am. & Caribbean	1.20	24.42	7.01	4.88	0.00	0.00	0.00	0.00
	Africa/Middle East	0.01	0.00	6.27	4.77	0.00	0.00	0.00	0.00
	World	188.89	31.65	6.46	4.65	0.01	0.07	0.09	0.09
Central Am. & Caribbean	North America	7,270.14	45.07	3.93	2.40	0.11	2.79	2.60	2.24
	Europe	72.14	17.41	6.46	5.34	0.01	0.03	0.03	0.04
	Asia/Pacific	115.36	66.70	7.21	5.28	0.00	0.04	0.06	0.06
	South America, East	101.14	65.48	6.43	5.12	0.00	0.04	0.05	0.05
	South America, West	258.27	43.93	7.05	5.32	0.00	0.10	0.12	0.14
	Central Am. & Caribbean	87.80	15.92	7.90	5.10	0.01	0.03	0.05	0.05
	Africa/Middle East	6.42	4.02	8.17	5.37	0.00	0.00	0.00	0.00
	World	7,911.27	42.88	4.22	2.74	0.14	3.04	2.90	2.59
Africa/Middle East	North America	36.33	3.77	3.56	3.19	0.02	0.01	0.01	0.01
	Europe	655.66	9.88	6.00	5.17	0.16	0.25	0.29	0.32
	Asia/Pacific	1,273.94	18.91	6.67	4.30	0.14	0.49	0.59	0.61
	South America, East	2.43	71.58	6.19	4.35	0.00	0.00	0.00	0.00
	South America, West	16.45	50.60	6.12	4.81	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	23.12	8.76	8.19	5.32	0.01	0.01	0.01	0.01
	Africa/Middle East	747.71	19.69	8.09	5.28	0.08	0.29	0.40	0.45
	World	2,755.63	15.71	6.90	4.80	0.39	1.06	1.30	1.42
World	World	260,275.49	4.81	4.70	3.94	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Iron & Steel

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	4,558.79	7.70	2.31	1.04	2.43	3.56	2.94	2.21
	Europe	898.00	13.25	4.01	4.16	0.29	0.70	0.68	0.70
	Asia/Pacific	1,572.23	20.97	3.62	3.02	0.26	1.23	1.15	1.05
	South America, East	217.87	17.62	4.43	3.45	0.05	0.17	0.17	0.16
	South America, West	202.38	16.33	3.73	3.25	0.05	0.16	0.15	0.14
	Central Am. & Caribbean	1,091.36	14.65	4.64	3.25	0.31	0.85	0.88	0.82
	Africa/Middle East	549.29	9.03	4.65	3.28	0.26	0.43	0.44	0.42
	World	9,089.92	10.79	3.25	2.37	3.65	7.10	6.43	5.50
Europe	North America	5,733.10	-0.26	4.93	4.97	6.58	4.48	4.76	5.24
	Europe	54,612.52	3.91	4.57	4.65	41.64	42.64	43.86	46.81
	Asia/Pacific	13,164.68	11.27	4.65	3.04	5.07	10.28	10.65	9.73
	South America, East	448.14	3.82	3.46	2.59	0.34	0.35	0.32	0.28
	South America, West	327.09	5.26	3.73	2.84	0.22	0.26	0.24	0.22
	Central Am. & Caribbean	877.67	5.73	4.59	2.81	0.56	0.69	0.71	0.63
	Africa/Middle East	6,425.45	-2.16	4.46	3.16	8.95	5.02	5.11	4.72
	World	81,588.66	3.72	4.59	4.28	63.36	63.71	65.66	67.64
Asia/Pacific	North America	2,861.46	-5.78	1.18	3.71	5.81	2.23	1.65	1.61
	Europe	1,387.56	-3.37	4.82	5.57	2.19	1.08	1.14	1.33
	Asia/Pacific	19,329.30	5.04	3.44	2.70	13.23	15.09	13.92	12.31
	South America, East	55.49	-5.32	2.57	1.82	0.11	0.04	0.04	0.03
	South America, West	108.08	-10.17	3.55	2.46	0.35	0.08	0.08	0.07
	Central Am. & Caribbean	196.77	-2.89	4.16	2.56	0.30	0.15	0.15	0.13
	Africa/Middle East	1,568.84	-6.14	3.59	2.64	3.31	1.22	1.15	1.01
	World	25,507.49	1.22	3.30	2.99	25.29	19.92	18.13	16.49
South America, East	North America	1,258.89	3.19	8.20	8.03	1.03	0.98	1.42	2.09
	Europe	639.31	4.15	6.32	6.42	0.48	0.50	0.61	0.77
	Asia/Pacific	1,793.16	0.23	3.86	3.13	1.96	1.40	1.34	1.24
	South America, East	404.14	14.89	4.55	3.01	0.11	0.32	0.32	0.30
	South America, West	494.03	9.37	4.60	3.30	0.23	0.39	0.40	0.37
	Central Am. & Caribbean	308.56	10.67	5.04	3.27	0.13	0.24	0.26	0.24
	Africa/Middle East	465.27	3.11	4.61	3.47	0.38	0.36	0.37	0.36
	World	5,363.35	3.36	5.55	5.28	4.31	4.19	4.73	5.36
South America, West	North America	36.53	12.67	5.80	6.23	0.01	0.03	0.03	0.04
	Europe	34.75	7.30	4.45	5.66	0.02	0.03	0.03	0.03
	Asia/Pacific	16.11	22.97	3.51	3.37	0.00	0.01	0.01	0.01
	South America, East	15.54	30.74	4.48	3.15	0.00	0.01	0.01	0.01
	South America, West	30.19	1.11	4.08	3.17	0.03	0.02	0.02	0.02
	Central Am. & Caribbean	14.15	9.11	4.69	3.18	0.01	0.01	0.01	0.01
	Africa/Middle East	0.88	15.33	4.08	3.02	0.00	0.00	0.00	0.00
	World	148.16	8.67	4.65	4.69	0.07	0.12	0.12	0.13
Central Am. & Caribbean	North America	692.93	9.45	6.91	6.65	0.31	0.54	0.69	0.90
	Europe	159.58	7.19	5.66	6.01	0.09	0.12	0.14	0.17
	Asia/Pacific	467.93	22.03	3.20	2.73	0.07	0.37	0.33	0.29
	South America, East	64.97	23.36	4.76	3.24	0.01	0.05	0.05	0.05
	South America, West	47.40	17.00	4.33	3.09	0.01	0.04	0.04	0.03
	Central Am. & Caribbean	142.94	11.21	4.95	3.21	0.06	0.11	0.12	0.11
	Africa/Middle East	55.32	14.63	5.34	3.30	0.02	0.04	0.05	0.04
	World	1,631.07	12.42	5.44	5.19	0.57	1.27	1.42	1.60
Africa/Middle East	North America	538.22	1.70	3.92	5.24	0.51	0.42	0.41	0.46
	Europe	1,113.24	2.43	3.51	3.90	0.98	0.87	0.81	0.80
	Asia/Pacific	1,718.67	11.35	2.62	2.08	0.66	1.34	1.14	0.95
	South America, East	25.45	3.17	4.02	2.72	0.02	0.02	0.02	0.02
	South America, West	76.75	14.20	4.26	3.04	0.02	0.06	0.06	0.05
	Central Am. & Caribbean	34.06	27.35	5.26	3.35	0.00	0.03	0.03	0.03
	Africa/Middle East	1,235.43	9.62	5.15	3.18	0.55	0.96	1.05	0.97
	World	4,741.83	6.82	3.73	3.27	2.74	3.70	3.51	3.28
World	World	128,070.48	3.66	4.28	3.97	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Paper

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	11,296.22	7.01	4.50	3.60	13.80	13.20	9.88	7.75
	Europe	1,921.90	10.38	8.51	6.41	1.72	2.24	2.45	2.51
	Asia/Pacific	3,844.29	10.82	7.26	4.74	3.31	4.49	4.37	3.82
	South America, East	571.70	13.24	8.72	5.54	0.40	0.67	0.74	0.70
	South America, West	502.94	12.16	9.22	6.70	0.38	0.59	0.68	0.72
	Central Am. & Caribbean	2,292.42	13.91	10.25	6.61	1.50	2.68	3.42	3.58
	Africa/Middle East	649.60	10.18	10.12	7.86	0.59	0.76	0.96	1.13
	World	21,079.06	8.85	6.60	5.01	21.70	24.62	22.51	20.20
Europe	North America	2,141.67	2.81	6.73	5.30	3.90	2.50	2.31	2.13
	Europe	41,572.49	6.35	6.44	5.28	54.01	48.56	43.72	40.26
	Asia/Pacific	3,616.58	8.06	9.48	7.49	4.01	4.22	5.04	5.71
	South America, East	346.76	10.41	10.12	7.43	0.31	0.41	0.51	0.58
	South America, West	194.77	11.02	10.62	8.12	0.16	0.23	0.30	0.36
	Central Am. & Caribbean	265.04	5.42	9.97	7.43	0.38	0.31	0.39	0.44
	Africa/Middle East	2,969.65	1.64	9.63	7.93	6.07	3.47	4.19	4.95
	World	51,106.96	5.97	6.97	5.76	68.84	59.70	56.46	54.44
Asia/Pacific	North America	777.87	6.13	7.75	6.24	1.03	0.91	0.92	0.93
	Europe	502.94	8.84	10.15	8.52	0.52	0.59	0.74	0.93
	Asia/Pacific	6,824.20	14.30	10.46	7.75	4.31	7.97	10.39	12.07
	South America, East	19.33	11.44	10.22	7.78	0.02	0.02	0.03	0.03
	South America, West	13.97	4.80	9.52	7.97	0.02	0.02	0.02	0.02
	Central Am. & Caribbean	27.51	6.90	12.18	8.54	0.03	0.03	0.05	0.06
	Africa/Middle East	438.40	7.01	11.96	8.53	0.54	0.51	0.76	0.95
	World	8,604.22	12.33	10.31	7.75	6.47	10.05	12.93	15.01
South America, East	North America	263.66	11.00	10.32	8.56	0.22	0.31	0.40	0.50
	Europe	437.25	23.63	11.27	10.15	0.13	0.51	0.72	1.04
	Asia/Pacific	172.07	13.20	10.59	8.08	0.12	0.20	0.27	0.32
	South America, East	327.95	27.47	11.65	8.17	0.07	0.38	0.56	0.67
	South America, West	191.32	18.41	11.96	8.89	0.08	0.22	0.33	0.43
	Central Am. & Caribbean	92.26	7.89	12.16	8.82	0.10	0.11	0.16	0.21
	Africa/Middle East	327.07	11.98	12.88	8.93	0.25	0.38	0.62	0.80
	World	1,811.57	16.07	11.57	8.97	0.98	2.12	3.05	3.96
South America, West	North America	21.03	-0.26	7.96	7.23	0.05	0.02	0.03	0.03
	Europe	26.16	9.62	11.47	8.86	0.03	0.03	0.04	0.06
	Asia/Pacific	73.02	26.30	12.45	8.93	0.02	0.09	0.13	0.17
	South America, East	120.60	15.32	11.06	8.36	0.07	0.14	0.19	0.24
	South America, West	130.16	14.84	11.15	8.61	0.08	0.15	0.21	0.27
	Central Am. & Caribbean	23.31	7.77	12.46	8.30	0.03	0.03	0.04	0.05
	Africa/Middle East	0.28	-12.15	10.90	9.06	0.00	0.00	0.00	0.00
	World	394.57	13.34	11.33	8.55	0.27	0.46	0.65	0.81
Central Am. & Caribbean	North America	768.43	16.69	11.61	8.94	0.39	0.90	1.30	1.68
	Europe	41.98	20.47	11.74	8.92	0.02	0.05	0.07	0.09
	Asia/Pacific	23.39	30.21	11.42	8.38	0.00	0.03	0.04	0.05
	South America, East	32.65	27.65	11.89	8.89	0.01	0.04	0.06	0.07
	South America, West	15.18	26.85	11.76	8.63	0.00	0.02	0.03	0.03
	Central Am. & Caribbean	174.20	10.13	12.43	8.65	0.16	0.20	0.32	0.40
	Africa/Middle East	2.94	19.37	10.31	9.59	0.00	0.00	0.00	0.01
	World	1,058.77	15.84	11.76	8.87	0.59	1.24	1.81	2.34
Africa/Middle East	North America	18.89	-5.78	9.80	8.22	0.08	0.02	0.03	0.03
	Europe	458.44	9.02	10.24	8.05	0.46	0.54	0.68	0.82
	Asia/Pacific	356.04	15.61	11.53	8.74	0.20	0.42	0.60	0.76
	South America, East	63.13	14.57	11.31	8.77	0.04	0.07	0.10	0.13
	South America, West	21.53	9.32	9.38	7.57	0.02	0.03	0.03	0.03
	Central Am. & Caribbean	9.14	47.30	12.31	8.51	0.00	0.01	0.02	0.02
	Africa/Middle East	627.48	16.18	12.42	8.70	0.34	0.73	1.14	1.45
	World	1,554.65	12.56	11.49	8.53	1.15	1.82	2.60	3.24
World	World	85,609.79	7.49	7.57	6.15	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Textiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	2,802.04	11.24	5.30	4.73	1.27	1.89	1.87	1.92
	Europe	1,540.92	8.29	2.10	2.68	0.92	1.04	0.75	0.64
	Asia/Pacific	1,358.43	7.13	5.14	4.18	0.90	0.92	0.89	0.87
	South America, East	286.42	9.54	8.97	5.66	0.15	0.19	0.27	0.30
	South America, West	233.63	14.52	7.82	5.78	0.08	0.16	0.20	0.22
	Central Am. & Caribbean	1,587.72	15.78	8.98	6.20	0.48	1.07	1.49	1.76
	Africa/Middle East	626.00	5.44	9.72	6.61	0.49	0.42	0.63	0.77
	World	8,435.16	9.99	6.17	5.09	4.29	5.68	6.10	6.48
Europe	North America	2,857.74	-0.21	3.30	3.41	3.84	1.93	1.57	1.42
	Europe	48,141.04	3.88	2.51	2.98	43.33	32.44	24.53	21.26
	Asia/Pacific	4,546.09	7.64	4.87	4.12	2.87	3.06	2.91	2.81
	South America, East	322.68	12.98	7.49	5.58	0.13	0.22	0.26	0.29
	South America, West	179.16	11.24	7.01	5.32	0.08	0.12	0.14	0.15
	Central Am. & Caribbean	270.81	5.29	8.36	5.55	0.21	0.18	0.24	0.27
	Africa/Middle East	6,464.88	2.19	7.73	5.88	6.85	4.36	5.41	6.20
	World	62,782.41	3.73	3.46	3.64	57.31	42.31	35.07	32.40
Asia/Pacific	North America	5,150.61	4.40	3.59	2.47	4.41	3.47	2.92	2.41
	Europe	7,905.73	7.84	3.58	3.12	4.90	5.33	4.47	3.93
	Asia/Pacific	44,012.68	12.58	6.70	4.63	17.73	29.66	33.48	34.01
	South America, East	610.44	29.58	9.16	6.46	0.06	0.41	0.58	0.71
	South America, West	316.47	20.56	8.92	6.39	0.06	0.21	0.30	0.36
	Central Am. & Caribbean	1,333.68	18.78	10.12	6.35	0.31	0.90	1.39	1.66
	Africa/Middle East	8,120.87	8.25	9.51	6.18	4.84	5.47	8.01	9.43
	World	67,450.48	10.64	6.67	4.73	32.31	45.46	51.14	52.50
South America, East	North America	256.92	-1.44	5.01	7.34	0.39	0.17	0.17	0.22
	Europe	366.86	-3.05	3.83	6.26	0.66	0.25	0.21	0.25
	Asia/Pacific	262.99	3.57	7.51	6.38	0.24	0.18	0.22	0.26
	South America, East	420.03	18.34	8.99	6.42	0.10	0.28	0.40	0.48
	South America, West	216.85	15.91	8.68	6.73	0.07	0.15	0.20	0.25
	Central Am. & Caribbean	56.66	12.43	10.39	6.46	0.02	0.04	0.06	0.07
	Africa/Middle East	46.04	0.75	9.55	6.79	0.06	0.03	0.05	0.06
	World	1,626.35	3.34	7.18	6.57	1.54	1.10	1.29	1.58
South America, West	North America	97.20	-3.05	5.39	5.00	0.17	0.07	0.07	0.07
	Europe	116.75	1.41	1.38	2.40	0.13	0.08	0.05	0.04
	Asia/Pacific	22.08	3.10	3.59	3.48	0.02	0.01	0.01	0.01
	South America, East	96.26	22.31	8.87	6.37	0.02	0.06	0.09	0.11
	South America, West	115.33	21.21	8.94	6.53	0.02	0.08	0.11	0.13
	Central Am. & Caribbean	38.59	9.62	9.83	6.53	0.02	0.03	0.04	0.05
	Africa/Middle East	1.80	5.55	9.36	6.33	0.00	0.00	0.00	0.00
	World	488.03	5.11	6.65	5.61	0.39	0.33	0.37	0.41
Central Am. & Caribbean	North America	1,204.19	16.37	8.16	6.14	0.35	0.81	1.05	1.23
	Europe	87.99	9.86	1.03	1.15	0.05	0.06	0.04	0.03
	Asia/Pacific	79.01	16.41	9.36	6.19	0.02	0.05	0.08	0.09
	South America, East	30.07	16.25	9.48	6.56	0.01	0.02	0.03	0.04
	South America, West	36.50	28.66	8.16	3.34	0.00	0.02	0.03	0.03
	Central Am. & Caribbean	142.34	3.90	8.57	5.16	0.13	0.10	0.13	0.14
	Africa/Middle East	37.11	25.89	10.50	6.63	0.00	0.03	0.04	0.05
	World	1,617.21	14.26	8.05	5.91	0.56	1.09	1.39	1.60
Africa/Middle East	North America	510.90	7.47	5.61	5.07	0.33	0.34	0.35	0.37
	Europe	3,905.80	9.18	6.02	4.83	2.14	2.63	2.79	2.89
	Asia/Pacific	510.93	8.85	7.61	5.54	0.29	0.34	0.42	0.47
	South America, East	25.18	13.79	8.06	5.44	0.01	0.02	0.02	0.02
	South America, West	18.63	21.87	8.55	5.99	0.00	0.01	0.02	0.02
	Central Am. & Caribbean	12.25	22.37	10.02	6.50	0.00	0.01	0.01	0.02
	Africa/Middle East	998.74	4.72	9.80	6.60	0.83	0.67	1.01	1.24
	World	5,982.42	8.16	6.87	5.33	3.60	4.03	4.62	5.02
World	World	148,382.05	6.93	5.42	4.46	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Machinery, Other Vehicles & Transport Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	52,606.89	4.42	6.11	5.55	8.07	6.95	5.96	5.37
	Europe	31,209.68	6.32	6.72	5.85	3.99	4.12	3.75	3.47
	Asia/Pacific	34,702.27	7.19	7.85	6.55	4.10	4.59	4.62	4.58
	South America, East	6,478.22	11.69	7.78	6.71	0.51	0.86	0.86	0.86
	South America, West	3,356.15	12.05	8.52	7.76	0.25	0.44	0.48	0.53
	Central Am. & Caribbean	14,978.24	12.27	11.54	8.17	1.11	1.98	2.79	3.22
	Africa/Middle East	6,748.62	1.69	8.56	7.41	1.35	0.89	0.96	1.03
	World	150,080.06	6.23	7.53	6.46	19.38	19.83	19.42	19.05
Europe	North America	37,832.36	2.20	5.82	4.78	7.19	5.00	4.17	3.49
	Europe	244,217.53	5.47	6.92	6.19	33.89	32.27	29.85	28.55
	Asia/Pacific	67,754.08	8.25	9.17	7.43	7.25	8.95	10.20	10.96
	South America, East	8,636.38	8.91	8.16	6.48	0.87	1.14	1.18	1.16
	South America, West	2,829.27	8.23	8.20	7.09	0.30	0.37	0.39	0.41
	Central Am. & Caribbean	6,236.41	4.30	9.44	6.35	0.97	0.82	0.96	0.94
	Africa/Middle East	39,763.66	0.92	8.63	7.53	8.57	5.25	5.70	6.18
	World	407,269.69	5.01	7.48	6.50	59.04	53.82	52.46	51.69
Asia/Pacific	North America	35,527.67	5.00	4.68	4.70	5.16	4.70	3.52	2.92
	Europe	20,717.94	6.09	7.20	6.51	2.71	2.74	2.60	2.56
	Asia/Pacific	87,999.44	12.50	9.70	7.68	6.41	11.63	13.90	15.29
	South America, East	2,023.88	13.13	6.99	5.90	0.14	0.27	0.25	0.23
	South America, West	942.35	8.16	7.47	6.85	0.10	0.12	0.12	0.12
	Central Am. & Caribbean	7,120.81	1.81	6.34	4.69	1.41	0.94	0.82	0.68
	Africa/Middle East	10,500.61	1.29	7.46	6.38	2.18	1.39	1.35	1.31
	World	164,832.70	7.96	8.14	6.92	18.10	21.78	22.56	23.13
South America, East	North America	2,261.71	4.08	8.35	7.87	0.36	0.30	0.32	0.35
	Europe	962.89	4.92	9.01	7.31	0.14	0.13	0.14	0.15
	Asia/Pacific	688.45	20.65	7.91	6.40	0.02	0.09	0.09	0.09
	South America, East	2,046.98	17.11	11.41	8.42	0.10	0.27	0.38	0.44
	South America, West	726.60	9.41	9.13	8.13	0.07	0.10	0.11	0.13
	Central Am. & Caribbean	482.37	6.28	11.55	8.09	0.06	0.06	0.09	0.10
	Africa/Middle East	652.77	2.20	9.19	7.62	0.12	0.09	0.10	0.11
	World	7,821.77	7.71	9.61	7.90	0.88	1.03	1.23	1.38
South America, West	North America	61.16	8.00	8.84	7.02	0.01	0.01	0.01	0.01
	Europe	134.82	39.30	5.82	4.95	0.00	0.02	0.01	0.01
	Asia/Pacific	64.84	38.14	5.79	5.76	0.00	0.01	0.01	0.01
	South America, East	166.47	16.94	9.16	7.03	0.01	0.02	0.03	0.03
	South America, West	111.59	12.33	9.35	7.97	0.01	0.01	0.02	0.02
	Central Am. & Caribbean	76.92	15.93	9.37	6.96	0.00	0.01	0.01	0.01
	Africa/Middle East	24.43	55.32	5.98	5.38	0.00	0.00	0.00	0.00
	World	640.23	17.90	8.13	6.74	0.03	0.08	0.09	0.09
Central Am. & Caribbean	North America	13,139.86	14.78	11.48	8.20	0.78	1.74	2.44	2.82
	Europe	1,088.72	17.64	8.01	6.96	0.05	0.14	0.15	0.15
	Asia/Pacific	87.85	9.84	7.36	6.39	0.01	0.01	0.01	0.01
	South America, East	137.60	15.18	8.41	7.01	0.01	0.02	0.02	0.02
	South America, West	75.95	14.13	9.53	7.68	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	192.25	8.41	9.64	7.18	0.02	0.03	0.03	0.03
	Africa/Middle East	40.34	12.72	6.37	4.99	0.00	0.01	0.00	0.00
	World	14,762.56	14.81	11.17	8.10	0.88	1.95	2.66	3.05
Africa/Middle East	North America	1,058.91	6.04	7.49	6.34	0.14	0.14	0.14	0.13
	Europe	5,272.67	2.53	7.37	6.31	0.97	0.70	0.67	0.65
	Asia/Pacific	2,556.23	8.38	9.04	7.49	0.27	0.34	0.38	0.41
	South America, East	113.84	23.16	9.76	7.40	0.00	0.02	0.02	0.02
	South America, West	113.68	17.12	8.61	6.81	0.01	0.02	0.02	0.02
	Central Am. & Caribbean	162.30	-1.87	7.56	5.76	0.05	0.02	0.02	0.02
	Africa/Middle East	2,008.82	6.40	10.22	7.74	0.26	0.27	0.33	0.37
	World	11,286.44	4.67	8.36	6.93	1.69	1.49	1.58	1.62
World	World	756,693.46	5.98	7.76	6.66	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Food (Mainly Containerized) Beverages and Tobacco

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	2,575.58	8.58	2.40	2.91	2.03	2.42	1.87	1.54
	Europe	4,389.89	6.94	3.06	3.35	4.04	4.12	3.40	2.91
	Asia/Pacific	4,642.53	10.96	3.92	3.77	2.95	4.36	3.91	3.49
	South America, East	324.61	12.00	6.23	4.87	0.19	0.30	0.34	0.34
	South America, West	147.30	9.73	7.25	5.67	0.10	0.14	0.17	0.18
	Central Am. & Caribbean	796.41	6.47	6.10	4.62	0.76	0.75	0.83	0.80
	Africa/Middle East	1,620.81	4.92	5.74	4.40	1.80	1.52	1.62	1.54
	World	14,497.12	8.18	3.86	3.73	11.88	13.61	12.15	10.80
Europe	North America	4,346.53	-2.54	2.27	1.36	10.11	4.08	3.12	2.20
	Europe	44,689.08	6.60	4.46	4.39	42.43	41.96	39.67	37.55
	Asia/Pacific	5,174.06	10.92	5.43	4.94	3.30	4.86	5.03	5.02
	South America, East	829.20	11.25	6.41	5.83	0.51	0.78	0.88	0.96
	South America, West	147.05	9.99	7.86	6.85	0.10	0.14	0.18	0.21
	Central Am. & Caribbean	971.52	7.76	8.03	6.49	0.83	0.91	1.21	1.39
	Africa/Middle East	4,061.48	0.37	6.24	5.72	7.04	3.81	4.27	4.58
	World	60,218.92	5.35	4.64	4.48	64.32	56.54	54.36	51.93
Asia/Pacific	North America	1,483.53	3.40	4.51	6.61	1.91	1.39	1.32	1.54
	Europe	2,808.61	6.47	5.54	6.50	2.70	2.64	2.76	3.20
	Asia/Pacific	11,749.25	13.83	6.63	5.90	5.78	11.03	12.80	13.99
	South America, East	105.41	14.26	4.85	5.81	0.05	0.10	0.10	0.11
	South America, West	71.83	15.26	8.58	8.93	0.03	0.07	0.09	0.14
	Central Am. & Caribbean	290.99	10.44	9.05	7.31	0.19	0.27	0.40	0.49
	Africa/Middle East	1,079.07	7.62	8.21	6.61	0.93	1.01	1.36	1.59
	World	17,588.69	10.55	6.44	6.14	11.60	16.51	18.84	21.06
South America, East	North America	855.52	-2.99	0.61	3.11	2.08	0.80	0.52	0.44
	Europe	1,738.72	5.99	4.48	6.01	1.75	1.63	1.55	1.71
	Asia/Pacific	445.04	14.50	5.98	5.92	0.21	0.42	0.46	0.50
	South America, East	709.59	30.13	8.30	6.72	0.09	0.67	0.90	1.07
	South America, West	130.40	21.55	8.72	6.95	0.03	0.12	0.17	0.21
	Central Am. & Caribbean	71.75	-7.61	7.35	6.37	0.28	0.07	0.08	0.10
	Africa/Middle East	176.25	3.18	7.59	5.84	0.23	0.17	0.21	0.23
	World	4,127.27	4.72	5.10	5.87	4.68	3.87	3.89	4.24
South America, West	North America	272.45	0.63	3.92	5.32	0.46	0.26	0.23	0.24
	Europe	334.79	15.11	6.87	7.93	0.15	0.31	0.37	0.49
	Asia/Pacific	162.39	20.94	7.98	9.07	0.04	0.15	0.20	0.29
	South America, East	154.36	20.14	8.19	7.62	0.04	0.14	0.19	0.25
	South America, West	73.56	10.41	8.33	7.20	0.05	0.07	0.09	0.12
	Central Am. & Caribbean	57.12	6.53	9.34	7.42	0.05	0.05	0.08	0.10
	Africa/Middle East	11.98	6.90	6.46	4.24	0.01	0.01	0.01	0.01
	World	1,066.64	9.00	6.83	7.49	0.81	1.00	1.18	1.50
Central Am. & Caribbean	North America	2,051.39	10.47	4.84	5.75	1.36	1.93	1.89	2.03
	Europe	519.98	6.47	6.53	6.21	0.50	0.49	0.56	0.63
	Asia/Pacific	114.27	14.38	6.73	6.57	0.05	0.11	0.13	0.15
	South America, East	58.51	22.73	7.55	6.72	0.01	0.05	0.07	0.08
	South America, West	11.88	17.84	8.30	6.57	0.00	0.01	0.02	0.02
	Central Am. & Caribbean	177.05	7.63	9.03	6.82	0.15	0.17	0.24	0.29
	Africa/Middle East	39.38	11.83	6.64	4.62	0.02	0.04	0.04	0.04
	World	2,972.46	9.74	5.61	5.98	2.11	2.79	2.94	3.24
Africa/Middle East	North America	215.85	-1.97	1.95	3.16	0.47	0.20	0.15	0.13
	Europe	2,818.31	5.63	5.09	5.69	2.93	2.65	2.66	2.84
	Asia/Pacific	963.50	17.35	7.54	6.02	0.35	0.90	1.14	1.26
	South America, East	43.39	30.97	7.63	6.31	0.01	0.04	0.05	0.06
	South America, West	41.81	21.59	8.77	6.48	0.01	0.04	0.06	0.06
	Central Am. & Caribbean	49.09	25.78	8.33	6.62	0.01	0.05	0.06	0.07
	Africa/Middle East	1,908.17	15.35	8.65	6.15	0.82	1.79	2.51	2.81
	World	6,040.11	8.97	6.70	5.89	4.60	5.67	6.63	7.24
World	World	106,511.21	6.72	5.05	4.96	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Pharmaceutical, and Other Chemical Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	4,353.08	12.66	8.67	7.19	2.14	3.25	3.70	3.83
	Europe	6,044.97	7.08	5.96	7.61	4.93	4.52	3.99	4.29
	Asia/Pacific	5,138.72	8.37	6.63	7.30	3.72	3.84	3.61	3.77
	South America, East	907.61	8.88	6.33	5.07	0.63	0.68	0.62	0.53
	South America, West	438.63	7.77	6.12	5.31	0.34	0.33	0.29	0.25
	Central Am. & Caribbean	1,382.50	9.56	9.20	8.14	0.90	1.03	1.23	1.39
	Africa/Middle East	653.43	0.66	6.81	7.40	0.99	0.49	0.47	0.49
	World	18,918.94	8.42	7.11	7.31	13.64	14.13	13.93	14.56
Europe	North America	7,292.02	7.11	6.31	5.50	5.93	5.45	4.98	4.39
	Europe	63,394.73	8.42	6.78	6.51	45.66	47.36	45.21	43.84
	Asia/Pacific	10,982.09	9.55	7.61	6.99	7.13	8.20	8.47	8.59
	South America, East	1,424.60	8.60	7.94	7.25	1.01	1.06	1.13	1.18
	South America, West	552.96	5.94	6.84	6.65	0.50	0.41	0.40	0.39
	Central Am. & Caribbean	1,076.14	4.90	8.41	7.07	1.08	0.80	0.89	0.91
	Africa/Middle East	7,576.46	1.37	6.73	6.83	10.69	5.66	5.38	5.38
	World	92,299.00	7.56	6.88	6.55	72.01	68.96	66.45	64.67
Asia/Pacific	North America	2,555.49	5.64	5.79	5.57	2.39	1.91	1.66	1.47
	Europe	2,684.92	7.23	7.07	6.89	2.16	2.01	1.97	1.98
	Asia/Pacific	10,205.57	12.50	9.41	7.72	5.08	7.62	9.29	10.08
	South America, East	93.70	4.74	6.96	6.33	0.10	0.07	0.07	0.06
	South America, West	45.73	11.09	8.15	7.58	0.03	0.03	0.04	0.04
	Central Am. & Caribbean	125.43	6.80	9.96	7.53	0.11	0.09	0.12	0.13
	Africa/Middle East	796.37	8.37	9.43	7.94	0.58	0.59	0.73	0.80
	World	16,507.21	9.85	8.54	7.37	10.43	12.33	13.87	14.57
South America, East	North America	144.12	-1.59	6.55	5.11	0.27	0.11	0.10	0.09
	Europe	177.27	2.46	5.97	6.73	0.22	0.13	0.12	0.12
	Asia/Pacific	116.85	16.80	10.30	8.56	0.04	0.09	0.12	0.14
	South America, East	368.30	14.68	9.31	7.03	0.15	0.28	0.33	0.34
	South America, West	211.19	12.99	9.40	7.57	0.10	0.16	0.19	0.21
	Central Am. & Caribbean	90.13	2.28	8.27	6.48	0.12	0.07	0.07	0.07
	Africa/Middle East	28.20	6.38	9.79	8.22	0.02	0.02	0.03	0.03
	World	1,136.06	7.03	8.57	7.11	0.93	0.85	0.96	0.98
South America, West	North America	16.75	6.00	9.46	7.76	0.02	0.01	0.02	0.02
	Europe	17.49	12.88	8.85	7.38	0.01	0.01	0.02	0.02
	Asia/Pacific	5.09	8.49	8.82	7.88	0.00	0.00	0.00	0.00
	South America, East	48.36	26.22	9.86	7.77	0.01	0.04	0.05	0.05
	South America, West	130.50	20.23	9.82	7.97	0.03	0.10	0.12	0.14
	Central Am. & Caribbean	31.41	5.69	9.67	7.61	0.03	0.02	0.03	0.03
	Africa/Middle East	0.85	15.14	6.78	6.42	0.00	0.00	0.00	0.00
	World	250.46	15.27	9.69	7.83	0.10	0.19	0.23	0.26
Central Am. & Caribbean	North America	421.99	15.35	10.38	8.27	0.16	0.32	0.42	0.48
	Europe	130.39	11.46	9.64	8.33	0.07	0.10	0.12	0.14
	Asia/Pacific	105.26	15.38	9.33	8.16	0.04	0.08	0.10	0.11
	South America, East	193.60	17.13	8.93	8.06	0.06	0.14	0.17	0.19
	South America, West	89.59	13.36	9.31	7.93	0.04	0.07	0.08	0.09
	Central Am. & Caribbean	356.81	5.09	8.74	7.33	0.35	0.27	0.31	0.32
	Africa/Middle East	1.46	13.03	8.94	7.40	0.00	0.00	0.00	0.00
	World	1,299.09	11.10	9.50	7.98	0.73	0.97	1.19	1.33
Africa/Middle East	North America	229.83	9.11	9.02	8.07	0.16	0.17	0.20	0.23
	Europe	1,804.82	13.68	10.11	7.26	0.81	1.35	1.75	1.82
	Asia/Pacific	478.39	8.39	10.64	7.82	0.35	0.36	0.49	0.53
	South America, East	12.42	-3.49	10.41	8.09	0.03	0.01	0.01	0.01
	South America, West	4.73	-10.06	9.38	8.07	0.02	0.00	0.00	0.00
	Central Am. & Caribbean	4.96	-10.35	9.75	7.89	0.02	0.00	0.00	0.01
	Africa/Middle East	906.05	6.65	10.47	8.16	0.77	0.68	0.91	1.03
	World	3,441.20	9.95	10.21	7.65	2.16	2.57	3.37	3.63
World	World	133,851.96	8.03	7.27	6.84	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Computers, Electrical and Electronic Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	28,366.71	12.58	8.70	7.91	4.23	4.27	4.18	4.35
	Europe	31,761.77	10.09	6.78	6.45	5.93	4.78	3.92	3.55
	Asia/Pacific	47,546.90	17.02	8.60	7.49	4.82	7.16	6.95	6.94
	South America, East	5,430.05	16.02	10.57	7.73	0.60	0.82	0.95	0.97
	South America, West	1,878.04	22.82	11.37	8.50	0.12	0.28	0.35	0.39
	Central Am. & Caribbean	9,786.52	16.54	12.30	8.37	1.03	1.47	2.00	2.17
	Africa/Middle East	3,295.55	5.20	10.89	8.66	0.97	0.50	0.59	0.66
	World	128,065.54	13.45	8.74	7.55	17.70	19.29	18.95	19.03
Europe	North America	17,293.11	8.62	8.36	7.01	3.69	2.60	2.47	2.36
	Europe	148,366.85	9.22	7.52	7.18	29.98	22.35	19.62	19.05
	Asia/Pacific	25,401.99	13.34	10.42	7.89	3.54	3.83	4.38	4.55
	South America, East	2,226.25	10.89	9.81	7.78	0.39	0.34	0.36	0.37
	South America, West	796.85	10.43	10.09	7.99	0.14	0.12	0.13	0.14
	Central Am. & Caribbean	1,264.99	6.28	11.57	8.01	0.34	0.19	0.24	0.25
	Africa/Middle East	10,949.47	3.28	10.26	8.45	3.87	1.65	1.86	2.03
	World	206,299.51	9.15	8.21	7.38	41.95	31.07	29.07	28.76
Asia/Pacific	North America	102,846.64	10.45	8.11	6.81	18.57	15.49	14.36	13.47
	Europe	61,566.00	14.78	8.26	7.59	7.57	9.27	8.72	8.79
	Asia/Pacific	130,368.35	20.34	10.45	7.84	9.99	19.64	22.54	23.28
	South America, East	2,958.06	19.65	9.51	7.68	0.24	0.45	0.47	0.48
	South America, West	950.47	19.32	9.09	7.77	0.08	0.14	0.15	0.15
	Central Am. & Caribbean	3,179.22	22.59	12.47	7.79	0.20	0.48	0.66	0.68
	Africa/Middle East	6,601.38	7.70	10.63	8.36	1.53	0.99	1.16	1.26
	World	308,470.12	14.70	9.30	7.51	38.18	46.46	48.06	48.10
South America, East	North America	467.43	3.08	9.49	7.25	0.17	0.07	0.07	0.07
	Europe	200.71	2.57	7.74	7.58	0.08	0.03	0.03	0.03
	Asia/Pacific	110.65	-7.15	8.80	7.34	0.11	0.02	0.02	0.02
	South America, East	390.24	12.87	9.91	7.94	0.06	0.06	0.06	0.07
	South America, West	114.45	9.81	8.89	7.35	0.02	0.02	0.02	0.02
	Central Am. & Caribbean	87.45	7.53	11.20	7.74	0.02	0.01	0.02	0.02
	Africa/Middle East	20.67	-7.91	10.77	7.44	0.02	0.00	0.00	0.00
	World	1,391.60	3.53	9.41	7.55	0.48	0.21	0.22	0.22
South America, West	North America	9.37	12.67	12.01	8.77	0.00	0.00	0.00	0.00
	Europe	11.83	25.14	10.02	8.20	0.00	0.00	0.00	0.00
	Asia/Pacific	2.59	55.64	10.39	8.15	0.00	0.00	0.00	0.00
	South America, East	47.63	21.97	11.34	8.56	0.00	0.01	0.01	0.01
	South America, West	40.21	21.36	10.64	8.43	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	11.88	12.48	12.09	8.20	0.00	0.00	0.00	0.00
	Africa/Middle East	0.78	44.21	9.19	6.11	0.00	0.00	0.00	0.00
	World	124.29	19.95	11.09	8.45	0.01	0.02	0.02	0.02
Central Am. & Caribbean	North America	13,184.56	23.38	11.93	7.90	0.79	1.99	2.61	2.71
	Europe	228.27	24.53	10.11	8.63	0.01	0.03	0.04	0.04
	Asia/Pacific	138.79	11.42	10.57	8.43	0.02	0.02	0.02	0.03
	South America, East	174.35	20.98	11.08	8.63	0.01	0.03	0.03	0.04
	South America, West	83.17	15.98	11.70	9.11	0.01	0.01	0.02	0.02
	Central Am. & Caribbean	119.28	10.49	12.01	8.33	0.02	0.02	0.02	0.03
	Africa/Middle East	3.30	21.99	11.99	8.47	0.00	0.00	0.00	0.00
	World	13,931.72	22.88	11.88	7.94	0.87	2.10	2.74	2.86
Africa/Middle East	North America	1,167.08	12.81	9.14	8.07	0.17	0.18	0.18	0.19
	Europe	2,804.10	12.95	9.69	8.05	0.40	0.42	0.45	0.48
	Asia/Pacific	1,011.32	13.20	10.92	8.37	0.14	0.15	0.18	0.20
	South America, East	51.82	22.42	11.09	8.24	0.00	0.01	0.01	0.01
	South America, West	43.04	3.06	9.76	7.64	0.02	0.01	0.01	0.01
	Central Am. & Caribbean	54.36	9.66	13.20	8.36	0.01	0.01	0.01	0.01
	Africa/Middle East	487.59	13.53	12.31	8.62	0.07	0.07	0.10	0.11
	World	5,619.30	12.91	10.11	8.18	0.81	0.85	0.94	1.00
World	World	663,902.07	12.47	8.93	7.50	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Clothing

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	1,377.43	15.25	2.52	-0.73	0.58	0.87	0.59	0.33
	Europe	609.72	14.48	6.60	5.81	0.27	0.38	0.39	0.41
	Asia/Pacific	1,114.48	26.75	7.29	6.10	0.18	0.70	0.75	0.81
	South America, East	91.62	10.15	8.83	6.28	0.06	0.06	0.07	0.08
	South America, West	157.89	23.28	8.95	7.02	0.03	0.10	0.12	0.15
	Central Am. & Caribbean	3,481.66	23.97	9.00	6.19	0.70	2.19	2.75	3.00
	Africa/Middle East	109.19	7.90	9.28	6.30	0.09	0.07	0.09	0.10
	World	6,941.99	20.16	7.47	5.51	1.91	4.36	4.76	4.86
Europe	North America	3,096.72	1.14	3.84	3.96	4.78	1.95	1.51	1.33
	Europe	47,597.95	7.13	4.83	4.32	41.37	29.91	25.46	23.24
	Asia/Pacific	3,692.00	17.06	4.98	4.80	1.32	2.32	2.00	1.91
	South America, East	101.76	10.22	8.31	5.95	0.07	0.06	0.08	0.08
	South America, West	60.04	18.76	8.65	6.23	0.02	0.04	0.05	0.05
	Central Am. & Caribbean	244.09	11.46	9.41	6.61	0.14	0.15	0.20	0.23
	Africa/Middle East	2,330.72	5.09	8.70	6.11	2.46	1.46	1.79	1.94
	World	57,123.28	7.02	5.01	4.47	50.16	35.90	31.09	28.78
Asia/Pacific	North America	22,145.42	5.25	5.41	5.11	22.98	13.92	12.52	12.32
	Europe	20,818.81	13.58	7.68	5.86	10.08	13.08	14.56	15.37
	Asia/Pacific	26,993.63	23.71	7.33	5.22	5.57	16.96	18.28	18.18
	South America, East	209.19	32.13	9.35	6.34	0.02	0.13	0.17	0.19
	South America, West	225.28	29.17	9.16	6.41	0.03	0.14	0.18	0.20
	Central Am. & Caribbean	923.25	26.96	9.92	6.23	0.15	0.58	0.79	0.87
	Africa/Middle East	3,735.16	11.67	9.64	6.23	2.14	2.35	3.13	3.42
	World	75,050.74	12.23	7.08	5.47	40.96	47.17	49.63	50.55
South America, East	North America	234.02	-0.20	4.63	4.02	0.41	0.15	0.12	0.11
	Europe	229.51	9.48	6.82	5.43	0.16	0.14	0.15	0.15
	Asia/Pacific	23.25	27.85	8.23	6.43	0.00	0.01	0.02	0.02
	South America, East	145.88	20.27	8.59	5.84	0.04	0.09	0.11	0.12
	South America, West	42.95	12.95	8.26	6.37	0.02	0.03	0.03	0.04
	Central Am. & Caribbean	10.99	7.44	9.90	6.47	0.01	0.01	0.01	0.01
	Africa/Middle East	1.74	-5.14	8.59	5.68	0.01	0.00	0.00	0.00
	World	688.31	6.19	6.75	5.30	0.65	0.43	0.44	0.44
South America, West	North America	571.74	24.63	8.34	6.32	0.11	0.36	0.43	0.47
	Europe	123.68	28.15	9.10	6.60	0.02	0.08	0.10	0.11
	Asia/Pacific	9.79	27.50	7.15	6.10	0.00	0.01	0.01	0.01
	South America, East	123.02	22.12	8.93	6.64	0.03	0.08	0.10	0.11
	South America, West	40.21	46.84	9.16	6.60	0.00	0.03	0.03	0.04
	Central Am. & Caribbean	466.10	70.68	10.35	6.60	0.00	0.29	0.42	0.47
	Africa/Middle East	1.16	NA	10.04	6.57	0.00	0.00	0.00	0.00
	World	1,335.70	30.36	9.22	6.49	0.16	0.84	1.08	1.21
Central Am. & Caribbean	North America	5,307.70	22.91	8.23	6.21	1.17	3.34	3.91	4.26
	Europe	80.42	23.03	8.98	6.10	0.02	0.05	0.06	0.07
	Asia/Pacific	17.49	26.11	8.52	6.16	0.00	0.01	0.01	0.01
	South America, East	32.79	2.05	7.91	6.12	0.05	0.02	0.02	0.03
	South America, West	5.16	31.53	7.30	5.66	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	68.26	10.16	8.34	4.91	0.04	0.04	0.05	0.05
	Africa/Middle East	0.28	6.52	8.95	6.09	0.00	0.00	0.00	0.00
	World	5,512.10	22.25	8.24	6.19	1.28	3.46	4.06	4.42
Africa/Middle East	North America	3,557.64	17.62	7.27	5.94	1.22	2.24	2.40	2.55
	Europe	8,212.80	16.26	8.13	6.26	3.15	5.16	5.99	6.57
	Asia/Pacific	236.92	18.04	9.29	6.39	0.08	0.15	0.19	0.21
	South America, East	1.76	28.41	8.40	5.66	0.00	0.00	0.00	0.00
	South America, West	1.53	13.06	7.34	5.70	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	16.05	29.32	9.74	6.21	0.00	0.01	0.01	0.01
	Africa/Middle East	440.62	6.18	8.94	6.24	0.42	0.28	0.35	0.38
	World	12,467.31	16.06	7.95	6.18	4.87	7.84	8.94	9.73
World	World	159,119.43	10.66	6.53	5.28	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Footwear

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	199.20	11.52	-1.14	-1.47	0.34	0.55	0.39	0.26
	Europe	146.85	10.94	0.54	-0.37	0.26	0.41	0.34	0.25
	Asia/Pacific	128.91	10.09	-1.13	-0.91	0.25	0.36	0.25	0.18
	South America, East	30.27	23.37	2.91	-0.08	0.02	0.08	0.09	0.07
	South America, West	15.04	34.82	4.67	2.93	0.00	0.04	0.05	0.05
	Central Am. & Caribbean	68.51	13.75	5.88	2.05	0.10	0.19	0.27	0.25
	Africa/Middle East	35.64	15.02	5.23	2.83	0.04	0.10	0.13	0.13
	World	624.42	12.04	1.04	0.20	1.02	1.73	1.53	1.20
Europe	North America	1,739.55	-3.79	-0.21	0.64	13.03	4.83	3.75	3.09
	Europe	11,588.43	2.96	0.39	2.67	44.05	32.19	26.53	26.67
	Asia/Pacific	861.60	10.35	0.25	0.92	1.64	2.39	1.95	1.65
	South America, East	21.40	6.57	3.66	1.28	0.06	0.06	0.07	0.06
	South America, West	17.32	25.53	6.35	5.79	0.01	0.05	0.07	0.10
	Central Am. & Caribbean	80.84	3.85	9.82	7.64	0.28	0.22	0.45	0.73
	Africa/Middle East	642.47	3.24	8.84	7.32	2.38	1.78	3.30	5.17
	World	14,951.61	2.16	0.93	2.99	61.45	41.54	36.12	37.47
Asia/Pacific	North America	8,612.30	9.56	3.56	2.22	17.59	23.92	26.91	25.89
	Europe	4,310.57	19.04	2.27	1.10	3.84	11.97	11.88	10.24
	Asia/Pacific	3,429.30	18.38	2.37	1.08	3.23	9.53	9.55	8.21
	South America, East	176.97	39.87	5.76	0.98	0.03	0.49	0.68	0.58
	South America, West	125.52	51.13	7.74	5.44	0.01	0.35	0.58	0.76
	Central Am. & Caribbean	240.68	22.49	9.30	4.12	0.16	0.67	1.29	1.49
	Africa/Middle East	921.36	13.52	7.91	6.87	1.32	2.56	4.35	6.52
	World	17,816.70	13.23	3.48	2.33	26.18	49.49	55.23	53.70
South America, East	North America	1,123.86	0.41	-0.44	2.88	5.49	3.12	2.37	2.43
	Europe	244.68	14.00	2.95	2.15	0.34	0.68	0.72	0.69
	Asia/Pacific	25.59	6.66	4.93	6.58	0.07	0.07	0.09	0.13
	South America, East	50.06	33.70	5.80	3.88	0.01	0.14	0.19	0.22
	South America, West	38.11	29.75	8.73	7.02	0.01	0.11	0.19	0.30
	Central Am. & Caribbean	28.79	25.34	7.58	4.60	0.02	0.08	0.13	0.16
	Africa/Middle East	4.50	-8.12	4.97	3.94	0.05	0.01	0.02	0.02
	World	1,515.59	2.56	1.08	3.23	5.99	4.21	3.72	3.94
South America, West	North America	21.77	12.67	3.52	1.28	0.03	0.06	0.07	0.06
	Europe	11.93	70.93	3.08	3.70	0.00	0.03	0.04	0.04
	Asia/Pacific	1.08	21.53	4.15	5.28	0.00	0.00	0.00	0.00
	South America, East	30.42	23.28	3.02	0.97	0.02	0.08	0.09	0.08
	South America, West	22.33	54.94	8.04	7.20	0.00	0.06	0.11	0.17
	Central Am. & Caribbean	18.18	27.71	11.66	7.49	0.01	0.05	0.12	0.19
	Africa/Middle East	0.23	23.06	7.90	8.03	0.00	0.00	0.00	0.00
	World	105.94	23.88	6.19	5.07	0.06	0.29	0.43	0.54
Central Am. & Caribbean	North America	198.06	15.90	3.84	1.98	0.23	0.55	0.64	0.60
	Europe	27.32	32.31	2.75	1.32	0.01	0.08	0.08	0.07
	Asia/Pacific	4.34	28.10	2.36	2.18	0.00	0.01	0.01	0.01
	South America, East	3.01	2.70	-0.12	-2.29	0.01	0.01	0.01	0.00
	South America, West	0.35	-1.62	5.00	5.95	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	27.58	2.77	8.60	5.38	0.11	0.08	0.14	0.18
	Africa/Middle East	0.03	NA	9.37	5.82	0.00	0.00	0.00	0.00
	World	260.69	13.89	4.29	2.52	0.36	0.72	0.87	0.87
Africa/Middle East	North America	79.80	11.43	-0.14	-1.01	0.14	0.22	0.17	0.12
	Europe	505.87	-5.10	0.72	0.04	4.35	1.41	1.20	0.93
	Asia/Pacific	27.06	12.46	5.31	6.45	0.04	0.08	0.10	0.14
	South America, East	0.53	10.64	6.62	3.61	0.00	0.00	0.00	0.00
	South America, West	0.14	6.96	4.16	3.89	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	0.46	6.66	9.36	6.22	0.00	0.00	0.00	0.00
	Africa/Middle East	108.52	3.20	10.15	8.37	0.40	0.30	0.63	1.08
	World	722.37	-2.90	2.83	3.47	4.93	2.01	2.10	2.28
World	World	35,997.31	6.24	2.35	2.62	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Photographic Equipment, Watches and Clocks

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	615.38	3.25	3.20	5.42	1.74	1.27	0.90	0.80
	Europe	1,102.37	6.94	3.23	3.93	2.20	2.28	1.62	1.25
	Asia/Pacific	865.14	10.49	4.26	5.32	1.24	1.79	1.41	1.24
	South America, East	291.67	13.19	5.91	3.76	0.33	0.60	0.56	0.42
	South America, West	97.76	19.47	7.37	6.38	0.06	0.20	0.21	0.21
	Central Am. & Caribbean	329.43	12.64	10.56	5.05	0.39	0.68	0.96	0.82
	Africa/Middle East	85.77	3.46	8.81	7.75	0.24	0.18	0.21	0.24
	World	3,387.51	7.85	4.94	4.92	6.20	7.01	5.88	4.97
Europe	North America	2,436.80	1.11	5.85	6.53	8.50	5.04	4.61	4.54
	Europe	11,596.18	7.10	6.20	6.51	22.75	23.98	22.70	22.28
	Asia/Pacific	5,753.62	14.59	8.65	8.09	5.74	11.90	14.15	16.10
	South America, East	181.32	4.89	7.76	5.86	0.44	0.37	0.41	0.38
	South America, West	80.83	13.83	8.39	6.79	0.09	0.17	0.19	0.20
	Central Am. & Caribbean	183.15	3.58	10.42	8.19	0.50	0.38	0.53	0.61
	Africa/Middle East	1,147.69	1.76	8.89	8.97	3.75	2.37	2.88	3.56
	World	21,379.58	7.14	7.09	7.21	41.77	44.22	45.47	47.66
Asia/Pacific	North America	6,062.33	2.10	5.66	5.49	19.18	12.54	11.28	10.06
	Europe	5,160.50	4.25	5.30	6.09	13.26	10.67	9.28	8.75
	Asia/Pacific	10,213.76	11.00	7.62	6.76	14.01	21.12	22.83	22.95
	South America, East	251.50	8.95	9.27	6.97	0.42	0.52	0.65	0.67
	South America, West	75.60	9.60	8.19	7.27	0.12	0.16	0.18	0.19
	Central Am. & Caribbean	245.96	7.39	11.41	7.78	0.47	0.51	0.78	0.86
	Africa/Middle East	846.57	0.30	9.76	8.41	3.20	1.75	2.31	2.70
	World	22,856.22	5.80	6.79	6.45	50.66	47.27	47.30	46.19
South America, East	North America	27.37	-0.12	3.59	1.70	0.11	0.06	0.04	0.03
	Europe	7.40	6.54	4.65	4.93	0.02	0.02	0.01	0.01
	Asia/Pacific	4.27	3.95	5.48	6.32	0.01	0.01	0.01	0.01
	South America, East	10.50	2.52	4.65	3.88	0.03	0.02	0.02	0.01
	South America, West	12.10	10.46	5.23	3.83	0.02	0.03	0.02	0.02
	Central Am. & Caribbean	14.79	-0.81	8.55	1.58	0.06	0.03	0.04	0.02
	Africa/Middle East	0.15	-16.80	6.56	5.45	0.00	0.00	0.00	0.00
	World	76.58	1.78	5.31	2.95	0.25	0.16	0.14	0.10
South America, West	North America	2.28	9.80	1.76	1.82	0.00	0.00	0.00	0.00
	Europe	1.19	NA	0.81	2.34	0.00	0.00	0.00	0.00
	Asia/Pacific	0.33	NA	5.50	5.43	0.00	0.00	0.00	0.00
	South America, East	2.08	40.97	10.30	8.39	0.00	0.00	0.01	0.01
	South America, West	1.92	30.63	6.81	6.60	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	0.27	32.75	9.77	7.45	0.00	0.00	0.00	0.00
	Africa/Middle East	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	World	8.08	21.92	6.04	6.28	0.00	0.02	0.02	0.01
Central Am. & Caribbean	North America	255.94	23.82	5.36	4.44	0.12	0.53	0.46	0.37
	Europe	21.16	18.51	5.16	5.41	0.02	0.04	0.04	0.03
	Asia/Pacific	8.19	31.61	9.09	8.61	0.00	0.02	0.02	0.03
	South America, East	20.68	9.68	3.36	1.95	0.03	0.04	0.03	0.02
	South America, West	6.73	35.69	6.90	6.25	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	9.00	7.53	11.90	8.44	0.02	0.02	0.03	0.03
	Africa/Middle East	0.04	10.84	9.70	7.48	0.00	0.00	0.00	0.00
	World	321.73	21.08	5.61	4.84	0.19	0.67	0.60	0.50
Africa/Middle East	North America	56.26	-3.87	1.82	3.42	0.33	0.12	0.07	0.05
	Europe	162.60	3.87	4.04	5.28	0.43	0.34	0.26	0.23
	Asia/Pacific	72.41	10.81	8.15	7.35	0.10	0.15	0.17	0.18
	South America, East	0.40	24.70	8.41	5.17	0.00	0.00	0.00	0.00
	South America, West	1.55	41.54	9.01	6.84	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	1.27	5.78	8.42	2.11	0.00	0.00	0.00	0.00
	Africa/Middle East	29.32	5.73	10.35	8.57	0.07	0.06	0.08	0.10
	World	323.81	3.12	5.50	6.22	0.93	0.67	0.59	0.57
World	World	48,353.51	6.54	6.79	6.70	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Scientific Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	3,576.79	7.45	4.79	3.66	4.53	5.12	4.04	2.82
	Europe	6,768.67	6.44	5.10	4.27	9.42	9.69	7.88	5.83
	Asia/Pacific	6,509.48	9.41	6.54	6.08	6.88	9.32	8.68	7.63
	South America, East	619.68	11.47	7.48	5.68	0.54	0.89	0.90	0.76
	South America, West	296.51	13.81	7.91	6.81	0.21	0.42	0.45	0.42
	Central Am. & Caribbean	1,214.24	11.21	10.93	6.49	1.09	1.74	2.42	2.22
	Africa/Middle East	666.33	1.11	8.12	7.87	1.55	0.95	1.03	1.07
	World	19,651.70	7.74	6.21	5.30	24.23	28.13	25.41	20.76
Europe	North America	4,152.90	1.89	6.52	8.26	8.94	5.94	5.53	5.96
	Europe	22,013.96	4.86	6.71	7.94	35.58	31.51	29.83	31.22
	Asia/Pacific	4,674.55	6.62	7.92	7.92	6.40	6.69	7.09	7.41
	South America, East	586.03	0.76	6.76	5.93	1.41	0.84	0.80	0.69
	South America, West	188.57	2.02	6.84	6.29	0.40	0.27	0.26	0.23
	Central Am. & Caribbean	274.99	2.72	8.20	5.18	0.55	0.39	0.43	0.35
	Africa/Middle East	2,423.55	-0.48	7.24	8.31	6.61	3.47	3.45	3.74
	World	34,314.54	4.06	6.91	7.94	59.89	49.11	47.39	49.59
Asia/Pacific	North America	3,932.35	7.94	8.37	7.95	4.76	5.63	6.22	6.52
	Europe	2,924.46	8.89	8.11	8.31	3.24	4.19	4.51	4.89
	Asia/Pacific	6,040.40	12.09	10.03	8.53	5.01	8.64	11.12	12.29
	South America, East	122.08	9.79	6.32	5.62	0.12	0.17	0.16	0.13
	South America, West	77.76	15.05	8.64	7.96	0.05	0.11	0.13	0.13
	Central Am. & Caribbean	105.04	5.94	10.43	7.17	0.15	0.15	0.20	0.20
	Africa/Middle East	347.19	1.31	8.47	8.71	0.79	0.50	0.55	0.62
	World	13,549.27	9.56	9.09	8.31	14.13	19.39	22.89	24.78
South America, East	North America	50.98	0.28	2.66	1.66	0.13	0.07	0.05	0.03
	Europe	38.90	13.59	7.84	7.91	0.03	0.06	0.06	0.06
	Asia/Pacific	31.97	22.18	11.20	8.62	0.01	0.05	0.07	0.07
	South America, East	45.87	13.28	9.78	8.24	0.03	0.07	0.08	0.09
	South America, West	34.04	13.06	9.70	8.17	0.03	0.05	0.06	0.07
	Central Am. & Caribbean	18.89	8.19	10.73	8.38	0.02	0.03	0.04	0.04
	Africa/Middle East	8.69	9.14	9.30	8.29	0.01	0.01	0.01	0.02
	World	229.34	8.64	8.48	7.60	0.26	0.33	0.37	0.37
South America, West	North America	7.60	29.82	10.67	9.49	0.00	0.01	0.01	0.02
	Europe	4.65	24.48	5.91	6.71	0.00	0.01	0.01	0.01
	Asia/Pacific	0.43	35.91	3.91	4.41	0.00	0.00	0.00	0.00
	South America, East	8.25	22.89	9.41	8.51	0.00	0.01	0.01	0.02
	South America, West	5.79	19.30	8.91	8.87	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	3.30	6.76	8.21	5.75	0.00	0.00	0.01	0.00
	Africa/Middle East	0.12	NA	6.14	5.52	0.00	0.00	0.00	0.00
	World	30.15	20.02	8.98	8.40	0.01	0.04	0.05	0.06
Central Am. & Caribbean	North America	1,125.95	20.58	10.82	8.87	0.45	1.61	2.23	2.54
	Europe	21.81	17.85	7.59	7.37	0.01	0.03	0.03	0.03
	Asia/Pacific	2.30	18.23	8.35	7.83	0.00	0.00	0.00	0.00
	South America, East	8.11	23.50	9.19	7.58	0.00	0.01	0.01	0.01
	South America, West	5.69	19.83	9.17	7.43	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	5.86	6.65	10.27	8.52	0.01	0.01	0.01	0.01
	Africa/Middle East	0.53	22.32	8.79	8.21	0.00	0.00	0.00	0.00
	World	1,170.25	20.39	10.74	8.83	0.48	1.67	2.30	2.61
Africa/Middle East	North America	174.63	7.50	10.77	9.80	0.22	0.25	0.34	0.43
	Europe	509.78	8.83	8.85	8.83	0.57	0.73	0.84	0.96
	Asia/Pacific	118.49	17.68	9.61	8.60	0.06	0.17	0.21	0.23
	South America, East	15.73	21.17	9.51	7.71	0.01	0.02	0.03	0.03
	South America, West	9.30	12.50	8.10	6.40	0.01	0.01	0.01	0.01
	Central Am. & Caribbean	11.06	10.30	10.45	8.96	0.01	0.02	0.02	0.02
	Africa/Middle East	88.31	5.43	8.28	7.86	0.14	0.13	0.14	0.14
	World	927.30	9.10	9.30	8.90	1.01	1.33	1.60	1.83
World	World	69,872.55	6.14	7.29	7.45	100.00	100.00	100.00	100.00

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Bananas and Other Reefer

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	3,808	5.8	3.1	5.0	3.6	3.0	2.4	2.0
	Europe	1,929	10.1	6.0	8.1	1.2	1.5	1.6	1.8
	Asia/Pacific	7,735	11.7	3.8	2.9	4.2	6.1	5.1	3.5
	South America, East	154	24.6	9.5	8.5	0.0	0.1	0.2	0.2
	South America, West	23	18.1	10.3	8.9	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	750	10.2	10.3	8.1	0.5	0.6	0.9	1.0
	Africa/Middle East	363	6.4	10.5	9.3	0.3	0.3	0.5	0.6
	World	14,762	9.5	4.7	5.2	9.9	11.7	10.6	9.1
Europe	North America	1,378	-2.0	2.0	5.7	2.8	1.1	0.8	0.7
	Europe	53,126	7.0	4.9	6.0	44.9	41.9	38.7	36.1
	Asia/Pacific	4,403	12.0	6.7	6.4	2.4	3.5	3.8	3.7
	South America, East	247	17.8	9.6	8.6	0.1	0.2	0.3	0.3
	South America, West	16	12.9	8.9	7.9	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	364	6.4	9.3	7.7	0.3	0.3	0.4	0.4
	Africa/Middle East	3,414	1.7	9.5	8.2	4.8	2.7	3.9	4.4
	World	62,948	6.6	5.3	6.2	55.2	49.7	47.8	45.7
Asia/Pacific	North America	3,168	1.5	3.3	6.7	4.5	2.5	2.0	2.0
	Europe	4,480	8.6	6.7	7.3	3.3	3.5	3.9	4.1
	Asia/Pacific	17,755	11.8	6.0	7.4	9.6	14.0	14.5	15.3
	South America, East	29	8.2	8.4	7.6	0.0	0.0	0.0	0.0
	South America, West	17	6.6	8.2	8.7	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	175	2.3	11.2	8.6	0.2	0.1	0.2	0.3
	Africa/Middle East	1,011	0.4	9.7	8.3	1.6	0.8	1.2	1.3
	World	26,634	8.6	6.0	7.4	19.3	21.0	21.7	23.1
South America, East	North America	596	-0.1	2.0	7.0	1.0	0.5	0.3	0.3
	Europe	2,301	10.9	7.2	8.6	1.4	1.8	2.1	2.5
	Asia/Pacific	813	13.7	8.7	9.1	0.4	0.6	0.9	1.1
	South America, East	674	15.1	9.7	8.5	0.3	0.5	0.8	0.9
	South America, West	139	21.5	11.1	9.0	0.0	0.1	0.2	0.2
	Central Am. & Caribbean	77	-2.7	11.7	8.6	0.2	0.1	0.1	0.1
	Africa/Middle East	566	0.8	8.8	7.9	0.9	0.5	0.6	0.7
	World	5,166	7.7	7.7	8.5	4.1	4.1	4.9	5.8
South America, West	North America	1,621	6.9	3.9	8.2	1.4	1.3	1.1	1.2
	Europe	1,392	18.9	9.2	8.6	0.4	1.1	1.5	1.8
	Asia/Pacific	690	22.6	9.0	8.7	0.2	0.5	0.7	0.9
	South America, East	359	23.5	10.7	8.5	0.1	0.3	0.5	0.5
	South America, West	99	17.4	9.3	8.2	0.0	0.1	0.1	0.1
	Central Am. & Caribbean	102	31.8	13.0	8.8	0.0	0.1	0.2	0.2
	Africa/Middle East	141	8.6	12.3	8.7	0.1	0.1	0.2	0.2
	World	4,405	13.0	7.9	8.5	2.2	3.5	4.3	5.0
Central Am. & Caribbean	North America	3,381	7.2	1.1	4.6	2.8	2.7	1.7	1.4
	Europe	1,813	13.3	7.3	7.1	0.9	1.4	1.7	1.7
	Asia/Pacific	96	4.1	7.2	8.1	0.1	0.1	0.1	0.1
	South America, East	19	18.2	9.8	8.2	0.0	0.0	0.0	0.0
	South America, West	2	30.6	9.6	8.6	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	120	14.2	11.2	7.9	0.1	0.1	0.2	0.2
	Africa/Middle East	18	5.5	9.9	8.0	0.0	0.0	0.0	0.0
	World	5,449	8.9	4.0	6.1	3.8	4.3	3.7	3.5
Africa/Middle East	North America	354	6.6	4.3	8.6	0.3	0.3	0.3	0.3
	Europe	4,385	7.6	6.5	7.8	3.5	3.5	3.8	4.2
	Asia/Pacific	1,344	10.2	7.6	6.9	0.8	1.1	1.3	1.3
	South America, East	6	21.5	8.3	7.3	0.0	0.0	0.0	0.0
	South America, West	0	-7.6	7.9	7.3	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	7	9.7	11.9	8.7	0.0	0.0	0.0	0.0
	Africa/Middle East	1,297	8.0	11.4	8.5	1.0	1.0	1.7	2.1
	World	7,393	8.1	7.7	7.9	5.6	5.8	7.0	7.8
World	World	126,757	7.7	5.7	6.7	100.0	100.0	100.0	100.0

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Lumber Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	8,392	6.7	1.0	0.4	14.7	12.1	8.0	5.0
	Europe	1,907	9.5	2.6	3.4	2.6	2.8	2.1	1.8
	Asia/Pacific	6,716	10.3	3.6	4.6	8.5	9.7	8.3	7.8
	South America, East	38	8.0	8.7	5.9	0.1	0.1	0.1	0.1
	South America, West	22	21.5	7.4	5.6	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	496	11.7	7.5	4.9	0.6	0.7	0.9	0.9
	Africa/Middle East	287	10.3	8.8	6.3	0.4	0.4	0.6	0.6
	World	17,859	8.4	2.6	3.0	26.8	25.8	20.0	16.2
Europe	North America	435	4.3	3.9	3.8	1.0	0.6	0.6	0.5
	Europe	20,848	7.1	4.7	5.1	35.3	30.1	28.5	28.3
	Asia/Pacific	2,817	14.8	7.5	5.7	2.4	4.1	5.0	5.2
	South America, East	27	8.7	8.5	5.9	0.0	0.0	0.1	0.1
	South America, West	22	18.1	7.0	5.9	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	61	7.0	8.9	6.3	0.1	0.1	0.1	0.1
	Africa/Middle East	2,100	1.5	8.9	6.2	6.1	3.0	4.3	4.7
	World	26,309	7.1	5.4	5.3	44.9	38.0	38.5	38.9
Asia/Pacific	North America	1,333	2.8	3.6	4.8	3.4	1.9	1.6	1.6
	Europe	2,053	8.6	6.0	6.0	3.0	3.0	3.2	3.4
	Asia/Pacific	13,544	13.5	6.7	6.2	12.9	19.6	22.3	24.6
	South America, East	7	18.2	7.9	5.8	0.0	0.0	0.0	0.0
	South America, West	5	45.8	8.2	6.4	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	32	18.6	10.7	6.4	0.0	0.1	0.1	0.1
	Africa/Middle East	791	5.8	9.8	6.4	1.5	1.1	1.7	1.9
	World	17,763	11.1	6.6	6.1	20.8	25.7	29.0	31.7
South America, East	North America	396	9.6	4.9	4.4	0.5	0.6	0.6	0.5
	Europe	741	15.9	7.0	5.9	0.6	1.1	1.3	1.3
	Asia/Pacific	96	24.3	6.8	5.6	0.0	0.1	0.2	0.2
	South America, East	128	14.1	9.0	6.5	0.1	0.2	0.3	0.3
	South America, West	8	32.7	7.7	6.4	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	79	11.5	10.3	6.6	0.1	0.1	0.2	0.2
	Africa/Middle East	103	11.9	9.8	6.6	0.1	0.2	0.2	0.3
	World	1,550	13.6	7.1	5.7	1.5	2.2	2.7	2.8
South America, West	North America	249	21.8	4.4	4.4	0.1	0.4	0.3	0.3
	Europe	149	32.2	6.2	5.2	0.0	0.2	0.2	0.2
	Asia/Pacific	508	22.0	7.0	5.2	0.2	0.7	0.9	0.9
	South America, East	78	10.6	9.5	6.3	0.1	0.1	0.2	0.2
	South America, West	20	30.6	7.7	6.9	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	43	33.9	9.8	5.9	0.0	0.1	0.1	0.1
	Africa/Middle East	75	9.7	9.4	5.9	0.1	0.1	0.2	0.2
	World	1,122	20.4	6.9	5.3	0.6	1.6	1.9	1.9
Central Am. & Caribbean	North America	451	13.9	5.4	5.3	0.4	0.7	0.7	0.7
	Europe	49	13.7	6.9	5.6	0.1	0.1	0.1	0.1
	Asia/Pacific	13	6.0	7.8	5.8	0.0	0.0	0.0	0.0
	South America, East	2	8.2	7.8	5.9	0.0	0.0	0.0	0.0
	South America, West	0	NA	7.5	6.6	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	56	4.7	8.8	6.2	0.1	0.1	0.1	0.1
	Africa/Middle East	0	NA	9.2	6.2	0.0	0.0	0.0	0.0
	World	571	12.3	6.0	5.5	0.6	0.8	0.9	0.9
Africa/Middle East	North America	59	12.1	6.8	5.6	0.1	0.1	0.1	0.1
	Europe	2,606	9.5	6.8	5.5	3.5	3.8	4.4	4.5
	Asia/Pacific	720	23.7	7.9	6.5	0.3	1.0	1.3	1.5
	South America, East	10	30.4	8.3	6.5	0.0	0.0	0.0	0.0
	South America, West	0	NA	5.8	4.9	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	10	10.1	10.1	6.4	0.0	0.0	0.0	0.0
	Africa/Middle East	584	7.8	9.9	6.6	0.9	0.8	1.3	1.5
	World	3,989	10.8	7.5	5.9	4.8	5.8	7.1	7.6
World	World	69,164	8.8	5.3	5.2	100.0	100.0	100.0	100.0

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Fertilizers (incl. Phosphates)

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	1,652	4.5	1.5	-0.6	5.3	5.1	3.4	2.0
	Europe	584	-6.2	-1.6	-0.4	5.5	1.8	0.9	0.5
	Asia/Pacific	4,961	11.4	7.3	4.7	8.4	15.4	18.0	17.7
	South America, East	615	6.7	2.0	1.2	1.6	1.9	1.3	0.9
	South America, West	185	6.4	2.6	0.7	0.5	0.6	0.4	0.3
	Central Am. & Caribbean	518	5.4	3.9	1.8	1.5	1.6	1.4	1.0
	Africa/Middle East	390	5.6	7.2	6.8	1.1	1.2	1.4	1.7
	World	8,906	6.4	5.4	3.8	23.9	27.7	26.8	24.1
Europe	North America	628	2.4	4.3	5.2	2.5	2.0	1.7	1.7
	Europe	9,325	3.5	3.2	2.4	33.1	29.0	22.8	17.9
	Asia/Pacific	3,052	5.7	8.8	6.7	8.7	9.5	12.6	15.1
	South America, East	484	4.6	4.9	3.5	1.5	1.5	1.4	1.2
	South America, West	116	5.1	4.3	4.9	0.4	0.4	0.3	0.3
	Central Am. & Caribbean	299	1.3	5.5	4.5	1.3	0.9	0.9	0.9
	Africa/Middle East	1,408	-1.1	6.7	6.9	7.8	4.4	4.8	5.8
	World	15,312	3.3	5.0	4.5	55.3	47.7	44.6	43.0
Asia/Pacific	North America	103	6.3	6.7	6.5	0.3	0.3	0.4	0.4
	Europe	191	6.5	4.9	4.9	0.5	0.6	0.6	0.6
	Asia/Pacific	1,313	5.5	7.1	5.9	3.8	4.1	4.6	5.1
	South America, East	45	8.3	4.4	4.1	0.1	0.1	0.1	0.1
	South America, West	15	13.7	5.7	6.2	0.0	0.1	0.1	0.1
	Central Am. & Caribbean	27	6.1	4.7	4.8	0.1	0.1	0.1	0.1
	Africa/Middle East	228	2.1	8.1	7.7	0.9	0.7	0.9	1.2
	World	1,923	5.3	6.9	6.1	5.7	6.0	6.7	7.5
South America, East	North America	39	1.0	3.4	3.1	0.2	0.1	0.1	0.1
	Europe	19	14.6	4.9	4.5	0.0	0.1	0.1	0.1
	Asia/Pacific	64	12.3	9.6	7.2	0.1	0.2	0.3	0.4
	South America, East	155	7.7	7.1	6.5	0.4	0.5	0.6	0.6
	South America, West	76	10.0	7.1	7.1	0.2	0.2	0.3	0.3
	Central Am. & Caribbean	86	20.5	8.0	5.9	0.1	0.3	0.3	0.4
	Africa/Middle East	6	8.1	7.3	7.5	0.0	0.0	0.0	0.0
	World	445	9.5	7.3	6.4	0.9	1.4	1.6	1.9
South America, West	North America	21	-0.1	3.0	0.1	0.1	0.1	0.1	0.0
	Europe	10	1.2	1.2	-3.0	0.0	0.0	0.0	0.0
	Asia/Pacific	19	11.8	6.3	2.1	0.0	0.1	0.1	0.1
	South America, East	36	5.3	2.6	0.9	0.1	0.1	0.1	0.1
	South America, West	6	13.7	7.6	7.7	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	14	51.0	6.7	1.6	0.0	0.0	0.1	0.0
	Africa/Middle East	1	34.6	8.5	6.8	0.0	0.0	0.0	0.0
	World	106	6.0	4.3	1.7	0.3	0.3	0.3	0.2
Central Am. & Caribbean	North America	212	29.7	7.6	6.3	0.1	0.7	0.8	0.9
	Europe	21	-3.3	3.5	3.4	0.2	0.1	0.1	0.1
	Asia/Pacific	34	1.4	8.8	6.7	0.2	0.1	0.1	0.2
	South America, East	69	13.8	6.8	5.3	0.1	0.2	0.2	0.3
	South America, West	39	22.9	6.6	5.4	0.0	0.1	0.1	0.1
	Central Am. & Caribbean	81	5.0	5.7	6.3	0.3	0.3	0.3	0.3
	Africa/Middle East	11	19.7	3.5	4.7	0.0	0.0	0.0	0.0
	World	468	12.0	6.9	6.0	0.8	1.5	1.6	1.8
Africa/Middle East	North America	180	12.2	6.6	5.6	0.3	0.6	0.6	0.7
	Europe	1,579	1.8	4.6	4.0	6.6	4.9	4.4	4.1
	Asia/Pacific	2,157	10.3	8.9	7.1	4.0	6.7	9.1	11.2
	South America, East	193	12.7	5.2	3.7	0.3	0.6	0.6	0.5
	South America, West	18	13.2	5.2	5.3	0.0	0.1	0.1	0.1
	Central Am. & Caribbean	75	7.5	6.8	2.7	0.2	0.2	0.3	0.2
	Africa/Middle East	760	8.0	9.9	8.4	1.8	2.4	3.5	4.9
	World	4,963	6.5	7.6	6.5	13.1	15.5	18.4	21.5
World	World	32,122	4.8	5.7	4.9	100.0	100.0	100.0	100.0

Table B-1: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Crude Oil

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	7,248	8.6	7.1	6.9	3.1	3.5	4.7	6.3
	Europe	0	NA	3.2	3.8	0.0	0.0	0.0	0.0
	Asia/Pacific	52	38.5	9.9	6.7	0.0	0.0	0.0	0.1
	South America, East	0	NA	NA	NA	0.0	0.0	0.0	0.0
	South America, West	0	NA	NA	NA	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	0	NA	NA	NA	0.0	0.0	0.0	0.0
	Africa/Middle East	0	NA	NA	NA	0.0	0.0	0.0	0.0
	World	7,300	8.7	7.1	6.9	3.1	3.5	4.8	6.3
Europe	North America	6,377	8.7	6.7	6.8	2.7	3.1	4.0	5.2
	Europe	32,464	4.8	2.0	1.2	20.0	15.7	13.0	10.0
	Asia/Pacific	130	-8.5	6.7	5.4	0.3	0.1	0.1	0.1
	South America, East	81	3.8	8.6	7.9	0.1	0.0	0.1	0.1
	South America, West	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	76	-5.7	1.4	1.0	0.1	0.0	0.0	0.0
	Africa/Middle East	565	8.4	7.9	6.1	0.3	0.3	0.4	0.5
	World	39,692	5.2	3.0	2.9	23.4	19.1	17.6	15.9
Asia/Pacific	North America	925	-9.6	2.8	2.7	2.5	0.5	0.4	0.4
	Europe	163	11.1	2.1	1.9	0.1	0.1	0.1	0.1
	Asia/Pacific	13,497	4.1	4.6	4.4	8.8	6.5	7.0	7.3
	South America, East	26	-19.8	3.8	0.9	0.2	0.0	0.0	0.0
	South America, West	65	153.2	7.7	5.0	0.0	0.0	0.0	0.1
	Central Am. & Caribbean	25	-16.0	0.7	1.0	0.1	0.0	0.0	0.0
	Africa/Middle East	119	16.5	5.7	4.5	0.0	0.1	0.1	0.1
	World	14,821	2.1	4.5	4.3	11.8	7.1	7.6	7.9
South America, East	North America	8,042	15.3	8.9	7.7	1.9	3.9	6.2	8.9
	Europe	842	-4.3	-1.5	-2.1	1.3	0.4	0.2	0.1
	Asia/Pacific	87	5.5	5.7	4.7	0.1	0.0	0.1	0.1
	South America, East	887	16.7	7.4	6.2	0.2	0.4	0.6	0.7
	South America, West	412	11.4	1.5	1.6	0.1	0.2	0.2	0.1
	Central Am. & Caribbean	2,050	16.9	8.9	8.7	0.4	1.0	1.6	2.5
	Africa/Middle East	3	-2.1	5.7	4.9	0.0	0.0	0.0	0.0
	World	12,323	11.8	8.1	7.5	4.0	5.9	8.8	12.4
South America, West	North America	738	-0.3	2.0	2.9	0.8	0.4	0.3	0.3
	Europe	0	NA	NA	NA	0.0	0.0	0.0	0.0
	Asia/Pacific	343	5.5	5.7	5.6	0.2	0.2	0.2	0.2
	South America, East	19	0.4	6.9	4.5	0.0	0.0	0.0	0.0
	South America, West	233	29.4	6.4	4.9	0.0	0.1	0.1	0.2
	Central Am. & Caribbean	188	6.7	8.1	4.5	0.1	0.1	0.1	0.1
	Africa/Middle East	0	NA	NA	NA	0.0	0.0	0.0	0.0
	World	1,522	3.3	4.6	4.3	1.1	0.7	0.8	0.8
Central Am. & Caribbean	North America	6,746	1.5	2.3	2.2	5.7	3.3	2.8	2.4
	Europe	1,370	-1.9	-0.7	0.0	1.6	0.7	0.4	0.3
	Asia/Pacific	595	-4.9	3.4	2.9	1.0	0.3	0.3	0.3
	South America, East	157	-3.6	7.0	4.1	0.2	0.1	0.1	0.1
	South America, West	65	171.3	7.8	5.9	0.0	0.0	0.1	0.1
	Central Am. & Caribbean	389	-2.1	6.0	5.2	0.5	0.2	0.2	0.3
	Africa/Middle East	86	-9.9	3.2	0.6	0.2	0.0	0.0	0.0
	World	9,407	0.0	2.3	2.4	9.3	4.5	3.9	3.3
Africa/Middle East	North America	19,444	16.0	7.3	5.3	4.3	9.4	13.0	14.8
	Europe	42,473	6.1	0.2	-0.3	23.2	20.5	14.3	9.4
	Asia/Pacific	50,367	13.2	3.3	3.9	14.3	24.3	22.9	22.8
	South America, East	2,551	2.3	5.4	2.2	2.0	1.2	1.4	1.2
	South America, West	327	16.1	6.6	6.1	0.1	0.2	0.2	0.3
	Central Am. & Caribbean	714	2.4	2.3	2.9	0.6	0.3	0.3	0.3
	Africa/Middle East	6,566	8.2	7.5	4.5	2.9	3.2	4.5	4.7
	World	122,441	9.8	3.5	3.3	47.4	59.0	56.5	53.3
World	World	207,505	7.4	3.9	3.9	100.0	100.0	100.0	100.0

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Bulk Chemicals, Other Than Organic Chemicals

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	976.59	3.37	7.07	7.87	2.39	2.36	2.80	3.63
	Europe	1,272.91	-6.24	1.66	3.51	8.25	3.07	2.17	1.86
	Asia/Pacific	3,607.59	7.88	4.25	4.12	5.75	8.71	7.92	7.20
	South America, East	1,384.19	7.71	3.44	3.18	2.24	3.34	2.81	2.33
	South America, West	504.70	9.46	6.07	5.78	0.70	1.22	1.32	1.40
	Central Am. & Caribbean	818.74	7.39	2.57	3.05	1.37	1.98	1.53	1.25
	Africa/Middle East	513.69	7.78	5.06	5.19	0.83	1.24	1.22	1.23
	World	9,078.41	3.68	4.16	4.65	21.51	21.92	19.76	18.91
Europe	North America	3,039.22	-1.03	2.41	0.77	11.47	7.34	5.58	3.66
	Europe	3,311.99	1.42	4.71	3.93	9.78	8.00	7.59	6.79
	Asia/Pacific	5,816.15	5.97	5.50	4.66	11.09	14.04	14.37	13.77
	South America, East	539.77	2.09	5.34	4.93	1.49	1.30	1.32	1.29
	South America, West	301.78	2.51	4.55	4.64	0.80	0.73	0.68	0.65
	Central Am. & Caribbean	313.97	2.25	6.05	4.45	0.86	0.76	0.82	0.77
	Africa/Middle East	2,674.91	-2.96	5.27	6.50	12.29	6.46	6.47	7.38
	World	15,997.79	1.31	4.75	4.37	47.79	38.63	36.84	34.31
Asia/Pacific	North America	610.06	6.50	7.53	6.92	1.11	1.47	1.82	2.16
	Europe	912.87	10.85	5.30	5.46	1.11	2.20	2.22	2.29
	Asia/Pacific	4,257.93	10.87	7.59	6.07	5.16	10.28	12.81	14.03
	South America, East	35.26	8.65	6.45	5.36	0.05	0.09	0.10	0.10
	South America, West	18.78	15.39	8.12	6.90	0.02	0.05	0.06	0.07
	Central Am. & Caribbean	33.72	6.53	7.23	5.92	0.06	0.08	0.10	0.11
	Africa/Middle East	336.78	10.15	8.63	7.65	0.44	0.81	1.12	1.42
	World	6,205.39	10.27	7.33	6.19	7.94	14.98	18.22	20.18
South America, East	North America	201.01	-0.26	3.71	2.69	0.70	0.49	0.42	0.33
	Europe	201.60	2.41	4.71	4.89	0.54	0.49	0.46	0.45
	Asia/Pacific	113.95	14.55	7.75	8.99	0.10	0.28	0.35	0.50
	South America, East	243.04	7.27	8.48	8.15	0.41	0.59	0.79	1.06
	South America, West	187.45	2.24	6.73	6.17	0.51	0.45	0.52	0.58
	Central Am. & Caribbean	61.66	-2.19	5.71	3.94	0.26	0.15	0.16	0.14
	Africa/Middle East	67.81	12.51	7.84	8.08	0.07	0.16	0.21	0.28
	World	1,076.52	3.50	6.44	6.55	2.60	2.60	2.91	3.33
South America, West	North America	94.77	15.53	4.99	5.61	0.08	0.23	0.22	0.23
	Europe	91.99	12.40	3.59	4.31	0.10	0.22	0.19	0.18
	Asia/Pacific	39.79	22.82	5.26	4.70	0.02	0.10	0.10	0.09
	South America, East	47.61	6.75	5.31	4.98	0.08	0.11	0.12	0.11
	South America, West	47.00	5.62	5.37	5.35	0.09	0.11	0.11	0.12
	Central Am. & Caribbean	10.60	22.53	8.74	7.00	0.00	0.03	0.04	0.04
	Africa/Middle East	2.64	63.20	6.63	6.62	0.00	0.01	0.01	0.01
	World	334.39	11.82	4.91	5.14	0.37	0.81	0.78	0.78
Central Am. & Caribbean	North America	2,079.61	1.81	4.78	5.55	5.92	5.02	4.80	5.01
	Europe	92.84	-8.74	2.98	3.78	0.79	0.22	0.18	0.16
	Asia/Pacific	115.40	21.29	3.89	3.93	0.06	0.28	0.24	0.22
	South America, East	147.68	9.69	7.61	6.17	0.20	0.36	0.45	0.49
	South America, West	63.42	12.90	6.96	5.61	0.06	0.15	0.18	0.19
	Central Am. & Caribbean	188.65	8.66	6.16	6.13	0.28	0.46	0.50	0.55
	Africa/Middle East	54.40	14.37	7.52	8.03	0.05	0.13	0.16	0.21
	World	2,742.00	2.41	5.07	5.61	7.35	6.62	6.51	6.82
Africa/Middle East	North America	255.94	8.30	3.84	3.03	0.39	0.62	0.54	0.44
	Europe	1,963.43	-0.32	2.95	3.28	6.90	4.74	3.80	3.19
	Asia/Pacific	2,655.51	8.26	6.08	5.37	4.09	6.41	6.93	7.11
	South America, East	73.79	9.98	7.21	6.38	0.10	0.18	0.21	0.24
	South America, West	4.25	-2.55	5.47	4.87	0.02	0.01	0.01	0.01
	Central Am. & Caribbean	23.94	11.16	5.94	4.85	0.03	0.06	0.06	0.06
	Africa/Middle East	1,002.56	14.01	8.94	8.30	0.92	2.42	3.42	4.61
	World	5,979.40	5.05	5.64	5.58	12.44	14.44	14.98	15.66
World	World	41,413.90	3.49	5.25	5.11	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Coal & Coke

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	9,495.33	-7.58	-2.87	-1.58	7.86	2.81	1.45	0.88
	Europe	48,826.64	2.12	0.29	-0.41	14.89	14.47	10.29	6.98
	Asia/Pacific	38,639.98	-0.43	2.51	2.45	15.17	11.45	10.13	9.13
	South America, East	7,318.83	2.25	-1.24	-0.37	2.20	2.17	1.32	0.90
	South America, West	443.75	4.04	-1.05	0.61	0.11	0.13	0.08	0.06
	Central Am. & Caribbean	554.77	2.82	4.65	1.37	0.16	0.16	0.18	0.14
	Africa/Middle East	4,122.80	5.35	2.04	1.80	0.92	1.22	1.03	0.87
	World	109,402.10	-0.04	0.90	0.91	41.32	32.43	24.49	18.97
Europe	North America	264.42	21.20	10.34	5.96	0.01	0.08	0.14	0.18
	Europe	34,342.18	-2.07	1.03	2.03	15.92	10.18	7.79	6.73
	Asia/Pacific	4,045.37	3.02	4.15	3.19	1.13	1.20	1.24	1.20
	South America, East	792.84	-7.67	-1.69	-1.40	0.66	0.23	0.14	0.08
	South America, West	0.65	9.86	0.19	1.00	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	14.37	29.80	-7.04	2.70	0.00	0.00	0.00	0.00
	Africa/Middle East	836.59	-13.84	5.91	4.42	1.40	0.25	0.30	0.33
	World	40,296.42	-2.30	1.55	2.29	19.12	11.94	9.62	8.53
Asia/Pacific	North America	4,495.43	26.20	3.15	2.44	0.16	1.33	1.25	1.13
	Europe	34,391.68	5.56	2.66	3.93	7.53	10.19	9.15	9.51
	Asia/Pacific	87,494.29	5.56	7.04	4.84	19.16	25.93	35.34	40.10
	South America, East	3,368.45	15.61	5.34	3.51	0.30	1.00	1.16	1.16
	South America, West	1,044.01	15.98	3.88	2.01	0.09	0.31	0.31	0.27
	Central Am. & Caribbean	202.47	13.98	9.07	7.75	0.02	0.06	0.10	0.15
	Africa/Middle East	2,217.32	10.43	5.46	3.95	0.31	0.66	0.77	0.80
	World	133,213.66	6.16	5.84	4.56	27.57	39.48	48.09	53.12
South America, East	North America	1,727.49	NA	1.06	3.26	0.00	0.51	0.39	0.38
	Europe	2,005.44	53.38	3.72	4.01	0.01	0.59	0.59	0.62
	Asia/Pacific	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	South America, East	18.37	37.24	2.20	1.06	0.00	0.01	0.00	0.00
	South America, West	48.53	NA	2.23	3.32	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	57.19	NA	2.44	2.67	0.00	0.02	0.01	0.01
	Africa/Middle East	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	World	3,857.02	63.30	2.56	3.69	0.01	1.14	1.02	1.03
South America, West	North America	2,627.90	14.08	-0.15	2.03	0.26	0.78	0.53	0.46
	Europe	9,298.47	17.44	5.89	4.84	0.70	2.76	3.37	3.83
	Asia/Pacific	127.79	13.97	8.83	6.07	0.01	0.04	0.06	0.08
	South America, East	278.47	8.73	3.90	1.77	0.05	0.08	0.08	0.07
	South America, West	388.77	60.57	0.60	0.73	0.00	0.12	0.08	0.06
	Central Am. & Caribbean	163.83	-2.59	0.84	0.42	0.08	0.05	0.04	0.03
	Africa/Middle East	359.79	28.54	-1.28	-0.24	0.01	0.11	0.06	0.04
	World	13,245.01	16.14	4.56	4.32	1.12	3.93	4.23	4.57
Central Am. & Caribbean	North America	20.32	92.60	-1.66	1.19	0.00	0.01	0.00	0.00
	Europe	0.55	-0.46	1.21	2.55	0.00	0.00	0.00	0.00
	Asia/Pacific	0.35	-30.71	4.60	3.05	0.01	0.00	0.00	0.00
	South America, East	0.07	-11.38	2.94	4.58	0.00	0.00	0.00	0.00
	South America, West	0.06	-2.84	3.70	3.31	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	1.40	12.02	-0.19	1.42	0.00	0.00	0.00	0.00
	Africa/Middle East	0.19	0.00	7.09	5.21	0.00	0.00	0.00	0.00
	World	22.95	4.16	-1.22	1.42	0.01	0.01	0.00	0.00
Africa/Middle East	North America	56.49	NA	5.00	2.95	0.00	0.02	0.02	0.02
	Europe	22,876.69	1.20	3.76	4.07	7.64	6.78	6.77	7.13
	Asia/Pacific	10,775.82	2.58	7.18	4.90	3.14	3.19	4.41	5.03
	South America, East	894.91	72.97	5.57	3.82	0.00	0.27	0.31	0.32
	South America, West	625.85	NA	5.96	5.16	0.00	0.19	0.23	0.27
	Central Am. & Caribbean	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	Africa/Middle East	2,124.83	26.19	6.47	5.67	0.08	0.63	0.81	1.00
	World	37,354.59	2.61	5.09	4.49	10.86	11.07	12.55	13.77
World	World	337,391.76	2.41	3.78	3.52	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Grain and Oil Seeds

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	5,240.81	5.05	4.00	3.67	1.44	1.82	1.88	1.80
	Europe	34,025.58	-4.34	1.50	2.70	23.91	11.79	9.56	8.35
	Asia/Pacific	72,273.77	6.98	1.07	2.51	16.59	25.05	19.47	16.69
	South America, East	4,473.21	-6.42	4.41	3.31	3.92	1.55	1.67	1.54
	South America, West	5,635.86	5.43	4.73	4.44	1.50	1.95	2.17	2.24
	Central Am. & Caribbean	9,908.50	4.41	5.89	4.10	2.90	3.43	4.25	4.25
	Africa/Middle East	28,685.72	4.25	5.64	5.63	8.53	9.94	12.03	13.90
	World	160,243.45	2.08	2.78	3.64	58.79	55.55	51.02	48.77
Europe	North America	306.04	-10.23	6.10	4.43	0.41	0.11	0.13	0.14
	Europe	9,135.88	-5.34	3.66	3.89	7.13	3.17	3.17	3.10
	Asia/Pacific	5,830.84	19.61	4.68	3.76	0.44	2.02	2.23	2.16
	South America, East	909.23	19.71	1.46	0.07	0.07	0.32	0.25	0.17
	South America, West	590.55	27.11	6.57	5.39	0.02	0.20	0.27	0.31
	Central Am. & Caribbean	2,008.04	12.06	6.70	5.94	0.29	0.70	0.93	1.11
	Africa/Middle East	19,773.78	3.12	6.09	5.28	6.56	6.85	8.64	9.67
	World	38,554.38	1.54	5.29	4.77	14.92	13.36	15.63	16.65
Asia/Pacific	North America	413.43	8.66	2.98	2.99	0.08	0.14	0.13	0.12
	Europe	6,564.10	3.87	4.04	4.65	2.03	2.28	2.36	2.49
	Asia/Pacific	19,467.02	5.67	4.03	3.67	5.06	6.75	6.99	6.70
	South America, East	298.17	-0.43	2.68	1.50	0.14	0.10	0.09	0.07
	South America, West	888.54	21.97	5.47	3.62	0.05	0.31	0.37	0.35
	Central Am. & Caribbean	569.38	3.64	5.89	4.77	0.18	0.20	0.24	0.26
	Africa/Middle East	10,378.58	0.37	5.97	5.50	4.51	3.60	4.49	5.12
	World	38,579.23	3.74	4.63	4.41	12.05	13.37	14.68	15.12
South America, East	North America	54.00	3.13	5.01	4.32	0.02	0.02	0.02	0.02
	Europe	21,075.78	1.02	1.70	2.85	8.58	7.31	6.04	5.35
	Asia/Pacific	2,754.46	1.89	4.38	4.95	1.03	0.95	1.02	1.11
	South America, East	5,606.93	15.07	6.23	3.08	0.62	1.94	2.49	2.25
	South America, West	1,831.63	11.14	5.45	4.16	0.29	0.63	0.75	0.76
	Central Am. & Caribbean	817.18	-5.58	4.65	3.24	0.65	0.28	0.31	0.29
	Africa/Middle East	2,410.05	-1.39	7.20	8.12	1.25	0.84	1.17	1.71
	World	34,550.03	2.27	3.50	3.82	12.44	11.98	11.80	11.48
South America, West	North America	88.24	-4.29	5.73	7.96	0.06	0.03	0.04	0.05
	Europe	1,162.49	5.32	1.37	3.79	0.31	0.40	0.32	0.31
	Asia/Pacific	1,351.08	15.14	6.99	8.82	0.15	0.47	0.64	1.00
	South America, East	36.18	29.60	3.68	3.55	0.00	0.01	0.01	0.01
	South America, West	608.95	23.58	4.65	3.26	0.03	0.21	0.23	0.21
	Central Am. & Caribbean	89.29	10.57	7.90	7.72	0.01	0.03	0.05	0.07
	Africa/Middle East	261.39	6.44	7.44	10.23	0.06	0.09	0.13	0.23
	World	3,597.63	9.84	5.04	7.09	0.63	1.25	1.42	1.89
Central Am. & Caribbean	North America	68.68	-4.30	6.27	8.13	0.05	0.02	0.03	0.04
	Europe	501.30	32.74	-0.62	-0.96	0.01	0.17	0.11	0.07
	Asia/Pacific	20.93	4.94	4.71	5.42	0.01	0.01	0.01	0.01
	South America, East	48.78	54.76	1.71	0.24	0.00	0.02	0.01	0.01
	South America, West	5.20	14.06	2.56	0.85	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	120.65	13.20	5.96	5.69	0.02	0.04	0.05	0.06
	Africa/Middle East	397.71	28.54	6.99	6.14	0.01	0.14	0.19	0.23
	World	1,163.25	18.22	3.82	4.47	0.10	0.40	0.41	0.42
Africa/Middle East	North America	101.09	32.47	7.13	10.13	0.00	0.04	0.05	0.09
	Europe	2,321.90	5.38	2.32	2.67	0.62	0.80	0.71	0.62
	Asia/Pacific	5,811.53	33.01	6.34	5.44	0.15	2.01	2.60	2.96
	South America, East	70.19	12.82	5.26	4.04	0.01	0.02	0.03	0.03
	South America, West	130.65	61.16	3.50	1.72	0.00	0.05	0.04	0.04
	Central Am. & Caribbean	67.87	23.92	5.96	3.48	0.00	0.02	0.03	0.03
	Africa/Middle East	3,289.00	17.85	7.05	6.22	0.29	1.14	1.57	1.92
	World	11,792.22	17.34	5.84	5.35	1.07	4.09	5.03	5.67
World	World	288,480.17	2.66	3.66	4.11	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Automobiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	14.31	-32.81	3.02	2.19	6.67	0.10	0.08	0.07
	Europe	278.82	20.27	5.65	4.58	0.38	2.02	2.06	2.13
	Asia/Pacific	509.80	27.53	6.59	4.92	0.39	3.70	4.11	4.40
	South America, East	107.51	16.92	6.26	5.41	0.20	0.78	0.84	0.94
	South America, West	98.15	13.19	6.70	5.35	0.25	0.71	0.80	0.89
	Central Am. & Caribbean	119.86	17.55	7.95	5.24	0.21	0.87	1.10	1.21
	Africa/Middle East	232.75	10.34	7.60	5.08	0.76	1.69	2.06	2.24
	World	1,361.21	2.99	6.66	4.97	8.86	9.88	11.05	11.88
Europe	North America	732.41	-5.68	1.88	0.48	11.49	5.32	3.76	2.61
	Europe	1,103.66	6.07	6.50	4.85	5.35	8.01	8.82	9.37
	Asia/Pacific	1,435.28	13.35	6.23	4.61	3.58	10.42	11.19	11.62
	South America, East	298.58	26.81	6.15	4.65	0.24	2.17	2.31	2.41
	South America, West	109.95	15.63	6.53	5.12	0.22	0.80	0.88	0.96
	Central Am. & Caribbean	117.88	5.70	7.03	5.40	0.59	0.86	0.99	1.11
	Africa/Middle East	852.82	-0.51	6.52	5.02	7.85	6.19	6.84	7.38
	World	4,650.58	3.32	5.79	4.42	29.33	33.75	34.79	35.46
Asia/Pacific	North America	2,287.69	-5.88	2.34	1.23	36.66	16.60	12.28	9.18
	Europe	1,443.13	4.58	4.73	4.73	8.06	10.47	9.76	10.25
	Asia/Pacific	1,674.17	5.70	6.21	4.46	8.41	12.15	13.02	13.32
	South America, East	169.51	23.22	6.71	5.24	0.18	1.23	1.38	1.52
	South America, West	217.68	18.86	5.58	4.36	0.34	1.58	1.60	1.62
	Central Am. & Caribbean	112.20	2.10	6.67	4.17	0.80	0.81	0.91	0.91
	Africa/Middle East	696.39	2.99	7.07	4.76	4.53	5.05	5.87	6.18
	World	6,600.76	-0.22	4.77	3.78	58.98	47.91	44.83	42.99
South America, East	North America	0.97	-23.30	1.64	1.53	0.12	0.01	0.00	0.00
	Europe	66.90	3.37	5.70	4.44	0.42	0.49	0.50	0.51
	Asia/Pacific	13.96	13.31	7.18	5.20	0.03	0.10	0.12	0.13
	South America, East	222.49	22.89	6.72	4.64	0.25	1.61	1.82	1.89
	South America, West	120.40	17.86	5.76	4.31	0.20	0.87	0.90	0.91
	Central Am. & Caribbean	41.84	23.19	7.83	5.03	0.05	0.30	0.38	0.41
	Africa/Middle East	15.57	-16.23	6.33	4.18	0.80	0.11	0.12	0.12
	World	482.14	8.45	6.44	4.58	1.87	3.50	3.83	3.97
South America, West	North America	0.01	NA	3.37	2.69	0.00	0.00	0.00	0.00
	Europe	0.08	16.09	5.49	5.15	0.00	0.00	0.00	0.00
	Asia/Pacific	0.44	NA	6.29	4.60	0.00	0.00	0.00	0.00
	South America, East	14.28	68.80	7.46	5.17	0.00	0.10	0.12	0.14
	South America, West	18.19	25.23	5.72	4.20	0.02	0.13	0.14	0.13
	Central Am. & Caribbean	0.25	24.42	7.01	4.88	0.00	0.00	0.00	0.00
	Africa/Middle East	0.00	0.00	6.27	4.77	0.00	0.00	0.00	0.00
	World	33.25	32.18	6.51	4.68	0.02	0.24	0.27	0.28
Central Am. & Caribbean	North America	191.80	61.07	5.46	3.71	0.01	1.39	1.39	1.32
	Europe	8.93	17.49	6.33	5.34	0.02	0.06	0.07	0.08
	Asia/Pacific	12.17	63.39	7.20	5.27	0.00	0.09	0.10	0.11
	South America, East	14.65	65.48	6.43	5.12	0.00	0.11	0.12	0.13
	South America, West	34.40	43.93	7.05	5.32	0.01	0.25	0.29	0.32
	Central Am. & Caribbean	13.93	15.92	7.90	5.10	0.03	0.10	0.13	0.14
	Africa/Middle East	0.92	4.01	8.17	5.37	0.01	0.01	0.01	0.01
	World	276.78	42.01	5.97	4.26	0.07	2.01	2.11	2.11
Africa/Middle East	North America	2.65	-2.42	3.46	3.37	0.03	0.02	0.02	0.01
	Europe	84.25	7.64	6.00	5.09	0.35	0.61	0.64	0.70
	Asia/Pacific	159.98	17.13	6.62	4.33	0.29	1.16	1.29	1.31
	South America, East	0.42	69.91	6.18	4.38	0.00	0.00	0.00	0.00
	South America, West	2.51	50.65	6.11	4.81	0.00	0.02	0.02	0.02
	Central Am. & Caribbean	4.37	8.91	8.16	5.30	0.02	0.03	0.04	0.05
	Africa/Middle East	119.75	19.47	8.09	5.27	0.18	0.87	1.11	1.23
	World	373.93	14.24	6.98	4.84	0.86	2.71	3.13	3.32
World	World	13,778.65	1.88	5.47	4.22	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Iron & Steel

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	154.18	4.70	1.49	0.28	0.10	0.11	0.08	0.06
	Europe	1,009.49	13.83	4.08	4.24	0.29	0.73	0.70	0.71
	Asia/Pacific	2,439.37	20.62	3.69	3.03	0.40	1.76	1.63	1.48
	South America, East	140.66	5.18	4.28	3.40	0.09	0.10	0.10	0.09
	South America, West	279.25	16.60	3.80	3.26	0.06	0.20	0.19	0.17
	Central Am. & Caribbean	292.45	5.04	4.72	3.44	0.19	0.21	0.22	0.20
	Africa/Middle East	475.71	9.84	4.83	3.29	0.20	0.34	0.35	0.33
	World	4,791.12	14.31	3.92	3.32	1.33	3.46	3.26	3.05
Europe	North America	11,648.00	0.95	5.50	5.44	11.23	8.41	9.22	10.58
	Europe	14,143.83	2.10	5.84	5.25	12.18	10.22	11.57	13.03
	Asia/Pacific	28,800.31	12.42	4.70	3.02	9.47	20.80	21.15	19.23
	South America, East	671.29	3.56	3.42	2.57	0.50	0.48	0.44	0.38
	South America, West	581.35	4.86	3.74	2.85	0.38	0.42	0.39	0.35
	Central Am. & Caribbean	1,554.80	5.61	4.61	2.84	0.95	1.12	1.13	1.01
	Africa/Middle East	9,744.82	-2.23	4.47	3.16	12.94	7.04	7.00	6.45
	World	67,144.39	4.09	5.04	4.03	47.66	48.50	50.90	51.03
Asia/Pacific	North America	5,669.56	-3.85	1.01	3.62	8.89	4.10	2.91	2.80
	Europe	1,910.37	-2.26	4.95	5.59	2.54	1.38	1.44	1.67
	Asia/Pacific	29,812.04	5.20	3.39	2.65	19.02	21.53	19.29	16.92
	South America, East	71.79	-5.29	2.58	1.82	0.13	0.05	0.04	0.03
	South America, West	161.51	-9.94	3.59	2.49	0.49	0.12	0.11	0.09
	Central Am. & Caribbean	280.33	-2.85	4.16	2.55	0.40	0.20	0.20	0.17
	Africa/Middle East	2,112.19	-5.65	3.72	2.69	4.00	1.53	1.41	1.24
	World	40,017.80	1.80	3.18	2.95	35.48	28.90	25.39	22.93
South America, East	North America	5,707.62	5.67	8.22	8.13	3.48	4.12	5.83	8.60
	Europe	1,250.89	4.03	6.33	6.42	0.89	0.90	1.07	1.35
	Asia/Pacific	4,115.15	0.47	3.88	3.10	4.16	2.97	2.79	2.56
	South America, East	713.87	14.89	4.55	3.01	0.19	0.52	0.52	0.47
	South America, West	1,036.54	9.37	4.60	3.30	0.45	0.75	0.75	0.70
	Central Am. & Caribbean	625.59	10.67	5.04	3.27	0.24	0.45	0.47	0.44
	Africa/Middle East	785.89	3.11	4.61	3.47	0.61	0.57	0.57	0.54
	World	14,235.55	4.17	6.17	6.10	10.03	10.28	12.01	14.66
South America, West	North America	36.78	26.58	4.77	5.85	0.00	0.03	0.03	0.03
	Europe	36.36	9.47	4.45	5.66	0.02	0.03	0.03	0.03
	Asia/Pacific	16.82	22.59	3.39	3.27	0.00	0.01	0.01	0.01
	South America, East	15.21	30.74	4.48	3.15	0.00	0.01	0.01	0.01
	South America, West	32.40	1.11	4.08	3.17	0.03	0.02	0.02	0.02
	Central Am. & Caribbean	14.92	9.11	4.69	3.18	0.01	0.01	0.01	0.01
	Africa/Middle East	0.83	14.99	4.08	3.02	0.00	0.00	0.00	0.00
	World	153.31	10.42	4.37	4.51	0.06	0.11	0.11	0.11
Central Am. & Caribbean	North America	1,616.02	22.65	6.87	6.64	0.22	1.17	1.46	1.87
	Europe	373.72	9.49	6.17	6.09	0.16	0.27	0.32	0.38
	Asia/Pacific	1,021.86	22.38	3.30	2.78	0.14	0.74	0.66	0.58
	South America, East	112.91	23.36	4.76	3.24	0.01	0.08	0.08	0.08
	South America, West	97.56	17.00	4.33	3.09	0.02	0.07	0.07	0.06
	Central Am. & Caribbean	284.45	11.21	4.95	3.21	0.10	0.21	0.21	0.20
	Africa/Middle East	91.88	14.77	5.34	3.30	0.02	0.07	0.07	0.07
	World	3,598.40	18.63	5.55	5.30	0.69	2.60	2.86	3.24
Africa/Middle East	North America	1,127.22	0.92	3.11	4.75	1.09	0.81	0.71	0.76
	Europe	1,926.21	2.36	3.17	3.53	1.62	1.39	1.22	1.17
	Asia/Pacific	3,323.20	11.15	2.18	1.75	1.22	2.40	1.91	1.54
	South America, East	43.60	3.17	4.02	2.72	0.03	0.03	0.03	0.03
	South America, West	155.54	14.20	4.26	3.04	0.04	0.11	0.11	0.10
	Central Am. & Caribbean	66.75	27.72	5.26	3.35	0.01	0.05	0.05	0.05
	Africa/Middle East	1,863.30	10.38	5.15	3.19	0.74	1.35	1.43	1.32
	World	8,505.81	6.62	3.31	3.01	4.75	6.14	5.46	4.96
World	World	138,446.39	3.91	4.53	4.00	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Textiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	0.57	-1.03	3.31	3.25	0.01	0.00	0.00	0.00
	Europe	312.96	7.86	2.31	2.80	1.77	1.55	0.99	0.79
	Asia/Pacific	284.14	6.06	5.89	4.60	1.90	1.41	1.27	1.21
	South America, East	62.95	11.06	9.03	5.74	0.27	0.31	0.38	0.40
	South America, West	59.08	16.28	7.96	5.90	0.16	0.29	0.32	0.35
	Central Am. & Caribbean	124.36	6.65	8.64	6.14	0.79	0.62	0.72	0.79
	Africa/Middle East	224.02	4.69	9.74	6.71	1.70	1.11	1.43	1.66
	World	1,068.07	6.91	6.61	5.31	6.59	5.31	5.12	5.21
Europe	North America	312.09	-0.16	3.67	3.65	3.81	1.55	1.13	0.98
	Europe	1,457.73	11.07	8.07	6.04	6.14	7.24	8.00	8.72
	Asia/Pacific	692.85	7.69	5.38	4.44	3.97	3.44	2.96	2.77
	South America, East	49.74	12.80	7.50	5.57	0.18	0.25	0.26	0.27
	South America, West	32.17	11.00	6.98	5.33	0.14	0.16	0.16	0.16
	Central Am. & Caribbean	43.75	4.63	8.18	5.51	0.33	0.22	0.24	0.25
	Africa/Middle East	1,523.76	2.71	8.05	6.00	14.03	7.57	8.35	9.06
	World	4,112.09	5.63	7.34	5.67	28.60	20.43	21.11	22.21
Asia/Pacific	North America	861.10	6.10	3.61	2.23	5.73	4.28	3.10	2.34
	Europe	1,723.06	8.73	3.58	3.00	8.97	8.56	6.19	5.04
	Asia/Pacific	7,752.72	13.51	6.91	4.71	26.27	38.51	38.22	36.70
	South America, East	94.54	31.23	9.18	6.47	0.08	0.47	0.58	0.65
	South America, West	59.12	22.82	8.98	6.41	0.09	0.29	0.35	0.40
	Central Am. & Caribbean	222.83	19.53	10.16	6.37	0.45	1.11	1.48	1.67
	Africa/Middle East	2,137.57	10.87	9.66	6.27	9.16	10.62	13.59	15.13
	World	12,850.93	11.78	6.94	4.87	50.75	63.84	63.52	61.93
South America, East	North America	112.74	0.09	5.14	7.56	1.34	0.56	0.47	0.59
	Europe	92.51	-3.31	3.76	6.28	1.56	0.46	0.34	0.38
	Asia/Pacific	61.86	4.00	7.58	6.35	0.50	0.31	0.32	0.36
	South America, East	84.60	18.40	9.00	6.42	0.19	0.42	0.51	0.57
	South America, West	54.98	15.82	8.66	6.73	0.15	0.27	0.32	0.37
	Central Am. & Caribbean	11.86	11.66	10.37	6.45	0.05	0.06	0.08	0.09
	Africa/Middle East	14.70	0.99	9.42	6.87	0.16	0.07	0.09	0.11
	World	433.26	2.81	6.88	6.72	3.95	2.15	2.13	2.47
South America, West	North America	8.57	-7.29	4.86	4.64	0.22	0.04	0.03	0.03
	Europe	23.20	1.60	1.42	2.41	0.24	0.12	0.07	0.05
	Asia/Pacific	3.53	3.34	4.30	3.95	0.03	0.02	0.01	0.01
	South America, East	15.83	22.20	8.86	6.37	0.03	0.08	0.09	0.11
	South America, West	21.59	21.42	8.96	6.53	0.04	0.11	0.13	0.15
	Central Am. & Caribbean	6.54	9.48	9.82	6.52	0.03	0.03	0.04	0.05
	Africa/Middle East	0.39	4.91	9.33	6.31	0.00	0.00	0.00	0.00
	World	79.64	5.04	6.63	5.60	0.59	0.40	0.38	0.40
Central Am. & Caribbean	North America	45.31	7.02	6.18	4.63	0.28	0.23	0.21	0.20
	Europe	25.45	10.65	0.58	0.64	0.11	0.13	0.07	0.04
	Asia/Pacific	20.94	17.88	9.63	6.28	0.05	0.10	0.13	0.15
	South America, East	6.46	16.34	9.49	6.56	0.02	0.03	0.04	0.05
	South America, West	9.75	28.65	8.16	3.35	0.01	0.05	0.05	0.05
	Central Am. & Caribbean	32.73	3.92	8.58	5.17	0.27	0.16	0.19	0.19
	Africa/Middle East	14.84	24.71	10.47	6.62	0.02	0.07	0.10	0.12
	World	155.49	9.56	7.28	5.06	0.75	0.77	0.79	0.79
Africa/Middle East	North America	140.62	1.70	5.17	4.56	1.43	0.70	0.59	0.56
	Europe	895.48	8.89	5.73	4.65	4.60	4.45	3.95	3.77
	Asia/Pacific	108.01	8.21	7.76	5.62	0.59	0.54	0.58	0.60
	South America, East	4.56	12.42	8.05	5.44	0.02	0.02	0.02	0.03
	South America, West	4.07	21.13	8.48	5.93	0.01	0.02	0.02	0.03
	Central Am. & Caribbean	2.38	22.46	10.06	6.52	0.00	0.01	0.02	0.02
	Africa/Middle East	274.74	4.48	9.76	6.44	2.13	1.36	1.76	1.99
	World	1,429.86	6.96	6.74	5.21	8.78	7.10	6.94	6.99
World	World	20,129.34	9.25	6.99	5.14	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Machinery, Other Vehicles & Transport Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	38.35	-14.40	4.04	3.87	0.64	0.08	0.05	0.04
	Europe	1,065.59	6.38	7.90	6.96	2.01	2.19	2.08	2.03
	Asia/Pacific	1,655.37	8.27	8.85	7.27	2.62	3.40	3.54	3.54
	South America, East	572.88	10.72	8.14	7.25	0.73	1.18	1.15	1.15
	South America, West	360.22	9.31	8.53	7.86	0.52	0.74	0.75	0.79
	Central Am. & Caribbean	321.04	7.02	8.94	8.02	0.57	0.66	0.69	0.74
	Africa/Middle East	585.60	0.21	9.23	7.91	2.01	1.20	1.29	1.38
	World	4,599.06	5.89	8.54	7.38	9.10	9.44	9.55	9.66
Europe	North America	2,464.75	3.42	5.81	4.85	6.17	5.06	3.97	3.16
	Europe	4,413.63	1.17	9.11	7.72	13.78	9.06	9.66	10.09
	Asia/Pacific	6,891.31	9.20	9.38	7.74	10.02	14.15	15.45	16.17
	South America, East	996.32	8.24	8.36	6.62	1.58	2.05	2.04	1.92
	South America, West	329.04	7.38	8.40	7.29	0.57	0.68	0.67	0.68
	Central Am. & Caribbean	814.84	2.97	9.43	6.41	2.13	1.67	1.84	1.70
	Africa/Middle East	4,583.48	-0.53	8.85	7.85	16.94	9.41	9.79	10.36
	World	20,493.36	3.45	8.76	7.41	51.18	42.07	43.42	44.07
Asia/Pacific	North America	5,315.42	4.55	4.04	5.01	11.95	10.91	7.22	5.85
	Europe	2,220.35	6.82	7.32	6.64	4.02	4.56	4.12	3.89
	Asia/Pacific	10,041.14	13.00	9.78	7.70	10.37	20.61	23.35	24.35
	South America, East	260.47	14.85	7.16	6.07	0.23	0.53	0.48	0.43
	South America, West	135.98	8.89	7.64	6.94	0.20	0.28	0.26	0.25
	Central Am. & Caribbean	909.27	2.28	6.73	4.91	2.55	1.87	1.60	1.28
	Africa/Middle East	1,444.30	2.24	7.82	6.64	4.06	2.97	2.80	2.65
	World	20,326.93	7.88	7.91	6.94	33.38	41.73	39.82	38.69
South America, East	North America	577.42	2.97	5.59	7.74	1.51	1.19	0.91	0.95
	Europe	160.36	4.26	9.10	7.34	0.37	0.33	0.35	0.35
	Asia/Pacific	84.09	16.82	8.97	7.03	0.06	0.17	0.18	0.18
	South America, East	470.65	18.41	11.41	8.37	0.30	0.97	1.27	1.41
	South America, West	139.37	8.30	8.93	8.12	0.22	0.29	0.30	0.33
	Central Am. & Caribbean	102.52	5.64	12.00	8.35	0.21	0.21	0.29	0.32
	Africa/Middle East	112.99	1.55	9.68	7.98	0.34	0.23	0.26	0.28
	World	1,647.40	6.71	8.98	8.00	3.02	3.38	3.56	3.82
South America, West	North America	6.09	-0.94	9.32	7.01	0.02	0.01	0.01	0.01
	Europe	7.41	30.17	5.89	5.64	0.00	0.02	0.01	0.01
	Asia/Pacific	7.51	43.20	7.02	6.67	0.00	0.02	0.01	0.01
	South America, East	25.98	16.32	9.26	6.89	0.02	0.05	0.06	0.06
	South America, West	15.40	11.78	9.43	8.06	0.02	0.03	0.03	0.04
	Central Am. & Caribbean	8.60	13.31	9.97	7.42	0.01	0.02	0.02	0.02
	Africa/Middle East	2.88	48.24	6.13	5.66	0.00	0.01	0.00	0.00
	World	73.87	13.54	8.76	7.09	0.07	0.15	0.16	0.15
Central Am. & Caribbean	North America	171.12	8.99	11.65	8.60	0.25	0.35	0.47	0.53
	Europe	134.93	16.06	9.07	7.55	0.11	0.28	0.29	0.30
	Asia/Pacific	10.90	10.66	7.85	6.66	0.01	0.02	0.02	0.02
	South America, East	17.93	11.79	8.93	7.39	0.02	0.04	0.04	0.04
	South America, West	14.13	14.64	9.43	7.58	0.01	0.03	0.03	0.03
	Central Am. & Caribbean	29.79	5.88	9.96	7.40	0.06	0.06	0.07	0.07
	Africa/Middle East	5.56	10.91	6.76	5.27	0.01	0.01	0.01	0.01
	World	384.37	11.03	10.30	8.04	0.47	0.79	0.94	1.01
Africa/Middle East	North America	77.24	6.14	7.61	6.77	0.15	0.16	0.15	0.14
	Europe	425.71	-0.37	7.67	6.95	1.55	0.87	0.82	0.79
	Asia/Pacific	300.86	10.49	9.32	7.65	0.39	0.62	0.67	0.70
	South America, East	15.95	26.67	9.65	7.34	0.01	0.03	0.04	0.04
	South America, West	14.41	19.49	8.86	6.98	0.01	0.03	0.03	0.03
	Central Am. & Caribbean	23.46	-1.81	7.87	5.98	0.10	0.05	0.05	0.04
	Africa/Middle East	326.45	7.02	10.49	7.86	0.58	0.67	0.81	0.86
	World	1,184.08	4.09	8.97	7.41	2.78	2.43	2.56	2.59
World	World	48,709.06	5.50	8.42	7.25	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Food (Mainly Containerized) Beverages and Tobacco

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	53.40	3.58	4.36	3.38	0.19	0.14	0.12	0.09
	Europe	1,591.60	7.18	4.22	4.43	3.98	4.15	3.46	2.95
	Asia/Pacific	2,423.07	16.46	4.39	3.80	2.64	6.32	5.36	4.30
	South America, East	351.72	18.10	8.01	6.02	0.33	0.92	1.09	1.08
	South America, West	146.77	8.46	8.18	6.32	0.33	0.38	0.46	0.47
	Central Am. & Caribbean	411.31	3.34	6.86	5.67	1.48	1.07	1.15	1.10
	Africa/Middle East	543.49	7.17	7.50	5.95	1.36	1.42	1.61	1.59
	World	5,521.36	10.36	5.25	4.69	10.30	14.41	13.25	11.59
Europe	North America	2,991.68	-2.03	2.62	1.36	18.36	7.81	5.57	3.52
	Europe	4,456.15	12.67	7.61	6.53	6.76	11.63	13.34	13.88
	Asia/Pacific	2,210.45	8.47	5.81	5.70	4.90	5.77	5.59	5.38
	South America, East	410.62	10.98	6.22	5.92	0.72	1.07	1.08	1.06
	South America, West	66.50	8.27	8.33	7.38	0.15	0.17	0.21	0.24
	Central Am. & Caribbean	562.09	6.39	7.73	6.86	1.51	1.47	1.70	1.83
	Africa/Middle East	2,338.52	-0.39	6.39	6.29	12.16	6.10	6.25	6.36
	World	13,036.01	3.87	6.06	5.63	44.56	34.03	33.75	32.27
Asia/Pacific	North America	1,256.15	3.28	4.13	6.57	4.55	3.28	2.71	2.83
	Europe	2,157.28	6.95	5.75	6.85	5.51	5.63	5.42	5.81
	Asia/Pacific	7,241.63	12.01	6.79	6.71	11.64	18.90	20.09	21.25
	South America, East	77.05	14.96	4.84	5.84	0.10	0.20	0.18	0.17
	South America, West	53.15	15.80	8.48	8.85	0.06	0.14	0.17	0.22
	Central Am. & Caribbean	264.93	9.42	9.03	7.24	0.54	0.69	0.90	1.01
	Africa/Middle East	718.42	7.80	8.46	7.17	1.69	1.88	2.33	2.57
	World	11,768.60	9.34	6.51	6.78	24.08	30.72	31.81	33.87
South America, East	North America	460.88	-4.58	-0.26	2.41	3.68	1.20	0.65	0.45
	Europe	843.11	6.54	4.29	6.70	2.24	2.20	1.85	1.95
	Asia/Pacific	182.67	14.28	6.33	7.11	0.24	0.48	0.49	0.53
	South America, East	374.80	29.50	8.52	7.19	0.14	0.98	1.22	1.35
	South America, West	62.44	23.34	9.23	7.60	0.04	0.16	0.22	0.25
	Central Am. & Caribbean	38.71	-8.38	7.22	7.12	0.46	0.10	0.11	0.12
	Africa/Middle East	67.25	0.24	7.81	7.47	0.33	0.18	0.21	0.23
	World	2,029.85	3.59	4.95	6.47	7.13	5.30	4.73	4.89
South America, West	North America	173.31	-1.73	3.68	4.97	1.03	0.45	0.36	0.32
	Europe	252.21	16.52	7.00	8.02	0.27	0.66	0.71	0.85
	Asia/Pacific	102.51	20.03	8.24	9.24	0.08	0.27	0.33	0.44
	South America, East	130.10	18.84	7.88	7.57	0.12	0.34	0.40	0.46
	South America, West	57.28	11.22	8.45	7.17	0.10	0.15	0.19	0.20
	Central Am. & Caribbean	56.05	2.99	9.09	7.63	0.21	0.15	0.19	0.22
	Africa/Middle East	5.48	7.61	6.90	6.07	0.01	0.01	0.02	0.02
	World	776.94	7.85	6.96	7.57	1.82	2.03	2.19	2.51
Central Am. & Caribbean	North America	450.35	4.47	3.58	5.85	1.45	1.18	0.92	0.90
	Europe	314.79	7.90	6.48	6.89	0.74	0.82	0.85	0.91
	Asia/Pacific	74.88	17.75	7.14	7.15	0.07	0.20	0.21	0.24
	South America, East	53.87	25.12	7.50	6.74	0.03	0.14	0.16	0.17
	South America, West	7.69	21.49	7.86	6.49	0.01	0.02	0.02	0.02
	Central Am. & Caribbean	139.18	4.50	8.80	7.11	0.45	0.36	0.47	0.51
	Africa/Middle East	23.68	4.81	7.15	5.93	0.07	0.06	0.07	0.07
	World	1,064.44	6.56	5.84	6.57	2.82	2.78	2.70	2.82
Africa/Middle East	North America	128.42	-3.64	1.29	2.91	0.93	0.34	0.21	0.15
	Europe	1,930.13	4.43	4.95	6.21	6.25	5.04	4.50	4.54
	Asia/Pacific	615.17	18.98	8.20	6.68	0.54	1.61	1.94	2.05
	South America, East	30.34	30.10	7.58	6.43	0.01	0.08	0.09	0.09
	South America, West	46.93	23.53	8.88	6.57	0.03	0.12	0.16	0.17
	Central Am. & Caribbean	51.05	27.58	8.51	6.73	0.02	0.13	0.17	0.18
	Africa/Middle East	1,312.38	15.96	9.10	6.94	1.49	3.43	4.51	4.87
	World	4,114.41	8.29	6.94	6.54	9.28	10.74	11.58	12.06
World	World	38,311.59	6.71	6.14	6.11	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Pharmaceutical, and Other Chemical Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	8.00	-6.61	9.30	7.82	0.26	0.06	0.07	0.07
	Europe	669.41	8.45	6.55	6.85	4.84	5.02	4.31	4.19
	Asia/Pacific	1,236.18	10.99	7.10	7.14	7.09	9.28	8.39	8.38
	South America, East	244.92	9.03	6.56	5.44	1.68	1.84	1.58	1.35
	South America, West	134.65	10.02	6.43	5.49	0.84	1.01	0.86	0.73
	Central Am. & Caribbean	214.42	9.42	8.85	8.12	1.42	1.61	1.71	1.87
	Africa/Middle East	144.40	0.29	7.31	6.90	2.28	1.08	1.00	0.98
	World	2,651.99	8.89	7.06	6.94	18.41	19.90	17.92	17.57
Europe	North America	619.04	4.10	5.18	5.07	6.74	4.65	3.51	2.88
	Europe	1,209.75	8.13	8.34	7.13	9.01	9.08	9.21	9.19
	Asia/Pacific	1,862.72	10.12	7.89	7.19	11.55	13.98	13.60	13.66
	South America, East	181.73	7.31	7.51	6.57	1.46	1.36	1.28	1.21
	South America, West	90.30	7.01	7.03	6.24	0.75	0.68	0.61	0.56
	Central Am. & Caribbean	161.39	3.85	8.75	6.61	1.80	1.21	1.28	1.21
	Africa/Middle East	1,365.62	1.41	7.15	6.72	19.31	10.25	9.31	8.94
	World	5,490.54	5.84	7.54	6.83	50.62	41.20	38.79	37.66
Asia/Pacific	North America	402.91	5.52	7.96	7.11	3.83	3.02	2.96	2.95
	Europe	547.20	8.67	6.89	6.78	3.88	4.11	3.64	3.52
	Asia/Pacific	2,589.48	14.12	9.72	7.75	11.24	19.43	22.37	23.65
	South America, East	15.37	4.11	7.22	6.35	0.17	0.12	0.11	0.10
	South America, West	7.81	10.52	8.10	7.45	0.05	0.06	0.06	0.06
	Central Am. & Caribbean	24.89	7.30	10.63	7.65	0.20	0.19	0.23	0.24
	Africa/Middle East	170.58	8.48	9.86	7.84	1.23	1.28	1.49	1.59
	World	3,758.25	11.50	9.17	7.58	20.59	28.20	30.87	32.11
South America, East	North America	66.35	-2.92	6.17	4.63	1.45	0.50	0.41	0.33
	Europe	92.01	-0.82	5.15	6.00	1.63	0.69	0.52	0.47
	Asia/Pacific	57.85	20.02	10.64	8.74	0.15	0.43	0.54	0.63
	South America, East	117.30	13.93	9.34	6.75	0.52	0.88	0.98	0.94
	South America, West	74.54	11.74	9.48	7.35	0.40	0.56	0.63	0.64
	Central Am. & Caribbean	36.16	2.38	7.92	5.79	0.47	0.27	0.26	0.23
	Africa/Middle East	12.34	6.25	10.23	8.19	0.11	0.09	0.11	0.12
	World	456.56	4.63	8.29	6.84	4.72	3.43	3.46	3.36
South America, West	North America	10.56	18.98	9.72	8.49	0.03	0.08	0.09	0.10
	Europe	4.28	10.10	8.62	7.26	0.03	0.03	0.03	0.03
	Asia/Pacific	1.31	7.37	8.84	7.87	0.01	0.01	0.01	0.01
	South America, East	10.12	27.26	10.04	7.71	0.01	0.08	0.09	0.09
	South America, West	25.69	22.60	10.04	7.80	0.05	0.19	0.23	0.24
	Central Am. & Caribbean	5.91	11.58	10.63	7.73	0.03	0.04	0.06	0.06
	Africa/Middle East	0.15	7.64	7.66	5.97	0.00	0.00	0.00	0.00
	World	58.01	18.71	9.92	7.87	0.17	0.44	0.51	0.55
Central Am. & Caribbean	North America	10.58	0.86	8.60	6.66	0.16	0.08	0.08	0.08
	Europe	12.09	11.51	8.85	7.45	0.07	0.09	0.10	0.10
	Asia/Pacific	19.84	21.62	9.73	8.16	0.05	0.15	0.17	0.19
	South America, East	26.57	10.29	9.46	8.39	0.16	0.20	0.22	0.25
	South America, West	17.00	11.73	9.11	7.56	0.09	0.13	0.14	0.14
	Central Am. & Caribbean	60.31	7.09	9.40	6.63	0.49	0.45	0.51	0.48
	Africa/Middle East	0.25	14.48	8.70	6.05	0.00	0.00	0.00	0.00
	World	146.64	8.88	9.32	7.36	1.02	1.10	1.22	1.25
Africa/Middle East	North America	12.77	6.98	9.52	8.30	0.11	0.10	0.11	0.12
	Europe	448.38	16.77	10.67	7.28	1.55	3.36	4.22	4.28
	Asia/Pacific	119.81	8.71	10.81	7.79	0.85	0.90	1.14	1.21
	South America, East	1.93	-6.48	10.75	7.87	0.06	0.01	0.02	0.02
	South America, West	0.84	-16.10	9.26	7.72	0.08	0.01	0.01	0.01
	Central Am. & Caribbean	0.70	-14.84	10.30	7.48	0.06	0.01	0.01	0.01
	Africa/Middle East	179.28	5.05	10.95	7.94	1.78	1.35	1.73	1.86
	World	763.70	10.74	10.74	7.54	4.48	5.73	7.24	7.51
World	World	13,325.68	8.04	8.19	7.15	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Computers, Electrical and Electronic Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	14.64	-3.13	6.54	7.75	0.46	0.10	0.08	0.08
	Europe	173.90	9.52	8.16	7.20	1.60	1.22	1.06	1.01
	Asia/Pacific	287.93	13.90	8.83	7.52	1.79	2.01	1.87	1.84
	South America, East	132.11	12.67	10.15	7.82	0.91	0.92	0.97	0.98
	South America, West	57.77	25.44	11.34	8.47	0.14	0.40	0.47	0.51
	Central Am. & Caribbean	102.53	13.36	11.40	8.71	0.67	0.72	0.84	0.92
	Africa/Middle East	67.76	2.77	11.75	8.95	1.18	0.47	0.57	0.64
	World	836.63	10.97	9.66	7.92	6.74	5.85	5.86	5.98
Europe	North America	260.87	3.85	6.58	5.83	4.08	1.83	1.37	1.15
	Europe	665.29	10.06	10.70	8.30	5.82	4.66	5.12	5.42
	Asia/Pacific	821.00	11.72	9.82	7.68	6.19	5.75	5.83	5.83
	South America, East	121.48	13.25	10.00	7.80	0.80	0.85	0.88	0.89
	South America, West	40.00	11.37	9.58	7.77	0.31	0.28	0.28	0.28
	Central Am. & Caribbean	66.52	7.79	11.24	8.11	0.72	0.47	0.54	0.56
	Africa/Middle East	512.30	2.12	9.72	8.39	9.48	3.58	3.61	3.85
	World	2,487.46	7.56	9.79	7.90	27.39	17.41	17.63	17.97
Asia/Pacific	North America	3,245.62	10.35	9.26	7.33	27.65	22.71	21.91	21.20
	Europe	2,100.49	15.61	7.90	7.35	11.24	14.70	12.51	12.12
	Asia/Pacific	4,317.36	18.38	10.27	7.75	18.22	30.21	31.97	32.15
	South America, East	169.06	24.28	9.71	7.87	0.44	1.18	1.19	1.21
	South America, West	66.11	24.32	9.87	8.08	0.17	0.46	0.47	0.49
	Central Am. & Caribbean	165.26	23.06	12.34	7.78	0.47	1.16	1.47	1.49
	Africa/Middle East	439.58	9.41	11.29	8.45	4.08	3.08	3.57	3.83
	World	10,503.47	14.43	9.59	7.60	62.27	73.50	73.10	72.49
South America, East	North America	12.23	-1.80	7.61	9.00	0.33	0.09	0.07	0.08
	Europe	9.48	9.53	7.87	7.71	0.09	0.07	0.06	0.06
	Asia/Pacific	5.60	1.43	9.92	7.85	0.11	0.04	0.04	0.04
	South America, East	47.25	17.61	10.73	8.38	0.21	0.33	0.36	0.39
	South America, West	16.52	12.57	8.95	7.30	0.12	0.12	0.11	0.10
	Central Am. & Caribbean	9.08	10.30	10.99	8.12	0.08	0.06	0.07	0.07
	Africa/Middle East	2.94	-6.50	11.03	7.55	0.13	0.02	0.02	0.02
	World	103.11	8.20	9.86	8.16	1.07	0.72	0.74	0.77
South America, West	North America	0.56	16.40	12.70	8.87	0.00	0.00	0.01	0.01
	Europe	0.21	11.90	7.34	7.72	0.00	0.00	0.00	0.00
	Asia/Pacific	0.32	64.94	10.76	8.28	0.00	0.00	0.00	0.00
	South America, East	6.29	22.29	11.35	8.57	0.02	0.04	0.05	0.06
	South America, West	6.23	23.87	10.69	8.42	0.02	0.04	0.05	0.05
	Central Am. & Caribbean	1.77	11.80	12.16	8.27	0.01	0.01	0.02	0.02
	Africa/Middle East	0.03	57.33	9.40	6.64	0.00	0.00	0.00	0.00
	World	15.41	20.71	11.17	8.47	0.05	0.11	0.12	0.13
Central Am. & Caribbean	North America	35.14	27.51	9.84	7.94	0.07	0.25	0.25	0.26
	Europe	7.47	30.91	10.82	8.59	0.01	0.05	0.06	0.06
	Asia/Pacific	4.24	14.95	10.41	8.36	0.02	0.03	0.03	0.03
	South America, East	6.37	23.17	10.90	8.55	0.02	0.04	0.05	0.05
	South America, West	3.79	19.58	11.41	8.86	0.01	0.03	0.03	0.03
	Central Am. & Caribbean	10.07	8.26	11.60	8.26	0.10	0.07	0.08	0.09
	Africa/Middle East	0.23	26.80	12.16	8.45	0.00	0.00	0.00	0.00
	World	67.31	20.24	10.46	8.22	0.24	0.47	0.51	0.53
Africa/Middle East	North America	10.48	1.06	7.57	6.56	0.22	0.07	0.06	0.05
	Europe	159.74	9.82	9.32	7.73	1.43	1.12	1.09	1.09
	Asia/Pacific	46.75	17.02	10.90	8.37	0.22	0.33	0.37	0.39
	South America, East	1.76	23.53	10.81	8.12	0.00	0.01	0.01	0.01
	South America, West	1.70	6.33	9.13	7.39	0.02	0.01	0.01	0.01
	Central Am. & Caribbean	2.23	12.23	13.16	8.17	0.02	0.02	0.02	0.02
	Africa/Middle East	54.30	14.07	12.52	8.61	0.33	0.38	0.49	0.54
	World	276.96	10.93	10.27	8.03	2.24	1.94	2.05	2.12
World	World	14,290.34	12.55	9.65	7.69	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Clothing

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	0.16	7.36	2.04	-0.99	0.00	0.00	0.00	0.00
	Europe	15.04	10.34	7.24	6.08	0.31	0.22	0.21	0.21
	Asia/Pacific	24.01	17.49	7.40	6.01	0.26	0.35	0.34	0.34
	South America, East	4.07	9.85	8.84	6.33	0.09	0.06	0.07	0.07
	South America, West	4.29	21.76	8.87	7.00	0.03	0.06	0.07	0.08
	Central Am. & Caribbean	221.74	22.78	8.85	6.32	1.54	3.21	3.57	3.74
	Africa/Middle East	3.82	3.27	9.19	6.32	0.15	0.06	0.06	0.07
	World	273.13	20.05	8.64	6.29	2.38	3.96	4.31	4.51
Europe	North America	76.91	5.82	6.13	5.69	2.37	1.11	0.96	0.95
	Europe	614.71	14.82	8.25	6.04	8.36	8.91	9.36	9.55
	Asia/Pacific	137.90	17.37	5.29	4.94	1.51	2.00	1.59	1.46
	South America, East	7.36	10.97	8.07	5.84	0.14	0.11	0.11	0.11
	South America, West	3.86	19.21	8.61	6.22	0.04	0.06	0.06	0.06
	Central Am. & Caribbean	12.61	11.79	9.34	6.63	0.22	0.18	0.21	0.23
	Africa/Middle East	131.45	6.16	8.92	6.17	3.92	1.90	2.13	2.20
	World	984.80	12.42	7.83	5.93	16.56	14.27	14.43	14.57
Asia/Pacific	North America	1,341.95	7.80	6.47	5.59	34.34	19.45	17.32	16.94
	Europe	1,364.54	13.87	7.79	5.89	20.19	19.77	19.92	20.04
	Asia/Pacific	1,311.90	24.29	7.60	5.24	8.08	19.01	18.81	17.80
	South America, East	17.55	33.26	9.34	6.33	0.05	0.25	0.30	0.31
	South America, West	18.40	29.99	9.16	6.40	0.07	0.27	0.30	0.32
	Central Am. & Caribbean	57.95	27.20	9.91	6.22	0.28	0.84	1.03	1.07
	Africa/Middle East	257.86	13.36	9.72	6.26	3.99	3.74	4.50	4.69
	World	4,370.14	13.46	7.51	5.65	67.01	63.33	62.17	61.16
South America, East	North America	8.06	-0.42	2.96	1.68	0.46	0.12	0.07	0.05
	Europe	14.49	9.97	6.99	5.44	0.30	0.21	0.20	0.19
	Asia/Pacific	1.24	31.28	8.94	6.50	0.00	0.02	0.02	0.02
	South America, East	12.81	19.66	8.60	5.87	0.12	0.19	0.20	0.20
	South America, West	3.60	12.35	8.17	6.35	0.06	0.05	0.05	0.06
	Central Am. & Caribbean	0.68	6.53	9.91	6.46	0.02	0.01	0.01	0.01
	Africa/Middle East	0.12	-7.93	8.39	5.53	0.01	0.00	0.00	0.00
	World	40.98	8.60	7.09	5.33	0.97	0.59	0.56	0.53
South America, West	North America	12.28	27.99	8.47	6.36	0.06	0.18	0.19	0.20
	Europe	8.00	27.77	9.12	6.61	0.04	0.12	0.13	0.14
	Asia/Pacific	0.44	25.94	7.27	6.05	0.00	0.01	0.01	0.01
	South America, East	10.21	22.06	8.91	6.63	0.08	0.15	0.17	0.18
	South America, West	3.38	46.88	9.16	6.60	0.00	0.05	0.06	0.06
	Central Am. & Caribbean	23.71	68.65	10.36	6.60	0.01	0.34	0.44	0.47
	Africa/Middle East	0.07	NA	9.92	6.52	0.00	0.00	0.00	0.00
	World	58.10	32.96	9.47	6.56	0.18	0.84	0.99	1.06
Central Am. & Caribbean	North America	330.18	19.70	8.07	6.15	2.97	4.78	4.95	5.10
	Europe	5.58	22.50	8.96	6.10	0.04	0.08	0.09	0.09
	Asia/Pacific	0.93	24.30	8.73	6.16	0.01	0.01	0.01	0.02
	South America, East	3.05	2.51	7.94	6.14	0.13	0.04	0.05	0.05
	South America, West	0.45	31.44	7.35	5.69	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	4.45	10.33	8.34	4.90	0.09	0.06	0.07	0.06
	Africa/Middle East	0.02	8.11	9.06	6.17	0.00	0.00	0.00	0.00
	World	344.66	19.18	8.09	6.13	3.23	4.99	5.17	5.33
Africa/Middle East	North America	239.82	17.13	7.36	6.01	2.67	3.48	3.36	3.42
	Europe	547.01	17.31	8.22	6.30	6.01	7.93	8.31	8.69
	Asia/Pacific	11.95	17.47	9.38	6.40	0.13	0.17	0.20	0.21
	South America, East	0.16	28.61	8.39	5.67	0.00	0.00	0.00	0.00
	South America, West	0.14	13.90	7.38	5.77	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	1.08	29.40	9.69	6.20	0.00	0.02	0.02	0.02
	Africa/Middle East	28.85	6.51	8.90	6.21	0.83	0.42	0.47	0.48
	World	829.01	16.63	8.02	6.22	9.65	12.01	12.37	12.84
World	World	6,900.82	14.10	7.71	5.83	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Footwear

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	0.09	1.99	-4.62	-6.03	0.01	0.00	0.00	0.00
	Europe	10.32	13.45	1.15	0.41	0.33	0.45	0.35	0.27
	Asia/Pacific	9.64	12.34	4.86	4.06	0.34	0.42	0.47	0.52
	South America, East	1.85	21.26	3.10	-0.03	0.03	0.08	0.08	0.06
	South America, West	2.86	37.39	4.89	3.57	0.01	0.13	0.14	0.15
	Central Am. & Caribbean	12.22	8.66	5.60	3.75	0.61	0.54	0.64	0.68
	Africa/Middle East	3.71	11.02	4.84	3.50	0.15	0.16	0.18	0.19
	World	40.69	12.07	4.18	3.09	1.48	1.79	1.87	1.86
Europe	North America	57.51	-3.92	-0.07	0.72	9.76	2.53	1.74	1.38
	Europe	165.00	1.10	4.47	6.15	16.82	7.25	7.80	10.41
	Asia/Pacific	46.84	9.51	0.45	1.39	2.15	2.06	1.49	1.26
	South America, East	1.23	5.65	3.58	1.31	0.08	0.05	0.05	0.04
	South America, West	1.29	25.68	6.35	5.79	0.01	0.06	0.07	0.09
	Central Am. & Caribbean	5.56	3.60	9.82	7.63	0.44	0.24	0.43	0.66
	Africa/Middle East	44.31	2.77	9.01	7.41	3.84	1.95	3.20	4.81
	World	321.75	1.01	4.19	5.55	33.11	14.13	14.80	18.66
Asia/Pacific	North America	939.21	12.82	3.68	2.25	31.99	41.26	41.13	37.76
	Europe	394.38	20.12	2.45	1.51	7.18	17.32	15.33	13.08
	Asia/Pacific	266.28	18.81	2.48	1.23	5.41	11.70	10.38	8.62
	South America, East	14.13	40.48	5.82	1.02	0.05	0.62	0.76	0.62
	South America, West	13.59	52.50	7.91	5.64	0.02	0.60	0.89	1.13
	Central Am. & Caribbean	21.62	22.77	9.27	4.12	0.32	0.95	1.60	1.76
	Africa/Middle East	99.17	14.86	8.18	7.02	2.82	4.36	6.64	9.62
	World	1,748.37	15.33	3.70	2.56	47.79	76.80	76.73	72.59
South America, East	North America	60.67	0.06	-0.31	3.04	6.86	2.66	1.79	1.78
	Europe	13.78	13.93	2.77	1.95	0.43	0.61	0.55	0.49
	Asia/Pacific	1.62	6.42	5.03	6.66	0.10	0.07	0.08	0.11
	South America, East	3.28	33.70	5.80	3.88	0.02	0.14	0.18	0.19
	South America, West	3.07	29.75	8.73	7.02	0.03	0.13	0.22	0.31
	Central Am. & Caribbean	2.10	25.34	7.58	4.60	0.02	0.09	0.13	0.15
	Africa/Middle East	0.39	-8.43	4.89	3.79	0.11	0.02	0.02	0.02
	World	84.91	2.48	1.38	3.43	7.56	3.73	2.97	3.06
South America, West	North America	0.91	14.17	3.74	1.71	0.03	0.04	0.04	0.03
	Europe	1.01	72.37	3.61	4.32	0.00	0.04	0.04	0.05
	Asia/Pacific	0.08	21.67	4.61	5.73	0.00	0.00	0.00	0.00
	South America, East	2.37	23.28	3.02	0.97	0.03	0.10	0.10	0.08
	South America, West	2.24	54.94	8.04	7.20	0.00	0.10	0.15	0.22
	Central Am. & Caribbean	1.61	27.71	11.66	7.49	0.02	0.07	0.15	0.22
	Africa/Middle East	0.02	19.78	7.97	8.08	0.00	0.00	0.00	0.00
	World	8.25	27.60	6.74	5.61	0.08	0.36	0.48	0.61
Central Am. & Caribbean	North America	15.61	15.48	3.63	0.86	0.42	0.69	0.68	0.54
	Europe	1.80	33.19	2.70	1.27	0.01	0.08	0.07	0.06
	Asia/Pacific	0.26	26.92	2.50	2.34	0.00	0.01	0.01	0.01
	South America, East	0.20	2.70	-0.12	-2.29	0.02	0.01	0.01	0.00
	South America, West	0.03	-1.62	5.00	5.95	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	2.03	2.77	8.60	5.38	0.18	0.09	0.14	0.18
	Africa/Middle East	0.00	NA	9.37	5.82	0.00	0.00	0.00	0.00
	World	19.93	13.61	4.12	1.73	0.63	0.88	0.91	0.80
Africa/Middle East	North America	3.99	11.72	0.59	-0.52	0.15	0.18	0.13	0.09
	Europe	36.79	-6.65	0.81	0.15	8.33	1.62	1.22	0.91
	Asia/Pacific	1.90	11.89	5.50	6.59	0.07	0.08	0.10	0.14
	South America, East	0.04	11.52	6.63	3.55	0.00	0.00	0.00	0.00
	South America, West	0.01	5.58	4.16	3.96	0.00	0.00	0.00	0.00
	Central Am. & Caribbean	0.04	6.93	9.40	6.42	0.00	0.00	0.00	0.00
	Africa/Middle East	9.87	3.58	10.04	8.24	0.79	0.43	0.78	1.27
	World	52.64	-4.35	3.36	3.93	9.34	2.31	2.23	2.42
World	World	2,276.54	9.99	3.71	3.13	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Photographic Equipment, Watches and Clocks

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	0.03	-10.86	-0.78	0.58	0.01	0.00	0.00	0.00
	Europe	16.67	4.06	2.54	3.50	1.84	1.41	0.93	0.69
	Asia/Pacific	30.34	7.41	3.44	5.02	2.44	2.57	1.85	1.58
	South America, East	11.54	14.98	5.48	2.76	0.47	0.98	0.86	0.59
	South America, West	2.96	15.24	6.56	5.47	0.12	0.25	0.24	0.22
	Central Am. & Caribbean	3.03	9.00	6.25	5.44	0.21	0.26	0.24	0.21
	Africa/Middle East	2.11	3.71	9.36	7.83	0.24	0.18	0.22	0.25
	World	66.67	7.47	4.13	4.51	5.32	5.65	4.35	3.54
Europe	North America	26.32	-0.36	4.84	5.17	4.48	2.23	1.84	1.59
	Europe	33.70	10.03	8.30	8.10	2.13	2.86	3.25	3.72
	Asia/Pacific	178.30	16.43	7.82	7.78	6.39	15.11	16.47	18.25
	South America, East	6.40	4.71	7.05	5.49	0.66	0.54	0.55	0.49
	South America, West	2.42	11.86	7.52	6.45	0.13	0.20	0.22	0.21
	Central Am. & Caribbean	4.76	2.54	9.39	6.82	0.61	0.40	0.51	0.51
	Africa/Middle East	45.61	2.39	8.66	8.44	5.91	3.87	4.55	5.36
	World	297.49	9.17	7.78	7.70	20.31	25.22	27.38	30.14
Asia/Pacific	North America	202.74	3.61	5.19	4.64	23.34	17.19	14.62	12.06
	Europe	198.56	3.57	5.34	6.22	22.95	16.83	14.52	13.92
	Asia/Pacific	342.42	10.85	7.90	6.86	20.07	29.03	31.86	32.41
	South America, East	11.71	10.41	9.29	6.97	0.71	0.99	1.24	1.27
	South America, West	3.22	8.06	7.80	6.90	0.24	0.27	0.30	0.30
	Central Am. & Caribbean	6.81	5.47	11.05	7.08	0.66	0.58	0.85	0.88
	Africa/Middle East	31.11	1.00	9.54	8.60	4.62	2.64	3.37	4.02
	World	796.57	6.06	6.78	6.37	72.60	67.52	66.75	64.86
South America, East	North America	0.58	-7.21	-2.07	-1.65	0.20	0.05	0.02	0.01
	Europe	0.42	12.13	5.22	5.31	0.02	0.04	0.03	0.03
	Asia/Pacific	0.27	5.09	5.70	6.57	0.03	0.02	0.02	0.02
	South America, East	0.64	2.70	5.56	4.90	0.08	0.05	0.05	0.04
	South America, West	0.53	8.29	4.69	3.68	0.04	0.04	0.04	0.03
	Central Am. & Caribbean	1.00	-0.48	8.51	1.16	0.17	0.08	0.10	0.06
	Africa/Middle East	0.01	-17.49	7.33	5.89	0.01	0.00	0.00	0.00
	World	3.45	0.23	5.43	3.17	0.55	0.29	0.25	0.18
South America, West	North America	0.01	NA	-1.17	-2.32	0.00	0.00	0.00	0.00
	Europe	0.02	NA	-0.39	0.92	0.00	0.00	0.00	0.00
	Asia/Pacific	0.01	NA	5.56	5.25	0.00	0.00	0.00	0.00
	South America, East	0.15	39.90	10.50	8.50	0.00	0.01	0.02	0.02
	South America, West	0.11	30.47	7.09	6.90	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	0.02	36.40	9.91	7.51	0.00	0.00	0.00	0.00
	Africa/Middle East	0.00	NA	NA	NA	0.00	0.00	0.00	0.00
	World	0.31	36.94	8.53	7.68	0.00	0.03	0.03	0.03
Central Am. & Caribbean	North America	0.53	30.57	8.34	9.20	0.01	0.04	0.05	0.07
	Europe	0.70	18.07	5.40	5.73	0.02	0.06	0.05	0.05
	Asia/Pacific	0.54	35.92	9.47	8.92	0.00	0.05	0.06	0.07
	South America, East	1.09	9.58	3.08	1.50	0.07	0.09	0.06	0.04
	South America, West	0.31	35.41	6.96	6.33	0.00	0.03	0.03	0.03
	Central Am. & Caribbean	0.20	11.96	11.30	8.14	0.01	0.02	0.03	0.03
	Africa/Middle East	0.00	12.93	10.42	7.93	0.00	0.00	0.00	0.00
	World	3.37	16.81	6.58	6.69	0.12	0.29	0.28	0.28
Africa/Middle East	North America	1.42	16.51	2.14	4.02	0.05	0.12	0.08	0.06
	Europe	5.85	2.42	4.56	5.68	0.76	0.50	0.40	0.36
	Asia/Pacific	3.06	11.70	8.64	7.85	0.17	0.26	0.30	0.34
	South America, East	0.01	18.39	8.71	5.45	0.00	0.00	0.00	0.00
	South America, West	0.08	49.69	8.90	6.62	0.00	0.01	0.01	0.01
	Central Am. & Caribbean	0.06	0.71	8.50	1.71	0.01	0.01	0.01	0.00
	Africa/Middle East	1.39	6.75	10.22	8.54	0.12	0.12	0.16	0.19
	World	11.87	5.87	6.34	6.79	1.10	1.01	0.95	0.96
World	World	1,179.73	6.83	6.90	6.68	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Scientific Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	0.15	13.16	4.78	3.66	0.01	0.02	0.02	0.01
	Europe	27.71	5.97	5.33	4.69	3.87	3.95	2.92	2.13
	Asia/Pacific	34.94	2.97	7.53	6.84	6.50	4.98	4.53	4.05
	South America, East	7.11	9.40	7.79	6.18	0.72	1.01	0.94	0.79
	South America, West	5.17	10.24	7.66	7.94	0.49	0.74	0.68	0.67
	Central Am. & Caribbean	17.09	9.86	8.66	7.44	1.66	2.44	2.46	2.32
	Africa/Middle East	9.03	-1.33	7.97	8.09	2.57	1.29	1.22	1.22
	World	101.18	4.78	7.24	6.65	15.83	14.43	12.76	11.20
Europe	North America	26.15	2.83	6.88	8.42	4.93	3.73	3.19	3.30
	Europe	51.44	2.40	8.51	8.23	10.12	7.34	7.30	7.43
	Asia/Pacific	79.45	6.71	8.18	7.97	10.35	11.33	10.94	10.86
	South America, East	12.87	1.65	6.71	5.85	2.73	1.84	1.55	1.26
	South America, West	4.30	1.87	6.69	6.21	0.89	0.61	0.52	0.43
	Central Am. & Caribbean	6.05	2.07	8.06	5.31	1.23	0.86	0.82	0.64
	Africa/Middle East	49.31	-0.30	7.41	8.40	12.68	7.04	6.32	6.53
	World	229.57	2.92	7.84	7.98	42.93	32.75	30.64	30.45
Asia/Pacific	North America	136.74	4.66	8.99	8.27	21.63	19.51	20.28	20.71
	Europe	58.04	10.06	8.15	8.15	5.55	8.28	7.97	8.04
	Asia/Pacific	125.26	12.69	10.12	8.52	9.46	17.87	20.60	21.51
	South America, East	3.04	11.04	6.80	6.04	0.27	0.43	0.37	0.31
	South America, West	1.92	15.88	8.82	7.99	0.11	0.27	0.28	0.28
	Central Am. & Caribbean	2.74	7.08	10.55	7.37	0.35	0.39	0.47	0.44
	Africa/Middle East	8.53	2.46	8.73	8.73	1.67	1.22	1.23	1.31
	World	336.28	7.95	9.27	8.34	39.03	47.97	51.19	52.60
South America, East	North America	0.49	-3.03	2.02	0.18	0.17	0.07	0.04	0.02
	Europe	0.70	13.06	7.79	7.80	0.05	0.10	0.09	0.09
	Asia/Pacific	0.66	20.67	11.03	8.70	0.03	0.09	0.12	0.12
	South America, East	1.16	13.31	9.78	8.25	0.08	0.17	0.18	0.19
	South America, West	0.88	13.06	9.70	8.18	0.06	0.13	0.14	0.14
	Central Am. & Caribbean	0.50	8.11	10.73	8.38	0.06	0.07	0.09	0.09
	Africa/Middle East	0.22	9.64	9.31	8.30	0.02	0.03	0.03	0.03
	World	4.59	9.40	9.14	7.95	0.47	0.66	0.69	0.68
South America, West	North America	0.13	11.59	10.78	9.55	0.01	0.02	0.02	0.03
	Europe	0.07	16.66	6.97	7.14	0.00	0.01	0.01	0.01
	Asia/Pacific	0.01	21.64	4.41	4.95	0.00	0.00	0.00	0.00
	South America, East	0.26	22.39	9.47	8.56	0.01	0.04	0.04	0.04
	South America, West	0.19	19.25	8.91	8.87	0.01	0.03	0.03	0.03
	Central Am. & Caribbean	0.11	7.16	8.21	5.79	0.01	0.02	0.02	0.01
	Africa/Middle East	0.00	NA	6.47	6.00	0.00	0.00	0.00	0.00
	World	0.78	15.54	9.13	8.39	0.05	0.11	0.12	0.12
Central Am. & Caribbean	North America	11.96	41.00	10.81	9.01	0.10	1.71	2.09	2.29
	Europe	0.56	16.59	7.71	7.53	0.03	0.08	0.07	0.07
	Asia/Pacific	0.05	16.26	8.36	7.76	0.00	0.01	0.01	0.01
	South America, East	0.23	23.72	9.21	7.59	0.01	0.03	0.04	0.03
	South America, West	0.18	20.29	9.25	7.46	0.01	0.03	0.03	0.03
	Central Am. & Caribbean	0.18	6.57	10.26	8.50	0.02	0.03	0.03	0.03
	Africa/Middle East	0.01	15.50	8.80	8.21	0.00	0.00	0.00	0.00
	World	13.18	34.67	10.63	8.91	0.17	1.88	2.27	2.46
Africa/Middle East	North America	0.76	4.65	10.05	9.56	0.12	0.11	0.12	0.14
	Europe	8.21	9.28	9.12	8.97	0.84	1.17	1.23	1.34
	Asia/Pacific	2.89	17.72	9.79	8.62	0.14	0.41	0.46	0.49
	South America, East	0.48	21.08	9.51	7.71	0.02	0.07	0.08	0.07
	South America, West	0.30	10.73	8.08	6.39	0.03	0.04	0.04	0.04
	Central Am. & Caribbean	0.36	10.25	10.44	8.97	0.03	0.05	0.06	0.07
	Africa/Middle East	2.40	5.50	8.33	7.89	0.35	0.34	0.33	0.33
	World	15.40	9.62	9.21	8.70	1.53	2.20	2.33	2.48
World	World	700.98	5.75	8.56	8.04	100.00	100.00	100.00	100.00

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Bananas and Other Reefer

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	51	7.1	3.6	6.3	0.1	0.1	0.1	0.1
	Europe	1,708	16.0	7.5	8.2	1.8	3.4	3.6	3.8
	Asia/Pacific	4,368	11.0	4.0	3.9	7.0	8.7	6.6	4.7
	South America, East	163	20.6	9.6	8.5	0.1	0.3	0.4	0.5
	South America, West	22	22.7	10.7	9.0	0.0	0.0	0.1	0.1
	Central Am. & Caribbean	237	6.4	11.2	9.4	0.6	0.5	0.7	0.8
	Africa/Middle East	232	3.4	10.5	8.9	0.8	0.5	0.6	0.7
	World	6,780	11.5	5.7	6.2	10.3	13.6	12.1	10.7
Europe	North America	539	-2.0	3.2	6.2	3.0	1.1	0.8	0.7
	Europe	4,523	9.6	8.5	8.5	8.2	9.0	10.4	11.4
	Asia/Pacific	2,121	13.1	7.1	6.8	2.8	4.2	4.3	4.0
	South America, East	153	19.2	9.5	8.6	0.1	0.3	0.4	0.4
	South America, West	9	15.8	8.9	7.9	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	232	6.6	9.7	7.9	0.6	0.5	0.6	0.6
	Africa/Middle East	2,209	2.7	9.9	8.3	7.7	4.4	5.8	6.2
	World	9,786	7.1	8.3	8.0	22.3	19.6	22.2	23.4
Asia/Pacific	North America	1,378	1.9	2.1	6.3	5.2	2.8	1.7	1.6
	Europe	2,660	10.2	7.1	7.3	4.5	5.3	5.4	5.3
	Asia/Pacific	8,590	11.6	6.6	7.5	13.0	17.2	16.6	16.6
	South America, East	17	11.2	8.7	7.9	0.0	0.0	0.0	0.0
	South America, West	10	6.3	8.2	8.7	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	121	2.5	11.4	8.6	0.4	0.2	0.4	0.4
	Africa/Middle East	596	0.4	9.8	8.3	2.6	1.2	1.6	1.7
	World	13,373	8.9	6.5	7.4	25.8	26.7	25.7	25.6
South America, East	North America	734	4.4	2.0	5.1	2.2	1.5	0.9	0.7
	Europe	1,591	10.9	7.7	8.1	2.6	3.2	3.4	3.6
	Asia/Pacific	319	13.0	9.0	9.1	0.4	0.6	0.8	0.9
	South America, East	429	11.6	9.5	8.4	0.7	0.9	1.1	1.2
	South America, West	65	21.2	11.1	9.0	0.0	0.1	0.2	0.2
	Central Am. & Caribbean	43	-9.5	11.6	8.5	0.5	0.1	0.1	0.1
	Africa/Middle East	289	1.7	9.5	8.1	1.1	0.6	0.7	0.8
	World	3,471	7.7	7.4	7.9	7.5	6.9	7.2	7.5
South America, West	North America	1,753	4.0	3.6	7.3	5.3	3.5	2.6	2.5
	Europe	1,391	18.0	9.3	8.5	1.2	2.8	3.5	3.8
	Asia/Pacific	402	22.5	9.2	8.6	0.2	0.8	1.0	1.1
	South America, East	345	27.3	11.0	8.7	0.1	0.7	1.0	1.1
	South America, West	78	16.9	9.1	8.2	0.1	0.2	0.2	0.2
	Central Am. & Caribbean	103	36.0	13.2	8.8	0.0	0.2	0.4	0.4
	Africa/Middle East	160	8.1	12.4	8.7	0.3	0.3	0.5	0.6
	World	4,232	10.1	7.7	8.2	7.3	8.5	9.1	9.7
Central Am. & Caribbean	North America	3,247	5.5	0.8	3.8	8.6	6.5	3.6	2.5
	Europe	2,715	13.7	7.5	7.1	3.4	5.4	5.7	5.5
	Asia/Pacific	60	11.4	8.2	8.5	0.1	0.1	0.1	0.2
	South America, East	12	14.6	9.7	8.0	0.0	0.0	0.0	0.0
	South America, West	1	26.8	9.4	8.5	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	94	17.8	10.4	7.3	0.1	0.2	0.3	0.3
	Africa/Middle East	19	2.3	10.5	7.9	0.1	0.0	0.1	0.1
	World	6,148	8.5	4.6	6.0	12.3	12.3	9.8	8.6
Africa/Middle East	North America	183	5.9	4.0	7.3	0.5	0.4	0.3	0.3
	Europe	3,911	6.2	6.8	7.6	9.7	7.8	7.7	7.8
	Asia/Pacific	771	10.2	8.5	7.2	1.3	1.5	1.8	1.7
	South America, East	5	28.3	8.2	7.3	0.0	0.0	0.0	0.0
	South America, West	0	-9.6	7.4	7.0	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	5	5.7	12.0	8.7	0.0	0.0	0.0	0.0
	Africa/Middle East	1,363	7.3	11.6	8.4	3.0	2.7	4.2	4.6
	World	6,239	6.9	8.2	7.8	14.5	12.5	13.9	14.4
World	World	50,028	8.5	7.0	7.5	100.0	100.0	100.0	100.0

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Lumber Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	1,660	4.0	-0.1	0.6	3.2	2.2	1.3	0.8
	Europe	3,002	8.0	2.9	3.7	4.0	3.9	3.1	2.7
	Asia/Pacific	24,249	5.4	1.8	3.4	41.1	31.7	22.9	19.1
	South America, East	28	14.9	8.2	5.9	0.0	0.0	0.1	0.1
	South America, West	20	15.6	6.6	5.3	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	530	8.9	6.8	5.1	0.7	0.7	0.8	0.8
	Africa/Middle East	367	9.1	8.9	6.1	0.4	0.5	0.7	0.7
	World	29,856	5.7	2.1	3.5	49.4	39.1	28.9	24.3
Europe	North America	279	6.9	5.3	4.9	0.4	0.4	0.4	0.4
	Europe	8,509	9.4	5.9	5.8	10.0	11.1	11.9	12.5
	Asia/Pacific	4,388	14.0	7.0	5.6	3.4	5.7	6.8	7.0
	South America, East	19	6.8	8.4	6.0	0.0	0.0	0.0	0.0
	South America, West	13	17.2	6.9	5.8	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	51	6.9	8.9	6.3	0.1	0.1	0.1	0.1
	Africa/Middle East	2,845	1.9	9.0	6.2	6.8	3.7	5.3	5.8
	World	16,103	8.4	6.8	5.8	20.7	21.1	24.5	25.8
Asia/Pacific	North America	1,234	1.9	2.6	4.7	2.9	1.6	1.3	1.2
	Europe	2,091	5.6	5.9	6.0	3.5	2.7	2.9	3.1
	Asia/Pacific	15,639	13.1	6.9	6.4	13.1	20.5	24.1	26.7
	South America, East	4	20.5	7.7	5.7	0.0	0.0	0.0	0.0
	South America, West	3	52.9	8.1	6.4	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	24	23.0	10.8	6.5	0.0	0.0	0.1	0.1
	Africa/Middle East	780	6.6	9.9	6.4	1.2	1.0	1.6	1.7
	World	19,775	10.6	6.8	6.3	20.7	25.9	30.0	32.8
South America, East	North America	698	8.5	4.7	4.3	0.9	0.9	0.9	0.8
	Europe	1,004	15.9	6.9	5.8	0.7	1.3	1.5	1.6
	Asia/Pacific	126	24.8	7.0	5.8	0.0	0.2	0.2	0.2
	South America, East	120	14.0	9.0	6.5	0.1	0.2	0.2	0.3
	South America, West	6	33.0	7.6	6.4	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	86	11.7	10.3	6.6	0.1	0.1	0.2	0.2
	Africa/Middle East	128	12.3	9.7	6.6	0.1	0.2	0.3	0.3
	World	2,168	12.7	6.7	5.6	1.9	2.8	3.3	3.4
South America, West	North America	611	32.1	3.3	3.3	0.1	0.8	0.7	0.6
	Europe	291	33.3	6.2	5.3	0.1	0.4	0.4	0.4
	Asia/Pacific	1,024	22.2	6.8	5.1	0.4	1.3	1.6	1.5
	South America, East	81	9.3	9.5	6.2	0.1	0.1	0.2	0.2
	South America, West	30	29.3	7.6	7.0	0.0	0.0	0.1	0.1
	Central Am. & Caribbean	55	33.8	9.9	6.0	0.0	0.1	0.1	0.1
	Africa/Middle East	129	9.7	9.4	5.9	0.2	0.2	0.3	0.3
	World	2,221	22.9	6.2	5.0	0.8	2.9	3.2	3.1
Central Am. & Caribbean	North America	80	6.9	5.2	4.6	0.1	0.1	0.1	0.1
	Europe	78	13.6	6.9	5.6	0.1	0.1	0.1	0.1
	Asia/Pacific	18	4.9	7.5	5.6	0.0	0.0	0.0	0.0
	South America, East	1	4.2	7.5	5.8	0.0	0.0	0.0	0.0
	South America, West	0	NA	7.4	6.7	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	60	3.8	8.7	6.2	0.1	0.1	0.1	0.1
	Africa/Middle East	0	NA	9.2	6.2	0.0	0.0	0.0	0.0
	World	238	7.4	6.9	5.5	0.3	0.3	0.4	0.4
Africa/Middle East	North America	57	9.8	7.3	6.0	0.1	0.1	0.1	0.1
	Europe	3,955	9.3	6.8	5.4	4.7	5.2	6.0	6.1
	Asia/Pacific	1,213	24.0	7.7	6.5	0.4	1.6	2.0	2.2
	South America, East	14	35.3	8.2	6.6	0.0	0.0	0.0	0.0
	South America, West	0	NA	5.8	4.9	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	12	12.9	10.1	6.5	0.0	0.0	0.0	0.0
	Africa/Middle East	786	8.0	9.9	6.5	1.0	1.0	1.6	1.8
	World	6,036	10.9	7.4	5.8	6.2	7.9	9.8	10.3
World	World	76,398	8.2	5.2	5.3	100.0	100.0	100.0	100.0

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Fertilizers (incl. Phosphates)

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	1,055	2.9	1.4	1.4	4.9	7.2	5.3	4.0
	Europe	94	-2.4	-0.3	1.3	0.7	0.6	0.4	0.3
	Asia/Pacific	98	2.7	6.3	4.8	0.5	0.7	0.8	0.8
	South America, East	56	6.5	4.0	2.9	0.2	0.4	0.4	0.3
	South America, West	16	7.0	4.8	2.1	0.1	0.1	0.1	0.1
	Central Am. & Caribbean	37	5.7	6.6	4.8	0.1	0.3	0.3	0.3
	Africa/Middle East	15	-6.5	7.4	6.9	0.2	0.1	0.1	0.2
	World	1,371	2.5	2.1	2.2	6.6	9.4	7.4	6.0
Europe	North America	2,221	-0.2	2.2	3.6	13.9	15.2	12.1	11.2
	Europe	2,221	6.4	2.2	1.2	7.3	15.2	12.1	8.8
	Asia/Pacific	467	8.1	7.9	6.0	1.3	3.2	4.4	5.1
	South America, East	109	4.5	5.0	3.6	0.4	0.7	0.8	0.7
	South America, West	27	5.1	4.4	5.0	0.1	0.2	0.2	0.2
	Central Am. & Caribbean	115	0.6	5.4	4.4	0.7	0.8	0.9	0.9
	Africa/Middle East	336	-2.4	6.7	6.7	2.6	2.3	2.8	3.5
	World	5,495	2.5	3.3	3.5	26.4	37.5	33.2	30.3
Asia/Pacific	North America	70	22.1	7.6	7.5	0.1	0.5	0.6	0.9
	Europe	71	7.5	4.1	4.7	0.2	0.5	0.5	0.5
	Asia/Pacific	358	9.0	6.3	5.2	0.9	2.4	2.9	3.1
	South America, East	10	8.2	4.4	4.1	0.0	0.1	0.1	0.1
	South America, West	4	14.0	5.8	6.2	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	9	6.1	4.7	4.8	0.0	0.1	0.1	0.1
	Africa/Middle East	51	-0.7	6.0	6.0	0.3	0.4	0.4	0.5
	World	572	8.2	6.1	5.6	1.6	3.9	4.5	5.1
South America, East	North America	24	-2.4	4.6	4.3	0.2	0.2	0.2	0.2
	Europe	8	16.2	4.9	4.6	0.0	0.1	0.1	0.1
	Asia/Pacific	9	14.2	8.0	6.1	0.0	0.1	0.1	0.1
	South America, East	36	8.2	7.2	6.6	0.1	0.3	0.3	0.4
	South America, West	18	10.0	7.1	7.1	0.0	0.1	0.2	0.2
	Central Am. & Caribbean	30	20.4	8.0	6.0	0.0	0.2	0.3	0.3
	Africa/Middle East	1	7.3	7.0	7.2	0.0	0.0	0.0	0.0
	World	125	7.1	6.9	6.0	0.4	0.9	1.1	1.2
South America, West	North America	164	-2.5	3.0	0.5	1.3	1.1	1.0	0.7
	Europe	45	0.1	1.1	-3.8	0.3	0.3	0.2	0.1
	Asia/Pacific	27	8.1	4.6	-1.2	0.1	0.2	0.2	0.1
	South America, East	16	2.8	2.3	0.9	0.1	0.1	0.1	0.1
	South America, West	3	17.3	8.7	8.5	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	6	55.1	8.0	2.4	0.0	0.0	0.1	0.1
	Africa/Middle East	3	35.6	9.0	6.9	0.0	0.0	0.0	0.0
	World	264	-0.6	3.2	0.3	1.7	1.8	1.6	1.1
Central Am. & Caribbean	North America	802	25.7	7.4	6.2	0.5	5.5	7.1	8.5
	Europe	6	-7.6	1.1	0.7	0.1	0.0	0.0	0.0
	Asia/Pacific	4	5.1	7.4	5.9	0.0	0.0	0.0	0.0
	South America, East	19	8.5	7.1	5.7	0.1	0.1	0.2	0.2
	South America, West	9	23.1	6.7	5.5	0.0	0.1	0.1	0.1
	Central Am. & Caribbean	30	5.0	5.7	6.3	0.1	0.2	0.2	0.3
	Africa/Middle East	3	19.3	3.6	4.7	0.0	0.0	0.0	0.0
	World	873	21.4	7.2	6.2	0.8	6.0	7.7	9.1
Africa/Middle East	North America	1,172	12.3	8.2	7.0	2.3	8.0	11.3	14.4
	Europe	3,044	-10.0	2.6	2.1	53.4	20.8	17.1	13.7
	Asia/Pacific	862	5.3	5.8	4.7	3.2	5.9	6.6	6.8
	South America, East	148	6.9	6.6	4.2	0.5	1.0	1.2	1.2
	South America, West	4	13.6	5.3	5.4	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	69	6.4	8.0	2.5	0.2	0.5	0.7	0.5
	Africa/Middle East	638	2.6	10.5	7.9	3.0	4.4	7.6	10.5
	World	5,938	-5.3	5.5	5.0	62.6	40.6	44.5	47.2
World	World	14,638	-1.1	4.6	4.4	100.0	100.0	100.0	100.0

Table B-2: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Crude Oil

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of World Trade 1985	1995	2005	2015
North America	North America	773	3.4	9.1	6.0	0.1	0.1	0.1	0.1
	Europe	1	NA	1.7	3.1	0.0	0.0	0.0	0.0
	Asia/Pacific	427	39.6	8.1	7.9	0.0	0.0	0.0	0.1
	South America, East	0	NA	NA	NA	0.0	0.0	0.0	0.0
	South America, West	0	NA	NA	NA	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	0	NA	NA	NA	0.0	0.0	0.0	0.0
	Africa/Middle East	0	NA	NA	NA	0.0	0.0	0.0	0.0
	World	1,201	7.8	8.8	6.7	0.1	0.1	0.1	0.2
Europe	North America	45,052	9.7	6.8	7.1	2.7	3.1	4.0	5.2
	Europe	83,702	5.5	2.8	3.2	7.2	5.7	5.0	4.5
	Asia/Pacific	723	-12.5	8.0	7.1	0.4	0.1	0.1	0.1
	South America, East	754	4.8	7.7	7.9	0.1	0.1	0.1	0.1
	South America, West	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Central Am. & Caribbean	2,068	-8.1	0.9	1.0	0.7	0.1	0.1	0.1
	Africa/Middle East	7,715	13.2	5.6	5.8	0.3	0.5	0.6	0.7
	World	140,014	6.1	4.4	5.1	11.4	9.5	9.9	10.7
Asia/Pacific	North America	7,160	-9.4	2.4	2.4	2.8	0.5	0.4	0.4
	Europe	1,257	13.3	2.1	1.9	0.1	0.1	0.1	0.1
	Asia/Pacific	110,309	4.0	4.7	4.6	11.0	7.5	8.0	8.3
	South America, East	222	-19.8	3.8	0.9	0.3	0.0	0.0	0.0
	South America, West	558	152.9	7.7	5.0	0.0	0.0	0.1	0.1
	Central Am. & Caribbean	234	-16.0	0.7	1.0	0.2	0.0	0.0	0.0
	Africa/Middle East	1,048	16.6	5.7	4.5	0.0	0.1	0.1	0.1
	World	120,787	2.2	4.6	4.5	14.4	8.2	8.7	8.9
South America, East	North America	76,597	15.1	9.0	7.7	2.8	5.2	8.3	11.5
	Europe	8,088	-3.8	-1.5	-2.1	1.8	0.6	0.3	0.2
	Asia/Pacific	889	7.0	5.8	4.8	0.1	0.1	0.1	0.1
	South America, East	8,659	16.6	7.4	6.2	0.3	0.6	0.8	1.0
	South America, West	4,055	11.2	1.5	1.6	0.2	0.3	0.2	0.2
	Central Am. & Caribbean	22,743	16.8	8.9	8.8	0.7	1.6	2.4	3.7
	Africa/Middle East	29	-2.1	5.7	4.9	0.0	0.0	0.0	0.0
	World	121,061	11.9	8.1	7.6	5.8	8.3	12.1	16.6
South America, West	North America	7,773	5.0	-0.1	2.9	0.7	0.5	0.4	0.3
	Europe	0	NA	NA	NA	0.0	0.0	0.0	0.0
	Asia/Pacific	3,244	5.6	5.7	5.6	0.3	0.2	0.3	0.3
	South America, East	166	0.2	6.9	4.5	0.0	0.0	0.0	0.0
	South America, West	2,048	29.4	6.4	4.9	0.0	0.1	0.2	0.2
	Central Am. & Caribbean	1,817	6.7	8.1	4.5	0.1	0.1	0.2	0.2
	Africa/Middle East	0	NA	NA	NA	0.0	0.0	0.0	0.0
	World	15,048	6.6	3.6	4.4	1.2	1.0	1.0	1.0
Central Am. & Caribbean	North America	51,448	3.0	2.4	2.3	5.7	3.5	3.0	2.5
	Europe	9,821	-3.4	-2.2	-2.2	2.1	0.7	0.4	0.2
	Asia/Pacific	5,032	-4.8	3.6	3.1	1.2	0.3	0.3	0.3
	South America, East	1,413	-3.6	7.0	4.1	0.3	0.1	0.1	0.1
	South America, West	596	171.3	7.8	5.9	0.0	0.0	0.1	0.1
	Central Am. & Caribbean	3,971	-2.1	6.0	5.2	0.7	0.3	0.3	0.4
	Africa/Middle East	835	-9.9	3.2	0.6	0.4	0.1	0.1	0.0
	World	73,117	0.5	2.4	2.4	10.3	5.0	4.2	3.6
Africa/Middle East	North America	132,034	17.4	7.4	5.5	3.9	9.0	12.3	13.9
	Europe	336,758	6.2	0.2	-0.3	27.3	23.0	15.8	10.1
	Asia/Pacific	436,216	13.5	3.4	4.0	18.2	29.7	28.0	27.4
	South America, East	22,161	2.3	5.4	2.2	2.6	1.5	1.7	1.4
	South America, West	2,822	16.1	6.5	6.1	0.1	0.2	0.2	0.3
	Central Am. & Caribbean	6,868	2.6	2.3	2.8	0.8	0.5	0.4	0.4
	Africa/Middle East	59,016	8.1	7.5	4.4	4.0	4.0	5.6	5.7
	World	995,875	10.0	3.4	3.4	56.9	67.9	64.0	59.0
World	World	1,467,102	8.0	4.1	4.2	100.0	100.0	100.0	100.0

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Bulk Chemicals, Other Than Organic Chemicals

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	195.34	10.23	7.17	6.13	1.38	2.48	2.67	2.77	0.21	0.36	0.42	0.45
	Non Panama Canal	2,077.28	0.22	4.73	4.73	38.03	26.35	22.56	20.47	5.66	3.86	3.51	3.36
	Panama Canal/Non Panama Canal	5,610.16	5.65	6.89	6.03	60.59	71.17	74.76	76.76	9.02	10.41	11.64	12.62
	World	7,882.77	3.96	6.36	5.75	100.00	100.00	100.00	100.00	14.88	14.63	15.57	16.44
Europe	Panama Canal	262.10	4.16	6.70	5.59	0.71	0.80	0.95	1.05	0.49	0.49	0.53	0.56
	Non Panama Canal	27,162.43	2.58	4.54	4.52	85.49	82.65	80.54	79.69	58.62	50.41	45.12	42.33
	Panama Canal/Non Panama Canal	5,439.83	4.81	5.99	5.04	13.80	16.55	18.51	19.26	9.46	10.10	10.37	10.23
	World	32,864.35	2.93	4.81	4.63	100.00	100.00	100.00	100.00	68.56	61.00	56.02	53.11
Asia/Pacific	Panama Canal	44.80	10.77	7.95	5.90	0.58	0.55	0.54	0.54	0.04	0.08	0.10	0.11
	Non Panama Canal	6,152.25	12.39	8.48	6.10	69.06	75.30	78.37	78.90	5.33	11.42	14.80	16.15
	Panama Canal/Non Panama Canal	1,973.39	8.90	6.59	5.77	30.36	24.15	21.09	20.56	2.34	3.66	3.98	4.21
	World	8,170.43	11.42	8.05	6.03	100.00	100.00	100.00	100.00	7.71	15.16	18.88	20.46
South America, East	Panama Canal	185.14	7.09	7.83	8.02	24.04	27.41	29.25	33.60	0.26	0.34	0.42	0.55
	Non Panama Canal	343.55	6.39	7.51	6.64	47.63	50.87	52.70	53.25	0.51	0.64	0.76	0.87
	Panama Canal/Non Panama Canal	146.66	2.92	5.17	3.20	28.34	21.72	18.05	13.14	0.31	0.27	0.26	0.21
	World	675.36	5.69	7.14	6.53	100.00	100.00	100.00	100.00	1.08	1.25	1.43	1.63
South America, West	Panama Canal	124.94	10.79	4.89	4.90	48.92	44.43	41.92	40.44	0.12	0.23	0.21	0.21
	Non Panama Canal	76.22	12.61	6.03	5.31	25.35	27.10	28.49	28.57	0.06	0.14	0.15	0.15
	Panama Canal/Non Panama Canal	80.04	13.00	5.92	5.76	25.73	28.46	29.60	30.99	0.07	0.15	0.15	0.16
	World	281.20	11.86	5.51	5.28	100.00	100.00	100.00	100.00	0.26	0.52	0.51	0.52
Central Am. & Caribbean	Panama Canal/Non Panama Canal	884.24	5.48	5.78	5.54	100.00	100.00	100.00	100.00	1.44	1.64	1.65	1.71
	World	884.24	5.48	5.78	5.54	100.00	100.00	100.00	100.00	1.44	1.64	1.65	1.71
Africa/Middle East	Panama Canal	1.92	-1.02	5.86	4.92	0.10	0.06	0.06	0.06	0.01	0.00	0.00	0.00
	Non Panama Canal	1,748.98	1.15	5.39	5.47	71.63	56.07	53.21	52.83	4.34	3.25	3.15	3.24
	Panama Canal/Non Panama Canal	1,368.50	8.31	6.62	5.63	28.27	43.87	46.73	47.11	1.71	2.54	2.77	2.89
	World	3,119.40	3.66	5.95	5.55	100.00	100.00	100.00	100.00	6.06	5.79	5.92	6.13
World	Panama Canal	814.24	7.25	6.90	6.30	1.13	1.51	1.69	1.88	1.13	1.51	1.69	1.88
	Non Panama Canal	37,560.70	3.45	5.36	4.97	74.52	69.71	67.48	66.09	74.52	69.71	67.48	66.09
	Panama Canal/Non Panama Canal	15,502.80	5.89	6.44	5.59	24.35	28.77	30.83	32.03	24.35	28.77	30.83	32.03
	World	53,877.75	4.14	5.70	5.18	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Coal & Coke

Export Region	Import Region	Annual Compound Growth Rates				% Share of Regional Trade				% Share of World Trade			
		1995	1985-95	95-2005	2005-15	1985	1995	2005	2015	1985	1995	2005	2015
North America	Panama Canal	19.50	-0.59	-1.36	1.01	0.34	0.34	0.26	0.26	0.12	0.10	0.06	0.04
	Non Panama Canal	2,841.96	0.54	0.47	-0.22	44.40	50.15	45.92	39.78	15.35	14.11	9.94	6.81
	Panama Canal/Non Panama Canal	2,805.91	-1.76	2.21	2.33	55.26	49.51	53.82	59.97	19.11	13.93	11.65	10.27
	World	5,667.36	-0.68	1.36	1.23	100.00	100.00	100.00	100.00	34.58	28.13	21.65	17.12
Europe	Panama Canal	0.06	9.25	0.54	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Non Panama Canal	3,425.04	-4.35	1.96	2.72	96.24	92.39	90.79	90.41	30.46	17.00	13.88	12.71
	Panama Canal/Non Panama Canal	282.15	3.06	4.11	3.18	3.76	7.61	9.21	9.59	1.19	1.40	1.41	1.35
	World	3,707.26	-3.96	2.14	2.77	100.00	100.00	100.00	100.00	31.65	18.40	15.29	14.06
Asia/Pacific	Panama Canal	241.13	15.92	5.31	3.50	1.29	2.98	2.79	2.52	0.31	1.20	1.35	1.33
	Non Panama Canal	5,836.52	6.05	6.92	4.77	75.77	72.07	78.48	80.17	18.49	28.97	38.03	42.43
	Panama Canal/Non Panama Canal	2,020.93	7.48	3.02	3.73	22.94	24.95	18.73	17.31	5.60	10.03	9.08	9.16
	World	8,098.58	6.58	6.01	4.55	100.00	100.00	100.00	100.00	24.40	40.20	48.45	52.93
South America, East	Panama Canal	3.40	-100.00	2.23	3.32	0.00	2.39	2.23	2.15	0.00	0.02	0.01	0.01
	Non Panama Canal	94.83	50.44	3.71	3.85	100.00	66.76	71.80	73.04	0.01	0.47	0.46	0.47
	Panama Canal/Non Panama Canal	43.83	-100.00	1.20	3.20	0.00	30.85	25.97	24.80	0.00	0.22	0.16	0.16
	World	142.06	56.64	2.95	3.68	100.00	100.00	100.00	100.00	0.01	0.71	0.63	0.64
South America, West	Panama Canal	413.62	17.04	5.51	4.61	68.92	75.55	82.83	85.73	0.49	2.05	2.36	2.59
	Non Panama Canal	34.08	29.81	3.07	3.18	2.02	6.23	5.40	4.87	0.01	0.17	0.15	0.15
	Panama Canal/Non Panama Canal	99.78	10.68	0.08	1.93	29.07	18.23	11.77	9.40	0.21	0.50	0.34	0.28
	World	547.49	15.97	4.55	4.25	100.00	100.00	100.00	100.00	0.71	2.72	2.85	3.03
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1.77	-3.64	-1.19	1.45	100.00	100.00	100.00	100.00	0.01	0.01	0.01	0.00
	World	1.77	-3.64	-1.19	1.45	100.00	100.00	100.00	100.00	0.01	0.01	0.01	0.00
Africa/Middle East	Panama Canal	44.36	-100.00	5.96	5.16	0.00	2.24	2.37	2.50	0.00	0.22	0.26	0.31
	Non Panama Canal	1,282.16	2.54	4.28	4.39	65.91	64.70	58.47	57.29	5.69	6.36	6.50	7.00
	Panama Canal/Non Panama Canal	655.29	2.42	7.14	4.88	34.09	33.07	39.15	40.21	2.94	3.25	4.36	4.91
	World	1,981.81	2.73	5.34	4.61	100.00	100.00	100.00	100.00	8.63	9.84	11.12	12.22
World	Panama Canal	722.07	16.15	5.32	4.24	0.92	3.58	4.05	4.29	0.92	3.58	4.05	4.29
	Non Panama Canal	13,514.59	0.96	4.34	3.72	70.02	67.08	68.96	69.57	70.02	67.08	68.96	69.57
	Panama Canal/Non Panama Canal	5,909.66	1.49	3.19	3.30	29.06	29.33	27.00	26.14	29.06	29.33	27.00	26.14
	World	20,146.32	1.39	4.05	3.63	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Grain and Oil Seeds

Export Region	Import Region	Annual Compound Growth Rates				% Share of Regional Trade				% Share of World Trade			
		1995	1985-95	95-2005	2005-15	1985	1995	2005	2015	1985	1995	2005	2015
North America	Panama Canal	932.13	7.28	4.75	4.50	1.93	2.82	3.21	3.42	0.80	1.10	1.20	1.22
	Non Panama Canal	13,930.40	0.34	3.88	4.34	56.42	42.15	44.11	46.32	23.29	16.43	16.46	16.52
	Panama Canal/Non Panama Canal	18,188.44	6.23	2.96	3.35	41.65	55.03	52.68	50.26	17.20	21.45	19.66	17.93
	World	33,050.97	3.31	3.41	3.84	100.00	100.00	100.00	100.00	41.29	38.98	37.32	35.68
Europe	Panama Canal	109.73	19.44	6.56	5.58	0.11	0.49	0.65	0.75	0.03	0.13	0.17	0.19
	Non Panama Canal	20,505.68	1.96	3.33	4.08	97.77	91.64	89.71	88.88	29.22	24.19	22.97	22.48
	Panama Canal/Non Panama Canal	1,761.28	17.01	5.66	4.95	2.12	7.87	9.63	10.37	0.63	2.08	2.47	2.62
	World	22,376.69	2.62	3.55	4.18	100.00	100.00	100.00	100.00	29.88	26.39	25.60	25.29
Asia/Pacific	Panama Canal	90.42	-0.41	2.77	1.66	1.20	0.68	0.56	0.41	0.16	0.11	0.10	0.07
	Non Panama Canal	9,926.23	4.83	5.01	4.93	79.03	74.51	75.74	76.74	10.71	11.71	13.07	13.87
	Panama Canal/Non Panama Canal	3,306.10	7.88	4.36	4.41	19.77	24.82	23.71	22.85	2.68	3.90	4.09	4.13
	World	13,322.75	5.45	4.84	4.79	100.00	100.00	100.00	100.00	13.55	15.71	17.25	18.08
South America, East	Panama Canal	1,439.81	6.51	4.46	4.70	10.38	13.86	14.95	15.73	1.33	1.70	1.80	1.87
	Non Panama Canal	8,571.42	3.37	3.46	4.08	83.32	82.53	80.82	80.08	10.65	10.11	9.73	9.52
	Panama Canal/Non Panama Canal	374.74	-2.15	5.35	4.07	6.31	3.61	4.23	4.19	0.81	0.44	0.51	0.50
	World	10,385.97	3.47	3.68	4.17	100.00	100.00	100.00	100.00	12.78	12.25	12.04	11.88
South America, West	Panama Canal	559.97	6.66	3.53	6.68	52.59	34.79	29.52	28.16	0.51	0.66	0.64	0.80
	Non Panama Canal	929.56	16.30	5.93	7.43	36.75	57.75	61.63	63.03	0.36	1.10	1.34	1.79
	Panama Canal/Non Panama Canal	120.01	7.26	7.07	7.13	10.66	7.46	8.85	8.81	0.10	0.14	0.19	0.25
	World	1,609.54	11.16	5.24	7.18	100.00	100.00	100.00	100.00	0.97	1.90	2.17	2.84
Central Am. & Caribbean	Panama Canal/Non Panama Canal	521.01	15.98	4.53	4.85	100.00	100.00	100.00	100.00	0.20	0.61	0.66	0.69
	World	521.01	15.98	4.53	4.85	100.00	100.00	100.00	100.00	0.20	0.61	0.66	0.69
Africa/Middle East	Panama Canal	37.66	48.69	3.51	1.74	0.09	1.07	0.86	0.60	0.00	0.04	0.04	0.03
	Non Panama Canal	1,754.60	10.46	5.42	5.61	85.19	49.95	48.40	49.18	1.12	2.07	2.40	2.72
	Panama Canal/Non Panama Canal	1,720.19	31.40	6.13	5.34	14.71	48.97	50.73	50.22	0.19	2.03	2.52	2.78
	World	3,512.44	16.51	5.76	5.44	100.00	100.00	100.00	100.00	1.32	4.14	4.96	5.53
World	Panama Canal	3,169.71	6.84	4.41	4.94	2.83	3.74	3.94	4.19	2.83	3.74	3.94	4.19
	Non Panama Canal	55,617.90	2.48	3.92	4.45	75.35	65.60	65.97	66.91	75.35	65.60	65.97	66.91
	Panama Canal/Non Panama Canal	25,991.76	7.50	3.67	3.88	21.82	30.66	30.09	28.90	21.82	30.66	30.09	28.90
	World	84,779.38	3.91	3.86	4.30	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Automobiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	600.06	15.36	6.71	5.34	0.49	1.10	1.38	1.64	0.09	0.23	0.28	0.32
	Non Panama Canal	5,580.45	17.53	6.47	4.93	3.75	10.22	12.52	14.36	0.68	2.14	2.53	2.79
	Panama Canal/Non Panama Canal	48,446.70	5.51	4.01	3.25	95.77	88.69	86.10	83.99	17.42	18.61	17.43	16.30
	World	54,627.21	6.32	4.32	3.50	100.00	100.00	100.00	100.00	18.19	20.99	20.24	19.40
Europe	Panama Canal	825.36	14.99	6.50	5.12	0.26	0.59	0.69	0.75	0.13	0.32	0.38	0.42
	Non Panama Canal	124,703.16	5.45	4.61	4.14	94.51	89.16	87.52	86.88	45.08	47.91	47.52	48.44
	Panama Canal/Non Panama Canal	14,328.54	13.45	6.29	4.71	5.23	10.25	11.79	12.37	2.49	5.51	6.40	6.89
	World	139,857.05	6.07	4.81	4.21	100.00	100.00	100.00	100.00	47.69	53.73	54.30	55.75
Asia/Pacific	Panama Canal	1,082.97	22.08	6.68	5.24	0.28	2.08	2.52	2.93	0.09	0.42	0.50	0.57
	Non Panama Canal	20,188.49	5.02	6.28	4.47	23.19	38.73	45.31	48.86	7.60	7.76	9.01	9.48
	Panama Canal/Non Panama Canal	30,848.57	-2.76	3.32	2.87	76.53	59.19	52.17	48.22	25.08	11.85	10.38	9.36
	World	52,120.03	-0.23	4.63	3.68	100.00	100.00	100.00	100.00	32.77	20.02	19.89	19.40
South America, East	Panama Canal	837.99	17.23	5.95	4.44	13.06	29.76	28.55	28.20	0.11	0.32	0.36	0.38
	Non Panama Canal	1,762.16	5.50	6.44	4.57	78.83	62.59	62.90	62.93	0.63	0.68	0.80	0.85
	Panama Canal/Non Panama Canal	215.28	7.33	7.59	4.95	8.11	7.65	8.56	8.87	0.07	0.08	0.11	0.12
	World	2,815.42	7.96	6.39	4.57	100.00	100.00	100.00	100.00	0.80	1.08	1.27	1.35
South America, West	Panama Canal	76.79	64.38	7.44	5.17	4.41	40.65	44.55	46.82	0.00	0.03	0.04	0.04
	Non Panama Canal	110.65	25.55	5.73	4.21	94.18	58.58	54.68	52.41	0.01	0.04	0.05	0.05
	Panama Canal/Non Panama Canal	1.45	23.91	6.46	4.62	1.41	0.77	0.77	0.77	0.00	0.00	0.00	0.00
	World	188.89	31.65	6.46	4.65	100.00	100.00	100.00	100.00	0.01	0.07	0.09	0.09
Central Am. & Caribbean	Panama Canal/Non Panama Canal	7,911.27	42.88	4.22	2.74	100.00	100.00	100.00	100.00	0.14	3.04	2.90	2.59
	World	7,911.27	42.88	4.22	2.74	100.00	100.00	100.00	100.00	0.14	3.04	2.90	2.59
Africa/Middle East	Panama Canal	16.45	50.60	6.12	4.81	0.04	0.60	0.55	0.56	0.00	0.01	0.01	0.01
	Non Panama Canal	1,442.12	13.55	7.08	5.20	63.19	52.33	53.24	55.31	0.25	0.55	0.69	0.78
	Panama Canal/Non Panama Canal	1,297.06	18.61	6.70	4.32	36.77	47.07	46.20	44.14	0.14	0.50	0.60	0.62
	World	2,755.63	15.71	6.90	4.80	100.00	100.00	100.00	100.00	0.39	1.06	1.30	1.42
World	Panama Canal	3,439.60	17.82	6.48	5.04	0.41	1.32	1.56	1.74	0.41	1.32	1.56	1.74
	Non Panama Canal	153,787.03	5.71	4.96	4.24	54.25	59.09	60.61	62.38	54.25	59.09	60.61	62.38
	Panama Canal/Non Panama Canal	103,048.87	3.40	4.22	3.39	45.34	39.59	37.83	35.88	45.34	39.59	37.83	35.88
	World	260,275.49	4.81	4.70	3.94	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Iron & Steel

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	202.38	16.33	3.73	3.25	1.37	2.23	2.33	2.54	0.05	0.16	0.15	0.14
	Non Panama Canal	1,665.16	12.06	4.28	3.78	16.35	18.32	20.24	23.21	0.60	1.30	1.30	1.28
	Panama Canal/Non Panama Canal	7,222.38	10.41	2.98	1.94	82.28	79.45	77.43	74.25	3.00	5.64	4.98	4.08
	World	9,089.92	10.79	3.25	2.37	100.00	100.00	100.00	100.00	3.65	7.10	6.43	5.50
Europe	Panama Canal	327.09	5.26	3.73	2.84	0.35	0.40	0.37	0.32	0.22	0.26	0.24	0.22
	Non Panama Canal	67,219.22	2.72	4.58	4.53	90.77	82.39	82.33	84.35	57.51	52.49	54.06	57.06
	Panama Canal/Non Panama Canal	14,042.35	10.81	4.64	3.03	8.88	17.21	17.30	15.33	5.63	10.96	11.36	10.37
	World	81,588.66	3.72	4.59	4.28	100.00	100.00	100.00	100.00	63.36	63.71	65.66	67.64
Asia/Pacific	Panama Canal	55.49	-5.32	2.57	1.82	0.42	0.22	0.20	0.18	0.11	0.04	0.04	0.03
	Non Panama Canal	21,006.22	3.36	3.45	2.69	66.79	82.35	83.55	81.18	16.89	16.40	15.14	13.39
	Panama Canal/Non Panama Canal	4,445.79	-4.98	2.58	4.41	32.78	17.43	16.25	18.64	8.29	3.47	2.95	3.07
	World	25,507.49	1.22	3.30	2.99	100.00	100.00	100.00	100.00	25.29	19.92	18.13	16.49
South America, East	Panama Canal	2,287.18	1.58	4.02	3.17	50.70	42.64	36.85	30.09	2.19	1.79	1.74	1.61
	Non Panama Canal	1,508.72	5.67	5.35	4.84	22.54	28.13	27.59	26.46	0.97	1.18	1.30	1.42
	Panama Canal/Non Panama Canal	1,567.45	4.27	7.64	7.41	26.77	29.23	35.56	43.45	1.15	1.22	1.68	2.33
	World	5,363.35	3.36	5.55	5.28	100.00	100.00	100.00	100.00	4.31	4.19	4.73	5.36
South America, West	Panama Canal	51.18	10.74	4.45	4.91	28.60	34.54	33.88	34.62	0.02	0.04	0.04	0.04
	Non Panama Canal	46.30	4.76	3.88	3.23	45.06	31.25	29.03	25.25	0.03	0.04	0.03	0.03
	Panama Canal/Non Panama Canal	50.69	11.54	5.50	5.51	26.34	34.21	37.10	40.14	0.02	0.04	0.04	0.05
	World	148.16	8.67	4.65	4.69	100.00	100.00	100.00	100.00	0.07	0.12	0.12	0.13
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1,631.07	12.42	5.44	5.19	100.00	100.00	100.00	100.00	0.57	1.27	1.42	1.60
	World	1,631.07	12.42	5.44	5.19	100.00	100.00	100.00	100.00	0.57	1.27	1.42	1.60
Africa/Middle East	Panama Canal	76.75	14.20	4.26	3.04	0.83	1.62	1.70	1.67	0.02	0.06	0.06	0.05
	Non Panama Canal	2,912.34	4.68	4.31	3.83	75.13	61.42	64.93	68.51	2.06	2.27	2.28	2.25
	Panama Canal/Non Panama Canal	1,752.73	11.51	2.68	2.12	24.04	36.96	33.36	29.82	0.66	1.37	1.17	0.98
	World	4,741.83	6.82	3.73	3.27	100.00	100.00	100.00	100.00	2.74	3.70	3.51	3.28
World	Panama Canal	3,000.06	2.56	3.96	3.15	2.61	2.34	2.27	2.10	2.61	2.34	2.27	2.10
	Non Panama Canal	94,357.95	3.07	4.34	4.15	78.07	73.68	74.13	75.42	78.07	73.68	74.13	75.42
	Panama Canal/Non Panama Canal	30,712.47	5.93	4.11	3.47	19.32	23.98	23.60	22.48	19.32	23.98	23.60	22.48
	World	128,070.48	3.66	4.28	3.97	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Paper

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	502.94	12.16	9.22	6.70	1.77	2.39	3.04	3.57	0.38	0.59	0.68	0.72
	Non Panama Canal	3,143.20	10.80	8.90	6.62	12.49	14.91	18.45	21.48	2.71	3.67	4.15	4.34
	Panama Canal/Non Panama Canal	17,432.93	8.46	6.05	4.52	85.75	82.70	78.51	74.96	18.61	20.36	17.67	15.14
	World	21,079.06	8.85	6.60	5.01	100.00	100.00	100.00	100.00	21.70	24.62	22.51	20.20
Europe	Panama Canal	194.77	11.02	10.62	8.12	0.24	0.38	0.53	0.66	0.16	0.23	0.30	0.36
	Non Panama Canal	47,030.57	5.81	6.71	5.55	93.39	92.02	89.86	88.04	64.30	54.94	50.73	47.93
	Panama Canal/Non Panama Canal	3,881.61	7.85	9.51	7.49	6.37	7.60	9.61	11.29	4.38	4.53	5.42	6.15
	World	51,106.96	5.97	6.97	5.76	100.00	100.00	100.00	100.00	68.84	59.70	56.46	54.44
Asia/Pacific	Panama Canal	19.33	11.44	10.22	7.78	0.24	0.22	0.22	0.22	0.02	0.02	0.03	0.03
	Non Panama Canal	7,276.56	13.65	10.56	7.81	75.27	84.57	86.48	86.97	4.87	8.50	11.18	13.05
	Panama Canal/Non Panama Canal	1,308.32	7.11	8.84	7.35	24.48	15.21	13.29	12.81	1.58	1.53	1.72	1.92
	World	8,604.22	12.33	10.31	7.75	100.00	100.00	100.00	100.00	6.47	10.05	12.93	15.01
South America, East	Panama Canal	363.40	15.62	11.33	8.54	20.86	20.06	19.63	18.87	0.20	0.42	0.60	0.75
	Non Panama Canal	1,092.27	19.31	11.88	9.20	45.80	60.29	62.01	63.32	0.45	1.28	1.89	2.51
	Panama Canal/Non Panama Canal	355.91	10.09	10.82	8.64	33.34	19.65	18.36	17.81	0.33	0.42	0.56	0.71
	World	1,811.57	16.07	11.57	8.97	100.00	100.00	100.00	100.00	0.98	2.12	3.05	3.96
South America, West	Panama Canal	147.05	13.77	11.14	8.45	35.89	37.27	36.63	36.30	0.10	0.17	0.24	0.30
	Non Panama Canal	203.18	17.74	11.63	8.74	35.19	51.50	52.92	53.84	0.10	0.24	0.34	0.44
	Panama Canal/Non Panama Canal	44.34	3.12	10.53	7.91	28.92	11.24	10.46	9.86	0.08	0.05	0.07	0.08
	World	394.57	13.34	11.33	8.55	100.00	100.00	100.00	100.00	0.27	0.46	0.65	0.81
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1,058.77	15.84	11.76	8.87	100.00	100.00	100.00	100.00	0.59	1.24	1.81	2.34
	World	1,058.77	15.84	11.76	8.87	100.00	100.00	100.00	100.00	0.59	1.24	1.81	2.34
Africa/Middle East	Panama Canal	21.53	9.32	9.38	7.57	1.85	1.38	1.14	1.05	0.02	0.03	0.03	0.03
	Non Panama Canal	1,167.95	11.77	11.51	8.47	80.58	75.13	75.25	74.88	0.92	1.36	1.96	2.43
	Panama Canal/Non Panama Canal	365.18	15.88	11.55	8.74	17.57	23.49	23.61	24.07	0.20	0.43	0.61	0.78
	World	1,554.65	12.56	11.49	8.53	100.00	100.00	100.00	100.00	1.15	1.82	2.60	3.24
World	Panama Canal	1,249.01	12.97	10.33	7.79	0.89	1.46	1.88	2.19	0.89	1.46	1.88	2.19
	Non Panama Canal	59,913.72	6.99	7.61	6.21	73.34	69.98	70.25	70.69	73.34	69.98	70.25	70.69
	Panama Canal/Non Panama Canal	24,447.06	8.60	7.30	5.86	25.77	28.56	27.86	27.11	25.77	28.56	27.86	27.11
	World	85,609.79	7.49	7.57	6.15	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Textiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	233.63	14.52	7.82	5.78	1.85	2.77	3.23	3.45	0.08	0.16	0.20	0.22
	Non Panama Canal	2,453.34	7.61	5.41	4.81	36.23	29.08	27.08	26.38	1.55	1.65	1.65	1.71
	Panama Canal/Non Panama Canal	5,748.19	11.05	6.40	5.16	61.92	68.15	69.68	70.17	2.65	3.87	4.25	4.54
	World	8,435.16	9.99	6.17	5.09	100.00	100.00	100.00	100.00	4.29	5.68	6.10	6.48
Europe	Panama Canal	179.16	11.24	7.01	5.32	0.14	0.29	0.40	0.47	0.08	0.12	0.14	0.15
	Non Panama Canal	57,786.34	3.46	3.30	3.57	94.48	92.04	90.62	90.02	54.15	38.94	31.78	29.17
	Panama Canal/Non Panama Canal	4,816.91	7.49	5.10	4.23	5.38	7.67	8.98	9.51	3.08	3.25	3.15	3.08
	World	62,782.41	3.73	3.46	3.64	100.00	100.00	100.00	100.00	57.31	42.31	35.07	32.40
Asia/Pacific	Panama Canal	610.44	29.58	9.16	6.46	0.19	0.91	1.14	1.34	0.06	0.41	0.58	0.71
	Non Panama Canal	52,450.02	11.81	7.20	4.95	70.04	77.76	81.70	83.43	22.63	35.35	41.79	43.80
	Panama Canal/Non Panama Canal	14,390.02	7.02	4.37	3.49	29.77	21.33	17.16	15.23	9.62	9.70	8.77	8.00
	World	67,450.48	10.64	6.67	4.73	100.00	100.00	100.00	100.00	32.31	45.46	51.14	52.50
South America, East	Panama Canal	479.84	7.41	8.05	6.55	20.06	29.50	31.97	31.91	0.31	0.32	0.41	0.50
	Non Panama Canal	832.93	2.98	7.03	6.39	53.06	51.21	50.48	49.63	0.82	0.56	0.65	0.78
	Panama Canal/Non Panama Canal	313.58	-0.03	6.18	7.11	26.88	19.28	17.55	18.46	0.41	0.21	0.23	0.29
	World	1,626.35	3.34	7.18	6.57	100.00	100.00	100.00	100.00	1.54	1.10	1.29	1.58
South America, West	Panama Canal	214.82	6.41	5.40	5.06	38.95	44.02	39.11	37.12	0.15	0.14	0.14	0.15
	Non Panama Canal	137.41	15.29	8.23	6.25	11.18	28.16	32.61	34.64	0.04	0.09	0.12	0.14
	Panama Canal/Non Panama Canal	135.79	-0.85	6.82	5.59	49.88	27.82	28.28	28.24	0.19	0.09	0.10	0.12
	World	488.03	5.11	6.65	5.61	100.00	100.00	100.00	100.00	0.39	0.33	0.37	0.41
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1,617.21	14.26	8.05	5.91	100.00	100.00	100.00	100.00	0.56	1.09	1.39	1.60
	World	1,617.21	14.26	8.05	5.91	100.00	100.00	100.00	100.00	0.56	1.09	1.39	1.60
Africa/Middle East	Panama Canal	18.63	21.87	8.55	5.99	0.09	0.31	0.36	0.39	0.00	0.01	0.02	0.02
	Non Panama Canal	5,440.62	8.05	6.78	5.31	91.83	90.94	90.21	89.97	3.30	3.67	4.17	4.52
	Panama Canal/Non Panama Canal	523.18	9.03	7.68	5.57	8.07	8.75	9.43	9.64	0.29	0.35	0.44	0.48
	World	5,982.42	8.16	6.87	5.33	100.00	100.00	100.00	100.00	3.60	4.03	4.62	5.02
World	Panama Canal	1,736.52	12.80	8.04	6.16	0.69	1.17	1.50	1.76	0.69	1.17	1.50	1.76
	Non Panama Canal	119,100.66	6.64	5.40	4.46	82.50	80.27	80.17	80.13	82.50	80.27	80.17	80.13
	Panama Canal/Non Panama Canal	27,544.87	7.99	5.29	4.33	16.82	18.56	18.34	18.11	16.82	18.56	18.34	18.11
	World	148,382.05	6.93	5.42	4.46	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Machinery, Other Vehicles & Transport Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	3,356.15	12.05	8.52	7.76	1.31	2.24	2.45	2.77	0.25	0.44	0.48	0.53
	Non Panama Canal	44,436.52	6.02	7.18	6.27	30.19	29.61	28.65	28.15	5.85	5.87	5.56	5.36
	Panama Canal/Non Panama Canal	102,287.40	6.17	7.65	6.49	68.50	68.16	68.90	69.08	13.28	13.52	13.38	13.16
	World	150,080.06	6.23	7.53	6.46	100.00	100.00	100.00	100.00	19.38	19.83	19.42	19.05
Europe	Panama Canal	2,829.27	8.23	8.20	7.09	0.51	0.69	0.74	0.78	0.30	0.37	0.39	0.41
	Non Panama Canal	330,449.93	4.45	7.05	6.26	85.57	81.14	77.98	76.20	50.52	43.67	40.91	39.39
	Panama Canal/Non Panama Canal	73,990.50	7.85	9.19	7.34	13.91	18.17	21.28	23.02	8.21	9.78	11.16	11.90
	World	407,269.69	5.01	7.48	6.50	100.00	100.00	100.00	100.00	59.04	53.82	52.46	51.69
Asia/Pacific	Panama Canal	2,023.88	13.13	6.99	5.90	0.77	1.23	1.10	1.00	0.14	0.27	0.25	0.23
	Non Panama Canal	99,442.40	10.46	9.46	7.56	48.00	60.33	68.13	72.32	8.69	13.14	15.37	16.73
	Panama Canal/Non Panama Canal	63,366.42	4.91	5.75	5.41	51.23	38.44	30.76	26.67	9.27	8.37	6.94	6.17
	World	164,832.70	7.96	8.14	6.92	100.00	100.00	100.00	100.00	18.10	21.78	22.56	23.13
South America, East	Panama Canal	1,415.05	13.44	8.55	7.37	10.77	18.09	16.42	15.64	0.09	0.19	0.20	0.22
	Non Panama Canal	3,662.64	9.03	10.43	8.05	41.45	46.83	50.48	51.19	0.36	0.48	0.62	0.70
	Panama Canal/Non Panama Canal	2,744.08	4.43	8.97	7.92	47.78	35.08	33.10	33.17	0.42	0.36	0.41	0.46
	World	7,821.77	7.71	9.61	7.90	100.00	100.00	100.00	100.00	0.88	1.03	1.23	1.38
South America, West	Panama Canal	325.72	23.33	7.65	6.24	32.43	50.88	48.68	46.47	0.01	0.04	0.04	0.04
	Non Panama Canal	176.44	16.77	8.16	7.36	30.36	27.56	27.65	29.30	0.01	0.02	0.02	0.03
	Panama Canal/Non Panama Canal	138.07	11.65	9.14	6.99	37.21	21.57	23.67	24.23	0.01	0.02	0.02	0.02
	World	640.23	17.90	8.13	6.74	100.00	100.00	100.00	100.00	0.03	0.08	0.09	0.09
Central Am. & Caribbean	Panama Canal/Non Panama Canal	14,762.56	14.81	11.17	8.10	100.00	100.00	100.00	100.00	0.88	1.95	2.66	3.05
	World	14,762.56	14.81	11.17	8.10	100.00	100.00	100.00	100.00	0.88	1.95	2.66	3.05
Africa/Middle East	Panama Canal	113.68	17.12	8.61	6.81	0.33	1.01	1.03	1.02	0.01	0.02	0.02	0.02
	Non Panama Canal	8,454.24	3.86	8.16	6.76	80.95	74.91	73.52	72.37	1.37	1.12	1.16	1.17
	Panama Canal/Non Panama Canal	2,718.53	7.34	8.96	7.40	18.72	24.09	25.45	26.61	0.32	0.36	0.40	0.43
	World	11,286.44	4.67	8.36	6.93	100.00	100.00	100.00	100.00	1.69	1.49	1.58	1.62
World	Panama Canal	10,063.75	11.42	8.11	7.14	0.81	1.33	1.37	1.44	0.81	1.33	1.37	1.44
	Non Panama Canal	486,622.16	5.58	7.64	6.62	66.80	64.31	63.65	63.38	66.80	64.31	63.65	63.38
	Panama Canal/Non Panama Canal	260,007.55	6.61	7.95	6.72	32.39	34.36	34.98	35.18	32.39	34.36	34.98	35.18
	World	756,693.46	5.98	7.76	6.66	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Food (Mainly Containerized) Beverages and Tobacco

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	147.30	9.73	7.25	5.67	0.88	1.02	1.40	1.69	0.10	0.14	0.17	0.18
	Non Panama Canal	6,335.30	6.57	3.98	3.78	50.74	43.70	44.19	44.37	6.03	5.95	5.37	4.79
	Panama Canal/Non Panama Canal	8,014.52	9.63	3.70	3.64	48.38	55.28	54.41	53.94	5.75	7.52	6.61	5.82
	World	14,497.12	8.18	3.86	3.73	100.00	100.00	100.00	100.00	11.88	13.61	12.15	10.80
Europe	Panama Canal	147.05	9.99	7.86	6.85	0.16	0.24	0.33	0.41	0.10	0.14	0.18	0.21
	Non Panama Canal	53,926.29	4.90	4.48	4.37	93.42	89.55	88.19	87.23	60.09	50.63	47.94	45.30
	Panama Canal/Non Panama Canal	6,145.58	10.35	5.88	5.25	6.42	10.21	11.48	12.35	4.13	5.77	6.24	6.41
	World	60,218.92	5.35	4.64	4.48	100.00	100.00	100.00	100.00	64.32	56.54	54.36	51.93
Asia/Pacific	Panama Canal	105.41	14.26	4.85	5.81	0.43	0.60	0.52	0.50	0.05	0.10	0.10	0.11
	Non Panama Canal	12,900.15	13.15	6.78	5.99	58.16	73.34	75.70	74.64	6.75	12.11	14.26	15.72
	Panama Canal/Non Panama Canal	4,583.13	5.55	5.48	6.61	41.41	26.06	23.79	24.86	4.80	4.30	4.48	5.23
	World	17,588.69	10.55	6.44	6.14	100.00	100.00	100.00	100.00	11.60	16.51	18.84	21.06
South America, East	Panama Canal	575.44	15.74	6.66	6.21	5.13	13.94	16.15	16.68	0.24	0.54	0.63	0.71
	Non Panama Canal	2,624.55	8.59	5.86	6.24	44.26	63.59	68.31	70.78	2.07	2.46	2.66	3.00
	Panama Canal/Non Panama Canal	927.27	-3.45	1.30	3.62	50.61	22.47	15.54	12.54	2.37	0.87	0.61	0.53
	World	4,127.27	4.72	5.10	5.87	100.00	100.00	100.00	100.00	4.68	3.87	3.89	4.24
South America, West	Panama Canal	501.12	16.09	7.28	7.76	25.03	46.98	49.00	50.21	0.20	0.47	0.58	0.75
	Non Panama Canal	235.95	16.42	8.09	8.50	11.45	22.12	24.87	27.30	0.09	0.22	0.29	0.41
	Panama Canal/Non Panama Canal	329.56	1.42	5.05	5.90	63.52	30.90	26.13	22.49	0.51	0.31	0.31	0.34
	World	1,066.64	9.00	6.83	7.49	100.00	100.00	100.00	100.00	0.81	1.00	1.18	1.50
Central Am. & Caribbean	Panama Canal/Non Panama Canal	2,972.46	9.74	5.61	5.98	100.00	100.00	100.00	100.00	2.11	2.79	2.94	3.24
	World	2,972.46	9.74	5.61	5.98	100.00	100.00	100.00	100.00	2.11	2.79	2.94	3.24
Africa/Middle East	Panama Canal	41.81	21.59	8.77	6.48	0.23	0.69	0.84	0.89	0.01	0.04	0.06	0.06
	Non Panama Canal	4,985.72	7.80	6.50	5.85	91.97	82.54	80.96	80.63	4.23	4.68	5.37	5.84
	Panama Canal/Non Panama Canal	1,012.59	17.63	7.58	6.05	7.80	16.76	18.20	18.48	0.36	0.95	1.21	1.34
	World	6,040.11	8.97	6.70	5.89	100.00	100.00	100.00	100.00	4.60	5.67	6.63	7.24
World	Panama Canal	1,518.14	14.42	6.99	6.76	0.71	1.43	1.71	2.03	0.71	1.43	1.71	2.03
	Non Panama Canal	81,007.95	6.28	5.03	4.85	79.26	76.06	75.89	75.05	79.26	76.06	75.89	75.05
	Panama Canal/Non Panama Canal	23,985.11	7.97	4.99	5.21	20.03	22.52	22.40	22.92	20.03	22.52	22.40	22.92
	World	106,511.21	6.72	5.05	4.96	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Pharmaceutical, and Other Chemical Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	438.63	7.77	6.12	5.31	2.46	2.32	2.11	1.75	0.34	0.33	0.29	0.25
	Non Panama Canal	7,606.00	6.51	6.08	7.30	48.01	40.20	36.50	36.47	6.55	5.68	5.08	5.31
	Panama Canal/Non Panama Canal	10,874.30	10.04	7.82	7.38	49.53	57.48	61.39	61.78	6.75	8.12	8.55	8.99
	World	18,918.94	8.42	7.11	7.31	100.00	100.00	100.00	100.00	13.64	14.13	13.93	14.56
Europe	Panama Canal	552.96	5.94	6.84	6.65	0.70	0.60	0.60	0.60	0.50	0.41	0.40	0.39
	Non Panama Canal	79,687.81	7.37	6.75	6.47	87.90	86.34	85.32	84.70	63.30	59.53	56.70	54.78
	Panama Canal/Non Panama Canal	12,058.23	9.03	7.68	7.00	11.40	13.06	14.08	14.69	8.21	9.01	9.36	9.50
	World	92,299.00	7.56	6.88	6.55	100.00	100.00	100.00	100.00	72.01	68.96	66.45	64.67
Asia/Pacific	Panama Canal	93.70	4.74	6.96	6.33	0.91	0.57	0.49	0.44	0.10	0.07	0.07	0.06
	Non Panama Canal	11,047.67	12.13	9.41	7.73	54.50	66.93	72.48	74.99	5.69	8.25	10.05	10.93
	Panama Canal/Non Panama Canal	5,365.84	6.43	6.56	6.34	44.59	32.51	27.03	24.56	4.65	4.01	3.75	3.58
	World	16,507.21	9.85	8.54	7.37	100.00	100.00	100.00	100.00	10.43	12.33	13.87	14.57
South America, East	Panama Canal	328.03	14.20	9.73	7.95	15.10	28.87	32.10	34.72	0.14	0.25	0.31	0.34
	Non Panama Canal	573.78	8.76	8.40	7.03	43.03	50.51	49.68	49.31	0.40	0.43	0.48	0.48
	Panama Canal/Non Panama Canal	234.25	-0.29	7.24	5.71	41.86	20.62	18.22	15.97	0.39	0.18	0.17	0.16
	World	1,136.06	7.03	8.57	7.11	100.00	100.00	100.00	100.00	0.93	0.85	0.96	0.98
South America, West	Panama Canal	66.70	20.74	9.57	7.66	16.75	26.63	26.33	25.93	0.02	0.05	0.06	0.07
	Non Panama Canal	135.60	19.45	9.79	7.97	37.92	54.14	54.60	55.30	0.04	0.10	0.13	0.14
	Panama Canal/Non Panama Canal	48.16	5.80	9.60	7.66	45.33	19.23	19.07	18.77	0.04	0.04	0.04	0.05
	World	250.46	15.27	9.69	7.83	100.00	100.00	100.00	100.00	0.10	0.19	0.23	0.26
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1,299.09	11.10	9.50	7.98	100.00	100.00	100.00	100.00	0.73	0.97	1.19	1.33
	World	1,299.09	11.10	9.50	7.98	100.00	100.00	100.00	100.00	0.73	0.97	1.19	1.33
Africa/Middle East	Panama Canal	4.73	-10.06	9.38	8.07	1.02	0.14	0.13	0.13	0.02	0.00	0.00	0.00
	Non Panama Canal	2,953.12	10.47	10.15	7.62	81.83	85.82	85.29	85.05	1.76	2.21	2.87	3.09
	Panama Canal/Non Panama Canal	483.35	7.78	10.63	7.82	17.14	14.05	14.58	14.82	0.37	0.36	0.49	0.54
	World	3,441.20	9.95	10.21	7.65	100.00	100.00	100.00	100.00	2.16	2.57	3.37	3.63
World	Panama Canal	1,484.75	8.00	7.49	6.74	1.11	1.11	1.13	1.12	1.11	1.11	1.13	1.12
	Non Panama Canal	102,003.97	7.81	7.15	6.75	77.73	76.21	75.31	74.73	77.73	76.21	75.31	74.73
	Panama Canal/Non Panama Canal	30,363.24	8.78	7.68	7.10	21.15	22.68	23.56	24.14	21.15	22.68	23.56	24.14
	World	133,851.96	8.03	7.27	6.84	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Computers, Electrical and Electronic Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	1,878.04	22.82	11.37	8.50	0.66	1.47	1.86	2.04	0.12	0.28	0.35	0.39
	Non Panama Canal	40,487.37	10.18	7.73	6.94	42.34	31.61	28.82	27.24	7.50	6.10	5.46	5.18
	Panama Canal/Non Panama Canal	85,700.13	15.28	9.12	7.76	56.99	66.92	69.32	70.72	10.09	12.91	13.13	13.46
	World	128,065.54	13.45	8.74	7.55	100.00	100.00	100.00	100.00	17.70	19.29	18.95	19.03
Europe	Panama Canal	796.85	10.43	10.09	7.99	0.34	0.39	0.46	0.49	0.14	0.12	0.13	0.14
	Non Panama Canal	178,835.68	8.69	7.82	7.28	90.41	86.69	83.64	82.83	37.93	26.94	24.31	23.82
	Panama Canal/Non Panama Canal	26,666.98	12.87	10.48	7.90	9.25	12.93	15.91	16.69	3.88	4.02	4.62	4.80
	World	206,299.51	9.15	8.21	7.38	100.00	100.00	100.00	100.00	41.95	31.07	29.07	28.76
Asia/Pacific	Panama Canal	2,958.06	19.65	9.51	7.68	0.63	0.96	0.98	0.99	0.24	0.45	0.47	0.48
	Non Panama Canal	137,920.20	19.22	10.45	7.87	30.38	44.71	49.63	51.32	11.60	20.77	23.85	24.68
	Panama Canal/Non Panama Canal	167,591.86	12.00	8.26	7.13	68.99	54.33	49.40	47.69	26.34	25.24	23.74	22.94
	World	308,470.12	14.70	9.30	7.51	100.00	100.00	100.00	100.00	38.18	46.46	48.06	48.10
South America, East	Panama Canal	225.11	-2.06	8.85	7.34	28.17	16.18	15.36	15.07	0.14	0.03	0.03	0.03
	Non Panama Canal	611.62	6.72	9.27	7.82	32.44	43.95	43.41	44.50	0.16	0.09	0.10	0.10
	Panama Canal/Non Panama Canal	554.88	3.65	9.78	7.34	39.39	39.87	41.23	40.43	0.19	0.08	0.09	0.09
	World	1,391.60	3.53	9.41	7.55	100.00	100.00	100.00	100.00	0.48	0.21	0.22	0.22
South America, West	Panama Canal	60.24	22.66	11.07	8.47	38.76	48.47	48.35	48.46	0.00	0.01	0.01	0.01
	Non Panama Canal	42.80	22.05	10.62	8.42	28.95	34.44	33.00	32.90	0.00	0.01	0.01	0.01
	Panama Canal/Non Panama Canal	21.25	12.56	12.06	8.45	32.29	17.10	18.64	18.64	0.00	0.00	0.00	0.00
	World	124.29	19.95	11.09	8.45	100.00	100.00	100.00	100.00	0.01	0.02	0.02	0.02
Central Am. & Caribbean	Panama Canal/Non Panama Canal	13,931.72	22.88	11.88	7.94	100.00	100.00	100.00	100.00	0.87	2.10	2.74	2.86
	World	13,931.72	22.88	11.88	7.94	100.00	100.00	100.00	100.00	0.87	2.10	2.74	2.86
Africa/Middle East	Panama Canal	43.04	3.06	9.76	7.64	1.91	0.77	0.74	0.71	0.02	0.01	0.01	0.01
	Non Panama Canal	4,510.58	13.05	9.88	8.13	79.26	80.27	78.61	78.28	0.65	0.68	0.74	0.79
	Panama Canal/Non Panama Canal	1,065.68	12.98	11.05	8.37	18.83	18.96	20.65	21.01	0.15	0.16	0.19	0.21
	World	5,619.30	12.91	10.11	8.18	100.00	100.00	100.00	100.00	0.81	0.85	0.94	1.00
World	Panama Canal	5,961.32	16.06	10.20	8.01	0.66	0.90	1.01	1.06	0.66	0.90	1.01	1.06
	Non Panama Canal	362,408.25	11.83	8.91	7.52	57.83	54.59	54.47	54.58	57.83	54.59	54.47	54.58
	Panama Canal/Non Panama Canal	295,532.50	13.26	8.93	7.46	41.52	44.51	44.53	44.36	41.52	44.51	44.53	44.36
	World	663,902.07	12.47	8.93	7.50	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Clothing

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	157.89	23.28	8.95	7.02	1.76	2.27	2.61	3.01	0.03	0.10	0.12	0.15
	Non Panama Canal	810.53	12.77	7.26	5.95	22.02	11.68	11.45	11.95	0.42	0.51	0.55	0.58
	Panama Canal/Non Panama Canal	5,973.57	21.62	7.46	5.40	76.22	86.05	85.94	85.04	1.46	3.75	4.09	4.14
	World	6,941.99	20.16	7.47	5.51	100.00	100.00	100.00	100.00	1.91	4.36	4.76	4.86
Europe	Panama Canal	60.04	18.76	8.65	6.23	0.04	0.11	0.15	0.17	0.02	0.04	0.05	0.05
	Non Panama Canal	53,127.15	6.57	4.98	4.43	97.04	93.00	92.76	92.39	48.68	33.39	28.84	26.59
	Panama Canal/Non Panama Canal	3,936.09	16.61	5.31	4.97	2.92	6.89	7.09	7.44	1.47	2.47	2.20	2.14
	World	57,123.28	7.02	5.01	4.47	100.00	100.00	100.00	100.00	50.16	35.90	31.09	28.78
Asia/Pacific	Panama Canal	209.19	32.13	9.35	6.34	0.05	0.28	0.34	0.37	0.02	0.13	0.17	0.19
	Non Panama Canal	30,954.07	21.34	7.65	5.38	18.89	41.24	43.51	43.13	7.74	19.45	21.59	21.81
	Panama Canal/Non Panama Canal	43,887.49	8.63	6.64	5.54	81.05	58.48	56.15	56.49	33.20	27.58	27.87	28.56
	World	75,050.74	12.23	7.08	5.47	100.00	100.00	100.00	100.00	40.96	47.17	49.63	50.55
South America, East	Panama Canal	66.19	16.24	8.25	6.39	3.89	9.62	11.05	12.26	0.03	0.04	0.05	0.05
	Non Panama Canal	377.12	12.25	7.54	5.61	31.45	54.79	58.99	60.75	0.21	0.24	0.26	0.27
	Panama Canal/Non Panama Canal	245.00	0.04	4.93	4.21	64.66	35.59	29.95	27.00	0.42	0.15	0.13	0.12
	World	688.31	6.19	6.75	5.30	100.00	100.00	100.00	100.00	0.65	0.43	0.44	0.44
South America, West	Panama Canal	247.87	24.81	9.02	6.62	28.68	18.56	18.22	18.44	0.05	0.16	0.20	0.22
	Non Panama Canal	50.00	40.03	8.79	6.52	1.83	3.74	3.60	3.61	0.00	0.03	0.04	0.04
	Panama Canal/Non Panama Canal	1,037.84	31.83	9.28	6.46	69.48	77.70	78.18	77.95	0.11	0.65	0.84	0.94
	World	1,335.70	30.36	9.22	6.49	100.00	100.00	100.00	100.00	0.16	0.84	1.08	1.21
Central Am. & Caribbean	Panama Canal/Non Panama Canal	5,512.10	22.25	8.24	6.19	100.00	100.00	100.00	100.00	1.28	3.46	4.06	4.42
	World	5,512.10	22.25	8.24	6.19	100.00	100.00	100.00	100.00	1.28	3.46	4.06	4.42
Africa/Middle East	Panama Canal	1.53	13.06	7.34	5.70	0.02	0.01	0.01	0.01	0.00	0.00	0.00	0.00
	Non Panama Canal	12,212.82	16.02	7.92	6.17	98.34	97.96	97.69	97.64	4.78	7.68	8.73	9.50
	Panama Canal/Non Panama Canal	252.97	18.50	9.32	6.38	1.65	2.03	2.30	2.35	0.08	0.16	0.21	0.23
	World	12,467.31	16.06	7.95	6.18	100.00	100.00	100.00	100.00	4.87	7.84	8.94	9.73
World	Panama Canal	742.70	24.16	9.00	6.57	0.15	0.47	0.59	0.66	0.15	0.47	0.59	0.66
	Non Panama Canal	97,531.68	10.56	6.31	5.06	61.83	61.29	60.01	58.79	61.83	61.29	60.01	58.79
	Panama Canal/Non Panama Canal	60,845.05	10.72	6.85	5.58	38.02	38.24	39.40	40.55	38.02	38.24	39.40	40.55
	World	159,119.43	10.66	6.53	5.28	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Footwear

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	15.04	34.82	4.67	2.93	0.38	2.41	3.43	4.48	0.00	0.04	0.05	0.05
	Non Panama Canal	212.76	12.68	1.81	0.51	32.18	34.07	36.78	37.92	0.33	0.59	0.56	0.46
	Panama Canal/Non Panama Canal	396.62	11.37	0.43	-0.17	67.44	63.52	59.79	57.60	0.69	1.10	0.91	0.69
	World	624.42	12.04	1.04	0.20	100.00	100.00	100.00	100.00	1.02	1.73	1.53	1.20
Europe	Panama Canal	17.32	25.53	6.35	5.79	0.01	0.12	0.20	0.26	0.01	0.05	0.07	0.10
	Non Panama Canal	13,991.85	1.81	0.88	3.02	96.86	93.58	93.16	93.39	59.52	38.87	33.65	34.99
	Panama Canal/Non Panama Canal	942.44	9.59	1.46	2.53	3.13	6.30	6.64	6.36	1.92	2.62	2.40	2.38
	World	14,951.61	2.16	0.93	2.99	100.00	100.00	100.00	100.00	61.45	41.54	36.12	37.47
Asia/Pacific	Panama Canal	176.97	39.87	5.76	0.98	0.12	0.99	1.24	1.08	0.03	0.49	0.68	0.58
	Non Panama Canal	4,476.19	17.45	3.91	3.32	17.41	25.12	26.20	28.86	4.56	12.43	14.47	15.50
	Panama Canal/Non Panama Canal	13,163.54	11.99	3.29	1.97	82.47	73.88	72.56	70.06	21.59	36.57	40.08	37.62
	World	17,816.70	13.23	3.48	2.33	100.00	100.00	100.00	100.00	26.18	49.49	55.23	53.70
South America, East	Panama Canal	63.70	14.64	7.34	6.88	1.38	4.20	7.67	10.86	0.08	0.18	0.29	0.43
	Non Panama Canal	299.24	14.21	3.51	2.56	6.73	19.74	25.04	23.48	0.40	0.83	0.93	0.93
	Panama Canal/Non Panama Canal	1,152.65	0.63	-0.15	2.97	91.89	76.05	67.29	65.66	5.51	3.20	2.50	2.59
	World	1,515.59	2.56	1.08	3.23	100.00	100.00	100.00	100.00	5.99	4.21	3.72	3.94
South America, West	Panama Canal	42.58	27.21	3.07	1.88	30.81	40.19	29.82	21.90	0.02	0.12	0.13	0.12
	Non Panama Canal	23.41	49.00	7.89	7.14	3.49	22.10	25.91	31.49	0.00	0.07	0.11	0.17
	Panama Canal/Non Panama Canal	39.95	17.18	7.91	5.62	65.70	37.71	44.28	46.61	0.04	0.11	0.19	0.25
	World	105.94	23.88	6.19	5.07	100.00	100.00	100.00	100.00	0.06	0.29	0.43	0.54
Central Am. & Caribbean	Panama Canal/Non Panama Canal	260.69	13.89	4.29	2.52	100.00	100.00	100.00	100.00	0.36	0.72	0.87	0.87
	World	260.69	13.89	4.29	2.52	100.00	100.00	100.00	100.00	0.36	0.72	0.87	0.87
Africa/Middle East	Panama Canal	0.14	6.96	4.16	3.89	0.01	0.02	0.02	0.02	0.00	0.00	0.00	0.00
	Non Panama Canal	694.71	-3.19	2.72	3.29	99.11	96.17	95.11	93.51	4.89	1.93	2.00	2.14
	Panama Canal/Non Panama Canal	27.52	12.33	5.39	6.45	0.89	3.81	4.87	6.47	0.04	0.08	0.10	0.15
	World	722.37	-2.90	2.83	3.47	100.00	100.00	100.00	100.00	4.93	2.01	2.10	2.28
World	Panama Canal	315.75	27.03	5.76	3.11	0.15	0.88	1.22	1.28	0.15	0.88	1.22	1.28
	Non Panama Canal	19,698.17	3.70	1.77	3.09	69.70	54.72	51.73	54.17	69.70	54.72	51.73	54.17
	Panama Canal/Non Panama Canal	15,983.40	10.43	2.94	2.06	30.15	44.40	47.05	44.55	30.15	44.40	47.05	44.55
	World	35,997.31	6.24	2.35	2.62	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Photographic Equipment, Watches and Clocks

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	97.76	19.47	7.37	6.38	1.04	2.89	3.63	4.17	0.06	0.20	0.21	0.21
	Non Panama Canal	1,479.80	7.63	4.20	4.29	44.55	43.68	40.68	38.29	2.76	3.06	2.39	1.90
	Panama Canal/Non Panama Canal	1,809.95	7.65	5.37	5.27	54.42	53.43	55.69	57.54	3.37	3.74	3.28	2.86
	World	3,387.51	7.85	4.94	4.92	100.00	100.00	100.00	100.00	6.20	7.01	5.88	4.97
Europe	Panama Canal	80.83	13.83	8.39	6.79	0.21	0.38	0.43	0.41	0.09	0.17	0.19	0.20
	Non Panama Canal	15,361.99	5.38	6.39	6.76	84.85	71.85	67.30	64.54	35.44	31.77	30.61	30.76
	Panama Canal/Non Panama Canal	5,936.77	13.99	8.71	8.09	14.94	27.77	32.27	35.05	6.24	12.28	14.68	16.70
	World	21,379.58	7.14	7.09	7.21	100.00	100.00	100.00	100.00	41.77	44.22	45.47	47.66
Asia/Pacific	Panama Canal	251.50	8.95	9.27	6.97	0.82	1.10	1.38	1.45	0.42	0.52	0.65	0.67
	Non Panama Canal	11,135.93	9.61	7.80	6.93	34.21	48.72	53.51	55.95	17.33	23.03	25.31	25.84
	Panama Canal/Non Panama Canal	11,468.79	3.10	5.66	5.85	64.97	50.18	45.10	42.60	32.91	23.72	21.33	19.68
	World	22,856.22	5.80	6.79	6.45	100.00	100.00	100.00	100.00	50.66	47.27	47.30	46.19
South America, East	Panama Canal	16.37	8.30	5.29	4.54	11.49	21.37	21.34	24.90	0.03	0.03	0.03	0.02
	Non Panama Canal	18.06	3.28	4.67	4.34	20.37	23.58	22.18	25.37	0.05	0.04	0.03	0.02
	Panama Canal/Non Panama Canal	42.16	-0.36	5.58	1.65	68.14	55.05	56.47	49.73	0.17	0.09	0.08	0.05
	World	76.58	1.78	5.31	2.95	100.00	100.00	100.00	100.00	0.25	0.16	0.14	0.10
South America, West	Panama Canal	3.27	47.51	7.64	7.46	6.02	40.45	47.01	52.51	0.00	0.01	0.01	0.01
	Non Panama Canal	2.25	32.71	6.63	6.45	11.95	27.90	29.49	29.98	0.00	0.00	0.00	0.00
	Panama Canal/Non Panama Canal	2.56	10.84	2.92	3.20	82.03	31.65	23.50	17.51	0.00	0.01	0.00	0.00
	World	8.08	21.92	6.04	6.28	100.00	100.00	100.00	100.00	0.00	0.02	0.02	0.01
Central Am. & Caribbean	Panama Canal/Non Panama Canal	321.73	21.08	5.61	4.84	100.00	100.00	100.00	100.00	0.19	0.67	0.60	0.50
	World	321.73	21.08	5.61	4.84	100.00	100.00	100.00	100.00	0.19	0.67	0.60	0.50
Africa/Middle East	Panama Canal	1.55	41.54	9.01	6.84	0.02	0.48	0.66	0.70	0.00	0.00	0.00	0.00
	Non Panama Canal	248.58	1.63	4.56	5.74	88.78	76.77	70.17	67.09	0.82	0.51	0.42	0.38
	Panama Canal/Non Panama Canal	73.68	10.69	8.16	7.28	11.20	22.75	29.16	32.21	0.10	0.15	0.17	0.18
	World	323.81	3.12	5.50	6.22	100.00	100.00	100.00	100.00	0.93	0.67	0.59	0.57
World	Panama Canal	451.27	11.43	8.59	6.77	0.60	0.93	1.10	1.11	0.60	0.93	1.10	1.11
	Non Panama Canal	28,246.61	6.91	6.85	6.73	56.41	58.42	58.76	58.92	56.41	58.42	58.76	58.92
	Panama Canal/Non Panama Canal	19,655.64	5.94	6.65	6.66	42.99	40.65	40.14	39.97	42.99	40.65	40.14	39.97
	World	48,353.51	6.54	6.79	6.70	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Scientific Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	296.51	13.81	7.91	6.81	0.87	1.51	1.77	2.04	0.21	0.42	0.45	0.42
	Non Panama Canal	8,054.68	6.15	5.58	4.83	47.54	40.99	38.62	36.94	11.52	11.53	9.81	7.67
	Panama Canal/Non Panama Canal	11,300.51	8.91	6.59	5.55	51.59	57.50	59.61	61.02	12.50	16.17	15.14	12.67
	World	19,651.70	7.74	6.21	5.30	100.00	100.00	100.00	100.00	24.23	28.13	25.41	20.76
Europe	Panama Canal	188.57	2.02	6.84	6.29	0.67	0.55	0.55	0.47	0.40	0.27	0.26	0.23
	Non Panama Canal	29,176.43	3.73	6.73	7.98	87.74	85.03	83.58	83.89	52.55	41.76	39.61	41.61
	Panama Canal/Non Panama Canal	4,949.54	6.36	7.94	7.78	11.59	14.42	15.87	15.64	6.94	7.08	7.52	7.76
	World	34,314.54	4.06	6.91	7.94	100.00	100.00	100.00	100.00	59.89	49.11	47.39	49.59
Asia/Pacific	Panama Canal	122.08	9.79	6.32	5.62	0.88	0.90	0.70	0.54	0.12	0.17	0.16	0.13
	Non Panama Canal	6,465.34	11.12	9.94	8.53	41.42	47.72	51.55	52.65	5.85	9.25	11.80	13.05
	Panama Canal/Non Panama Canal	6,961.85	8.30	8.29	8.09	57.70	51.38	47.75	46.81	8.15	9.96	10.93	11.60
	World	13,549.27	9.56	9.09	8.31	100.00	100.00	100.00	100.00	14.13	19.39	22.89	24.78
South America, East	Panama Canal	66.01	16.53	10.45	8.41	14.27	28.78	34.47	37.14	0.04	0.09	0.13	0.14
	Non Panama Canal	93.45	12.94	8.96	8.12	27.64	40.75	42.60	44.72	0.07	0.13	0.16	0.17
	Panama Canal/Non Panama Canal	69.87	1.85	5.44	5.11	58.09	30.47	22.93	18.14	0.15	0.10	0.08	0.07
	World	229.34	8.64	8.48	7.60	100.00	100.00	100.00	100.00	0.26	0.33	0.37	0.37
South America, West	Panama Canal	13.03	23.56	8.25	8.00	32.33	43.20	40.39	38.95	0.00	0.02	0.02	0.02
	Non Panama Canal	6.22	19.92	8.62	8.71	20.82	20.63	19.98	20.56	0.00	0.01	0.01	0.01
	Panama Canal/Non Panama Canal	10.91	16.96	9.98	8.63	46.85	36.17	39.63	40.49	0.01	0.02	0.02	0.02
	World	30.15	20.02	8.98	8.40	100.00	100.00	100.00	100.00	0.01	0.04	0.05	0.06
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1,170.25	20.39	10.74	8.83	100.00	100.00	100.00	100.00	0.48	1.67	2.30	2.61
	World	1,170.25	20.39	10.74	8.83	100.00	100.00	100.00	100.00	0.48	1.67	2.30	2.61
Africa/Middle East	Panama Canal	9.30	12.50	8.10	6.40	0.74	1.00	0.90	0.71	0.01	0.01	0.01	0.01
	Non Panama Canal	788.45	8.22	9.25	8.97	92.20	85.03	84.64	85.18	0.93	1.13	1.35	1.56
	Panama Canal/Non Panama Canal	129.55	16.80	9.68	8.63	7.07	13.97	14.46	14.11	0.07	0.19	0.23	0.26
	World	927.30	9.10	9.30	8.90	100.00	100.00	100.00	100.00	1.01	1.33	1.60	1.83
World	Panama Canal	695.49	8.68	7.65	6.74	0.79	1.00	1.03	0.96	0.79	1.00	1.03	0.96
	Non Panama Canal	44,584.57	5.03	7.11	7.67	70.92	63.81	62.74	64.06	70.92	63.81	62.74	64.06
	Panama Canal/Non Panama Canal	24,592.49	8.49	7.60	7.07	28.29	35.20	36.23	34.98	28.29	35.20	36.23	34.98
	World	69,872.55	6.14	7.29	7.45	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Bananas and Other Reefer

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	23	18.1	10.3	8.9	0.1	0.2	0.3	0.4	0.0	0.0	0.0	0.0
	Non Panama Canal	2,446	9.9	7.0	8.4	16.0	16.6	20.8	28.0	1.6	1.9	2.2	2.6
	Panama Canal/Non Panama Canal	12,293	9.4	4.1	4.2	84.0	83.3	79.0	71.6	8.3	9.7	8.3	6.5
	World	14,762	9.5	4.7	5.2	100.0	100.0	100.0	100.0	9.9	11.7	10.6	9.1
Europe	Panama Canal	16	12.9	8.9	7.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	58,165	6.3	5.1	6.2	95.1	92.4	91.2	90.9	52.5	45.9	43.6	41.6
	Panama Canal/Non Panama Canal	4,766	11.4	6.9	6.5	4.9	7.6	8.8	9.0	2.7	3.8	4.2	4.1
	World	62,948	6.6	5.3	6.2	100.0	100.0	100.0	100.0	55.2	49.7	47.8	45.7
Asia/Pacific	Panama Canal	29	8.2	8.4	7.6	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
	Non Panama Canal	18,783	10.7	6.2	7.4	58.4	70.5	71.9	72.4	11.3	14.8	15.6	16.7
	Panama Canal/Non Panama Canal	7,823	4.9	5.5	7.2	41.5	29.4	28.0	27.5	8.0	6.2	6.1	6.3
	World	26,634	8.6	6.0	7.4	100.0	100.0	100.0	100.0	19.3	21.0	21.7	23.1
South America, East	Panama Canal	952	14.5	9.1	9.1	10.0	18.4	20.9	22.1	0.4	0.8	1.0	1.3
	Non Panama Canal	3,540	8.9	8.0	8.4	61.3	68.5	70.3	70.0	2.5	2.8	3.5	4.1
	Panama Canal/Non Panama Canal	674	-0.5	3.6	7.4	28.7	13.0	8.8	8.0	1.2	0.5	0.4	0.5
	World	5,166	7.7	7.7	8.5	100.0	100.0	100.0	100.0	4.1	4.1	4.9	5.8
South America, West	Panama Canal	1,892	18.3	9.7	8.6	27.1	43.0	50.9	51.2	0.6	1.5	2.2	2.6
	Non Panama Canal	789	21.8	9.1	8.7	8.5	17.9	20.0	20.3	0.2	0.6	0.9	1.0
	Panama Canal/Non Panama Canal	1,724	7.5	4.7	8.3	64.4	39.1	29.1	28.5	1.4	1.4	1.2	1.4
	World	4,405	13.0	7.9	8.5	100.0	100.0	100.0	100.0	2.2	3.5	4.3	5.0
Central Am. & Caribbean	Panama Canal/Non Panama Canal	5,449	8.9	4.0	6.1	100.0	100.0	100.0	100.0	3.8	4.3	3.7	3.5
	World	5,449	8.9	4.0	6.1	100.0	100.0	100.0	100.0	3.8	4.3	3.7	3.5
Africa/Middle East	Panama Canal	0	-7.6	7.9	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	6,041	7.7	7.7	8.1	85.0	81.7	81.8	83.3	4.8	4.8	5.7	6.5
	Panama Canal/Non Panama Canal	1,351	10.2	7.6	6.9	15.0	18.3	18.2	16.7	0.8	1.1	1.3	1.3
	World	7,393	8.1	7.7	7.9	100.0	100.0	100.0	100.0	5.6	5.8	7.0	7.8
World	Panama Canal	2,911	16.7	9.5	8.7	1.0	2.3	3.3	3.9	1.0	2.3	3.3	3.9
	Non Panama Canal	89,765	7.4	5.8	6.9	72.8	70.8	71.5	72.4	72.8	70.8	71.5	72.4
	Panama Canal/Non Panama Canal	34,081	8.0	5.0	6.0	26.2	26.9	25.2	23.7	26.2	26.9	25.2	23.7
	World	126,757	7.7	5.7	6.7	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Lumber Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	22	21.5	7.4	5.6	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.0
	Non Panama Canal	2,232	9.6	3.7	4.1	11.2	12.5	13.9	15.4	3.0	3.2	2.8	2.5
	Panama Canal/Non Panama Canal	15,605	8.3	2.4	2.8	88.7	87.4	85.9	84.4	23.8	22.6	17.1	13.7
	World	17,859	8.4	2.6	3.0	100.0	100.0	100.0	100.0	26.8	25.8	20.0	16.2
Europe	Panama Canal	22	18.1	7.0	5.9	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
	Non Panama Canal	23,409	6.4	5.1	5.2	94.4	89.0	86.6	86.1	42.4	33.9	33.4	33.5
	Panama Canal/Non Panama Canal	2,878	14.6	7.5	5.7	5.5	10.9	13.3	13.8	2.5	4.2	5.1	5.4
	World	26,309	7.1	5.4	5.3	100.0	100.0	100.0	100.0	44.9	38.0	38.5	38.9
Asia/Pacific	Panama Canal	7	18.2	7.9	5.8	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
	Non Panama Canal	14,339	12.9	6.9	6.2	69.0	80.7	83.1	83.9	14.4	20.7	24.1	26.6
	Panama Canal/Non Panama Canal	3,417	6.0	5.2	5.6	31.0	19.2	16.9	16.0	6.5	4.9	4.9	5.1
	World	17,763	11.1	6.6	6.1	100.0	100.0	100.0	100.0	20.8	25.7	29.0	31.7
South America, East	Panama Canal	103	24.8	6.9	5.7	2.6	6.7	6.6	6.5	0.0	0.2	0.2	0.2
	Non Panama Canal	972	15.2	7.6	6.0	54.8	62.7	65.8	67.7	0.8	1.4	1.7	1.9
	Panama Canal/Non Panama Canal	475	9.9	6.0	5.0	42.6	30.6	27.7	25.8	0.6	0.7	0.7	0.7
	World	1,550	13.6	7.1	5.7	100.0	100.0	100.0	100.0	1.5	2.2	2.7	2.8
South America, West	Panama Canal	302	16.2	8.0	5.7	38.3	26.9	29.7	31.0	0.2	0.4	0.6	0.6
	Non Panama Canal	528	22.2	7.1	5.3	40.5	47.0	47.7	47.6	0.2	0.8	0.9	0.9
	Panama Canal/Non Panama Canal	293	23.0	5.4	4.7	21.1	26.1	22.6	21.4	0.1	0.4	0.4	0.4
	World	1,122	20.4	6.9	5.3	100.0	100.0	100.0	100.0	0.6	1.6	1.9	1.9
Central Am. & Caribbean	Panama Canal/Non Panama Canal	571	12.3	6.0	5.5	100.0	100.0	100.0	100.0	0.6	0.8	0.9	0.9
	World	571	12.3	6.0	5.5	100.0	100.0	100.0	100.0	0.6	0.8	0.9	0.9
Africa/Middle East	Panama Canal	0	-100.0	5.8	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	3,259	9.2	7.5	5.7	93.8	81.7	81.1	80.0	4.5	4.7	5.8	6.1
	Panama Canal/Non Panama Canal	730	23.3	7.9	6.5	6.2	18.3	18.9	20.0	0.3	1.1	1.4	1.5
	World	3,989	10.8	7.5	5.9	100.0	100.0	100.0	100.0	4.8	5.8	7.1	7.6
World	Panama Canal	457	18.0	7.7	5.7	0.3	0.7	0.8	0.9	0.3	0.7	0.8	0.9
	Non Panama Canal	44,739	8.7	5.9	5.6	65.3	64.7	68.6	71.4	65.3	64.7	68.6	71.4
	Panama Canal/Non Panama Canal	23,968	8.9	4.0	4.2	34.4	34.7	30.6	27.7	34.4	34.7	30.6	27.7
	World	69,164	8.8	5.3	5.2	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Fertilizers (incl. Phosphates)

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	185	6.4	2.6	0.7	2.1	2.1	1.6	1.2	0.5	0.6	0.4	0.3
	Non Panama Canal	1,590	-0.4	2.5	3.4	34.4	17.9	13.5	13.0	8.2	5.0	3.6	3.1
	Panama Canal/Non Panama Canal	7,131	8.8	6.0	3.9	63.6	80.1	84.9	85.8	15.2	22.2	22.8	20.7
	World	8,906	6.4	5.4	3.8	100.0	100.0	100.0	100.0	23.9	27.7	26.8	24.1
Europe	Panama Canal	116	5.1	4.3	4.9	0.6	0.8	0.7	0.7	0.4	0.4	0.3	0.3
	Non Panama Canal	11,846	2.8	3.8	3.4	81.2	77.4	68.9	62.1	44.9	36.9	30.7	26.7
	Panama Canal/Non Panama Canal	3,351	5.2	8.5	6.6	18.1	21.9	30.4	37.1	10.0	10.4	13.6	16.0
	World	15,312	3.3	5.0	4.5	100.0	100.0	100.0	100.0	55.3	47.7	44.6	43.0
Asia/Pacific	Panama Canal	45	8.3	4.4	4.1	1.8	2.4	1.9	1.5	0.1	0.1	0.1	0.1
	Non Panama Canal	1,556	5.0	7.2	6.2	83.2	81.0	83.5	84.7	4.8	4.9	5.6	6.3
	Panama Canal/Non Panama Canal	321	6.4	5.5	5.5	15.0	16.7	14.7	13.8	0.9	1.0	1.0	1.0
	World	1,923	5.3	6.9	6.1	100.0	100.0	100.0	100.0	5.7	6.0	6.7	7.5
South America, East	Panama Canal	140	11.0	8.3	7.1	27.5	31.4	34.4	37.0	0.3	0.4	0.6	0.7
	Non Panama Canal	180	8.3	6.9	6.3	45.3	40.4	38.8	38.7	0.4	0.6	0.6	0.7
	Panama Canal/Non Panama Canal	125	9.9	6.8	5.4	27.2	28.2	26.7	24.3	0.2	0.4	0.4	0.5
	World	445	9.5	7.3	6.4	100.0	100.0	100.0	100.0	0.9	1.4	1.6	1.9
South America, West	Panama Canal	47	4.5	2.5	0.7	51.4	44.4	37.6	33.9	0.2	0.2	0.1	0.1
	Non Panama Canal	25	12.2	6.6	3.8	13.2	23.3	29.1	35.5	0.0	0.1	0.1	0.1
	Panama Canal/Non Panama Canal	34	5.0	4.6	0.9	35.4	32.3	33.4	30.6	0.1	0.1	0.1	0.1
	World	106	6.0	4.3	1.7	100.0	100.0	100.0	100.0	0.3	0.3	0.3	0.2
Central Am. & Caribbean	Panama Canal/Non Panama Canal	468	12.0	6.9	6.0	100.0	100.0	100.0	100.0	0.8	1.5	1.6	1.8
	World	468	12.0	6.9	6.0	100.0	100.0	100.0	100.0	0.8	1.5	1.6	1.8
Africa/Middle East	Panama Canal	18	13.2	5.2	5.3	0.2	0.4	0.3	0.3	0.0	0.1	0.1	0.1
	Non Panama Canal	2,712	4.3	6.5	6.0	67.7	54.7	49.2	46.8	8.9	8.4	9.1	10.1
	Panama Canal/Non Panama Canal	2,233	10.2	8.9	7.0	32.1	45.0	50.6	52.9	4.2	7.0	9.3	11.4
	World	4,963	6.5	7.6	6.5	100.0	100.0	100.0	100.0	13.1	15.5	18.4	21.5
World	Panama Canal	551	7.2	4.9	4.5	1.4	1.7	1.6	1.5	1.4	1.7	1.6	1.5
	Non Panama Canal	17,908	2.9	4.5	4.3	67.2	55.8	49.7	47.1	67.2	55.8	49.7	47.1
	Panama Canal/Non Panama Canal	13,663	8.0	7.2	5.4	31.4	42.5	48.8	51.4	31.4	42.5	48.8	51.4
	World	32,122	4.8	5.7	4.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table B-3: World Trade in Real Value (in Millions of Real 87 USD)

Commodity: Crude Oil

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	0	-100.0	-100.0	-100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	0	-100.0	3.2	3.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Panama Canal/Non Panama Canal	7,299	8.7	7.1	6.9	100.0	100.0	100.0	100.0	3.1	3.5	4.8	6.3
	World	7,300	8.7	7.1	6.9	100.0	100.0	100.0	100.0	3.1	3.5	4.8	6.3
Europe	Panama Canal	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	39,486	5.4	3.0	2.9	98.1	99.5	99.4	99.3	23.0	19.0	17.5	15.8
	Panama Canal/Non Panama Canal	206	-7.5	5.0	4.4	1.9	0.5	0.6	0.7	0.4	0.1	0.1	0.1
	World	39,692	5.2	3.0	2.9	100.0	100.0	100.0	100.0	23.4	19.1	17.6	15.9
Asia/Pacific	Panama Canal	26	-19.8	3.8	0.9	2.0	0.2	0.2	0.1	0.2	0.0	0.0	0.0
	Non Panama Canal	13,682	4.2	4.6	4.5	75.2	92.3	93.6	94.6	8.9	6.6	7.1	7.4
	Panama Canal/Non Panama Canal	1,113	-8.6	2.7	2.6	22.9	7.5	6.3	5.3	2.7	0.5	0.5	0.4
	World	14,821	2.1	4.5	4.3	100.0	100.0	100.0	100.0	11.8	7.1	7.6	7.9
South America, East	Panama Canal	499	10.1	2.4	2.4	4.7	4.1	2.3	1.4	0.2	0.2	0.2	0.2
	Non Panama Canal	1,732	1.5	3.9	4.3	37.0	14.1	9.4	7.0	1.5	0.8	0.8	0.9
	Panama Canal/Non Panama Canal	10,092	15.6	8.9	7.9	58.3	81.9	88.2	91.6	2.3	4.9	7.8	11.4
	World	12,323	11.8	8.1	7.5	100.0	100.0	100.0	100.0	4.0	5.9	8.8	12.4
South America, West	Panama Canal	19	0.4	6.9	4.5	1.7	1.3	1.6	1.6	0.0	0.0	0.0	0.0
	Non Panama Canal	577	10.2	6.0	5.3	20.0	37.9	43.4	47.8	0.2	0.3	0.3	0.4
	Panama Canal/Non Panama Canal	926	0.8	3.5	3.4	78.3	60.8	55.1	50.6	0.8	0.5	0.4	0.4
	World	1,522	3.3	4.6	4.3	100.0	100.0	100.0	100.0	1.1	0.7	0.8	0.8
Central Am. & Caribbean	Panama Canal/Non Panama Canal	9,407	0.0	2.3	2.4	100.0	100.0	100.0	100.0	9.3	4.5	3.9	3.3
	World	9,407	0.0	2.3	2.4	100.0	100.0	100.0	100.0	9.3	4.5	3.9	3.3
Africa/Middle East	Panama Canal	327	16.1	6.6	6.1	0.2	0.3	0.4	0.5	0.1	0.2	0.2	0.3
	Non Panama Canal	71,034	8.0	3.5	2.9	68.5	58.0	58.5	56.3	32.5	34.2	33.1	30.0
	Panama Canal/Non Panama Canal	51,080	13.0	3.3	3.9	31.3	41.7	41.1	43.2	14.8	24.6	23.2	23.1
	World	122,441	9.8	3.5	3.3	100.0	100.0	100.0	100.0	47.4	59.0	56.5	53.3
World	Panama Canal	871	5.3	4.3	4.3	0.5	0.4	0.4	0.5	0.5	0.4	0.4	0.5
	Non Panama Canal	126,511	6.5	3.5	3.2	66.0	61.0	58.8	54.6	66.0	61.0	58.8	54.6
	Panama Canal/Non Panama Canal	80,123	8.9	4.5	5.0	33.5	38.6	40.7	45.0	33.5	38.6	40.7	45.0
	World	207,505	7.4	3.9	3.9	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Bulk Chemicals, Other Than Organic Chemicals

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	504.70	9.46	6.07	5.78	3.23	5.56	6.67	7.42	0.70	1.22	1.32	1.40
	Non Panama Canal	3,170.79	-0.47	3.05	3.72	52.59	34.93	31.38	28.69	11.31	7.66	6.20	5.42
	Panama Canal/Non Panama Canal	5,402.92	6.82	4.58	4.97	44.17	59.51	61.96	63.89	9.50	13.05	12.24	12.08
	World	9,078.41	3.68	4.16	4.65	100.00	100.00	100.00	100.00	21.51	21.92	19.76	18.91
Europe	Panama Canal	301.78	2.51	4.55	4.64	1.68	1.89	1.85	1.90	0.80	0.73	0.68	0.65
	Non Panama Canal	9,565.89	-0.74	4.23	4.15	73.33	59.80	56.91	55.74	35.04	23.10	20.96	19.12
	Panama Canal/Non Panama Canal	6,130.12	5.74	5.52	4.65	24.99	38.32	41.24	42.36	11.94	14.80	15.19	14.53
	World	15,997.79	1.31	4.75	4.37	100.00	100.00	100.00	100.00	47.79	38.63	36.84	34.31
Asia/Pacific	Panama Canal	35.26	8.65	6.45	5.36	0.66	0.57	0.52	0.48	0.05	0.09	0.10	0.10
	Non Panama Canal	4,613.49	10.83	7.67	6.21	70.69	74.35	76.77	76.91	5.61	11.14	13.99	15.52
	Panama Canal/Non Panama Canal	1,556.64	8.81	6.27	6.14	28.65	25.09	22.71	22.60	2.28	3.76	4.14	4.56
	World	6,205.39	10.27	7.33	6.19	100.00	100.00	100.00	100.00	7.94	14.98	18.22	20.18
South America, East	Panama Canal	301.41	5.32	7.13	7.38	23.52	28.00	29.87	32.28	0.61	0.73	0.87	1.08
	Non Panama Canal	512.45	5.49	7.04	7.21	39.35	47.60	50.38	53.58	1.02	1.24	1.47	1.78
	Panama Canal/Non Panama Canal	262.66	-0.75	4.21	3.04	37.12	24.40	19.75	14.14	0.96	0.63	0.57	0.47
	World	1,076.52	3.50	6.44	6.55	100.00	100.00	100.00	100.00	2.60	2.60	2.91	3.33
South America, West	Panama Canal	142.24	10.29	4.26	4.62	48.78	42.54	39.94	38.01	0.18	0.34	0.31	0.30
	Non Panama Canal	86.78	10.39	5.32	5.06	29.51	25.95	26.97	26.76	0.11	0.21	0.21	0.21
	Panama Canal/Non Panama Canal	105.37	16.06	5.43	5.81	21.71	31.51	33.08	35.24	0.08	0.25	0.26	0.28
	World	334.39	11.82	4.91	5.14	100.00	100.00	100.00	100.00	0.37	0.81	0.78	0.78
Central Am. & Caribbean	Panama Canal/Non Panama Canal	2,742.00	2.41	5.07	5.61	100.00	100.00	100.00	100.00	7.35	6.62	6.51	6.82
	World	2,742.00	2.41	5.07	5.61	100.00	100.00	100.00	100.00	7.35	6.62	6.51	6.82
Africa/Middle East	Panama Canal	4.25	-2.55	5.47	4.87	0.15	0.07	0.07	0.07	0.02	0.01	0.01	0.01
	Non Panama Canal	3,295.72	3.05	5.27	5.76	66.76	55.12	53.23	54.15	8.30	7.96	7.97	8.48
	Panama Canal/Non Panama Canal	2,679.44	8.28	6.08	5.37	33.08	44.81	46.70	45.79	4.11	6.47	7.00	7.17
	World	5,979.40	5.05	5.64	5.58	100.00	100.00	100.00	100.00	12.44	14.44	14.98	15.66
World						1985	1995	2005	2015	1985	1995	2005	2015
	Panama Canal	1,289.63	6.40	5.82	5.89	2.36	3.11	3.29	3.54	2.36	3.11	3.29	3.54
	Non Panama Canal	21,245.12	1.65	5.15	5.06	61.41	51.30	50.80	50.54	61.41	51.30	50.80	50.54
	Panama Canal/Non Panama Canal	18,879.15	5.89	5.33	5.11	36.23	45.59	45.91	45.92	36.23	45.59	45.91	45.92
	World	41,413.90	3.49	5.25	5.11	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Coal & Coke

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	443.75	4.04	-1.05	0.61	0.27	0.41	0.33	0.32	0.11	0.13	0.08	0.06
	Non Panama Canal	60,268.27	2.32	0.25	-0.21	43.61	55.09	51.63	46.17	18.02	17.86	12.64	8.76
	Panama Canal/Non Panama Canal	48,690.08	-2.33	1.68	2.01	56.12	44.51	48.04	53.50	23.19	14.43	11.76	10.15
	World	109,402.10	-0.04	0.90	0.91	100.00	100.00	100.00	100.00	41.32	32.43	24.49	18.97
Europe	Panama Canal	0.65	9.86	0.19	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Non Panama Canal	36,236.03	-2.74	1.22	2.15	94.09	89.92	87.06	85.88	17.99	10.74	8.37	7.33
	Panama Canal/Non Panama Canal	4,059.74	3.06	4.12	3.19	5.91	10.07	12.93	14.12	1.13	1.20	1.24	1.20
	World	40,296.42	-2.30	1.55	2.29	100.00	100.00	100.00	100.00	19.12	11.94	9.62	8.53
Asia/Pacific	Panama Canal	3,368.45	15.61	5.34	3.51	1.08	2.53	2.41	2.18	0.30	1.00	1.16	1.16
	Non Panama Canal	90,755.62	5.73	6.97	4.80	70.94	68.13	75.75	77.51	19.56	26.90	36.43	41.17
	Panama Canal/Non Panama Canal	39,089.59	6.66	2.76	3.80	27.98	29.34	21.84	20.31	7.71	11.59	10.50	10.79
	World	133,213.66	6.16	5.84	4.56	100.00	100.00	100.00	100.00	27.57	39.48	48.09	53.12
South America, East	Panama Canal	48.53	-100.00	2.23	3.32	0.00	1.26	1.22	1.18	0.00	0.01	0.01	0.01
	Non Panama Canal	2,023.81	53.10	3.71	3.99	100.00	52.47	58.66	60.41	0.01	0.60	0.60	0.62
	Panama Canal/Non Panama Canal	1,784.68	-100.00	1.11	3.24	0.00	46.27	40.12	38.42	0.00	0.53	0.41	0.40
	World	3,857.02	63.30	2.56	3.69	100.00	100.00	100.00	100.00	0.01	1.14	1.02	1.03
South America, West	Panama Canal	9,936.72	17.31	5.64	4.70	67.82	75.02	83.18	86.28	0.76	2.95	3.52	3.94
	Non Panama Canal	516.56	29.82	3.24	3.27	1.28	3.90	3.44	3.11	0.01	0.15	0.15	0.14
	Panama Canal/Non Panama Canal	2,791.73	11.78	-0.09	1.93	30.90	21.08	13.38	10.62	0.34	0.83	0.57	0.49
	World	13,245.01	16.14	4.56	4.32	100.00	100.00	100.00	100.00	1.12	3.93	4.23	4.57
Central Am. & Caribbean	Panama Canal/Non Panama Canal	22.95	4.16	-1.22	1.42	100.00	100.00	100.00	100.00	0.01	0.01	0.00	0.00
	World	22.95	4.16	-1.22	1.42	100.00	100.00	100.00	100.00	0.01	0.01	0.00	0.00
Africa/Middle East	Panama Canal	625.85	-100.00	5.96	5.16	0.00	1.68	1.82	1.94	0.00	0.19	0.23	0.27
	Non Panama Canal	25,952.92	2.38	4.07	4.23	71.08	69.48	63.05	61.54	7.72	7.69	7.92	8.48
	Panama Canal/Non Panama Canal	10,775.82	2.58	7.18	4.90	28.92	28.85	35.13	36.52	3.14	3.19	4.41	5.03
	World	37,354.59	2.61	5.09	4.49	100.00	100.00	100.00	100.00	10.86	11.07	12.55	13.77
World										1985	1995	2005	2015
	Panama Canal	14,423.97	16.62	5.42	4.40	1.17	4.28	5.00	5.44	1.17	4.28	5.00	5.44
	Non Panama Canal	215,753.20	2.51	4.12	3.59	63.31	63.95	66.10	66.50	63.31	63.95	66.10	66.50
	Panama Canal/Non Panama Canal	107,214.59	1.28	2.79	3.22	35.52	31.78	28.90	28.06	35.52	31.78	28.90	28.06
	World	337,391.76	2.41	3.78	3.52	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Grain and Oil Seeds

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	5,635.86	5.43	4.73	4.44	2.55	3.52	4.25	4.58	1.50	1.95	2.17	2.24
	Non Panama Canal	67,184.51	-1.81	3.64	4.35	61.84	41.93	45.58	48.79	36.35	23.29	23.26	23.80
	Panama Canal/Non Panama Canal	87,423.08	6.53	1.92	2.88	35.62	54.56	50.18	46.62	20.94	30.30	25.60	22.74
	World	160,243.45	2.08	2.78	3.64	100.00	100.00	100.00	100.00	58.79	55.55	51.02	48.77
Europe	Panama Canal	590.55	27.11	6.57	5.39	0.16	1.53	1.73	1.83	0.02	0.20	0.27	0.31
	Non Panama Canal	30,124.94	-0.42	5.28	4.84	94.95	78.14	78.06	78.57	14.16	10.44	12.20	13.08
	Panama Canal/Non Panama Canal	7,838.89	17.11	5.23	4.45	4.88	20.33	20.21	19.60	0.73	2.72	3.16	3.26
	World	38,554.38	1.54	5.29	4.77	100.00	100.00	100.00	100.00	14.92	13.36	15.63	16.65
Asia/Pacific	Panama Canal	298.17	-0.43	2.68	1.50	1.17	0.77	0.64	0.48	0.14	0.10	0.09	0.07
	Non Panama Canal	30,734.14	3.71	4.76	4.39	79.86	79.67	80.69	80.54	9.62	10.65	11.85	12.18
	Panama Canal/Non Panama Canal	7,546.91	4.06	4.14	4.58	18.97	19.56	18.67	18.98	2.29	2.62	2.74	2.87
	World	38,579.23	3.74	4.63	4.41	100.00	100.00	100.00	100.00	12.05	13.37	14.68	15.12
South America, East	Panama Canal	4,586.09	4.62	4.82	4.62	10.58	13.27	15.06	16.27	1.32	1.59	1.78	1.87
	Non Panama Canal	29,092.77	2.29	3.24	3.68	84.02	84.20	82.12	81.04	10.45	10.08	9.69	9.30
	Panama Canal/Non Panama Canal	871.17	-5.23	4.68	3.31	5.40	2.52	2.82	2.69	0.67	0.30	0.33	0.31
	World	34,550.03	2.27	3.50	3.82	100.00	100.00	100.00	100.00	12.44	11.98	11.80	11.48
South America, West	Panama Canal	1,460.07	5.75	2.77	5.96	59.31	40.58	32.65	29.37	0.38	0.51	0.46	0.55
	Non Panama Canal	1,960.03	17.13	6.31	7.58	28.65	54.48	61.49	64.35	0.18	0.68	0.88	1.21
	Panama Canal/Non Panama Canal	177.54	0.47	6.87	7.83	12.04	4.93	5.87	6.28	0.08	0.06	0.08	0.12
	World	3,597.63	9.84	5.04	7.09	100.00	100.00	100.00	100.00	0.63	1.25	1.42	1.89
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1,163.25	18.22	3.82	4.47	100.00	100.00	100.00	100.00	0.10	0.40	0.41	0.42
	World	1,163.25	18.22	3.82	4.47	100.00	100.00	100.00	100.00	0.10	0.40	0.41	0.42
Africa/Middle East	Panama Canal	130.65	61.16	3.50	1.72	0.05	1.11	0.89	0.62	0.00	0.05	0.04	0.04
	Non Panama Canal	5,782.17	10.99	5.35	5.34	85.55	49.03	46.84	46.77	0.92	2.00	2.36	2.65
	Panama Canal/Non Panama Canal	5,879.40	32.85	6.34	5.42	14.41	49.86	52.27	52.60	0.15	2.04	2.63	2.98
	World	11,792.22	17.34	5.84	5.35	100.00	100.00	100.00	100.00	1.07	4.09	5.03	5.67
World	Panama Canal	12,701.38	5.49	4.59	4.64	3.35	4.40	4.82	5.07	1985	1995	2005	2015
	Non Panama Canal	164,878.55	0.36	4.20	4.45	71.69	57.15	60.22	62.23	3.35	4.40	4.82	5.07
	Panama Canal/Non Panama Canal	110,900.24	7.20	2.67	3.41	24.95	38.44	34.96	32.70	71.69	57.15	60.22	62.23
	World	288,480.17	2.66	3.66	4.11	100.00	100.00	100.00	100.00	24.95	38.44	34.96	32.70
										100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Automobiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	98.15	13.19	6.70	5.35	2.80	7.21	7.24	7.50	0.25	0.71	0.80	0.89
	Non Panama Canal	619.08	14.96	6.52	4.93	15.14	45.48	44.89	44.72	1.34	4.49	4.96	5.31
	Panama Canal/Non Panama Canal	643.98	-2.53	6.79	4.95	82.05	47.31	47.87	47.78	7.27	4.67	5.29	5.67
	World	1,361.21	2.99	6.66	4.97	100.00	100.00	100.00	100.00	8.86	9.88	11.05	11.88
Europe	Panama Canal	109.95	15.63	6.53	5.12	0.77	2.36	2.53	2.71	0.22	0.80	0.88	0.96
	Non Panama Canal	2,987.47	0.46	5.49	4.24	85.00	64.24	62.45	61.39	24.93	21.68	21.73	21.77
	Panama Canal/Non Panama Canal	1,553.16	12.51	6.30	4.68	14.23	33.40	35.02	35.90	4.18	11.27	12.18	12.73
	World	4,650.58	3.32	5.79	4.42	100.00	100.00	100.00	100.00	29.33	33.75	34.79	35.46
Asia/Pacific	Panama Canal	169.51	23.22	6.71	5.24	0.31	2.57	3.08	3.55	0.18	1.23	1.38	1.52
	Non Panama Canal	2,588.24	5.47	6.39	4.54	22.52	39.21	45.71	49.14	13.28	18.78	20.49	21.12
	Panama Canal/Non Panama Canal	3,843.02	-2.99	3.44	2.97	77.17	58.22	51.20	47.32	45.51	27.89	22.95	20.34
	World	6,600.76	-0.22	4.77	3.78	100.00	100.00	100.00	100.00	58.98	47.91	44.83	42.99
South America, East	Panama Canal	134.36	17.29	5.92	4.41	12.73	27.87	26.52	26.11	0.24	0.98	1.02	1.04
	Non Panama Canal	304.97	6.15	6.48	4.58	78.40	63.25	63.47	63.48	1.47	2.21	2.43	2.52
	Panama Canal/Non Panama Canal	42.82	8.47	7.72	4.99	8.87	8.88	10.01	10.41	0.17	0.31	0.38	0.41
	World	482.14	8.45	6.44	4.58	100.00	100.00	100.00	100.00	1.87	3.50	3.83	3.97
South America, West	Panama Canal	14.36	65.01	7.44	5.17	4.70	43.18	47.12	49.39	0.00	0.10	0.13	0.14
	Non Panama Canal	18.63	25.53	5.73	4.21	93.90	56.04	52.07	49.79	0.02	0.14	0.14	0.14
	Panama Canal/Non Panama Canal	0.26	24.66	6.95	4.85	1.40	0.78	0.81	0.82	0.00	0.00	0.00	0.00
	World	33.25	32.18	6.51	4.68	100.00	100.00	100.00	100.00	0.02	0.24	0.27	0.28
Central Am. & Caribbean	Panama Canal/Non Panama Canal	276.78	42.01	5.97	4.26	100.00	100.00	100.00	100.00	0.07	2.01	2.11	2.11
	World	276.78	42.01	5.97	4.26	100.00	100.00	100.00	100.00	0.07	2.01	2.11	2.11
Africa/Middle East	Panama Canal	2.51	50.65	6.11	4.81	0.04	0.67	0.62	0.62	0.00	0.02	0.02	0.02
	Non Panama Canal	207.07	12.47	7.23	5.19	64.75	55.38	56.70	58.62	0.56	1.50	1.77	1.94
	Panama Canal/Non Panama Canal	164.35	16.80	6.66	4.36	35.21	43.95	42.68	40.77	0.30	1.19	1.33	1.35
	World	373.93	14.24	6.98	4.84	100.00	100.00	100.00	100.00	0.86	2.71	3.13	3.32
World	Panama Canal	528.83	17.82	6.49	5.04	0.90	3.84	4.23	4.57	1985 0.90	1995 3.84	2005 4.23	2015 4.57
	Non Panama Canal	6,725.45	3.52	6.04	4.48	41.60	48.81	51.52	52.80	41.60	48.81	51.52	52.80
	Panama Canal/Non Panama Canal	6,524.37	-0.08	4.76	3.83	57.50	47.35	44.25	42.63	57.50	47.35	44.25	42.63
	World	13,778.65	1.88	5.47	4.22	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Iron & Steel

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	279.25	16.60	3.80	3.26	4.78	5.83	5.76	5.73	0.06	0.20	0.19	0.17
	Non Panama Canal	1,625.87	11.50	4.32	3.89	43.50	33.94	35.28	37.27	0.58	1.17	1.15	1.14
	Panama Canal/Non Panama Canal	2,886.00	16.06	3.70	2.97	51.72	60.24	58.96	57.00	0.69	2.08	1.92	1.74
	World	4,791.12	14.31	3.92	3.32	100.00	100.00	100.00	100.00	1.33	3.46	3.26	3.05
Europe	Panama Canal	581.35	4.86	3.74	2.85	0.80	0.87	0.77	0.68	0.38	0.42	0.39	0.35
	Non Panama Canal	36,207.93	0.41	5.33	4.79	77.33	53.93	55.46	59.65	36.85	26.15	28.23	30.44
	Panama Canal/Non Panama Canal	30,355.11	11.93	4.70	3.01	21.87	45.21	43.77	39.67	10.42	21.93	22.28	20.24
	World	67,144.39	4.09	5.04	4.03	100.00	100.00	100.00	100.00	47.66	48.50	50.90	51.03
Asia/Pacific	Panama Canal	71.79	-5.29	2.58	1.82	0.37	0.18	0.17	0.15	0.13	0.05	0.04	0.03
	Non Panama Canal	32,085.75	3.76	3.41	2.65	66.27	80.18	81.95	79.61	23.51	23.18	20.81	18.26
	Panama Canal/Non Panama Canal	7,860.25	-3.45	2.22	4.24	33.36	19.64	17.88	20.24	11.83	5.68	4.54	4.64
	World	40,017.80	1.80	3.18	2.95	100.00	100.00	100.00	100.00	35.48	28.90	25.39	22.93
South America, East	Panama Canal	5,151.69	1.70	4.03	3.14	45.96	36.19	29.52	22.24	4.61	3.72	3.55	3.26
	Non Panama Canal	2,750.65	5.57	5.41	4.93	16.90	19.32	17.98	16.09	1.70	1.99	2.16	2.36
	Panama Canal/Non Panama Canal	6,333.22	6.06	7.94	7.82	37.14	44.49	52.49	61.66	3.72	4.57	6.30	9.04
	World	14,235.55	4.17	6.17	6.10	100.00	100.00	100.00	100.00	10.03	10.28	12.01	14.66
South America, West	Panama Canal	52.40	12.63	4.45	4.95	28.04	34.18	34.47	35.94	0.02	0.04	0.04	0.04
	Non Panama Canal	49.21	4.66	3.85	3.20	54.86	32.10	30.55	26.93	0.03	0.04	0.03	0.03
	Panama Canal/Non Panama Canal	51.70	18.19	4.75	5.14	17.09	33.72	34.98	37.14	0.01	0.04	0.04	0.04
	World	153.31	10.42	4.37	4.51	100.00	100.00	100.00	100.00	0.06	0.11	0.11	0.11
Central Am. & Caribbean	Panama Canal/Non Panama Canal	3,598.40	18.63	5.55	5.30	100.00	100.00	100.00	100.00	0.69	2.60	2.86	3.24
	World	3,598.40	18.63	5.55	5.30	100.00	100.00	100.00	100.00	0.69	2.60	2.86	3.24
Africa/Middle East	Panama Canal	155.54	14.20	4.26	3.04	0.92	1.83	2.00	2.01	0.04	0.11	0.11	0.10
	Non Panama Canal	4,960.33	4.22	3.95	3.65	73.18	58.32	62.04	66.05	3.48	3.58	3.39	3.28
	Panama Canal/Non Panama Canal	3,389.95	11.31	2.25	1.79	25.90	39.85	35.96	31.94	1.23	2.45	1.96	1.58
	World	8,505.81	6.62	3.31	3.01	100.00	100.00	100.00	100.00	4.75	6.14	5.46	4.96
										1985	1995	2005	2015
World	Panama Canal	6,292.02	2.42	3.98	3.12	5.25	4.54	4.31	3.96	5.25	4.54	4.31	3.96
	Non Panama Canal	77,679.74	2.21	4.47	3.95	66.15	56.11	55.77	55.50	66.15	56.11	55.77	55.50
	Panama Canal/Non Panama Canal	54,474.63	7.28	4.68	4.16	28.60	39.35	39.91	40.54	28.60	39.35	39.91	40.54
	World	138,446.39	3.91	4.53	4.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Paper

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	818.83	5.50	9.36	6.78	5.53	5.12	6.03	6.95	2.55	2.13	2.17	2.14
	Non Panama Canal	4,601.32	7.88	9.12	6.54	24.84	28.79	33.18	37.36	11.45	11.96	11.93	11.48
	Panama Canal/Non Panama Canal	10,561.60	5.75	6.69	4.36	69.63	66.09	60.78	55.69	32.09	27.46	21.86	17.11
	World	15,981.75	6.30	7.59	5.28	100.00	100.00	100.00	100.00	46.09	41.55	35.96	30.73
Europe	Panama Canal	166.31	11.15	10.65	8.13	0.77	1.31	1.44	1.52	0.31	0.43	0.50	0.55
	Non Panama Canal	8,605.64	4.19	9.58	7.49	76.51	67.74	67.52	67.50	30.33	22.37	23.26	24.47
	Panama Canal/Non Panama Canal	3,932.89	8.78	9.65	7.47	22.72	30.96	31.05	30.98	9.01	10.22	10.70	11.23
	World	12,704.85	5.47	9.62	7.49	100.00	100.00	100.00	100.00	39.64	33.03	34.46	36.25
Asia/Pacific	Panama Canal	11.35	8.23	9.83	7.31	0.31	0.19	0.18	0.18	0.03	0.03	0.03	0.03
	Non Panama Canal	5,311.44	14.00	10.44	7.66	85.69	89.90	90.43	90.10	7.61	13.81	15.52	16.58
	Panama Canal/Non Panama Canal	585.16	9.59	9.78	8.08	14.00	9.90	9.39	9.73	1.24	1.52	1.61	1.79
	World	5,907.95	13.45	10.37	7.70	100.00	100.00	100.00	100.00	8.88	15.36	17.16	18.41
South America, East	Panama Canal	371.95	15.81	11.24	8.49	21.69	20.76	20.19	19.21	0.46	0.97	1.17	1.35
	Non Panama Canal	1,161.18	18.67	11.85	9.29	53.01	64.82	66.54	68.19	1.11	3.02	3.85	4.79
	Panama Canal/Non Panama Canal	258.17	9.95	10.65	8.46	25.30	14.41	13.28	12.61	0.53	0.67	0.77	0.89
	World	1,791.31	16.31	11.56	9.03	100.00	100.00	100.00	100.00	2.10	4.66	5.79	7.02
South America, West	Panama Canal	127.16	12.48	11.11	8.43	39.19	34.13	33.43	33.09	0.21	0.33	0.39	0.45
	Non Panama Canal	204.65	17.97	11.62	8.70	39.15	54.92	56.36	57.18	0.21	0.53	0.67	0.78
	Panama Canal/Non Panama Canal	40.81	6.53	10.56	8.02	21.66	10.95	10.21	9.73	0.12	0.11	0.12	0.13
	World	372.61	14.05	11.33	8.54	100.00	100.00	100.00	100.00	0.53	0.97	1.18	1.37
Central Am. & Caribbean	Panama Canal/Non Panama Canal	283.64	11.98	11.79	8.53	100.00	100.00	100.00	100.00	0.49	0.74	0.94	1.08
	World	283.64	11.98	11.79	8.53	100.00	100.00	100.00	100.00	0.49	0.74	0.94	1.08
Africa/Middle East	Panama Canal	17.55	8.84	9.18	7.48	1.76	1.23	1.01	0.94	0.04	0.05	0.05	0.05
	Non Panama Canal	984.48	12.02	11.39	8.40	74.01	69.21	69.51	69.86	1.68	2.56	3.14	3.59
	Panama Canal/Non Panama Canal	420.42	15.04	11.31	8.25	24.22	29.56	29.47	29.20	0.55	1.09	1.33	1.50
	World	1,422.46	12.78	11.35	8.34	100.00	100.00	100.00	100.00	2.27	3.70	4.51	5.14
										1985	1995	2005	2015
World	Panama Canal	1,513.16	8.41	10.14	7.59	3.58	3.93	4.31	4.57	3.58	3.93	4.31	4.57
	Non Panama Canal	20,868.72	7.78	9.95	7.54	52.39	54.25	58.37	61.69	52.39	54.25	58.37	61.69
	Panama Canal/Non Panama Canal	16,082.69	6.85	7.92	5.87	44.02	41.81	37.32	33.74	44.02	41.81	37.32	33.74
	World	38,464.57	7.41	9.15	6.95	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Textiles

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	59.08	16.28	7.96	5.90	2.39	5.53	6.27	6.64	0.16	0.29	0.32	0.35
	Non Panama Canal	599.92	6.80	6.35	5.33	56.74	56.17	54.78	54.89	3.74	2.98	2.81	2.86
	Panama Canal/Non Panama Canal	409.07	6.22	6.79	5.18	40.88	38.30	38.95	38.48	2.69	2.03	2.00	2.00
	World	1,068.07	6.91	6.61	5.31	100.00	100.00	100.00	100.00	6.59	5.31	5.12	5.21
Europe	Panama Canal	32.17	11.00	6.98	5.33	0.48	0.78	0.76	0.73	0.14	0.16	0.16	0.16
	Non Panama Canal	3,343.31	5.23	7.70	5.87	84.46	81.30	84.08	85.68	24.16	16.61	17.75	19.03
	Panama Canal/Non Panama Canal	736.60	7.48	5.56	4.52	15.06	17.91	15.16	13.59	4.31	3.66	3.20	3.02
	World	4,112.09	5.63	7.34	5.67	100.00	100.00	100.00	100.00	28.60	20.43	21.11	22.21
Asia/Pacific	Panama Canal	94.54	31.23	9.18	6.47	0.15	0.74	0.91	1.05	0.08	0.47	0.58	0.65
	Non Panama Canal	9,949.41	12.91	7.57	5.15	70.00	77.42	82.13	84.33	35.52	49.43	52.17	52.22
	Panama Canal/Non Panama Canal	2,806.98	8.34	4.27	3.32	29.85	21.84	16.97	14.62	15.15	13.94	10.78	9.05
	World	12,850.93	11.78	6.94	4.87	100.00	100.00	100.00	100.00	50.75	63.84	63.52	61.93
South America, East	Panama Canal	116.84	7.94	8.10	6.54	16.57	26.97	30.21	29.73	0.65	0.58	0.64	0.74
	Non Panama Canal	191.82	1.93	6.80	6.41	48.24	44.27	43.93	42.69	1.91	0.95	0.94	1.06
	Panama Canal/Non Panama Canal	124.60	0.75	5.75	7.40	35.19	28.76	25.86	27.58	1.39	0.62	0.55	0.68
	World	433.26	2.81	6.88	6.72	100.00	100.00	100.00	100.00	3.95	2.15	2.13	2.47
South America, West	Panama Canal	39.42	5.92	5.07	4.89	45.49	49.49	42.70	39.91	0.27	0.20	0.16	0.16
	Non Panama Canal	25.11	16.11	8.40	6.31	11.57	31.53	37.18	39.75	0.07	0.12	0.14	0.16
	Panama Canal/Non Panama Canal	15.11	-3.20	7.26	5.71	42.94	18.98	20.13	20.34	0.25	0.08	0.08	0.08
	World	79.64	5.04	6.63	5.60	100.00	100.00	100.00	100.00	0.59	0.40	0.38	0.40
Central Am. & Caribbean	Panama Canal/Non Panama Canal	155.49	9.56	7.28	5.06	100.00	100.00	100.00	100.00	0.75	0.77	0.79	0.79
	World	155.49	9.56	7.28	5.06	100.00	100.00	100.00	100.00	0.75	0.77	0.79	0.79
Africa/Middle East	Panama Canal	4.07	21.13	8.48	5.93	0.08	0.28	0.33	0.36	0.01	0.02	0.02	0.03
	Non Panama Canal	1,315.39	6.83	6.64	5.17	93.15	91.99	91.13	90.76	8.17	6.53	6.33	6.35
	Panama Canal/Non Panama Canal	110.39	8.38	7.82	5.64	6.77	7.72	8.53	8.89	0.59	0.55	0.59	0.62
	World	1,429.86	6.96	6.74	5.21	100.00	100.00	100.00	100.00	8.78	7.10	6.94	6.99
										1985	1995	2005	2015
World	Panama Canal	346.12	12.37	7.99	6.17	1.30	1.72	1.89	2.08	1.30	1.72	1.89	2.08
	Non Panama Canal	15,424.97	9.69	7.47	5.34	73.57	76.63	80.13	81.67	73.57	76.63	80.13	81.67
	Panama Canal/Non Panama Canal	4,358.25	7.63	5.02	4.07	25.14	21.65	17.99	16.25	25.14	21.65	17.99	16.25
	World	20,129.34	9.25	6.99	5.14	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Machinery, Other Vehicles & Transport Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	360.22	9.31	8.53	7.86	5.70	7.83	7.82	8.18	0.52	0.74	0.75	0.79
	Non Panama Canal	2,224.08	5.08	8.32	7.31	52.20	48.36	47.38	47.10	4.75	4.57	4.52	4.55
	Panama Canal/Non Panama Canal	2,014.76	6.31	8.79	7.36	42.10	43.81	44.80	44.72	3.83	4.14	4.28	4.32
	World	4,599.06	5.89	8.54	7.38	100.00	100.00	100.00	100.00	9.10	9.44	9.55	9.66
Europe	Panama Canal	329.04	7.38	8.40	7.29	1.11	1.61	1.55	1.54	0.57	0.68	0.67	0.68
	Non Panama Canal	12,458.18	1.28	8.37	7.28	75.16	60.79	58.63	57.93	38.47	25.58	25.45	25.53
	Panama Canal/Non Panama Canal	7,706.15	8.32	9.39	7.60	23.74	37.60	39.82	40.54	12.15	15.82	17.29	17.87
	World	20,493.36	3.45	8.76	7.41	100.00	100.00	100.00	100.00	51.18	42.07	43.42	44.07
Asia/Pacific	Panama Canal	260.47	14.85	7.16	6.07	0.69	1.28	1.19	1.10	0.23	0.53	0.48	0.43
	Non Panama Canal	11,621.42	10.78	9.53	7.58	43.85	57.17	66.33	70.43	14.63	23.86	26.41	27.25
	Panama Canal/Non Panama Canal	8,445.04	4.81	5.29	5.54	55.47	41.55	32.48	28.47	18.51	17.34	12.93	11.01
	World	20,326.93	7.88	7.91	6.94	100.00	100.00	100.00	100.00	33.38	41.73	39.82	38.69
South America, East	Panama Canal	223.46	10.74	8.95	7.72	9.36	13.56	13.52	13.18	0.28	0.46	0.48	0.50
	Non Panama Canal	744.00	9.90	10.69	8.13	33.64	45.16	52.76	53.44	1.01	1.53	1.88	2.04
	Panama Canal/Non Panama Canal	679.94	3.33	6.80	7.89	56.99	41.27	33.72	33.39	1.72	1.40	1.20	1.27
	World	1,647.40	6.71	8.98	8.00	100.00	100.00	100.00	100.00	3.02	3.38	3.56	3.82
South America, West	Panama Canal	36.27	19.09	8.41	6.62	30.46	49.10	47.53	45.45	0.02	0.07	0.07	0.07
	Non Panama Canal	22.91	15.85	8.69	7.68	25.37	31.01	30.79	32.53	0.02	0.05	0.05	0.05
	Panama Canal/Non Panama Canal	14.69	4.84	9.70	7.26	44.17	19.89	21.68	22.02	0.03	0.03	0.03	0.03
	World	73.87	13.54	8.76	7.09	100.00	100.00	100.00	100.00	0.07	0.15	0.16	0.15
Central Am. & Caribbean	Panama Canal/Non Panama Canal	384.37	11.03	10.30	8.04	100.00	100.00	100.00	100.00	0.47	0.79	0.94	1.01
	World	384.37	11.03	10.30	8.04	100.00	100.00	100.00	100.00	0.47	0.79	0.94	1.01
Africa/Middle East	Panama Canal	14.41	19.49	8.86	6.98	0.31	1.22	1.20	1.16	0.01	0.03	0.03	0.03
	Non Panama Canal	845.34	2.64	8.87	7.36	82.15	71.39	70.77	70.44	2.28	1.74	1.81	1.83
	Panama Canal/Non Panama Canal	324.32	8.84	9.22	7.55	17.54	27.39	28.03	28.40	0.49	0.67	0.72	0.74
	World	1,184.08	4.09	8.97	7.41	100.00	100.00	100.00	100.00	2.78	2.43	2.56	2.59
World										1985	1995	2005	2015
	Panama Canal	1,223.87	10.19	8.30	7.31	1.63	2.51	2.48	2.50	1.63	2.51	2.48	2.50
	Non Panama Canal	27,915.93	4.81	8.94	7.45	61.17	57.31	60.13	61.25	61.17	57.31	60.13	61.25
	Panama Canal/Non Panama Canal	19,569.27	6.31	7.64	6.92	37.20	40.18	37.39	36.26	37.20	40.18	37.39	36.26
	World	48,709.06	5.50	8.42	7.25	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Food (Mainly Containerized) Beverages and Tobacco

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	146.77	8.46	8.18	6.32	3.16	2.66	3.50	4.08	0.33	0.38	0.46	0.47
	Non Panama Canal	2,486.81	8.17	5.59	5.14	55.02	45.04	46.51	48.52	5.67	6.49	6.16	5.62
	Panama Canal/Non Panama Canal	2,887.78	12.85	4.78	4.14	41.82	52.30	49.99	47.41	4.31	7.54	6.62	5.49
	World	5,521.36	10.36	5.25	4.69	100.00	100.00	100.00	100.00	10.30	14.41	13.25	11.59
Europe	Panama Canal	66.50	8.27	8.33	7.38	0.34	0.51	0.63	0.74	0.15	0.17	0.21	0.24
	Non Panama Canal	10,196.97	2.98	5.99	5.52	85.27	78.22	77.76	76.94	38.00	26.62	26.24	24.82
	Panama Canal/Non Panama Canal	2,772.54	8.01	6.22	5.98	14.39	21.27	21.60	22.32	6.41	7.24	7.29	7.20
	World	13,036.01	3.87	6.06	5.63	100.00	100.00	100.00	100.00	44.56	34.03	33.75	32.27
Asia/Pacific	Panama Canal	77.05	14.96	4.84	5.84	0.40	0.65	0.56	0.51	0.10	0.20	0.18	0.17
	Non Panama Canal	8,013.19	11.58	6.96	6.77	55.63	68.09	71.03	71.00	13.40	20.92	22.59	24.05
	Panama Canal/Non Panama Canal	3,678.36	5.67	5.50	6.80	43.98	31.26	28.41	28.48	10.59	9.60	9.04	9.65
	World	11,768.60	9.34	6.51	6.78	100.00	100.00	100.00	100.00	24.08	30.72	31.81	33.87
South America, East	Panama Canal	245.11	15.96	7.14	7.26	3.91	12.08	14.85	16.00	0.28	0.64	0.70	0.78
	Non Panama Canal	1,285.16	9.03	5.88	6.93	37.95	63.31	69.14	72.24	2.71	3.35	3.27	3.53
	Panama Canal/Non Panama Canal	499.59	-4.95	0.53	3.24	58.14	24.61	16.01	11.77	4.15	1.30	0.76	0.58
	World	2,029.85	3.59	4.95	6.47	100.00	100.00	100.00	100.00	7.13	5.30	4.73	4.89
South America, West	Panama Canal	387.79	17.03	7.30	7.84	22.05	49.91	51.54	52.85	0.40	1.01	1.13	1.33
	Non Panama Canal	159.78	15.98	8.31	8.53	9.95	20.57	23.33	25.51	0.18	0.42	0.51	0.64
	Panama Canal/Non Panama Canal	229.36	-0.78	5.25	5.97	68.00	29.52	25.13	21.64	1.24	0.60	0.55	0.54
	World	776.94	7.85	6.96	7.57	100.00	100.00	100.00	100.00	1.82	2.03	2.19	2.51
Central Am. & Caribbean	Panama Canal/Non Panama Canal	1,064.44	6.56	5.84	6.57	100.00	100.00	100.00	100.00	2.82	2.78	2.70	2.82
	World	1,064.44	6.56	5.84	6.57	100.00	100.00	100.00	100.00	2.82	2.78	2.70	2.82
Africa/Middle East	Panama Canal	46.93	23.53	8.88	6.57	0.31	1.14	1.37	1.37	0.03	0.12	0.16	0.17
	Non Panama Canal	3,401.26	6.95	6.65	6.51	93.62	82.67	80.40	80.15	8.69	8.88	9.31	9.66
	Panama Canal/Non Panama Canal	666.22	19.44	8.22	6.69	6.07	16.19	18.23	18.49	0.56	1.74	2.11	2.23
	World	4,114.41	8.29	6.94	6.54	100.00	100.00	100.00	100.00	9.28	10.74	11.58	12.06
World	Panama Canal	970.14	14.24	7.38	7.24	1.28	2.53	2.84	3.16	1985 1.28	1995 2.53	2005 2.84	2015 3.16
	Non Panama Canal	25,543.18	6.40	6.37	6.15	68.64	66.67	68.09	68.33	68.64	66.67	68.09	68.33
	Panama Canal/Non Panama Canal	11,798.28	6.96	5.53	5.90	30.08	30.80	29.07	28.51	30.08	30.80	29.07	28.51
	World	38,311.59	6.71	6.14	6.11	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Pharmaceutical, and Other Chemical Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	134.65	10.02	6.43	5.49	4.58	5.08	4.79	4.17	0.84	1.01	0.86	0.73
	Non Panama Canal	1,058.73	6.95	6.66	6.55	47.80	39.92	38.47	37.08	8.80	7.95	6.89	6.51
	Panama Canal/Non Panama Canal	1,458.61	10.47	7.39	7.31	47.62	55.00	56.74	58.75	8.77	10.95	10.17	10.32
	World	2,651.99	8.89	7.06	6.94	100.00	100.00	100.00	100.00	18.41	19.90	17.92	17.57
Europe	Panama Canal	90.30	7.01	7.03	6.24	1.47	1.64	1.57	1.48	0.75	0.68	0.61	0.56
	Non Panama Canal	3,376.13	4.16	7.28	6.64	72.15	61.49	60.07	59.02	36.52	25.34	23.30	22.23
	Panama Canal/Non Panama Canal	2,024.11	9.44	7.96	7.15	26.38	36.87	38.36	39.50	13.35	15.19	14.88	14.87
	World	5,490.54	5.84	7.54	6.83	100.00	100.00	100.00	100.00	50.62	41.20	38.79	37.66
Asia/Pacific	Panama Canal	15.37	4.11	7.22	6.35	0.81	0.41	0.34	0.30	0.17	0.12	0.11	0.10
	Non Panama Canal	2,767.87	13.66	9.73	7.75	60.79	73.65	77.51	78.79	12.52	20.77	23.92	25.30
	Panama Canal/Non Panama Canal	975.00	7.21	7.45	6.96	38.40	25.94	22.15	20.90	7.91	7.32	6.84	6.71
	World	3,758.25	11.50	9.17	7.58	100.00	100.00	100.00	100.00	20.59	28.20	30.87	32.11
South America, East	Panama Canal	132.39	14.60	10.00	8.01	11.68	29.00	33.90	37.82	0.55	0.99	1.17	1.27
	Non Panama Canal	221.66	4.82	7.83	6.62	47.72	48.55	46.53	45.57	2.25	1.66	1.61	1.53
	Panama Canal/Non Panama Canal	102.51	-1.39	6.82	5.10	40.61	22.45	19.57	16.61	1.92	0.77	0.68	0.56
	World	456.56	4.63	8.29	6.84	100.00	100.00	100.00	100.00	4.72	3.43	3.46	3.36
South America, West	Panama Canal	14.55	18.73	9.61	7.58	25.05	25.08	24.40	23.75	0.04	0.11	0.12	0.13
	Non Panama Canal	26.99	21.07	9.99	7.81	38.23	46.53	46.84	46.58	0.06	0.20	0.24	0.25
	Panama Canal/Non Panama Canal	16.47	15.69	10.06	8.21	36.72	28.39	28.75	29.67	0.06	0.12	0.15	0.16
	World	58.01	18.71	9.92	7.87	100.00	100.00	100.00	100.00	0.17	0.44	0.51	0.55
Central Am. & Caribbean	Panama Canal/Non Panama Canal	146.64	8.88	9.32	7.36	100.00	100.00	100.00	100.00	1.02	1.10	1.22	1.25
	World	146.64	8.88	9.32	7.36	100.00	100.00	100.00	100.00	1.02	1.10	1.22	1.25
Africa/Middle East	Panama Canal	0.84	-16.10	9.26	7.72	1.76	0.11	0.10	0.10	0.08	0.01	0.01	0.01
	Non Panama Canal	642.36	11.57	10.73	7.49	78.10	84.11	84.03	83.66	3.50	4.82	6.08	6.28
	Panama Canal/Non Panama Canal	120.51	8.07	10.80	7.79	20.14	15.78	15.87	16.25	0.90	0.90	1.15	1.22
	World	763.70	10.74	10.74	7.54	100.00	100.00	100.00	100.00	4.48	5.73	7.24	7.51
World	Panama Canal	388.09	10.02	8.05	6.86	2.43	2.91	2.88	2.80	1985 2.43	1995 2.91	2005 2.88	2015 2.80
	Non Panama Canal	8,093.75	7.54	8.42	7.16	63.65	60.74	62.05	62.11	63.65	60.74	62.05	62.11
	Panama Canal/Non Panama Canal	4,843.84	8.79	7.80	7.16	33.92	36.35	35.07	35.09	33.92	36.35	35.07	35.09
	World	13,325.68	8.04	8.19	7.15	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Computers, Electrical and Electronic Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	57.77	25.44	11.34	8.47	2.03	6.90	8.04	8.46	0.14	0.40	0.47	0.51
	Non Panama Canal	373.77	8.74	9.59	7.84	54.73	44.68	44.41	44.09	3.69	2.62	2.60	2.64
	Panama Canal/Non Panama Canal	405.09	12.24	9.46	7.89	43.24	48.42	47.55	47.45	2.91	2.83	2.79	2.84
	World	836.63	10.97	9.66	7.92	100.00	100.00	100.00	100.00	6.74	5.85	5.86	5.98
Europe	Panama Canal	40.00	11.37	9.58	7.77	1.14	1.61	1.58	1.56	0.31	0.28	0.28	0.28
	Non Panama Canal	1,559.93	5.84	9.71	8.01	73.66	62.71	62.28	62.91	20.17	10.92	10.98	11.31
	Panama Canal/Non Panama Canal	887.52	11.36	9.93	7.72	25.20	35.68	36.14	35.53	6.90	6.21	6.37	6.39
	World	2,487.46	7.56	9.79	7.90	100.00	100.00	100.00	100.00	27.39	17.41	17.63	17.97
Asia/Pacific	Panama Canal	169.06	24.28	9.71	7.87	0.70	1.61	1.63	1.67	0.44	1.18	1.19	1.21
	Non Panama Canal	4,823.05	17.22	10.36	7.82	36.09	45.92	49.27	50.31	22.47	33.75	36.01	36.47
	Panama Canal/Non Panama Canal	5,511.36	12.32	8.87	7.36	63.21	52.47	49.11	48.02	39.36	38.57	35.90	34.81
	World	10,503.47	14.43	9.59	7.60	100.00	100.00	100.00	100.00	62.27	73.50	73.10	72.49
South America, East	Panama Canal	22.12	8.36	9.21	7.45	21.14	21.45	20.21	18.92	0.23	0.15	0.15	0.15
	Non Panama Canal	59.67	12.18	10.33	8.26	40.33	57.88	60.40	60.94	0.43	0.42	0.44	0.47
	Panama Canal/Non Panama Canal	21.31	1.67	9.16	8.57	38.53	20.67	19.39	20.14	0.41	0.15	0.14	0.15
	World	103.11	8.20	9.86	8.16	100.00	100.00	100.00	100.00	1.07	0.72	0.74	0.77
South America, West	Panama Canal	6.53	21.80	11.23	8.54	38.76	42.41	42.61	42.89	0.02	0.05	0.05	0.06
	Non Panama Canal	6.54	24.46	10.69	8.42	31.29	42.48	40.68	40.48	0.02	0.05	0.05	0.05
	Panama Canal/Non Panama Canal	2.33	12.73	12.30	8.42	29.95	15.11	16.71	16.63	0.02	0.02	0.02	0.02
	World	15.41	20.71	11.17	8.47	100.00	100.00	100.00	100.00	0.05	0.11	0.12	0.13
Central Am. & Caribbean	Panama Canal/Non Panama Canal	67.31	20.24	10.46	8.22	100.00	100.00	100.00	100.00	0.24	0.47	0.51	0.53
	World	67.31	20.24	10.46	8.22	100.00	100.00	100.00	100.00	0.24	0.47	0.51	0.53
Africa/Middle East	Panama Canal	1.70	6.33	9.13	7.39	0.94	0.61	0.55	0.52	0.02	0.01	0.01	0.01
	Non Panama Canal	226.28	10.06	10.11	7.96	88.45	81.70	80.53	79.99	1.98	1.58	1.65	1.69
	Panama Canal/Non Panama Canal	48.98	16.74	11.01	8.36	10.61	17.68	18.92	19.49	0.24	0.34	0.39	0.41
	World	276.96	10.93	10.27	8.03	100.00	100.00	100.00	100.00	2.24	1.94	2.05	2.12
										1985	1995	2005	2015
World	Panama Canal	297.18	19.37	10.02	7.98	1.15	2.08	2.15	2.21	1.15	2.08	2.15	2.21
	Non Panama Canal	7,049.25	12.68	10.17	7.87	48.76	49.33	51.74	52.63	48.76	49.33	51.74	52.63
	Panama Canal/Non Panama Canal	6,943.91	12.21	9.08	7.46	50.08	48.59	46.11	45.16	50.08	48.59	46.11	45.16
	World	14,290.34	12.55	9.65	7.69	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Clothing

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	4.29	21.76	8.87	7.00	1.36	1.57	1.60	1.71	0.03	0.06	0.07	0.08
	Non Panama Canal	22.93	8.67	7.88	6.18	22.73	8.39	7.82	7.74	0.54	0.33	0.34	0.35
	Panama Canal/Non Panama Canal	245.91	22.12	8.71	6.29	75.91	90.03	90.58	90.55	1.81	3.56	3.91	4.08
	World	273.13	20.05	8.64	6.29	100.00	100.00	100.00	100.00	2.38	3.96	4.31	4.51
Europe	Panama Canal	3.86	19.21	8.61	6.22	0.22	0.39	0.42	0.43	0.04	0.06	0.06	0.06
	Non Panama Canal	830.43	11.77	8.17	6.04	89.33	84.32	87.08	87.95	14.79	12.03	12.56	12.81
	Panama Canal/Non Panama Canal	150.51	16.77	5.68	5.15	10.45	15.28	12.50	11.62	1.73	2.18	1.80	1.69
	World	984.80	12.42	7.83	5.93	100.00	100.00	100.00	100.00	16.56	14.27	14.43	14.57
Asia/Pacific	Panama Canal	17.55	33.26	9.34	6.33	0.08	0.40	0.48	0.51	0.05	0.25	0.30	0.31
	Non Panama Canal	1,588.16	21.63	7.99	5.46	18.13	36.34	37.98	37.29	12.15	23.01	23.61	22.81
	Panama Canal/Non Panama Canal	2,764.43	10.58	7.22	5.76	81.79	63.26	61.55	62.20	54.81	40.06	38.26	38.04
	World	4,370.14	13.46	7.51	5.65	100.00	100.00	100.00	100.00	67.01	63.33	62.17	61.16
South America, East	Panama Canal	4.84	14.91	8.37	6.39	6.71	11.80	13.29	14.70	0.07	0.07	0.07	0.08
	Non Panama Canal	27.41	13.12	7.78	5.66	44.49	66.88	71.29	73.57	0.43	0.40	0.40	0.39
	Panama Canal/Non Panama Canal	8.74	-0.03	3.68	2.48	48.80	21.32	15.42	11.73	0.48	0.13	0.09	0.06
	World	40.98	8.60	7.09	5.33	100.00	100.00	100.00	100.00	0.97	0.59	0.56	0.53
South America, West	Panama Canal	18.28	24.28	9.01	6.62	61.83	31.47	30.17	30.36	0.11	0.26	0.30	0.32
	Non Panama Canal	3.82	41.82	8.96	6.55	3.45	6.58	6.28	6.27	0.01	0.06	0.06	0.07
	Panama Canal/Non Panama Canal	35.99	40.89	9.75	6.53	34.72	61.95	63.55	63.37	0.06	0.52	0.63	0.67
	World	58.10	32.96	9.47	6.56	100.00	100.00	100.00	100.00	0.18	0.84	0.99	1.06
Central Am. & Caribbean	Panama Canal/Non Panama Canal	344.66	19.18	8.09	6.13	100.00	100.00	100.00	100.00	3.23	4.99	5.17	5.33
	World	344.66	19.18	8.09	6.13	100.00	100.00	100.00	100.00	3.23	4.99	5.17	5.33
Africa/Middle East	Panama Canal	0.14	13.90	7.38	5.77	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00
	Non Panama Canal	815.84	16.60	8.00	6.22	98.59	98.41	98.20	98.17	9.52	11.82	12.14	12.60
	Panama Canal/Non Panama Canal	13.03	18.10	9.41	6.39	1.39	1.57	1.79	1.81	0.13	0.19	0.22	0.23
	World	829.01	16.63	8.02	6.22	100.00	100.00	100.00	100.00	9.65	12.01	12.37	12.84
World	Panama Canal	48.96	24.25	9.02	6.49	0.30	0.71	0.80	0.85	1985	1995	2005	2015
	Non Panama Canal	3,288.59	16.89	8.04	5.81	37.44	47.65	49.12	49.04	0.30	0.71	0.80	0.85
	Panama Canal/Non Panama Canal	3,563.28	11.99	7.38	5.83	62.25	51.64	50.08	50.11	37.44	47.65	49.12	49.04
	World	6,900.82	14.10	7.71	5.83	100.00	100.00	100.00	100.00	62.25	51.64	50.08	50.11
										100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Footwear

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	2.86	37.39	4.89	3.57	0.92	7.02	7.52	7.88	0.01	0.13	0.14	0.15
	Non Panama Canal	15.88	13.45	2.35	1.37	34.52	39.03	32.69	27.63	0.51	0.70	0.61	0.51
	Panama Canal/Non Panama Canal	21.95	10.07	5.25	3.87	64.56	53.95	59.79	64.50	0.96	0.96	1.12	1.20
	World	40.69	12.07	4.18	3.09	100.00	100.00	100.00	100.00	1.48	1.79	1.87	1.86
Europe	Panama Canal	1.29	25.68	6.35	5.79	0.05	0.40	0.49	0.51	0.01	0.06	0.07	0.09
	Non Panama Canal	268.05	0.00	4.57	5.87	92.12	83.31	86.48	89.18	30.50	11.77	12.79	16.64
	Panama Canal/Non Panama Canal	52.41	8.68	1.88	3.11	7.83	16.29	13.03	10.32	2.59	2.30	1.93	1.93
	World	321.75	1.01	4.19	5.55	100.00	100.00	100.00	100.00	33.11	14.13	14.80	18.66
Asia/Pacific	Panama Canal	14.13	40.48	5.82	1.02	0.11	0.81	0.99	0.85	0.05	0.62	0.76	0.62
	Non Panama Canal	379.04	17.98	4.47	3.94	17.27	21.68	23.34	26.69	8.25	16.65	17.91	19.37
	Panama Canal/Non Panama Canal	1,355.20	14.60	3.45	2.11	82.62	77.51	75.67	72.46	39.48	59.53	58.06	52.60
	World	1,748.37	15.33	3.70	2.56	100.00	100.00	100.00	100.00	47.79	76.80	76.73	72.59
South America, East	Panama Canal	4.69	15.65	7.58	6.92	1.65	5.53	10.00	13.93	0.12	0.21	0.30	0.43
	Non Panama Canal	17.45	13.63	3.45	2.49	7.32	20.55	25.15	22.95	0.55	0.77	0.75	0.70
	Panama Canal/Non Panama Canal	62.76	0.37	0.06	3.15	91.03	73.92	64.85	63.12	6.88	2.76	1.93	1.93
	World	84.91	2.48	1.38	3.43	100.00	100.00	100.00	100.00	7.56	3.73	2.97	3.06
South America, West	Panama Canal	3.41	27.49	3.23	2.20	41.66	41.31	29.59	21.31	0.03	0.15	0.14	0.13
	Non Panama Canal	2.32	50.42	7.94	7.17	5.42	28.12	31.47	36.43	0.00	0.10	0.15	0.22
	Panama Canal/Non Panama Canal	2.52	20.78	9.35	6.48	52.92	30.57	38.95	42.26	0.04	0.11	0.19	0.26
	World	8.25	27.60	6.74	5.61	100.00	100.00	100.00	100.00	0.08	0.36	0.48	0.61
Central Am. & Caribbean	Panama Canal/Non Panama Canal	19.93	13.61	4.12	1.73	100.00	100.00	100.00	100.00	0.63	0.88	0.91	0.80
	World	19.93	13.61	4.12	1.73	100.00	100.00	100.00	100.00	0.63	0.88	0.91	0.80
Africa/Middle East	Panama Canal	0.01	5.58	4.16	3.96	0.01	0.02	0.03	0.03	0.00	0.00	0.00	0.00
	Non Panama Canal	50.69	-4.63	3.26	3.79	99.22	96.30	95.42	94.12	9.27	2.23	2.13	2.27
	Panama Canal/Non Panama Canal	1.94	11.76	5.59	6.59	0.78	3.68	4.55	5.86	0.07	0.08	0.10	0.14
	World	52.64	-4.35	3.36	3.93	100.00	100.00	100.00	100.00	9.34	2.31	2.23	2.42
World	Panama Canal	26.39	28.64	5.79	3.15	0.24	1.16	1.41	1.42	1985	1995	2005	2015
	Non Panama Canal	733.44	5.45	4.38	4.64	49.09	32.22	34.35	39.73	0.24	1.16	1.41	1.42
	Panama Canal/Non Panama Canal	1,516.71	13.04	3.33	2.23	50.66	66.62	64.24	58.86	49.09	32.22	34.35	39.73
	World	2,276.54	9.99	3.71	3.13	100.00	100.00	100.00	100.00	50.66	66.62	64.24	58.86
										100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Photographic Equipment, Watches and Clocks

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	2.96	15.24	6.56	5.47	2.21	4.43	5.58	6.11	0.12	0.25	0.24	0.22
	Non Panama Canal	30.32	6.93	4.31	3.78	47.85	45.48	46.28	43.13	2.55	2.57	2.01	1.53
	Panama Canal/Non Panama Canal	33.39	7.50	3.72	5.07	49.95	50.09	48.14	50.76	2.66	2.83	2.09	1.80
	World	66.67	7.47	4.13	4.51	100.00	100.00	100.00	100.00	5.32	5.65	4.35	3.54
Europe	Panama Canal	2.42	11.86	7.52	6.45	0.64	0.81	0.79	0.70	0.13	0.20	0.22	0.21
	Non Panama Canal	112.02	3.39	7.66	7.65	64.90	37.66	37.21	37.04	13.18	9.50	10.19	11.16
	Panama Canal/Non Panama Canal	183.06	15.69	7.86	7.75	34.46	61.53	61.99	62.26	7.00	15.52	16.98	18.76
	World	297.49	9.17	7.78	7.70	100.00	100.00	100.00	100.00	20.31	25.22	27.38	30.14
Asia/Pacific	Panama Canal	11.71	10.41	9.29	6.97	0.98	1.47	1.86	1.96	0.71	0.99	1.24	1.27
	Non Panama Canal	376.74	9.51	8.04	7.03	34.35	47.30	53.21	56.64	24.93	31.93	35.52	36.73
	Panama Canal/Non Panama Canal	408.11	3.62	5.39	5.50	64.67	51.23	44.93	41.40	46.95	34.59	29.99	26.85
	World	796.57	6.06	6.78	6.37	100.00	100.00	100.00	100.00	72.60	67.52	66.75	64.86
South America, East	Panama Canal	0.79	7.10	5.04	4.79	11.89	23.07	22.23	25.97	0.07	0.07	0.06	0.05
	Non Panama Canal	1.07	4.50	5.44	5.07	20.51	31.11	31.15	37.38	0.11	0.09	0.08	0.07
	Panama Canal/Non Panama Canal	1.58	-3.60	5.62	0.72	67.61	45.82	46.63	36.66	0.37	0.13	0.12	0.07
	World	3.45	0.23	5.43	3.17	100.00	100.00	100.00	100.00	0.55	0.29	0.25	0.18
South America, West	Panama Canal	0.17	41.81	9.56	8.22	39.27	55.71	61.22	64.36	0.00	0.01	0.02	0.02
	Non Panama Canal	0.12	31.71	6.96	6.78	55.69	37.73	32.61	29.98	0.00	0.01	0.01	0.01
	Panama Canal/Non Panama Canal	0.02	40.59	7.87	6.77	5.04	6.56	6.17	5.67	0.00	0.00	0.00	0.00
	World	0.31	36.94	8.53	7.68	100.00	100.00	100.00	100.00	0.00	0.03	0.03	0.03
Central Am. & Caribbean	Panama Canal/Non Panama Canal	3.37	16.81	6.58	6.69	100.00	100.00	100.00	100.00	0.12	0.29	0.28	0.28
	World	3.37	16.81	6.58	6.69	100.00	100.00	100.00	100.00	0.12	0.29	0.28	0.28
Africa/Middle East	Panama Canal	0.08	49.69	8.90	6.62	0.02	0.66	0.84	0.82	0.00	0.01	0.01	0.01
	Non Panama Canal	8.67	4.40	5.35	6.29	84.04	73.05	66.58	63.53	0.93	0.73	0.64	0.61
	Panama Canal/Non Panama Canal	3.12	11.30	8.64	7.76	15.94	26.29	32.58	35.65	0.18	0.26	0.31	0.34
	World	11.87	5.87	6.34	6.79	100.00	100.00	100.00	100.00	1.10	1.01	0.95	0.96
World	Panama Canal	18.13	11.22	8.49	6.66	1.03	1.54	1.78	1.78	1985	1995	2005	2015
	Non Panama Canal	528.95	7.61	7.73	7.04	41.70	44.84	48.45	50.12	1.03	1.54	1.78	1.78
	Panama Canal/Non Panama Canal	632.65	6.13	6.10	6.31	57.27	53.63	49.77	48.11	41.70	44.84	48.45	50.12
	World	1,179.73	6.83	6.90	6.68	100.00	100.00	100.00	100.00	57.27	53.63	49.77	48.11
										100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Scientific Equipment

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	5.17	10.24	7.66	7.94	3.07	5.11	5.31	6.00	0.49	0.74	0.68	0.67
	Non Panama Canal	43.84	4.32	6.33	5.87	45.27	43.33	39.81	37.01	7.17	6.25	5.08	4.15
	Panama Canal/Non Panama Canal	52.18	4.76	7.91	7.05	51.66	51.57	54.87	56.99	8.18	7.44	7.00	6.39
	World	101.18	4.78	7.24	6.65	100.00	100.00	100.00	100.00	15.83	14.43	12.76	11.20
Europe	Panama Canal	4.30	1.87	6.69	6.21	2.07	1.87	1.68	1.43	0.89	0.61	0.52	0.43
	Non Panama Canal	139.78	1.36	7.67	8.14	70.96	60.89	59.93	60.81	30.46	19.94	18.36	18.52
	Panama Canal/Non Panama Canal	85.50	6.30	8.17	7.80	26.97	37.24	38.39	37.77	11.58	12.20	11.76	11.50
	World	229.57	2.92	7.84	7.98	100.00	100.00	100.00	100.00	42.93	32.75	30.64	30.45
Asia/Pacific	Panama Canal	3.04	11.04	6.80	6.04	0.68	0.90	0.72	0.58	0.27	0.43	0.37	0.31
	Non Panama Canal	135.70	11.66	10.02	8.52	28.78	40.35	43.19	43.93	11.23	19.36	22.11	23.11
	Panama Canal/Non Panama Canal	197.53	5.99	8.77	8.22	70.53	58.74	56.09	55.49	27.53	28.18	28.71	29.19
	World	336.28	7.95	9.27	8.34	100.00	100.00	100.00	100.00	39.03	47.97	51.19	52.60
South America, East	Panama Canal	1.54	15.67	10.28	8.42	19.17	33.49	37.19	38.82	0.09	0.22	0.26	0.27
	Non Panama Canal	2.07	12.77	9.09	8.12	33.31	45.13	44.96	45.66	0.16	0.30	0.31	0.31
	Panama Canal/Non Panama Canal	0.98	1.00	7.19	6.45	47.52	21.37	17.86	15.52	0.22	0.14	0.12	0.11
	World	4.59	9.40	9.14	7.95	100.00	100.00	100.00	100.00	0.47	0.66	0.69	0.68
South America, West	Panama Canal	0.33	21.00	8.97	8.31	26.98	42.81	42.17	41.87	0.01	0.05	0.05	0.05
	Non Panama Canal	0.20	19.35	8.75	8.77	18.87	26.09	25.17	26.09	0.01	0.03	0.03	0.03
	Panama Canal/Non Panama Canal	0.24	9.31	9.67	8.18	54.15	31.10	32.66	32.05	0.02	0.03	0.04	0.04
	World	0.78	15.54	9.13	8.39	100.00	100.00	100.00	100.00	0.05	0.11	0.12	0.12
Central Am. & Caribbean	Panama Canal/Non Panama Canal	13.18	34.67	10.63	8.91	100.00	100.00	100.00	100.00	0.17	1.88	2.27	2.46
	World	13.18	34.67	10.63	8.91	100.00	100.00	100.00	100.00	0.17	1.88	2.27	2.46
Africa/Middle East	Panama Canal	0.30	10.73	8.08	6.39	1.78	1.96	1.77	1.43	0.03	0.04	0.04	0.04
	Non Panama Canal	11.84	8.30	9.05	8.76	86.81	76.92	75.80	76.22	1.33	1.69	1.77	1.89
	Panama Canal/Non Panama Canal	3.25	16.58	9.87	8.66	11.42	21.12	22.43	22.35	0.17	0.46	0.52	0.55
	World	15.40	9.62	9.21	8.70	100.00	100.00	100.00	100.00	1.53	2.20	2.33	2.48
World	Panama Canal	14.68	7.53	7.56	7.19	1.77	2.09	1.91	1.76	1985 1.77	1995 2.09	2005 1.91	2015 1.76
	Non Panama Canal	333.44	5.14	8.59	8.12	50.36	47.57	47.66	48.00	50.36	47.57	47.66	48.00
	Panama Canal/Non Panama Canal	352.86	6.28	8.58	8.00	47.87	50.34	50.43	50.23	47.87	50.34	50.43	50.23
	World	700.98	5.75	8.56	8.04	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Bananas and Other Reefer

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	22	22.7	10.7	9.0	0.1	0.3	0.5	0.7	0.0	0.0	0.1	0.1
	Non Panama Canal	2,102	13.8	8.0	8.3	25.5	31.0	38.3	46.9	2.6	4.2	4.6	5.0
	Panama Canal/Non Panama Canal	4,656	10.6	4.5	4.6	74.4	68.7	61.2	52.5	7.7	9.3	7.4	5.6
	World	6,780	11.5	5.7	6.2	100.0	100.0	100.0	100.0	10.3	13.6	12.1	10.7
Europe	Panama Canal	9	15.8	8.9	7.9	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
	Non Panama Canal	7,424	5.9	8.6	8.3	85.0	75.9	77.8	80.1	19.0	14.8	17.3	18.8
	Panama Canal/Non Panama Canal	2,353	12.3	7.4	6.9	15.0	24.1	22.1	19.9	3.3	4.7	4.9	4.7
	World	9,786	7.1	8.3	8.0	100.0	100.0	100.0	100.0	22.3	19.6	22.2	23.4
Asia/Pacific	Panama Canal	17	11.2	8.7	7.9	0.1	0.1	0.2	0.2	0.0	0.0	0.0	0.0
	Non Panama Canal	9,196	10.3	6.8	7.6	60.7	68.8	70.6	71.4	15.6	18.4	18.2	18.3
	Panama Canal/Non Panama Canal	4,159	6.4	5.9	7.1	39.2	31.1	29.2	28.4	10.1	8.3	7.5	7.3
	World	13,373	8.9	6.5	7.4	100.0	100.0	100.0	100.0	25.8	26.7	25.7	25.6
South America, East	Panama Canal	384	14.0	9.3	9.1	6.3	11.1	13.3	14.8	0.5	0.8	1.0	1.1
	Non Panama Canal	2,309	9.3	8.3	8.2	57.7	66.5	72.3	73.7	4.3	4.6	5.2	5.6
	Panama Canal/Non Panama Canal	777	2.7	2.7	5.6	36.0	22.4	14.4	11.6	2.7	1.6	1.0	0.9
	World	3,471	7.7	7.4	7.9	100.0	100.0	100.0	100.0	7.5	6.9	7.2	7.5
South America, West	Panama Canal	1,897	17.8	9.9	8.5	22.8	44.8	54.9	56.6	1.7	3.8	5.0	5.5
	Non Panama Canal	480	21.3	9.2	8.5	4.3	11.3	13.0	13.3	0.3	1.0	1.2	1.3
	Panama Canal/Non Panama Canal	1,856	4.6	4.4	7.5	73.0	43.9	32.1	30.1	5.4	3.7	2.9	2.9
	World	4,232	10.1	7.7	8.2	100.0	100.0	100.0	100.0	7.3	8.5	9.1	9.7
Central Am. & Caribbean	Panama Canal/Non Panama Canal	6,148	8.5	4.6	6.0	100.0	100.0	100.0	100.0	12.3	12.3	9.8	8.6
	World	6,148	8.5	4.6	6.0	100.0	100.0	100.0	100.0	12.3	12.3	9.8	8.6
Africa/Middle East	Panama Canal	0	-9.6	7.4	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	5,462	6.5	8.1	7.9	90.8	87.6	87.2	87.9	13.2	10.9	12.1	12.7
	Panama Canal/Non Panama Canal	776	10.1	8.5	7.2	9.2	12.4	12.8	12.1	1.3	1.6	1.8	1.8
	World	6,239	6.9	8.2	7.8	100.0	100.0	100.0	100.0	14.5	12.5	13.9	14.4
World	Panama Canal	2,329	17.0	9.8	8.6	2.2	4.7	6.1	6.8	2.2	4.7	6.1	6.8
	Non Panama Canal	26,974	8.3	7.9	8.0	55.0	53.9	58.6	61.6	55.0	53.9	58.6	61.6
	Panama Canal/Non Panama Canal	20,725	8.2	5.3	6.3	42.8	41.4	35.3	31.7	42.8	41.4	35.3	31.7
	World	50,028	8.5	7.0	7.5	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Lumber Products

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	20	15.6	6.6	5.3	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
	Non Panama Canal	3,398	8.2	3.7	4.2	9.0	11.4	13.4	14.4	4.5	4.5	3.9	3.5
	Panama Canal/Non Panama Canal	26,439	5.4	1.8	3.3	91.0	88.6	86.5	85.5	44.9	34.6	25.0	20.7
	World	29,856	5.7	2.1	3.5	100.0	100.0	100.0	100.0	49.4	39.1	28.9	24.3
Europe	Panama Canal	13	17.2	6.9	5.8	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
	Non Panama Canal	11,651	6.9	6.7	5.9	83.2	72.4	71.8	72.3	17.2	15.3	17.6	18.7
	Panama Canal/Non Panama Canal	4,439	13.9	7.0	5.6	16.8	27.6	28.1	27.6	3.5	5.8	6.9	7.1
	World	16,103	8.4	6.8	5.8	100.0	100.0	100.0	100.0	20.7	21.1	24.5	25.8
Asia/Pacific	Panama Canal	4	20.5	7.7	5.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	16,422	12.7	7.1	6.4	68.9	83.0	85.8	86.6	14.3	21.5	25.7	28.4
	Panama Canal/Non Panama Canal	3,349	4.1	4.9	5.6	31.1	16.9	14.2	13.3	6.4	4.4	4.3	4.4
	World	19,775	10.6	6.8	6.3	100.0	100.0	100.0	100.0	20.7	25.9	30.0	32.8
South America, East	Panama Canal	131	25.1	7.0	5.8	2.1	6.1	6.2	6.4	0.0	0.2	0.2	0.2
	Non Panama Canal	1,253	15.3	7.4	6.0	46.2	57.8	61.6	63.9	0.9	1.6	2.0	2.2
	Panama Canal/Non Panama Canal	785	8.8	5.5	4.7	51.7	36.2	32.2	29.7	1.0	1.0	1.1	1.0
	World	2,168	12.7	6.7	5.6	100.0	100.0	100.0	100.0	1.9	2.8	3.3	3.4
South America, West	Panama Canal	501	17.4	7.7	5.7	35.8	22.5	25.8	27.6	0.3	0.7	0.8	0.9
	Non Panama Canal	1,054	22.3	6.8	5.2	49.8	47.5	49.9	50.9	0.4	1.4	1.6	1.6
	Panama Canal/Non Panama Canal	666	32.2	4.0	3.7	14.4	30.0	24.3	21.5	0.1	0.9	0.8	0.7
	World	2,221	22.9	6.2	5.0	100.0	100.0	100.0	100.0	0.8	2.9	3.2	3.1
Central Am. & Caribbean	Panama Canal/Non Panama Canal	238	7.4	6.9	5.5	100.0	100.0	100.0	100.0	0.3	0.3	0.4	0.4
	World	238	7.4	6.9	5.5	100.0	100.0	100.0	100.0	0.3	0.3	0.4	0.4
Africa/Middle East	Panama Canal	0	-100.0	5.8	4.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	4,812	9.1	7.4	5.7	93.3	79.7	79.2	77.9	5.8	6.3	7.7	8.0
	Panama Canal/Non Panama Canal	1,225	23.8	7.7	6.5	6.7	20.3	20.8	22.1	0.4	1.6	2.0	2.3
	World	6,036	10.9	7.4	5.8	100.0	100.0	100.0	100.0	6.2	7.9	9.8	10.3
World	Panama Canal	668	18.5	7.5	5.7	0.4	0.9	1.1	1.1	0.4	0.9	1.1	1.1
	Non Panama Canal	38,589	10.0	6.8	6.0	43.0	50.5	58.5	62.3	43.0	50.5	58.5	62.3
	Panama Canal/Non Panama Canal	37,140	6.5	3.3	4.2	56.7	48.6	40.4	36.5	56.7	48.6	40.4	36.5
	World	76,398	8.2	5.2	5.3	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Fertilizers (incl. Phosphates)

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	16	7.0	4.8	2.1	0.8	1.2	1.5	1.5	0.1	0.1	0.1	0.1
	Non Panama Canal	165	-0.8	2.2	2.9	16.6	12.0	12.0	13.0	1.1	1.1	0.9	0.8
	Panama Canal/Non Panama Canal	1,190	3.0	2.1	2.0	82.6	86.8	86.5	85.5	5.5	8.1	6.4	5.1
	World	1,371	2.5	2.1	2.2	100.0	100.0	100.0	100.0	6.6	9.4	7.4	6.0
Europe	Panama Canal	27	5.1	4.4	5.0	0.4	0.5	0.5	0.6	0.1	0.2	0.2	0.2
	Non Panama Canal	4,886	2.1	2.7	3.0	92.1	88.9	83.7	79.8	24.3	33.4	27.8	24.2
	Panama Canal/Non Panama Canal	583	6.1	7.4	5.8	7.5	10.6	15.7	19.6	2.0	4.0	5.2	6.0
	World	5,495	2.5	3.3	3.5	100.0	100.0	100.0	100.0	26.4	37.5	33.2	30.3
Asia/Pacific	Panama Canal	10	8.2	4.4	4.1	1.8	1.8	1.5	1.3	0.0	0.1	0.1	0.1
	Non Panama Canal	412	7.2	6.2	5.3	79.3	72.0	72.8	71.1	1.3	2.8	3.3	3.6
	Panama Canal/Non Panama Canal	150	11.9	5.9	6.3	18.9	26.3	25.8	27.6	0.3	1.0	1.2	1.4
	World	572	8.2	6.1	5.6	100.0	100.0	100.0	100.0	1.6	3.9	4.5	5.1
South America, East	Panama Canal	26	11.2	7.4	6.7	14.5	21.1	22.2	23.7	0.1	0.2	0.2	0.3
	Non Panama Canal	45	9.2	6.8	6.3	29.7	35.8	35.7	36.7	0.1	0.3	0.4	0.5
	Panama Canal/Non Panama Canal	54	4.4	6.6	5.4	55.8	43.1	42.1	39.6	0.2	0.4	0.5	0.5
	World	125	7.1	6.9	6.0	100.0	100.0	100.0	100.0	0.4	0.9	1.1	1.2
South America, West	Panama Canal	65	1.2	2.0	-0.9	20.3	24.5	21.8	19.3	0.4	0.4	0.3	0.2
	Non Panama Canal	29	8.7	5.0	0.6	4.5	11.1	13.2	13.6	0.1	0.2	0.2	0.1
	Panama Canal/Non Panama Canal	170	-2.2	3.3	0.6	75.2	64.5	65.1	67.2	1.3	1.2	1.0	0.7
	World	264	-0.6	3.2	0.3	100.0	100.0	100.0	100.0	1.7	1.8	1.6	1.1
Central Am. & Caribbean	Panama Canal/Non Panama Canal	873	21.4	7.2	6.2	100.0	100.0	100.0	100.0	0.8	6.0	7.7	9.1
	World	873	21.4	7.2	6.2	100.0	100.0	100.0	100.0	0.8	6.0	7.7	9.1
Africa/Middle East	Panama Canal	4	13.6	5.3	5.4	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0
	Non Panama Canal	5,002	-6.4	5.5	5.1	94.6	84.3	83.6	84.3	59.2	34.2	37.2	39.8
	Panama Canal/Non Panama Canal	931	5.4	6.0	4.5	5.4	15.7	16.4	15.6	3.4	6.4	7.3	7.4
	World	5,938	-5.3	5.5	5.0	100.0	100.0	100.0	100.0	62.6	40.6	44.5	47.2
World	Panama Canal	148	4.4	4.1	3.4	0.6	1.0	1.0	0.9	0.6	1.0	1.0	0.9
	Non Panama Canal	10,539	-2.8	4.2	4.3	86.0	72.0	69.8	69.0	86.0	72.0	69.8	69.0
	Panama Canal/Non Panama Canal	3,952	6.1	5.4	4.7	13.4	27.0	29.3	30.1	13.4	27.0	29.3	30.1
	World	14,638	-1.1	4.6	4.4	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table B-4: World Seaborne Trade Volume (in Thousands of M.T.)

Commodity: Crude Oil

Export Region	Import Region	1995	Annual Compound Growth Rates 1985-95	95-2005	2005-15	% Share of Regional Trade 1985	1995	2005	2015	% Share of World Trade 1985	1995	2005	2015
North America	Panama Canal	0	-100.0	-100.0	-100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	1	-100.0	1.7	3.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
	Panama Canal/Non Panama Canal	1,200	7.8	8.8	6.7	100.0	99.9	100.0	100.0	0.1	0.1	0.1	0.2
	World	1,201	7.8	8.8	6.7	100.0	100.0	100.0	100.0	0.1	0.1	0.1	0.2
Europe	Panama Canal	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Non Panama Canal	137,223	7.0	4.4	5.1	90.2	98.0	98.2	98.4	10.3	9.4	9.7	10.6
	Panama Canal/Non Panama Canal	2,791	-9.5	3.2	3.9	9.8	2.0	1.8	1.6	1.1	0.2	0.2	0.2
	World	140,014	6.1	4.4	5.1	100.0	100.0	100.0	100.0	11.4	9.5	9.9	10.7
Asia/Pacific	Panama Canal	222	-19.8	3.8	0.9	2.1	0.2	0.2	0.1	0.3	0.0	0.0	0.0
	Non Panama Canal	111,914	4.2	4.8	4.6	76.4	92.7	94.1	95.2	11.0	7.6	8.2	8.5
	Panama Canal/Non Panama Canal	8,651	-8.5	2.3	2.3	21.5	7.2	5.7	4.7	3.1	0.6	0.5	0.4
	World	120,787	2.2	4.6	4.5	100.0	100.0	100.0	100.0	14.4	8.2	8.7	8.9

APPENDIX C OPERATING PATTERNS OF SHIPPING

In order to better understand the dynamics of future traffic patterns and the potential of increasing transits through the Panama Canal, the Consultants have considered the major criteria that will play a major role over the years. These are:

- Trade growth and pressures for larger ships over time in South American trades
- Development of modern container transshipment facilities in Panama and the Caribbean
- Landbridge competition for the Panama Canal from the U.S., Nicaragua and Colombia
- Potential routes that might be served if there were no Canal size constraints.

The trade routes analyzed are those that could potentially provide cargo for transshipment or imports/exports through the ports of Balboa or Cristobal. These routes include:

Panama East Coast South America West Coast South America Central America/Mexico/Caribbean	imports to or exports from:	North America - East Coast North America - West Coast North America - Gulf Coast Europe Asia/Pacific South America - East Coast South America - West Coast Central America/Mexico/Caribbean

LATIN AMERICAN TRADE

The recovery of Latin American economies that began with the economic reforms of the early 1990s has stimulated the growth in international trade into and out of Latin economies. Regional and international free trade agreements have helped to stimulate growth.

- Trend towards greater trade openness and the development of regional trade agreements has stimulated North South trade.
- The WTO agreement has stimulated East West trade, particularly with Asia.
- Significant growth routes are:
    - Asia to East Coast South America
    - West Coast South America trade to Asia .

- U.S. share of the trade has declined, although in volume terms it remains the dominant trading partner.
- Intra Latin America trade is also forecast to grow at increasing rates as a result of regional trade agreements.

FLEET TRADING PATTERNS AND REGIONAL PORT ANALYSIS

The trade growth for these trades has been discussed in some detail in Chapter II. The effects of this growth in the movement of goods has already been felt in the changing patterns of liner services. One is seeing the demise of the traditional "national" line that was state owned, with a mixture of privatization, foreign acquisition and new operators taking the stage. To give but a few examples, TMM of Mexico (still a national company) has taken a major share in FMG of Colombia, CSAV of Chile is rumored to b e bidding for Alianca of Argentina. It is today already South America's largest liner operator active on both the East Coast and West Coast trades.

A further development has been that the various new independent operators to South America have joined an increasing number of joint services, often with major European and Asian service operators which provides not only a more efficient link to the Europe and Asia, but also to the U.S. The majority of the activity has to date been on the East Coast South America trades, with transshipment linkages being established in Chile, Panama, Kingston, Miami and now Freeport.

As these joint service operations have been established, the size of vessels has also increased in line with the two fundamentals of a) servicing the growing trade, and b) searching for economies
of scale in order to reduce costs. CSAV, for example, is now operating 1,700 TEU vessels, while Columbus Line has replaced a 1,100 TEU vessel with a larger 1,900 TEU ship in its joint service with Alianca and slot charter arrangement with Ivaran Line.

On the West Coast there has been less dramatic activity, driven partly by the lack of a natural hub port. This is expected to change as the Panama Ports Company develops Balboa into a transshipment facility. Feeder operations have certainly been increased, with CSAV playing an active role linking its West Coast - U.S. East Coast service to pick up additional cargo. A major problem however is that many of the ports on the West Coast are restricted by water depth which has limited vessel loadings. This is being addressed by some of the ports as they begin to review the feasibility of dredging to 12-15 meters. (This is discussed in greater detail below.)

Table C-1: Major Lines Sailing via the Panama Canal on Voyages to and from Asia, US East Coast and Europe with Calls in Panamanian Ports

Operator	From	To	Balboa	Cristobal	Manzanillo	Kingston
MOL	Tokyo	Charleston			X	
MOL	Charleston	Tokyo			X	
Nedlloyd	Tokyo	Charleston		X		
OOCL	Tokyo	Charleston			X	
OOCL	Charleston	Tokyo			X	
Zim	Hong Kong	Savannah			X	X
Zim	Miami	Hong Kong				X
DSR/Senator	Busan	Savannah		X		
DSR/Senator	Savannah	Los Angeles		X		
Evergreen	Tokyo	Charleston		X		
Evergreen	Charleston	Los Angeles		X		
Wilhelmsen	Yokohama	Miami		X	X	
Cho Yang	Savannah	Los Angeles		X		

Table C-2: Carriers Calling at Panama and Using Feeder Services in Central America

Service	Carrier	Service Frequency				Port Service								
			Limon	San Antonio	Buenaventura	Cristobal	Balboa	Las Minas	Manzanillo	Cartegna	Esmaraldas	Barranquilla	Habana	Sta Marta
Caribbean Service	Flota Mercante Grancolombiana	weekly (Cristobal)												
Express-Cruzero	Flota Mercante Grancolombiana	3 days (Cristobal)												
Far East-CA-Colombia	Flota Mercante Grancolombiana	weekly (Cristobal)												
Far East-Carib via Cristobal	Flota Mercante Grancolombiana	weekly (Cristobal)												
Gulf to Central America	Crowley American Transport	weekly (Las Minas)												
Miami Service	Crowley American Transport	weekly (Las Minas)												
Mexico Service	Crowley American Transport	weekly (Las Minas)						(Ship A)						
South America Service	Crowley American Transport	weekly (Las Minas)						(Ship A)						
Intra Caribe Service	Crowley American Transport	weekly (Manzanillo)												
US Coast/Canada Service	CSAV	weekly (Cristobal)												
N Europe Service	CSAV	n/a												
South America Service	CSAV	bi weekly (Balboa)												
NWC South America	CSAV	weekly (Cristobal)												
WC South America	CSAV	n/a												
USA-Panama	CSAV	bi weekly (Balboa)												
Panama-Orient	MOL (same vsl calls MIT fm/to Tokyo)	weekly (Manzanillo)												
Carib Feeder Service	MOL	weekly (Manzanillo)												
Asia-EC USA via Manzanillo	OOCL (same vsl calls MIT fm/to Tokyo)	weekly (Manzanillo)												
Miami-Panama-Costa Rica	Seaboard Marine	every 4-5 days (MIT)												
SA& Caribbean	Seaboard Marine	weekly (Cristobal)												
China-WCSA	Cosco	bi weekly (Balboa)												
InterCaribe	Mclfi Marine Corp	tri weekly (Cristobal)												
Europe-Panama	Hapag Lloyd	10 days (Cristobal)												
USA Gulf/Mexico/Miami	Transnave	17 days (Cristobal)												
Asia-Panama-USEC-Europe	Evergreen	weekly (Cristobal)												
Eur-USEC-Pan-Lax-Japan	Evergreen	weekly (Kingston)												
Caribe Service	Evergreen (similar to Grancolombiana)	weekly (Cristobal)												
Caribe Service	Nedlloyd SOUCAR (same vsl calls MIT 2x)	weekly (MIT)												
Orient-ECSA	Nedlloyd PACENA (same vsl calls MIT 2x)	weekly (MIT)												
ECCA-US-SA	Nedlloyd USASA (same vsl calls MIT 2x)	bi weekly (MIT)												
Amazon	Nedlloyd (same vsl calls MIT 2x)	bi weekly (MIT)												
Panama/Brazil	Wilhelmsen/Ivaran	4 days (MIT)												

Table C-2: Carriers Calling at Panama and Using Feeder Services in Central America, cont.

Service	Carrier	Service Frequency	Pto Bolivar	Pto Cortez	Curacao	St Thomas/GUA	Paita	La Guaira	Pto. Cabello	Aruba	San Salvador	San Juan	Nicaragua
Caribbean Service	Flota Mercante Grancolombiana	weekly (Cristobal)											
Express-Crucero	Flota Mercante Grancolombiana	3 days (Cristobal)											
Far East-CA-Colombia	Flota Mercante Grancolombiana	weekly (Cristobal)											
Far East-Carib via Cristobal	Flota Mercante Grancolombiana	weekly (Cristobal)											
Gulf to Central America	Crowley American Transport	weekly (Las Minas)											
Miami Service	Crowley American Transport	weekly (Las Minas)											
Mexico Service	Crowley American Transport	weekly (Las Minas)											
South America Service	Crowley American Transport	weekly (Las Minas)											
Intra Caribe Service	Crowley American Transport	weekly (Manzanillo)											
US Coast/Canada Service	CSAV	weekly (Cristobal)											
N Europe Service	CSAV	n/a											
South America Service	CSAV	bi weekly (Balboa)											
NWC South America	CSAV	weekly (Cristobal)											
WC South America	CSAV	n/a											
USA-Panama	CSAV	bi weekly (Balboa)											
Panama-Orient	MOL (same vsl calls MIT fm/to Tokyo)	weekly (Manzanillo)											
Carib Feeder Service	MOL	weekly (Manzanillo)											
Asia-EC USA via Manzanillo	OOCL (same vsl calls MIT fm/to Tokyo)	weekly (Manzanillo)											
Miami-Panama-Costa Rica	Seaboard Marine	every 4-5 days (MIT)											
SA& Caribbean	Seaboard Marine	weekly (Cristobal)											
China-WCSA	Cosco	bi weekly (Balboa)											
InterCaribe	Melli Marine Corp	tri weekly (Cristobal)											
Europe-Panama	Hapag Lloyd	10 days (Cristobal)											
USA Gulf/Mexico/Miami	Transnave	17 days (Cristobal)											
Asia-Panama-USEC-Europe	Evergreen	weekly (Cristobal)											
Eur-USEC-Pan-Lax-Japan	Evergreen	weekly (Kingston)											
Caribe Service	Evergreen (similar to Grancolombiana)	weekly (Cristobal)											
Caribe Service	Nedlloyd SOUCAR (same vsl calls MIT 2x)	weekly (MIT)											
Orient-ECSA	Nedlloyd PACENA (same vsl calls MIT 2x)	weekly (MIT)											
ECCA-US-SA	Nedlloyd USASA (same vsl calls MIT 2x)	bi weekly (MIT)											
Amazon	Nedlloyd (same vsl calls MIT 2x)	bi weekly (MIT)											
Panama/Brazil	Wilhelmsen/Ivaran	4 days (MIT)											

KEY TRENDS IN THE INDUSTRY

An examination of key trends in the industry is critical to developing an appropriate strategy for Panamanian ports.

Vessel trading patterns in the relevant geographic region were reviewed.. The trading patterns of container ships using the Panama Canal and those by-passing were both analyzed using movements data, by vessel and ports of call which was provided by Lloyd's Maritime Information Services.

No post-Panamax vessels are active in this regional trade. Those vessels on a round-the-world service or on a pendulum service tend to be at or near Panamax. Examples are the Maersk *M* Class vessels and the large Hapag-Lloyd ships. Ships serving the regional trades are smaller in size, thereby providing greater flexibility in the potential ports of call. A review of the current mid-size fleet indicates that recent new buildings make this a strong sector.

Discussions were held with the major lines active in the area, including members of the Global Alliance consortia, as well as with a number of shipping Conferences. Telephone contact was also made with representatives of Shipping Conferences and Ships' Agents in Panama.

It is estimated that the top 20 carriers control over 45% of the global container carrying capacity. The majority of these Lines transit the Panama Canal with some of their services.

Shipping Lines have come together into varying alliances to share space on each others vessels on a slot charter basis. This has important implications for ports, particularly as the ships have increased in size with the newest ships coming in with capacities near 6500 TEU.

These operating alliances search out *Hub* ports that provide efficient management and high productivity as well as guaranteed berthing rights. Feeder services emanate from these ports and these are generally controlled by one or more members of the joint operation, again on a slot charter or vessel sharing basis. A number of services by Operators such as Maersk, Evergreen and DS/Senator Line also operate on a round the world service (R-T-W) providing weekly service in both directions utilizing the opportunity to stop in Panama for transshipment boxes.

Carriers in the trades serving the Central America, Caribbean and South America region are making strong efforts to raise service frequencies and cut transit times while at the same time reducing operating costs. This begins to put a heavy emphasis on the hub port concept.

The majority of the lines were in general agreement that for the foreseeable future they would rely on Panamax size vessels. This has become particularly true as competition has reduced the vessel utilization rates and volumes carried by individual carriers. The large, post Panamax vessels serving the U.S. West Coast and Asia trade will increasingly rely on dedicated mainline services, focusing on major cargo ports to use these hub ports as well.

Over the next ten years it is not clear that a carrier or consortium could achieve the volumes necessary to benefit from a post-Panamax service. Nevertheless, once transshipment centers have been established it is not unreasonable to expect the larger post-Panamax vessels to begin to call, using cross-isthmus transshipment opportunities. To hazard guessing the timing of this would be extremely subjective, but one must realize that there are less than 70 post-Panamax vessels in service and these are dedicated to two trades (Europe-Asia and Transpacific) with sufficient volumes to provide economies of scale in terms of port to port loadings. One would therefore expect the next ten years to see larger ships, but still Panamax, serving the South American trades that impact on the Panama Canal. Perhaps after 2010 the volumetric growth of cargo will have been sufficient to justify the lengthy voyage time to Balboa from Los Angeles.

REVIEW OF CURRENT LINER SERVICES

Asia/South America Services

Brazil and Argentina are served directly by **Good Hope Express** (NYK, CSAV, Nantal Lines, Grincor, Norsul), providing an 11 ship, 36 day transit time via Africa. Other Lines provide similar services. The alternative, transshipment via the U.S. East Coast, by the major global carriers has a transit time closer to 44 days.

The transshipment services (by Maersk and others) via the U.S. East Coast to Argentina and Brazil have captured around 30% of the total market.

The Central America/Caribbean trade is increasingly being serviced by the major global carriers using primarily Manzanillo, Kingston and the Dominican Republic. This can be viewed as a primarily transshipment trade. With the advent of Freeport, one is also beginning to see the U.S. East Coast being provided with a service to Venezuela and Colombia, direct at the moment, but possibly transshipped in the future.

The West Coast of South America is served either directly via Singapore or by transshipment via the U.S. West Coast. Primary service providers are Maersk and SeaLand, both using the Maersk feeder service from Long Beach. Noboa (Ecuadorian Line) also provides a feeder service with Lauritzen Line from Asia via California to the whole range of West Coast ports. Direct services are provided by the Great Andes Consortium (NYK,MOL,K Line, CSAV, CCNI, Transnave).

Europe/US/South America Services

Brazil and Argentina are served either directly from Europe or via the U.S. East Coast. The West Coast of South America and the Caribbean are served by the Eurosal Consortium, transiting via the Panama Canal after a feeder connecting stop for the Caribbean at Kingston. Other non-conference lines also provide services either directly, or via the U.S. East Coast on a transshipment basis.

The Caribbean is served mainly on a transshipment basis with Manzanillo (MIT) having become a focal point in addition to Kingston. As the need for cutting operating costs increases and with increasing economies of scale, the hub port concept grows in importance for this trade.

The United states has become the area's largest trading partner with containerization having made major in-roads in the carriage of fruits and vegetables northbound and consumer goods and machinery southbound.

EFFECTS OF CHANGING OPERATING PATTERNS ON PORTS

Along with economic change, an important factor affecting the ports are the various types and sizes of vessels sailing in the Latin American trades. The region is utilized by a wide range of ship types and due to their direct and indirect relationships with the world market place, it is important to understand the characteristics of each class.

The following is a short review of the leading shipping segments: dry bulk, tankers, container ships and refrigerated vessels.

Dry Bulk Vessels

Table C-3: Dry bulk vessels can be grouped into four major size categories

Category	DWT Capacity
Handy size	20,000-30,000
Handymax	30,000-50,000
Panamax	60,000-80,000
Capesize and above	about 150,000+

The main worldwide employment of these vessels is transportation of coal with a total seaborne trade this year approaching 400 million tons, followed by grain at about 200 million tons.[1]

[1] (1) *Shipbuilding Industry Outlook*, IMA Associates, 1996; (2) *Marine Reporter* / Engineering *News*, several issues, especially March 1996; (3) *Clarkson Data Base* as reported in *International Bulk Journal*, March 1996; (4)

The total fleet of dry bulk vessels, at the end of 1996, stood at 6,241 vessels of 20,000 DWT and higher. Newbuildings delivered during 1995 amounted to 16.6 million DWT, or about 7% of the fleet. The total order-book to the end of 1997 reached 33.1 million DWT, or about 14% of the current fleet.

In terms of fleet composition, the Capesize category, measured in DWT, accounts for the largest share, with about 30% of the total tonnage. This category is also the fastest growing with about 50% of all expected deliveries until the end of 1997. Since the Capesize vessels are of relatively young age, while the smaller tonnage vessels, especially those smaller than Panamax are relatively old, it is expected that within several years the Capesize tonnage will reach close to the 50% market. This ensures ample supply of large vessels, but also implies limited supply of smaller ones, with corresponding respective implications for the future ratio between these two size categories and those ships available that can transit the Panama Canal.

Tankers

There were 15,584 tankers at the end of 1996, constituting well over 50% of the world's commercial fleet. Fifty per cent of the fleet is below 10,000 DWT, however only 10 percent (1,531 vessels) of the tanker fleet is over 80,000 tons.

Containerships

The introduction of the Regina Maersk began the second phase of post-Panamax containerships requirements are not far from current operating norms. The dimensions of the new megaships do not require extreme changes in depths for most global ports. For a proposed 6000 TEU vessel, the length overall (LOA) will total 320 meters (1050 feet), with a beam of 42.5 meters (139.4 feet = 17 wide deck load) and a loaded draft of 14 meters (45.9 feet- normally requiring a depth of 15-16 meters or 50 feet.) Thus, only ports anticipating the arrival of these extremely large vessels would need to invest in larger cranes and deeper channels

Another feature that typifies the new post-Panamax ships is their large reefer capacity. The Regina Maersk, maintains 700 plugs, making it 20% larger than the largest dedicated reefer vessel. (Maersk's Post II, will operate on the Transpacific).

The latest known orders for new containerships include: five 5,700-TEU, 23 knot vessels by NYK to be deployed on the North Europe/Asia service during 1997/8 and P & O has committed itself for four 6,300-TEU containerships.

In the container market, the influence of the alliances is increasing--not just in numbers of transits, but also in the volume of containers, since the vessels are increasing in size. There are now 5 alliances operating in the USEC/Asia trade route. There are a total of 13 lines in the 5 alliances (listed below) plying that trade, to which must be added the three major independents (Evergreen, Cosco and Zim). Obviously, if all those large lines had served the trade independently, that would have doubled the operating capacity-

-and the number of transits. So carriers' urge to rationalize has made for an economically sensible and superior service.

Major Alliances and Independent Container Carriers

Major Container Carriers Transiting The Panama Canal

CARRIER ALLIANCES

Grand Alliance (NOL, Hapag-Lloyd, P&OCL, NYK)
Global Alliance (APL, OOCL, MOL, Nedlloyd)
Sea-Land/Maersk Alliance
Tricon Alliance (Hanjin, DSR-Senator, Cho Yang)
Yang Ming (K-Line)

MAJOR INDEPENDENTS

Evergreen
Cosco
Zim

With the merger of P&O and Nedlloyd, and the proposed takeover of APL by NOL, the make-up of these alliances is likely to change during 1997 as the industry goes through further phases of consolidation.

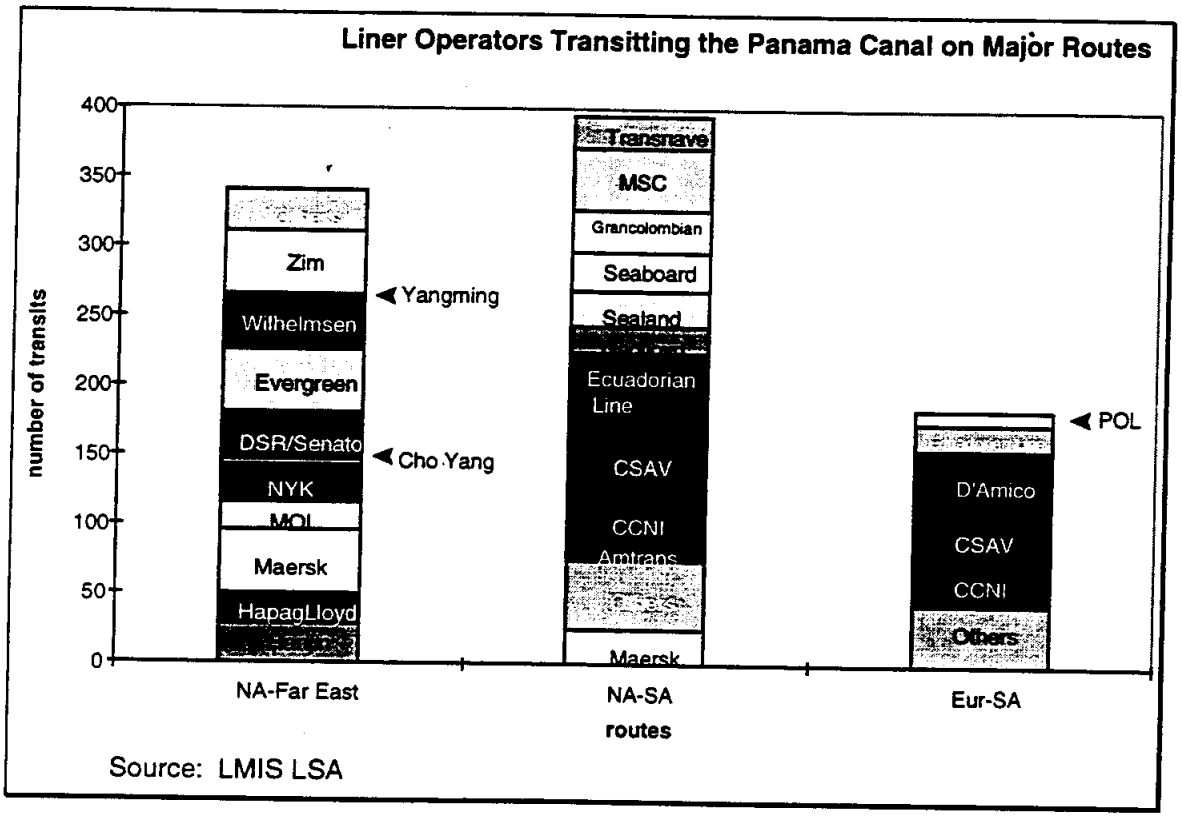
One important development is the Global Alliance's inauguration of an all-water FE/USEC service via the Panama Canal. This signaled the re-entry to the trade of OOCL, the entry of APL and Nedlloyd, and the enhancement of MOL's frequency and volumes. This was one reason for the recent increase in transits and volumes on that route, despite Cosco's shift to the Suez route. It is expected that in 1996 the major Alliances will perform around 80% of the Canal transits on the major trade route (USEC/Asia). APL is now also offering services from the U.S. East Coast to Central/South America as part of this service arrangement.

Reefer

The increase in size of refrigerated vessels seems to have tapered off in recent years, with the largest vessels at about 12,000 DWT. The main feature of the newer vessels is the increase in number of containers (up to 160 TEUs in recent models). Another trend relates to higher speed and automated loading/unloading system, both of

which are aimed at increasing productivity (lowering cost per ton-miles). These vessels require quick Canal transits. The specific carriers plying the Panama Canal are listed below, along with the number of Canal transits they completed in 1995.

Chart C-1: Liner Operators Transiting the Panama Canal on Major Routes



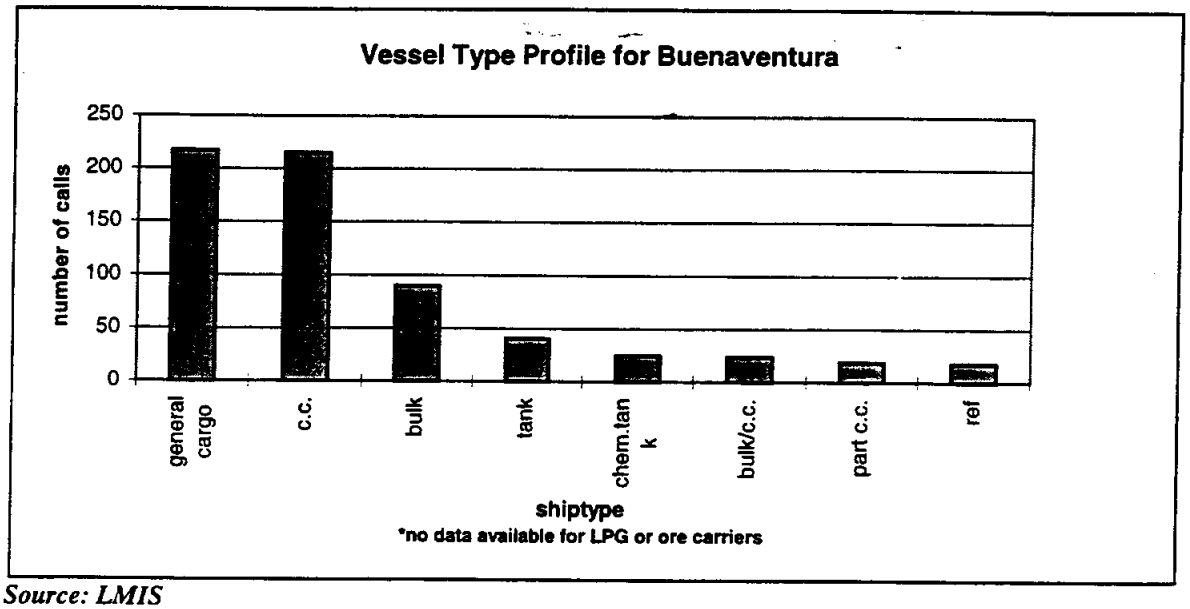
PROFILE OF VESSEL CALLS IN WEST COAST SOUTH AMERICA PORTS

Buenaventura

Data was obtained from Lloyd's Maritime Information Service in order to determine the characteristics of the vessels currently calling the Port of Buenaventura. The chart below illustrates the most prominent cargo vessel types calling the port.

As indicated, the most prominent ship type is the all-purpose general cargo ship, followed closely by the container carriers (c.c.). In fact, for the 6 month time period nearly 67% of the 650 vessels calling the port were either general cargo or container ships. This makes this vessel type critical to the growth of the port, and efforts should be made to continue to attract this type of ship.

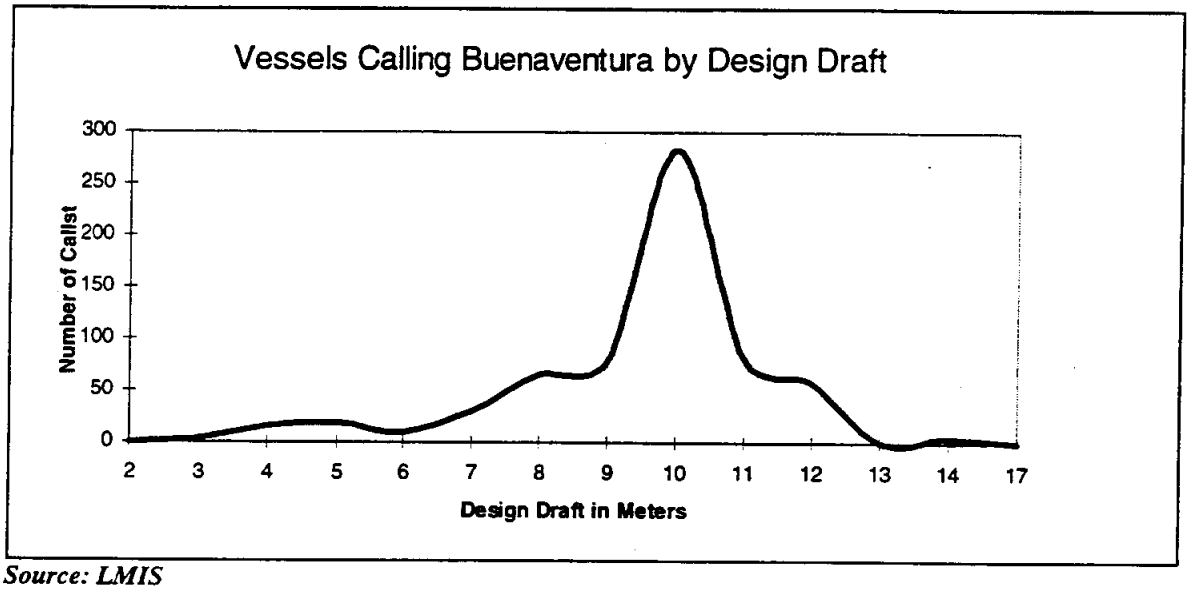
Chart C-2: Vessel Type Profile for Buenaventura



Source: LMIS

To understand the accessibility of the Port of Buenaventura for the ships that call, the data was analyzed to determine calling fleet's overall draft range. The chart below illustrates the actual design drafts of the ships entering this harbor for six months in 1995.

Chart C-3: Vessels Calling Buenaventura by Design Draft

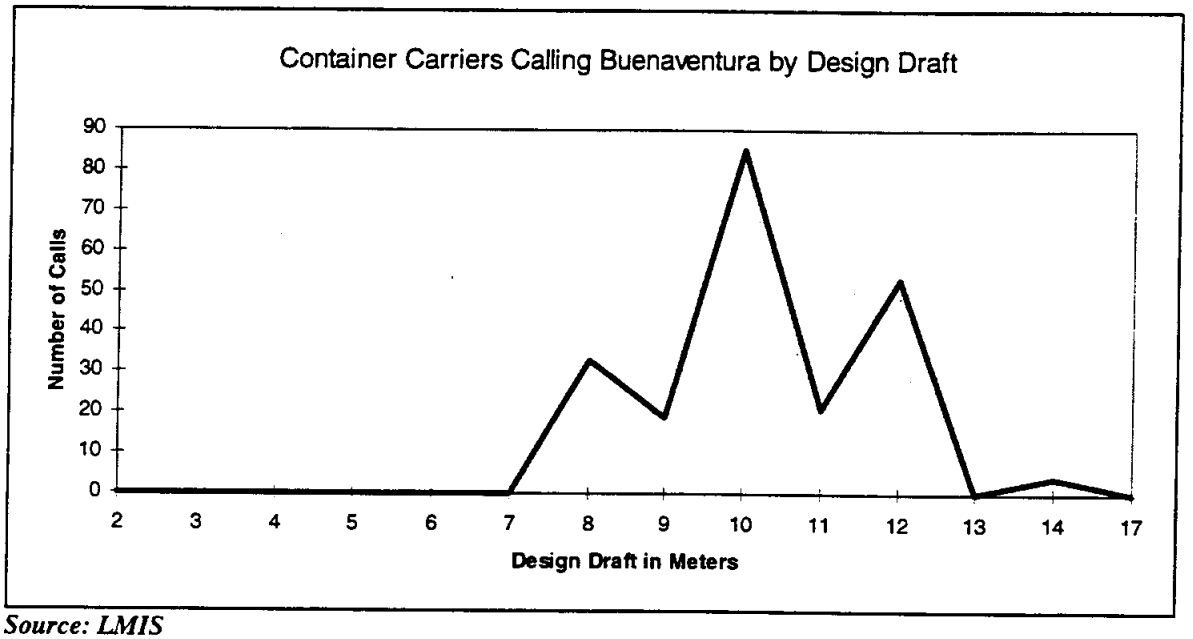


Source: LMIS

As indicated, the largest number of ships arriving fall in the range of 9 to 11 meters. However, the port's channel has a maximum depth of 10 meters, which indicates some vessels were managing to sail into the harbor with drafts greater than the channel. This is further evidenced in the number of calls outside of the 11 meter draft-some even as large 14 meters.

Container operators are one of the most prevalent vessel types calling the port. The chart below details the range of design drafts for the container carriers.

Chart C-4: Container Carriers Calling Buenaventura by Design Draft



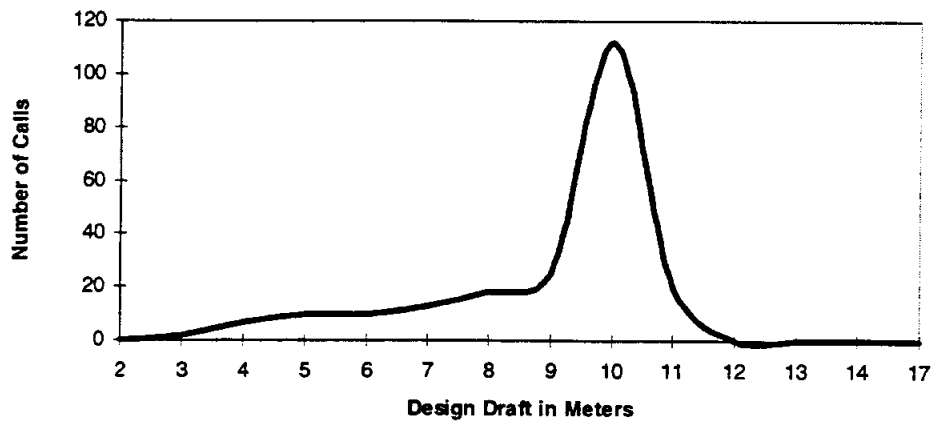
Source: LMIS

Clearly, many of these ships are moving in and out of the port with design drafts less than 13 meters. The table below indicates the ships which called Buenaventura with design drafts greater than 10 meters.

Table C-4: Vessel Name Design Draft Calls

CSAV Rengo	13.5	4
CGM Magellan	12	6
Maipo	12	6
Nedlloyd Clement	12	6
Copiapo	11.8	5
Humboldt Express	11.7	5
Isla de la Plata	11.7	5
Nedlloyd Singapore	11.6	2
Nedlloyd van Nassau	11.6	2
Nedlloyd van Rees	11.6	3
Cap Corrientes	11.5	5
Nedlloyd San Jose	11.5	4
Nedlloyd van Cloon	11.5	2
Nedlloyd van Nes	11.5	2
MSC Jessica	11.4	5
CCNI Atacama	10.8	9
CSAV Rauli	10.8	7
Sea Harmony	10.4	2
Chastine Maersk	10.3	9
Clifford Maersk	10.3	7
FMG Lima	10.2	7
Sonia	10.2	1

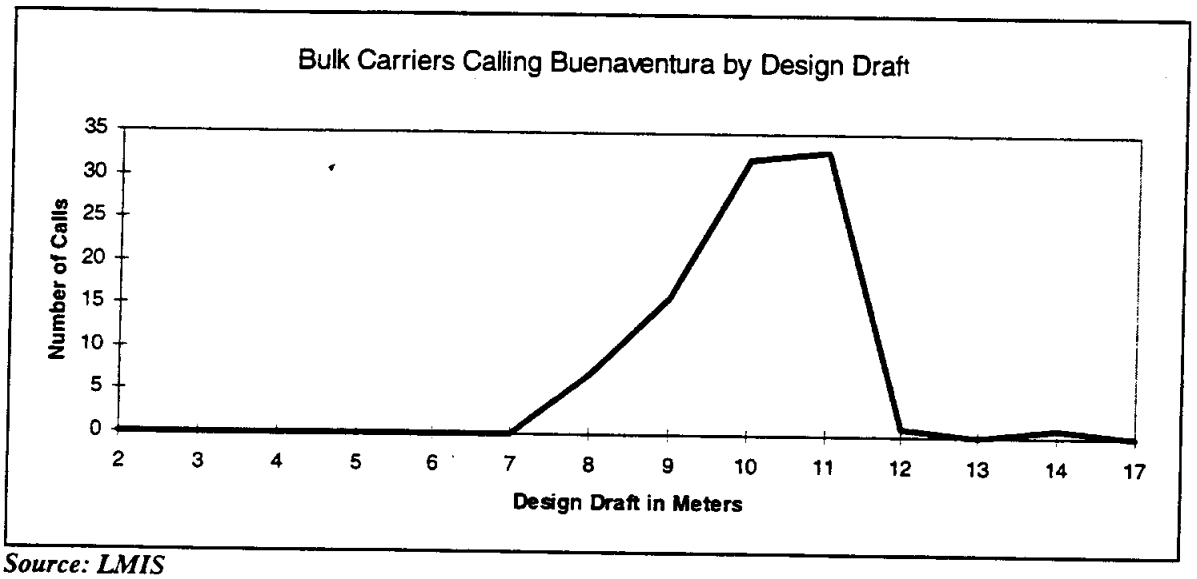
Chart C-5: General Cargo Vessels Calling Buenaventura by Design Draft



Source: LMIS

A variety of bulk carriers call at the port to deliver fertilizers and grains, as well as export sugar and coffee. These vessels also have a variety of design drafts, with the majority of calls by ships in the range of 7 to 12 meter drafts.

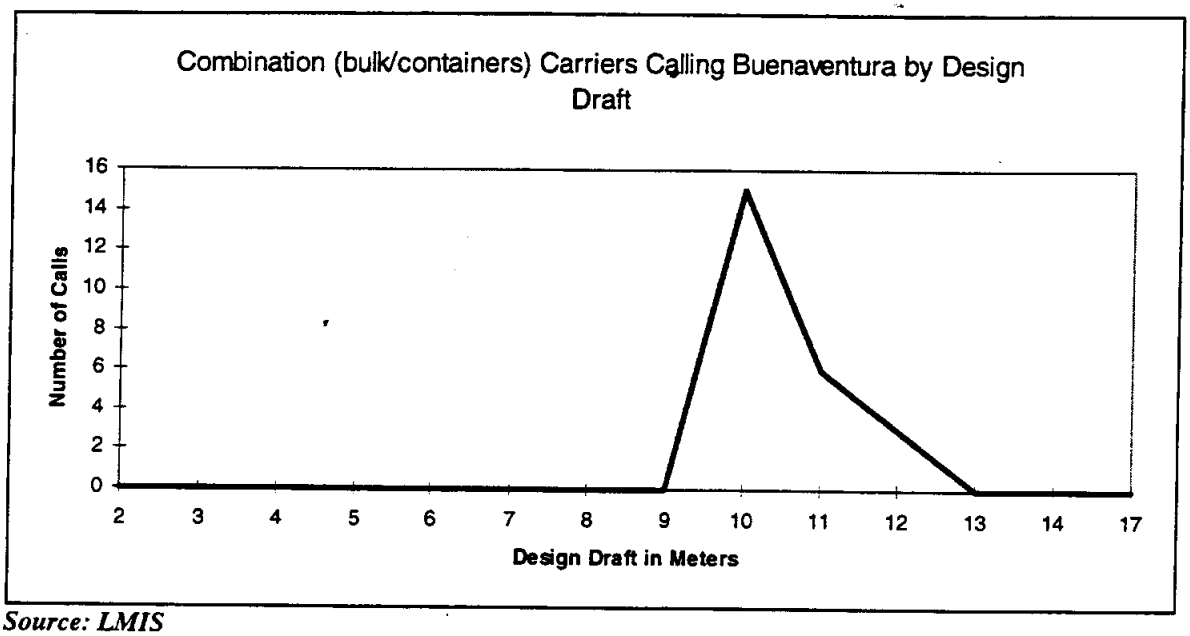
Chart C-6: Bulk Carriers Calling Buenaventura by Design Draft



Source: LMIS

Combination carriers, those carrying a mix of bulk and containerized cargoes, also call the port. The majority of these carriers have design drafts in the range of 10-11 meters, however, there are a few instances where ships have drafts up to 12 meters.

Chart C-7: Combination (Bulk/Containers) Carriers Calling Buenaventura by Design Draft



Source: LMIS

The Port of Buenaventura is typical of many of the remaining ports on the West Coast, and one would expect many of the container vessels for example, to call at most, if not all of the other ports. Based on the survey carried out, the table below summarizes the typical vessel sizes and design drafts that can be expected for the foreseeable future. Over the forecast period, one would expect the container ship sizes to increase.

Table C-5: Draft and Average DWT by Ship Type

Ship type	Average Draft	Minimum Draft	Maximum Draft	Average DWT	Minimum DWT	Maximum DWT
BULK	10.1	8.2	13.6	25,780	11,700	45,913
CONT	9.5	7.7	13.5	23,021	11,250	37,933
GC	8.4	2.5	10.7	13,645	950	28,860
REEFER	8.6	5.0	10.0	11,493	2,396	16,950
TANKER	7.7	2.7	11.9	12,585	577	33,950

Table C-6: Calls at Other West Coast South America Ports

Ports of Call	Container Carriers											
	CCNI	Sealand	Amerilines (NVOCC)	Grancolombiana	Grancolombiana-direct	Maersk	Maersk-Pacific	Maruba	MSC	CSAV	Crowley	Associated Transport Line
Canada												
NY												
Philadelphia												
Elizabeth												
Baltimore												
Chicago												
Norfolk												
Charleston												
Savannah												
Miami												
Jacksonville												
Pt Everglades												
New Orleans												
Houston												
Vancouver												
Seattle												
Oakland												
San Francisco,CA												
Los Angeles												
Caldera, CR												
Altamira												
MIT												
Balboa												
Cristobal												
Santa Marta												
Barranquilla												
Cartegena												
Buenaventura (service type)	7 days	14 days	7 days	14 days	10 days	14 days	14 days	20 days	7 days	7 days	8 days	14 days
Guayaquil/Manta												
Callao												
Picta												
San Antonio												
Arica												
Iquique												
Antofagasta												
Valpariso												
Talcahuano												
Ushuala, Argentina												
Buenos Aires												
Montevideo												

Source: Journal of Commerce

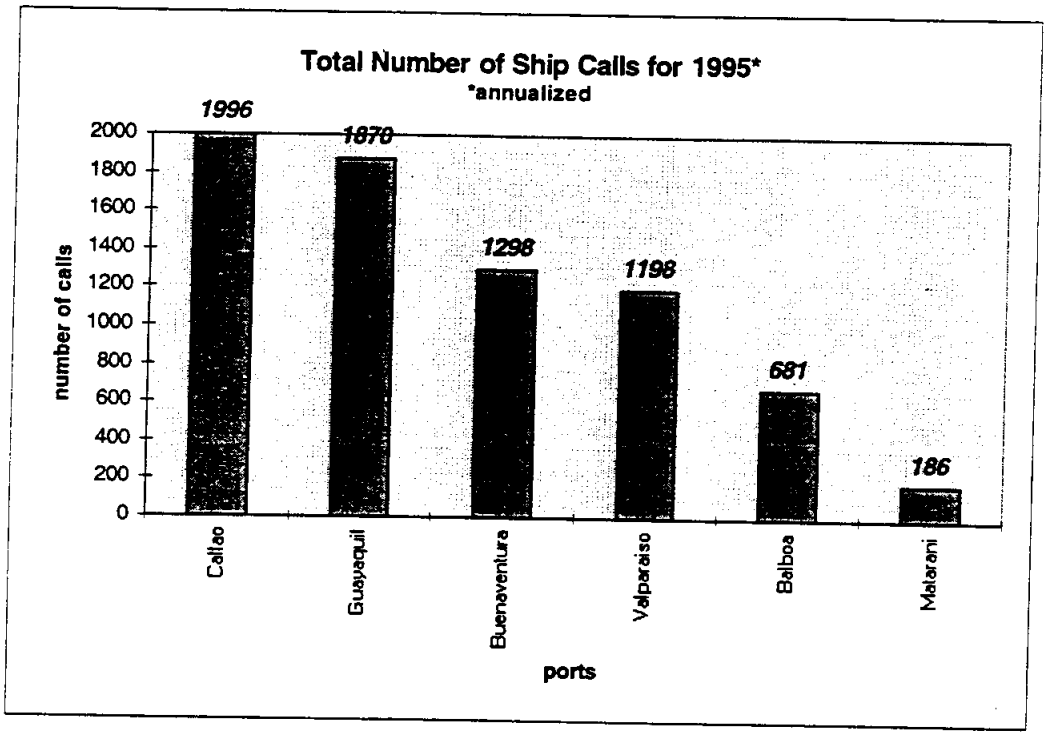
Table C-7: Depths and Vessel Calls at Other West Coast South American Ports

Of the many ports of call, several were examined to detail the ships entering their harbors.

Port Name	*Depth Range approach (anchorage's) in meters*	
Balboa	12.4	
Valparaiso	11	(27.5 - 46)
Callao	10.7	(12.8 - 18.3)
Guayaquil	7.4	(9.4)
Matarani	n/a	(4.5 - 23)

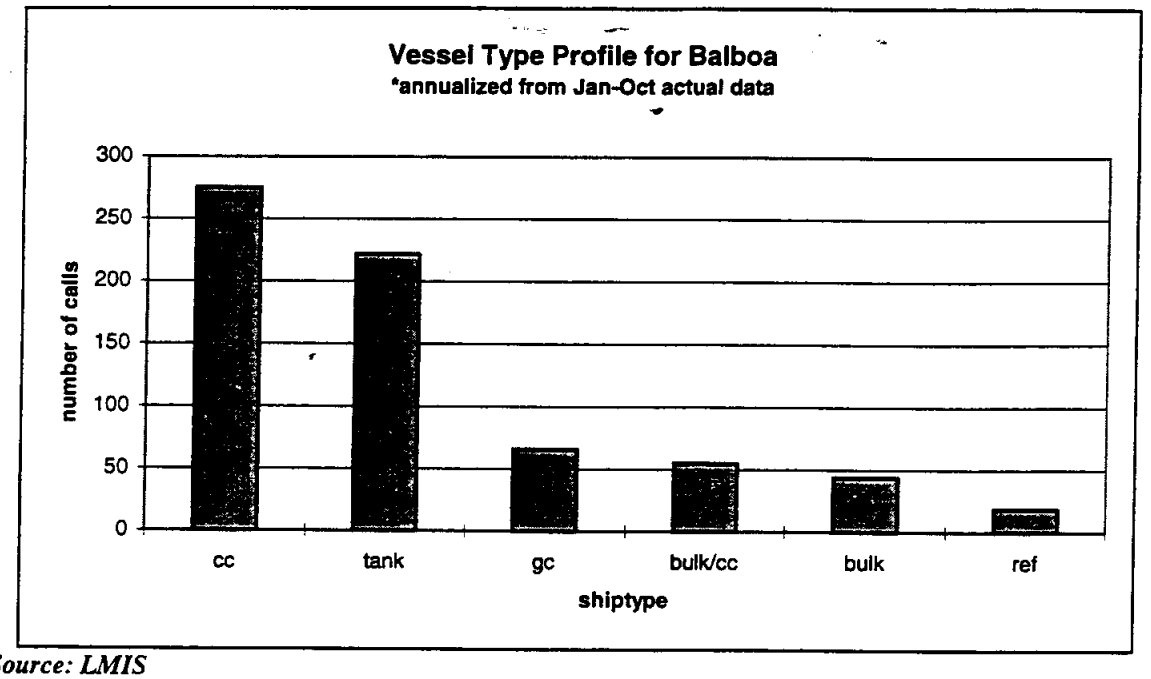
Source: Lloyd's Ports of the World

Chart C-8: Total Number of Ship Calls by Port for 1995



The following series of charts will detail the leading types of ships calling at each port, as well as the overall range of design drafts calling these ports.

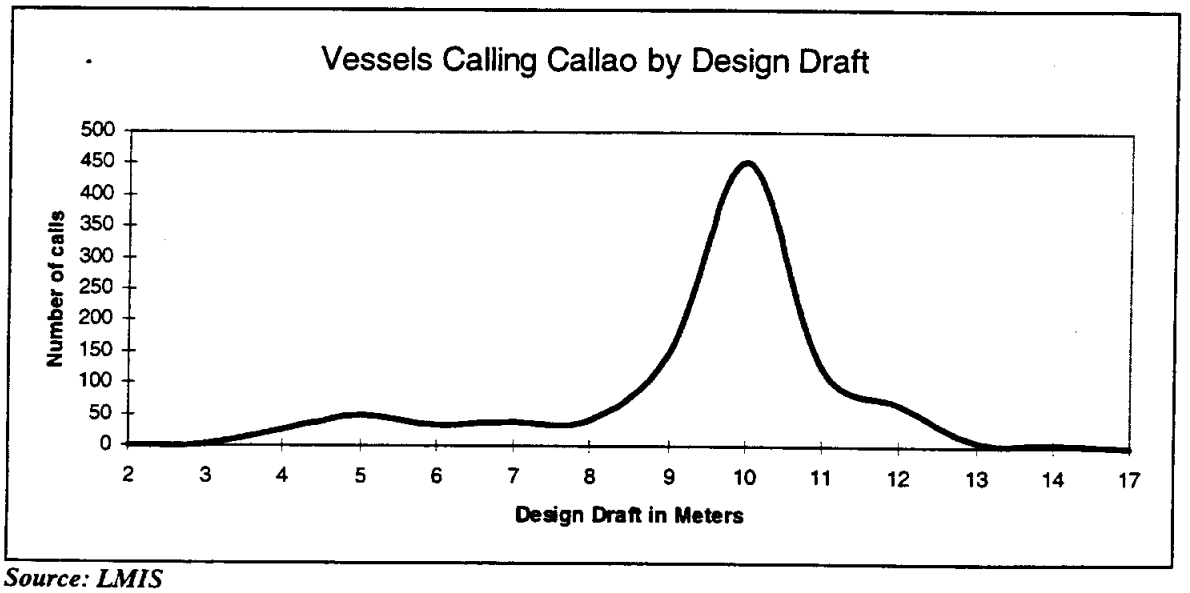
Chart C-9: Vessel Type Profile for Balboa



Source: LMIS

The design draft range for the ships calling at Callao is provided below. The design draft for the majority of all ship types ranges from 9 to 11 meters.

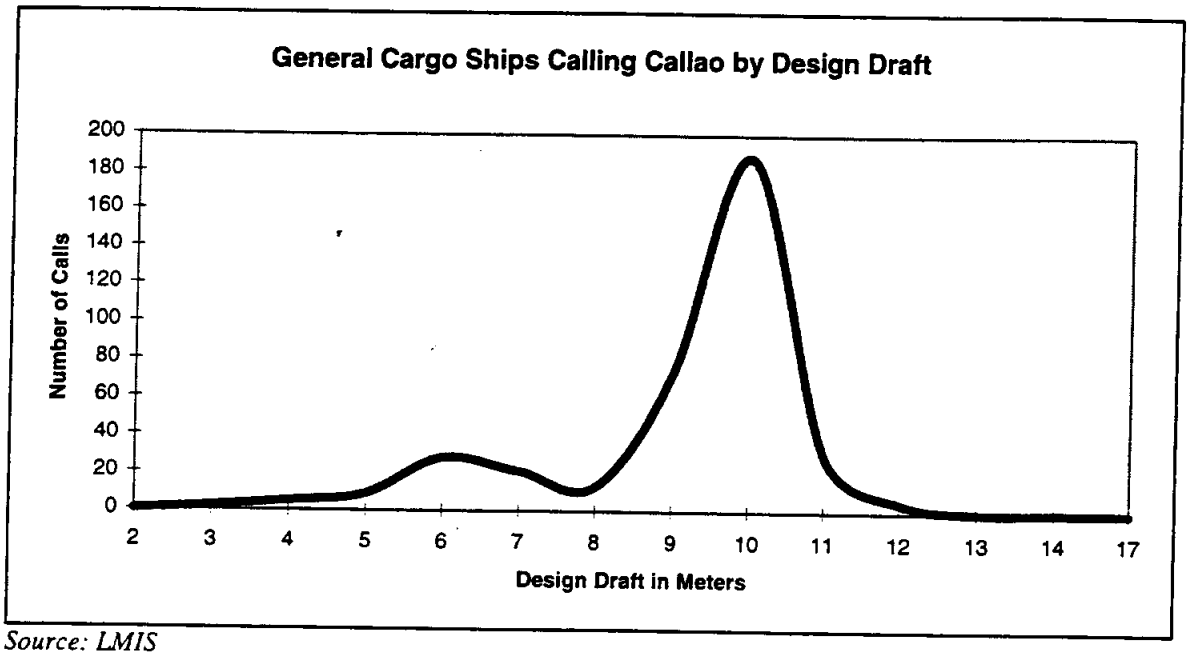
Chart C-10: Vessels Calling Callao by Design Draft



Source: LMIS

General cargo ships operate within a range of 8 to 11 meters, working very near the 10.67 meter depth of the approach of the harbor.

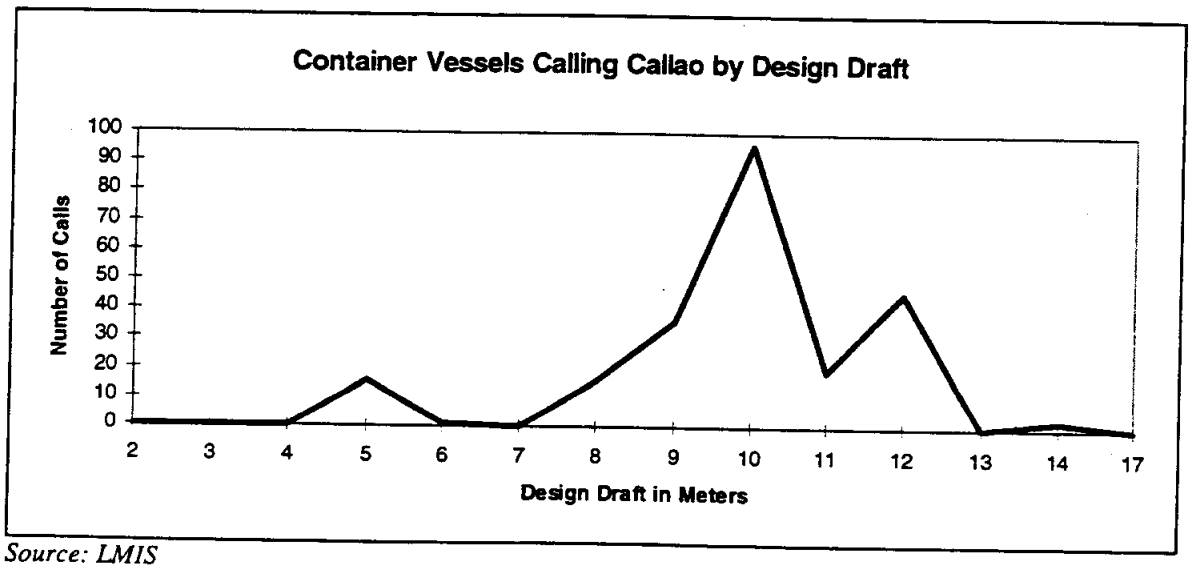
Chart C-11: General Cargo Ships Calling Callao by Design Draft



Source: LMIS

Container vessels, on the other hand, appear to be operating with design drafts between 4 to 13 meters, with the majority of these carriers having design drafts of 8 to just over 12 meters. However, there appears to be a large drop in calls for vessels with 11 meter design drafts.

Chart C-12: Container Vessels Calling Callao by Design Draft

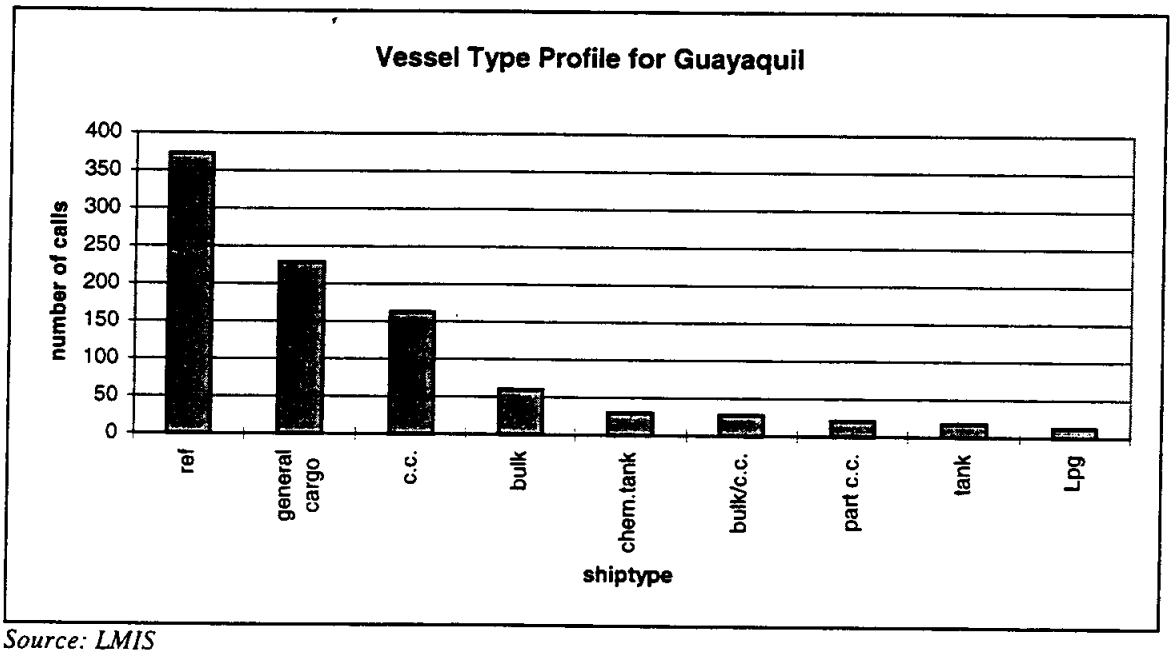


Source: LMIS

Guayaquil

Of over 930 vessel calls at Guayaquil, reefer ships take the lead with 373 calls. This makes this port the leader in refrigerated cargoes transported on reefer vessels. General cargo and container cargo carriers follow. The import trade at this port includes: wheat, steel, paper, cement, and machinery. Products exported from Guayaquil are: bananas, shrimp, fruit, wood products, cocoa, and coffee.

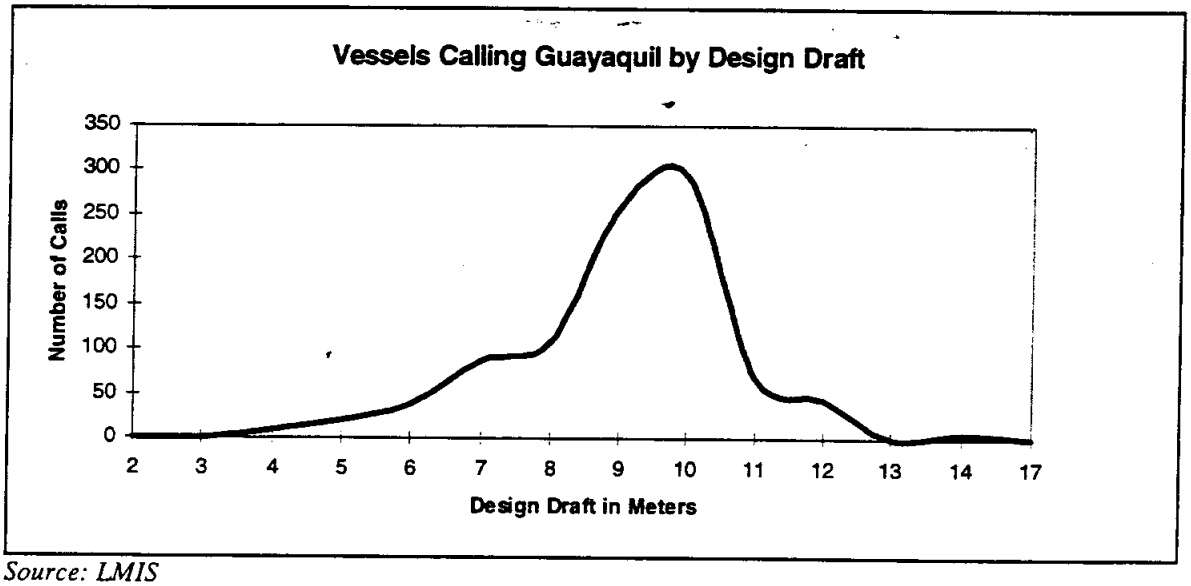
Chart C-13: Vessel Type Profile for Guayaquil



Source: LMIS

The majority of the calling fleet has design drafts in the range of 7 to 11 meters.

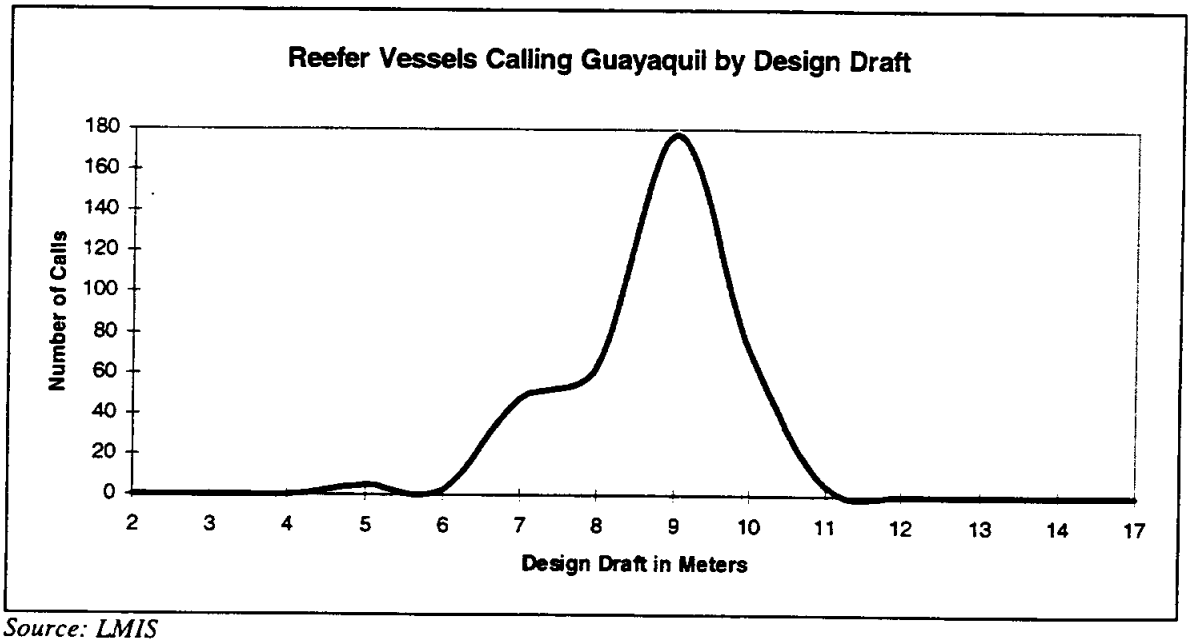
Chart C-14: Vessels Calling Guayaquil by Design Draft



Source: LMIS

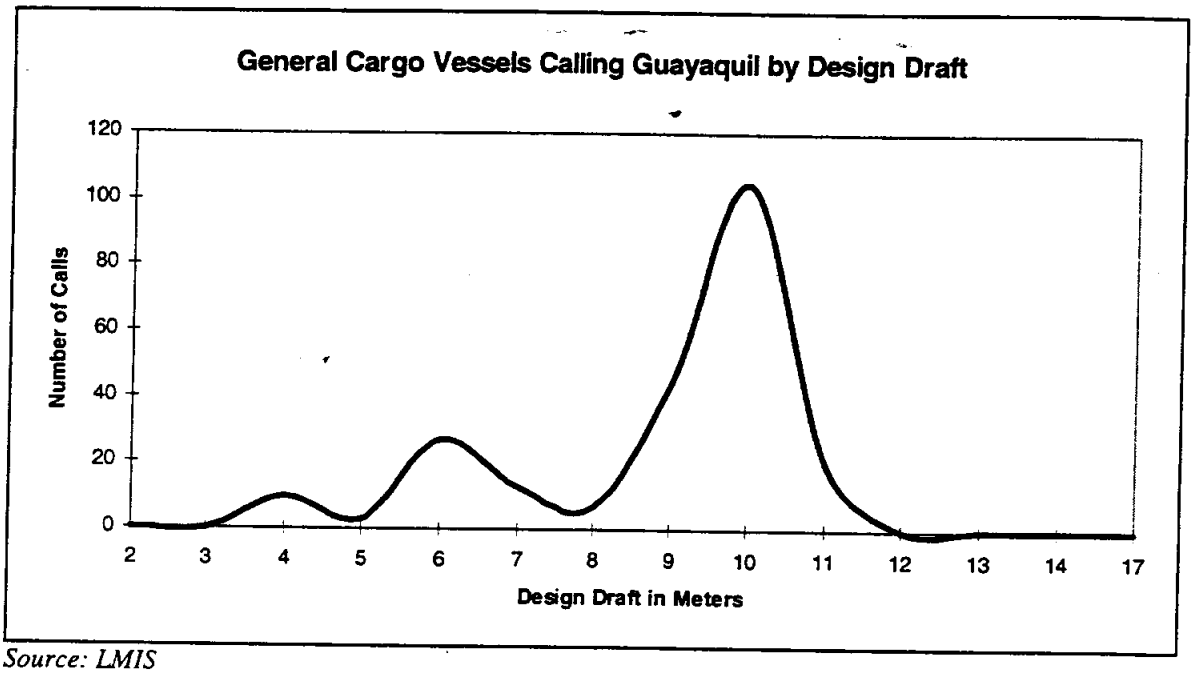
Design drafts for the leading vessel types are illustrated in the following three charts.

Chart C-15: Reefer Vessels Calling Guayaquil by Design Draft



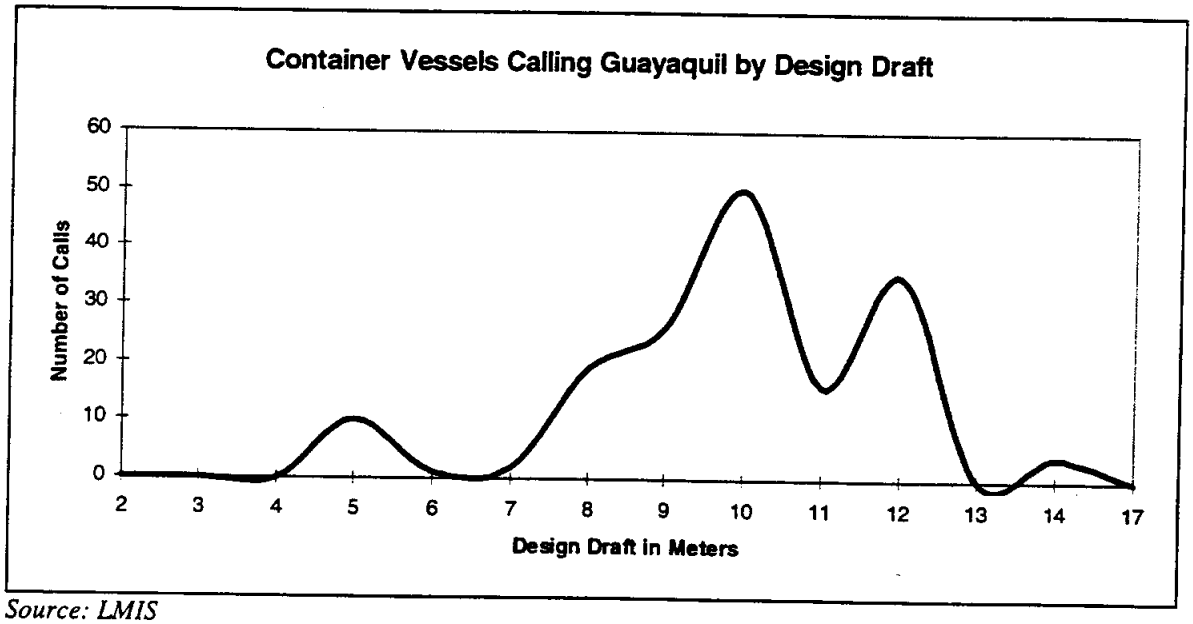
Source: LMIS

Chart C-16: General Cargo Vessels Calling Guayaquil by Design Draft



Source: LMIS

Chart C-17: Container Vessels Calling Guayaquil by Design Draft

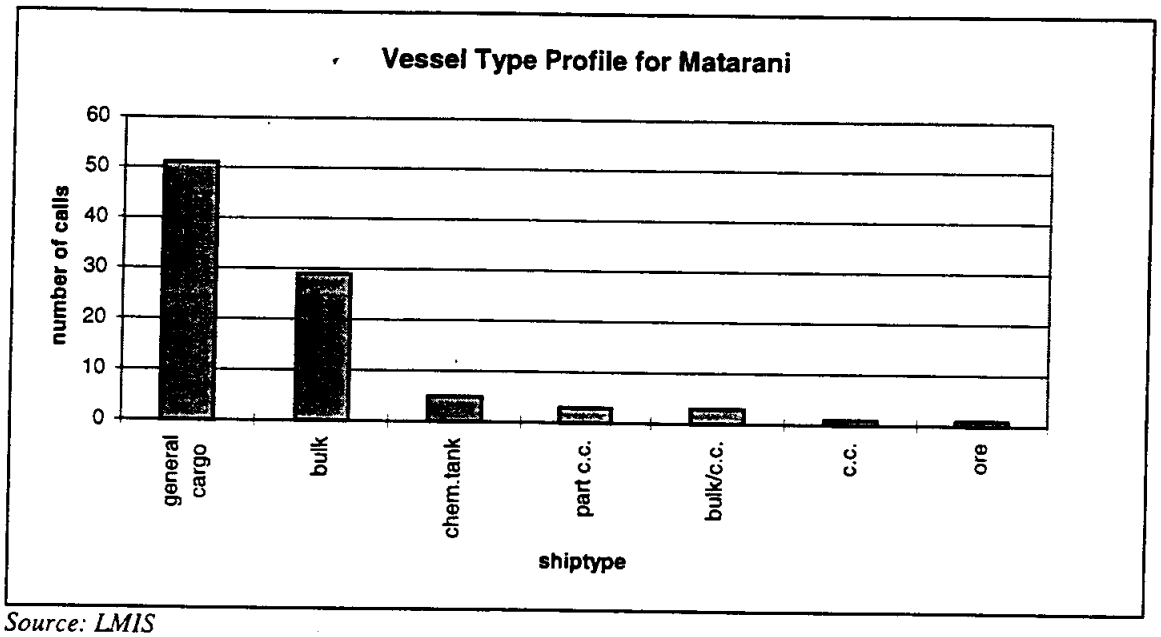


Source: LMIS

Matarani

The port of Matarani is described as "deep", offering depths ranging from 20 - 90 meters. The variety of vessels that call this port are illustrated in the chart below. General cargo, grains and petroleum products are imported. While coffee, fishmeal, hides and skins, minerals, marble and wood are exported.

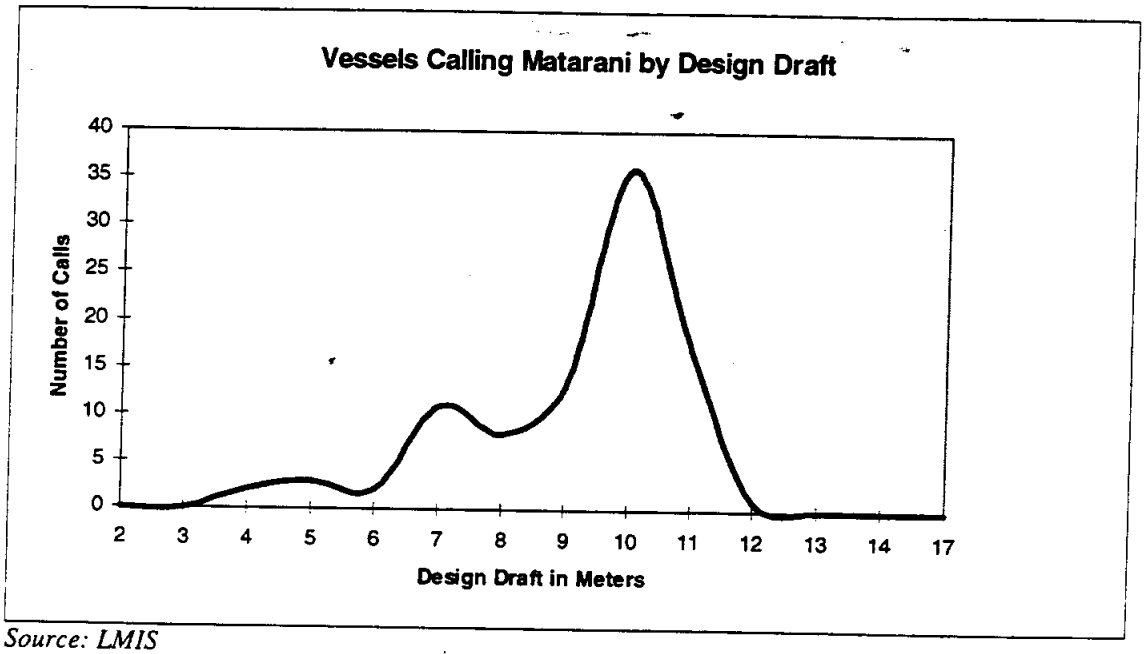
Chart C-18: Vessel Type Profile for Matarani



Source: LMIS

The overall design draft range for all of the vessels calling Matarani is detailed in the chart below. The majority of ships calling here range from 7 to 11 meters, with a slight decline for ships with design drafts of 8 meters.

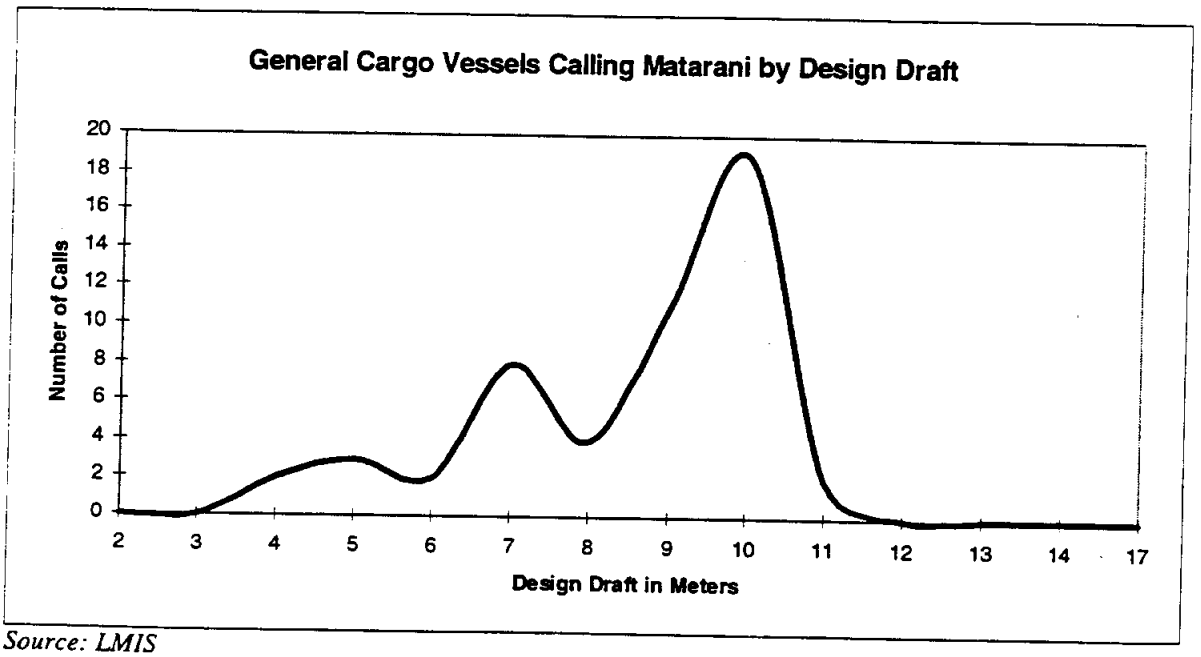
Chart C-19: Vessels Calling Matarani by Design Draft



Source: LMIS

The design draft range for the leading ship type calling this Peruvian port, the general cargo vessel is found below. The call pattern of the general cargo vessels closely mirrors that of the range for the total population of ship calls, thus indicating the prominence of this type of vessel.

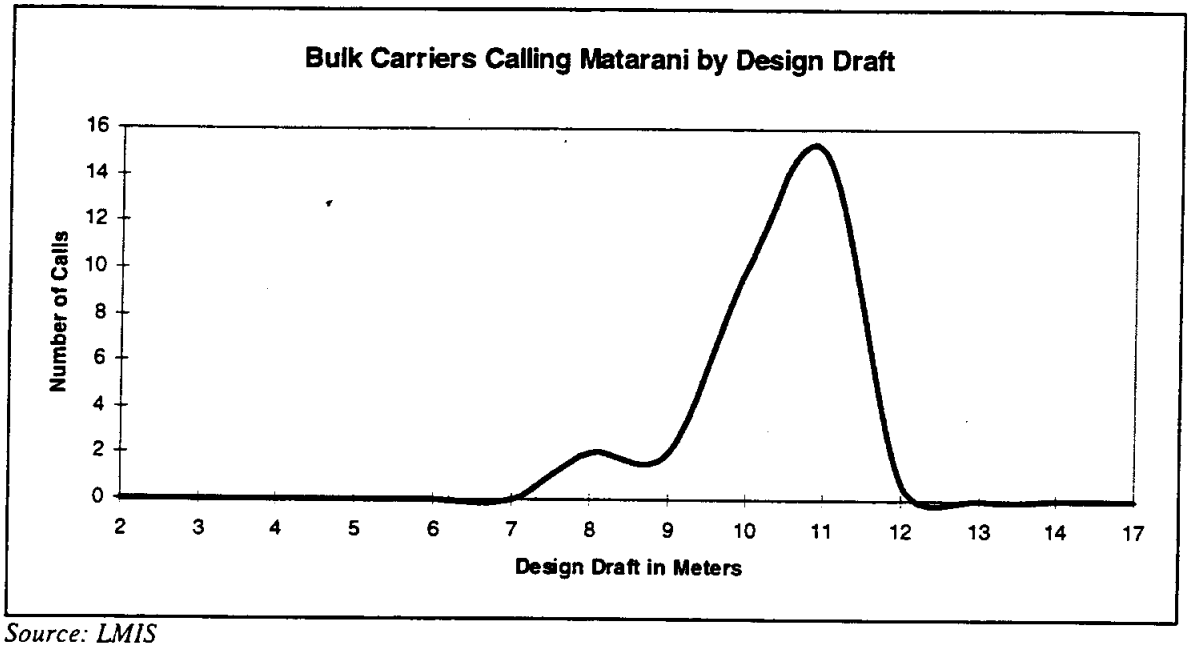
Chart C-20: General Cargo Vessels Calling Matarani by Design Draft



Source: LMIS

The majority of the bulk ships calling Matarani have design drafts in the range of 9 to 11 meters.

Chart C-21: Bulk Carriers Calling Matarani by Design Draft

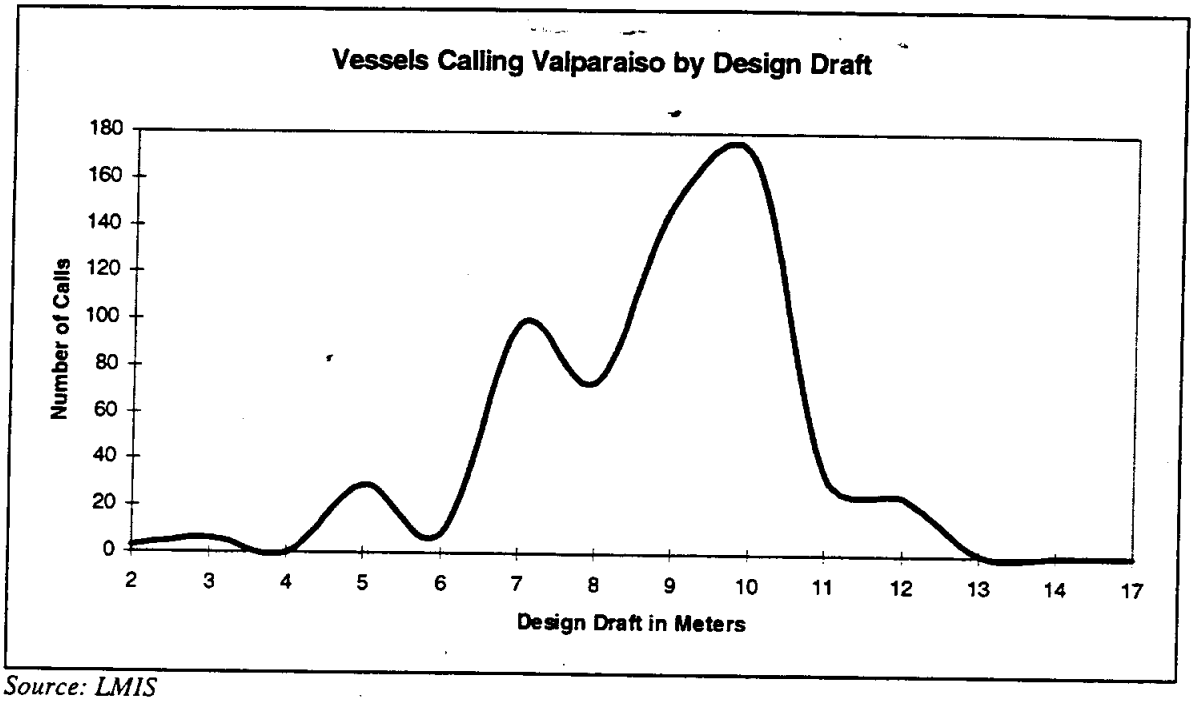


Source: LMIS

Valparaiso

The overall design draft for all of the ships visiting range between 7 and 11 meters in design draft. A few calling ships had design drafts up to 12 meters.

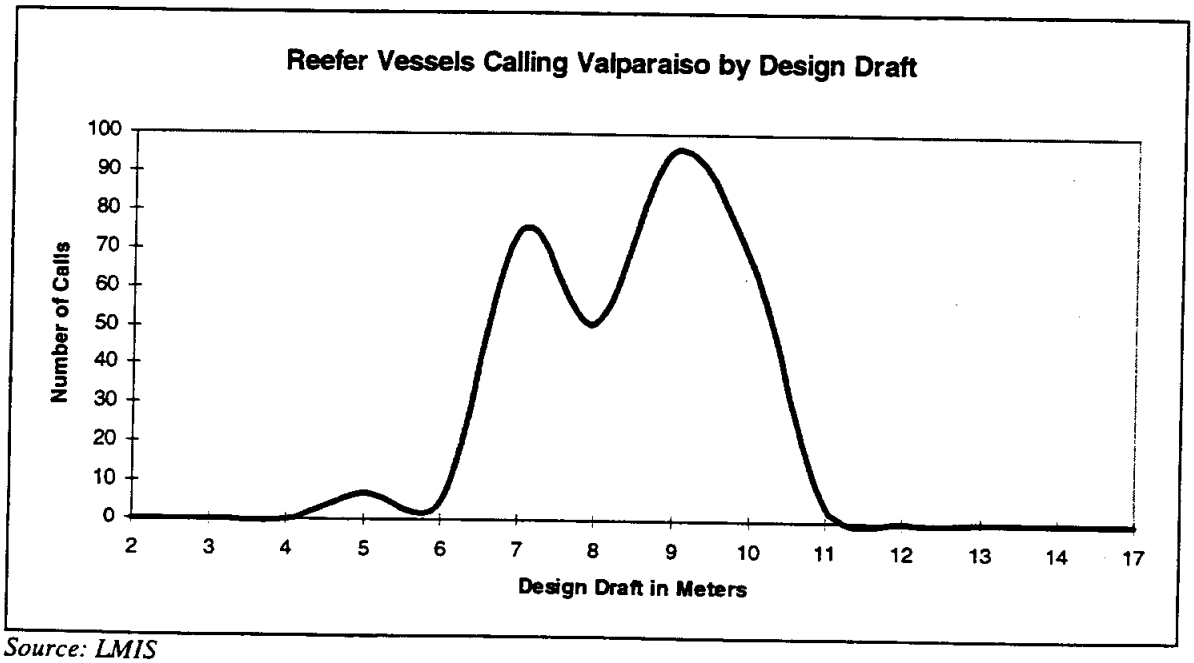
Chart C-22: Vessels Calling Valparaiso by Design Draft



Source: LMIS

Reefer vessels are the leading vessel type calling Valparaiso, with design drafts ranging from 6 to 10 meters, with a decline at 8 meters.

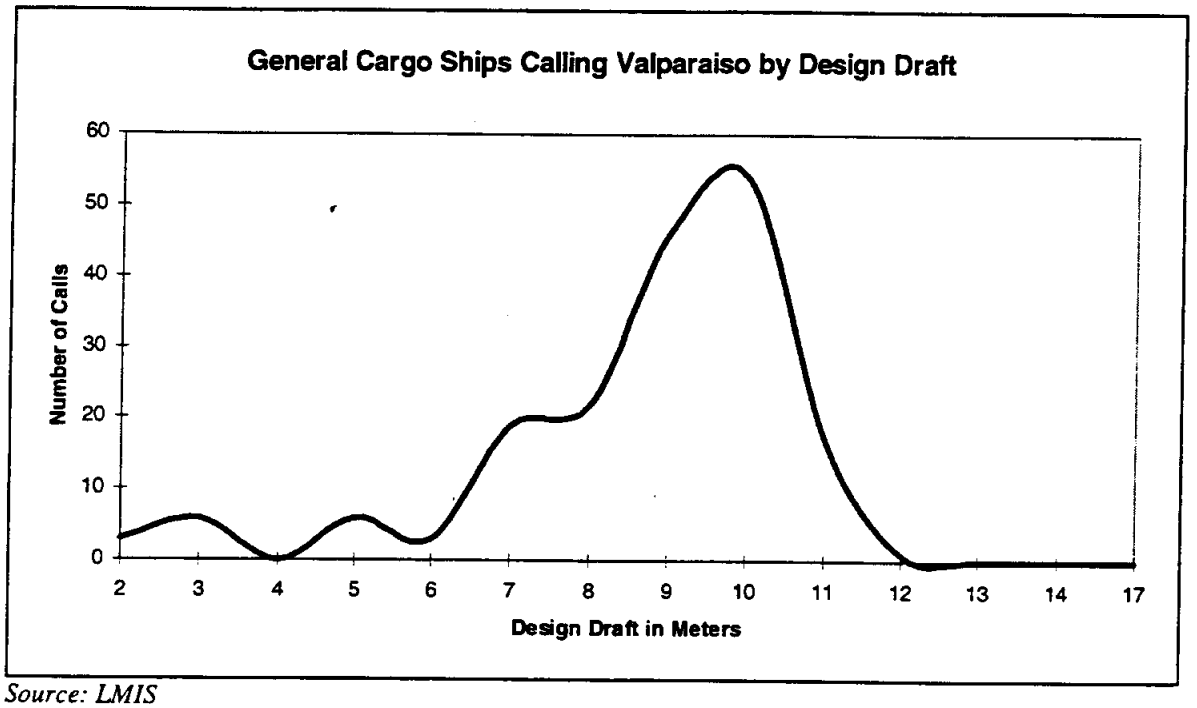
Chart C-23: Reefer Vessels Calling Valparaiso by Design Draft



Source: LMIS

General cargo ships, the second most prevalent ship to call this port have a design draft range of 7 to 11 meters, with a decline at 8 meters.

Chart C-24: General Cargo Ships Calling Valparaiso by Design Draft



Source: LMIS

CONCLUSION

The vessels calling the West Coast South America operate within the physical constraints existing within the port rotation. As the majority of the leading West Coast ports maintain drafts in the range of 8m - 12m, it is unlikely that larger vessels will be introduced until such time as the ports dredge to the 12-15 meter range.

This profile for containerships is not dissimilar from the profile of the world fleet where the majority of ships have a design draft below 12 meters. This is shown in detail below:

Table C-8: Analysis of Container Vessels Based on 1996 Clarkson Data

Analysis of Container Vessels Based on 1996 Clarkson Data

	Beam (AVG)	Beam (STDDEV)	Design Draft	DWT	PCNET	Vessel Age	Existing Fleet	New Vessels
CONT <1,000 TEU	64.1	11.4	23.6	8,855	7,884	12.9	845	144
CONT 1,000-2,499 TEU	91.0	10.0	33.7	24,977	17,068	10.0	793	251
CONT 2,500-3,999 TEU	105.5	1.2	39.4	45,166	32,139	8.1	341	58
CONT 4,000-5,999 TEU	115.1	11.2	42.8	62,251	47,179	2.8	114	62
CONT >=6,000 TEU	139.1	1.5	45.9	83,543	NA	0.0	4	19
ALL CONTAINER VESSELS	83.9	20.3	31.1	23,901	20,201	10.4	2,097	534

Number of Container Vessels by Vessel Age Calculated Based on 1996 Clarkson Data

	All Years	>= 25 Years	20 - 24 Years	15 - 19 Years	10 - 14 Years	< 10 Years
CONT <1,000 TEU	845	65	122	202	179	277
CONT 1,000-2,499 TEU	793	48	69	119	152	405
CONT 2,500-3,999 TEU	341	NA	21	34	68	218
CONT 4,000-5,999 TEU	114	NA	NA	NA	9	105
CONT >=6,000 TEU	4	NA	NA	NA	NA	4
ALL CONTAINER VESSELS	2,097	113	212	355	408	1,009

Table C-9: Fleet Additions since 1 Nov. 1995 and Orderbook

	Ship Size					
	< 1000	**1000-1500**	**1501-2499**	**2500-4000**	**>4000**	**Total**
1996 Delivery	7	55	44	39	41	186
1997 Delivery	2	20	27	11	17	77
1998 Delivery	0	2	11	1	7	21
1999 Delivery	0	2	0	0	0	2
Total	**9**	**79**	**82**	**51**	**65**	**286**

COMPETITIVE HUB PORTS

The **Port of Manzanillo**, Panama (MIT) is a private joint venture between Panama's Motores Internacionales, SA and the US based Stevedoring Service of America (SSA). The terminal worked its first Alliance vessel in April 1995, however, port operations originally began in late 1994. This new port has achieved efficient operations with 25 ha of land and 600 meters of container berth and 200 meters for RORO. Capacity is estimated at 600,000 TEU (400,000 moves). MIT operates as a modern world class facility with management from SSA. It has up to date computer systems and a simplified tariff. The terminal also meets US Custom standards which is an advantage to ship operators and cargo owners. It has a work force of 570 employees, excluding expatriate staff (37). Of these, 100 are involved in security arrangements. The terminal provides all ancillary facilities and operates effectively like a port authority. Current expansion underway will provide a further 16 ha of land with 600 meters of berth to provide a total of 1.2 million TEU capacity p.a. (750,000 moves). This expansion will require the employment of an additional 200 workers.

The main client is the Global Alliance (APL, MOL, Nedlloyd and OOCL) using the terminal as the main feeder hub for the Asia/Latin America market. Nedlloyd connects its US West Coast/East Coast South America service, and MOL dropped its direct Asia service for the area and replaced it with a new intra-Caribbean feeder service. APL uses this service on a slot charter basis to feed its Asia cargo to Venezuela and Colombia. Other lines using MIT are Zim, Seaboard Marine and Nordana.

At **Cartagena,** SPRC has added storage facilities for containers. They have acquired a mobile container crane and have ordered a rail mounted container crane for 1996 installation.

Gran Colombiana (CONTECAR, effectively FMG) have a first phase 30 Ha container terminal with a floating wharf in operation. They are planning on going out with an international tender for building a permanent wharf estimated at 360 meters and acquiring a container crane, for a total investment of about US$25 million.

There is a further small container terminal El Bosce which is in operation.

In 1995, the port as a whole handled 181,000 TEU. This is projected to increase to nearly 500,000 by the year 2000, aided by 5 new gantry cranes.

In the Bahamas, at the **Port of Freeport** is currently being developed by Grand Bahama Island, a joint venture between Hutchison International Port Holdings and the local development corporation. It is equipped with four post-Panamax cranes and has a back-up area of 50 acres with a maximum design throughput of 750,000 TEU. There are further expansion plans by the Government under consideration, but as yet nothing tangible has been agreed. Negotiations are for the development of a 3 phase container facility capable of handling large container ships. The harbor has been deepened to 47

feet in the channel and 51 feet alongside the berth. It is reported that no maintenance dredging will be required.

In Mexico, the **Port of Veracruz** privatized a container terminal. The facility has only a limited amount of space for development. The winning consortium, (ICAVE), Gruppa ICA and a Philippine company, International Container Services, paid a significant amount for the concession and subsequently raised the terminal handling charges to the maximum allowable under the Mexican Government conditions of privatization. Probably as a result of this TMM has announced that it would move its operation from Veracruz to Tuxpan. This would entail an investment initially of $20 million, followed by incremental spending to reach a total of between $80-90 million. However Tuxpan has no road or rail connection and this would also have to be developed.

Kingston, Jamaica can take vessels up to 11.4 meters draft and 274.5 meters length. The container facility has a large area of 76 Ha at Newport West (Bustamente) which was developed specifically for transshipment close by a Free Trade Zone.

The terminal is operated by Kingston Terminal Operators Ltd. The facility comprises four berths, each 183 meters long, with depth alongside of 12.19 meters. It is equipped with 5 40-gantry cranes and other equipment. There is 20.2 ha of back up land available, including two container freight stations with a total area of 10000 sq. meters, and container parking a marshaling area. There are 360 multi-user points for refrigerated containers. The terminal advertises that it has over 17 major shipping lines with an annual throughput of over 400,000 TEU's, of which 70% are transshipment. An expansion project at Gordon Cay, compromising two new deep water berths and 32 acres of land space with 3 gantry cranes is also underway at an estimated cost of $72 million. This will give Kingston an additional 300,000 TEU p.a.

San Juan, Puerto Rico handled some 1.54 million TEU in 1995, but only 102,000 were for transshipment. The port acts as a focal point for the Virgin and Leeward Islands, Trinidad and Tobago and the Dominican Republic. The latter has a major transshipment facility for Sealand handling some 294,000 TEU in 1995, of which 61% was for transshipment.

Miami is a major focal point for transshipment services from Europe and Asia to the Caribbean and South America. Maersk has been a significant user of the port as have DSR/Senator, Hyundai, Mediterranean Shipping and a host of other lines. In 1995 Miami handled 656,175 TEU of which an estimated 25% was for transshipment. Miami's capacity is near to 2 million TEU and it has a draft capacity of 42 feet.

Investment in gantry cranes for the whole of Central America, Caribbean, and Latin America is also limited as shown by the figures below from a Containerization International Market Analysis carried out in November 1995. The table shows projected delivery of cranes to the end of 1996.

Table C-10: Projected Delivery of Gantry Cranes to Central America, the Caribbean and Latin America, 1996

Buenos Aires, Argentina	5 cranes
Cartagena, Colombia	1 crane
Kingston, Jamaica	3 cranes
Manzanillo, Panama	4 cranes
San Antonio, Chile	2 cranes
Willemstad	1 crane

Table C-11: Comparative Container Handling Charges and Costs (where available)

(All-inclusive rate for full 40-foot container including discharge and re-load)
(Estimated costs are direct operating costs before debt service, equity, etc.)

	CHARGES		EST. COSTS
• Kingston	est.	$170	$ 70
• La Guaira	est.	$110	
• Curacao	est.	$125	
• Cartagena	est.	$130	
• Veracruz	est.	$250	
• Manzanillo	est.	$250	
• Houston	est.	$200	
• Miami	est.	$240	$110
• Oakland	est.	$184	
• Cristobal/Balboa	$290		$115

APPENDIX D HISTOGRAMS OF CANAL TRANSITS BY SHIP SIZE CLASS

Chart D-1: Distribution of Baseline Ship Transits by Size Class – Bulk Vessels

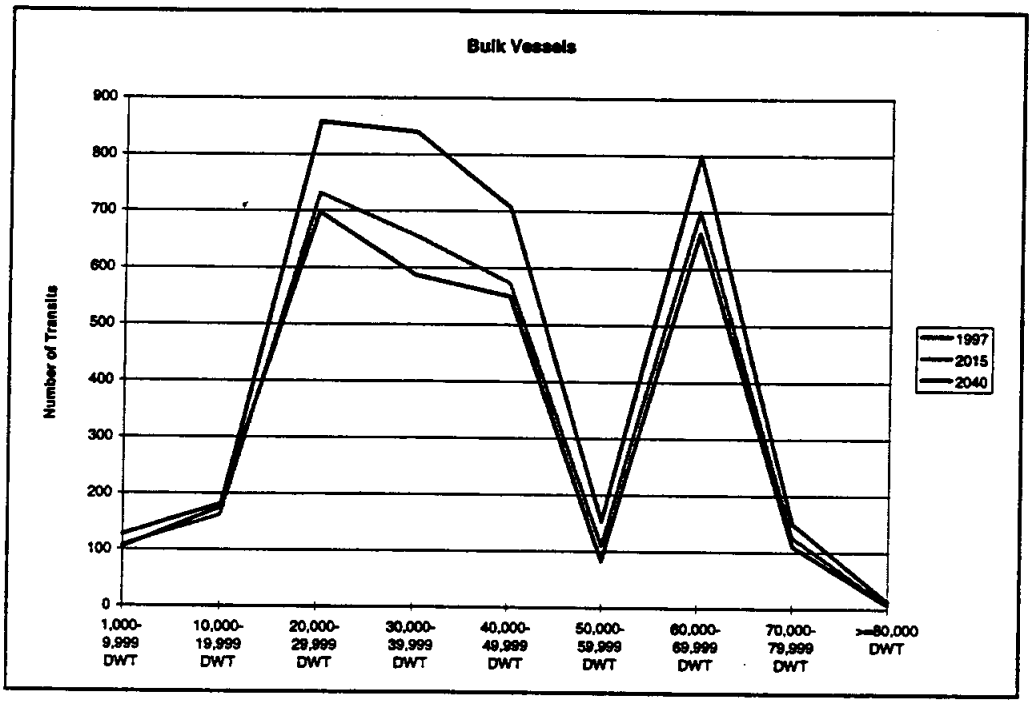


Chart D-2: Distribution of Baseline Ship Transits by Size Class – Container Vessels

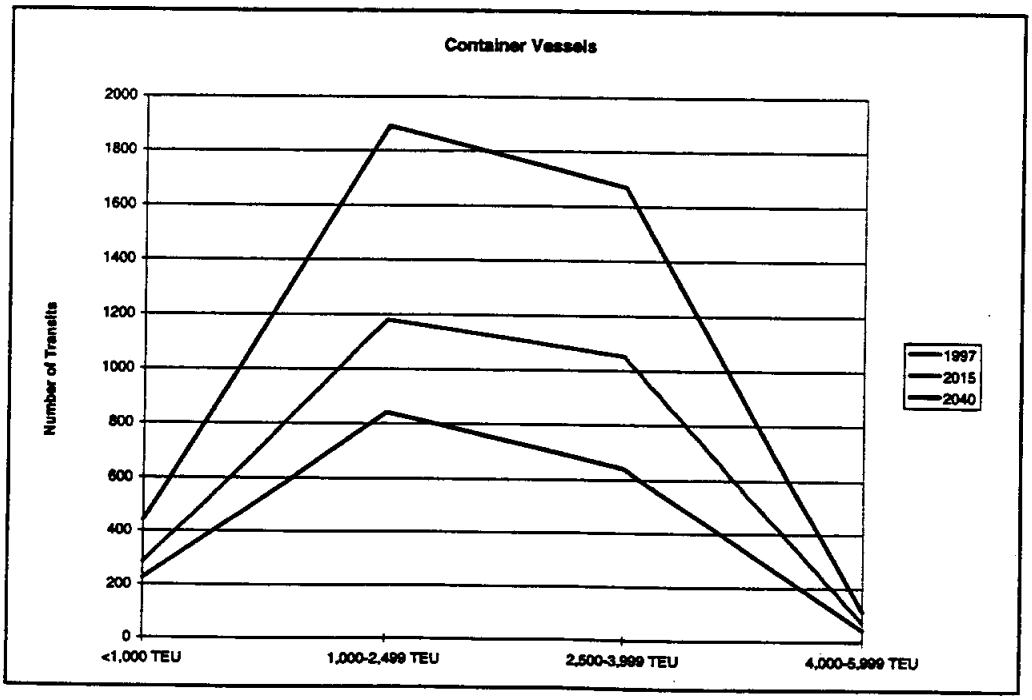


Chart D-3: Distribution of Baseline Ship Transits by Size Class – General Cargo Vessels

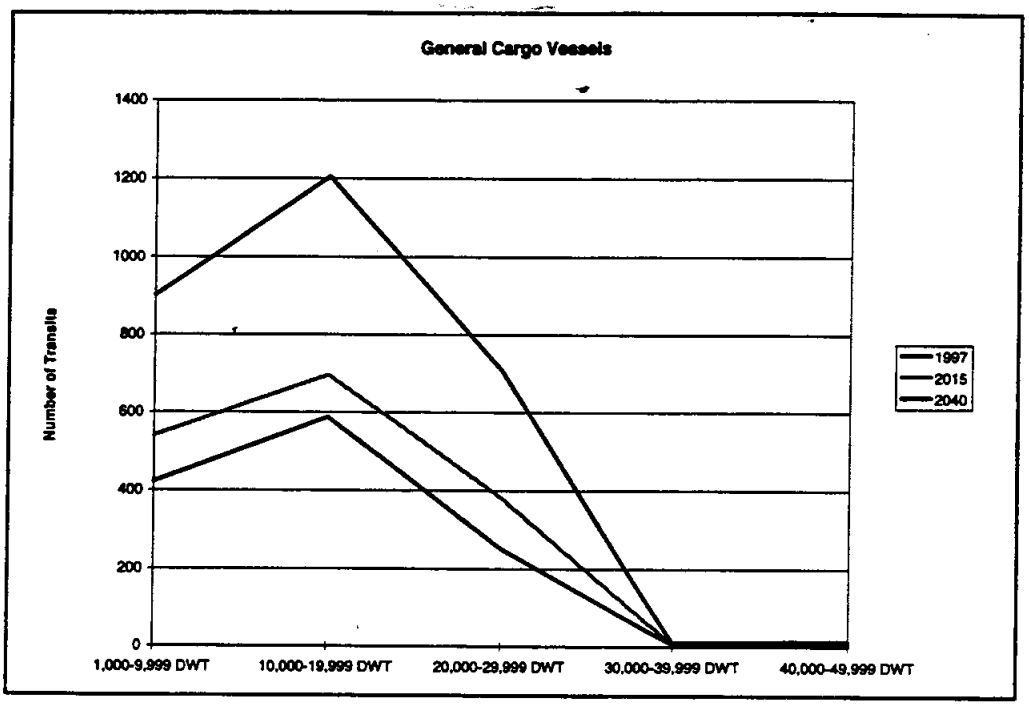


Chart D-4: Distribution of Baseline Ship Transits by Size Class – Tanker Vessels

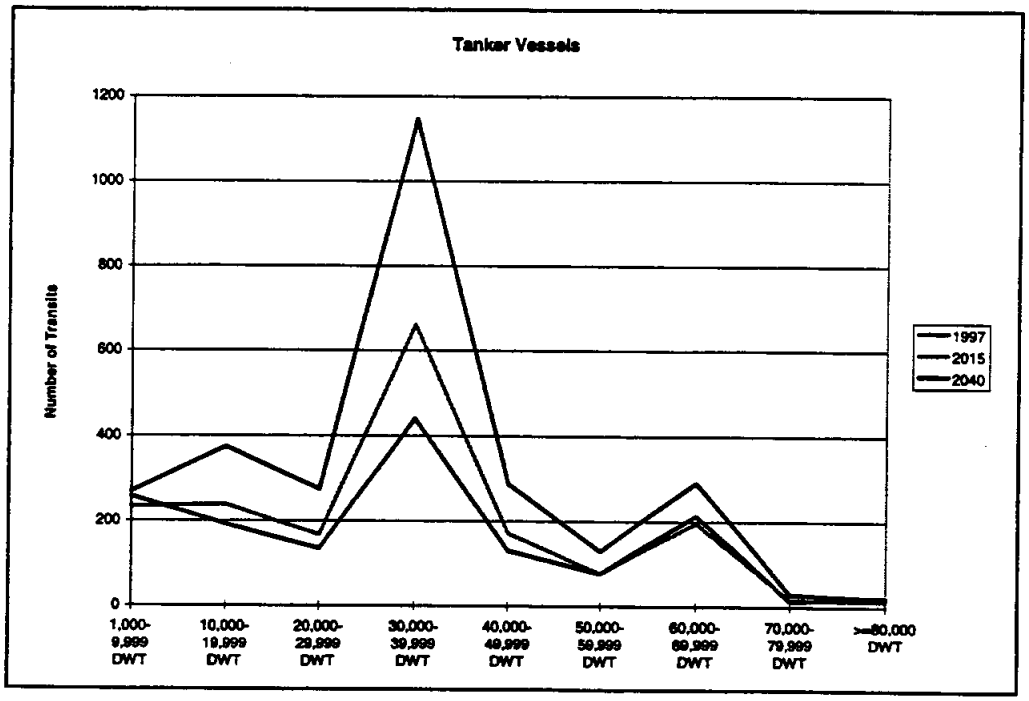


Chart D-5: Distribution of Baseline Ship Transits by Size Class – RORO Vessels

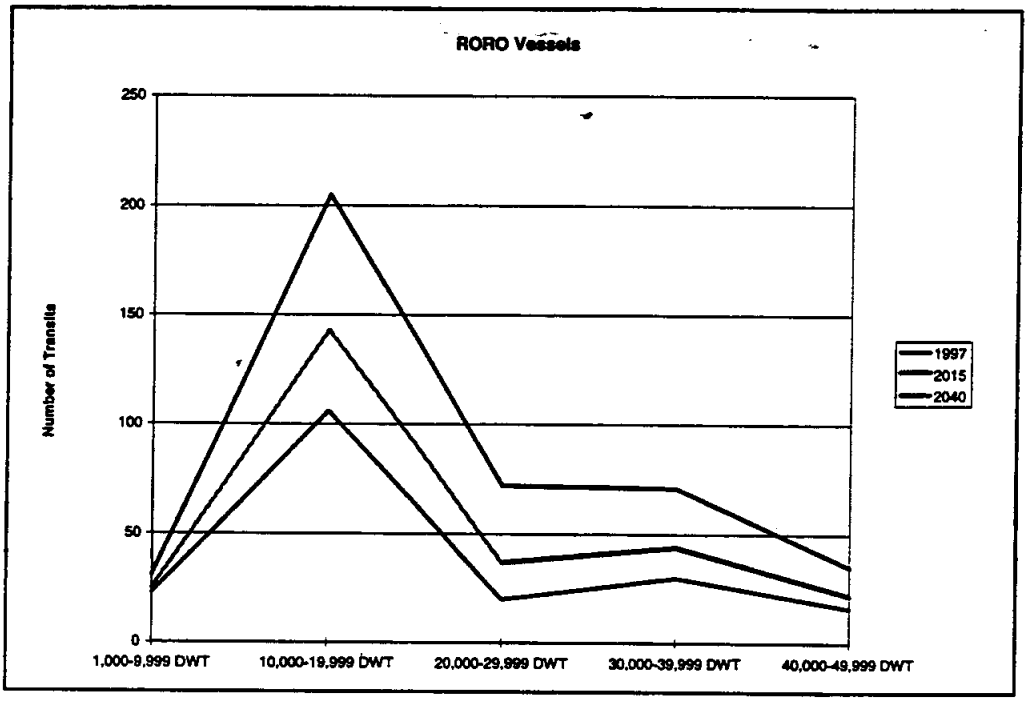


Chart D-6: Distribution of Baseline Ship Transits by Size Class – Reefer Vessels

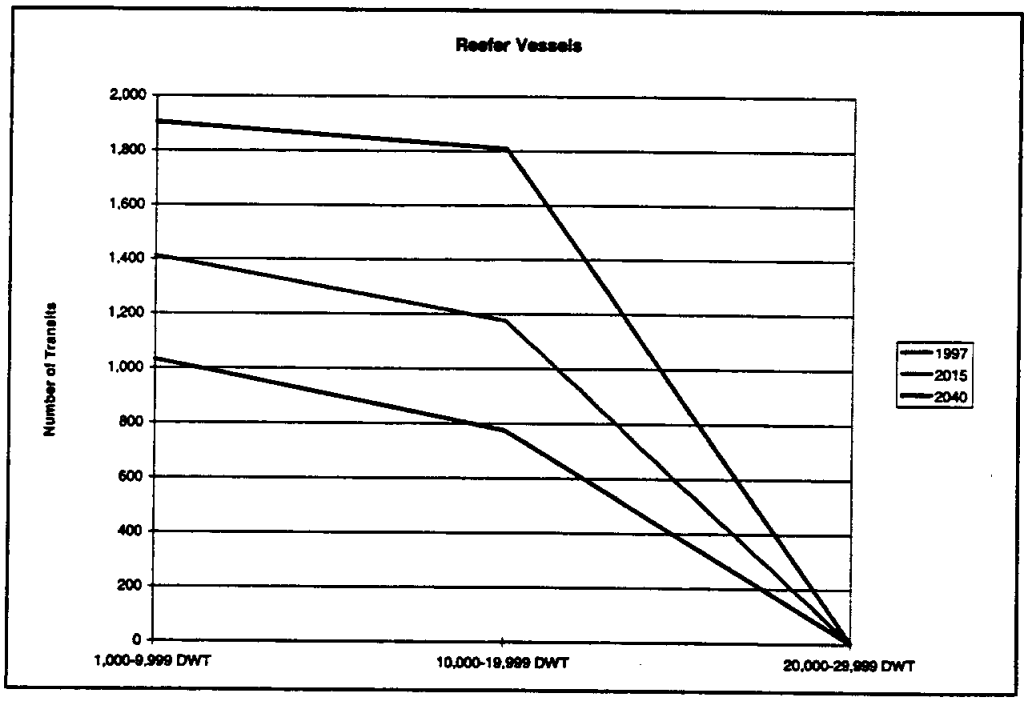
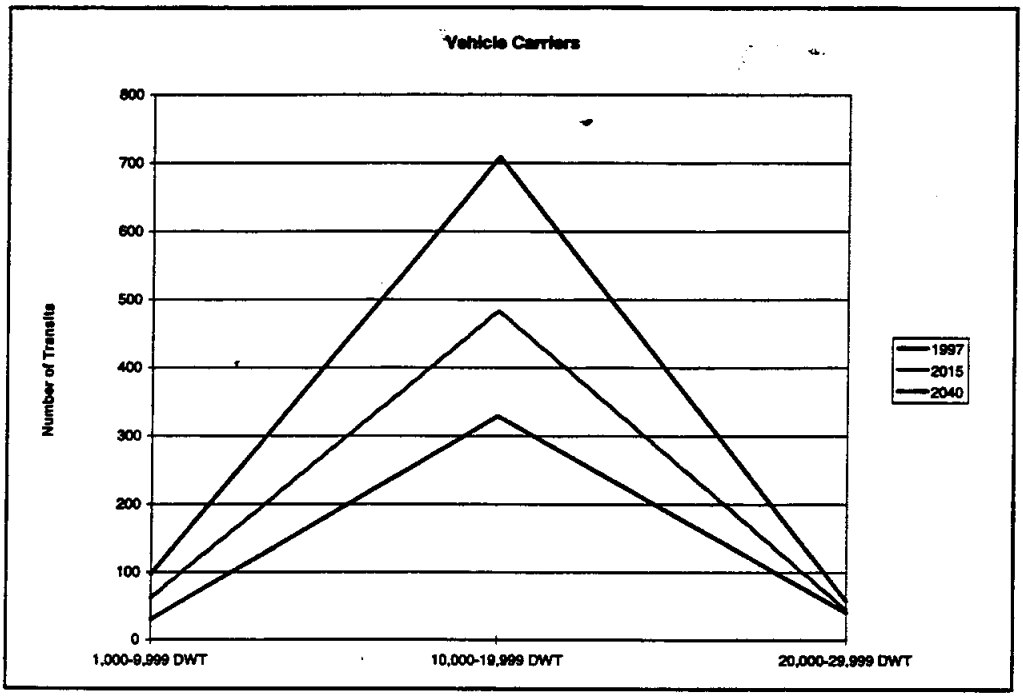



Chart D-7: Distribution of Baseline Ship Transits by Size Class – Vehicle Carriers