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**REPORT ON  
CARGO PREFERENCE**

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## EXECUTIVE SUMMARY

### Program Costs

- The requirement to ship 50 percent of U.S. Government cargo on U.S. vessels imposes significant direct costs in the form of higher payments to U.S. ship operators. These direct costs have been running in the range of \$100 to \$200 million per year in the 1981-1984 period.
- Accurate measurement of the costs associated with the PL 480 Title I program (which accounts for over half of the total) is simple because the cost differential is recorded for each shipment. Estimates for the costs associated with Title II and other AID cargoes are less accurate because they are based on average shipping cost differentials that may not fully capture the differences in commodities and points of origin and distribution.
- There is no consensus whether to include the Israeli Cash Transfer Program in the costs of cargo preference. Israel is not required by law to ship half its AID financial cargo in U.S. vessels but has agreed to do so under pressure from the U.S. Government. Therefore, we show the costs for the program as a separate line item. The cost impact of cargo preference on the Israeli Cash Transfer Program for 1981-1984 has ranged from \$16 to \$33 million per year.
- The indirect costs of cargo preference, including reduced U.S. production of affected products and reduced effectiveness of the foreign aid program, are extremely difficult to quantify. On balance, however, it is clear that the indirect effects add to the overall costs of cargo preference and, therefore, the direct costs cited in the study should be viewed as minimum rather than most likely estimates of costs.

### Program Benefits

- Cargo preference programs can potentially provide both economic and national security benefits.

- Thorough reviews by CBO and Brookings conclude that a national security case for cargo preference can be made but the economic rationale for the program has little or no validity. This is true principally because any potential tax, employment, or balance of payments benefits could be better achieved through programs that supported industries with better growth prospects than the demonstrably noncompetitive U.S. shipping industry.
- Awareness of the national security requirements for strengthening strategic sealift is growing in part as a result of planning for contingencies in Southwest Asia and in part due to British problems with sealift in the Falklands conflict.
- As a result, the Navy has formally added strategic sealift as a third major mission for the Navy and has taken a number of steps to expand, upgrade, and increase the readiness of the sealift fleet. This has involved acquisition of vessels (primarily for the Ready Reserve Fleet) and adding enhancements to increase the military utility of ships in civilian use (e.g., SEA SHED and flatracks for container ships).
- The key in determining the national security benefits of cargo preference is to establish whether the ships that are maintained in the U.S. flag fleet as a result of cargo preference have sufficient military utility to justify the program's cost. In essence the military sealift mission requires ships with rapid loading and unloading capability, configured to carry outsize military cargo, and able to operate in a relatively self-contained and flexible manner. This implies a need either for ships with rapid turn-around times (Ro/Ro and LASH), high flexibility (traditional breakbulk) or modifications to efficient modern carriers (containerships). There is a limited but as yet indeterminate requirement for tankers. There is virtually no military sealift requirement for dry bulk carriers.
- Despite the national security justification for cargo preference and the lack of a military requirement for such ships, roughly two thirds of the cargo preference costs are associated with shipments on dry bulk carriers. Thus, at best only the portion of the cargo preference program that supports militarily useful ships is likely to have any direct national security benefit.

The remaining two thirds of the program incurs significant costs (\$93 to \$141 million) but yields no direct benefits.

- The potential indirect national security benefits, primarily due to keeping shipyards in business and trained crews in a state of readiness appear to be small. Moreover, to the extent these benefits do exist, they could be better realized by procuring and supporting ships that have direct military utility than supporting those that do not.

### **Alternatives**

- A number of policy alternatives are available for increasing the civilian fleet to meet military sealift requirements. This study summarizes six options presented in a recent CBO study that covers the range of the most frequently discussed options.
- In our view the primary criterion for assessing the options is whether they meet the basic objective of increasing the supply of militarily useful ships. Based on this criterion, proposals to use operating and construction differential subsidies or to expand cargo preference to nongovernment financed cargo (Options 1 and 2) do not look attractive. Direct government purchase of militarily useful ships (Option 3) is militarily effective, but very expensive. A variant that would procure ships on the open market and lease to U.S. operators (Option 4) would meet the military goal at significantly reduced cost. Variants on the first four options (Options 5 and 6) would be militarily useful but more costly.
- In view of the high proportion of cargo preference costs that go to supporting ships with little or no military sealift utility, we propose that AID consider an additional option. Under this option, legislation would be sought to limit cargo preference to ships with military utility (i.e., it would explicitly exclude application of cargo preference to dry bulk carriers). This approach would maintain the current national security benefits of the program at about one third the cost. The funds freed up could be used to finance the acquisition of militarily useful ships, expand foreign aid, or reduce the budget deficit.

**I. THE COSTS OF CARGO PREFERENCE**

**A. The Direct Cost of Cargo Preference Requirements on Foreign Aid Cargoes**

The Merchant Marine Act of 1936 (as amended) requires that at least 50 percent of cargo owned or financed by the U.S. government be carried in U.S. flag vessels to the extent that they are available at fair and reasonable rates. For a variety of reasons, U.S. vessel rates are typically higher--often substantially higher--than rates for shipping on foreign vessels. The difference between the price charged by foreign flag vessels and higher cost of using U.S. vessels represents a substantial subsidy to U.S vessel operators and reduces the funds that would otherwise be available to AID recipient countries for the purchase of commodities.

Foreign aid cargoes (PL 480 and AID Shipments) constitute the major part of non-DOD preference cargoes. In calculating the direct cost of cargo preference, we have estimated the costs separately for Title I, other foreign aid cargoes, and the Israeli Cash Transfer Program. The total direct costs for the cargo preference program are shown in Exhibit I-1.

**1. PL 480 Title I**

The cost differential paid for Title I shipments is the most accurate cost figure available for preference cargo since the shipping agency (U.S. Department of Agriculture) is required to pay the ocean freight differential between the lowest foreign flag offer for every shipment and the higher price paid for a U.S. vessel. Title I cost differentials are shown in Exhibit I-2.

**2. PL 480 Title II and AID**

Exhibit I-2 summarizes our estimate of the added costs imposed by existing cargo preference requirements on AID-administered programs for FY 1981-1984. Exhibits I-3 through I-6 contain the more detailed year-by-year estimates broken out by program (Title II and AID-financed).

The data contained in the attached exhibits are our estimates of the cost of cargo preference associated with AID-administered programs. We

**EXHIBIT I-1**  
**ADDED DIRECT COST OF CARGO PREFERENCE FOR**  
**FOREIGN AID CARGOES**  
**(millions of dollars)**

	<u>FY 1981</u>	<u>FY 1982</u>	<u>FY 1983</u>	<u>FY 1984</u>
PL 480 - Title I	85.7	104.2	65.0	73.2
PL 480 - Title II	3.5	10.0	14.5	33.1
AID-Financed	<u>8.2</u>	<u>41.9</u>	<u>18.2</u>	<u>32.5</u>
<b>Subtotal less Israel</b>	97.4	156.1	97.7	138.8
Israel Cash Transfer	<u>33.0</u>	<u>29.6</u>	<u>20.0</u>	<u>15.8</u>
<b>Total including Israel</b>	130.4	185.7	117.7	154.6

**Sources:** Calculated from data provided by USDA and AID.

**EXHIBIT I-2**  
**COST OF CARGO PREFERENCE FOR PL 480 TITLE I**

	<u>Amount Paid to U.S. Flag (millions)</u>	<u>Amount Paid to Foreign Flag (millions)</u>	<u>Added Cost of Using U.S. Flag Vessels (millions)</u>
<b>FY 1981</b>			
Liner	73.6	6.9	33.4
Tanker	51.1	6.1	27.3
Tramp	40.9	90.9	<u>25.0</u>
Subtotal			85.7
<b>FY 1982</b>			
Liner	66.5	3.9	38.2
Tanker	53.7	3.9	34.0
Tramp	51.5	52.6	<u>32.0</u>
Subtotal			104.2
<b>FY 1983</b>			
Liner	40.7	5.1	20.6
Tanker	19.9	3.6	9.1
Tramp	62.5	47.8	<u>35.3</u>
Subtotal			65.0
<b>FY 1984</b>			
Liner	52.2	5.2	25.8
Tanker	19.3	2.1	9.3
Tramp	69.6	59.4	<u>38.1</u>
Subtotal			73.2
Grand Total			328.1

**Source:** U.S. Department of Agriculture.

**EXHIBIT I-3  
CY 1981  
COST OF CARGO PREFERENCE FOR AID ADMINISTRATED PROGRAMS**

<u>Ship Type</u>	<u>U.S. Flag Ships</u>			<u>Foreign Flag Ships</u>			<u>Cost Differential (per ton)</u>	<u>Added Cost of Using U.S. Flag Vessels</u>
	<u>Metric Tons Shipped</u>	<u>Amount Paid (\$000)</u>	<u>Average Cost per Metric Ton</u>	<u>Metric Tons Shipped</u>	<u>Amount Paid (\$000)</u>	<u>Average Cost per Metric Ton</u>		
<b>PL 480-Title II<sup>a</sup></b>								
Tanker	39,295	4,759	\$121.11	-0-	-0-	\$ 73.28	\$ 47.83	\$ 1,879,480.00
Tramp	13,322	2,609	195.69	185,850	\$13,622	73.28	122.41	1,631,970.00
Liner	877,050	134,724	153.61	452,200	69,770	154.29	(0.68)	(307,496.00)
<b>AID Financed<sup>b</sup></b>								
Bulk	162,800	15,338	94.21	312,400	13,792	44.15	50.06	8,149,760.00
Liner	235,710	N/A	153.61	120,097	N/A	154.29	(0.68)	(81,600.00)
<b>Subtotal Excluding Israel</b>								<u>\$11,272,114.00</u>
<b>Israeli Cash Transfer</b>								
Bulk	633,400	47,530	75.04	1,111,900	25,580	23.01	52.03	<u>32,955,802.00</u>
<b>Total Including Israel</b>								<u>\$44,227,916.00</u>

Source: AID Tonnage Movements (1981); AID 50/50 Comparison Table (Report SR08, 3/82); AID "Ocean Freight Differential Resulting from Cargo Preference" (undated).

<sup>a</sup>Since no PL 480 cargoes were shipped by tanker, the average cost per ton is assumed to be the same as for tramps. This methodology has been used by the Department of Agriculture (interview with Sylvia Grey) and seems reasonable in light of the fact that Title II tanker cargoes are in fact dry bulk, the same type of cargo that is shipped on tramps.

<sup>b</sup>Since AID data only provide tonnage, not cost, for AID administered liner cargoes, the average cost per ton was assumed to be the same as for Title II liner cargoes.

**EXHIBIT I-4**  
**CY 1982**  
**COST OF CARGO PREFERENCE FOR AID ADMINSTRATED PROGRAMS**

Ship Type	U.S. Flag Ships			Foreign Flag Ships			Cost Differential (per ton)	Added Cost of Using U.S. Flag Vesseis
	Metric Tons Shipped	Amount Paid (\$000)	Average Cost per Metric Ton	Metric Tons Shipped	Amount Paid (\$000)	Average Cost per Metric Ton		
<b>PL 480-Title II<sup>a</sup></b>								
Tanker	40,000	3,816	\$ 95.40	-0-	-0-	\$ 38.31	\$57.09	\$ 2,283,600.00
Tramp	152,815	13,582	88.88	246,500	9,444	38.31	50.57	7,727,855.00
Liner	715,354	102,913	143.86	505,746	60,956	120.53	23.33	16,686,080.00
<b>AID Financed<sup>b</sup></b>								
Bulk	637,610	51,077	80.11	574,810	13,543	23.56	56.55	36,056,845.00
Liner	189,490	N/A	143.86	50,262	N/A	120.53	23.33	<u>4,420,802.00</u>
<b>Subtotal Excluding Israel</b>								<u>\$67,175,182.00</u>
<b>Israeli Cash Transfer</b>								
Bulk	906,510	50,809	56.05	954,870	22,298	23.35	32.70	<u>29,642,877.00</u>
<b>Total Including Israel</b>								<u>\$96,818,059.00</u>

Source: AID Tonnage Movements (1981); AID 50/50 Comparison Table (Report SR08. 3/83); AID "Ocean Freight Differential Resulting from Cargo Preference" (undated).

<sup>a</sup>Since no PL 480 cargoes were shipped by tanker, the average cost per ton is assumed to be the same as for tramps. This methodology has been used by the Department of Agriculture (interview with Sylvia Grey) and seems reasonable in light of the fact that Title II tanker cargoes are in fact dry bulk, the same type of cargo that is shipped on tramps.

<sup>b</sup>Since AID data only provide tonnage, not cost, for AID administered liner cargoes, the average cost per ton was assumed to be the same as for Title II liner cargoes.

**EXHIBIT I-5  
CY 1983  
COST OF CARGO PREFERENCE FOR AID ADMINISTRATED PROGRAMS**

<u>Ship Type</u>	<u>U.S. Flag Ships</u>			<u>Foreign Flag Ships</u>			<u>Cost Differential (per ton)</u>	<u>Added Cost of Using U.S. Flag Vessels</u>
	<u>Metric Tons Shipped</u>	<u>Amount Paid (\$000)</u>	<u>Average Cost per Metric Ton</u>	<u>Metric Tons Shipped</u>	<u>Amount Paid (\$000)</u>	<u>Average Cost per Metric Ton</u>		
<b>PL 480-Title II<sup>a</sup></b>								
Tanker	176,817	14,955	\$ 84.58	-0-	-0-	\$ 40.10	\$44.48	\$ 7,864,820.00
Tramp	109,965	10,469	95.20	270,760	10,858	40.10	55.10	6,059,072.00
Liner	618,191	77,111	124.74	693,720	74,537	107.57	17.17	10,614,339.00
<b>AID Financed<sup>b</sup></b>								
Bulk	281,290	21,142	75.16	273,500	6,289	22.99	52.17	14,674,899.00
Liner	241,831	N/A	124.74	119,500	N/A	107.57	17.17	<u>4,152,238.00</u>
<b>Subtotal Excluding Israel</b>								<u>\$43,365,368.00</u>
<b>Israeli Cash Transfer</b>								
Bulk	801,500	36,880	46.01	840,030	17,640	21.00	25.01	<u>20,045,520.00</u>
<b>Total Including Israel</b>								<u>\$63,410,888.00</u>

Source: AID Tonnage Movements (1981); AID 50/50 Comparison Table (Report SR08, 3/84); AID "Ocean Freight Differential Resulting from Cargo Preference" (undated).

<sup>a</sup>Since no PL 480 cargoes were shipped by tanker, the average cost per ton is assumed to be the same as for tramps. This methodology has been used by the Department of Agriculture (interview with Sylvia Grey) and seems reasonable in light of the fact that Title II tanker cargoes are in fact dry bulk, the same type of cargo that is shipped on tramps.

<sup>b</sup>Since AID data only provide tonnage, not cost, for AID administered liner cargoes, the average cost per ton was assumed to be the same as for Title II liner cargoes.

**EXHIBIT I-6**  
**CY 1984**  
**COST OF CARGO PREFERENCE FOR AID ADMINISTRATED PROGRAMS**

<u>Ship Type</u>	<u>U.S. Flag Ships</u>			<u>Foreign Flag Ships</u>			<u>Cost Differential (per ton)</u>	<u>Added Cost of Using U.S. Flag Vessels</u>
	<u>Metric Tons Shipped</u>	<u>Amount Paid (\$000)</u>	<u>Average Cost per Metric Ton</u>	<u>Metric Tons Shipped</u>	<u>Amount Paid (\$000)</u>	<u>Average Cost per Metric Ton</u>		
<b>PL 480-Title II<sup>a</sup></b>								
Tanker	64,910	4,990	\$ 76.88	-0-	-0-	41.56	\$35.32	\$ 2,292,621.00
Tramp	277,870	19,730	71.00	243,620	10,125	41.56	29.44	8,180,493.00
Liner	707,870	89,360	126.24	598,960	56,432	94.22	33.02	22,668,000.00
<b>AID Financed<sup>b</sup></b>								
Bulk	858,000	59,241	69.04	852,000	20,627	24.22	44.82	38,455,560.00
Liner				Unavailable				
<b>Subtotal Excluding Israel</b>								
<b>Israeli Cash Transfer</b>								\$71,596,674.00
Bulk	800,000	31,300	39.13	800,000	15,540	19.43	19.70	<u>15,760,000.00</u>
<b>Total Including Israel</b>								<u>\$87,356,674.00</u>

Source: AID 50/50 Comparisor. Table (Report SR08, 2/21/85); AID "Ocean Freight Differential Resulting from Cargo Preference" (undated).

<sup>a</sup>Since no PL 480 cargoes were shipped by tanker, the average cost per ton is assumed to be the same as for tramps. This methodology has been used by the Department of Agriculture (interview with Sylvia Grey) and seems reasonable in light of the fact that Title II tanker cargoes are in fact dry bulk, the same type of cargo that is shipped on tramps.

<sup>b</sup>Data on tanker cargo tonnage were not available.

obtained the basic data for our calculations of the costs associated with the PL 480 Title II program from the 50/50 Comparison Table provided by AID. By dividing the total shipping costs incurred by the total metric tons shipped in a given year, we estimated for both U.S. flag and foreign flag vessels the average cost of shipping a metric ton by tanker, tramp, and liner. We then determined the cost differential of shipping by U.S. or foreign flag and multiplied this figure by the metric tons of cargo shipped on the higher cost vessel. This figure is our estimate of the direct cost savings that could have been incurred if all cargo had been shipped by lowest cost vessel.

The savings figures for Title II represent our estimates of the costs for these programs. Because the commodity mix and origin and destination mix may vary significantly between cargoes shipped on U.S. versus foreign vessels, thereby creating distortions in our estimates, actual costs can be obtained only by means of a detailed case-by-case analysis. Such a calculation was well beyond the scope of our current effort. A spot check of actual differences, however, reveals that our estimates are realistic. According to The Journal of Commerce,<sup>1</sup> liner rate differentials for shipments of relief and supplies from the U.S. to Ethiopia are running \$35 to \$50 per metric ton. Our estimate for 1984 is \$33.02 per metric ton.

In addition, the Department of Agriculture is currently preparing an evaluation of the added shipping costs for Title II for 1984 using actual cost data for individual shipments rather than averages. (We have requested that a copy of that analysis be sent to us as soon as it is available.) If the USDA calculations correspond relatively closely to ours, we do not believe further refinements of the estimates would be worth the effort. On the other hand, if they are significantly different, further analysis may be warranted.

### **3. Israeli Cash Transfer**

We have also included the costs of the Israeli Cash Transfer Program in the costs of cargo preference. Inclusion of the Israeli program is a judgment

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<sup>1</sup>The Journal of Commerce, April 10, 1985, quotes Stephen Kerns of the New York freight forwarder Daniel F. Young, Inc.

call since the application of cargo preference is not technically required by existing law. It has instead been "voluntarily" accepted by Israel (i.e., in connection with its receipt of a cash grant from AID, Israel has made a separate commitment to maintain its historic level of imports of bulk grain from the U.S. and to apply U.S. cargo preference standards to such imports).

Because the cargo preference law does not technically apply to the program, GAO has reasoned that the added costs of using U.S. vessels for the Israeli Cash Transfer Program should not be included as a cost of cargo preference legislation. Since the government of Israel has already objected to the added cost of using U.S.-flag vessels, we seriously doubt that Israeli authorities would "voluntarily" agree to ship on vessels charging substantially higher prices in the absence of the threat that they would be formally included under the cargo preference legislation if they did not "voluntarily" adopt its provisions. Therefore, we believe that a much stronger case can be made for including the Israeli Cash Transfer Program in the estimated cost of cargo preference.

Nonetheless, we are showing cost estimates both including and excluding the Israeli Cash Transfer Program. Moreover, the exclusion of the Israeli Cash Transfer Program would not change the conclusions we have reached. According to our estimates, the Israeli program has accounted for only 9 percent to 25 percent of the total costs between FY 1981 and FY 1984. Whether or not the Israeli program is included, the direct costs of the program have been high--ranging from just under \$100 million to over \$150 million excluding the Israeli Cash Transfer Program. The important question is whether the national security benefits of the cargo preference program outweigh its substantial costs (discussed in the following sections).

#### **B. Indirect Costs Imposed by Cargo Preference**

In addition to the higher direct costs imposed on shippers, taxpayers, and aid recipients, U.S. cargo preference requirements also generate a variety of indirect costs that are not directly reflected in the shipping cost differential. Thus, estimates of the cost of cargo preference that rely solely on the difference between U.S. and foreign flag rates are likely to understate the true cost of cargo preference.

The indirect costs of cargo preference cover a wide range of effects. For example, cargo preference may undermine AID's effectiveness in pressing aid recipients to eliminate government subsidies from their own economies while we continue such obvious subsidies to a noncompetitive U.S. industry. U.S. agricultural export sales are also reduced by requiring that shippers use higher cost U.S. vessels, thereby creating negative and ripple effects throughout the farm economy.

Sometimes these indirect effects are relatively straightforward. In the case of PL-480 credits, for example, cargo preference diverts program funds to cover shipping costs and reduces funds available for grain (and other foodstuff) purchases. Thus, according to the Department of Agriculture:

. . . using last year's (1981) ocean freight differential of \$86.7 million for commodities instead of transportation would have increased U.S. exports of wheat by about 19 million bushels, or of rice by almost 4 million cwt.<sup>1</sup>

The reduction in the demand for agricultural exports, in turn, produces negative effects on the economy in terms of employment, income, and output. Thus, opponents of cargo preference point out that cargo preference increases the cost and thereby reduces the demand for U.S. agricultural exports. They estimate that:

- For every \$100m drop in agricultural exports, 2,440 U.S. jobs are lost.<sup>2</sup>
- For every maritime construction job created by cargo preference two jobs would be lost in the U.S. fertilizer industry.<sup>2</sup>

Proponents of cargo preference counter by arguing that cargo preference creates demand for U.S.-built ships and that every dollar spent in the shipbuilding sector generated "at least another 70 cents in the national economy."<sup>2</sup>

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<sup>1</sup>Richard A. Smith, Administrator, Foreign Agricultural Service, U.S. Department of Agriculture. Testimony before the Senate Subcommittee on Merchant Marine, June 16, 1982.

<sup>2</sup>Estimates made in Hearings before the Senate Subcommittee on Merchant Marine, September 27 and 29, 1983.

Although the existence of these indirect effects is not seriously disputed by supporters and opponents of cargo preference, they have major disagreements over the magnitude and direction of the effects. Proper quantification of these effects is difficult because it requires comparisons of the estimated benefits arising from alternative uses of the resources devoted to cargo preference (e.g., the impact of one dollar spent on cargo preference versus one dollar spent to purchase agricultural commodities). The extreme subjectivity in quantifying the indirect costs and benefits of cargo preference prevents any consensus.

Thus in estimating the costs of cargo preference we believe it is appropriate to provide quantitative estimates only for the direct (the differential shipping cost) impact. By quantifying only direct costs, we avoid the endless controversy surrounding attempts to quantify indirect costs. Although we do not believe it would be worthwhile to try to quantify the indirect costs, it is important to recognize that the indirect effects of cargo preference will almost certainly raise the overall costs of the program. This is because of the simple fact that cargo preference penalizes industries in which the U.S. has demonstrated comparative advantage (i.e., agriculture) in order to benefit maritime industries where the U.S. is demonstrably noncompetitive. Thus, U.S. resources are being spent in an industry which uses them inefficiently rather than stimulating the growth of industries where the U.S. is internationally competitive. As a result, we believe there is no question that the direct cost estimates reflect the minimum cost to the U.S. economy. Consideration of indirect effects would probably increase the cost estimate by a significant but indeterminate amount.

### **C. Summary**

We estimate that the added direct costs imposed by cargo preference on foreign aid cargoes have ranged from \$97 million to over \$200 million per year during the most recent four-year period for which data are available depending in part on whether the costs of the AID-financed cash transfer program for Israel are included in the estimates.

Title I cargoes--for which the added cost data are most reliable--accounted for two thirds of the added costs for the entire four-year

period while AID-administered cargoes bore the remaining costs. The Israeli Cash Transfer Program costs ranged from about one tenth to one quarter of the total.

Bulk cargoes (tramp and tankers) typically accounted for approximately two thirds of added costs for Title I cargo and somewhat higher percentage of the added costs for other foreign aid cargoes.

The indirect costs of the program are probably significant but are impossible to quantify. Exclusion of these costs, therefore, suggests that the direct cost estimates reflect the minimum cost of the cargo preference program.

## II. BENEFITS OF CARGO PREFERENCE AND OTHER MARITIME SUPPORT PROGRAMS

### A. Overview

Cargo preference--and other forms of support for U.S. maritime industries--have been justified by their contributions in terms of two basic objectives of U.S. maritime policy:

- Economic, that is, the commercial advantage derived from a merchant fleet.
- Military, that is, the enhancement of U.S. national security via a secure source of sealift.

Traditionally, maintenance of a large national flag fleet has been viewed as the best means of meeting both of these objectives.

### B. Lack of a Persuasive Economic Rationale

For a variety of reasons, U.S. flag ships and U.S. commercial shipyards have become increasingly noncompetitive in world markets. For example, a 1984 U.S. Congressional Budget Office (CBO) study<sup>1</sup> estimated that the annual cost of owning and operating a U.S.-built and -crewed vessel was double the cost of a similar ship built abroad and operated with foreign crews [see Exhibit II-1].

As a result, the economic justification for U.S. government support of the maritime industries is quite dubious. Conversely, recent developments have strengthened the validity and awareness of the national security rationale. As the 1984 CBO study concluded:<sup>2</sup>

. . . it seems doubtful, today, however, that the cost of supporting U.S. flag merchant marine could be justified solely by commercial considerations . . .

The economic justifications are increasingly weak. The United States now transports only a small portion (less than 6 percent by weight) of its growing foreign commerce in the U.S. flag ships

<sup>1</sup>U.S. Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, Washington, D.C., (1984).

<sup>2</sup>Ibid, pp. xvi, 67-68.

**EXHIBIT II-I  
ILLUSTRATIVE ANNUAL OPERATING COSTS FOR  
30,000 DEADWEIGHT TON CONTAINERSHIPS**

	A	B	C
<b>Ship Comparisons</b>			
Where Built	United States	Japan	Japan
Crew Nationality	United States	United States	Singapore
Propulsion	Steam	Diesel	Diesel
-----			
<b>Ship Costs</b> (In thousands of dollars)			
Wages	3,780	3,780	570
Subsistence	124	124	53
Supplies	247	247	158
Maintenance	1,050	1,050	471
Insurance	933	933	328
Other	77	77	30
Fuel	5,500	4,600	4,600
Capital	14,200	5,200	5,200
Cargo/Port	<u>4,600</u>	<u>4,600</u>	<u>4,600</u>
<b>Total</b>	<b>30,511</b>	<b>20,611</b>	<b>16,010</b>
<b>Cost Per Delivered Ton</b>	<b>61</b>	<b>41</b>	<b>32</b>

**Source:** Estimates compiled by CBO based primarily on Maritime Administration data, p. 31.

and is unlikely to increase this amount by much in the foreseeable future . . . Foreign ship operators are able to offer shipping services at significantly lower rates than U.S.-flag operators. Paying higher rates for U.S.-flag shipping—however it might be done—can only harm, not help, the U.S. economy.

Similarly, U.S. shipyards are unable . . . to offer, or even approach, the prices offered by foreign shipbuilders for the most types of cargo ships. This, of course, is a major factor in the inability of U.S.-flag ship operators to offer competitive freight rates. In this industry also, there is little prospect that the United States will become competitive in the foreseeable future, and economic arguments for supporting uncompetitive industries are usually weak.

Conversely, the national security rationale for sustaining the maritime industries is much more persuasive. The considerations . . . clearly indicate a current and continuing need for substantial U.S.-flag sealift assets to support U.S. military forces during national emergencies. Indeed, sealift would play a major role in almost any emergency short of all-out nuclear war, and relying upon foreign-flag shipping for direct support of U.S. military operations might be imprudent. The United States also needs a shipbuilding industrial base to support both naval forces and sealift ships in peacetime, mobilization, and wartime.

Security rather than economic considerations, therefore, should govern decisions concerning government support of the maritime industries. This is not to say that economic considerations and commercial efficiency should be disregarded in maritime policymaking. Clearly, both national security and economic efficiency should be served, if possible. When the two conflict, however, as may often be the case, policies motivated by national security should serve security interests first [emphasis added].

Prior analyses of U.S. government maritime support programs also reached similar conclusions. A 1975 Brookings study concluded:<sup>1</sup>

Although the federal government aids the maritime industries principally because they are thought to be essential to the nation's security, some champions of maritime assistance have argued that there are also sound economic reasons for continuing this support. They attribute a sizeable increase in economic activity to the maritime aids, specifically to the large new shipbuilding program, but by inference to other maritime aids also. They compute the share of new output that will flow to the government as additional taxes, observe that this sum may approach the total of public expenditures on the shipbuilding program, and conclude that therefore the program is nearly costless--or at least much less costly than budgetary figures indicate.

[T]his argument is not very credible. Whatever force it has depends largely on the assumption that the resources employed in the shipping and shipbuilding industries would lie idle in the absence of the maritime aids; otherwise we must debit the output of these resources in alternative employment against their output in the maritime industries to determine what the net gain in product has been.

It is also wrong to suppose that the larger the amount of new output that the government takes in additional taxes, the less costly the program. The cost of the program is measured only by the resources it uses, not by the government's receipts or expenditures.

Another popular argument for the maritime aids stresses the balance of payments benefit from the U.S. shipping and shipbuilding activities. We are told that because the entire output of these industries either is exported or replaces imports, the operations of the merchant marine and domestic shipyards have an important impact on the

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<sup>1</sup>The following material has been excerpted from Gerald R. Jantscher, Bread Upon the Waters: Federal Aid to the Maritime Industries, (Washington, D.C., Brookings Institution, 1975), pp. 140-142.

nation's balance of payments. The foreign exchange these industries earn is a valuable bonus that justifies the assistance they receive.

This argument also is defective . . .

The national security argument contains the soundest justification for a program of public assistance to the U.S. maritime industries. It is unquestionably more credible than the economic arguments for maritime assistance . . . that on examination appear without merit.

### **C. The National Security Rationale**

The national security justification for supporting an otherwise uneconomic maritime industry in essence is that, in time of war, shipping will be required to meet very substantial military requirements in addition to essential commercial shipping requirements generated by the U.S. economy.

The national defense value of U.S. maritime industries derives from an uncertainty as to whether the services of foreign shipbuilding and shipping industries will be available to meet U.S. military requirements in time of national security crises. Thus, the U.S. national security benefits center on maintaining sufficient shipping and shipbuilding capacity to be reasonably assured of adequate sealift capability in time of national emergency.

As is the case with any form of insurance, questions can be raised about the degree of protection required (here against the unwillingness of foreign shippers and/or shipyards to meet U.S. requirements in wartime) and the probability that the contingency will occur. While opinions may vary on the particulars, there is widespread recognition that significant assistance for the maritime industries is warranted to provide the insurance that critical military cargo can be moved in U.S. ships in time of war.

Major efforts recently have been made to define more precisely some of these national security requirements and our nation's ability to meet them.

#### D. Recent Efforts

During recent years, the Department of Defense (DOD) and the Congress have become much more concerned with strategic sealift requirements. (Appendix A contains a more detailed summary of the key aspects of strategic sealift requirements and traces the evolution of sealift policy in DOD.)

Concerns about the adequacy of all aspects of strategic mobility (airlift, sealift, and prepositioning of equipment and supplies) has been growing as the experience of modern high intensity war (e.g., recent Arab-Israeli conflicts) has demonstrated the need to plan for much more rapid ammunition consumption and replacement for equipment attrition. This requires much higher resupply factors than had been previously used, thereby raising airlift, sealift, and prepositioning requirements. The growing concern in the late 1970's with stability in the Persian Gulf region and creation of the Rapid Deployment Force (RDP) added to the awareness of shortcomings in sealift capability.

In addition, the Falklands conflict further highlighted the strategic importance of adequate sealift capacity. Even though the conflict was geographically limited and quite short in duration, Great Britain was forced to draw on almost its entire commercial fleet, including requisition of the QE 2 passenger liner.

These and other factors, including growing congressional concern about strategic mobility, have caused the U.S. Navy to dramatically increase the attention it is devoting to sealift enhancement. In fact, the Navy has now formally added Strategic Mobility as the third major mission in addition to its two traditional missions of Force Projection and Control of the Sea Lines of Communication.

Strategic sealift support includes three broad categories of shipping: prepositioned ships, surge, and resupply. The immediate requirements for men and equipment have to be met by airlift and equipment already loaded on ships or otherwise prepositioned close to the conflict. Next a massive "surge" movement of equipment and supplies is required from ships that are appropriately configured and readily available. Third, longer term resupply needs may be partially met by using or modifying ships that are less readily available or require modification before being used for military sealift needs.

**E. Cargo Considerations Affecting National Security Benefits**

From the perspective of evaluating the national security benefits of cargo preference, we believe that insufficient attention has been paid to the differing military utility of the various types of U.S. ships supported by cargo preference laws. Specifically, dry bulk carriers have virtually no military sealift utility, but account for about two thirds of the costs of cargo preference.

This fundamental fact has been obscured by the tendency to discuss mobility requirements in terms of millions of deadweight tons of capacity required. In fact, however, the specific size, weight, shape, and delivery needs of military cargoes determine the requirements faced by military logisticians.

Two factors are particularly relevant in determining military sealift requirements. One is the ability to load and unload ships quickly and to be able to do it with minimum external support under a broad variety of port conditions. The second is the ability to handle the variety of large and outside heavy equipment (e.g., helicopters, wheeled and tracked vehicles) that comprises much of the surge shipping requirements. In addition, other specialized shipping requirements include the need to move substantial amounts of fuel and consumables, both for underway replenishment and supply of forces in the field.

The result of these requirements is a particular need for specialized vessels such as Roll-On/Roll-Off (RO/RO) ships which have very quick load and off-load capability and Lighteraboard (LASH) and SEABEE barge carrying ships which can unload almost anywhere.

Also useful to the military are the traditional "breakbulk" ships that formed the backbone of the World War II, Korean, and Southeast Asian sealift operations. The military utility of these ships stems from their versatility (open decks, multiple cargo holds, self-contained lifting booms and cranes). They are not, however, commercially competitive with intermodal container ships and are rapidly being phased out of major commercial trade routes.

Containerships, which have the greatest sealift capacity of all dry cargo ships, are somewhat less militarily useful due to the fact that they require

specialized offloading equipment and that many types of military equipment cannot fit into standard containers. For example, about three quarters of an Army unit's equipment will not fit into standard commercial containers. Although the Navy is supporting programs to permit carrying large cargo on containerships through various enhancements (e.g., SEA SHED and flatracks), the containership's commercial efficiencies still cannot satisfy military sealift requirements.

Finally, there is virtually no militarily useful role for dry bulk carriers. Such vessels would require massive modification (thereby tying up limited wartime shipyard capacity) before they could be used to carry significant amounts of military cargo. In addition, they would be hard to load and offload, and would not be able to enter many ports because of their deep draft. In short, dry bulk carriers are so inferior in terms of military utility in comparison with other types of ships that they can effectively be considered as having no practical military utility. Thus, of the over one hundred ships that the Navy has acquired or plans to acquire for the Ready Reserve Fleet, none are dry bulk carriers [see Exhibit II-2].

More information on the derivation of military sealift requirements and the steps being taken to meet them is contained in Appendix A.

#### **F. Other National Security Considerations**

In addition to maintaining the U.S. fleet, national security requirements for the maritime industry also cover:

- U.S. shipyard capacity.
- U.S. citizen crews to man the ships.

The various programs designed to support the national defense requirements for the U.S. fleet deal with these other considerations in differing degree. For the purposes of evaluating the benefits of cargo preference, however, we believe the effects on stimulating shipyards work and maintaining U.S. crews are clearly of secondary importance to the direct benefits of maintaining the appropriate type ships in operation.

In the case of shipyards, cargo preference is much more likely to permit continued operation of otherwise uneconomic vessels than it is to stimulate

**EXHIBIT II-2  
PROJECTED COMPOSITION OF THE READY RESERVE FLEET**

End of FY Cumulative

<u>Ship Type</u>	<u>FY 83</u>	<u>FY 84</u>	<u>FY 85</u>	<u>FY 86</u>	<u>FY 87</u>	<u>FY 88</u>	<u>FY 89</u>	<u>FY 90</u>	<u>FY 91</u>
<b>Dry Cargo</b>									
-- Heavylift	-0-	2	2	4	5	7	9	9	9
-- RO/RO	-0-	2	7	17	17	17	17	17	17
-- T-ACS	-0-	1	2	4	7	10	12	12	12
-- Breakbulk	31	52	54	50	52	54	56	59	62
<b>Tankers</b>	<u>1</u>	<u>8</u>	<u>8</u>	<u>12</u>	<u>12</u>	<u>13</u>	<u>14</u>	<u>15</u>	<u>16</u>
<b>Total (End Year)</b>	32	65	73	87	93	101	108	112	116
<b>Annual Program Growth</b>	+33	+8	+14	+6	+8	+7	+4	+4	

construction of new vessels, especially in view of the current glut of ships on the market. Thus, except for minor repair work cargo preference is likely to have limited impact on the level of business for U.S. shipyards.

In the case of employing U.S. seamen, cargo preference may help somewhat, but the sharp decline in the U.S. merchant fleet has left a surplus of U.S. civilian crews anyway, so the incremental benefits of cargo preference for foreign aid shipments are likely to be relatively small.

Even if subsidizing U.S. carriers does help keep shipyards and crews employed, it clearly makes the most sense to support ships that meet the primary (national security) objective. For example, by applying the current level of excess costs imposed by cargo preference to purchase more militarily useful ships would generate the same benefits for shipyards and seamen as would the present program while meeting the primary objective of enhancing strategic sealift capacity. Thus, there is no reason to argue that shipyard and manpower benefits justify supporting ships that do not have basic utility in meeting U.S. strategic sealift requirements in lieu of supporting ships that do.

Finally, an argument has been advanced that U.S. flag ships are needed to support the civilian economy during wartime. This is a much more complex question and hinges on assumptions about the likelihood of availability of foreign shipping and the probability of an all-out U.S.-Soviet conventional war that drags on for many months or years without being resolved or escalating into strategic nuclear war. Whatever one's view on these probabilities, the reality is that the U.S. already depends on foreign vessels for well over 90 percent of its ocean-borne commerce. Thus, there is no conceivably affordable way to eliminate primary dependence on foreign shipping to meet the requirements of domestic wartime production. In our view, therefore, any potential contribution that cargo preference could make by supporting ships that would not be preempted for military uses (i.e., dry bulk cargo ships with no military utility) is so small as to be essentially irrelevant. In light of this conclusion, we believe the DOD convention of defining strategic sealift requirements in terms of the capacity to move military cargo only is the most appropriate approach.

### III. ALTERNATIVES TO CARGO PREFERENCE

#### A. Cargo Preference and National Security

Cargo preference Legislation has been an important source of financial support for the U.S. maritime industry. Typically, five federal agencies account for well over 95 percent of all government cargo. The vast majority (more than two-thirds) of all government cargo is generated by the Department of Defense (DOD). Virtually 100 percent of DOD cargo moves on U.S. bottoms. The Department of Agriculture (Commodity Credit Corp.) which administers Title I of Public Law 480 and AID which administers Title II of PL-480 and is responsible for other cargoes also generate a substantial volume of preference cargo. In recent years, the Department of Energy (DOE) strategic Petroleum Reserve Program has likewise generated a significant volume of preference cargo.

According to its proponents, cargo preference enhances national security by reserving a significant volume of cargo for U.S.-flag vessels, thereby assuring the existence of a U.S.-flag fleet. Since U.S.-flag vessels must, as a rule, be built in U.S. yards and crewed by U.S. crews, these segments of the industry also benefit from cargo preference.

There are at least two fundamental flaws with the national security justification for current cargo preference programs. The first flaw is that even if no cargo preference laws existed, most government cargo would still be shipped on U.S.-flag ships. In 1984 GAO asked the federal agencies affected by cargo preference how they would ship cargo in the absence of cargo preference legislation.

The Department of Defense said that because of national defense program objectives, it would use U.S.-flag ships as much as possible even if there were no laws requiring it to do so. Since DOD provided 71 percent of the liner and charter cargo originated by government agencies, a large share of the government cargo, according to DOD, is therefore on U.S.-flag vessels for reasons other than cargo preference laws.

The distinction between charter and liner ships is important in analyzing how much of civilian agency cargo would have switched to foreign-flag ships without cargo preference laws.

### **Charter**

All civilian agency charter cargo carried on U.S.-flag ships would be carried on foreign-flag ships. The higher cost U.S.-flag charters could not compete with foreign-flag charters.

### **Liners**

The civilian agency cargo shipped for the PL 480, Title I program on U.S.-flag liners would probably be switched to foreign-flag ships. Title I shipments would be generally large enough to warrant charter vessels, and foreign charter rates would be cheaper.

For the remaining U.S.-flag liner cargo, the shipments would be too small to warrant using a charter vessel. U.S.- and foreign-flag liner rates have been generally similar because of shipping conference agreements. Thus, there would probably be little or no cost saving if this cargo were switched to foreign-flag liners. This may be less true in the future because the Shipping Act of 1984 permits the negotiation on nonconference rates, and foreign flag lines generally quote lower rates than U.S. flag lines. Nonetheless, GAO could not determine whether service factors favor U.S.- or foreign-flag liners and is, therefore, uncertain whether this cargo would be switched if no cargo preference laws existed.<sup>1</sup>

Based on its analyses and agency responses, GAO made estimates of both the amount of preference cargo that would be retained by U.S. ships and the determinative factors affecting shippers' decisions. GAO's conclusions summarized in Exhibits III-1 and III-2 show that even without cargo preference legislation U.S.-flag vessels would retain between 71 percent and 90 percent of U.S. government cargoes.

The second flaw in the national security justification for cargo preference is that it does not encourage the addition of militarily useful ships to the fleet. Simply stated, the objective of enhancing national security

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<sup>1</sup>U.S. General Accounting Office, Economic Effects of Cargo Preference Laws, GAO/OCE-84-3, January 31, 1984, pp. iii-iv.

**EXHIBIT III-1**  
**EXPECTED FLAG OF VESSEL FOR GOVERNMENT CARGO NOW**  
**ON U.S.-FLAG SHIPS IF CARGO PREFERENCE LAWS**  
**DID NOT EXIST**

<u>Agency/ program</u>	<u>Tons, 1980 (million tons)</u>	<u>U.S.- flag</u>	<u>Foreign flag</u>	<u>Uncertain</u>	<u>Reason</u>
DOD	8.8	x	-	-	
liner	4.0	x	-	-	
charter	4.8	x	-	-	Program objective
P.L. 480: Title I	1.4	-	x	-	
liner	0.6	-	x	-	
charter	0.8	-	x	-	Cost Cost
F.L. 480: Title II	0.8	-	x	x	
liner	0.8	-	-	x	
charter	neg	-	x	-	Service Cost
AID	0.7	-	x	x	
liner	0.3	-	-	x	
charter	0.4	-	x	-	Service Cost
DOE charter	0.5	-	x	-	Cost
Ex-Im Bank	0.1	-	x	x	
liner	0.1	-	-	x	
charter	neg	-	x	-	Service Cost
Other	0.1	-	x	x	
liner	0.1	-	-	x	
charter	neg	-	x	-	Service Cost

Source: U.S. General Accounting Office, Economic Effects of Cargo Preference Laws, GAO/OCE-84-3, January 31, 1984, p. 16.

**EXHIBIT III-2**  
**SUMMARY OF AGENCIES' U.S.-FLAG CARGO BY PROBABLE**  
**FLAG IF NO CARGO PREFERENCE LAWS**  
**EXISTED, 1980**  
**(millions of long tons)**

	<u>U.S.-flag</u>	<u>Foreign-flag</u>	<u>Uncertain</u>
DOD	8.8	-	-
<u>USDA</u>			
P.L. 480, Title I	-	1.4	-
P.L. 480, Title II	-	(a)	0.8
AID	-	0.4	0.3
DOE	-	0.5	-
Ex-Im Bank	-	(a)	0.1
Other	-	(a)	0.1
Total	<u>8.8</u>	<u>2.3</u>	<u>1.3</u>

<sup>a</sup>Less than 50,000 tons.

Source: GAO analysis.

maintaining a militarily useful civil fleet could be better served by alternative policies (discussed below) which would encourage civil fleet owners to acquire and operate ships with greater military utility than those ships encouraged by cargo preference.

In evaluating the effects of existing U.S. cargo preference requirements, the CBO concluded:<sup>1</sup>

Cargo preference is one of the most widely used forms of maritime support. It is, however, a blunt instrument which may not produce exactly the desired results. For example, while it may induce owners to procure new ships, the ships may not be the type best suited for military support or it may motivate owners to keep old inefficient ships in operation when policymakers want new ships.

In assessing additional proposed cargo preference legislation, the CBO highlighted the weakness of such requirements as a means of enhancing U.S. national security:<sup>2</sup>

This impact, it is again emphasized, would not be borne by the federal budget but would be a burden imposed indirectly on consumers in the form of higher prices induced by higher ocean transportation costs. As an indirect measure, it is less susceptible to government control in achieving desired objectives. The ships produced by this measure would have to compete with each other for a share of the market that is set aside by the legislation. They would be designed, therefore, to emphasize commercial efficiency, not military utility. Undoubtedly, the ships would be bulk carriers which are normally considered to be among the least useful kinds of shipping for military support . . .

Commercially efficient modern bulk carriers tend to be large ships with deep drafts that restrict the ports and harbor areas in which they can be

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<sup>1</sup>U.S. Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, Washington, D.C. (1980), p. 70.

<sup>2</sup>Ibid, p. 74

used. In addition, the cargo holds in bulk carriers are suitable only for bulk commodities. Since most military cargoes are not bulk shipments, ships of this kind would have to undergo modification to accommodate military shipments. Although such modification is possible, it would require time, money, and shipyard availability during the crucial mobilization period, and the modification would not cure the deep draft problem.

An earlier Brookings analysis of U.S. maritime supports reaches essentially the same conclusion:<sup>1</sup>

In conclusion, national security considerations may provide an authentic justification for a program of assistance to the U.S. maritime industries. But the program should be designed expressly to serve the nation's security requirements. . . . The current maritime program . . . may incidentally be increasing the nation's security. It would increase security more, however, and probably at a lower cost if it were turned away from its purely commercial objective and were tailored explicitly to the security needs of the nation.

#### **B. Alternatives**

In considering alternatives to existing maritime support programs including cargo preference, it is essential to recall that the full cost of these programs exceeds--often by a large amount--the federal budgetary costs to the U.S. taxpayer. These hidden costs include such things as higher prices for shippers/consumers, reduced sales by American farmers, lower output by other sectors of the U.S. economy from which resources have been diverted to support the maritime industry, reduced leverage for AID in pressing recipient countries to eliminate costly and distorting subsidies, and lower overall benefits of foreign aid programs to needy recipients.

Because of the importance of national security objectives and because of the costs of cargo preference, it is important to inquire whether security objectives could be better met by alternative forms of cargo preference requirements or by using entirely different programs.

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<sup>1</sup>Gerald R. Jantscher, Bread Upon the Waters: Federal Aid to the Maritime Industries (Washington, D.C., Brookings Institution, 1975), p. 137.

The CBO's recent study of U.S. Shipping and Shipbuilding: Trends and Policy Choices contains a careful analysis of the options available to the U.S. for maintaining a civil fleet adequate (when combined with RRF, prepositioned ships and NDRF vessels—see Appendix A for details) to meet anticipated wartime sealift requirements. To maintain such a civil fleet would require the construction or acquisition of about 20 cargo ships per year, and their subsequent operation under U.S. registry. A summary of the options identified by CBO is contained in Exhibits III-3 and III-4.

### C. Analysis of Options

A brief evaluation of each of the CBO options follows. Please note that none would specifically repeal existing cargo preference legislation.

- Option I (Operating and Construction Differential Subsidies): In terms of national security objectives, this option would result in a fleet in a relatively high state of readiness due to the fact that additional (uneconomic) U.S.-flag vessels would be maintained in full operational status. But the ships themselves would have low military utility since they would be built for commercial operations. As a result, the use of such subsidies would be a very expensive method of obtaining military lift.
- Option II (Expanded Cargo Preference to Cover Non-U.S. Government Cargo): Like subsidies, expanded cargo preference would result in a more active U.S. merchant fleet. But also like the subsidy approach, cargo preference would not provide incentives for U.S. operators to become more efficient, nor would this approach appreciably enhance national security since the ships would have low military utility. Finally, expanded cargo preference would be the most expensive means of maintaining the U.S. merchant fleets.
- Option III (Direct Procurement): Although less expensive than cargo preference, direct procurement should be more expensive than direct subsidies in terms of budgetary impact, depending on whether the ships were bought from U.S. yards and whether

**EXHIBIT III-3  
POLICY OPTIONS**

<u>Options</u>	<u>Estimated Average Annual Cost</u>	<u>Where Costs Appear</u>	<u>Military Useful- ness of Ships</u>	<u>Commer- cial Efficiency of Ships</u>	<u>Peacetime U.S.-Flag Ship Activity</u>
I. Subsidies: Use CDS and ODS to induce building and operating 20 ships per year. <sup>a</sup>	\$1.0-\$1.5 billion	Department of Transportation budget	Low	High	Higher
II. Cargo Preference: Boggs bill approach. Induce commercial orders for about 20 ships per year.	\$3.0-\$4.0 billion	Off-Budget, impact on shippers	Low	High	Higher
III. Direct DOD Procurement: Procure 20 ships per year, operate in MSC, lease out, or assign to Ready Reserve Fleet. <sup>b</sup>	\$1.5-\$2.0 billion	Defense budget	High	Low	Moderately higher

**Source:** Adapted from Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, Washington, D.C. (1980).

<sup>a</sup>CDS = Construction Differential Subsidy. ODS = Operating Differential Subsidy.

<sup>b</sup>MSC = Military Sealift Command.

**EXHIBIT III-4  
POLICY OPTIONS  
(Costs in 1984 Dollars)**

<u>Options</u>	<u>Estimated Average Annual Cost</u>	<u>Where Costs Appear</u>	<u>Military Useful- ness of Ships</u>	<u>Commer- cial Efficiency of Ships</u>	<u>Peacetime U.S.-Flag Ship Activity</u>
IV. Procure ships on open market, lease out or assign to RRF 20 ships/year. <sup>a</sup>	\$30-\$300 million	DOD budget	High	Moderate	Moderately higher
V. Build half in U.S. and procure half on open market, 20 ships/year.	\$900-\$1,200 million	DOD budget	High	Moderate	Moderately higher
VI. Administration program plus CDS plus open market procurement. <sup>b</sup>	\$500-\$700 million	DOD and DOT budget	Moderate	Moderate	Higher

**Source:** Adapted from Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, Washington, D.C. (1980).

<sup>a</sup>RRF = Ready Reserve Fleet.

<sup>b</sup>CDS = Construction Differential Subsidies. Open market procurement may not result in 20 ships per year in U.S. shipyards, p. 79.

they were leased to commercial operations or put in the MSC or RRF. Unlike either subsidies or cargo preference, direct procurement would result in a fleet of vessels with greater military utility—thus substantially enhancing national security objectives. A further advantage is that the primary responsibility and cost of this option would be borne by DOD, the agency charged with maintaining our national security.

- Option IV (Direct Procurement): Would permit DOD to procure ships on the open market and then lease out the vessels or assign them to the RRF. It would be the least expensive option and could be substantially funded by the savings from eliminating existing cargo preference requirements. By purchasing ships with maximum military utility, and then leasing them to U.S.-flag operators, DOD would be assured of both a more militarily useful civil fleet and one in a high state of readiness since the ships would be in regular operations. If DOD elected to procure new or used ships from foreign operators or shipyards, the beneficial impact on U.S. shipyards would be limited. As in the case of Option III, both the cost and the responsibility for the program would fall on DOD.
- Option V (Combination Direct Procurement and New Const.uction): Would address the shipyard effects of Option IV by requiring that one half of the ships acquired each year be purchased from U.S. yards. This would result in a somewhat more expensive fleet but it would retain the desirable aspects of high military utility and budgetary and program responsibility vested in DOD. By leasing these vessels to commercial operators, DOD could lessen overall program costs and still maintain national sealift capability in high state of readiness since the ships would be in active service rather than reserve status.
- Option VI (Combination Including Construction Differential Subsidy): The final option evaluated by CBO would combine the ability to purchase new and used ships abroad with a revived

construction differential subsidy (CDS) program to assist U.S. shipyards. Such a combination of policies would be relatively inexpensive compared to Options I-III, but would be more expensive than Option IV (open market procurement and lease out). Unless CDS were limited to ship-types specified by DOD as having adequate military utility, the national security impact of this option would be less attractive than Options III-V. Budgetary and program responsibility would also be split between DOD and MARAD, an outcome that is somewhat less desirable from a budgetary and program integrity perspective.

From the national security perspective it would appear that only those programs which yield high military usefulness should be considered as attractive options. Thus, we believe that only those options which assure the acquisition of ships configured to the military mission warrant serious consideration (Options III through V). These options involve either purchase of ships from U.S. yards or acquisition of existing ships on the open market.

An interesting variant on these options is the possibility of reducing their cost and raising the state of readiness by leasing the ships to commercial operators. If the DOD procured militarily useful ships and then competitively leased them to U.S.-flag operators, the lease rates paid by the operators would presumably reflect any commercial disadvantages arising from the military requirements. Further, competitive leasing would provide both operators and maritime unions with strong incentives to control costs and increase efficiency. Ships that lacked any commercial potential but that were nonetheless militarily desirable could either be operated by the MSC or put into the RRF, depending on DOD budgetary constraints and on the overall readiness status of the U.S. strategic sealift fleet.

So long as these vessels were leased to U.S.-flag operators, demand would also be created for U.S. citizen seamen, thereby maintaining a pool of available able-bodied seamen in the event of a national emergency. The impact on U.S. shipyards would depend entirely on whether some U.S. ship procurement would be required as a matter of national policy. Current Administration policy

seems to downplay the importance of U.S. commercial yards in terms of our national security. In any event, even a policy that permitted the purchase of militarily useful ships on the open market would probably generate some work for U.S. yards in converting the vessels to militarily useful configurations.

**D. An Option for Increasing the Cost Effectiveness of Current Cargo Preference in Meeting National Security Objectives**

Another (less comprehensive) option is suggested by the predominantly bulk nature of foreign aid cargoes (see Section IC) and the low military utility of modern bulk ships (see, e.g., CBO, p. 70). AID might want to introduce this new option into the current discussions on cargo preference.

- Option VII (Change Preference Law to Cover Only Militarily Useful Cargo): Restrict cargo preference only to cargoes shipped in nonbulk vessels such as breakbulk and containerships. By reserving the cargo preference subsidy only to vessels with some significant military utility, the effect of cargo preference would be consistent with the underlying national security rationale. The budgetary savings could be applied to acquire more militarily useful vessels (as outlined in Options III-VI), provide more foreign aid, or reduce the budget deficit. Based on AID data, it appears that more than two thirds of foreign aid cargoes are bulk and are carried on bulk carriers. Thus, the budgetary savings would still be substantial although less than if cargo preference were eliminated entirely for foreign aid cargoes.

Exhibit III-5 presents the estimated savings from this option if it had been utilized. The calculation of estimated savings assumes that all PL 480 Title I cargo moving in tankers and tramps was carried in vessels that should not be considered militarily useful. Similarly, we made similar assumptions for Title II and AID CARGO moving in tankers and tramps. Finally, we assumed that the entire Israeli Cash Transfer Program would generate dry bulk cargo since the program is used to finance grain imports from the United States.

**EXHIBIT III-5**  
**POTENTIAL BULK CARGO SHIPPING COST REDUCTIONS**  
**(millions of dollars)**

	<u>CY 1981</u>	<u>CY 1982</u>	<u>CY 1983</u>	<u>CY 1984</u>
PL 480 - Title I	52.3	66.0	44.4	47.4
Title II and AID	<u>11.6</u>	<u>46.1</u>	<u>28.6</u>	<u>48.9</u>
<b>Subtotal less Israel</b>	63.9	112.1	73.0	96.3
Israeli Cash Transfer	<u>33.0</u>	<u>29.6</u>	<u>20.0</u>	<u>15.8</u>
<b>Total including Israel</b>	96.9	141.7	93.0	112.1

**E. Summary**

Cargo preference is an expensive and inefficient means of enhancing the military utility/national security value of the U.S. civil fleet. It imposes both significant costs on taxpayers and large direct and indirect costs on producers, shippers, and foreign-aid recipients. Alternative policies could--at the same cost to society--produce a militarily more useful fleet without the economic distortions that flow from cargo preference. The U.S. commercial ship operators, U.S. seamen, and, depending on the policies pursued, U.S. shipyards would continue to be supported, but the cost would be borne--and the program administered by--DOD, the agency with primary responsibility for national security. Short of a major change, legislation to limit the application of cargo preference to only those ships deemed to be militarily useful could cut the costs of the program by roughly two thirds without jeopardizing the national security benefits of the program.

**APPENDIX A**  
**THE NATIONAL SECURITY ASPECTS OF CARGO PREFERENCE**

**APPENDIX A<sup>1</sup>**  
**THE NATIONAL SECURITY ASPECTS OF CARGO PREFERENCE**

**A. Background**

During recent years, the Joint Chiefs of Staff (JCS) and Office of the Secretary of Defense (OSD), with full participation by the services, have conducted strategic mobility requirements studies. Three Strategic Mobility Requirements and Program (SMRP-Yr) analyses, referred to as SMRP-82, SMRP-83 and SMRP-84, studied projected defense transportation assets in relationship to rapid deployment requirements. In each case, analysis of resultant delivery shortfalls was the basis for recommendations for program to achieve the desired level of sealift enhancement.

SMRP-82, although considering sealift requirements, concentrated primarily on airlift and offsetting alternatives in a worldwide conflict, with emphasis on NATO and the Warsaw Pact. SMRP-82 was the first step in assessing the magnitude of strategic mobility requirements and deployment alternatives. Following SMRP-82, the Navy and Army recommended further examination of additional strategic mobility options. This led to SMRP-83, which analyzed a NATO/Warsaw Pact conflict, and identified strategic lift requirements in response to a U.S. unilateral military action in the Middle East. The potential for crises, involving the vulnerable oil-producing Persian Gulf states, brought the region under intensive scrutiny. It was recognized that the distances involved in deploying to the Persian Gulf would present significant problems to strategic mobility forces. These potential problem areas led to SMRP-84.

The SMRP-84 Study resulted in a significantly greater emphasis on sealift. The Secretary of Defense decided that DOD sealift force structure and size would be based on requirements resulting from a major Southwest Asian action and NATO involvement, instead of the NATO-only conflict scenario.

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<sup>1</sup>The following material has been excerpted from U.S. Office of the Chief of Naval Operations, Strategic Sealift Division, OP-42, Strategic Sealift Program Information, 16 April 1985.

Coincident with the completion of SMRP-84, Congress, in the Defense Authorization Act of 1981, directed that a study be undertaken which would assess the mix of airlift, sealift and prepositioning. The purpose of the study was to evaluate DOD's capability to provide an acceptable U.S. response capability for a variety of military contingencies in the 1980s. The Congressionally Mandated Mobility Study (CMMS) was completed by OSD with service and JCS participation. The CMMS analyzed the mix of airlift, sealift, and prepositioning for supporting four, separate, worldwide contingency scenarios. Shortages in strategic sealift were apparent in each scenario investigated. The findings of the study called for earlier availability of additional ships and highlighted the importance of prepositioning.

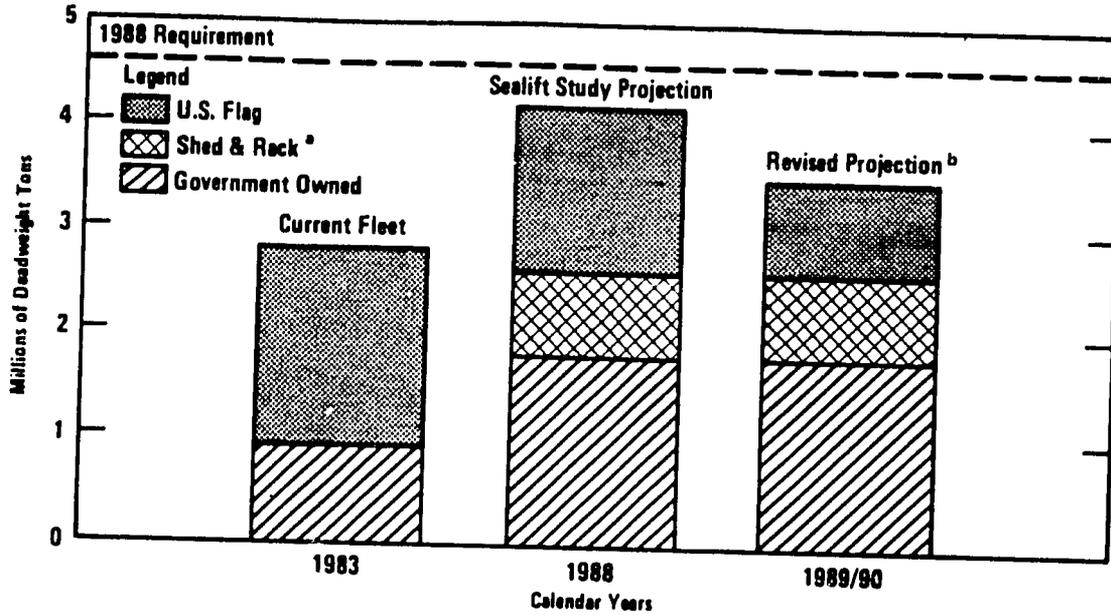
In 1982, the Navy initiated an in-house review of its Strategic Sealift Program. This effort identified initiatives required to meet Defense Guidance parameters, and resulted in Navy programs and funding to reduce strategic sealift shortfalls. The Navy's review was consistent with SMRP-83, SMRP-84 and CMMS and the then-current Defense Guidance. The result was identification of virtually all elements of the growing Navy Strategic Sealift Program as it exists today. The Navy expanded its estimated requirement for the Ready Reserve Fleet (RRF)--which is described later) from 44 ships (38 dry cargo, 6 tankers) to 77 ships (61 dry cargo ships and 16 product tankers). During review of the services' programs for FY 84-88, OSD raised concerns about several long-held assumptions on requisitioning ships in response to "national warning indicators," and ship loading parameters and capabilities. Subsequently, in the annual guidance to the services for preparation of their programs for FY 85-89, OSD directed a study be conducted emphasizing sealift, using a modified scenario. This resulted in the DOD Sealift Study, which revised prepositioning, cargo offload systems requirements, and ship options to meet defense objectives under different contingency scenarios and parameter variations. The requirements are shown in Exhibit A-1.

. . . at a minimum, to maintain sufficient shipping capacity under U.S. government control and/or in the U.S. flag commercial fleet to meet the surge and sustaining requirements of that portion of a global war wherein allied shipping is not available.<sup>1</sup>

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<sup>1</sup>Letter from Hon. Caspar W. Weinberger, Secretary of Defense, to Hon. Elizabeth H. Dole, Secretary of Transportation, dated 24 April 1984, subject: Department of Defense Dry Cargo Shipping Objectives and Requirements.

**EXHIBIT A-1  
AVAILABLE SHIPPING VERSUS REQUIREMENT: DEPARTMENT OF  
DEFENSE ESTIMATE FOR DEPLOYMENT OF MILITARY UNIT  
EQUIPMENT DURING SURGE PHASE OF MOBILIZATION**



**Source:** Department of Defense and Maritime Administration.

<sup>a</sup>Sea shed and flat rack are devices to improve the ability of existing container-ships to carry military unit equipment.

<sup>b</sup>Revised projection is contained in a more recent assessment by the Maritime Administration.

## B. National Security Requirements

Wartime military sealift requirements fall into three categories:

- Prepositioning of material and supplies.
- Surge. The high level of initial activity required to move equipment to personnel to the appropriate theatres.
- Ongoing support. Provision of ongoing support to military operations in the field and naval forces at sea.

In addition to maintenance of a U.S. fleet, these national security requirements for the maritime industry also cover:

- U.S. shipyards.
- U.S. citizen seamen (crews to man the ships).

The federal government has a number of programs designed to maintain capability in each of these areas. A summary of these programs can be found in Exhibit A-2.

While airlift can reduce the initial surge demands on U.S. sealift capability, it cannot come close to meeting anticipated military requirements [see Exhibit A-3].

Transporting major military units overseas is a formidable task. The equipment associated with a single typical mechanized division is shown in Exhibit A-4. Thousands of major items of equipment and countless minor items total nearly 100,000 tons for some fully supported divisions. According to CBO, transporting material for a division of this size would require about eight relatively large modern cargo ships, assuming some modification for military equipment, or as many as 35 unmodified ships. Moving this much equipment by air would require almost a month even if the entire airlift fleet was devoted to this task.<sup>1</sup>

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<sup>1</sup>U.S. Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, Washington, D.C.(1984), p. 49.

**EXHIBIT A-2**  
**SUMMARY OF CURRENT U.S. MARITIME PROGRAMS**  
**AND ESTIMATED ANNUAL BUDGETARY EFFECTS**

Program	Purpose/ Requirements	Recipients	Approximate Yearly Cost
Operating Differential Subsidy (ODS)	Equalize operating cost for U.S.-flag vessels with foreign competition on certain trade routes.	U.S.-flag liners and (since 1970) bulk carriers with ODS contracts.	\$380 million <u>a/</u>
Construction Differential Subsidy (CDS)	Encourage ship construction in U.S. shipyards by paying up to 50 percent of competitive or 35 percent of negotiated contracts.	U.S.-flag and U.S.-owned ships operated in U.S. foreign trade.	No longer funded
Ship Mortgage Guarantee (Title XI)	Encourage ship construction in U.S. 87.5 percent guarantee of actual costs for unsubsidized ships, 75 percent for CDS ships.	All U.S.-built ships, including oceangoing and inland trades. U.S.-flag operation only.	Contingent liability only. Limit now \$12 billion for all outstanding guarantees. <u>b/</u>
Capital Construction Fund (CCF)	Tax deferral on funds deposited for ship replacement construction in U.S. shipyards only.	U.S. citizens owning or leasing ships.	\$270 million <u>c/</u>
Investment Tax Credit	Encourage investment in new or used ships.	U.S. citizen shipowners who are qualified operators.	\$150 million <u>d/</u>

**Source:** U.S. Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, August 1985, pp. 62-64.

## EXHIBIT A-2 (Cont'd)

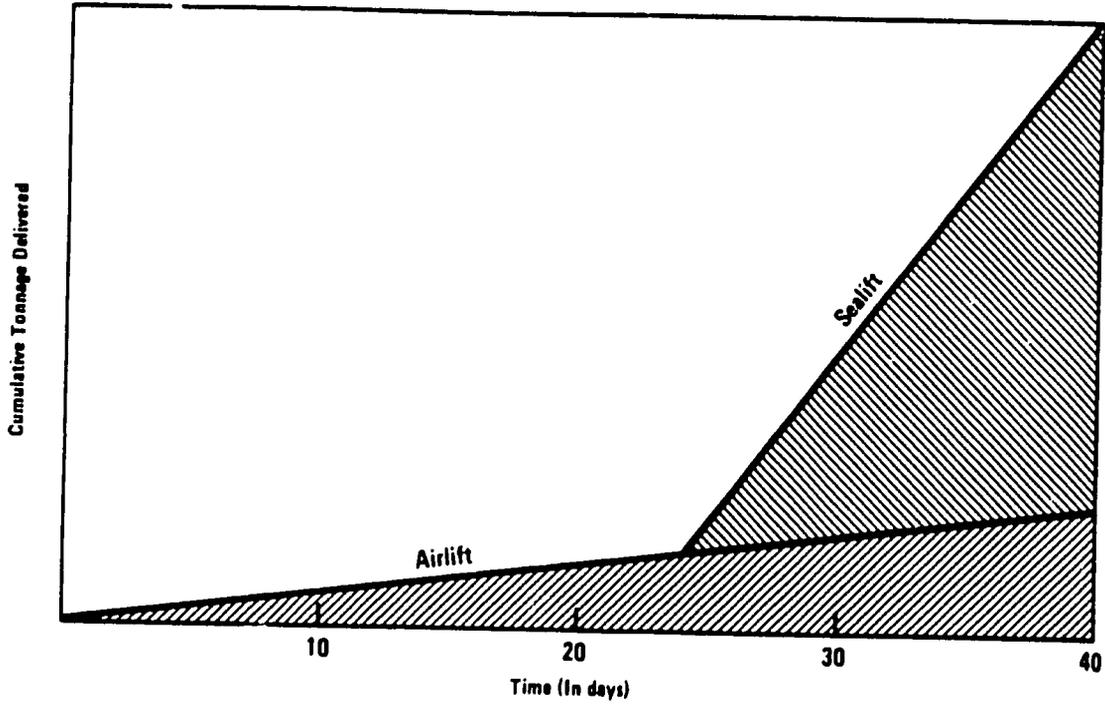
Program	Purpose/ Requirements	Recipients	Approximate Yearly Cost
Ad Valorem Duty on Ship Repairs	Encourage use of U.S. shipyards by U.S.-flag ships for nonemergency repairs.	Paid by U.S.-flag ship operators, benefits U.S. shipyards	\$10 million (tax receipts)
Ship Exchange Program	Provide for exchange of U.S.-flag or U.S.- built ships for ships in National Defense Reserve Fleet.	U.S. citizen ship- owners who are qualified operators.	No budget effect
Ship Trade-In Program	Encourage replace- ment of subsidized ships.	Subsidized U.S. citizen owner/ operators upon delivery of new subsidized ships.	No budget effect
Research & Development Program	Develop technology to modernize mari- time industries.	Administered by MarAd. Many cost-sharing pro- grams with industry.	\$3 million <u>e/</u>
Cargo Preference	Give preference to U.S.-flag ships for government-owned or financed cargo.	U.S.-flag ships.	\$100 million <u>f/</u>
Cabotage	Reserve intracoastal domestic routes for U.S.-flag ships.	U.S.-flag ships without subsidies.	No budget effect <u>g/</u>
Maritime Administration	Operations and training	Not applicable.	\$70 million <u>h/</u>
	Agency funding	Not applicable	\$12 million <u>h/</u>
Total Costs			<u>\$975 million</u>

## EXHIBIT A-2 (Cont'd)

- a. Administration budget request for fiscal year 1985 is \$378.8 million.
- b. Liabilities from defaults are covered from a "Ship Financing Fund," which is funded by fees paid by ship owners ( $\frac{1}{2}$  to 1 percent of outstanding loan balance). No appropriated funds have ever been required to support the Title XI program and the Ship Financing Fund currently has a net inflow of about \$50 million per year from fees.\*
- c. The Capital Construction Fund permits the indefinite deferral of taxes on corporate income deposited in the fund and used for construction or reconstruction of certain ships in U.S. shipyards. As a practical matter, this is usually equivalent to elimination of the tax on this income unless it is withdrawn from the fund for some other purpose. The estimate of \$270 million is the tax that would have been collected from recent annual new deposits, assuming a marginal tax rate of 48 percent.
- d. Ship and shipyard operators, like other businessmen, qualify for the investment tax credit (ITC) for new capital investment. In 1981, the latest year for which data is available, the ship operating and shipbuilding industries had qualifying investments totaling \$1,505.6 million. With a 10 percent credit, the maritime operators could have deducted about \$150 million from their tax liabilities. Only \$73.5 million in credits was actually claimed in 1981, however, presumably because many companies had no profits and thus no tax liability that year against which to apply the credit. Since the remaining credits can be deferred and claimed against future taxes in profitable years, the entire \$150 million is listed as the approximate ITC tax expenditure for one year.
- e. The Administration budget request for the research and development program administered by MarAd is \$3 million for fiscal year 1985, down considerably from the \$11.4 million of fiscal year 1984.
- f. The additional shipping cost incurred by the government because of preference given to U.S.-flag ships was recently estimated by the General Accounting Office at between \$71 and \$79 million in 1980. In fiscal year 1985 dollars, this would be equivalent to about \$100 million.
- g. Although cabotage has no direct impact on the federal budget, it does have an effect on the economy. It is estimated that the cost to the economy from cabotage in fiscal year 1983 was about \$1.3 billion. This is the cost to shippers for U.S.-flag services above the cost of the same services from foreign-flag ships. The major portion of this amount (about \$1 billion) is attributable to the carriage of Alaskan North Slope crude oil to the continental United States.
- h. Estimates based on Administration fiscal year 1985 budget request.

\*Note: This CBO observation may no longer be valid as the fund is reportedly now in the red--the authors.)

EXHIBIT A-3  
RELATIONSHIP OF AIRLIFT AND SEALIFT



Source: U.S. Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, August 1985, p. 48.

**EXHIBIT A-4  
EQUIPMENT FOR A TYPICAL MECHANIZED  
MODERNIZED ARMY DIVISION**

Item	Number of Items
M1 Tanks	290
Bradley Fighting Vehicles	370
155mm Howitzers	72
8-Inch Howitzers	12
Multiple Launch Rocket System	12
Division Air Defense Guns	36
Chaparall Air Defense Launchers	18
Trucks, 5-Ton	456
Trucks, 2-1/2-Ton and Smaller	1,264
Attack Helicopters (AH-64)	36
Utility Helicopters (UH-60)	23
Total	<u>2,581</u>

**Source:** U.S. Congressional Budget Office, U.S. Shipping and Shipbuilding: Trends and Policy Choices, August 1985, p. 49.

### C. How Maritime National Security Requirements Are Met<sup>1</sup>

Strategic sealift support for a contingency includes three broad categories of shipping, listed in order of responsiveness: prepositioned, surge, and resupply. Military equipment, loaded aboard ships and prepositioned near a contingency area, can be delivered rapidly to forces airlifted into the theater of operations. Surge shipping lifts the bulk of the U.S.-based equipment and initial sustaining supplies. Resupply shipping immediately follows to meet daily consumption rates and build up theater reserve stock levels. The typical time phasing of daily tonnage requirements from prepositioned, surge and resupply shipping is indicated in Exhibit A-5. Surge shipping peaks, then declines, as combat forces are delivered in-theater; resupply rates increase as force levels grow, then taper off to consumption rates, after in-theater stock levels are achieved.

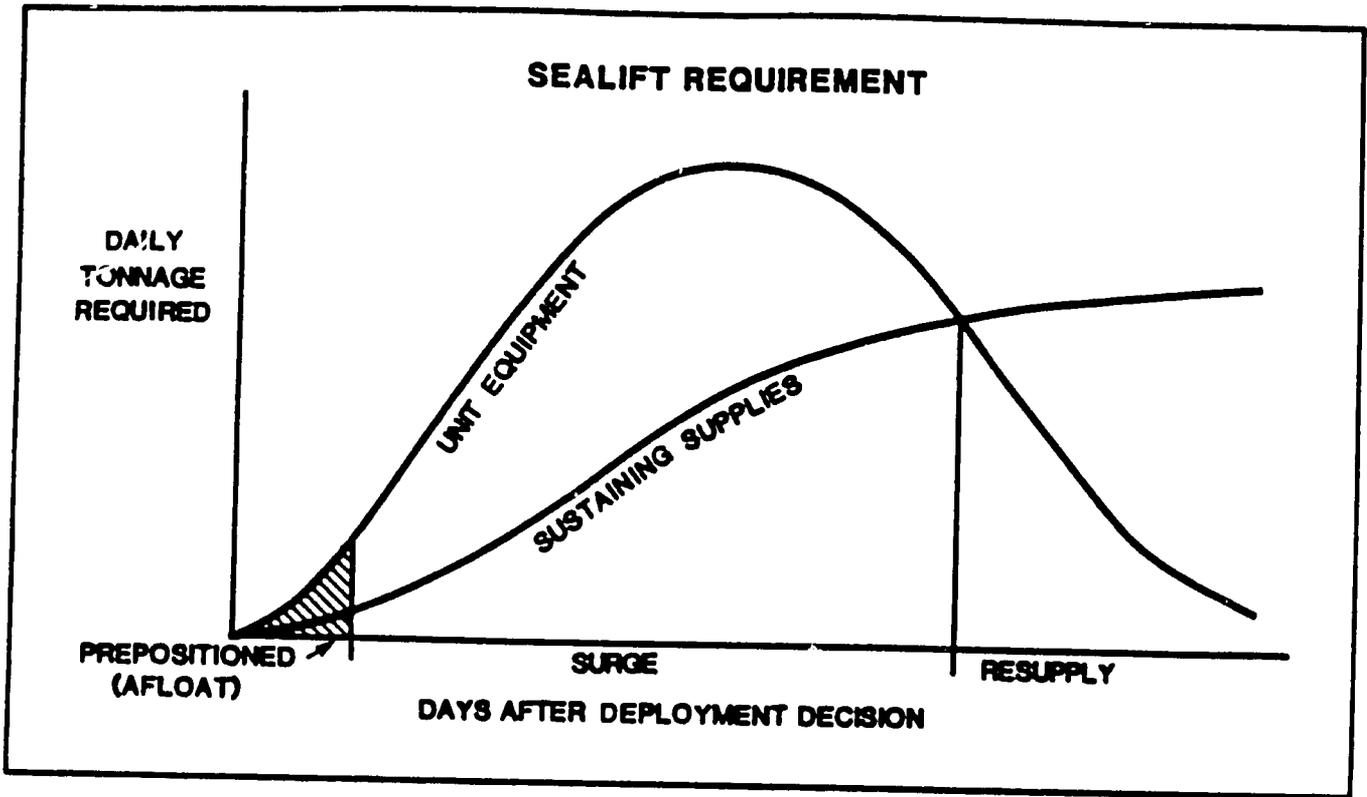
Staging and prepositioning equipment and supplies in forward areas are the most feasible methods of meeting the early requirements, as most contingency plans require a rapid delivery of fully equipped forces. With little or no warning time, sealift deployments from the U.S. encompassing ship arrival, loading, and sailing would deliver critical equipment too late. Therefore, DOD has prepositioned government-controlled ships in Southwest Asia, the Pacific, and the Mediterranean, and beginning in 1985, this force will be augmented with additional prepositioned ships.

Surge shipping is planned to begin within days of a decision to deploy. This response is critical in order to support an overseas military operation requiring great volumes of priority combat cargo. Most surge shipping cargo consists of unit equipment such as wheeled and tracked vehicles, non-self-deployable aircraft, and limited amounts of sustaining combat supplies and ammunition. Augmenting prepositioned shipping, surge shipping is obtained from government-controlled ships, and may include vessels from commercial sources if they are available early enough.

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<sup>1</sup>The following material has been excerpted from U.S. Office of the Chief of Naval Operations, Strategic Sealift Division, OP-42, Strategic Sealift Program Information, 16 April 1985.

EXHIBIT A-5  
TIME PHASING OF SHIPPING CATEGORIES



Source: Strategic Sealift Program Information, Office of the Chief of Naval Operations, Strategic Sealift Division, OP-42, 16 April 1985, p. 4.

Resupply shipping provides the bulk of sustaining support to deployed forces. Forces in the forward area of operations depend upon this shipping to replenish their daily consumption, and increase in-theater reserves to a 30-60 day level. Initial resupply shipping arrives after surge shipping and continues for the duration of a contingency. Resupply shipping is obtained from U.S. commercial sources and includes the re-use of the prepositioned ships and surge ships after their initial discharge in the theater of operations.

Resupply shipping also supports Navy Battle Groups operating in forward areas. Combatant ships in the battle groups carry supplies for a limited number of days and must be replenished periodically. Station ships of the Mobile Logistics Support Force "top off" the combatants; the shuttle ships replenish station ships and, when necessary, the combatants. However, there are insufficient MLSF shuttle ships to maintain a steady underway replenishment pace, and at the same time maintain a resupply chain from the U.S. This is particularly critical when consumption is high during periods of intensive operations. For this reason, the Navy's Strategic Sealift Program includes provisions for modifying a number of commercial ships as shuttle ships to sustain the battle groups for indefinite periods.

**Cargo Considerations.** Cargo size, weight, shape and amount are factors which determine most of the transportation decisions by military logisticians. The large numbers of outsize and heavy equipment, such as helicopters, and tracked and wheeled vehicles are of primary concern for rapid movement by both airlift and sealift.

The dominant characteristic of military cargo is usually volume or space as opposed to weight. This greatly affects the cargo loading capacity of ships. Cargo loading capacity is determined by the "stow factor," and is expressed as a percentage of the total cubic space occupied by the cargo. For example, vehicles have a low stow factor; one vehicle may occupy considerable square footage of deck space, but it may occupy only a fraction of the entire cube (volume) of the space where it is positioned. Homogeneous cargoes such as boxed foodstuffs, have a high stow factor since the boxes can be solidly packed into a cargo space, filling it from deck to overhead and bulkhead to bulkhead.

The net impact of stow factors on deployment of military forces is that the large number of outsize wheeled and tracked vehicles and helicopters rapidly fill the available square footage, but not the cube of ships. This generates the requirement for a greater number of ships than the cargo weight or cube alone would indicate. The loading characteristics of the four most common types of dry cargo ships are described below, in order of military utility.

Roll-On/Roll-Off (RO/RO) ships are preferred for the initial movement (prepositioned and surge) of combat equipment into developed ports. They have the distinct advantage of a fast turnaround (load and offload) when vehicles can be driven on and off under their own power. Their wide, open deck areas are especially suited for outsize cargo. However, RO/RO ships are difficult to unload offshore unless equipped with a Lift-On/Lift-Off (LO/LO) capability for over-the-side discharge to lighterage. To take advantage of their inherent ramp discharge capability, the Navy has developed a system, for use in calm seas, to allow vehicles to be driven off onto lighterage.

LASH and SEABEE barge carrying ships are well suited for carrying either unit equipment or sustaining military supplies. LASHs carry up to eighty-nine, 500-ton capacity barges which are hoisted aboard at the stern by a gantry crane. These ships are also well adapted to carry lighterage on deck. The three SEABEE ships of U.S. registry carry thirty-eight 1,000-ton capacity barges which are loaded aboard by a stern elevator. A significant advantage is that both LASH and SEABEE barges can be preloaded before the ship arrives, permitting a one day load-out and sailing.

Breakbulk ships were used routinely for deployments and resupply in WWII, Korea and Southeast Asia sealift operations. With open decks and multiple cargo holds, serviced with booms or cranes, these ships can lift most military cargoes. Although they are labor intensive and require the longest time to load and offload, they are the most versatile ship type for in-the-stream (offshore) discharge. Breakbulk ships are not commercially competitive with intermodal container (sea/land) and RO/RO operations and are being rapidly phased out of major commercial trade routes.

Containerships, which have the greatest sealift capacity of all dry cargo ships available in the U.S. flag fleet, are less compatible with military cargoes. Because of the shortage of RO/RO, barge and breakbulk ships, containerships must have the capability to carry surge cargo; i.e., initial combat equipment. Depending on the military unit, only about one quarter of Army unit equipment, because of its size, can be carried in standard commercial containers. Through the SEA SHED and flatrack programs the Navy is providing the capability to carry large military vehicles and outsize cargo that cannot be containerized (discussed later). Containerships are, however, highly efficient for delivery of homogeneous sustaining supplies, which can be containerized due to their high stow factors, and thus are more useful for the resupply phase when normal consumables comprise a larger portion of shipping needs.

**Sealift Assets.** Major contingencies which would involve the United States, such as a Soviet invasion of our NATO allies, or oil-producing countries in the Persian Gulf, would require all available U.S.-flag ships. The challenge to strategic sealift is the timely acquisition of sufficient lift capability to meet timephased material delivery requirements. The sealift assets which would be employed are shown in Exhibit A-6.

The Military Sealift Command (MSC) operates over 120 ships and craft in support of DOD peacetime shipping requirements. As of January 1985, MSC ships included 57 strategic sealift ships, which are employed in point-to-point movements and for prepositioning. The Navy owns and operates a few ships which have a required capability not available within the U.S. flag merchant fleet. MSC is pursuing a policy of operating only a minimum number of essential government-owned ships, and meets almost all DOD shipping needs through shipping agreements and commercial charters from the U.S. flag merchant marine. MSC ships are considered immediately available to provide military contingency support.

U.S. flag merchant ships are also responsive to DOD. They can be obtained under voluntary charter, through implementation of the Sealift Readiness Program (SRP), or by requisitioning. The SRP is the commitment of some carriers' ships for contingency use, under conditions short of mobilization. When determined necessary for national defense, the President may grant authority to the Secretary of Transportation to requisition needed U.S. flag shipping to support crises or war efforts.

**EXHIBIT A-6  
SHIP EMPLOYMENT**

SHIP SOURCE	PREPOSITIONED	SURGE	RESUPPLY	MLSF SUPPORT	ATTRITION
MSC	X	X	X	X	
U.S. FLAG		X	X		
RRF		X	X	X	
EUSC			X		
NATO/ALLIES			X		
OTHER NDRF					X

**Source:** Strategic Sealift Program Information, Office of Chief of Naval Operations, Strategic Sealift Division, OP-42, 16 April 1985, p. 8.

When the demand for sealift assets exceeds the availability of MSC ships and voluntary charters from U.S. flag carriers, the Ready Reserve Fleet (RRF) becomes an increasingly important source of surge shipping. The RRF is maintained by the Maritime Administration (MARAD) as a part of the National Defense Reserve Fleet (NDRF) in a five- 10- 20-day readiness status. RRF ships are activated by a Navy request to MARAD. Selected RRF ships are exercised periodically, through no-notice testing, to ensure compliance with the readiness criteria. The acquisition and maintenance of RRF ships are funded by the Navy but administered by MARAD. As of 1 January 1985, the RRF consisted of 64 ships with 11 more having been procured later that month for inclusion in the RRF after ungrade. Recent studies by the Navy indicated the need to increase the size of the RRF from the originally programmed 77 ships to 116 ships by 1991 to provide the required lift. The current RRF dry cargo ship inventory is mostly breakbulk ships phased out of commercial service. The RRF is being augmented with RO/ROs, LASHs, tankers and other ships having military use, when they are no longer economically competitive in commercial trades. The RRF does not contain any dry bulk carriers.

The remaining ships in the NDRF are commercial ships and former Navy cargo ships maintained for use in a national emergency. These ships are not considered Strategic Sealift assets but are retained as replacements for sealift ship losses or to support the national economy in wartime. MARAD maintains the NDRF ships in a state of minimum preservation at three sites on the East, Gulf and West Coasts. In addition to the RRF, the NDRF contains about 180 cargo ships of which 96 are World War II-vintage breakbulk (Victory) ships of limited utility. Some NDRF ships could be activated within 30-60 days, but would require extensive shipyard work to make them seaworthy.

Effective U.S. Controlled Fleet (EUSC) ships are considered requisitionable assets, available to the U.S. government in time of national emergency. These ships are majority-owned by U.S. business, operated under the registries of four foreign nations--Liberia, Panama, Honduras and the Bahamas--and crewed by foreign nationals. These countries, unlike most others, do not have laws which preclude or limit requisitioning. The EUSC ships number

over 400, but only 23 dry cargo ships and 57 tankers are considered useful for military purposes. Manning with U.S. citizen crews may be required in certain circumstances.

In support of a major U.S. military commitment to NATO, a 600-ship pool from NATO nations is available for U.S. use during increased readiness, preconflict periods. These ships are selected in coordination with the NATO Civil Sealift Group. Following the outbreak of a major war involving NATO, most shipping assets would become available for mutual support.

At the present time, there are about 265 U.S. flag, general cargo ships in service. The declining size of the U.S. merchant marine has closely paralleled its declining share in total U.S. trade. Overall, U.S. flag ships now carry about 5% of the commercial cargo tonnage moving in U.S. oceanborne foreign trade.<sup>1</sup>

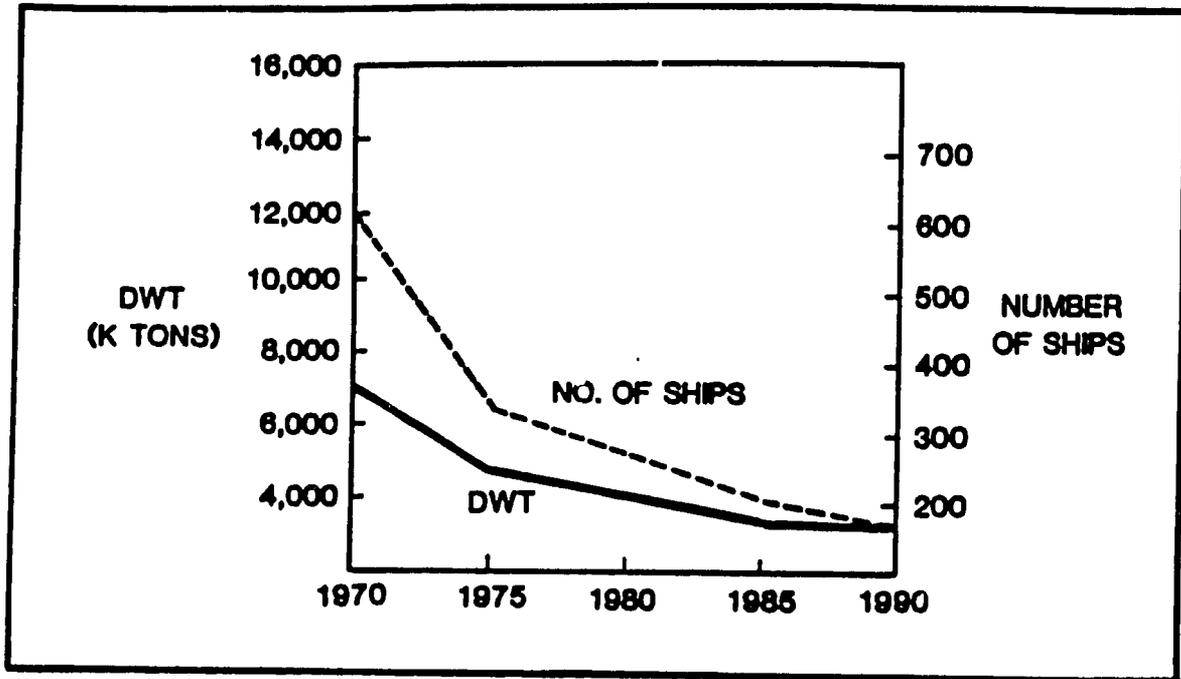
Market forces have dramatically changed the composition of the U.S. dry cargo merchant fleet over the past 20 years. Intermodal ships (sea/land container, RO/RO and barge vessels) were introduced, replacing the self-sustaining breakbulk general purpose cargo vessels. Large non-self-sustaining containerships now comprise the bulk of the U.S. dry cargo fleet. RO/RO ships are marginally competitive and their numbers are decreasing. Barge ships, which entered the fleet in the early seventies, are also marginally competitive and are being sold or scrapped as unprofitable routes are dropped. In general, the changing composition of the U.S.-flag fleet has resulted in an inadequate number of dry cargo ships of military utility. Overall lift capacity is expected to bottom out as shown in Exhibit A-7.

The global character of modern warfare and multi-theatre contingency planning has expanded the requirements for military sealift to counter the

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<sup>1</sup>Includes government-sponsored commercial cargo; excludes DOD cargo and U.S.-Canada trans-Great Lakes shipments. In 1983 (latest available MARAD data for full calendar year), U.S.-flag shares by type of service were: Liner, 24.5%; Tanker, 7.0%; Non-Liner (dry bulk plus non-liner general cargo services), 1.5%; overall weighted average, 5.8%. The corresponding figures for the first 9 months of CY-84 (not adjusted for seasonality) were: Liner, 21.8%; Tanker, 4.0%; Non-Liner, 1.6%; overall weighted average, 4.5%.

EXHIBIT A-7  
TRENDS IN U.S. FLAG FLEET MILITARILY USEFUL DRY CARGO SHIPS



Source: Strategic Sealift Program Information, Office of Chief of Naval Operations, Strategic Sealift Division, OP-42 April 1985, p. 13.

increased threat. At the same time, the lift capacity of the U.S. commercial fleet has declined to the point where it no longer can fully meet the time-phased deployment requirements. Although DOD is highly dependent on commercial shipping for sealift in a contingency, the declining lift capacity of the U.S. merchant marine has forced DOD to initiate a number of programs to offset this decline and meet sealift requirements. Among these are an increase in the size of the RRF and specific Navy programs to improve the military utility of the highly specialized commercial containerships.

**Sealift Enhancement Features.** One of the programs to improve the military utility and to provide more flexible employment of merchant ships in contingency operations is the Sealift Enhancement Features (SEF) program. These features are selective equipment for, and modifications to, commercial cargo ships. The objective of SEF is to improve functional capabilities of merchant ships so that they can perform military missions. SEF adapt these ships to perform in two mission areas: Point-to-Point Sealift and Fleet Logistic Support.

Point-to-Point Sealift provides for the time-phased delivery of unit equipment and sustaining supplies to military forces, worldwide. Prepositioned shipping as well as surge and resupply shipping are used in this mission. The required capabilities are to load, transport and offload the full range of military cargo through ports or over the beach. SEF for merchant ships employed in a point-to-point sealift role include such items as SEA SHEDs and flatracks to increase military cargo carrying capability, damage control features to increase survivability, and communications equipment to facilitate Navy coordination and control of merchant ships.

Fleet Logistics Support missions are more specialized, and include underway replenishment, consolidation and delivery to the Mobile Logistic Support Force (MLSF), resupply of combatant ships, and bunkering of merchant ships on long transits. Underway replenishment requires the capability to load, transport and deliver fuel, ammunition and dry cargo/stores to the MLSF ships or combatants. Merchant ships employed in consolidation operations use the transfer rigs passed from MLSF ships. Delivery operations employ transfer rigs installed on commercial ships. The Fleet Logistics Support SEF for consolidation and

delivery operations include systems consisting of sliding padeyes, hardpoints for transfer rigs, winches, below-deck strike-up equipments for movement of dry cargo to transfer stations, communication equipment and survivability enhancements.

The Navy's SEF program has been developed and implemented with assistance from MARAD. Sealift Enhancement Features are complementary to National Defense Features on new construction ships, for which MARAD has primary responsibility.