



Directorate of  
Intelligence

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# The Changing Patterns of Third World Warship Purchases

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An Intelligence Assessment

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GI 85-10012  
January 1985

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**Errata**

Notice to recipients of Intelligence Assessment: *The Changing Patterns of Third World Warship Purchases*, GI 85-10012, [Redacted]  
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Please substitute the attached revisions of appendixes A and B for the original versions. (The regional totals are revised in appendix A and are newly provided in appendix B.)

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## Appendix A

## Warship Inventories of Third World Countries, 1984

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total		Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Latin America</b>	<b>104</b>	<b>48</b>	<b>43</b>	<b>14</b>	<b>209</b>	<b>Persian Gulf</b>	<b>12</b>	<b>67</b>	<b>0</b>	<b>21</b>	<b>100</b>
Argentina	17	0	5	0	22	Bahrain	0	2	0	0	2
Brazil	19	0	8	0	27	Iran	10	11	0	5	26
Chile	15	2	5	0	22	Iraq	0	12	0	8	20
Colombia	7	0	4	0	11	Kuwait	0	8	0	0	8
Cuba	2	34	4	12	52	Oman	0	5	0	0	5
Ecuador	8	3	2	0	13	Qatar	0	3	0	0	3
Mexico	9	0	0	0	9	Saudi Arabia	2	10	0	4	16
Nicaragua	0	0	0	2	2	United Arab Emirates	0	6	0	0	6
Peru	16	6	12	0	34	North Yemen	0	2	0	0	2
Uruguay	3	0	0	0	3	South Yemen	0	8	0	4	12
Venezuela	8	3	3	0	14	<b>South Asia</b>	<b>44</b>	<b>22</b>	<b>14</b>	<b>23</b>	<b>103</b>
<b>Sub-Saharan Africa</b>	<b>5</b>	<b>28</b>	<b>3</b>	<b>9</b>	<b>45</b>	Bangladesh	3	2	0	0	5
Angola	0	4	0	0	4	India	33	16	8	17	74
Cameroon	0	1	0	0	1	Pakistan	8	4	6	6	24
Ethiopia	0	3	0	0	3	<b>Southeast Asia</b>	<b>45</b>	<b>38</b>	<b>3</b>	<b>22</b>	<b>108</b>
Gabon	0	1	0	0	1	Brunei	0	3	0	0	3
Ivory Coast	0	2	0	0	2	Burma	2	0	0	0	2
Nigeria	3	6	0	1	10	Indonesia	14	4	3	4	25
Somalia	0	2	0	0	2	Malaysia	4	8	0	0	12
South Africa	2	9	3	8	22	Philippines	17	3	0	0	20
<b>North Africa and Levant</b>	<b>29</b>	<b>140</b>	<b>29</b>	<b>22</b>	<b>220</b>	Singapore	0	6	0	2	8
Algeria	6	18	2	2	28	Thailand	6	6	0	10	22
Egypt	10	28	18	12	68	Vietnam	2	8	0	6	16
Israel	0	30	3	0	33	<b>East Asia</b>	<b>56</b>	<b>69</b>	<b>21</b>	<b>22</b>	<b>168</b>
Libya	9	37	6	4	56	North Korea	4	22	19	0	45
Morocco	1	4	0	0	5	South Korea	22	9	0	8	39
Syria	2	20	0	4	26	Taiwan	30	38	2	14	84
Tunisia	1	3	0	0	4						

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## Appendix B

**Warship Purchases by Third World Countries, 1975-84**

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total		Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Latin America</b>	<b>49</b>	<b>21</b>	<b>12</b>	<b>4</b>	<b>86</b>	<b>Persian Gulf</b>	<b>19</b>	<b>43</b>	<b>0</b>	<b>7</b>	<b>69</b>
Argentina	16	0	4	0	20	Bahrain	0	2	0	0	2
Brazil	0	0	2	0	2	Iran	1	0	0	0	1
Chile	2	2	2	0	6	Iraq	10	0	0	2	12
Colombia	5	0	0	0	5	Kuwait	0	8	0	0	8
Cuba	2	13	4	2	21	Oman	0	4	0	0	4
Ecuador	8	0	0	0	8	Qatar	0	3	0	0	3
Mexico	2	0	0	0	2	Saudi Arabia	8	10	0	4	22
Nicaragua	0	0	0	2	2	United Arab Emirates	0	6	0	0	6
Peru	8	6	0	0	14	North Yemen	0	2	0	0	2
Venezuela	6	0	0	0	6	South Yemen	0	8	0	1	9
<b>Sub-Saharan Africa</b>	<b>3</b>	<b>29</b>	<b>0</b>	<b>1</b>	<b>33</b>	<b>South Asia</b>	<b>20</b>	<b>16</b>	<b>11</b>	<b>9</b>	<b>56</b>
Angola	0	4	0	0	4	Bangladesh	3	4	0	0	7
Cameroon	0	1	0	0	1	India	11	8	8	9	36
Ethiopia	0	3	0	0	3	Pakistan	6	4	3	0	13
Gabon	0	1	0	0	1	<b>Southeast Asia</b>	<b>27</b>	<b>34</b>	<b>2</b>	<b>12</b>	<b>75</b>
Ivory Coast	0	2	0	0	2	Brunei	0	3	0	0	3
Nigeria	3	6	0	1	10	Malaysia	3	4	0	4	11
Somalia	0	2	0	0	2	Indonesia	7	16	2	2	27
South Africa	0	10	0	0	10	Philippines	13	0	0	0	13
<b>North Africa and Levant</b>	<b>16</b>	<b>46</b>	<b>6</b>	<b>6</b>	<b>74</b>	Thailand	2	3	0	0	5
Algeria	10	9	2	2	23	Vietnam	2	8	0	6	16
Egypt	4	12	4	0	20	<b>East Asia</b>	<b>15</b>	<b>4</b>	<b>11</b>	<b>0</b>	<b>30</b>
Israel	0	12	0	0	12	North Korea	0	4	11	0	15
Libya	1	0	0	4	5	South Korea	10	0	0	0	10
Morocco	1	4	0	0	5	Taiwan	5	0	0	0	5
Syria	0	6	0	0	6						
Tunisia	0	3	0	0	3						

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## Appendix A

## Warship Inventories of Third World Countries, 1984

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total		Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Latin America</b>	<b>104</b>	<b>48</b>	<b>43</b>	<b>14</b>	<b>209</b>	<b>Persian Gulf</b>	<b>12</b>	<b>67</b>	<b>0</b>	<b>21</b>	<b>100</b>
Argentina	17	0	5	0	22	Bahrain	0	2	0	0	2
Brazil	19	0	8	0	27	Iran	10	11	0	5	26
Chile	15	2	5	0	22	Iraq	0	12	0	8	20
Colombia	7	0	4	0	11	Kuwait	0	8	0	0	8
Cuba	2	34	4	12	52	Oman	0	5	0	0	5
Ecuador	8	3	2	0	13	Qatar	0	3	0	0	3
Mexico	9	0	0	0	9	Saudi Arabia	2	10	0	4	16
Nicaragua	0	0	0	2	2	United Arab Emirates	0	6	0	0	6
Peru	16	6	12	0	34	North Yemen	0	2	0	0	2
Uruguay	3	0	0	0	3	South Yemen	0	8	0	4	12
Venezuela	8	3	3	0	14	<b>South Asia</b>	<b>44</b>	<b>22</b>	<b>14</b>	<b>23</b>	<b>103</b>
<b>Sub-Saharan Africa</b>	<b>5</b>	<b>28</b>	<b>3</b>	<b>9</b>	<b>45</b>	Bangladesh	3	2	0	0	5
Angola	0	4	0	0	4	India	33	16	8	17	74
Cameroon	0	1	0	0	1	Pakistan	8	4	6	6	24
Ethiopia	0	3	0	0	3	<b>Southeast Asia</b>	<b>45</b>	<b>38</b>	<b>3</b>	<b>22</b>	<b>108</b>
Gabon	0	1	0	0	1	Brunei	0	3	0	0	3
Ivory Coast	0	2	0	0	2	Burma	2	0	0	0	2
Nigeria	3	6	0	1	10	Indonesia	14	4	3	4	25
Somalia	0	2	0	0	2	Malaysia	4	8	0	0	12
South Africa	2	9	3	8	22	Philippines	17	3	0	0	20
<b>North Africa and Levant</b>	<b>29</b>	<b>140</b>	<b>29</b>	<b>22</b>	<b>220</b>	Singapore	0	6	0	2	8
Algeria	6	18	2	2	28	Thailand	6	6	0	10	22
Egypt	10	28	18	12	68	Vietnam	2	8	0	6	16
Israel	0	30	3	0	33	<b>East Asia</b>	<b>56</b>	<b>69</b>	<b>21</b>	<b>22</b>	<b>168</b>
Libya	9	37	6	4	56	North Korea	4	22	19	0	45
Morocco	1	4	0	0	5	South Korea	22	9	0	8	39
Syria	2	20	0	4	26	Taiwan	30	38	2	14	84
Tunisia	1	3	0	0	4						

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## Appendix B

## Warship Purchases by Third World Countries, 1975-84

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total		Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Latin America</b>	<b>49</b>	<b>21</b>	<b>12</b>	<b>4</b>	<b>86</b>	<b>Persian Gulf</b>	<b>19</b>	<b>43</b>	<b>0</b>	<b>7</b>	<b>69</b>
Argentina	16	0	4	0	20	Bahrain	0	2	0	0	2
Brazil	0	0	2	0	2	Iran	1	0	0	0	1
Chile	2	2	2	0	6	Iraq	10	0	0	2	12
Colombia	5	0	0	0	5	Kuwait	0	8	0	0	8
Cuba	2	13	4	2	21	Oman	0	4	0	0	4
Ecuador	8	0	0	0	8	Qatar	0	3	0	0	3
Mexico	2	0	0	0	2	Saudi Arabia	8	10	0	4	22
Nicaragua	0	0	0	2	2	United Arab Emirates	0	6	0	0	6
Peru	8	6	0	0	14	North Yemen	0	2	0	0	2
Venezuela	6	0	0	0	6	South Yemen	0	8	0	1	9
<b>Sub-Saharan Africa</b>	<b>3</b>	<b>29</b>	<b>0</b>	<b>1</b>	<b>33</b>	<b>South Asia</b>	<b>20</b>	<b>16</b>	<b>11</b>	<b>9</b>	<b>56</b>
Angola	0	4	0	0	4	Bangladesh	3	4	0	0	7
Cameroon	0	1	0	0	1	India	11	8	8	9	36
Ethiopia	0	3	0	0	3	Pakistan	6	4	3	0	13
Gabon	0	1	0	0	1	<b>Southeast Asia</b>	<b>27</b>	<b>34</b>	<b>2</b>	<b>12</b>	<b>75</b>
Ivory Coast	0	2	0	0	2	Brunei	0	3	0	0	3
Nigeria	3	6	0	1	10	Malaysia	3	4	0	4	11
Somalia	0	2	0	0	2	Indonesia	7	16	2	2	27
South Africa	0	10	0	0	10	Philippines	13	0	0	0	13
<b>North Africa and Levant</b>	<b>16</b>	<b>46</b>	<b>6</b>	<b>6</b>	<b>74</b>	Thailand	2	3	0	0	5
Algeria	10	9	2	2	23	Vietnam	2	8	0	6	16
Egypt	4	12	4	0	20	<b>East Asia</b>	<b>15</b>	<b>4</b>	<b>11</b>	<b>0</b>	<b>30</b>
Israel	0	12	0	0	12	North Korea	0	4	11	0	15
Libya	1	0	0	4	5	South Korea	10	0	0	0	10
Morocco	1	4	0	0	5	Taiwan	5	0	0	0	5
Syria	0	6	0	0	6						
Tunisia	0	3	0	0	3						

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# **The Changing Patterns of Third World Warship Purchases**

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**An Intelligence Assessment**

This paper was prepared by [redacted]  
Office of Global Issues. Comments and queries are  
welcome and may be directed to the Chief,  
International Security Issues Division, OGI, on

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*GI 85-10012  
January 1985*

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### The Changing Patterns of Third World Warship Purchases

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#### Key Judgments

*Information available  
as of 5 October 1984  
was used in this report.*

Third World countries are on the verge of completing a vast expansion of their warship inventories. In the past 10 years, their navies have expanded by more than 70 percent to almost 1,000 vessels. The growth in numbers will slow dramatically in the next 10 years as these countries limit purchases to about 300 warships, largely replacements for older ships. This slowdown will represent a 30-percent decline in the size of the Third World warship market.

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The slowdown will have a significant impact on the producers of naval vessels and equipment:

- The Soviets' share of the market will increase although their sales will remain concentrated in a handful of countries. In the last decade Moscow exported more than 100 warships—more than any single supplier.
- Third World suppliers will gain a slightly larger share of the market by offering simple, inexpensive ships to developing navies.
- West European yards will be the big losers in this shrinking market as high wages erode their competitiveness. West European yards, however, should be able to dominate submarine and mine warfare ship sales. West European equipment manufacturers will also be helped by a strong demand for sensor, weapon, and propulsion systems for new and used ships.

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The implications of the future Third World warship market for the United States are mixed. On the negative side, the desire of most Allied governments to maintain a national shipbuilding capacity in an era of declining foreign sales will force them to pay higher prices for indigenously produced warships, which will place an additional strain on already limited defense budgets. On the positive side, we expect the demand for US propulsion, weapon, and sensor systems and naval training to remain strong over the next 10 years. Gains in these areas will help sustain US influence in Third World navies even though the United States will sell few if any warships to Third World countries during the next decade.

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**The Changing Patterns of  
Third World Warship  
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**Scope Note**

This assessment reviews the Third World demand for warships during the last 10 years; projects sales into the next decade; and assesses their significance for Western, Third World, and Communist shipbuilders and naval equipment manufacturers.

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Assessments of the markets for armored vehicles, military helicopters, and tactical missiles are planned. This line of research complements our earlier work on the arms sales prospects of France, Italy, the United Kingdom, West Germany, and other West European and Third World suppliers.

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### *The Structure of the Market*

*The Third World warship market is serviced by shipbuilders, equipment manufacturers, and navies disposing of surplus ships. Shipbuilding is a labor-intensive, heavy construction enterprise characterized by high unit costs. The first frigate in a class typically costs \$450 million, making the fabrication of prototypes prohibitively expensive for most countries. Economies of scale usually begin with the third vessel, after which labor and materials for the hull and superstructure account for about 30 percent of the value of a ship.* [ ]

*West European shipbuilders depend heavily on foreign sales to complement domestic orders. US and Soviet yards are far less dependent on foreign sales because of continuing large orders from their respective navies. Moreover, the warships they design are too sophisticated and expensive for the export market. Shipyards in the Third World have lower labor costs as their principal advantage, but rely heavily on licensing agreements and technical assistance from West European shipbuilders. Only India, Brazil, and South Korea have begun to produce locally designed major warships, while Israel, Singapore, and South Korea have manufactured missile boats for export.* [ ]

*Most of the sensor, propulsion, and weapons systems that make up 70 percent of the value of a modern naval combatant are produced by a small number of Western naval equipment manufacturers. Few of these firms are owned and operated by shipyards, and many produce similar systems for aircraft and land vehicles. Some have achieved de facto monopolies—Oto Melara and Bofors in naval guns, General Electric in gas turbine engines, Motor Turbine Union in diesel engines, and Aerospatiale and McDonnell-Douglas in antiship missiles. In addition to providing equipment for new warships, such firms service a steady number of refits of older ships. A warship usually undergoes at least four major refits in its normal lifespan, after which it may be purchased by a Third World country and modernized several more times.* [ ]

*Western Europe and the United States have been the major sources of used warships. The rapid expansion of Allied navies during the Second World War and in the immediate postwar years laid the basis for a large used-warship market for emerging Third World navies 30 years later. The low and deliberately concessionary prices of these ships—less than \$500,000 was the price of a US World War II destroyer—increased demand and inflated the size of the potential warship market.* [ ]

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## The Changing Patterns of Third World Warship Purchases

### Introduction

Third World<sup>1</sup> countries are on the verge of completing a vast expansion of their warship inventories. In the past 10 years, their navies have expanded by 70 percent to almost 1,000 vessels.<sup>2</sup> The completion of this period of growth will usher in a decade of consolidation in which Third World navies will grow at a much slower pace. This more gradual expansion of Third World warship inventories has significant implications for the financial and economic well-being of shipbuilders and naval equipment manufacturers in developed and less developed countries.

### The Decade of Expansion, 1975-84

We estimate that Third World countries purchased more than 400 warships<sup>3</sup> in the last 10 years, spending over \$10 billion on them. The average price of a new frigate or submarine ran well over \$100 million, while missile boats and mine warfare ships each cost about \$10 million and \$40 million, respectively. Almost two-thirds of these vessels were newly constructed, and the remainder were surplus ships retired from the navies of developed countries.

**Missile Boats.** Third World purchases were heavily influenced by the availability of modern missile boats—surface combatants displacing less than 500 tons and armed with antiship missiles such as the French Exocet, US Harpoon, and Soviet Styx. Attache reporting indicates that countries like Peru came to regard these fast and powerful combatants as the most valuable ships in their fleets. Moreover, low

<sup>1</sup> For the purposes of this assessment, the term "Third World" includes all members of the Nonaligned Movement and the Group of 77, except Yugoslavia because of its European location. It also includes Israel, South Africa, Taiwan, and Thailand because of their importance in regional military balances. Not included are all members of NATO and the Warsaw Pact, neutral and nonaligned European countries—Albania, Austria, Finland, Ireland, Switzerland, and Sweden—as well as Australia, China, Japan, and New Zealand.

<sup>2</sup> See appendix A for details on warship inventories of Third World countries and appendix B for purchases by country, 1975-84.

<sup>3</sup> Other naval vessels not listed in this report such as patrol boats, landing craft, and fisheries vessels—were also purchased. They are not included in this assessment because they represent a less important economic market and military threat.

**Table 1**  
**Third World Warship Purchases**  
**by Region, 1975-84**

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>149</b>	<b>193</b>	<b>42</b>	<b>39</b>	<b>423</b>
Latin America	49	21	12	4	86
Sub-Saharan Africa	3	29	0	1	33
North Africa and Levant	16	46	6	6	74
Persian Gulf	19	43	0	7	69
South Asia	20	16	11	9	56
Southeast Asia	27	34	2	12	75
East Asia	15	4	11	0	30

operating costs and small crew requirements made missile boats attractive purchases. About 200 were sold to 34 countries, most of them for use in the Persian Gulf, Mediterranean Sea, or Southeast Asian waters (table 1), for example:

- Saudi Arabia bought 10 boats armed with Harpoon missiles from the United States in 1976.
- Egypt ordered six missile boats armed with Otomat antiship missiles from Britain in 1977.
- Vietnam acquired eight Osa-II-class boats armed with SSN-2C antiship missiles from the Soviet Union in 1979-81.

**Major Warships.** The demand for major warships—corvettes, frigates, and other surface combatants displacing more than 500 tons—was also strong. Most sales supplied replacements for older ships rather than expanding existing fleets. Several South American

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countries—Peru, Venezuela, Colombia, and Argentina—embarked on ambitious naval modernization programs, replacing aging World War II-era ex-US destroyers with modern frigates of West European design. At the same time, three Asian navies—South Korean, Taiwanese, and Philippine—received 25 surplus US warships. Perhaps the most publicized Third World major warship purchases were those made by oil-exporting countries aspiring to build blue-water navies capable of performing more than coastal operations, for example:

- in 1980 as part of a naval package worth \$3.4 billion.
- Iraq ordered six frigates from Italy in 1981 for \$1.8 billion.
- Nigeria bought two corvettes from Britain and one frigate from West Germany in 1975-77 for a total of \$281 million.

**Submarines.** Sales of diesel-electric submarines were more limited than those of major warships, in terms of both numbers and recipients. South American countries were the biggest buyers—Argentina, Brazil, and Chile all ordered West German submarines. Another notable buyer was India which purchased a total of eight, four of them from the Soviet Union. Indonesia was the only country in Southeast Asia to purchase submarines, and none were sold to Persian Gulf nations.

**Mine Warfare Ships.** Minehunters and minesweepers were in less demand, with the total number of these ships in Third World inventories actually declining—a result of the low priority assigned to mine warfare ships. For example,

The use of US helicopters to neutralize mines in Vietnamese and Egyptian waters in the early 1970s probably contributed to low sales by spreading the belief among Third World military planners that only the great powers can clear modern magnetic and acoustic mines.

#### Changing Market Forces

Changes in the market forces that led to this surge in warship purchases already are pointing to a decline in

#### Biggest Purchasers

*Six Third World countries that purchased 20 or more warships accounted for more than one-third of the market:*

- 
- Indonesia bought 27 ships from an assortment of suppliers including West Germany, the Netherlands, South Korea, and Yugoslavia.
- 
- Algeria purchased 23 warships, the majority of which came from the USSR, which also loaned Algiers two submarines.
- Argentina ordered 16 surface combatants and four submarines from France, West Germany, and the United States.

*Another three countries—Cuba, North Korea, and Vietnam—signed agreements for 15 or more vessels, while 36 other Third World countries each bought fewer than 15 warships (see figure 1).*

the number of ships that will be sold to Third World countries during the next decade:

- **Financial ability.** Naval expenditures rose sharply during the 1970s and early 1980s on the strength of rising oil revenues and easy credit.<sup>4</sup> Declining oil revenues and tight credit since then have led to a period of austerity that is reducing Third World naval spending. According to attache and Embassy reports, for example, Chile has declined a British offer to sell the aircraft carrier HMS Hermes

<sup>4</sup> Naval expenditures, however, remained far behind those of other services. We estimate that Third World air forces spent \$50 billion on jet combat aircraft over roughly the same period.

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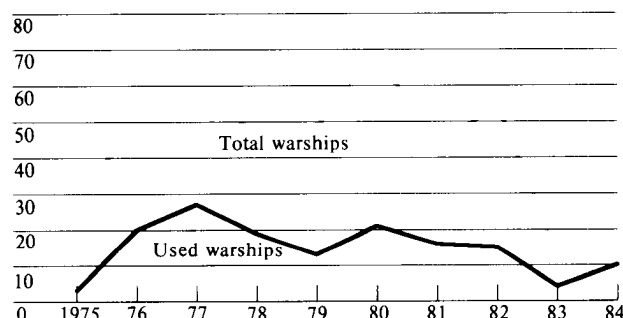
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because of funding problems, while Iraq has deferred payment on and acceptance of six warships purchased from Italy in 1981. In our judgment, current financial problems facing Third World countries will have a greater effect on naval procurement plans than those of the other services because of the limited contributions warships can make to fighting insurgencies and territorial incursions by neighboring states. In the Philippines, for instance, the lack of an external threat and a growing insurgency have given the Army and Air Force priority in the defense budget, according to a defense attache report.

- **The supply of surplus ships.** More than 130 used warships—mostly ships retired from Dutch, British, Soviet, and US Navies—entered the market in 1975-84 (figure 1). Most were sold at bargain prices. The United Kingdom, for example, sold three Tribal-class frigates to Indonesia for \$45 million earlier this year, and the United States sold a Gearing-class destroyer to Pakistan for less than \$1 million in 1983. We estimate that the surplus ship market will decline by 30 percent to fewer than 100 ships in the next 10 years. According to US Navy officials, the United States no longer has large numbers of World War II and Korean war warships ready for disposal. Commitments to a 600-ship navy probably will preclude the early retirement of many vessels. We estimate that West European navies will retire about 90 major warships, 40 submarines, and 80 mine warfare vessels in the next 10 years. Most will be too expensive to modernize and will be scrapped, but we estimate that about one-third of these ships will be sold to the Third World.

- **Expanding territorial claims.** During the past decade, many Third World countries made overlapping and expansionist claims to territorial waters and oceanic economic zones. These claims and the ongoing Law of the Sea Conference provided ample justification for navies looking to expand their missions and inventories. The claims now seem to have reached their limit, and multilateral negotiations are at a standstill, changing the political environment in which Third World navies rapidly expanded.

**Figure 1**  
**Third World Warship**  
**Purchases, 1975-84**



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- **Modernization cycles.** Naval modernization programs in many Third World countries are now nearing completion, giving way to a natural pause in new orders. With equipment replacement cycles at a low ebb, Third World countries would not be placing as many new orders as they did in the previous 10 years even if they did not face restrictive financial considerations. The next wave of modernization programs will not occur until the mid-1990s.

#### The Decade Ahead

On the basis of these trends,

we believe Third World countries will be in the market for about 300 warships over the next decade, down 30 percent from the 400-ship level of the last 10 years (figure 2 and table 2).

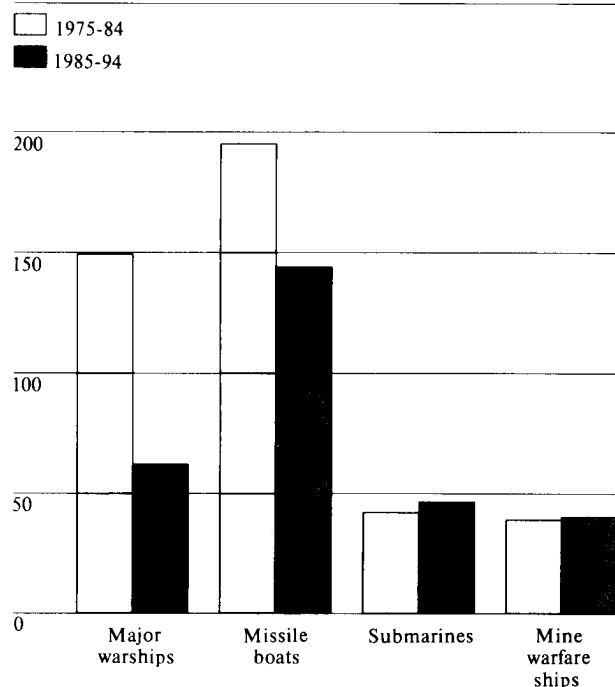
we assumed they would replace warships on a 1-for-1 basis at the end of their normal lifetimes—about 20 years for missile boats and 45 years for major warships, submarines, and mine warfare ships. Although our estimates of Third World warship purchases in the later years of the decade are necessarily speculative, we believe that our projection represents a best case scenario for the

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**Figure 2**  
**Third World Warship**  
**Markets, 1975-84 and 1985-94**



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future of the market.<sup>5</sup> In this scenario, Third World naval inventories will grow more slowly over the next 10 years than during the previous decade (figure 3).

**Major Warships.** Frigate and corvette purchases by Third World countries will probably decline by more than 50 percent to about 60 for the 1985-94 period. Only India and Taiwan plan to purchase 10 or more major surface combatants, although financial problems could limit actual purchases. A small number of other countries, including Israel and Singapore, plan to complement their largely missile-boat navies with small corvettes capable of carrying helicopters, which will be used to provide targeting information for long-range antiship missiles.

<sup>5</sup> See appendix C for variables that could reduce this projection, appendix D for details on anticipated purchases by country, and appendix E for anticipated construction by Third World countries.

**Table 2**  
**Anticipated Third World Warship Purchases**  
**by Region, 1985-94<sup>a</sup>**

	Major Warships	Missile Boats	Subma-rines	Mine Warfare Ships	Total
<b>Total</b>	<b>62</b>	<b>144</b>	<b>49</b>	<b>45</b>	<b>300</b>
Latin America	7	29	6	4	46
Sub-Saharan Africa	0	16	0	0	16
North Africa and Levant	15	42	10	8	75
Persian Gulf	2	16	2	13	33
South Asia	10	30	8	8	56
Southeast Asia	13	11	11	12	47
East Asia	15	0	12	0	27

<sup>a</sup> Includes warships to be built under license.

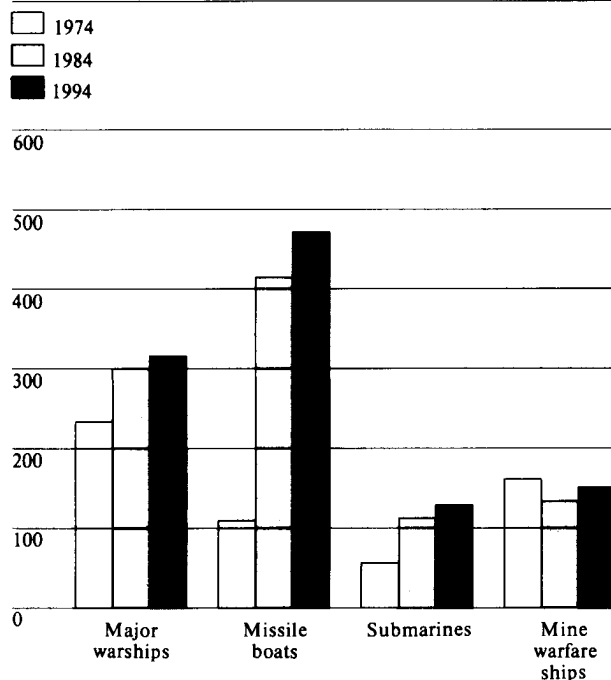
**Missile Boats.** Third World navies will probably buy about 150 missile boats, largely as replacements for those acquired in the 1960s. Many will be Soviet in origin; Algeria, Cuba, Egypt, Syria, and India will be the biggest markets. Even so, the total number of missile boats purchased in the next decade will decline by about 25 percent compared with purchases in the previous 10 years. Because they are the least expensive warships available, Third World demand already has been saturated and Third World navies are planning to graduate to larger vessels.

**Submarines.** Sales of these warships will probably approach 50 units, estimated largely on the basis of planned purchases by countries such as Indonesia, Malaysia, and Thailand. Vietnam will probably follow with its first submarine acquisition. Algeria, Egypt, India, and Israel will also be looking for submarines as replacements for their aging inventories.

We believe there is also a slight chance that one or more Third World countries will buy nuclear-powered submarines in the next 10 years. Prestige, plans for long-range submarine operations, and the desire to eventually possess a sea-based nuclear deterrent are

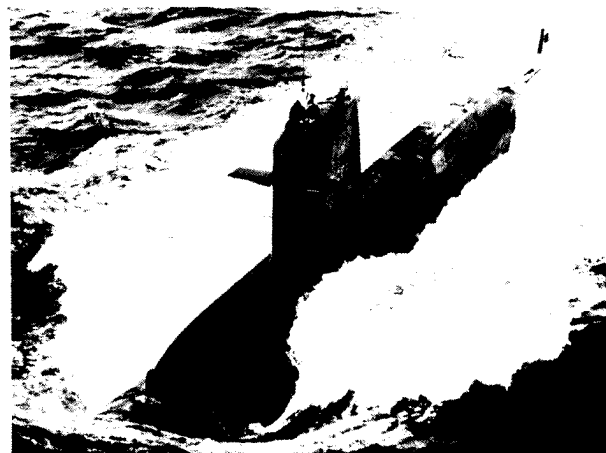
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**Figure 3**  
**Third World Navies,**  
**1974-1994**



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motivations for what would probably be a very expensive purchase. France and the USSR are the most likely suppliers of these warships. A recent French export catalogue contains an entry for the nuclear-powered Rubis-class attack submarine, and an attaché report speculates that France may already have offered the ship to Third World countries in order to reduce unit production costs for its own Navy.



**Figure 4.** French Rubis-class nuclear-powered attack submarine as pictured in recent French arms export catalog.

French Defence Equipment

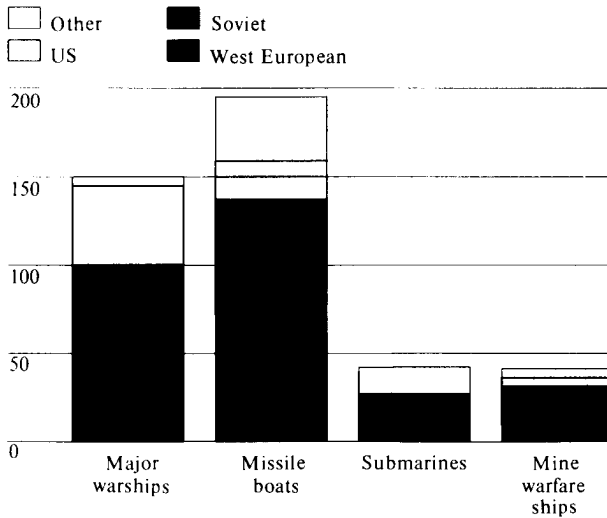
**Mine Warfare Ships.** We anticipate that about 40 minehunters and minesweepers will be sold throughout the Third World, mostly as replacements for aging British- and Soviet-made vessels. We believe that the demand for mine warfare ships could increase further as a result of the recent use of offensive mining in regional conflicts. Minings in Nicaraguan coastal waters and the Red Sea and Iranian threats to mine the Persian Gulf have pointed to the effective use of sea mines as a harassment tactic. West European countries—the Netherlands, the United Kingdom, France, and Italy—took advantage of the Red Sea crisis to send mine warfare ships to that area, in part to demonstrate their capabilities to potential customers throughout the world. Efforts by the United States to rebuild its oceanic and coastal mine warfare forces could further stimulate the market.

#### Outlook for Suppliers

Third World warship purchases in the next decade will favor Third World and Communist suppliers marketing warships with limited capabilities and low price tags. West European shipyards will join their US counterparts as passive spectators except in the sale of minesweepers and submarines. Western equipment manufacturers will make out better, servicing

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**Figure 5**  
**Third World Warship**  
**Purchases by Supplier,**  
**1975-84**

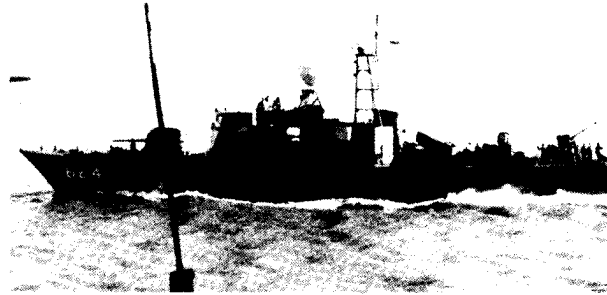


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refits and upgrades of Third World warships and outfitting new ships [redacted] the shipbuilding industry, like other heavy industries, will become increasingly concentrated in countries with lower wages, leaving a small and specialized national capacity in the developed countries of the West. [redacted]

**Third World Suppliers.** The established Third World warship manufacturers—Brazil, India, Israel, South Korea, and Singapore—will play a larger role in the international warship market than we foresee. In the last decade they were limited to selling missile boats designed in the West (figure 5). We anticipate that they will broaden their offerings to include small corvettes and frigates with simple and low-cost designs. [redacted]

[redacted] for example, the Niteroi-class corvette is a first-rate design with good weapons integration. Several Third World warship designs—the South Korean Ulsan, the proposed Israeli Saar 5, and the new Brazilian corvette—will probably be popular with many navies wanting to move to warships larger than



**Figure 6.** Indonesian missile boat built in South Korea [redacted] Naval Forces

missile boats (table 3). These ships combine limited manning requirements with the high degree of fire-power of missile boats. The Israeli and Brazilian designs also carry helicopters for beyond-the-horizon targeting of long-range antiship missiles. [redacted]

Some Third World suppliers will be increasing their export efforts as financial problems force them to sell ships under construction for their own navies. [redacted]

Financial or operational reasons could also force these countries to sell part of their current inventories. Argentina has announced already that it will sell part of its Navy as well as warships being constructed under West German license and use the proceeds to reduce the Navy's foreign debt. According to press reports, two British-designed Type 42 destroyers are at the top of the disposal list because the Argentines lack spare parts to keep them running. Buenos Aires recently received from the German builder of its two

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**Table 3**  
**Frigates and Corvettes Available to**  
**Third World Countries**

Country of Origin	Class	Displacement (metric tons)	Speed (knots)	Range (nm)	Guns Number/Caliber (mm)	Missiles SAMs SSMs	Heli-copters	Propulsion	Number in Crew	Number Sold	Price (million US \$)
	E-71	2,283	29	6,000	1/100	• • •	•	Gas turbine and diesel	160	••• a	85—1984
	NA	1,900	29	4,000	1/115 2/40	• •	•	Gas turbine and diesel	120	••• b	NA
	Jianghu	2,000	NA	4,000	2/100 12/37			Diesel	195	2	NA
	F2000	2,610	30	8,000	1/100 4/40	• • •	•	Diesel	179	4	NA
	MEK0360	3,600	30	6,500	1/12 8/40	• • •	•	Gas turbine	198	6	167—1978
	FS1500	1,850	27	7,000	1/76 4/30	• • •	•	Diesel	90	6	63—1980
	SAAR 5	1,000	42	4,500	2/30 1/CIWS	• •	•	Gas turbine and diesel	45	••• b	250—1984
	Lupo	2,500	35	3,550	1/127 4/40	• • •	•	Gas turbine and diesel	185	16	85—1975
	Maestrate	3,040	32	6,000	1/127 4/40	• • •	•	Gas turbine and diesel	232	••• a	NA
	M	2,650	28	4,000	1/76 1/CIWS	• • •	•	Gas turbine and diesel	80	••• a	NA
	Ulsan	1,940	35	NA	2/76 8/30	•		Gas turbine and diesel	123	••• a	135—1984
	F 30	1,480	26	4,000	1/76 2/40 1/CIWS	• •		Diesel	116	2	133—1983
	Koni	1,900	27	1,800	3/76 4/30	•		Gas turbine and diesel	110	4	43—1983
	Nanuchka II	770	32	2,500	2/57	• •		Diesel	70	7	20—1983
	Petya II	1,100	35	4,000	4/76			Gas turbine and diesel	98	16	18—1983
	Type 22	2,700	30	4,500	1/115 4/30 2/20	• • •	•	Gas turbine	290	•• a	170—1984
	Type 23	3,000	28	7,000	1/115 2/CIWS	• • •	•	Gas turbine and diesel	160	••• b	130—1984

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**Table 3**  
**Frigates and Corvettes Available to**  
**Third World Countries (continued)**

Country of Origin	Class	Displacement (metric tons)	Speed (knots)	Range (nm)	Guns Number/Caliber (mm)	Missiles SAMs SSMs	Helicopters	Propulsion	Number in Crew	Number Sold	Price (million US \$)
United States	FFG-7	3,585	29	4,500	1/76 1/CIWS	• • •	•	Gas turbine	185	••• <sup>a</sup>	300—1984
	Thai	890	26	3,000	1/76 2/40	• •		Diesel	87	2	72—1983
	Commercial export design	1,715	32	5,000	1/76 1/CIWS	• • •	•	Gas turbine and diesel	78	•• <sup>a</sup>	NA

<sup>a</sup> Offered.

<sup>b</sup> Design stage.

<sup>c</sup> Close-in weapon system.

[Redacted]

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Type 209 submarines permission to sell them. We believe Iran will probably sell its inventory of US-made ships purchased by the Shah because of spare-parts problems and replace them with warships from another supplier. [Redacted]

In the near term, Third World suppliers will not be able to offer sophisticated indigenously designed surface ships, submarines, or mine warfare ships. [Redacted]

[Redacted]

While inexperience and funding problems will plague these efforts in the short run, we believe Third World construction capabilities will steadily progress. [Redacted]

[Redacted]

**China.** China will share many of the advantages of Third World suppliers in marketing less sophisticated warships [Redacted] although Chinese warships incorporate 1950s Soviet technology, they are reliable and affordable. Egypt's recent purchase of four Chinese-built Romeo-class submarines and two frigates is China's largest naval sale to date. Cairo will probably equip the ships with Western systems and use them to train its inexperienced Navy [Redacted] Thailand is also considering the purchase of Chinese submarines before attempting to operate more expensive and complex West European boats, according to an attache report. [Redacted]

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**The Soviet Union.** Soviet activity in the market will remain concentrated in a few countries. In the last decade, Moscow sold or gave away more warships—120—than any other single supplier. The number of customers it serviced, however, was small. Only Marxist Third World countries—Angola, Cuba, Ethiopia, South Yemen, and Vietnam—and a handful of regular Soviet arms customers—Algeria, India, Libya, and Syria—obtained Soviet vessels. Algeria, India, and Libya also bought ships from the West, but

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Soviet ships have been substantially less expensive. At \$70-110 million each, Soviet frigates and corvettes are \$30-40 million cheaper than available Western models and attractive to cash-poor countries like India. They are not highly regarded by such Soviet customers as Iraq, however, which purchased frigates from Italy. [ ]

Our analysis suggests that Soviet sales will probably remain about the same. Several key Soviet naval customers will make large purchases in the next 10 years, but many Western customers have completed their modernization programs. We project that Cuba, Syria, and India will acquire a total of approximately 80 warships in the next 10 years, largely to replace older vessels. Soviet concessionary prices and political influence with these countries all but guarantee that the majority of their new warships will be Soviet built, although attache reports indicate that Moscow is concerned by Western naval sales to a few of its key clients. [ ]

The USSR is presently making a major attempt to lure India away from West German submarine producers by promising a total replacement of India's Foxtrot fleet with new Kilo-class diesel submarines, as well as delivery of three Kresta-class cruisers, three Kashin-class destroyers, missile boats, and additional minesweepers. [ ] New Delhi has announced plans to acquire more than a dozen new Soviet warships by the end of the decade, but it will probably continue to use the threat of West European naval purchases to squeeze Moscow. Algeria is also playing this game, indicating its displeasure with the performance of Soviet submarines by entertaining Western bids for the overhaul of Soviet warships and for new corvettes and minesweepers. [ ]

**Western Europe.** West European suppliers will suffer the most from the changes in Third World warship purchasing patterns. In addition to the decline in the size of the total market, West European shipyards will lose sales because their competitive position relative to Third World shipbuilders is deteriorating. As a result, we expect warship sales to Third World countries by West European shipbuilders to decline by one-third to one-half compared to the 1975-84 period, when they were the primary suppliers of warships to the Third

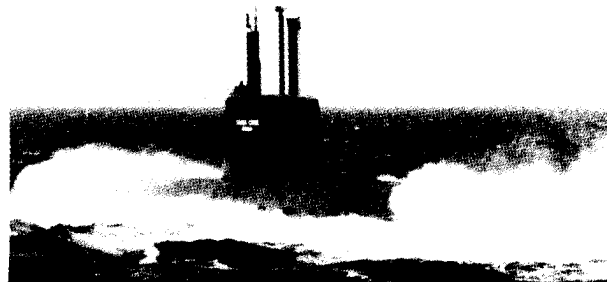


Figure 7. West German-built TR1700 submarine, the ARA Santa Cruz, recently delivered to Argentina. [ ]

Maritime Defence

World. The commanding position West European shipyards achieved during that period largely reflects the advanced designs and attractive financing packages they offered, plus the diversified arms procurement policies of Third World countries. Those factors remain but will not be sufficient to reverse the erosion of their market position. [ ]

The market losses we see ahead for the West Europeans will not be evenly distributed. West European equipment manufacturers, for example, will continue to enjoy a large measure of success. We believe the demand for sensors, weapon, and propulsion systems for ships being built or refitted in Third World yards will remain strong throughout the coming decade. New products—such as vertical missile launchers, heavier close-in weapon systems, and supersonic anti-ship missiles—will also begin to make their way into Third World naval inventories early in the 1990s. [ ]

West European shipyards, on the other hand, face a troubled future. They probably will continue to dominate sales of diesel submarines and mine warfare ships, in which they have a technological edge over all other suppliers. West European firms are far ahead of their US and Soviet competitors in nonnuclear submarine propulsion and glass-reinforced-plastic hull construction for mine warfare ships. [ ]

[ ] West European suppliers will also have a competitive advantage over Third World suppliers in their ability to provide credit, follow-on

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Figure 8. Italian-built missile corvette being readied for delivery to Iraq. [redacted]

Naval Forces

support, and training. [redacted]

Aside from specialized warships—submarines and mine warfare ships in particular—West European shipyards will have a hard time selling in the Third World. The competitiveness of West European shipyards building missile boats and major combatants is already deteriorating because of higher labor costs relative to Third World producers. The loss of Third World sales, moreover, will aggravate the problem by creating additional excess shipyard capacity. In the last 10 years, warship sales to the Third World helped West European yards overcome a shortage of commercial orders, but now the financial support that foreign military orders provided is disappearing. [redacted]

According to US Embassy and defense attache reporting, West European governments are attempting to cope with the problem by making the following changes in their national industries:

- *Paring employment.* In France and West Germany, shipyard employment has been allowed to decline by 25 percent since 1975, and steeper reductions are being considered. Italy plans to drop its shipyard

work force from 22,000 to 17,000 over the next few years, and German Government projections foresee the loss of an additional 9,000 jobs. Work forces in Dutch shipyards have dropped from 50,000 to 30,000 in the last 10 years and continue to decline. Spanish shipyard managers also believe that they will have to cut employment if new orders cannot be found.

- *Reorganization.* Mergers and divestitures have been commonplace in the West European shipbuilding industry. Ten years ago, 117 individual Dutch companies formed Rijn Schleide Verolme (RSV), a conglomerate designed to compete with Far Eastern shipbuilders. So much government aid was required to start up RSV that the government quickly acquired 46 percent of the stock. When RSV went bankrupt in 1983 because of poor investment decisions, The Hague broke up the firm into small yards but continues to tinker with mergers. Elsewhere, the Thatcher government plans to “privatize” British Shipbuilding by selling government shares in the national yards, while Rome has tabled a drastic reorganization of Italy’s entire naval industry that would specialize the yards to avoid duplication.

- *Domestic orders.* The Hague has moved forward plans to build M-class frigates for the Dutch Navy in lieu of placing foreign orders. [redacted] this reprogramming of funds is coinciding with efforts to dispose of the Van-Speijk-class frigates “to the highest bidder.”

- *Marketing consortiums.* Shipyards have joined with naval equipment manufacturers to offer customers a wider variety of designs, equipment options, and financing packages. Italian shipbuilders formed two consortiums in 1980, and private French yards joined to form France Navale in 1982. Negotiations continue between British shipbuilders and two UK equipment associations to form a marketing consortium.

- *Direct subsidies.* National shipyards in France, Britain, and Spain receive financial support through defense budgets, and those in Italy and Germany

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receive funds through national holding companies and direct subsidies. The Dutch parliament recently authorized compensation to the Wilton-Fijenoord Shipyard after additional ship sales to Taiwan were prohibited. Since 1977, Dutch shipyards have received more than \$1.5 billion in subsidies and soft loans. [ ]

**United States.** The US share of the Third World warship market will also decline, but, because of its traditional role as a supplier of older ships, the effects of its declining role will not be as severe as those for the West Europeans. The US role in the market in the last decade was limited to transferring surplus destroyers and submarines built in the 1940s and 1950s. Most of these warships were sold at rockbottom prices—less than \$5 million each, including refits and training. US shipyards were less than competitive in the international market, primarily because of higher labor costs. Many US yards offered ship designs suited to Third World needs, but the high costs of building prototypes put them at a substantial disadvantage with West European competitors whose navies purchased ships similar to those sold to the Third World. While lacking foreign orders, US yards were kept relatively busy building sophisticated warships for the US Navy. The sale of two corvettes to Thailand in 1982 was a notable exception. [ ]

The US ability to provide used vessels will virtually disappear in the next 10 years because of the lack of surplus warship inventories. The high cost and sophistication of US-built warships, plus the inability of US yards to offer customers more than paper designs of ships to meet their needs, will continue to keep US competitiveness in new ships low [ ]

[ ] US shipyards will continue to sell in the foreign market only on an occasional basis. [ ]

[ ] While US shipyards will not sell much in the foreign market, US naval equipment manufacturers will continue to sell propulsion, sensor, and weapon systems. The increase in refits that we project probably will help to maintain US naval equipment sales through the next 10 years. [ ]

### Some Broader Implications

The implications of the future warship market for the United States are largely political rather than economic because US shipbuilders have played a limited role in supplying Third World navies. The effect of the market on NATO defense budgets is the primary threat to US interests. Specifically, we believe that the West Europeans' response to the declining market will distort their contributions to NATO defense programs. Instead of disbanding inefficient producers in their shipbuilding industries, West European governments will be inclined to subsidize inefficient producers with direct payments and accelerated naval modernization programs. The latter route would absorb a large portion of their already limited defense budgets, leaving less for defense programs that might be of more importance to the United States. [ ]

As for Third World influence, we do not expect that US influence with Third World navies will necessarily decline as the US role in the warship market shrinks. A major contributing factor will be the strong Third World demand for US-supplied weapons, sensors, and engines. Many Third World navies, moreover, particularly those in Latin America and the Far East that have traditionally looked to the United States as a model for their structure and operations, will continue to ask for US assistance in training their officers and enlisted men and in developing sound doctrine and tactics for the deployment of their ships. Argentine naval officers, for example, believe that resumed access to US technology and training could double the readiness and proficiency of their forces in three years [ ] If this pattern is repeated elsewhere, US influence in Third World navies and naval industries will remain healthy even if US warship sales decline as much as we anticipate. [ ]

We believe the anticipated hiatus in massive new purchases will present many Third World navies with an opportunity to address the serious problems that plague them today. Shortages of trained personnel, critical gaps in doctrine and tactics, and inadequate maintenance procedures may be corrected if funds not spent on new ships are diverted to operations and

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maintenance. Increases in training exercises and in the number of days at sea will be important contributions to the improvement of Third World naval capabilities.

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Any improvement in Third World naval capabilities will have mixed implications for the United States. While specific threats and opportunities will be very scenario dependent, the United States may be able to count on greater assistance from friendly Third World naval forces when conducting realistic training exercises and normal operations. Conversely, unfriendly Third World naval forces generally will pose a greater threat to US and NATO out-of-area operations requiring large naval deployments, particularly those designed to meet potential attacks by missile boats and modern conventional submarines

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## Appendix A

## Warship Inventories of Third World Countries, 1984

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total		Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Latin America</b>	<b>49</b>	<b>21</b>	<b>12</b>	<b>4</b>	<b>86</b>	<b>Persian Gulf</b>	<b>19</b>	<b>43</b>	<b>0</b>	<b>7</b>	<b>69</b>
	17	0	5	0	22		0	2	0	0	2
	19	0	8	0	27		10	11	0	5	26
	15	2	5	0	22		0	12	0	8	20
	7	0	4	0	11		0	8	0	0	8
	2	34	4	12	52		0	5	0	0	5
	8	3	2	0	13		0	3	0	0	3
	9	0	0	0	9		2	10	0	4	16
	0	0	0	2	2		0	6	0	0	6
	16	6	12	0	34		0	2	0	0	2
	3	0	0	0	3		0	8	0	4	12
	8	3	3	0	14		20	16	11	9	56
	3	29	0	1	33		3	2	0	0	5
	0	4	0	0	4		33	16	8	17	74
	0	1	0	0	1		8	4	6	6	24
	0	3	0	0	3		27	34	2	12	75
	0	1	0	0	1		0	3	0	0	3
	0	2	0	0	2		2	0	0	0	2
	3	6	0	1	10		14	4	3	4	25
	0	2	0	0	2		4	8	0	0	12
	2	9	3	8	22		17	3	0	0	20
	16	46	6	6	74		0	6	0	2	8
	6	18	2	2	28		6	6	0	10	22
	10	28	18	12	68		2	8	0	6	16
	0	30	3	0	33		15	4	11	0	30
	9	37	6	4	56		4	22	19	0	45
	1	4	0	0	5		22	9	0	8	39
	2	20	0	4	26		30	38	2	14	84
	1	3	0	0	4						

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## Appendix B

## Warship Purchases by Third World Countries, 1975-84

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total		Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Latin America</b>						<b>Persian Gulf</b>					
	16	0	4	0	20		0	2	0	0	2
	0	0	2	0	2		1	0	0	0	1
	2	2	2	0	6		10	0	0	2	12
	5	0	0	0	5		0	8	0	0	8
	2	13	4	2	21		0	4	0	0	4
	8	0	0	0	8		0	3	0	0	3
	2	0	0	0	2		8	10	0	4	22
	0	0	0	2	2		0	6	0	0	6
	8	6	0	0	14		0	2	0	0	2
	6	0	0	0	6		0	8	0	1	9
	0	4	0	0	4		3	4	0	0	7
	0	1	0	0	1		11	8	8	9	36
	0	3	0	0	3		6	4	3	0	13
	0	1	0	0	1						
	0	2	0	0	2		0	3	0	0	3
	3	6	0	1	10		3	4	0	4	11
	0	2	0	0	2		7	16	2	2	27
	0	10	0	0	10		13	0	0	0	13
							2	3	0	0	5
							2	8	0	6	16
	10	9	2	2	23						
	4	12	4	0	20		0	4	11	0	15
	0	12	0	0	12		10	0	0	0	10
	1	0	0	4	5		5	0	0	0	5
	1	4	0	0	5						
	0	6	0	0	6						
	0	3	0	0	3						

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## Appendix C

### Market Variables

While global austerity and the completion of scheduled modernization programs will be the principal factors decreasing the size of the Third World warship market over the next 10 years, several factors could further reduce the size of the market. We believe that an increase in the number of refits, substitution of aircraft and coastal defense systems for warships, and an expansion of Third World indigenous shipbuilding programs could reduce to fewer than 300 the number of vessels we expect to be sold before 1995. [redacted]

An increase in the number of refits would be the most likely cause of a more precipitous decline in the Third World warship market than we anticipate. [redacted]

[redacted] more than 150 Third World warships are worth modernizing at present. Many Third World countries have refit programs under way; for example:

- Algeria is installing new engines in its Soviet-built Osa missile boats and Nanuchka corvettes.
- Taiwan is adding indigenously built antiship missile systems to eight of its ex-US destroyers.
- Peru is spending \$120 million to have its light cruiser, the Almirante Grau, modernized in the Netherlands.

Under tighter financial conditions, many Third World governments will approve an increased number of refits instead of authorizing new naval construction. [redacted]

In many cases, these refits will take longer to complete because of budgetary problems, delaying new purchases even further. Financial constraints will also prevent some countries from purchasing as many new sensor, weapon, and propulsion systems as they would like; for example:

- Indonesia plans to refit its Pattimura-class frigates instead of replacing them, but money is available only for engine overhauls, and no work will be done on weapon or electrical systems.
- Nigeria began refitting a corvette in 1981 but has not finished the job because of a lack of funds.
- Brazil wants antiship missiles for some of its patrol boats but will wait at least one more year because of budgetary problems. [redacted]

An increase in the number of Third World countries building their own warships is another factor that could reduce the export market. Several countries—India, Indonesia, Pakistan, and Argentina—are trying to use license production agreements with Western shipbuilders as a steppingstone to an indigenous capability. Still others are taking initial steps to develop a naval industry. [redacted]

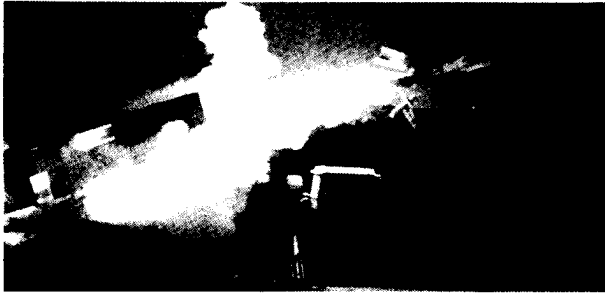
- Iraq is having personnel trained in shipyard management and construction techniques by CNR of Italy.
- South Africa is building a 12,000-ton supply ship as a prelude to the construction of corvettes and frigates.
- Nigeria is building a dockyard for repairs and refits. [redacted]

We doubt that many, if any, of these prospective shipbuilders will be able to move in the next 10 years from the licensed assembly of foreign-designed warships to the construction of locally designed warships, largely because of the costs involved.<sup>7</sup> Taiwan, for example, recently decided to abandon plans to design and build a guided-missile patrol frigate because it was prohibitively expensive. [redacted]

[redacted] We believe other Third World states will reach similar conclusions. [redacted]

The use of alternative platforms for coastal reconnaissance and defense could also reduce the demand for warships but only slightly. Many maritime surveillance missions are performed more efficiently by aircraft than warships. Indonesia, for example, has purchased three Boeing 737 aircraft equipped with side-looking airborne radars, which allow them to conduct maritime reconnaissance missions in a fraction of the time several dozen ships could perform them. [redacted]

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**Figure 9.** MM40 Exocet antiship missile being  
launched from mobile coastal battery.

Naval Forces

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countries purchasing aircraft equipped with early warning radars will be able to use them to monitor maritime traffic along their coasts, reducing the number of ships needed to perform this task.

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Coastal defense systems, employing the same antiship missile systems found on warships, could reduce missile boat sales. Such systems possess many of the capabilities of missile boats operating close to shore and, if mobile, are more difficult than missile boats for enemy warships and aircraft to locate and attack. Argentina's use of an improvised land-based Exocet launcher to hit but not sink a British destroyer shelling the Falklands has been noted by professional commentators as an example of the value of modern coastal defense systems armed with antiship missiles.

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Only a small number of countries have acquired these systems:

- Syria has Soviet-supplied SSC-1 and SSC-3 coastal missile systems.
- Qatar has purchased two Exocet coastal defense missile units from France.
- Egypt has received land-based Otomat antiship missile launchers from France.

We believe sales of these systems will continue to be limited to the littoral states with closed seas or to countries that are situated astride strategic waterways. Tight money situations will combine with parochial service interests to limit sales. Navies will prefer ships to coastal missile launchers, and armies will prefer to spend money on ground force weapons.

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## Appendix D

### Projected Third World Warship Purchases, 1985-94

#### Latin America

Argentina and Brazil will look for replacements for their aircraft carriers in the next 10 years. Chile will attempt to acquire its own aircraft carrier and several other surface combatants. Cuba will be the largest naval customer in the region, expecting to replace more than a dozen missile boats and to add three more submarines to its fleet (table D-1). If Nicaragua follows the pattern of other Soviet clients, it will acquire several missile boats by the 1990s.

**Table D-1**  
Project Warship Purchases by  
Latin American Countries

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>7</b>	<b>29</b>	<b>3</b>	<b>4</b>	<b>43</b>
<input type="text"/>	1	0	0	0	1
<input type="text"/>	1	0	0	0	1
<input type="text"/>	5	4	0	0	9
<input type="text"/>	0	15	3	4	22
<input type="text"/>	0	3	0	0	3
<input type="text"/>	0	4	0	0	4
<input type="text"/>	0	3	0	0	3

#### Sub-Saharan Africa

This region will remain a small market (table D-2). Most sales will involve replacing older missile boats with newer models.

**Table D-2**  
Projected Warship Purchases by  
Sub-Saharan African Countries

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>0</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>16</b>
<input type="text"/>	0	4	0	0	4
<input type="text"/>	0	4	0	0	4
<input type="text"/>	0	1	0	0	1
<input type="text"/>	0	3	0	0	3
<input type="text"/>	0	4	0	0	4

#### North Africa and Levant

Missile boat replacements will make Algeria, Egypt, and Syria among the biggest Third World customers in the next decade (table D-3). Syria may also receive its first submarines, while Algeria and Egypt may replace some of their Soviet submarines, possibly with West European models. Israel also is in the market for submarines.

**Table D-3**  
Project Warship Purchases by  
North African and Levantine Countries

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>15</b>	<b>42</b>	<b>10</b>	<b>8</b>	<b>75</b>
<input type="text"/>	1	15	1	2	19
<input type="text"/>	2	12	2	4	20
<input type="text"/>	3	0	4	0	7
<input type="text"/>	2	3	0	0	5
<input type="text"/>	5	0	0	0	5
<input type="text"/>	1	12	3	2	18
<input type="text"/>	1	0	0	0	1

#### Persian Gulf

Both Iran and Iraq will need replacements for missile boats lost in the war. Tehran will also be seeking to replace its US-built ships with vessels it can maintain. We expect Saudi Arabia and the smaller Gulf states to be in the market for mine warfare ships (table D-4). Riyadh may also expand its fleet into submarine operations.

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**Table D-4**  
**Projected Warship Purchases by**  
**Persian Gulf Countries**

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>2</b>	<b>16</b>	<b>2</b>	<b>13</b>	<b>33</b>
	2	6	0	0	8
	0	6	0	0	6
	0	0	0	2	2
	0	2	0	2	4
	0	0	0	2	2
	0	0	2	4	6
	0	2	0	0	2
	0	0	0	3	3

#### South Asia

India will remain the largest warship purchaser in the Third World, ordering more than 40 ships in the next decade (table D-5). Most of these ships will be Soviet major warships and submarines, but India will also purchase about 20 missile boats from an undetermined supplier. Pakistan and Bangladesh can be expected to purchase additional Chinese-made missile boats.

**Table D-5**  
**Projected Warship Purchases by**  
**South Asian Countries**

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>10</b>	<b>30</b>	<b>8</b>	<b>8</b>	<b>56</b>
	0	4	0	0	4
	10	20	8	6	44
	0	4	0	2	6
	0	2	0	0	2

#### Southeast Asia

An arms race in submarines is likely to characterize the Southeast Asian naval market in the next decade. Malaysia and Thailand are actively discussing offers

from Western Europe and China, and we expect that the Soviet Union would provide Vietnam with submarines if those warships became common throughout ASEAN (Association of Southeast Asian Nations) navies. Although not presently in the market for submarines, Singapore is developing a requirement for six 500-ton corvettes (table D-6).

**Table D-6**  
**Projected Warship Purchases by**  
**Southeast Asian Countries**

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>13</b>	<b>11</b>	<b>11</b>	<b>8</b>	<b>43</b>
	0	2	0	0	2
	6	0	4	2	12
	0	0	3	0	3
	0	3	0	0	3
	6	6	0	2	14
	0	0	2	4	6
	1	0	2	0	3

#### East Asia

Taiwan, as previously noted, has decided not to build its own frigates and is now in the market for more than a dozen vessels to replace its aging destroyers (table D-7). South Korea will meet most of its needs with domestic production but is negotiating with West Germany and France for the licensed production of submarines.

**Table D-7**  
**Projected Warship Purchases by**  
**East Asian Countries**

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>15</b>	<b>0</b>	<b>12</b>	<b>0</b>	<b>27</b>
	15	0	0	0	15
	0	0	12	0	12

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## Appendix E

### Projected Third World Warship Construction, 1985-94 <sup>a</sup>

	Major Warships	Missile Boats	Subma- rines	Mine Warfare Ships	Total
<b>Total</b>	<b>49</b>	<b>21</b>	<b>0</b>	<b>0</b>	<b>70</b>
	6	0	0	0	6
	9	0	0	0	9
	5	10	0	0	15
	0	8	0	0	8
	2	3	0	0	5
	27	0	0	0	27

<sup>a</sup> Does not include warships to be built under license.



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