

**CHAPTER 13**

**U.S. Policies Affecting Technology  
Trade and Transfer**

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# U.S. Policies Affecting Technology Trade and Transfer

## INTRODUCTION

The ongoing tension between policies that promote and policies that control technology trade and transfer is a distinguishing feature of official U.S. policies affecting technology trade with and transfer to the Middle East. In practice, policy decisions affecting technology transfer have reflected changing views about which of several goals should be maximized: promoting U.S. commercial interests, ensuring that technology transfers are consistent with American security and foreign policy aims, or fostering effective development assistance.

During most of the postwar period, U.S. technology trade with the Islamic countries of the Middle East was limited to the oil production sector. During the 1970's, as technology trade between the United States and these countries rapidly expanded, government policies sometimes promoted and at other times inhibited the growth of technology trade. On the one hand, the growing strategic importance of the region, concern with the security of Western energy supplies, and export opportunities offered by the growing Middle Eastern market for advanced technology imports, stimulated increasing American economic interaction with these nations. On the other hand, the close U.S. relationship with Israel and the growing resolve to reduce flows of technology to the Soviet bloc and to countries

whose foreign policies run counter to those of the United States have stimulated policies aimed at controlling and reducing technology transfers. Compared to the policies of other Western supplier countries (discussed in ch. 12), U.S. policies during the last decade that affect technology transfer have been characterized by growing restrictions.

This chapter identifies competing policy goals and analyzes their effects on technology trade. The sections that follow deal in turn with the general pattern of economic interaction with the region, the overall U.S. foreign policy context, international commercial policies, development assistance policies, and military-strategic policies. A major theme is that competing interests at stake have been reflected in an ad hoc approach to U.S. policies. In addition, official policies have emphasized technology trade more than technology transfer.

The focus of the discussion is those policies which are most relevant to U.S. technology trade with the Middle East, rather than general policies affecting technology trade with all developing nations. Therefore, issues such as U.S. antiboycott policies are examined, while the U.N. debates over the "new international economic order" receive less attention.

## U.S. ECONOMIC INTERACTIONS WITH THE MIDDLE EAST

### COMMERCIAL TECHNOLOGY TRADE

During the past decade, the Middle East has been the fastest growing market for U.S. exports. By 1982, U.S. exports to 15 Islamic countries of the region amounted to almost \$17 billion about 8 percent of total U.S. worldwide exports. In that year more than 9 percent of U.S. exports went to the Middle East region (including Israel), and about 6.3 percent of total U.S. imports came from the region during the same year (see table 105). Almost half of U.S. exports to the Middle East have been in the form of machinery and equipment, while American exports of basic manufactures have been much less important. U.S. firms received Middle Eastern contracts valued at more than \$6.6 billion in 1981 and \$3.3 billion in 1982.<sup>1</sup>

U.S. imports from the Middle East have been primarily in the form of oil. In 1980, the United States imported about 15 percent of all Middle Eastern exports, valued at \$36 billion.<sup>2</sup> The United States had throughout the

<sup>1</sup>See "Middle East Contracts: Directory and Analysis, 1982 Second Half" (London: Middle East *Economic Digest*, 1983), p. 9. In 1983, U.S. firms won \$10 billion worth of contracts, but \$4 billion were in Turkey and another \$3.9 billion were in defense contracts in Saudi Arabia. See Middle East *Contracts: Directory and Analysis*, 1983, p. 11.

<sup>2</sup>International Monetary Fund, *Direction of Trade Statistics Yearbook, 1983* (Washington, D. C.: IMF, 1983).

**Table 105.—U.S. Trade With the Middle East**  
(million dollars)

|                | Exports        |       | Imports         |       |
|----------------|----------------|-------|-----------------|-------|
|                | Middle East    | World | Middle East     | World |
| 1982 . . . . . | 19.8<br>(9.3%) | 212.2 | 16.2<br>(6.3%)  | 254.8 |
| 1981 . . . . . | 18.3<br>(7.8%) | 233.7 | 30.6<br>(11.2%) | 273.3 |
| 1980 . . . . . | 14.2<br>(6.6%) | 220.7 | 36.1<br>(14.0%) | 256.9 |
| 1976 . . . . . | 10.5<br>(9.1%) | 115.4 | 16.8<br>(12.7%) | 132.4 |
| 1972 . . . . . | 2.1<br>(4.2%)  | 49.7  | (1.%)           | 58.0  |

NOTE Sixteen Middle Eastern nations included Algeria, Iran, Iraq, Kuwait, Libya, Oman, Qatar, Saudi Arabia, United Arab Emirates (UAE), Egypt, Israel, Jordan, Lebanon, Syria, North and South Yemen (During 1982, U.S. exports to Israel were valued at \$22 billion, and imports from Israel at \$1.2 billion.)

SOURCE International Monetary Fund *Direction of Trade Statistics Yearbook*, 1983 and 1979

decade a trade deficit with the Middle East and with the Organization of Petroleum Exporting Countries (OPEC), owing to the greater value of oil imports relative to the growing level of U.S. exports to the region. However, because of the slack oil market and reduced U.S. oil imports, the United States achieved in 1982, for the first time since 1973, a favorable balance of trade with oil-exporting nations of the Middle East collectively. By 1982, U.S. oil imports from members of the Organization of Arab Petroleum Exporting Countries (OAPEC) had fallen to less than half the amount imported in 1973.

U.S. direct investments in the Middle East have been limited and concentrated primarily in the petroleum sector. During the 1970's, when Middle Eastern governments assumed larger equity shares in oil companies such as ARAMCO, the United States experienced negative investment flows. But by the end of the decade, U.S. direct investment in the Middle East totaled about 1 percent of a total of \$227 billion invested worldwide.<sup>3</sup> Middle East oil-producing nations have made relatively few direct foreign investments in Western firms, concentrating their funds instead in bank deposits, bonds, and other portfolio investments. (In 1981, direct investments in the United States by OPEC amounted to \$3.5 billion, or about 4 percent of all foreign investments in the United States.) However, Middle Eastern holdings in U.S. bonds and deposits in banks were much more extensive, estimated at \$70 billion in 1982.<sup>4</sup>

The product export, contract, and investment flows outlined above established the context for economic interaction between the United States and the Middle East. Three important themes, outlined more fully in chapter

<sup>3</sup>Data include Egypt, where U.S. direct investment totaled \$1 billion in 1981. Department of Commerce, *Survey of Current Business*, August 1982.

<sup>4</sup>See R. David Belli, "Foreign Direct Investment in the United States: Highlights from the 1980 Benchmark Survey," *Survey of Current Business*, October 1983. See also "U.S.-Arab Trade" (Middle East *Economic Digest*, October 1982), p. 35.

4, are particularly relevant to technology trade and transfer. First, American technology trade with the Middle East has been increasingly in technical service areas. At the same time, U.S. product exports of machinery and equipment, particularly in subsectors such as aircraft and nonelectrical machinery, remain important. In 1981, 8 percent of all exports of U.S. engineering products (valued at \$7.4 billion) went to the Middle East.<sup>5</sup> Quite striking was the large proportion of technical service contracts awarded to U.S. firms. During the 1978-82 period, U.S. firms won half of the \$2 billion worth of technical service contracts awarded in the medical sector, a third of the equipment supply contracts, but less than 5 percent of the construction contracts in that sector. U.S. firms also played leading roles as project managers for large development efforts involving design, construction, staffing, and operations. American expertise in advanced technology, services (particularly management and technical services), and personnel training has been in demand in Middle Eastern markets.<sup>6</sup>

<sup>5</sup>United Nations, *Bulletin of Statistics on World Trade in Engineering Products*, 1981.

<sup>6</sup>According to one study, the United States lost its dominant market share in OPEC markets, in 4 of 14 high-technology export markets—chemicals, electrical power machinery, transistors, and scientific instruments. In other markets—aircraft, fertilizers, office machines, electrical measuring equipment—U. S. share increased between 1970 and 1978. For a more detailed discussion, see Raymond F. Mikesell and Mark G. Farah, U.S. *Export Competitiveness in Manufactures in Third World Markets*, CSIS Significant Issue Series, 1982, p. 52.

**Table 106.—U.S. Shares in the Middle Eastern Market, 1970-82**

| Year | Percent |
|------|---------|
| 1970 | 18      |
| 1971 | 19      |
| 1972 | 19      |
| 1973 | 19      |
| 1974 | 21      |
| 1975 | 10      |
| 1976 | 21      |
| 1977 | 22      |
| 1978 | 18      |
| 1979 | 17      |
| 1980 | 14      |
| 1981 | 16      |
| 1982 | 18      |

NOTE Data Include total imports for 15 Islamic countries

SOURCE International Monetary Fund *Direction of Trade Statistics Yearbooks* 1982

Secondly, although the overall market share of the United States in the Middle East has fluctuated during the past decade, in 1982 the U.S. share of exports to 15 Islamic countries remained about what it had been in 1970, about 18 percent of the total. Table 106 shows the consistently strong position of U.S. firms in Middle Eastern markets. (Japan, however, became a larger exporter to the region than the United States in 1980.) This same export strength was seen in the U.S. machinery and equipment exports, as discussed in chapter 4.

Finally, U.S. economic interactions are concentrated in a few Middle Eastern nations, with Saudi Arabia and Egypt being the most important export markets. In 1982, \$11.8 billion in U.S. exports went to those two nations. The U.S. presence in Kuwaiti and Omani markets is also strong, as it was in Iran before the revolution. Patterns of trade thus strongly reflect political alliances. However, the United States has sometimes traded with nations, such as Libya, not closely aligned with U.S. policy positions. In 1980, about 40 percent of Libya's exports went to the United States, but Libyan imports from the United States made up less than 1 percent of the total.

## ECONOMIC ASSISTANCE

U.S. economic assistance, including official confessional aid for development purposes (ODA) and other types of economic aid, plays a relatively minor role in technology transfer compared to the volume of exchange in the commercial marketplace. It is, nevertheless, critically important to some Middle Eastern nations. During the period 1946-81, almost one-third of all U.S. economic assistance granted worldwide went to nations in the Near East and South Asia region, and in 1981, 36 percent of the total went to the region.<sup>7</sup> Two

<sup>7</sup>See Agency for International Development, *U.S. Overseas Loans and Grants and Assistance from International Organizations*, July 1, 1945 -Sept. 30, 1981, pp. 4, 7. Economic assistance includes loans and grants for AID programs, Food for Peace, the Peace Corps, Contributions to International Lending Organizations, and other economic programs. Economic Support Fund loans and grants administered by AID are included here.

nations, Egypt and Israel, today receive by far the largest share of U.S. economic assistance to the region. Economic and military assistance to Israel grew rapidly following the 1973 October war, and economic assistance to Egypt increased after the Camp David accords. In 1981, the United States provided Egypt with \$1.1 billion in economic assistance and Israel with \$764 million, together amounting to 66 percent of the \$2.7 billion sent to the region. Table 107 indicates the importance of Egypt and Israel in U.S. economic assistance to the Middle East.<sup>8</sup>

A comparatively small percentage of U.S. economic assistance to the region is directed to programs supporting technology transfers in the industrial and service sectors examined by OTA. Most U.S. economic assistance to the Middle East involves grants and loans from the Economic Support Fund (ESF), which have amounted in recent years to \$750 million annually for Egypt and about \$1 billion per year for Israel, the largest program recipient. For Egypt, between one-third and one-half of the ESF funding has been devoted to the com-

modity import program (CIP), designed to alleviate balance-of-payments problems. (For Israel, funds are provided as a cash transfer and are not tied directly to development programs.) ESF funding is used primarily to support imports of raw materials, spare parts, and capital equipment to Egypt. While such imports include machinery and equipment, such as telecommunications equipment, most of these programs are not aimed specifically at promoting technology transfer.<sup>9</sup> Egypt also receives about \$250 million in Public Law 480 funding, almost all of which has been used in recent years to support wheat imports from the United States.<sup>10</sup> A comparatively small share of U.S. economic assistance (about \$100 million, for Egypt) has in recent years been explicitly earmarked for programs involving science and technology;<sup>11</sup> most of the programs support commodity imports, infrastructure development, and improvements in basic living standards.

<sup>8</sup>U.S. House of Representatives, Committee on Foreign Affairs, *U.S. Economic Assistance to Egypt and Sudan*, Dec. 30, 1982, p. 6. See also, General Accounting Office (GAO), *U.S. Assistance to the State of Israel*, GAO/1 S-83-51, June 24, 1983, p. 111.

<sup>9</sup>Agency for International Development, *Congressional Presentation FY 1983, Annex IV, Near East, 1983*, p. 17.

<sup>11</sup>In fiscal year 1982 \$35 million in new funding was provided for science and technology programs in Egypt. See House Committee on Science and Technology, *Science, Technology and American Diplomacy, 1983*, p. 94.

Table 107.—U.S. Economic Assistance to the Middle East, 1981 and 1946-81

|   | 1981            |                  | 1946-81         |                  |
|---|-----------------|------------------|-----------------|------------------|
|   | Million dollars | Percent of world | Million dollars | Percent of world |
| Egypt . . . . .                                 | 1,130           | 15               | 7,476           | 5.0              |
| Israel . . . . .                                | 764             | 10               | 6,350           | 4.2              |
| Bahrain . . . . .                               | —               |                  | 2               |                  |
| Iran . . . . .                                  | —               |                  | 766             |                  |
| Iraq . . . . .                                  | —               |                  | 45              |                  |
| Jordan . . . . .                                | 10              |                  | 1,433           |                  |
| Lebanon . . . . .                               | 4               |                  | 188             |                  |
| Oman . . . . .                                  | 1               |                  | 8               |                  |
| Saudi Arabia . . . . .                          | —               |                  | 31              |                  |
| Syria . . . . .                                 | 2               |                  | 588             |                  |
| PDR Yemen . . . . .                             | —               |                  | 4               |                  |
| Yemen Arab Republic . . . . .                   | 21              |                  | 143             |                  |
| Total Near East and South Asia region . . . . . | 2,757           | 38               | 41,360          | 28               |
| Total worldwide . . . . .                       | 7,305           |                  | 148,872         |                  |
| (Algeria) . . . . .                             | —               |                  | 203             |                  |

NOTE Total for entire Near East and South Asia region includes in addition the nations listed above Afghanistan, Bangladesh, Bhutan, Cyprus, Greece, India, Kuwait, Nepal, Pakistan, Sri Lanka, and Turkey.

SOURCE U S Agency for International Development, *U S Overseas Loans and Grants*, July 1, 1945–Sept. 30, 1981

<sup>8</sup>For fiscal year 1984, the U.S. Congress approved \$750 million in ESF assistance to Egypt and \$910 million in economic assistance to Israel. The House of Representatives approved \$1.1 billion in ESF aid to Israel and \$750 million in ESF aid to Egypt for fiscal year 1985.

The U.S. Government also supports technology transfer through programs such as the U.S.-Saudi Joint Commission, which is paid for by the Saudi Arabian Government. Saudi Arabia has itself become a major donor nation. In 1981, it provided \$5.6 billion (about 15 percent of the total provided by all nations worldwide) in official development assistance.<sup>12</sup> The U.S.-Saudi Joint Commission programs involved reimbursable expenditures totaling \$700 million during the 1975-82 period, and about 80 percent of the funds for these programs were transferred to the U.S. private sector. While U.S.-Saudi Joint Commission programs are specifically directed at development of manpower, industry, science, and technology, they have also been important in promoting U.S. trade.<sup>13</sup> The U.S.-Saudi Joint Commission programs involve U.S. Government-supported technology transfers, but these projects are fully funded by the Saudi Government and therefore should be viewed quite differently from the economic assistance programs mentioned above.

Compared to other Western nations, the United States is still the major donor nation

<sup>12</sup>Organization for Economic Cooperation and Development, *Aid From OPEC Countries* (Paris: OECD, 1983), p. 15.

<sup>13</sup>General Accounting Office, *Status of U.S.-Saudi Arabian Joint Commission on Economic Cooperation*, GAO/ID-83-32, May 26, 1983, p. iii.



Photo credit: Saudi Arabian United States Joint Commission on Economic Cooperation

The U.S. Department of Labor is working with the Saudi Arabian General Organization for Technical Education and Vocation Training to establish a nationwide vocational training system

providing economic assistance to countries in the Middle East. The United States contributes about one-fifth of all official development assistance provided worldwide by the Organization for Economic Cooperation and Development (OECD) nations; U.S. economic assistance makes up a large share of the total received by Middle Eastern countries. In 1981, for example, Egypt received \$1.7 billion in ODA commitments, of which the United States provided \$1.1 billion<sup>14</sup> (see table 100, ch. 12). Compared to programs of other OECD nations, U.S. economic assistance to the Middle East has thus been substantial and it has been concentrated in support for Egypt and Israel.

## MILITARY ASSISTANCE AND ARMS SALES

The United States has been a major supplier of military equipment and services to Middle Eastern nations. During the 1973-77 period, U.S. arms transfers to 15 Middle Eastern nations (including Israel) totaled \$10.5 billion, compared to \$7.5 billion for the Soviet Union.<sup>15</sup> These statistics include for the U.S. various types of military-related expenditures (construction, training, and management) not included for the Soviet Union or other suppliers, making it difficult to compare expenditures. In addition, there are problems with the values of the arms transfers, since offsets, commodity barter, and soft currency sales all may distort the values of transactions. During the 1977-81 period, however, the United States supplied Middle Eastern nations with more weapons than the Soviet Union in two categories—light armor and other military aircraft. In six other categories—surface-to-air missiles, subsonic combat aircraft, supersonic combat aircraft,

<sup>14</sup>Total ODA commitments include \$1.5 billion in bilateral and \$0.2 billion in multilateral aid. See, *Geographical Distribution of Financial Flows to Developing Countries* (Paris: C11; C1), 1982), p. 79.

<sup>15</sup>U.S. Arms Control and Disarmament Agency, *11 Years of Military Expenditures and Arms Transfers 1968-77* (Washington, D. C.: [U. S. Government Printing Office, 1979], p. 156. Algeria is not included in the list, but did receive \$470 million in military transfers from the Soviet Union during the period

major surface warships, artillery, and tanks—the Soviet Union provided more weapons.<sup>16</sup>

U.S. military assistance, like economic assistance, has been directed mainly to Egypt and Israel, which respectively received \$550 million and \$1.4 billion in 1981, or together more than three-quarters of total U.S. military assistance to the Near East and South Asia region. This region, moreover, received three-quarters of U.S. military assistance worldwide during the same year (see table 108).

Both Egypt and Israel receive assistance in the form of financing for foreign military sales (FMS). Most of the repayments for this assistance have been forgiven; in 1983 Israel was allocated \$750 million and Egypt \$425 million

<sup>16</sup>See U.S. Department of State, *Conventional Arms Transfers in the Third World, 1972-81*, Special Report 102, August 1982, pp. 1, 14.

in forgiven credits, out of total funding of \$1.7 billion and \$1.3 billion, respectively.<sup>17</sup>

In addition to official U.S. military assistance, commercial exports of military-related equipment licensed under the Arms Export Control Act amounted to almost \$3.3 billion for shipments to the region between 1950 and 1981. This represented about one-quarter of total commercial military sales worldwide.<sup>18</sup>

Table 109 compares the value of various types of U.S. economic interactions in the Middle East for 1981.

<sup>17</sup>General Accounting Office, p. 20. In fiscal year 1984, Israel was provided with \$1.7 billion in military assistance (of which one-half was forgiven) and Egypt with \$1.365 billion (of which \$465 million was forgiven).

<sup>18</sup>Out of the total, about \$1.6 billion went to Israel during the period. See Department of Defense, Security Assistance Agency, *Foreign Military Sales, Foreign Military Construction Sales and Military Assistance Facts*, September 1982, p. 32.

**Table 108.—U.S. Military Assistance to the Middle East, 1981 and 1946-81**

|   | 1981            |                  | 1946-81         |                  |
|---|-----------------|------------------|-----------------|------------------|
|   | Million dollars | Percent of world | Million dollars | Percent of world |
| Egypt . . . . .                                 | 551             | 17               | 2,052           | 2                |
| Israel . . . . .                                | 1,400           | 43               | 14,304          | 16               |
| Bahrain . . . . .                               | —               |                  | —               |                  |
| Iran . . . . .                                  | —               |                  | 1,405           |                  |
| Iraq . . . . .                                  | —               |                  | 50              |                  |
| Jordan . . . . .                                | 44              |                  | 1,039           |                  |
| Lebanon . . . . .                               | 20              |                  | 136             |                  |
| Oman . . . . .                                  | 25              |                  | 50              |                  |
| Saudi Arabia . . . . .                          | —               |                  | 292             |                  |
| Syria . . . . .                                 | —               |                  | 0               |                  |
| PDR Yemen . . . . .                             | —               |                  | —               |                  |
| Yemen Arab Republic . . . . .                   | 1               |                  | 3               |                  |
| Total Near East and South Asia region . . . . . | 2,472           | 76               | 29,645          | 33               |
| Total worldwide . . . . .                       | 3,244           |                  | 90,715          |                  |

SOURCE U.S. Agency for International Development, U.S. Overseas *Loans and Grants*, July 1, 1945–Sept. 30, 1981

**Table 109.—Comparison of U.S. Commercial Trade, Economic, and Military Assistance to the Middle East, 1981**

| Category                      | Value, 1981<br>(billion dollars) |
|-------------------------------|----------------------------------|
| Commercial exports . . . . .  | 18.3                             |
| Contracts awarded . . . . .   | 6.2                              |
| Economic assistance . . . . . | 1.9                              |
| Military assistance . . . . . | 2                                |
| Arms sales . . . . .          | 3                                |

NOTE. Middle Eastern region includes 15 Islamic nations and Israel. As discussed in ch 2 there is some overlap among these categories.

SOURCE Tables 105108, ch 13, and table 30, ch 4 of this report



## THE FOREIGN POLICY CONTEXT

### THE EVOLUTION OF U.S. FOREIGN POLICY

Technology transfer normally occurs in a larger context of foreign relations, and the patterns of commercial trade outlined above illustrate the influence of politics on trading relations, and vice versa. Because technology transfer involves more than simply exporting products, a deeper and longer-lasting relationship between the parties involved is required.

During the postwar period four themes have recurred in U.S. foreign policy toward the Middle East—securing oil supplies for Western nations, ensuring the security of Israel, limiting Soviet expansion in the region, and promoting peaceful economic and social development of the nations of the region. Over the years the problems surrounding these issues have changed, resulting in modifications to U.S. policy. The four themes remain, but debates continue about how best to define and achieve each type of foreign policy goal.

Until the end of World War II, U.S. political, military, and economic involvement in the Middle East was rather limited. During the first half of the 20th century, U.S. firms began oil exploration and production in the Middle East. The State Department, through its insistence that the British maintain an “open door” policy regarding Ottoman Empire oil holdings, helped American firms gain entry to Middle Eastern oil fields in the 1920’s.<sup>19</sup> Palestine remained under the British mandate between 1919 and 1948, and it was not until the immediate postwar period that a clear U.S. policy emerged favoring the establishment of a Jewish state.<sup>20</sup>

<sup>19</sup>Louis Turner, *Oil Companies in the International System* (London: George Allen and Unwin, 1978), p. 27.

<sup>20</sup>“American policies were somewhat contradictory during the World War II period. In 1945 President Roosevelt assured Saudi King Abdul Aziz that no action hostile to the Arab people would be taken, a statement seen as diverging from his 1944 electoral campaign provision favoring a “Jewish commonwealth. After violence grew in Palestine between Arabs and Jews and proposals for partition stalled, the Truman administration recognized the new state of Israel minutes before the British mandate expired in 1948.

The situation in the Middle East changed after World War II; the result was a gradually expanding U.S. role in the region. First, the Middle East oil fields boomed, fueling Western economic recovery. American firms in the ARAMCO group took the lead in Gulf oil development, encouraged by U.S. tax provisions that allowed the firms to count taxes paid to the Saudi Arabian government as credits against U.S. taxes. Secondly, concern with Soviet influence in the region grew as the British retreated from their former role as peacekeeper in the region. The rise of a nationalist Egyptian Government associated with the Soviet Union raised U.S. concerns about security in the region, particularly when President Nasser nationalized the Suez Canal in 1956. Third, United States ties to Israel grew during the postwar period. While no formal security pact was signed with Israel, the United States became that nation’s largest arms supplier after 1967, when France cut off most arms supplies.<sup>21</sup>

The 1967 war was a turning point for U.S. policies toward the Middle East. The failure of the United States to negotiate a comprehensive peace settlement with the Soviet Union was followed by the emergence of joint European policies favoring U.N. Resolution 242. U.S. diplomatic efforts focused on terminating the fighting between Israel and Egypt. As Britain ended its military commitments “east of Suez,” the Nixon Doctrine was announced. Accordingly, the United States increased provision of weapons and military training to nations such as Iran, which were viewed as important in regional security.

During the 1970’s a number of important changes occurred in U.S. policies toward the Middle East. The 1973 Arab-Israeli war and the Arab embargo of oil shipments to nations supporting Israel demonstrated the growing power of Arab Middle Eastern nations. U.S. military assistance to Israel grew rapidly in

<sup>21</sup>(Congressional Quarterly, *The Middle East* (Washington, D. C.: U.S. Government Printing Office, 1981), p. 11.

this context. U.S. policies favoring concerted action by Western governments to coordinate their energy policies developed in the International Energy Agency eventually met with some success. At the same time, Western Europe and Japan also pursued independent policies aimed at building economic ties with the oil-producing nations. While U.S. firms participated in the Middle Eastern development boom fueled by growing oil revenues, American policy makers instituted restrictions of various types on military and civilian sales. (These restrictions are discussed more fully later.) In addition, the fall of the Shah of Iran and the Soviet invasion of Afghanistan led to a growing emphasis on military and strategic themes in U.S. policies that were embodied in the Carter Doctrine, which identified the Persian Gulf as an area strategically important to the United States. By the end of the decade, the United States established the Rapid Deployment Force and set up air and naval bases on the island of Diego Garcia.

The 1970's not only brought stepped-up U.S. policy efforts to ensure the energy security of the West and the military defense of the Gulf States such as Saudi Arabia, but also extensive American diplomatic attempts to establish a lasting peace between Israel and its Arab neighbors. The accord between Israel and Egypt reached at Camp David in 1978 brought peace between the two nations but left open questions of the "final status" of the Gaza and West Bank areas occupied by Israel and home for many Palestinians. Egypt was, however, ostracized by Arab states and the Soviet Union, which had not participated in the negotiations. The United States pledged expanded aid to both Egypt and Israel and provided special security assurances to Israel in the event the treaty with Egypt fell apart.<sup>22</sup> Despite the success of Camp David, talks on the autonomy of the occupied territories stalled, and Egypt suspended discussions in 1980 after the Knesset of Israel declared Jerusalem to be the nation's "eternal and undivided capital."<sup>23</sup>

<sup>22</sup>Congressional Quarterly, *op. cit.*, p. 27,

<sup>23</sup>*Ibid.*, p. 28.

Following the Israeli invasion of Lebanon in 1982, the United States once again attempted to promote peace between Israel and the Arab world. The Reagan peace plan called for an "association" of the occupied territories with Jordan, a proposal which Jordan never fully embraced and one denounced by various Palestinian groups. Another set of negotiations were aimed at bringing withdrawal of foreign troops from Lebanon and beginning economic reconstruction in that nation.

The agreement for troop withdrawal reached between Lebanon and Israel in 1983 was, however, rejected by Syria, a nation receiving military assistance from the Soviet Union. As civil violence grew in Lebanon, U.S. Marines in the multinational peacekeeping force were re-deployed offshore in 1984. The presence of U.S. troops in the multilateral peacekeeping force in Lebanon and the stationing of a U.S. aircraft carrier off the coast of Libya during Libya's invasion of Chad suggested the possibility of changes in the nature of U.S. military activities in the region. Finally, the prolonged and bitter war between Iran and Iraq raised concerns about the security of the Gulf States and the oil fields. In recent years, debates over U.S. policies toward the Middle East have centered around issues of arms sales, security commitments to friendly nations, and the nature of U.S. military activities.

## IMPLICATIONS FOR TECHNOLOGY TRANSFER

Security and diplomacy have become the central themes in U.S. policies toward the Middle East during the 1970's, while commercial issues have remained secondary concerns. Nevertheless, commercial U.S. technology trade with the region expanded rapidly.

Following actions taken by the oil-producing nations to raise oil prices in the early 1970's, the demand for American equipment, technology, and services—both civilian and military—grew as the Middle Eastern development boom began and spread from the Gulf States to other Islamic countries in the region. These

nations viewed science and technology as a way to catchup to the industrialized West and to reduce the technological gap between the Islamic nations and Israel.<sup>24</sup> Many businessmen and political observers saw growing U.S. commercial involvement with moderate Arab nations such as Saudi Arabia and Egypt in a positive light. They emphasized the contribution of technology trade and transfer to the promotion of special relationships with nations supplying oil and to countering Soviet influence in the region.

Others, particularly some primarily concerned with the security of Israel, viewed growing commercial involvement with alarm. In their view, closer relations with the Arab states could endanger U.S. commitment to Israel. As a result, in the 1970's policies were developed to restrict U.S. commercial exports to the region for a variety of political and strategic reasons. American antiboycott policies, "foreign policy controls" used to restrict trade with nations supporting terrorist activities or violating human rights, and nuclear nonproliferation policies were all designed to restrict or oversee U.S. trade in order to further political or military goals. The fall of the Shah, moreover, heightened concerns about the risks of extensive U.S. involvement in nations of the region undertaking rapid economic development programs.

Thus, while American technology trade has grown along with U.S. military, strategic, and energy interests in the Middle East, technology trade has increasingly been regulated by official policies in order to achieve political or military goals. Those favoring export restrictions have viewed technology transfer with concern and have attempted to refine controls over exports of militarily critical technologies. In some cases, such as exports of sensitive nuclear technology, the controls have been instituted to further nonproliferation policies not

specific to the Middle East. In other cases, such as foreign policy controls governing exports of commercial aircraft, or antiboycott policies, controls and regulations have been instituted to foster political aims in the Middle East. As discussed in chapter 12, no other major supplier nation has instituted such extensive controls over exports as has the United States. On the other hand, close U.S. relations with countries such as Saudi Arabia and Egypt have provided a context favorable to expanded U.S. technology trade there.

## ENERGY POLICY AND TECHNOLOGY TRANSFER

During the decade of the 1970's, debates over U.S. energy policy focused on Middle Eastern oil. The central theme reverberating through all perspectives on U.S. energy problems was the goal of reducing oil imports. Policy perspectives evolved over time, each with different implications for technology transfer to the Middle East.

### Energy Independence

Immediately following the 1973 price increases and oil embargo, energy independence became the central theme of government policies. "Project Independence" aimed to end all dependence on foreign energy by the end of the 1980's. Confrontation with OPEC was a major theme, particularly in the early part of the decade. In an effort to break what some called a producers' cartel, a number of proposals were made, including military action, oil import fees, food embargoes, and government oil purchasing.<sup>25</sup> As self-sufficiency receded as a feasible goal, emphasis gradually switched to enhancing domestic energy production, increasing flexibility in management of energy-related adjustments, and alternative energy development.

The general thrust of the energy independence perspective, particularly in its earliest

<sup>24</sup>See Feud Ajami, *The Arab Predicament* (Cambridge: Cambridge University Press, 1981), p. 195, for a discussion of the problems posed by Western technology. See also Seth P. Tillman, *The United States and the Middle East* (Bloomington, Ind.: Indiana University Press, 1982), pp. 21-22, for a discussion of the Arab reaction to Israel's superiority in science and technology.

<sup>25</sup>See, for example, House of Representatives, *Alternatives to Dealing With OPEC*, hearings before a Subcommittee of the Committee on Government Operations, June 20, 1979.

vestiges, has been to limit technology trade and transfer with oil-producing nations. Confrontation with OPEC implies a general climate inhospitable to extended technology trade involvement in Middle Eastern oil-producing nations. In recent years, however, there has been less stress on confrontation with OPEC, especially when oil prices fell in the early 1980's. The general thrust of this perspective has been to reduce technology trade with the Middle Eastern oil producers.

### Allied Bargaining

The underlying rationale of allied bargaining, a second general perspective on U.S. energy policies, is that energy problems can best be solved jointly through coordination of policies with the Western nations in the International Energy Agency (IEA) and in summit conferences. Initially, proponents of allied bargaining saw it as a means to build a consumer bloc or cartel capable of countering OPEC. However, as Western Europe and Japan were more inclined to favor a wider, global energy dialog and because bilateral relations with producing nations continued to serve national goals, allied bargaining has been more narrowly focused in practice. Emergency oil sharing schemes, joint targets for stockpiles, and import reductions have been primary products of allied bargaining. At the same time, bilateral deals with producers and other new actors in the international oil market expanded in the latter part of the decade, limiting the coverage of allied policies.

Allied approaches to energy policy stimulate technology trade and cooperation among the Western consumers, particularly in development of energy technologies. In theory, an allied bargaining approach could contribute to a constructive dialog between oil producers and consumers. If such a dialog were successful in producing a comprehensive agreement on energy pricing and production in exchange for a Western commitment to provide technology and investment opportunities, the effect would be to stimulate multilateral technology transfers involving groups of suppliers and recipients. But while such a global bargain has

long been advocated, in practice neither the producer nor the consumer blocs have been able to hold their members to even less stringent agreements. The members of each bloc have widely divergent short-term interests, exemplified by disputes between price hawks and doves in OPEC and by friction between the United States and Japan over spot market purchases of Iranian oil. Nevertheless, allied bargaining—even in its more limited IEA context—does serve to promote technology trade among participants.

### Energy Security

A third approach has stressed energy security, implying a commitment to coordinate U.S. energy policies with military and security policies in order to reduce U.S. vulnerability to both short-term disruptions and long-term transitions in energy markets. Since the announcement of the Carter Doctrine in the late 1970's, programs such as the Rapid Deployment Force, the Strategic Petroleum Reserve, and emphasis on security of sea lanes have become central to discussions of U.S. energy policy. On the domestic scene, in order to promote energy security, the U.S. Government has been involved in promoting conservation, alternative energy development through price decontrols, and other measures. This vigorous approach to U.S. energy problems implies an active role for the Government, both domestically and internationally.

Emphasis on the security dimensions of energy policy has led to the fostering of "special relationships" with key oil-producing nations. Saudi Arabia, in particular, has been seen as a pivotal moderate nation in the Gulf. The energy security approach thus implies the stimulation of selective technology transfers to nations sharing mutual energy and security interests with those of the United States. At the heart of this approach is the notion that realistic bargains involving exchange of oil supply guarantees for technology exports can be struck. This approach demands considerable political leadership, since a vigorous domestic policy is also required.

**Subordination of Energy Policy to Defense Policy.**—Another approach to energy issues common in recent years has been to subordinate energy policy to defense policy. Proponents of this approach see international energy policy problems as fundamentally defense, and less frequently trade, issues. Instead of focusing on energy per se, proponents of this approach favor building strong bilateral and regional alliances in order to improve U.S. capability to respond to political developments that essentially determine energy politics at the international level. On the domestic scene, a deferral of energy choices to the private sector has been the major theme. In contrast to the energy security perspective, which places considerable burden on the U.S. Government to affect domestic energy markets, this approach implies withdrawal by the Government from all energy-related programs except those such as the Strategic Petroleum Reserve. By eschewing price and other types of intervention, proponents say, the Government can encourage market forces that spur economically efficient adjustments to changes in energy markets.

This last perspective accentuates the military and political dimensions of international

energy policy beyond those of the energy security approach. Proponents tend to view technology transfer as a lever (sometimes as a counterbalance to the use of oil as a weapon) which can be used to achieve larger political and military goals. Like the energy security perspective, this approach serves to promote bilateral and selective technology transfers to specific Middle Eastern nations. It also stresses military technology transfers in conjunction with regional security arrangements.

Different perspectives on U.S. energy policy thus have diverging implications for technology transfer. During the last decade, each of the four perspectives has been advocated and has remained a part of the policy debate even after official directions have shifted to another approach. As a result, policymakers in the Middle East, as well as U.S. businessmen, have found it necessary to readjust frequently to new policy directions. In the early 1980's, U.S. oil imports, including imports from OAPEC, fell. As a result, energy policy issues receded in discussions of Middle East policy. Changes in the energy policy climate during the past decade have accentuated uncertainty for firms and organizations involved in technology trade with the Middle East.

## COMMERCIAL POLICIES

In the United States, the private sector has played the leading role in promoting and financing international technology transfers. In contrast to the approaches taken by some other supplier governments discussed in chapter 12, the U.S. Government has not taken the initiative in organizing and negotiating on behalf of technology exporting firms.

Among U.S. commercial policies reviewed, only a few are designed, even in part, explicitly to promote technology transfer. Those include investment guarantee programs of the Overseas Private Investment Corporation and private voluntary efforts (e.g., Volunteers for International Technical Assistance). This section briefly evaluates the importance of various

promotional programs, financing programs, and trade agreements for technology transfer to the Middle East.

Major attention is paid to the issue of export financing, in light of concerns that foreign supplier governments have developed more extensive programs in this area. Taken together with analysis of technology transfer in chapters 5-9 and policies of other supplier countries in chapter 12, this review of U.S. commercial policies indicates that, while U.S. Government financing and insurance programs have not been as extensive as those of some other supplier nations, such differences in supports to exports have only infrequently been key factors influencing competition for sales in the

Middle East in the sectors examined by OTA. (Upon occasion, attractive financing packages have helped suppliers to gain an edge in negotiations for sales of telecommunications, aircraft or nuclear technologies.) There are a number of reasons for this. First, many Middle Eastern countries have been in a position to finance technology imports themselves. (For capital-short countries such as Egypt, in contrast, financing has been a more central consideration.) Secondly, the subsidy element of export financing has been gradually reduced in recent years under the terms of the OECD Arrangement. Nevertheless, U.S. Government-supported extraordinary export support programs (involving mixed credits, guarantees, inflation and exchange insurance) remain less extensive than those of most other Western suppliers, and such programs may be increasingly important in the future.

## PROMOTIONAL EXPORT PROGRAMS

### Representation of Business

In the United States, a small percentage of the Federal budget is devoted to export promotion programs.<sup>26</sup> U.S. official representation of business, at both high diplomatic and routine commercial service levels, has not been as extensive as that of other supplier nations, as discussed in chapter 10.

The Department of Commerce's International Trade Administration (ITA) has been the major locus of educational and promotional activities related to foreign exports, but few of these programs have been directly aimed to promote technology transfers or exports of technical services. ITA programs provide information for potential U.S. exporters, assist them in penetrating foreign markets, and in-

crease the awareness of potential foreign buyers. Surveys of various Middle Eastern national markets and reports outlining export opportunities in particular sectors, such as medical services, are published regularly. In an unusual display of U.S. Government support, Secretary of Commerce Malcolm Baldrige led a U.S. trade mission to Saudi Arabia and Algeria in 1982. However, export promotion programs generally have not been given high priority in the United States, and instances of high-level economic diplomacy on behalf of the private sector have been comparatively rare. In contrast to the situation in Western Europe and Japan, during the post-war period relations between the U.S. Government and business have been more adversarial, with the emphasis in public policies on regulating business.

In 1980, a new Foreign Commercial Service (FCS) was created in the Department of Commerce, officially transferring responsibility for business representation from the Department of State. While improvements have been made in the commercial services provided both to U.S. exporters and to potential foreign buyers, problems remain. Not the least of these arise from division of responsibilities between the FCS and the State Department. Indeed, the transfer of positions has not yet been completed, and in some cases commercial staffs in U.S. embassies overseas reportedly lack the resources and autonomy required to carry out all their functions. One report found, for example, the FCS to be inadequate in Saudi Arabia.<sup>27</sup> U.S. Government representation of business interests overseas is undoubtedly complicated by the fact that the FCS is required to maintain neutrality, and therefore is restricted in pointing out the special expertise of particular U.S. firms when they are competing with other U.S. firms. Nor does the FCS officer normally possess extensive technical expertise required to enhance the technology transfer component of overseas business transactions.

<sup>26</sup>According to one report, the United States has spent on export promotion programs less to promote manufactured goods exports than have Japan, the United Kingdom, Italy and France but more than have Canada and West Germany. See U.S. Senate, Committee on Banking, Housing, and Urban Affairs, Subcommittee on International Finance, *Export Policy. A Report*, February 1979. Unfortunately, no data are available clarifying total Government support for exports (including all State programs, export financing, and insurance costs.)

<sup>27</sup>General Accounting Office, *Problems Hamper Foreign Commercial Service's Progress*, GAO/ID-83-10, October 18, 1982, p. 12.

## Private Sector Programs

While official U.S. export promotion programs affect technology trade on the margins, the primary force in U.S. exports is the private sector itself. As mentioned earlier, there are many private sector firms and organizations involved in technology transfer. Cooperative efforts involving either groups of private sector firms or mechanisms for government-business cooperation in international technology trade have been less prominent than in some other Western supplier countries. Traditionally, U.S. antitrust law prohibited joint private sector export efforts that restrict competition in the United States. A new law on export trading companies was signed in 1982, permitting the expansion of joint export efforts through antitrust exemptions, an extension of coverage to exports in services, and the participation of banks through bank holding companies. It is too early to determine the impact of this legislation on technology trade with the Middle East. Proponents anticipate expansion in exports, but opponents note that the largest exporting firms have already extended the involvement of other firms through contracting practices. In 1980, for example, Boeing was the largest U.S. exporter: almost 3,000 U.S. firms received orders through Boeing, for a total value of \$4 billion.<sup>28</sup>

Private sector organizations such as the U.S. Chamber of Commerce have been active worldwide. Other institutions supported by the private sector, such as the U.S.-Egyptian Business Council and the U.S. Business Roundtable in Saudi Arabia, provide and disseminate information about regional market conditions.

Private sector mechanisms also exist for encouraging technology transfer. One of the oldest is the International Executive Service Corps, a private nonprofit organization that sends retired American businessmen abroad to work on development projects requiring their specific expertise. This organization has

as a primary goal the transfer of technology to developing countries, but its activities have also led to expanded exports for U.S. firms. About 36 percent of the foreign clients in the 500 or so projects carried out annually have purchased U.S. machinery or equipment. The number of projects undertaken has dropped, apparently due in part to the fact that other supplier countries offer similar programs at even lower costs.<sup>29</sup> Similarly, Volunteers in International Technical Assistance (VITA) is a private, nonprofit corporation that assists through correspondence individuals and small businesses in developing nations. More recently established, with support from the U.S. Government, is the U.S. Telecommunications Training Institute, which offers courses for managers and technical personnel from developing nations. Another notable example is Project HOPE, a private nonprofit organization devoted to health care education and technology transfers to the developing world. In Egypt, Project HOPE has conducted extensive teaching programs for health science professionals that include programs in biomedical engineering, nursing education, and scientific exchange. Such private sector efforts are important in promoting technology transfers to developing nations.

## The Role of Small Business

The role of small business has been a point of controversy over the years in debates about U.S. export policy. Proponents of promotion programs for small businesses argue that such businesses could play a much larger export role. Small firms, however, have not been particularly prominent in technology trade with the Middle East.

In the late 1970's the Department of Commerce announced that export promotional programs would target small, new-to-market

<sup>28</sup> congressional Research Service, *Export Trading Companies*, op. cit., p. 4.

<sup>29</sup> "Statement by Thomas S. Carroll, International Executive Service Corps (IESC), hearings before the House Committee on Foreign Affairs, *Role of Private Sector in Development Abroad*, Feb. 24 and 25, 1982, p. 152. IESC receives \$5 million in support from AID, \$5.3 million from its developing country clients, and \$1.4 million from other sources.

firms with high export potential.<sup>30</sup> During 1982 and 1983 about \$3 million was provided (under the Small Business Expansion Act of 1980) to support exports by small businesses. Matching grants were given in organizations contacting small businesses, conducting seminars on exporting and trade missions, although few of these programs were aimed at the Middle East market specifically. In addition, the Small Business Administration was authorized under the same legislation to begin a new financial assistance program for small exporters. During fiscal year 1982, about \$10 million in loans was given to small businesses to support their exports." Beginning in 1984, the Export-Import Bank planned to set aside 6% of the Bank's lending authorizations to support small business exports.

It is difficult to assess the success of these programs, since information is not available concerning the record of small businesses that have come into contact with them. Such efforts are costly and time-consuming, and short-term programs are not likely to become self-sustaining.

Finally, the Export Trading Company Act of 1982 was expected to assist small exporters by permitting trading companies to handle legal, financial, shipping, and marketing matters often difficult for smaller firms operating in distant markets. Most Department of Commerce programs have assisted smaller firms that have already begun to export, and proposals for establishment of quotas for small business participation in overseas trade missions have been rejected on the grounds that programs should assist firms that are best in a position to export rather than merely fill quotas. In 1982, a new program was established under the auspices of the U.S.-Saudi Joint Commission to promote joint ventures among small and medium-sized firms from both nations. This program, which was slow in getting off the ground, represents anew role

for the government as a matchmaker between U.S. and foreign firms.<sup>32</sup> Despite these programs, large corporations continue to be much more prominent in foreign markets than small firms.<sup>33</sup>

## Tax Policy

For years, businesses operating in the Middle East and in other foreign markets complained that U.S. tax policies burdened American citizens working overseas. In 1981 the tax exclusion on incomes of Americans working abroad was increased to \$75,000 per year, eliminating many of the complaints. The tax exclusion on income earned abroad is scheduled to increase to \$95,000 by 1985.

Controversy surrounded the Domestic International Sales Corporation (DISC), which allowed U.S. firms to establish domestic corporations that served as channels for exports and were given favorable tax treatment. A large export subsidy was provided by the DISC after its creation in 1971, and DISC was criticized as a violation of GATT rules by Europeans. In 1984 Congress established a Foreign Sales Corporation (FSC) to replace the DISC.<sup>34</sup>

Two aspects of DISC are relevant to technology transfer. First, the DISC was set up to cover product and commodity exports, and these tax advantages were not available to exporters of technical services. Secondly, the major beneficiaries of DISC have been larger firms, such as those that export chemicals, machinery and equipment, and aircraft.<sup>35</sup> As table

<sup>30</sup>"Saudi Arabia, U.S. Establish Bilateral Working Group to Spur Joint Ventures," *U.S. Import Weekly*, Sept. 20, 1982.

<sup>31</sup>Congressional Research Service, *Export Trading Companies*, IB80044, Dec. 2, 1982, p. 1.

<sup>32</sup>Thomas Kwako, "International Tax Rules," in Gary Clyde Hufbauer (ed.), *U.S. International Economic Policy, 1981*, draft report (Washington, D. C.: Georgetown University Law Center, 1982), pp. 6-27. For a summary of legislation proposing the Foreign Sales Corporation, see "Administration's DISC Substitute Bill Introduced in Both House, Senate," *U.S. Import Weekly*, Aug. 9, 1983. See also Hobart Rowen, "The Great Tax Grab," *The Washington Post*, July 5, 1984, p. A21. The FSC will allow for a 16 percent tax exemption on the combined earnings of the FSC and the parent corporation. The estimated tax loss for the DISC since 1971 was \$12 billion.

<sup>33</sup>Department of the Treasury, *The Operation and Effect of the Domestic International Sales Corporation Legislation, 1980 Annual Report*, pp. 7, 22, 27.

<sup>34</sup>U.S. Senate, Committee on Banking, Housing, and Urban Affairs, Subcommittee on International Finance, *Export Policy*, part 6, hearing, Apr. 5, 1978, pp. 210-211.

<sup>35</sup>General Accounting Office, *Efforts to promote Exports by Small, Non-Exporting Manufacturers*, Jan. 18, 1983, pp. 2, 11.



110 shows, the gross receipts of DISC firms in Middle Eastern markets were valued at more than \$8 billion in 1979, out of \$11 billion in total U.S. exports to 15 Islamic nations in the Middle East. These exports were concentrated in sales to Saudi Arabia and Iran. Exporters of machinery and equipment to the Middle East in particular have benefited from DISC. The new FSC does not cover service exports, nor is it likely that it will be used to a markedly greater degree by smaller firms.

### Government Support for Financing Exports and Foreign Investments

The primary mechanisms of Government support for financing involve loans and grants for exports and insurance to reduce the risk of exports and foreign investments. In the United States, the Export-Import Bank and the Overseas Private Insurance Corporation are the two most important Government institutions involved in financing. These financing programs have never been fully reconciled with other aspects of U.S. international economic and foreign policy.<sup>36</sup> Export financing

<sup>36</sup>Roger E. Shields and R. Craig Sonksen, *Government Financial Institutions in Support of U.S. Exports*, CSIS Significant Issues Series, vol. 2, No. 4 (Washington, D. C.: Georgetown University, 1982), p. 2.

**Table 110.— DISC-Related Exports<sup>a</sup> to the Middle East, 1979**

| Geographical destination                    | Number of returns | Gross receipts of DISC firms (million dollars) |
|---|-------------------|--|
| Algeria . . . . .                           | 439               | 341  |
| Libya . . . . .                             | 643               | 301  |
| Egypt . . . . .                             | 1,003             | 494  |
| Iran . . . . .                              | 1,790             | 2,529  |
| Iraq . . . . .                              | 524               | 205  |
| Kuwait . . . . .                            | 985               | 548  |
| Qatar . . . . .                             | 392               | 68   |
| Saudi Arabia . . . . .                      | 1,808             | 3,081  |
| UAE . . . . .                               | 834               | 333  |
| Israel . . . . .                            | 2,315             | 1,045  |
| Other Middle East countries . . . . .       | 1,797             | 591  |
| Total Middle East (excluding Israel) . .    | 10,215            | 8,489  |
| Total U.S. Middle Eastern exports . . . . . |                   | 11,371   |
| Total U.S. exports worldwide . . . . .      |                   | 182,025  |

<sup>a</sup>Manufactured and nonmanufactured products  
NOTE Deferred taxes amounted to 1 1/2 percent of gross receipts in 1980  
SOURCE Office of the Secretary of the Treasury Office of Tax Analysis

remains a controversial issue in the United States.

### THE SUBSIDIES CONTROVERSY

On the one hand, some argue that the Government's role in promoting exports and in supporting U.S. investments abroad should be reduced. Opponents of export financing view Government support as a subsidy for business which is not necessary or appropriate. A central theme of this argument is that American taxpayers should not be asked to support business exports. Particularly in light of the leading role that the United States has taken in negotiations to reduce trade barriers worldwide, opponents view export subsidies as distorting international trade and thereby inhibiting necessary adjustments by U.S. firms. A variation on this argument would support U.S. Government involvement in areas that have been mutually agreed on as acceptable, such as Export-Import Bank loans, but severely limit others, such as mixed credits. A second argument is that in practice export financing assists a few of the Nation's largest industries and businesses, and therefore benefits are directed to a relatively small number of firms. Finally, some critics focus their attack on those programs promoting U.S. investments abroad, seeing them as ultimately contributing to foreign production capacity, and potential U.S. employment loss.

While the critics of export financing have played the major role in policy formation, proponents also make persuasive arguments. They argue that international trade does not really operate in a free market context and that since some other supplier countries have developed extensive export financing programs, the United States should do likewise. In addition, the use of various indirect, domestic industrial policies by other supplier nations indicates their commitment to support industries in a variety of ways. Instead of seeing the benefits of expanded exports as accruing to a few large firms, the proponents point to the subcontracts awarded to smaller U.S. firms and to the resulting gains in balance of payments. Despite continuing disagreements about the value of exports directly attributa-

ble to export financing, proponents argue that the gains are substantial and benefit the entire economy. Proponents view international trade and technology transfer as essential for the continuing competitiveness of U.S. firms, and many of them argue that U.S. exports and investments abroad open up new markets and contribute revenues which American firms use for research and development (R&D) investments necessary to maintain their cutting edge in technology development.

Evaluation of these arguments centers around the comparability of U.S. financing programs to those abroad, and around the question of how much difference export financing makes in determining the competitive positions of firms. Export insurance, financing, and Government support for foreign investments are briefly reviewed with these questions in mind. These are, however, complex issues that cannot be treated fully here.

U.S. export financing programs compare with those abroad but generally have been less extensive. However, it should be remembered that only in a small number of instances, where capital costs are great and equipment and technology are similar, have export credits made the critical difference in winning contracts in the sectors examined by OTA in chapters 5-9. Sales of aircraft, nuclear reactors, and telecommunications to nations such as Egypt are thus the exceptions to the general rule. There is, however, little evidence of a clear relationship between the level of official credit subsidy and the export success of domestic firms.

#### THE U.S. EXPORT-IMPORT BANK

The major institutions providing insurance and guarantees to reduce risk to U.S. exporters are the Export-Import Bank and the Foreign Credit Insurance Corporation (FCIC), the latter being an association of 50 private insurance companies. The insurance and guarantees are used to support short-term transactions involving repayment terms of up to 180 days. The FCIC underwrites most commercial risks and the Export-Import Bank, most political

risks. Coverage of up to 90 percent for commercial and 100 percent for political risks is provided. During 1981, the fees charged by these institutions were midway between those charged by France (at the high end of the scale for Western supplier nations) and those of Japan, at the low end.<sup>37</sup> Medium-term insurance coverage is also provided. During 1982 the U.S. Government provided insurance and

<sup>37</sup>This data and evaluations of the comparability of U.S. export financing programs that follow are taken from the Report to the U.S. Congress on Export Credit Competition and the Export-Import Bank of the United States, for the period Jan. 1, 1981 through Dec. 31, 1981, Export-Import Bank, December 1982, p. 19.

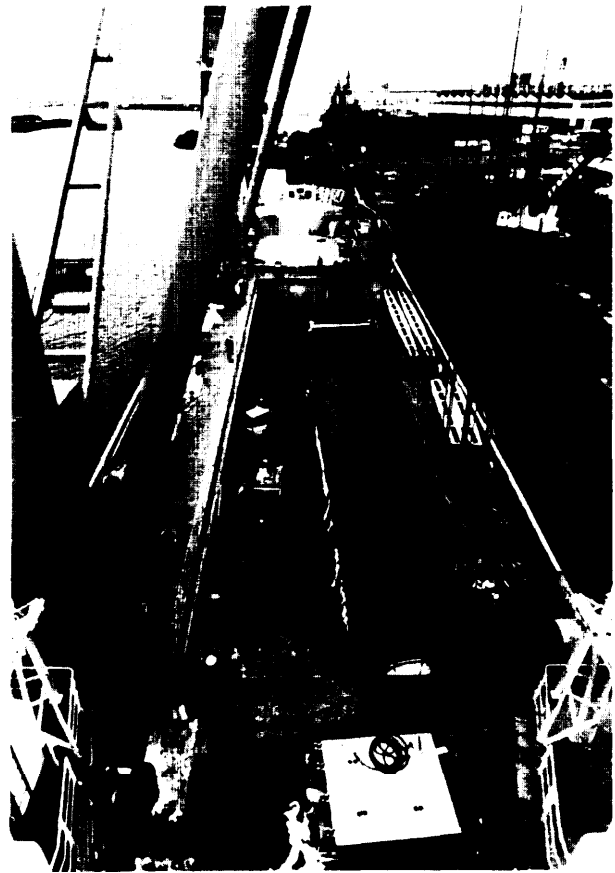


Photo credit Export-Import Bank of the United States

High-technology heat exchangers, specified and procured by the Pullman Kellogg division of Pullman Incorporated, are loaded aboard a freighter for shipment to Algeria to be installed in a liquefied natural gas plant. The project was supported by the U.S. Export-Import Bank

guarantee coverage amounting to \$5.8 billion, which supported 5.3 percent of U.S. exports. (The value of U.S. insurance and guarantee programs has been slightly more than 10 percent of those of Japan.<sup>38</sup>) In the area of long-term loans and transactions, the United States does not offer many of the extraordinary export support programs such as inflation insurance, exchange rate risk, bond insurance, and foreign currency loans that most of the other major suppliers provide. Thus, the United States does not offer as wide a range of financing and insurance programs as do many major Western supplier countries.

Export financing is used more extensively by some foreign governments than by the United States. Congress sets annual limits on the loans the Export-Import Bank can authorize. The Bank supports with loans a comparatively small percentage of total exports. In 1982 the bank authorized \$3.1 billion in direct loans, supporting \$4.7 billion in exports out of a total for the year of \$212 billion.<sup>39</sup> In the area of long-term export credits, the level of subsidy provided by the United States has been lower than that provided by France or Great Britain, but above that provided by West Germany and Japan. Nominal and effective interest rates charged for these loans have also been higher than those in other supplier nations. Table 111 shows the level of subsidy and the effective interest rates for 1981 and 1982, as calculated by the Export-Import Bank.

During 1982, under the terms of the OECD Arrangement, the subsidy element was almost eliminated from export credits of major OECD nations except France. As a medium-term credit program was established by the U.S. Export-Import Bank in 1982, the bank programs became increasingly competitive with those of other major Western nations. On the other hand, the U.S. Export-Import Bank calculated that \$400 million in U.S. exports were

**Table 111.—Comparison of Credit Subsidy and Interest Rates, 1981 and 1982**

|                     | Subsidy <sup>a</sup><br>(million dollars) |      | Interest rate <sup>b</sup> |       |
|---------------------|---|------|----------------------------|-------|
|                     | 1981                                      | 1982 | 1981                       | 1982  |
| France . . . . .    | 466                                       | 250  | 8.61                       | 11.75 |
| West Germany . . .  | 0   | 0    | 11.61                      | 9.55  |
| Japan . . . . .     | 79  | 0    | 8.05                       | 9.50  |
| United Kingdom . .  | 382                                       | 0    | 8.75                       | 11.80 |
| United States . . . | 203                                       | 0    | 11.50                      | 12.65 |

<sup>a</sup>Calculated as nominal cost of the life of a \$10 billion 10-year credit. The amount of subsidy is that amount present when nominal export credit rates are compared to then-prevailing interest rates on government bonds of similar maturity in the same country and the relative attractiveness of a given interest rate to borrowers.

<sup>b</sup>Effective interest rate, estimated total cost of financing.

SOURCE: Export-Import Bank of the United States, Report to the U.S. Congress on Export Credit Competition and the Export-Import Bank of the United States, September 1983, pp. 5 and 8.

lost because of the expanded use of mixed credit programs abroad.

Despite the fact that U.S. export financing was less extensive and offered on terms less favorable than that offered by some major competitors during the past decade, U.S. firms have nevertheless been successful in major less-developed countries (LDC) export markets when competing against officially supported export credit agencies in France, West Germany, Japan, and Great Britain, according to the Export-Import Bank.<sup>40</sup> These same patterns prevailed in medium-term export financing, but the effective rates on loans in that case have been higher for U.S. Export-Import Bank credits. Thus, while U.S. export financing programs were generally not competitive in every respect with those offered by other major suppliers, some U.S. programs have recently been expanded, and there is no evidence that there is a clear relationship between the level of official credit subsidy and export success.

In the Middle East, export credits have been most important for sales in nations such as Egypt, where financing is a major problem. During its history, the Export-Import Bank of the United States has provided credits, guarantees and insurance supporting exports to the Africa and Middle East region totaling \$17 billion, or less than 17 percent of its total

<sup>38</sup>Ibid., p. 66 and p. 77.

<sup>39</sup>Ibid., p. 76; also, Highlights of U.S. Trade for 1982. See also Export-Import Bank of the United States, *Report to the Congress*, 1983, pp. i, 4-13.

<sup>40</sup>Ibid., p. 12.

authorizations to support exports worldwide. Credits and insurance for exports to Egypt during the period 1934-80 were valued at \$413 million; Algeria, \$2.1 billion; Iran, \$2.3 billion; Iraq, \$59 million; Israel, \$1.9 billion; Kuwait, \$643 million; and Saudi Arabia, \$1.5 billion.<sup>41</sup> Table 112 shows Export-Import Bank authorizations for loans, guarantees, and insurance for fiscal year 1981. As discussed later in the context of mixed credits (those that combine concessional financing with official export credits), financing has been a key element in awards of Egyptian telecommunications contracts and (as discussed in ch. 9), in that nation's nuclear technology transfer plans.

### THE OVERSEAS PRIVATE INVESTMENT CORPORATION

In contrast to Government organizations which provide support for exports, the Overseas Private Investment Corporation (OPIC) is the major mechanism for Government assistance to American investors in developing nations. OPIC was set up in 1971 and is authorized to help finance only those projects that contribute to economic and social development in the host country and are at the same time consistent with U.S. balance of payments and employment goals. OPIC operates on a self-sustaining basis, but Congress reviews its operations annually and has directed OPIC to meet specific objectives. For example, Congress instructed OPIC to avoid support for investments that are restricted by

host country performance requirements and could have adverse impacts on U.S. trade.<sup>42</sup> In 1978 Congress instructed OPIC to put priority on projects in the poorer developing countries, and in 1981 Congress raised the restriction on gross national product (GNP) per capita to \$2,950 in 1979 dollars.

OPIC is unique as a U.S. Government instrument for promotion of overseas investment and technology transfer. Unlike the other commercial programs, OPIC funds investments in services and other ongoing operations that are more relevant to technology transfer than product exports. OPIC is a comparatively small agency; its significance is therefore as an instrument which could be used more extensively. Its loan and loan guarantee commitments were valued at \$110 million in 1983.<sup>43</sup> During the 1979-83 period, OPIC supported 166 investment projects in 10 Near Eastern nations with almost \$3 billion worth of insurance and \$625,000 in project financing. During 1983 alone OPIC insurance supported \$1.14 billion worth of U.S. investment in the region. OPIC offers investment insurance to protect U.S. investors against loss from war and insurrection, expropriation, civil strife, and inconvertibility of capital and profits. It also offers direct financial assistance and programs for U.S. investors. OPIC supports a program to provide management training and technology transfer and a UNIDO program that trains investment promotion officers from developing nations.

<sup>41</sup>U.S. Export-Import Bank, *Cumulative Record by Country*, Feb. 12, 1934, to Sept. 30, 1980.

<sup>42</sup>Organization for Economic Cooperation and Development, *Investing in Developing Countries* (Paris: OECD, 1982), p. 106.

<sup>43</sup>Overseas Private Investment Corporation, *Development Report 1983*, p. 28.

**Table 112.—1981 Export-Import Bank Authorizations to Selected Middle East Nations (million dollars)**

| Nation               | 1981          | 1981               | 1982          | 1982               |
|----------------------|---------------|--------------------|---------------|--------------------|
|                      | Authorization | Total U.S. exports | Authorization | Total U.S. exports |
| Algeria . . . . .    | 21            | 717                | 7.9           | 919                |
| Egypt . . . . .      | 64            | 2,159              | 66.7          | 2,875              |
| Iran . . . . .       | 0             | 300                | 0             | 122                |
| Iraq . . . . .       | 0             | 914                | 0             | 846                |
| Israel . . . . .     | 275           | 2,521              | 7.9           | 2,271              |
| Kuwait . . . . .     | 17            | 976                | 12.6          | 941                |
| Saudi Arabia . . . . | 36            | 7,327              | 75.4          | 9,026              |

SOURCE Export-Import Bank of the United States, *Fiscal 1981 Annual Report* pp 27-30, *Fiscal 1982 Annual Report*, pp 31-34



Photo credit: Overseas Private Investment Corporation

Technology for recovery and recycling of key metals was introduced in Egypt by a U.S. firm in an OPIC-supported project. The project also accomplishes goals of eliminating hazardous wastes, and restoring land previously used as dumping grounds.

In recent years, U.S. direct investment in developing countries has represented almost half of the total invested by OECD nations, both in terms of stock and flow. In 1981, for example, OECD countries invested \$14.6 billion in developing nations, of which U.S. investors made up \$6.4 billion.<sup>44</sup> The share in total U.S. foreign investments in the Middle East, however, has been relatively small: Egypt, Saudi Arabia, and Iran together received less than one-tenth of one percent of all direct foreign investments made in 1981. Nevertheless, U.S. investments in developing countries are important mechanisms for tech-

nology transfer, and OPIC is the primary government channel for directing and encouraging them.

Because OPIC is charged with encouraging investments that do not pose potential adverse economic impacts on U.S. employment and the balance of trade, its review process for prospective projects constitutes the most extensive preproject impact analysis carried out by any U.S. agency of purely commercial projects. OPIC has refused assistance to projects with potential adverse impacts, including some high-technology projects.<sup>45</sup> Congress has required OPIC to carry out developmental impact assessments, in light of what was perceived by some Members of Congress as a lack of sufficient detailed evidence to permit anticipation of economic and social effects. Criteria for assessing impacts include employment, technology transfer, productivity, multiplier effects on other industries, contribution to host government revenues, foreign exchange, concentration of project ownership, environmental and safety effects, and compatibility with other development assistance programs.<sup>46</sup> Thus, OPIC takes local impacts, including technology transfer, into account in its project review.

On the other hand, since 1981, Congress has directed OPIC to consider the potentially adverse effects of performance requirements, and to consider issues such as sensitivity of U.S. imports and the competitiveness of U.S. exports. OPIC reports indicate that 51 percent of all Near Eastern projects reviewed had performance requirements, the highest level of any geographical region of the world. Local content regulations, particularly in energy and minerals projects, have been most common. Of the Middle East projects reviewed, Saudi Arabia and Egypt have had the highest number of projects with performance requirements. However, in fiscal year 1982, none of these projects was found to reduce substantially positive trade benefits to the United

<sup>45</sup>U.S. Overseas Private Investment Corp., 1981 *Annual Report*, p. 49.

<sup>46</sup>See Senate Foreign Relations Committee, *Overseas Private Investment Corporation*, hearings, June 11, 12, 1980, pp. 84-90.

<sup>44</sup>OECD, *Investing in Developing Countries*, p. 17.

States.<sup>47</sup> OPIC is designed to complement but not duplicate the goals of U.S. development assistance, and project reviews are designed to carry out this function.

OPIC operates a small contractors' guaranty program, which supports exports of technical services and is designed to improve the positions of U.S. engineering and contracting firms operating in the Middle East. In addition, OPIC can provide insurance against the risk that a licensing or management fee will not be paid and can insure the capital investment of the license itself as part of the overall investment, assuming that it extends for a minimum of 3 years. Both of these programs directly promote technology transfers.

OPIC's insurance against expropriation of property is a support for firms that transfer technology and have long-term overseas involvement. OPIC's record of settlement has been good. By the end of 1982, the corporation had settled 134 claims. In 1983 alone, 17 claims were settled, with payments amounting to more than \$6 million. It is important to note that \$10 million has been paid in settlements of four de facto expropriation cases arising from investments in Iran. OPIC is pursuing in the Iran-U. S. Claims Tribunal its own claims against Iran that arose from these payments. OPIC's interpretation of what constitutes expropriatory action could presumably include host government requirements that the investor make proprietary technology available to those outside the original agreement.<sup>48</sup>

In contrast to export promotional programs, OPIC financing and insurance programs for overseas investment in developing countries contribute directly to technology transfers. The relatively small share of direct investment in Middle Eastern nations indicates that U.S. firms have found other regions, South America in particular, more attractive as sites for

investment. Nevertheless, as Middle Eastern nations attempt to expand technology transfer through promotion of foreign investment, these programs could be used more extensively.<sup>49</sup>

## INTERNATIONAL AGREEMENTS AND NEGOTIATIONS

International agreements relevant to technology transfer to the Middle East include the GATT and OECD subsidies codes agreements, discussed in chapter 2, and commercial treaties between the United States and individual Middle Eastern nations. In addition, United Nations negotiations regarding a proposed code governing technology transfers have increased awareness of LDC technology transfer issues.

Since the 1960's, developing nations have attempted to improve their ability to bargain for and acquire technology from the developed nations by working through a number of organizations, the most important of which is the United Nations Conference on Trade and Development (UNCTAD). In 1980 the U.N. General Assembly adopted the draft code on technology transfer as an advisory instrument only. The thrust of the proposed code is to promote technology transfer to developing nations through limitations on licensing practices, promotion of exchange of technological information, and indigenous technology development.<sup>50</sup>

Nevertheless, the code has not been formally adopted, signifying the ongoing discord between the developing and developed nations. At the heart of the dispute is the call from developing nations to loosen the protections of the Paris Convention, administered by the World Intellectual Property Organization, which governs international agreements on patents. U.S. patent laws provide greater protection to patent holders than the Convention does, and the United States has consistently

<sup>47</sup>U.S. Overseas Private Investment Corp., "OPIC Experience with Trade-Related Performance Requirements," fiscal years 1981 and 1982, papers.

<sup>48</sup>S. Linn Williams, "The Transfer of Technology to Developing Countries," *Federal News and Bar Journal*, May 1983, p. 269.

<sup>49</sup>Sam Ayoub, "How a U.S. Businessman Operates in the Middle East Today," *Tax Executive*, vol. 35, October 1982, p. 78.

<sup>50</sup>UNCTAD, *UNCTAD Bulletin*, No. 192, April 1983, pp. 13-14.

opposed loosening the international agreements. In the opinion of U.S. spokesmen, loosening the restrictions would not aid developing nations but would simply reduce the incentives for U.S. firms and firms from other developed countries to invest in the Third World, thereby limiting technology transfer. In addition, not all new technology developments are covered by patents. Middle Eastern nations have participated in the debates over the proposed technology transfer code. Because their purchases of patents and licenses have been extremely limited, the significance of the debate for Middle Eastern countries is in the seminars and in workshops offered by UNIDO and regional U.N. agencies devoted to the study of technology transfer and science and technology policies.

In addition to the international negotiations and agreements mentioned above, international treaties between the United States and Middle Eastern nations have set the immediate context and parameters for the involvement of U.S. firms. In 1982 the U.S. initialed a bilateral investment treaty granting Egypt “most-favored-nation” status. The treaty, which covers treatment of foreign investments, compensation for expropriation, transferability of payments, and the settlement of disputes, is not yet fully implemented. Such treaties give U.S. firms an extra level of protection, but effects on exports are difficult to assess. In contrast to many other supplier nations, the United States has bilateral trade accords only with Brazil among the developing nations.

Except with Egypt, there are no official and comprehensive U.S. trade or investment agreements with Middle Eastern nations, although the United States and Israel began negotiations in 1984 on a joint free trade agreement.

The Department of Commerce announced it has no plans to grant Saudi Arabia most-favored-nation status, although that nation has requested it.<sup>51</sup> A bilateral investment treaty with Saudi Arabia is, however, a possibility. Egypt is thus the only Middle East nation with which the United States has officially promoted U.S. commercial involvement through trade or investment agreements.<sup>52</sup>

Technology transfer involves international trade in services, an export area of growing importance to the United States but one not effectively covered by international agreements. U.S. negotiators have attempted to introduce proposals for such an agreement, but none has yet been approved. A major difficulty in this regard is a lack of data needed to effectively analyze service trade. A number of congressional proposals have been made to improve the collection of such data, and to limit foreign access to the domestic U.S. service market to promote “reciprocity.” For a variety of reasons discussed in chapter 2, improved analysis of service trade could contribute to the development of more effective U.S. policies affecting technology transfer.

<sup>51</sup> “Saudis Rebuffed Over Most-Favored-Nation Status,” *Middle East Economic Digest*, May 13, 1983, p. 11; “Investment Treaty Protects U.S. Firms,” *Middle East Economic Digest*, Oct. 8, 1982, p. 19. Saudi Arabia contends that U.S. refusal to grant Generalized System of Preferences (GSP) status constitutes a violation of a 1933 treaty. U.S. law excludes OPEC countries from GSP status granted to most developing countries.

“U.S. Government actions prohibiting Kuwait from holding leases on public lands may provide disincentives for trade with that nation. See House of Representatives, Subcommittee of the Committee on Government Operations, *Federal Response to OPEC Country Investment in the United States*, part 2—“Investment in Sensitive Sectors of the U.S. Economy: Kuwait Petroleum Corporation Takeover of Sante Fe International Corporation, October 20, 22, November 24, and December 9, 1981,” and part 3—“Saudi Arabian Influence in Whittaker Corporation,” Apr. 6, 1982. It should be noted that the U.S. and Morocco have signed a bilateral investment treaty.

## DEVELOPMENT ASSISTANCE

While technology transfer occurs primarily in the commercial marketplace, U.S. Government assistance programs, including bilateral economic and military assistance and multilateral programs, play a particularly important role in developing nations such as Egypt. Development assistance serves a number of objectives; humanitarian, political, commercial, and strategic interests all figure in at different times and in different ways. Since the early 1970's, the basic thrust of American economic assistance programs has been to help the poorest developing countries meet the basic human needs of their populations.<sup>53</sup> Agriculture, rural development, population planning, health, education, and nutrition have all been major priorities of the Agency for International Development (AID) programs. Thus, programs undertaken in the last decade differ somewhat from earlier programs targeting growth sectors and infrastructure building in developing nations.

Generally speaking, U.S. assistance programs in the Middle East have supported provision of products and food rather than aiming specifically to transfer technology in industrial and service systems examined by OTA. The major type of assistance provided by the United States to nations in the Middle East is carried out through the ESF. ESF programs are intended to provide immediate assistance and may be used for balance-of-payments support, financing of infrastructure and capital projects, and commodity imports. The major recipient of development assistance funding, as opposed to ESF funding, in the Middle East has been the Yemen Arab Republic, which was provided with \$27 million during fiscal year 1983. A third type of assistance is the Public Law 480 program, which is used to finance U.S. food exports. Egypt is the major recipient of Public Law 480 funds, and in recent years loans and grants have totaled \$300 million. However, Jordan, Syria, and the Yemen Arab Republic have also received



Photo credit Overseas Private Investment Corporation

More than 670,000 metric tons of U.S. grain are handled annually at the Marine Shipping Corporation's off-loading facility in Port Said, Egypt

smaller amounts of Public Law 480 funding, which contribute to development assistance and also open export markets for U.S. firms.<sup>54</sup>

Technology transfer is one among a variety of concerns that AID officials take into account in designing programs, so it would be a mistake to place too much emphasis on technology transfer as a criterion for program evaluation. U.S. assistance programs nevertheless affect the volume and nature of commercial technology transfer, and insofar as some of these programs are designed to promote technology transfer, their effectiveness is an important concern for U.S. policymakers.

## DEVELOPMENT ASSISTANCE AND COMMERCIAL PROMOTION

An unresolved issue in debates about U.S. assistance policies is the relationship between assistance programs and the commercial activities of U.S. firms. A related issue concerns the role of U.S. assistance programs in developing the private sector in host countries.

<sup>53</sup>Congress passed the New Directions Mandate in 1973, which directed AID to set these as priority areas.

<sup>54</sup>Congressional Budget Office, cited in GAO, *Donor Approaches to Development Assistance: Implications for the United States*, GAO/ID-83-32, May 4, 1983, p. 17.



About 40 percent of U.S. official development assistance has been classified as “tied” or partially tied aid, which restricts associated procurements.” On the other hand, the grant element of U.S. aid has risen in recent years to 82 percent of the total commitments in 1982. Thus, while ODA provided by the United States includes a comparatively high percentage of grants, the assistance is in many cases “tied” by procurement regulations which bring contracts to U.S. and host country firms.

Because critics of “mixed credits” say they commercialize aid and thereby distort its goals, the United States has traditionally opposed their use. Mixed credits combine foreign aid with export financing so that loans are provided at interest rates below the minimums set in the OECD export credit arrangement. France uses mixed credits extensively, while West Germany, Japan, and Britain use them only moderately. During the first 10 months of 1982, 78 mixed credits were awarded by OECD nations. They were valued at \$1.6 billion, and 23 of them were extended by France. In contrast, the United States has generally used mixed credits only in unusual circumstances. The OECD members have agreed that when mixed credits (with grant elements of 20 to 25 percent) are used, other countries will be notified in order to make the action transparent and subject to international competition. To the extent that nations employ mixed credits to subsidize exports and large-scale development projects, they explicitly link commercial promotional policies to development assistance.

The charters of the Export-Import Bank and of AID do not prohibit the use of mixed credits, but neither organization has used them extensively. The 1983 Trade and Development Enhancement Act calls for institution of a mixed credit program by AID and the Export-Import Bank.<sup>56</sup> The purpose is to allow

<sup>56</sup>Organization for Economic Cooperation and Development, *Development Cooperation, 1983 Review* (Paris: OECD, 1983), pp. 196-197.

<sup>57</sup>Testimony prepared for Subcommittee on International Economic Policy and Trade, House Committee on Foreign Affairs, Oversight Hearing on the Tied Aid (Mixed Credit) Program, Jan. 26, 1984. Senate Committee on Banking, Housing, and Urban Affairs, *Export-Import Bank Amendments of 1983*, Mar. 22 and 24, 1983, pp. 2, 8, 104.

the U.S. Government to provide confessional financing matching that of other supplier nations. Other legislation was introduced in 1983 requiring the Export-Import Bank to cooperate with the Commodity Credit Corporation in subsidizing agricultural exports.<sup>57</sup> Proponents of these initiatives hope to expand the financing capability of the United States because in their view a billion dollars' worth of sales have been lost because the United States does not offer competitive financing. Opponents charge that it is unfair and inappropriate for the American taxpayer to subsidize exports. Their special concern is that mixed credits may distort the goals of development assistance by shifting aid more toward the middle-income countries and to commodity imports rather than technical assistance.

The Export-Import Bank and AID have established guidelines for the selective use of mixed credits, and two mixed credits were granted for projects in Cyprus and Indonesia in early 1984. The goal of the program is not to match every mixed credit provided by other supplier governments, but rather selective use of mixed credits in order to discourage their use elsewhere. Linked to efforts to persuade OECD members to disavow the use of mixed credits, U.S. officials see the strategic use of mixed credits as a means of increasing bargaining leverage needed to build a new consensus. The critical question for U.S. policymakers is whether selective use of mixed credits can serve this end, or whether the result will be to institutionalize them.

Proponents of mixed credits point to a few cases where the use of such financing has been critical to U.S. sales in Egypt, a major recipient of mixed credit financing. In 1979 a consortium of U.S. telecommunications firms lost to a European consortium a contract for an expansion of Egypt's telephone network owing, in the opinion of many observers, to the confessional financing offered by the Europeans<sup>58</sup> (see ch. 6). The loss of this major con-

<sup>58</sup>S. 510, introduced Feb. 17, 1983, by Senator James Exxon.

<sup>59</sup>The Europeans offered 5.5 percent interest rates, payable over a 15-year period, while the Americans offered 8.5 percent. See Robin Day Glenn, *Financing of United States Exports of Telecommunications Equipment* (Washington, D. C.: Georgetown University Law Center, 1982), p. 31.

tract led the United States to develop a new approach to financing. In 1981 the Export-Import Bank made a \$7.7 billion loan commitment to Egypt in conjunction with AID funds used on other parts of a large telecommunications project. Although the Export-Import Bank maintains that the two transactions were separate, many view the financing as a case of mixed credits.<sup>59</sup> Thus, in recent years, AID spent almost \$242 million during the 1978-82 period on telecommunications in Egypt, and the associated contracts were awarded to U.S. firms. The terms of the financing are extremely soft: a \$202 million grant and a \$40 million loan have been provided. The loan will be repaid at 2 percent interest rates over the first 10 years, and then at 3 percent annually thereafter. The repayments will thus take place over 40 years and in 61 installments.<sup>60</sup> In the opinion of experts, the soft financing provided through AID has been the critical factor preserving a presence for U.S. telecommunications firms in the Egyptian market.

In 1982 a Trade Financing Facility (TFF) was set up as a mechanism for assisting U.S. firms competing for contracts in Egypt. Those evaluated as low bidders in terms of international procurement but which may lose a sale because of the financing offered by other supplier governments are eligible for TFF assistance. The program, designed specifically for use in Egypt, involves grants of up to \$10 million in value. The use of the TFF is rather cumbersome, since it requires the U.S. firm to provide clear evidence of a foreign government export subsidy. Funding for the TFF diminished from \$67 million during 1982 to \$25 million, and the TFF has not been utilized in recent months.<sup>61</sup> Nevertheless, the establishment of the TFF, like the proposed amendments for Export-Import Bank use of mixed credits, reflects growing interest in linking commercial promotional policies to assistance programs.

<sup>59</sup>Gary Clyde Hufbauer, *U.S. International Economic Policy, 1981, Draft Report* (Washington, D. C.: Georgetown University Law Center, 1982), pp. 7-22.

<sup>60</sup>Moore, p. 26. Interview with AID officials, Cairo, Egypt, April 1983.

<sup>61</sup>The Trade Financing Facility made only one loan, of \$6 million, in the first half of 1983, to finance Westinghouse and GE sales of powerplants.

Some question whether capital-intensive projects which have been supported by mixed credits contribute substantially to development. Others argue that such projects are essential for the development of Egypt's infrastructure and involve considerable technology transfers. The AID-funded telecommunications program, for example, involves substantial technology transfer in the form of training of ARENTO (Arab Republic of Egypt National Telecommunications Organization) personnel. Technical training courses in 18 fields have been offered to hundreds of individuals.<sup>82</sup>

The question of linkage between assistance and trade policies arises also in regard to private sector involvement in AID programs. In 1979 AID began a private sector development program in Egypt, with funding of \$400 million. The program reflects a broader emphasis within AID to promote private sector initiatives in development assistance; these programs are under the jurisdiction of the new Bureau of Private Enterprise. In contrast to the pattern of the past, when government institutions were typically viewed as the primary instrument for achieving development goals, these programs aim to encourage the participation of U.S. business. They include credit financing facilities and technical assistance for the Egyptian private sector, incentives to promote U.S. private sector investment, and advisory services and technical training to develop institutional capabilities.<sup>83</sup> Considerable criticism, both from within AID and from without, has been directed at these private sector initiatives programs. One report on the program concluded that "the difficulties stem primarily from a lack of Egyptian institutional support, project design weaknesses, and the requirement to buy U.S. origin and source goods. It is doubtful that some projects will achieve their objectives."<sup>84</sup> Problems in coordinating with Egyptian counter-

<sup>82</sup>Information provided by AID; training contract for ARENTO.

<sup>83</sup>These programs were stimulated by the Humphrey amendment to the International Security and Assistance Act of 1977.

<sup>84</sup>General Accounting Office, *Lessons Learned from AID's Private Sector Development Efforts in Egypt*, GAO/ID-83-18, Feb. 28, 1983, p. 11.

parts have apparently limited the effectiveness of these programs.

The goal of promoting the development of the Egyptian private sector is shared by Egyptian officials. As discussed in chapter 9, despite almost a decade of "open door" policies, the public sector remains overwhelmingly important in the Egyptian economy. While the mere size of the public sector does not necessarily indicate inefficiency, the need to promote market-oriented policies has been generally recognized. It is not surprising, in this context, that AID programs aimed at promotion of the Egyptian private sector have faced problems. As U.S. AID officials have tried to encourage Egyptian economic reform, they have come under criticism from Egyptians. Egyptian officials, wary of the large AID presence in Cairo, dissatisfied with the high costs of feasibility studies and administrative overhead required by AID, and aware of the freedom Israel has in spending economic assistance funds, have called for increased flexibility in use of AID funds.

In a general sense, Egypt and a few other recipient nations have become increasingly dependent on U.S. economic assistance. This raises a fundamental dilemma for U.S. policymakers: the more they encourage Egyptian leaders to liberalize the Egyptian economy, the more U.S. programs become vulnerable to charges that they involve too much outside interference; however, without real economic reforms, it is doubtful that AID programs will achieve desired results. In other words, while U.S. aid to Egypt has cemented friendly relations, extensive U.S. involvement has led to some disagreement about how to achieve proposed economic reform.

## RECIPIENTS AND TYPES OF DEVELOPMENT ASSISTANCE

In addition to general questions concerning the overall effectiveness of U.S. economic assistance programs, there are unresolved questions about which nations should receive aid and what types of assistance should be pro-

vided. For example, during recent years, U.S. assistance has been targeted to the poorest countries. During a period of budgetary constraints, some believe that funds should be directed to a few of the countries most in need, and that this focus may result in improved administration of assistance programs.<sup>65</sup>

Nevertheless, middle and higher income developing nations need U.S. technical assistance. The Trade Development Program (TDP) is one of the few official U.S. Government programs directed toward middle-income developing nations. TDP finances planning services of U.S. firms needed by developing countries in major capital-intensive projects. These services assist the country in design, engineering, and construction. According to TDP, foreign firms have aggressively offered, in addition to export financing, feasibility studies and other project planning services at concessional rates. It has been estimated that the Italians currently provide \$25 million-30 million, the French \$100 million and the Japanese \$200 million for these studies.<sup>66</sup> TDP's program includes support for feasibility studies; a \$16 million budget was requested in fiscal year 1984.

Although TDP is a comparatively small program, it combines the goals of promoting development assistance and trade promotion in a unique way. TDP's policy is to provide assistance only where U.S. technology is internationally competitive but unlikely to be purchased without TDP intervention. In fiscal year 1983 about 11 percent of the program obligations were made for projects in the Near and Middle East and about \$1 million was spent for these projects. The vast majority of these projects were in industrial and agricultural sectors, many of them in Turkey and Tunisia.

The United States-Saudi Joint Commission, which is fully funded by the Saudis, has sponsored a number of projects involving technol-

<sup>65</sup>General Accounting Office, *Donor Approaches*, op. cit., p. iii.

<sup>66</sup>U.S. Trade and Development Program, FY 1985 *Congressional Presentation*, p. 2. See also House Foreign Affairs Committee, *Role of Private Sector in Development Abroad*, hearings, Feb. 24 and 25, 1982, p. 38.

ogy transfer, including vocational training, assistance in science and technology policy development, establishment of a national center for financial and economic information, solar energy research, and customs administration training. However, the shortage of appropriately skilled Saudi participants has, in a number of instances, hampered the implementation of programs. A Joint Commission for Economic and Technical Cooperation was set up with Oman in 1980, and AID is playing a major role in programs which are designed to develop manpower skills. Programs of this kind promote technology transfer needed for development and at the same time offer export opportunities for U.S. business. There is, however, no comprehensive strategy for promoting U.S. technology transfer and assistance to all upper and middle income nations in the Middle East. AID does, however, attempt to establish parallel financing with Arab donor countries.<sup>67</sup>

Since Title V, on Science, Technology, and American Diplomacy, was inserted into the Foreign Relations Authorization Act of 1978, Congress has maintained a strong interest in promoting U.S. assistance programs involving science and technology. The law requires that the President report annually to Congress on the status of science and technology programs and agreements of and personnel requirements for U.S. officials working on these programs. This legislation was designed to promote programs involving science and technology transfer as an element of U.S. foreign policy.

There has been no consistent strategy for U.S. assistance programs in science and technology in the Near East. Among the projects funded under the \$100 million science and technology program in Egypt, the largest program allocation is devoted toward building Egyptian science and technology institutions capable of comprehensive planning. The major emphasis of these programs has been to

<sup>67</sup>General Accounting Office, *Status of U.S.-Saudi Arabian Joint Commission on Economic Cooperation*, GAO/ID-83-32, May 26, 1983, p. iv. See also AID, *Near East Bureau Strategy 1983-1988*, December 1983, pp. 29 and 75.



Photo credit Saudi Arabian United States Joint Commission on Economic Cooperation

Joint Commission projects include the development of an automated on-line bilingual inventory management and order processing system at the National Computer Center in Saudi Arabia

assist Egyptian leaders in formulating a more coherent science and technology policy, and in institution-building at the national policy-making level.

Only a few programs are aimed at providing direct assistance to the end-users of industrial technology; they include a management development project and a project designed to promote applied technology in smaller Egyptian enterprises. While such programs have been comparatively few in number, they undoubtedly are probably most likely to contribute to technology transfer in the sectors examined by OTA and perhaps to become self-sustaining.

Egyptian officials and AID staff agree that these science and technology programs are important, and that they must set clearer priorities. The Near East Bureau of AID, accordingly, began an assessment of its science and technology programs in the fall of 1983 to this end. Considering the U.S. commitment to the science and technology program in Egypt, it is important that a clearer focus for these programs be developed, perhaps by projects that provide tangible benefits to Egyptian end-users of technology in industrial and service sectors.

Of all the technology sectors examined by OTA, medical services is undoubtedly the area where AID programs have been most important.<sup>68</sup> Traditionally, improved health care has been a major goal of U.S. assistance policies, and health care programs have been comparatively effective, as discussed in chapter 8. In 1982, \$50 million in ESF funding went to support Egyptian health-care programs involving family planning, rural health, and education.<sup>69</sup> The thrust of AID programs has been to provide preventive health care to as many people as possible, especially those in rural areas.

In a sense, almost every program funded by AID involves some technology transfer, and this makes it difficult to assess the value and amount of AID resources devoted specifically to technology transfer. Only a small number of AID programs have industrial technology development as an explicit goal. AID programs are designed to achieve many goals; improving the success of technology transfers in complex industrial and service systems is just one. If U.S. policymakers decide to make this a top priority, it will be necessary to design programs that directly involve the users in recipient nations, to emphasize projects that have a strong economic rationale and are likely to be self-sustaining over the long term, and to encourage the involvement of U.S. firms having the required technology and those that are capable of operating effectively in the Mid-

dle East. U.S. economic assistance to Egypt in particular among the Islamic countries is so great that efforts to improve the effectiveness of the technology transfer component of programs there appear appropriate.

## MIDDLE EASTERN STUDENTS IN THE UNITED STATES

One mechanism for technology transfer is the technical education of foreign students in the United States. Middle Eastern students trained in fields such as engineering, construction trades, mechanics and equipment repair, precision production, and health sciences may develop specialized skills needed in the technology transfer process in sectors examined by OTA. The number of foreign students in the United States has grown in recent years, and their education has become a policy issue.

The number and share of Middle Eastern students in the United States has grown rapidly during the last decade, but available evidence indicates that only a small proportion are enrolled in technical fields. In the 1981-82 academic year the number of foreign students studying in the United States rose to at least 327,000—growth both in absolute numbers and as a percentage of degree recipients. Moreover, in recent years an increasing number of foreign students have been receiving degrees in technical fields, such as engineering. The share of engineering doctorates awarded to non-U.S. citizens increased by a factor of seven during the last 20 years. In 1981, over half the graduating engineering doctorates were non-U.S. citizens.<sup>70</sup> In that year, 1,241 Ph.D.'s in engineering were awarded to non-U. S. citizens, of which 41 were awarded to Egyptians, 74 Iranians, and 4 Iraqis. In all fields of science and engineering, however, students from the Islamic nations of the Middle East have made up a relatively small percentage of doctoral graduates—less than 10 percent in recent years.

<sup>68</sup>Health programs are generally not included in science and technology programs, except those that emphasize research.

<sup>69</sup>Total funding for all health-related AID programs was \$100 million in 1982, according to AID officials in Cairo.

<sup>70</sup>National Science Foundation, *Science and Engineering Doctorates: 1960-81*, Special Report, NSF 83-309, pp. 8, 71.

There is currently no source of official U.S. Government data on numbers of foreign students enrolled by field of study in the United States, but overall Middle Eastern enrollments in various levels of graduate study (as opposed to numbers of doctoral recipients) are high.<sup>71</sup> In 1981, for example, while only 74 Iranians received doctorates in engineering, almost 56,000 Iranian students were in the United States, according to Immigration and Naturalization Service data.<sup>72</sup> According to data collected from 2,800 schools by the Institute for International Education, 74,390 Middle Eastern students were enrolled in U.S. educational institutions in 1981-82, with the largest numbers from Iran, Saudi Arabia, and Lebanon. This represented almost 25 percent of all foreign students during that year.<sup>73</sup> Iran, before the revolution, and Saudi Arabia, currently, have been among the six largest countries of origin for nonimmigrant students in recent years. Since overall enrollments of Middle Eastern students have grown, Middle Eastern enrollments in technical fields of study may increase in the future. It is difficult, however, to evaluate the precise contribution to technology transfer in the Middle East. While some students prefer to remain in the United States, many return to their homelands to assume key positions in governments and firms importing technology.

America-Mideast Educational and Training Services, a nonprofit organization, provides information and assistance to Middle Eastern students interested in U.S. educational programs. Many of its programs are funded by the United States. For example, with an AID grant, the organization is bringing 600 Egyptian graduates and professionals to the United

States to study. Currently, more than 1,600 Middle Eastern students are involved in these programs, a few involving education and training in-country.<sup>74</sup> Such programs, particularly those oriented toward training Middle Easterners in technical fields, can contribute to the technology transfer to the region. However, the technical training programs involve only a comparatively small number of Middle Eastern students.

The policy of the United States since the passage of the Immigration and Nationality Act of 1952 has been to admit nonimmigrants to study in the United States under certain conditions specified by law. The presumption has been that this policy served U.S. foreign policy objectives in a number of ways, for example, by cementing ties with developing nations and helping transfer technology. U.S. educational institutions have benefited economically, since four out of every five foreign students had their primary source of funds in personal income or family or home government support."

Proposals have been made to restrict the number of foreign students in the United States, primarily for national security reasons. Two cases have involved added restrictions on study by Middle Easterners. An unprecedented investigation, spurred by the charge that many Iranians illegally resided in the United States, was carried out in the wake of the Iranian hostage crisis. The investigation revealed that 88 percent of the Iranian students had verified status to study in the United States. By early 1981 about 2,600 Iranian students were found to be illegally in the United States and were deported." In the spring of 1983 the U.S. Government announced that Libyan students were barred from studying aviation or nuclear physics in the United States because such studies were detrimental to U.S. security. As discussed in chapter 9, however, Government sources did

<sup>71</sup>The Immigration and Naturalization Service is now establishing a system to collect data on numbers of foreign students in the United States, by field of study, school and country of origin.

<sup>72</sup>Bayard L. Catron, "The President Management Improvement Council Report on Foreign Students in the United States," July 1981, app. table 4.

<sup>73</sup>Institute for International Education, *Open Doors: 1981-82, Report on International Educational Exchange, 1983*. According to these data, there were 35,000 students from Iran, 10,220 from Saudi Arabia, 6,800 from Lebanon, and 6,180 from Jordan.

<sup>74</sup>AMID-East, September 1983.

<sup>75</sup>Craufurd D. Goodwin and Michael Nacht, "Foreign Students Still Flock to the U.S.," *Wall Street Journal*, July 21, 1983.

<sup>76</sup>Catron, *Ibid.*

not have sufficient information to say how many Libyan students were studying in the United States; estimates ranged from 2,000 to 4,000 (in all fields and at all levels). In the summer of 1983, nine students were held for deportation hearings under the ruling.<sup>77</sup> Thus, in neither case were large percentages of students found to be illegally residing or studying in relevant fields.

Lack of enthusiasm for restrictions on foreign students stems from the fact that U.S. schools and businesses benefit by educating and employing foreigners—sometimes in fields not popular among U.S. citizens. The open and excellent system of advanced education, moreover, continues to draw students from all over the world. Only in rare instances have restrictions on study by Middle Easterners been imposed. When they have been, the direct impact has been narrow.

Education and training of students from both U.S. educational institutions and corporate programs remains an important mechanism for improving the absorptive capacity of developing countries. The effects of these educational experiences are long-lasting, since familiarity with U.S. institutions increases the likelihood that interactions will continue after the foreign student returns to his or her native country. There are, on the other hand, often extra costs of educating foreigners that are incurred because of language difficulties and other cultural differences.

## MULTILATERAL ASSISTANCE

During the 1970's the contributions of donor nations to multilateral organizations such as the World Bank and the United Nations grew as a share of official development assistance. In 1980 more than one-third of U.S. development assistance went to multilateral organizations, a slightly higher than average contribution.<sup>78</sup> Yet, the rate of increase has slowed, and major donor nations have all registered

a decline in recent years in their multilateral contributions as a percentage of donor nations' GNP. The United Nations Development Program, which has been the central funding source for technical cooperation provided by U.N. agencies, has been receiving a declining share of multilateral funding. Meanwhile, technical cooperation programs of more specialized U.N. agencies have grown.

Viewed from the Middle Eastern perspective, those nations receiving economic assistance, such as Egypt and Algeria, depend much more heavily on bilateral than multilateral flows. Egypt, for example, received in assistance commitments more than eight times as much bilateral as multilateral assistance in 1981. By far the largest part of multilateral assistance was provided by World Bank-related agencies, such as the International Bank for Reconstruction and Development, the International Development Association, and the International Finance Corporation.<sup>79</sup> Like the other major oil-producing nations such as Saudi Arabia and Kuwait, Algeria has itself been a donor of multilateral assistance, valued at \$10 million in 1981.<sup>80</sup> For most of the Arab world, and for Egypt prior to Camp David, multilateral aid from multilateral Arab sources such as the Arab Fund for Economic and Social Development and the Islamic Development Bank has been important.

American multilateral assistance through the United Nations has also benefited Middle Eastern nations through programs sponsored by specialized agencies such as United Nations Industrial Development Organization (UNIDO), International Labor Organization (ILO), the World Health Organization (WHO) and the International Telecommunications Union (ITU). UNIDO, for example, maintains a technological information exchange system and sponsors a number of projects and seminars in the Middle East. In sectors such as

<sup>77</sup>"Libyan Students Held as Risks Freed on Bail; Deportation is Expected," *New York Times*, Aug. 14, 1983.

<sup>78</sup>OECD, *Development Cooperation* (Paris: 1983), p. 211.

<sup>79</sup>Organization for Economic Cooperation and Development, *Geographic Distribution of Financial Flows to Developing Countries* (Paris: OECD, 1982), pp. 78-9. During 1981, these World Bank-related organizations provided almost two-thirds of the multilateral assistance received by Egypt.

<sup>80</sup>"Organization for Economic Cooperation and Development, *Development Cooperation*, p. 158.

telecommunications, ILO training programs and ITU agreements importantly affect the development of indigenous technicians, standards, and international use and trade in equipment and services. Similarly, the regional U.N. organization operating in the Middle East has organized a number of conferences on technology transfer to the Arab world.

There are, however, few jointly administered economic assistance efforts in the Middle East involving the United States and other Western nations as a group, although in some cases donors provide complementary assistance. For example, the United States has participated in a World Bank-designed reconstruction package for Lebanon; the relief was primarily provided by Western countries. OECD has a Development Center, a Committee for Science and Technology Policy, and an ad hoc group on technology transfer to developing countries. OECD programs sponsor studies of technology transfer and development issues, but there are no joint programs involving members in development programs in the Middle East. This lack of coordination among donor nations has been identified by some observers as a growing problem. (The Development Assistance Committee of the OECD is primarily a consultative body, and the United States does not participate in efforts to coordinate assistance with other Western governments, except in the case of Africa.)<sup>81</sup>

Particularly in the area of technical assistance, critics say, the need for coordination of programs is great. The European nations have attempted, albeit with only moderate success, to establish joint economic and technical assistance policies toward the Middle East. Although AID has recently begun efforts to coordinate parallel funding with Arab donors, the United States has not cooperated with regional Middle Eastern organizations such as the Islamic Development Bank or the Gulf Cooperation Council in technical assistance. Political differences undoubtedly explain the lack of multilateral technical assistance efforts in the Middle East involving the United States.

<sup>81</sup>Overseas Development Council, U.S. *Foreign Policy and the Third World, Agenda 1982*, p. 119.

In addition, only a small number of AID programs in the Near East are devoted to programs simultaneously involving more than one recipient country. The one exception to this pattern of bilateral assistance is the trilateral science and technology cooperation program involving Egypt, Israel, and the United States, initiated since the Camp David accords. This cooperation has been viewed as a "significant and concrete way to build the structure of peace" in the Middle East, and an important part of U.S. foreign policy.<sup>82</sup> From the beginning, it was recognized that the program, which involves scientists from all three nations working together, would be a difficult undertaking. Given the imbalance in science and technology resources between Egypt and Israel, the comparatively low priority that Egyptians have attached to cooperation with Israel in view of their longer relationship with the United States, and the need for open exchange of information, cooperation has proceeded slowly and has been limited to a few narrowly focused efforts. In 1981, for example, the U.S. National Institute of Allergy and Infectious Disease, Ain Shams University in Egypt, and Hebrew University in Israel began a long-range project aimed at controlling three arthropod-borne diseases in Egypt and Israel. Other projects in agriculture and industry were also proposed, but few have been implemented. Nevertheless, the trilateral science and technology cooperation project remains an important, though still largely symbolic, multilateral effort which suggests the potential role for science and technology in American foreign policy toward the region.

Outside the health care sector, only a small number of programs have as their primary goal encouragement of industrial or service sector technology transfers in the sectors OTA examines in this report. While promotion of technology transfers needed to ensure better operation of industries and services appears to be a high priority for Middle East policy-

<sup>82</sup>House Committee on Foreign Affairs, Letter of Transmittal, *Planning for Trilateral Scientific and Technological Cooperation by Egypt, Israel, and the United States*, Oct. 31, 1980, p. 1.



makers, the difficulties in designing assistance policies directed at improving technology transfer should not be underestimated. Projects aimed to promote technology transfer are people-intensive and require considerable lead

time and follow-on activities. In addition, technology transfer projects generally require more coordination between the assistance-providing agencies of the U.S. Government and the local agencies and firms.

## MILITARY AND STRATEGIC POLICIES: CONTROLS ON TECHNOLOGY TRADE AND TRANSFER

During the past decade, American controls over exports—particularly over exports of advanced technologies and equipment—have expanded. The Government has increasingly used these controls to regulate U.S. exports worldwide, including technology trade with nations in the Middle East. The impetus for controls stems from a number of sources, some of which are not specific to the Middle East. Concerns about nuclear proliferation and about potential diversions of exports from third countries to the Soviet Union are among those general factors. In addition, factors more specific to the Middle East, such as the adversarial nature of U.S. relations with countries such as Libya and strong U.S. support for Israel, the apparent nuclear ambitions of some Middle Eastern nations, the alliance of some Middle Eastern countries to the Soviet Union, and the comparatively high level of conflict and terrorism in the region have all stimulated attempts to restrict U.S. exports of advanced civilian technologies to the Islamic Middle East.

As noted earlier in the discussion of the foreign policy context, controversy over controls has focused specifically on exports of military equipment, such as the AWACS early warning plane. However, as detailed below, a number of other American policies, such as foreign policy controls, antiboycott policy and restrictions on American overseas business practices, more directly affect civilian technology trade. These various controls on exports, instituted for military and political purposes, distinguish American policies affecting civil-

ian technology transfer from those of other supplier nations.

Before examining regulations limiting technology trade, it is important to understand arguments for and against controls. OTA has analyzed these general debates in the context of East-West technology trade.<sup>83</sup> Proponents argue that restrictions on American exports can be effectively used as a lever in achieving American foreign policy goals. Given the inappropriateness of the use of military force in many situations and the unavailability of other policy instruments, proponents view trade restrictions as a way to demonstrate American condemnation of certain actions taken by foreign governments.

There is widespread agreement that restrictions are necessary for exports of military equipment critical to the national security of the United States. However, there is less agreement concerning restrictions such as foreign policy controls. The President is empowered by the Export Administration Act<sup>84</sup> to use such controls in order to achieve political goals (e.g., applying sanctions against nations determined to be supporting terrorist activities). In August 1984, discussion was under way in Congress on possible revision of that

<sup>83</sup>See *Technology and East-West Trade* (Washington, D. C.: U.S. Congress, Office of Technology Assessment, OTA-ISC-101, November 1979), and *Technology and East-West Trade: An Update* (Washington, D. C.: U.S. Congress, Office of Technology Assessment, OTA-ISC-209, May 1983).

<sup>84</sup>The Export Administration Act expired on Sept. 30, 1983. Congress was debating proposals for renewal and revision of the act in late 1983 and early 1984.

legislation. Foreign policy controls have been used to reduce the flow of nonmilitary exports to specific nations in the Middle East. Other types of regulations affecting American business activities—such as the Foreign Corrupt Practices Act and antiboycott policies—are viewed by proponents as necessary for upholding higher principles such as fairness of business practices and nonsupport for the Arab boycott of Israel. According to proponents, the costs of the controls in lost sales are relatively minor in comparison to the political benefits to the United States when the United States takes a strong, political and principled stand.

Few question the need for controls on exports of military and sensitive nuclear equipment and technology, but a number of arguments have been made against expansion of other types of controls. Opponents point to what they view as the inordinant costs of controls to U.S. firms and, in some cases, to the United States more generally. Market losses, growth in foreign sources of components, and the perception abroad that the United States is an unreliable supplier are, in the view of the opponents, among the considerable costs. Since many suppliers abroad can supply equivalent technology and equipment and few foreign supplier governments have instituted such controls, opponents of controls see them as simply injuring U.S. business without effectively restricting the ability of the recipient to actually acquire the technology. Opponents see controls as heightening unnecessarily the political dimension of U.S. economic interactions with the Middle East.

Debates continue about the appropriateness and effectiveness of controls on advanced civilian technology and products, both at the general level of controversy over renewal of the Export Administration Act, as well as over specific cases such as the institution of foreign policy controls on exports to particular Middle Eastern nations. These debates over controls are confounded by the fact that it is often difficult to measure their precise trade effects. In general, it has been easier to institute than to withdraw controls. The dis-

cussion that follows briefly reviews U.S. export controls and evaluates their significance for technology trade and transfer to the Middle East.

## NATIONAL SECURITY AND FOREIGN POLICY CONTROLS

The Export Administration Act of 1979 is the central piece of legislation that established the authority of the President to control exports for national security and foreign policy reasons. The purpose of national security controls is to restrict exports that contribute significantly to the military potential of another country and would be detrimental to U.S. national security. The controls are exercised on applications for export of items contained on the Commodity Control List, which includes both items that are unilaterally controlled by the United States and those controlled by CoCom (the allied Coordinating Committee for Multilateral Export Controls) to restrict trade with the Soviet bloc nations. In most cases, the Office of Export Administration in the Department of Commerce reviews applications for export and makes a determination, but the Departments of Defense, State, and Energy, among others, sometimes review applications or exercise licensing authority, depending on the type of commodity.<sup>85</sup> In addition, the U.S. Government controls all exports of munitions and military equipment.

In reviewing export license applications, the Department of Commerce makes determinations based on, among other factors, relations between the United States and nations to which exports are destined. All of the nations of the Middle East, with the exception of Libya, are categorized in Country Group V, which includes most of the nations of the world, such

<sup>85</sup>See U.S.—Department of Commerce, International Trade Administration, Office of Export Administration, *Export Administration Annual Report FY 1982* (Washington, D. C.: U.S. Government Printing Office, 1983), pp. 14-15 for a list of agencies involved in review of export licenses. The role of the Department of Defense in particular has been expanded in recent years. See Paul Mann, "New Center to Oversee Export Licenses," *Aviation Week and Space Technology*, Sept. 19, 1983, p. 71.

as Great Britain, Japan, West Germany, and France.

National security controls restrict the export of military and strategically sensitive items (including dual-use items) which have potential military application in the exporting country or which might be diverted to the Soviet Union. In recent years, only a small number of denials have been made for national security reasons on exports to the Middle East.<sup>86</sup> By far, the majority of applications for export to the Middle East are processed through the "front door" licensing procedure of the Department of Commerce, where a preliminary screening finds them not in violation of the export regulations.

With respect to civilian technology trade with the Middle East, foreign policy controls are more important than national security controls in restricting specific types of U.S. exports, particularly aircraft. Foreign policy controls are instituted by the President in order to achieve political purposes, such as imposing sanctions against nations violating human rights or supporting terrorism, or in order to promote regional stability by prohibiting the export of certain military items.

The most extensive use of foreign policy controls in recent years has been those applied to trade with Libya. Foreign policy controls were imposed on exports of certain aircraft, helicopters, and aircraft parts and avionics to Libya in October 1981. In 1982, as Libyan military activity in neighboring nations increased, the controls were made progressively stricter. On March 10, 1982, the controls were tightened to include an embargo against Libyan oil, following a closure of the Libyan embassy in Washington and a request from President Reagan that all Americans residing in that nation depart. As a general policy, licenses for all high-technology exports to Libya are denied and all exports, except for food, medicine and medical supplies, and nonstrategic products require licenses. Libya has thus been placed in a special country category that re-

quires most exports to be licensed. The controls on exports to Libya are extensive, but during the latter part of 1982, 1,650 licenses for export of nonrestricted goods valued at \$340 million were approved, while 16 valued at \$13.8 million were denied.<sup>87</sup> Trade with Libya continues, but is limited to specific types of exports and at a much reduced level.

Foreign policy controls denying items to countries involved in terrorist activities have been applied to Iraq, the People's Democratic Republic of Yemen, Iran, and Syria (in addition to Libya) in recent years. These controls apply to exports of aircraft valued at \$3 million or more and to helicopters over 10,000 pounds.<sup>88</sup> In addition, other commodities and technical data under national security controls are covered if the export is valued at \$7 million or more and destined for a military end-user or end-use. In March 1982, Iraq was deleted from the list of nations subject to antiterrorism controls.

The regional stability controls require a validated license for export of military vehicles and certain commodities used to manufacture military equipment, and they have been applied in recent years specifically to Libya, Iran, and Iraq. However, these controls are effective vis-a-vis virtually all nations except NATO countries. In fiscal year 1982, denials for exports of military vehicles to Iran (for a total of \$38 million) and to Iraq (for a total of \$204 million) were made. Formerly, during the hostage crisis, the United States instituted an embargo of exports of all types, except for food and medicine, to Iran.<sup>89</sup> Foreign policy controls were reinstituted against Iran in early 1984.

Under section 6 of the Export Administration Act, the Secretary of State is required to provide an explanation when controls are in-

<sup>86</sup>Department of Commerce, *Export Administration*, 1982, p. 32.

<sup>87</sup>After March 1982, sales of civilian aircraft for use by regularly scheduled airlines based in Syria and PDR Yemen were exempted from the controls.

<sup>88</sup>This action was taken on Apr. 7, 1980, and followed suspension of oil imports from Iran, denial of exports of military equipment and spare parts, and freezing of Iranian assets in the United States. Diplomatic relations with Iran were severed in April 1980.

<sup>89</sup>Information provided by the office of Export Administration, Department of Commerce, March 1983.

stituted. The explanation must include consideration of a variety of criteria, such as the probability that the controls will achieve their intended results, their compatibility with other foreign policy objectives, the anticipated reactions of other countries, effects on the competitive position of the United States, and feasibility of enforcement. The Secretary is not, however, strictly bound by these criteria. (Section 3[8] of the act stipulates that the President shall make efforts to secure the reduction of terrorism through international agreement or cooperation before resorting to the use of foreign policy controls.) Given these various statements in the act, there is considerable ambiguity concerning the conditions required to institute or remove antiterrorist controls. Generally speaking, the Department of State is reluctant to institute these controls unless there is evidence of repeated and serious problems. Past experience has shown that controversy inevitably develops concerning changes in controls, which are often easier to institute than to withdraw.

Nor is there any clear agreement concerning the effectiveness of the controls. Impacts measured in reduced sales are most apparent in the case of exports to Libya. Prior to 1981, when foreign policy controls against Libya were first introduced, U.S. exports amounted to \$813 million, and the United States was a major importer of Libyan oil. Subsequently, the U.S. share of total Libyan imports declined from 5.4 to 2.1 percent and exports fell at an annual rate of \$500 million. Although some of this decline is attributable to Libyan economic difficulties, experts conclude that foreign policy controls were the most important factor. However, there is little evidence that Libya has moderated its policies because of the imposition of these controls.

The impact of foreign policy controls is most evident in civil aircraft sales. As discussed in chapter 7, new orders of large U.S.-origin transport aircraft destined for the Middle East dropped from a peak of \$1.1 billion in 1979 to \$89 million in September 1982. In contrast, Airbus orders for the same countries were valued at \$289 million in 1979, and \$661 million

as of September 1982. Undoubtedly, various factors explain this shift in market share, including differences in export finance and the desire in the Middle East to diversify sources of supply. U.S. controls were unusually restrictive in this area and contributed to the decline in the U.S. market position.

It is difficult to assess precise impacts of the controls. Aircraft industry sources claim that \$500 million in direct sales were lost by the end of 1981, as were 20,000 jobs in the aircraft and related supply industries. Department of Commerce sources estimate that \$10 billion worth of future aircraft contracts may have been jeopardized during the next decade.<sup>7</sup> Recent modifications of the controls to permit sales to regularly scheduled commercial airlines were taken in order to mitigate such commercial impacts of these controls.

As is the case with foreign policy controls applied to nations in other parts of the world, only in rare instances has use of controls clearly caused a change in the policies of the target country. A major problem arises from the ability of other foreign suppliers to provide comparable technology and products, allowing buyers to simply go elsewhere. Nevertheless, proponents would argue, the controls demonstrate the firm resolve of the United States to condemn acts of international terrorism. Whether or not the costs outweigh the benefits clearly depends on whether one believes that taking such a "principled" stand is appropriate or effective.

## NUCLEAR NONPROLIFERATION CONTROLS

Nuclear nonproliferation controls have been authorized by the Nuclear Non-Proliferation Act of 1978 and the Export Administration Act. These controls restrict the export of weapons-usable materials (plutonium and highly enriched uranium), sensitive nuclear facilities, and classified and sensitive nuclear technologies. Dual-use commodities which can be used indirectly (whether or not the item is

<sup>7</sup>Department of Commerce, *Export Administration Annual Report, 1982*, op. cit., p. 144.

specifically modified for purposes such as designing, constructing, fabricating, and operating nuclear explosive devices or facilities) are also included on the Nuclear Referral List, which is incorporated in the Commodity Control List. In reviewing applications for export, the nonproliferation credentials of the recipient nation, the guarantees applicable in the specific case, the significance of the export for nuclear purposes and its availability elsewhere, and its stated end-use are taken into consideration.

These controls are consistent with the Treaty for the Nonproliferation of Nuclear Weapons (NPT) which requires International Atomic Energy Agency (IAEA) safeguards on all such equipment, materials, technologies, and facilities. This requirement for safeguards on exported fissionable material has been clarified and expanded by the Zangger committee guidelines. This is an informal agreement among the 21 NPT supplier state signatories that they will not export any item on the Zangger committee's trigger list unless it is subject to IAEA safeguards, a no-explosive-use pledge is obtained, and the assurance is received that the recipient nation will not retransfer this item. The United States also subscribes to the export guidelines of the Nuclear Suppliers Group.

As outlined in chapter 9, only in a few instances have U.S. nuclear exports been made to nations in the Middle East, which undoubtedly reflects the strength of these controls. Between July 1, 1981, and June 30, 1982, U.S. exports of dual-use and nuclear-related equipment to Middle Eastern countries were valued at approximately \$330 million, according to the General Accounting Office.

In a few instances, such as the export of lasers and related equipment to Iran in 1978, controversy grew regarding whether or not authorization of exports had been appropriate.<sup>91</sup> Such examples of controversy have not

been common. Nevertheless, since the Department of Commerce deals on a case-by-case basis with applications for export of items on the Nuclear Referral List, some critics favor extending the controls to include a blanket denial for export of dual-use items, such as large-scale computers, to nations not signatories to the NPT. In recent years only about 6 percent of all dual-use exports (most of them computers) have gone to the nations of the Islamic Middle East.

Because U.S. controls on exports of nuclear equipment and technology are comparatively strict, the major challenge to the nonproliferation regime has been the policies of other supplier governments. As chapter 9 outlines, in a number of significant cases, the United States has succeeded in dissuading other nations from providing sensitive materials or technologies, or in requiring safeguards and other assurances. Major steps were taken under the Carter administration to extend these controls and to make nonproliferation a high-priority issue in U.S. foreign policy. Congressional interest began earlier under the Nixon and Ford administrations, when a number of bills were introduced. In the future, sensitive nuclear contracts, the scope of safeguards, and other nonproliferation regulations may become factors in the competition for exports of nuclear technology, in which a growing number of "smaller" supplier nations will participate. OTA's findings in chapter 9 point to the need to develop policies that bring the new suppliers into the nonproliferation regime by persuading them to require return of spent fuel, by requiring recipients to agree to safeguards, and by limiting exports of sensitive reprocessing and enrichment facilities.

Bilateral cooperation agreements in nuclear energy have been central to U.S. nuclear export policy. The existence of such an agreement is a prerequisite for export of U.S. nuclear technology, equipment, and fuel. Bilateral agreements have been used to implement and extend restraints agreed on multilaterally and to bring nonnuclear states into the international nonproliferation regime. As discussed in chapter 9, the bilateral nuclear agreement with Egypt was accompanied by that nation's accession to the NPT.

<sup>91</sup>For information on the value of U.S. dual-use and nuclear exports, see General Accounting Office, *Controlling Exports of Dual-Use, Nuclear-Related Equipment*, GAO/N SIAD-83-28, Sept. 29, 1983. See General Accounting Office, *Circumstances Surrounding the Government Approval of Nuclear-Related Exports to Iran*, report to Senator Cranston, Mar. 17, 1980.

The United States has also worked through the IAEA, the primary institutional mechanism for carrying out inspections to ensure that countries are living up to their commitments to enforce safeguards against proliferation. The IAEA does not have police power, nor does it have roaming rights to inspect any and all facilities without prior notice. Doubts about the reliability of IAEA safeguards grew in light of Iraq's nuclear program, since that nation was a signatory to the NPT but attempted to acquire sensitive facilities that could be important for a weapons program. Israel's preemptive strike against Iraq's Tammuz 1 research reactor heightened concern that nations would take unilateral actions weakening the influence of international nonproliferation norms. Concerns have also risen about the politicization of the IAEA. In 1982 the United States withdrew from participation in the 26th General Conference of the IAEA after member states denied credentials to Israel's delegation, but later resumed full participation in the IAEA. The dangers of politicization are great, since the agency remains the primary mechanism for verification of safeguards enforcement. While the IAEA cannot prevent long-term efforts to develop weapons capability, it does contribute to the international nonproliferation regime. In order to influence its programs and maintain support for international safeguards, the United States must participate in the IAEA.

There have been few changes in U.S. nonproliferation policies directly affecting nations in the Middle East. Reagan administration policies ending no-reprocessing export restraints and stressing the need to ensure that the United States is viewed as a reliable supplier have had the most significant effects on nuclear programs in nations such as Japan.<sup>92</sup> Under the Reagan administration, prevention of nuclear weapons proliferation has been seen more as a political than a technical problem. In the Middle East, for example, promotion

of regional stability and recognition of the legitimate security needs of nations in the region have been viewed by administration officials as important to nonproliferation goals.<sup>93</sup>

Critics worry that recent decisions affecting new supplier countries represent a relaxed attitude toward nuclear exports which could have repercussions in the Middle East. The decision to supply spare parts for India's Tarapur reactor in 1983 raised concerns because India has refused full-scope safeguards and because India may become a supplier of nuclear technology to the Middle East.<sup>94</sup> Following a decision in late 1982 permitting France to sell uranium to India, critics worried that the commitment to require full-scope safeguards would be further eroded. Critics of these decisions worry that countries such as India and Pakistan may be more willing to export sensitive nuclear equipment and technology in the future to the Middle East. Proponents, reiterating their commitment to nonproliferation goals, argue that it is necessary to deal with non-NPT states through provision of nonsensitive nuclear technologies in specific cases in order to influence their programs.

Over the years, Congress has enacted a number of provisions that reinforce and extend prohibitions on the provision of economic and military assistance to nations that do not accept full-scope safeguards, but do acquire sensitive facilities. The Symington and Glenn amendments, passed in 1976 and 1977, respectively, are the central examples of this legislation. In addition, since 1978, Congress has placed limits on the ability of the Export-Import Bank to provide funding for nuclear exports. All Export-Import Bank actions in this area require congressional review, and in recent years Export-Import Bank support for such exports dropped sharply. The restrictions on nuclear exports have undoubtedly served to reduce

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\*Proponents of stiffer regulations on exports of reprocessing facilities argue that the loosening of exports to nations considered not to be proliferation risks opens the door to the possibility that some day exports could be extended to other nations, as well.

<sup>92</sup>See Warren H. Donnelly and Joseph F. Pilat, *Nuclear Export Strategies to Restrain the Further Spread of Nuclear Weapons in the 1980's*, CRS Report No. 83-118 S, June 1983, pp. 53-56.

<sup>94</sup>In 1980, the Carter administration waived provisions of the act to sell India 38 tons of nuclear fuel. Philip Taubman, "Shultz Tells India that U.S. Will Drop Reactor-Parts Ban," *New York Times*, July 1, 1983, p. A4.

U.S. nuclear sales worldwide. In bidding for nuclear power stations in Egypt, however, U.S. firms unable to obtain U.S. Export-Import Bank financing joined Japanese firms in order to obtain financing.<sup>95</sup> This example, like reports of foreign sourcing of aircraft engines and other aircraft parts in the wake of U.S. foreign policy controls, illustrates that controls may stimulate firms to seek alternative options for financing and supply of parts.

It is impossible to measure the impact of U.S. nonproliferation controls on exports. Undoubtedly, the level of trade in nuclear technology and equipment with the the Middle East, both by U.S. and foreign suppliers, would be higher without such policies. The strict provisions incorporated in the U. S.-Egyptian bilateral agreement stand as model in that they provide a framework for the United States to assist Egypt in its commercial program while at the same time reducing the prospects for nuclear weapons proliferation. In addition, the United States has been successful in persuading other supplier nations to harmonize and broaden the scope of guidelines.

While nonproliferation controls have thus contributed to slowing the spread of nuclear weapons, during the years ahead the growth of Middle Eastern technical capabilities and the entry of new supplier states into the market will present significant challenges to U.S. nonproliferation policies. Chapter 9 outlines a number of policy options that could be used to further nonproliferation policy goals in the Middle East.

## OTHER POLICIES INHIBITING TECHNOLOGY TRADE

Policies regulating the activities of U.S. businesses operating in the Middle East have long been viewed by businessmen as constraints on trade. The antiboycott program and the For-

eign **Corrupt Practices Act** (FCPA) are the two examples most often cited, in addition to restrictions on government financing, discussed above. As with other types of restrictions, policy debates about these policies revolve around the question of whether the political principles involved are worth the perceived commercial loss.

The antiboycott provisions of the Export Administration Act are aimed at discouraging and, under certain circumstances, prohibiting, U.S. companies from "taking or knowingly agreeing to take . . . actions with intent to comply with, further, or support any boycott fostered or imposed by a foreign country against a country which is friendly to the United States and which is not the object of any form of boycott pursuant to United States law or regulation. The Office of Antiboycott Compliance (OAC) of the Department of Commerce has enforced the antiboycott program since 1978. In practice, the antiboycott program is directed solely toward reducing the participation of U.S. firms in the Arab boycott of Israel.

The Arab boycott dates from the late 1940's, when the state of Israel came into existence. Administered by the Arab boycott office in Damascus, the purpose of the boycott is to reduce commercial or financial transactions which promote the economic or military development of Israel. Companies trading with Israel are "blacklisted" so that member states are encouraged not to deal with them, but in practice, each nation implements the boycott differently. The Arab countries thus through their boycott of Israel have used trade as a lever in furthering their political goals.

In general, the enforcement of the antiboycott program by the Department of Commerce has been accommodated by many of the Arab nations.<sup>96</sup> Specifically, if the commodity or technology is considered vital for national development, Arab governments have shown flexibility in their application of the boycott. Computerization of the list of boycotted com-

<sup>95</sup>See Paul Taylor, "U.S. and Japanese Groups Link in Egyptian Nuclear Power Bid," *Financial Times*, Sept. 1, 1983, p. 1. Westinghouse confirmed that it had signed a preliminary agreement with Mitsubishi Heavy Industries to bid for the Egyptian contracts.

<sup>96</sup>Charlotte A. Phillips, *The Arab Boycott of Israel*, CRS 79-215F, May 1979, p. 6.

**panics** and the renewed commitment by nations of the Gulf Cooperation Council to enforcing the boycott lead observers to believe that the boycott may be more tightly enforced in the future.<sup>97</sup> Department of Commerce statistics indicate that Kuwait continues to be the nation from which the largest number of U.S. companies received requests to comply with or support the boycott. More than 35,000 requests reported by U.S. firms during 1982 came from Kuwait; this represents more than 60 percent of the total.<sup>98</sup> Following Kuwait in number of requests were Saudi Arabia, the UAE, Qatar, and Bahrain.

No other supplier country has a program like the U.S. antiboycott program. While many supplier countries have expressed their opposition to the Arab boycott, none have established antiboycott programs, and only a few have considered enactment of legislation.<sup>99</sup> The U.S. program employs about 30 people. During 1982, the OAC issued 2,500 notices to companies to report and 182 formal warning letters for late reporting. In the same year, the OAC carried out 140 investigations, resulting in the disposition of 43 cases through settlement and involving \$548,750. To cite one notable example, in 1983 Citibank was required to pay a fine of \$323,000 for failure to report promptly about 337 boycott-related requests. During the past few years, the size of fines awarded and the number of enforcement actions taken by the OAC have increased.

Proponents of the antiboycott program argue that it allows the United States to take a strong stand of nonsupport for discriminatory economic boycotts of friendly nations such as Israel. Most of them question the extent of real trade loss resulting from the boycott and view it as not seriously injurious to the overall trade position of the United States. Citing the fact that American firms retain strong positions in Middle Eastern markets,

**they argue** that commercial damage to U.S. firms has been minimal. In practice, proponents argue, there are many ways to circumvent the boycott, and many firms now trade with Israel as well as Arab governments.

Opponents of the antiboycott program view the situation differently. In their opinion, the fines are a mere indication of sales lost from the boycott. Firms, particularly new-to-market companies, may be discouraged by the legal intricacies of the antiboycott provisions and therefore forego business in the region. In addition, they cite the repeated criticism of U.S. antiboycott policies by governments in the region as evidence of resulting ill will. The difficulties encountered by U.S. firms in complying with antiboycott regulations have reinforced the impression that U.S. policies are restrictive; the result, critics say, is that the United States is viewed as an unreliable supplier.

There is no way to resolve the disputes about the economic impact of the antiboycott program. A number of estimates have been made of trade loss, but it is difficult to separate the effects of the program from other U.S. regulations of trade, such as the Foreign Corrupt Practices Act and the Sherman Anti-Trust Act. In addition, both the Department of Commerce **and the** Department of the Treasury are authorized under separate statutes to carry out antiboycott policies, the latter allowing for denial of tax benefits to U.S. companies complying with the boycott. Since behavior that is acceptable under the Export Administration amendments may be prohibited under the tax code, the situation is confusing to businessmen. Furthermore, because firms are prohibited from responding to false allegations by foreign governments that they have failed to participate in the boycott, companies have been inaccurately added to the blacklist but unable to protest because of antiboycott provisions. Thus, unmeasurable but real disincentives to trade in Arab nations clearly result from the antiboycott program. On the other hand, firms often have succeeded in circumventing the boycott. In a celebrated case, Arabsat awarded a prime contract to the

<sup>97</sup>See "The GCC: Tougher Boycott Action," *Middle East Executive Reports*, October 1983, p. 5.

<sup>98</sup>Department of Commerce, *Export Administration Annual Report*, 1982, p. 81.

<sup>99</sup>France has legislation that has not been implemented. A bill has been introduced in the Netherlands.



French firm Ford Aerospatial; the blacklisted U.S. firm Ford Aerospace was nevertheless able to participate as a major subcontractor in the project. While it is impossible to gauge the precise commercial costs, the antiboycott program has, at a minimum, discouraged small firms, particularly smaller new-to-market firms unfamiliar with the intricacies of the program.

The FCPA restricts business activities in all foreign countries and therefore is not uniquely relevant to technology trade with the Middle East. Enacted in 1977, the FCPA prohibits U.S. firms from bribing officials of foreign governments and requires them to keep detailed and accurate records of their transactions. The Securities and Exchange Commission regulates the activities of U.S. businesses abroad under the act. Penalties for violations of the act include corporate fines of up to \$1 million, and fines of up to \$10,000 and imprisonment of up to 5 years for individuals.

Proponents of the legislation argue that to uphold standards of democracy and fairness, the law is necessary to support foreign governments and to maintain the confidence of the American public in corporate and financial institutions. Those who favor changes in the law point to what they consider to be burdensome recordkeeping requirements and some ambiguity concerning restricted practices. Legis-

lation is currently under consideration in Congress which would amend the FCPA so as to take these criticisms into account.

Despite their considerable criticism of the FCPA, few businessmen have advocated doing away with it altogether. As with the antiboycott program, it is impossible to determine the value of sales lost solely because of the FCPA. During the 5 years of the act's implementation, the Securities and Exchange Commission has prosecuted no bribery cases involving U.S. firms for activities in the Middle East. The Department of Justice has prosecuted one bribery case involving a U.S. firm operating in Qatar.<sup>90</sup> Undoubtedly, the law acts as a restraint on the actions of U.S. businessmen in the Middle East, where payments to agents have often been customary; however, it may well enhance the prestige of U.S. business over the long term by promoting the integrity of American business. The public criticism that arose in Iran in reaction to what was widely viewed as personal aggrandizement by members of the royal family indicates the positive contribution of U.S. laws limiting the involvement of American businessmen in such activities.

<sup>90</sup>Information provided by the Securities and Exchange Commission, Enforcement Division, October 1983. The case brought by the Justice Department resulted in a civil injunction for actions involving Ministry of Petroleum officials in Qatar.

## CONCLUSION

The growth of technology trade with the Middle East during the 1970's occurred despite the fact that U.S. policies have included restrictions not common in other Western supplier nations. There is thus a discrepancy between the fact of growing U.S. economic involvement in the region and official policies, which have had inconsistent and oftentimes inhibiting effects on technology trade.

The primary explanation for the lack of a coherent policy governing technology transfer is that conflicting interests are at stake.

There are at least three general perspectives on technology transfer: commercial, development assistance, and military-strategic. Those concerned primarily with promoting U.S. market share and with ensuring the effectiveness of U.S. development assistance programs generally favor promotion of technology trade. In contrast, controls on technology trade have been expanded by those more concerned about restricting access to U.S. equipment and technology by the Soviet Union or nations carrying out terrorist activities and about other actions seen as running counter to U.S. interests.

During the past decade the expansion of controls has been a striking feature of U.S. policies, one which distinguishes American policies from those of other supplier nations.

Many types of government policies and programs indirectly affect technology trade with the Middle East, but none are more significant for setting the overall context than general foreign policies-political and economic. Technology trade, and particularly technology transfer, require long-term interactions between firms and organizations that develop most smoothly in the context of friendly government relations. The strong presence of U.S. firms in Saudi Arabia and Egypt indicates that political and economic interests have converged in setting a context conducive to technology trade. Similarly, policies affecting exchange rates and other international economic policies significantly affect prospects for U.S. exporters.

At another level are various policies-export promotion programs, development assistance programs, and export controls-that more directly affect specific technology trade transactions. It is impossible to quantitatively assess the impacts of these various types of measures on technology trade. In comparison to policies of some other supplier nations, U.S. export promotional programs of certain types have been limited in coverage. U.S. policymakers have been reluctant to engage in high-profile economic diplomacy, routine representation of business has been less extensive, and the United States has not used extraordinary export support programs (such as mixed credits and exchange rate insurance) to the degree that some other suppliers have. OTA's study of technology transfer to the Middle East has identified only a few instances, however, where foreign government programs such as the provision of attractive export credits determined the outcome of contract competition.

U.S. development assistance policies have been important for Egypt and lower-income developing nations in the Middle East, but they have not been strongly oriented toward technology transfer in industrial sectors.

While development assistance and commercial promotional programs are generally complementary, U.S. policy makers have been reluctant to link them explicitly.

Export controls have been increased in number and in importance over the years. Nuclear nonproliferation controls have played a critical role in slowing the pace of nuclear weapons proliferation. While there is general agreement that nuclear nonproliferation and national security controls have contributed to the achievement of important political aims, there is disagreement concerning the appropriateness and effects of foreign policy and political controls. In the context of comparatively weak commercial promotion policies, export controls in particular distinguish U.S. policies from those of other Western supplier nations.

Most U.S. policies influence technology trade more directly than they do technology transfer. Only a few programs, such as project reviews by the Overseas Private Investment Corporation and AID programs aimed at promoting technology application and technical manpower development, are specifically designed to promote technology transfer. In practice, technology transfer occurs mostly in the marketplace, and private sector firms rather than the U.S. Government agencies are normally the key players. Corporate strategies directly affect the scope and nature of technology transfer from the United States to Middle Eastern nations. This suggests that if policymakers decide to promote technology transfer, they could emphasize programs involving cooperation with the private sector, which will undoubtedly retain the lead in U.S. technology transfers to the Middle East.

Because U.S. policies affecting technology trade have been characterized by a tension between political and economic interests, no comprehensive policy has been developed. In contrast, other Western suppliers have brought economic interests more to the fore in their export credit and promotion program, and other industrial policies. Options for more consistent U.S. policies are outlined in chapter 15.