
Arms Industries: New Suppliers and Regional Security

[National Security Implications]

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The growth of arms manufacturing by newly industrializing countries affects US national security interests by making it either easier or more difficult for US leaders to achieve their global or regional objectives. Former Secretary of State George Schultz aptly summed up US aims in stating that the United States wants to help "shape a peaceful and secure international order for the remainder of this century and beyond."¹ Specifically, the United States wants a world composed of independent states, whose people have a voice in their own destinies. This nation desires to achieve a peace, but not a peace that results from Soviet domination. It also prefers to see nations grow more prosperous through participating in an open international trading system.

Arms production in Third World countries thus has both a national security and an economic dimension for the United States. Before examining the national security aspects, the international economic dimensions merit brief comment. Third World countries are increasingly important to the United States because of the growing interdependence in economic relations among almost all nations. Such countries now receive about 35 percent of US exports, more than the European Common Market and Japan combined.² The United States believes that developing countries can increase their living standards by achieving sustained economic growth. Proponents of arms sales assert that growing arms industries contribute to creating new wealth. On the other hand, critics prefer that Third World countries look to non-military commercial ventures to achieve economic goals.

The arms trade conceivably could contribute to international violence. French arms deliveries to the Middle East, it has been argued, could frustrate the search for peace in the area.³ One might contend that if importing finished arms exacerbates political relations, aiding nations in the region to develop domestic arms production is even more unsettling. A proliferation of arms production can only increase the chances for turmoil and, possibly hostilities in sensitive parts of the world.

An opposite view holds that arms transactions could have a deterrent effect, inducing regional powers to avoid armed hostilities. Former President Reagan overturned former President Carter's policy of reducing arms sales because he believed in the deterrent potential of military might.⁴ The

¹George Shultz, Secretary of State, "The US and the Developing World: Our Joint Stake in the World Economy," *Department of State Bulletin* (July 1983), p. 59.

²US Department of State, *GIST: North/South Dialogue* (Washington, DC: US Department of State, 1960).

³Michael T. Klare, "Who Reaps Benefits of Third World Arms Sales Boom?" *San Jose Mercury News* (30 December 1985), p. 58.

⁴US President, *Congressional Presentation for Security Assistance Programs Fiscal Year 1987*, Vol. 1 (Washington, DC: Government Printing Office, 1986), p. 117.

large arms inventories of Israel and South Korea certainly contribute to convincing neighboring Arab states and North Korea to think twice before attacking.

Most nations would not accept the argument that importing finished weapons from the major producers inevitably leads to stability while building up their own domestic arms production must lead to turmoil or war. They most certainly would reject this double standard, interpreting it as unfriendly. Some Third World countries would call it imperialistic. One can assess the relationship between arms production and stability (or instability) only on a case by case basis. The specifics of the situation would tell US policy makers whether to assist newly industrializing, or any country, for that matter, to build or expand an indigenous arms industry.

The growth of arms manufacturing worldwide apparently has not yet significantly affected the US defense industrial base adversely. Of this nation's workforce in 1975 only some 3 percent related to the export of arms. Of the top ten arms manufacturers in 1977, only one, Northrop, counted on foreign sales for some 25 percent of its business.

The United States has concrete military objectives in the various regions of the Third World. In East Asia and the Pacific, this country seeks to maintain the security of the essential sea lanes, to prevent communist states of the region from interfering in the affairs of others, and to maintain a valuable relationship with the PRC. In the Near East and Southwest Asia, it wants to preserve and protect the independence of the states in the area, including both Israel and friendly Arab states. In the Western Hemisphere, our national leaders aspire to maintain the security of the North American continent, the Caribbean Basin and the Panama Canal, and to counter communist influence in the region. In Africa we seek to uphold friendly countries threatened by communist subversion and support stability on the continent. In addition, we aim to maintain transit rights for the deployment of US forces, if necessary. Of course, the United States also works to limit or eliminate Soviet (and Cuban) penetration in Africa.⁵

A QUESTION OF HEGEMONY

Some aspects about the proliferation of conventional arms manufacturing in the Third World merit examination. The United States seeks to prevent any country from achieving hegemony, either globally or regionally, and aims its huge national security investment for the purpose of thwarting any Soviet preponderance of power. The United States also wants no hostile regional power, especially one able to supply its own arms, to assume hegemony in critical parts of the world. Iraq attacked Iran because of a desire to gain hegemony in the oil-rich Persian Gulf area. Yet, Iraq depended on imported arms to carry out its ill-fated ambitions. We are left with the question: How could the arms production programs of newly industrializing countries affect regional power balances?

Why has India put great effort into building a domestic arms industry? Indians frequently use the term "great power" to describe their country's regional role. India does desire a power projection capability in the Indian Ocean as well as regional power dominance. Although India continues as the most potent power in South Asia, it still has not gained hegemony. Pakistan certainly does not follow Indian policies. Just how much India can expect to improve its power position in South Asia through increasing indigenous arms production remains uncertain. We can be sure that India desires to be self-sufficient in arms production, but the Indians realize that they will require outside foreign assistance well into the future.

⁵Caspar W. Weinberger, Secretary of Defense, *Annual Report to Congress: Fiscal Year 1984* (Washington, DC: US Government Printing Office, 1983), pp. 16-18. The regional objectives of the Annual Report of FY 1985 remained very similar.

The Republic of South Africa also enjoys dominant military power in its part of the world. It is the only country in southern Africa that supports significant defense industries. South Africa's black neighbors certainly possess no industrial capability that could challenge South Africa. Yet, the South Africans cannot always have their way in southern Africa. For example, they cannot eject permanently hostile black national movements from bordering countries. South Africa's successful defense industries have not brought it hegemony in the region.

The Brazilians have a mind-set that vigilant preparedness and military strength offer the key to stability, power, and prestige. Whether Brazil is intent on ultimately securing dominance in South America remains a moot point. In light of Argentina's well publicized problems, it is argued that Brazil has surpassed its traditional rival. However, there is scant evidence to support the contention that Brazil actively seeks hegemony on the southern continent and it is unlikely that Brazil's domestic arms production will make that nation dominant over its neighbors.

On the other hand, in an increasing number of cases, newly industrializing suppliers have come to provide a large portion of their neighbor's weapons creating dependencies on the seller. In the process the exporter gains political influence. Brazil's exports to Paraguay illustrate such a case. Most of Paraguay's tactical fighters, trainers, and transport aircraft come from Brazil, including some converted Cessna, Xavante, Aerotec Uirapuru, Bandeirante transports, and Helibias Esquilo helicopters. Paraguay is a good example of a recipient country swinging from the orbit of one supplier to another, in this case from Argentina to Brazil.

In other instances, a newly industrializing supplier far away also can provide a large portion of a small nation's military inventory, gaining influence thereby. For example, Israel has sold Honduras much of that Central American state's military equipment, including Mystere fighters and air-to-air Shafrir missiles. In addition, all of Honduras' mortars and recoilless rifles were manufactured in Israel. Honduras' armored cars were built at the Ramta Structure and Systems of Beersheba. The Israelis also have provided the Honduran armed forces with some of their rifles and submachine guns.

In the cases of Paraguay and Honduras, though neither a neighboring state nor a far distant supplier gained hegemony, the important point is that Third World nations are beginning to acquire influence in other Third World nations through the sale of arms. A Third World nation with even a limited production of military items could meet the relatively modest needs of the Third World countries. As this possibility increases, the overall importance of defense production in newly industrializing countries should grow and possibly diminish the value of US arms sales and political influence abroad.

Although Israel appears the most militarily potent nation in the Middle East, even with its wide ranging and high technology arms production, it still cannot have its will in the region. There are many factors that the Israelis would change if they could, such as getting rid of the Palestine Liberation Army (PLO).

Both Argentina and Brazil seem determined that the other will not achieve hegemony over the countries of Latin America. Fearing the possible consequences of developing nuclear devices, both countries have slowed down their nuclear development. In August 1986, Brazil postponed plans for reprocessing spent fuel to obtain weapons-grade plutonium. Although the Brazilians seem to have made strides in uranium enrichment outside international safeguards, its leaders appear to be easing the pressure to beat Argentina to an atomic bomb. In 1986 President Jose

Sarney of Brazil and President Raul Alfonsin of Argentina signed an agreement intended to avoid a replication of the India-Pakistan style nuclear rivalry between neighbors.⁶

However, the potential for regional and internal conflict remains. Insecure during past decades, Argentina acquired military supplies from Panama and Venezuela and the Argentine air forces bought Mirage jet fighters from Peru. In reality, Brazil neither confronts a realistic threat from Argentina nor seems to have aspirations for gaining hegemony in South America. It does seek greater recognition as a growing modern power, but shies away from gaining actual dominance over the continent. Thus, it seems that although a low-key, conventional arms rivalry may currently exist between these nations, each country's expansion in domestic defense manufacturing capability does not strike fear in the heart of the other. Brazil, especially, shows little concern because its defense industry is many times the size of Argentina's.

Every case discussed reinforces the validity of one overriding fact - greater self-sufficiency in arms production has not yet given, and in the foreseeable future is unlikely to give, any nation the opportunity to gain hegemony in its region. The spread of arms production might alter power relationships, but up to now it has failed to elevate one state to true dominance in any part of the Third World.

QUESTION OF STABILITY

The United States prefers that all countries abide by principles of acceptable behavior. Acts which deviate from acceptable behavior create instability. The United States wants a stable world in which orderly progress assists nations to improve their lot. The United States especially dislikes local wars, civil disturbances, and revolutions conducted by anti-democratic leftist radicals. Such instability often proves inimical to US interests.⁷

Unfortunately, in the foreseeable future, the US realistically cannot expect the disappearance of international wars and internal insurrections. Thus, Third World nations have little option but to buy arms or to manufacture them domestically. Clashes between ethnic and religious groups, between governments and rebels, between opposing ideologies, and between competing claimants for disputed territories seem certain to remain.

By retaining their manufacturing capability new weapons producers potentially can alter the character of a war. The problem for the United States is to determine if the proliferation of arms industries will prove stabilizing or destabilizing in any particular region. If regional arms production races were to upset regional stability, US interests would not be served. However, stability obviously depends on a host of political, economic, social, and psychological factors, and not solely on arms supply. For example, South Korea's new arms production has not appreciably heightened tension on the peninsula. In supplying South Korea with the means to increase domestic arms production the United States seeks to avoid the growth of North Korea as a dominant power on the peninsula.⁸ Here again, the substantial US commitment to aid South Korea works to maintain the status quo, triggering no upset in the balance of power between North and South.

We also mentioned that Brazil's arms program has not intimidated its neighbors. Certainly, we cannot predict the future: if Brazil and Argentina were someday unexpectedly to intensify their

⁶Richard House, "Brazil Steps Back From Race to Build Nuclear Weapons," *The Washington Post* (28 August 1986), p. E-1.

⁷Claude Ake, "A Definition of Political Stability," *Comparative Politics* (January 1985), p. 273.

⁸Russell Warren Howe, "Hike South in Arms for Korea," *The Washington Times* (23 November 1983), p. 6.

rivalry for leadership in Latin America, their respective arms manufacture and export abilities might affect the outcome.

ASEAN nations like Thailand, Singapore, and Malaysia had opposed India's recognition of Vietnam's position in Kampuchia. However, India's efforts for increased arms production at home seem to have little impact on this situation. On the other hand, a growing domestic arsenal in India has relevance for its other neighbor, the People's Republic of China (PRC). Ever since the two countries fought in 1962 the Indians have increased military readiness near the common border. Although that boundary has remained quiet for years, the PRC, like Pakistan, probably feels concerned about any industrial growth that would give the Indians greater military strength and flexibility in the unlikely event that armed hostilities should again erupt. However, the important point is that, despite increased defense production by the two sides, Indian-PRC relations have proved stable over a long period of time.

The Arab-Israeli confrontation proves most instructive about the relationship between defense production and stability. The Israelis and the Arabs have been fighting since 1947 (and even longer if one considers the days of the British Mandate). They fought when each had to import all or most of its arms and they fought when the Israelis could supply much of their armaments and when Egypt and Syria depended on Soviet arms.

Yet, one cannot say that if one side or the other does or does not produce all its own weapons, the region would enjoy more stability. One might argue that Israel's ability to produce a high percentage of its weaponry has given Israel greater freedom of action, making it less susceptible to US desires and constraints. In addition, Sadat made peace with Israel at a time when Egypt's embryonic domestic arms industry was dependent on Soviet supplies.

SOVIET ARMS PRODUCTION ASSISTANCE

The question of stability also related to the size and composition of Soviet arms sales to Third World countries. In 1984, Soviet arms deliveries to the Third World totaled an estimated \$9 billion. In contrast, US Security Assistance amounted to \$6.5 billion, roughly half of which went to Egypt and Israel. Except in the case of India, the Soviets have not helped their customers to build arms industries that would include the manufacture of Soviet designed weapons. When the Soviets were Egypt's prime arms supplier, they did not help Egypt in any major way to build its own defense industry. Likewise, the Soviets have done almost nothing to aid arms buyers such as Iraq, Ethiopia, Syria, South Yemen, Angola, or even Cuba to become even modest arms producers.

It should be noted that many of the buyers of Soviet arms lack the industrial infrastructure even to maintain and modify Soviet military equipment, let alone to manufacture it. Yet, some recipients of Soviet arms have local industries that could help build components. The Soviets evidence little interest in helping them to do so. The reason for Soviet reluctance to sell manufacturing capabilities to its arms customers stems from the simple fact that the more these buyers can manufacture their own spare parts, components, and whole weapons systems, the more difficulty the Soviets face in controlling or influencing their behavior. The Soviets desire to retain a realistic veto over the ability of its friends and allies to conduct war.⁹

In an exception to this rule, the Soviets have provided India with the knowledge and means to manufacture Soviet military equipment. When the Indians first purchased the MiG-21s, for example, the Soviets exported the needed technological knowledge and sent Russian technicians to

⁹Noel C. Koch, Principal Deputy Assistant Secretary of Defense, ISA, *US Sale of Defense Products to the Third World*, Address, (Arlington, VA: December 1985), p. 16.

assist the Indians in building and operating the production line. At the same time, Indian technicians went to the Soviet Union to gain the know-how of MiG-21 production. Why would the Soviets agree to such terms? First of all, the Indians insisted on them, and India was valuable as a counterweight to the PRC. India also possessed a fairly large pool of engineers and technicians who could absorb Soviet technical know-how within a relatively short time. The Indians built an entirely new industrial complex for manufacturing the MiG-21. It is interesting to note that India no longer depends as heavily on Soviet assistance for gaining a manufacturing capability for arms. It now feels confident to manage such production itself. In 1985, India signed a multimillion dollar contract with the Soviets for purchasing Ilyushin transports and it also purchased training and a spares manufacturing capability from Russia.

TECHNOLOGY TRANSFER

No issue has influenced US attitudes toward the proliferation of conventional arms production more than the control of critical technology exports. Through espionage and other investigatory activities the Soviets have tapped US technology to improve their weapons. US officials have listed a large number of improvements in Soviet weaponry that can be traced to incorporating unauthorized US technology. One study asserted that Western microelectronics know-how enabled the Soviets to build a modern microelectronics industry, key to the future modernization of Soviet arms. Moreover, Soviet Ryad computers are patterned after IBM 360 and 370 mainframe computers purchased in the West.¹⁰ As newly industrializing countries improve the effectiveness of both their defense manufacturing process and the weapons that they produce, the Soviets not doubt will focus more of their industrial espionage efforts on these countries.

International technology transfer occurs when one country sells or gives to another country the know-how to make products, including specific military items. More precisely, the flow of technology usually takes place between industrial enterprises in each country. In addition to espionage there are quite a number of legitimate means by which such information moves. For the most part, the instruments of transfer include technical information documentation, reports, test data, and blueprints, training, exchange of scientists, engineers, and managers, sale or exchange of patents, technical publications of trade magazines or of professional societies, consulting firms, and industrial fairs.

The most effective means of transferring technology is person-to-person contact. At times, even if the seller provides the buyer with all the documentation associated with a specific transfer, in order to make a transplanted production facility work at optimum efficiency or even work at all, it is necessary to convey idiosyncratic information not contained in the documentation. More frequently than one might expect, the successful operation of even a turnkey plant (a complete manufacturing plant), which requires full technology disclosure, may depend on a unique experience or action taken by a line worker or a managing engineer at the seller's plant.¹¹ Workers or managers might alter certain production functions of machine tools in a peculiar way. Perhaps the seller's metallurgist devised some ad hoc mixture of alloys, or tinkered with the time required to heat a metal. These actions usually do not appear in the instructions that the buyer receives. Consequently, the seller of a turnkey plant frequently sends technical representatives to the new production facility in order to acquaint foreign personnel with the quirks of the exported production

¹⁰Dan Morgan, "Stolen Technology Boosts Soviet Strength, Report Says," *The Washington Post* (15 November 1982), p. 1. This report was issued by the Senate Permanent Subcommittee on Investigations based on a declassified Central Intelligence Agency report.

¹¹The sale of turnkey plants has grown within recent years especially in Argentina, Brazil, and India. See Kazimierz Z. Poznanski, "Technology Transfer: West-South Perspective," *World Politics*, Vol. XXVII, No. 1 (October 1984), p. 140.

facility. Without this highly personalized form of technology transfer, the ability of buyer nations to absorb the new technology remains limited.

Two major questions confront US decision makers: Will nations receiving US defense manufacturing know-how inevitably become fierce competitors in the international arms market? Will US defense production technology acquired by newly industrializing countries leak to unauthorized countries, contributing to the military strength of potential enemies?

US defense leaders and industrialists worry lest the United States provide foreign companies with advanced weapons designs and technologies that one day will enable them to beat out US arms firms in the highly competitive arms market. Of equal concern, they fear that the decision to open the US defense market to foreign firms will give an edge to those foreign companies which have received infusions of US technology. The critics argue that it would be ironic if foreign, rather than domestic firms, should win contract bids because of the technological assistance they had received from other American companies. Obviously US defense contractors view such a development with hostility.

Experience in the international arms market supports the assertion that newly industrializing countries have not become and in the near future probably will not become potent competitors in high technology arms sales to the United States or Western Europe. For the most part, newly industrializing countries export arms of middle or low technology. Weapons exported by South Korea and Brazil are of this variety. Only Israel can export significant numbers of high-tech components. It is doubtful that newly industrializing countries will become major exporters of advanced aircraft or missiles, as well as detection and communication equipment in the near future. However, the armed forces of many countries throughout the world are perfectly willing to buy and use middle technology weapons, as demonstrated by Iraq's purchase of Brazilian armored cars.

Of even greater concern, US know-how made available to newly industrializing countries could leak to communist nations. For example, In 1985, Iran reportedly flew an F-14 fighter that it had received from the United States during the Shah's regime to the Soviet Union for examination and testing. Soviet technicians no doubt took advantage of this opportunity and scrutinized this modern US fighter.¹² In this instance, the product rather than production know-how became available to the Soviets.

The leakage of production know-how could prove just as damaging because the Soviets could apply such knowledge to a variety of weapons manufacturing activities. In 1986 India and the United States initiated talks about possible Indian purchases of American military technology. US officials still worry about New Delhi's close ties to the Soviet Union. They fear that the Soviets might use their considerable connections to India's defense industries to learn more about American arms production should India commence either a licensing or coproduction project with the United States. Reportedly the Soviets already have planned massive imports of engineering goods from India.¹³ Most likely, India will have to sign security agreements before the United States consents to send it technical information about arms and arms production.¹⁴

¹²"Report Says Iran Flies US Built Navy Jet Fighter to Soviets for Tests," *Newark Star-Ledger* (21 November 1985), p. 7.

¹³Kanwar Sandu, "Weinberger, Indians To Talk Regional Issues," *Hartford Courant* (11 October 1986), p. 14, and Steven J. Weisman, "US To Sell High-Tech Equipment to India for Arms-Upgrading Plan," *The New York Times* (1 October 1986), p. 15 and "India-US Cooperation," *Aerospace Daily* (6 October 1986), p. 26.

¹⁴Trevor Driberg, "USSR Plans to Import Indian Engineering Gear," *Journal of Commerce* (11 September 1984), p. 23B.

The United States has fashioned a general policy toward the spread of defense production among allied and friendly countries, emphasizing feasible and sensible middle options. In 1984, former Secretary of Defense Caspar Weinberger notified Congress that:

The basic reason of our international cooperation and technology transfer policy is for US, allied and friendly nations' forces to attain, through equitable burdensharing, the necessary military readiness, sustainability, and interoperability to defend our common interests and preserve peace throughout the world. Our intent is to help allied and friendly nations strengthen their military and *defense industrial base*, which in turn enhances our mutual efforts to establish a formidable defense posture to deter aggression.¹⁵ (Italics added).

The question of unauthorized US technology transfer has spawned a considerable amount of spirited literature. After World War II, the West established COCOM, an international body devoted to preventing member states from exporting technology that would aid the Soviets in their military buildup.¹⁶

While knowledgeable observers agree that the Soviets are acquiring technology in the West that helps them in their military programs, the extent of such pilfering and its impact on the technological and military balance between the superpowers remain a matter of debate. Some civilian analysts assert that government spokesmen have overstated the adverse impact of such transfers. At most, it is argued that the Soviets have gained some moderately important technologies although, at times, they have been unable to absorb even these.¹⁷

In considering whether to export arms manufacturing knowledge, US decision makers must answer a fundamental question: Are the chances of leakage from newly industrializing countries greater than from advanced allied and friendly nations? The United States has expressed doubts about the effects of the control machinery in newly industrializing nations on the Pacific rim of Asia and has asked these nations to tighten their protective measures.¹⁸ US officials must judge the strength of technology controls of newly industrializing nations on a case by case basis. If a country lacks the degree of protection we feel is necessary we might either sell it only older arms or demand written assurances from recipient countries that they will take every measure possible to safeguard highly sensitive information. Up to now, the question of technology controls in newly industrializing nations has not proved a major impediment to US security assistance support for defense industries in some newly industrializing countries.

The United States enjoys an important advantage. High technology weapons produced by newly industrializing countries under security assistance from the United States will contain American technology in, for example, jet engines and composite materials. US defense technology overall enjoys a solid reputation and many developing countries prefer to use US components in building their more sophisticated weapons, even knowing the United States can veto sales to third parties. Thus, US defense firms would confront potent competition in advanced weapons containing US technology only if the US government permits sales to third parties by special

¹⁵Caspar W. Weinberger, Secretary of Defense, *Annual Report to Congress, Fiscal Year 1985* (Washington, DC: Government Printing Office, 30 January 1984), pp. 267-268.

¹⁶COCOM is composed of all NATO countries, less Iceland, plus Japan. The effectiveness of COCOM is questioned by critics. See Ralph Sanders, *International Dynamics of Technology* (Westport, CT: Greenwood Press, 1983), pp. 167-168.

¹⁷Phillip M. Boffey, "Assessing Technology Leaks," *The New York Times* (2 January 1985), p. D-1.

¹⁸Stephen P. Gilbert, "Arsenal Diplomacy: Problems and Prospects," *International Security Review*, Vol. 6, No. 3 (Fall 1980), pp. 375-406 and Michael Richardson, "US Plugging Loopholes and Raising Hackles," *Pacific Defence Reporter* (August 1986), p. 32.

agreement. The United States, therefore, has to make a conscious decision about "third party" sales before granting new technology to industrializing countries.

Above all, to ensure that unauthorized technology transfers from any source will not damage this country's military posture, the United States should continue to conduct a vigorous R&D program. All the technology controls in the world, including those affecting newly industrializing nations, cannot prevent the Soviet Union from eventually gaining any technology that it determines to learn. If the Soviets lavish enough resources in any technological field, they are bound to develop on their own, the specific technology they seek. Transfer controls can do nothing more than delay Soviet acquisition of such knowledge and make it more costly. Any technology export controls that the United States imposes in regard to newly industrializing countries must be viewed in this light.

SECURITY ASSISTANCE

Security assistance, of course, constitutes a key link between the foreign and defense policies of the United States. It has become a cornerstone of this country's national security policy, intended to enable the United States to cope with several serious challenges including:

- The expansionist and destabilizing behavior of the Soviet Union;
- external and internal regional tensions and turmoil caused by the Soviets and their allies;
- violent terrorism and insurgency;
- basic indigenous political, economic and social problems of Third World countries; and
- peacekeeping operations.¹⁹

Given these objectives, it is not surprising that security assistance relates directly to the growth of arms industries in the newly industrializing world.

Through its security assistance program, the United States supports two major types of arms transactions associated with newly industrializing countries. First, it sells outright, provides credits for and provides free grants of finished military items. Second, it strives to relieve the economic pressures on arms importers by agreeing to various forms of offsets.

The United States sells military end products such as fighter aircraft, armored cars, tanks, missiles, munitions, naval ships, radar systems and similar items. Through such transactions a buyer gains a minimum of manufacturing know-how but can learn about operating and maintaining new weapons. While securing this latter knowledge is indispensable for conducting military operations, it does little to help a country build a production base. In some cases, the buyer can reverse engineer the military item. Yet, this task proves formidable for many developing countries which lack the infrastructure and skilled talent to reverse engineer a complex end item.

The sale of finished weapons proves attractive for US businesses. Exporting whole units, such as fighter aircraft and missiles can earn US defense industries a better profit and create more jobs, as well as recouping the R&D costs associated with the development of such a weapon.

¹⁹US Department of State, *Congressional Presentation for Security Assistance Programs: Fiscal Year 1987*, Vol. 1 (Washington, DC: 1986), p. 9.

The United States delivered \$11.7 billion of defense articles and services to foreign countries during fiscal year 1986.²⁰ In that same year, the United States provided \$5.7 billion in military sales financing assistance to needy friends and allies. Of the \$5.7 billion, two thirds was extended as grants (chiefly to Egypt and Israel) and the remainder was composed of loans at market or concessional rates of interest to countries in a position to repay.

As the more credit worthy countries have "graduated" from US assistance, the US aid program has become mostly a sales program with some concessional interest rates and loans.

Executives of US defense industries argue that foreign sales improve the nation's industrial base by lengthening production runs, thereby reducing unit costs. Such sales help sustain US industrial facilities that otherwise might have been shut down. More than one third of the 150 F-15 aircraft that the United States planned to produce, were destined for Saudi Arabia.²¹ The sale of such finished military units in the foreseeable future would not normally provide the know-how that would enable importers to become serious competitors of the United States in the world's arms market.

In some cases, the United States has refused to sell particular weapons to certain countries. For example, in a 1982 accord with the PRC, the United States pledged itself to reduce arms sales to Taiwan. In fact, since 1982 the United States has cut direct arms sales to Taipei by some \$20 million a year. US decision makers have refused to sell Taiwan F-16 or F-20 fighter aircraft because such a sale would violate the 1982 agreement.²² Controversy exists as to the reduction of the United States commitment to Taiwan. In any event, American defense industries expend a great deal of time and money trying to convince arms importers to buy their wares.

Over the years, arms transactions have increasingly come to include offset arrangements. Arms importers, who a decade or two ago were quite willing to buy the complete weapon from a major supplier, now insist that arms deals help reduce the cost of foreign exchange or produce revenue for the importing country. If the importing nation has any semblance of local industry at all, it insists that its plants perform some of the work. As Michael Klare has noted, "many Third World Governments now request that all major arms-import transactions allow for at least some coproduction or assembly work in (local) defense factories."²³ Every potential arms customer who has a need and desire to soften the economic impact of arms imports, will insist on some degree of local production of components or a commitment to sell some civilian product manufactured in the country of the buyer.

US industrial firms have found that offsets are simply the price that they have to pay for doing business in many countries. For example, McDonnell Douglas has agreed to steer \$500 million in US tourism dollars to three countries which have bought its F-18 jet fighter. This firm also received a large supply of Yugoslavian wine and hams which it gave to employees for Christmas. General Electric and Rockwell International have set up extensive international trading operations to handle the offset agreements. Formerly offsets averaged about 10 percent of the value of arms, but now they often exceed 100 percent.²⁴ Offset arrangements usually include one

²⁰US Congress, House. Committee on Appropriations, *Foreign Assistance and Related Programs Appropriations for 1986*, 99th Cong. 1st Sess. (Washington, DC: US Government Printing Office, 1985), p. 220 and p. 435.

²¹Col. George L. Getchell et al., *US Military Security Assistance: Economic Considerations and Policy Implications* (Maxwell AFB, Alabama: Air University, April 1981), Report No. RA 003-81, pp. 24-25.

²²"Peking Hits Sale of Arms to Taiwan," *The Washington Times* (13 August 1986), p. 8C.

²³Michael T. Klare, *American Arms Supermarket* (Austin, TX: University of Texas Press, 1984), p. 176.

²⁴Marcus Stern, "Arms Trade No Longer Involves Just Arms," *San Diego Union* (9 September 1985), p. 1.

or more of the following terms of trade: licensing production; coproduction of US weapons designs; supply of whatever items a local economy can produce.

Licensing offers a convenient way for a supplier to sell its know-how. About 35 percent of Israel's electronics manufacturing results from licensing arrangements from the United States. South Africa is now producing a modified version of the French-designed Mirage aircraft, which they call the "Cheetah." Argentina is now attempting to build a tank under a license from Thyssen Henschel of West Germany. India produces MiG aircraft under a license from the Soviet Union and under a License from McDonnell Douglas, South Korea builds the F-5. The Koreans are also manufacturing 5.56 mm rifles under license from Colt Industries in the United States.

In granting licenses the United States, in effect, transfers know-how that enables foreign industrial enterprises to manufacture a military item. Thus, the Korean Airlines learned a great deal about manufacturing military aircraft from its licensed production of Northrop's F-5E fighters. Likewise, Taiwan gained important knowledge from its licensed production of the Beech T-34 Mentor training aircraft. Israel has benefited by manufacturing the GBU guided bomb under license from Rockwell International.

As long as newly industrializing nations lack their own weapons designs, they will continue to gain substantial knowledge from major arms suppliers. Manufacturing licensed technology also affords an attractive way for a foreign country to build up its domestic arms industry. Furthermore, licensing enables an importer to avoid a good deal of the expensive R&D efforts that accompany the development of any weapon.

Sometimes, exporting nations allow the purchaser of a license to manufacture some of the latest designs of the seller. For example, Brazil has manufactured the Cobra 2000 antitank missile under license from the Federal Republic of Germany; South Africa manufactures Israel's Gabriel missile under the label of Skorpion, and Taiwan produces the Hsiung Feng antiship missile, also a version of Israel's Gabriel missile.

To some countries, enjoying an advanced industrial base, coproduction offers an attractive way to gain access to advanced know-how. Most coproduction arrangements take place between technologically advanced enterprises. The most celebrated coproduction venture is between the United States and Belgium, the Netherlands, Denmark, and Norway, for manufacturing the F-16 fighter. In this instance, the United States promised to provide its Western European partners all the technological knowledge associated with the aircraft. Because both the supplier and buyer are simultaneously manufacturing this military item, the buyer enjoys learning about advanced state-of-the-art technology. As a result, newly industrializing nations also eagerly seek coproduction of advanced weapons with the United States, France, or Great Britain. At other times, the buyer must settle on a somewhat less up-to-date model, as when in 1979 the United States approved South Korea's request for coproducing the older F-5 aircraft with Northrop.

Major arms suppliers naturally prefer to sell foreign nations finished military products. Their tasks are easier when all the components are made in the exporting country and the weapon is assembled there. However, exporting countries are apt to agree to a coproduction arrangement if the importing country insists on such terms and has the local productive capacity and security capability to perform its manufacturing responsibilities. Some newly industrializing countries have a capacity not only to produce, but also to assemble finished military products as well.

In a few instances, the United States has struck such coproduction deals. As we previously noted under the agreement with Northrop, Korea agreed to build 30 F-5Es and 32 F-5Fs locally at a cost of \$68 million. Taiwan is also coproducing the F-5 with the United States' approval. In 1986 the United States and Israel began negotiations to link the two countries in developing and

manufacturing small missile boats loaded with electronic and combat equipment, a secret decoy drone used with dramatic success by the Israelis in Lebanon, and diesel submarines for the Israeli Navy.²⁵ Recently, additional countries such as Egypt, Pakistan, Saudi Arabia, Singapore, and Thailand have expressed an interest in sharing the production of weapons with the United States. Saudi Arabia reportedly has created a publicly held industrial development as a major initiative to promote joint businesses with the US aerospace industry. The Saudis view this venture as an offset instrument.²⁶

In addition, newly industrializing countries also seem determined to take advantage of the US government's decision to open up the American market to friendly and foreign arms suppliers. For the most part, newly industrializing countries have met this opportunity by becoming subcontractors and vendors of US prime defense contractors. Thus, South Korean firms are providing Bell Aerospace Textron with spares applicable to radar warning as well as spare for an ammunition loading system being produced by Colt Industries. An Israeli firm is working with McDonnell Douglas to sell B-300 assault weapons to the US Marine Corps and another Israeli company won a contract to provide the United States with AN/VCP-12 radios. A Taiwanese firm is selling Northrop 130 line items for spares applicable to a target-identification-set, electro-optical system for the F-14 aircraft. Obviously, by undertaking subcontract work, the industries in these competing countries hope to acquire some state-of-the-art technology.

A more limited amount of production also is carried on between newly industrializing countries. Brazil's Embraer has an agreement with Egypt for coproduction of the EMB 312 Tucano trainer aircraft. In mid-1983 the Egyptians agreed to a coproduction venture with Romania on the construction of the TR-T7 tank. In the foreseeable future coproduction deals with such countries will continue and perhaps grow.

²⁵Melissa Healy, "US Israel May Cooperate on Boats, Drones and Subs," *Defense Week* (22 April 1985), p. 1, and Steven Eisenstadt, "US, Israel Eye Joint Ventures," *Navy Times* (29 April 1985), p. 3.

²⁶"Saudis Employing Offsets To Expand Industrial Base," *Aviation Week and Space Technology* (23 May 1983), pp. 85-87.