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ARMS TRADE AND ECONOMIC DEVELOPMENT
THEORY, POLICY, AND CASES IN ARMS TRADE OFFSETS

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## 15 The role of offsets in Indian defense procurement policy

**Angathevar Baskaran**

### Introduction

Since independence in 1947, India has been making strong efforts to build an indigenous capability to achieve the long-term goal of self-reliance in defense production. Between 1958 and 1962 India spent less than 2 percent of GDP on defense. After the Indo-China war in 1962, India's defense expenditure doubled to over 4 percent of GDP. This trend continued in the 1970s and 1980s and then increased significantly from Rs153 billion in 1990 to Rs453 billion in 1999 in current Indian prices, or from US$8.1 to US$10.5 billion in constant 2000 US dollars. Since the 1960s Indian defense procurement has been influenced by three principal objectives: creating a self-reliant defense industry, reducing the dependence on arms imports, and reducing the foreign exchange burden of arms imports. This chapter examines to what extent India has succeeded in achieving these goals over the last five decades, particularly with reference to offset arrangements. Although India does not appear to have developed a formal offset policy framework, its industrial, science, and technology policies have influenced procurement of weapon systems from foreign sources employing various offset options. Particularly in the defense sector, offsets such as licensed production, technology transfer, counter or barter trade, and long-term credit arrangements have been employed consistently. These offset arrangements are not set out as formal policy declarations, but in practice they have been developed and pursued often and systematically. This makes it possible to evaluate whether defense offsets helped India to achieve its economic and military objectives such as developing a domestic defense industry, reducing the foreign exchange outflow, and reducing its dependence on defense imports. It must be said, however, that very little by way of detailed economic data are available about Indian defense deals. The assessment must therefore be qualitative in nature.

### Arms imports and offsets

Over the years, India has established one of the larger defense industries in the developing world. It includes 39 ordnance factories, of which 16 were established before independence, 8 relatively autonomous defense public sector units (DPSUs), and over 50 defense R&D laboratories. Yet, India has also been a major importer of

### Table 14.1 (continued)

<table>
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<tr>
<th>(Air Force)</th>
<th></th>
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<td>Aerea Material Córdoba</td>
<td>12/94</td>
<td>2,950</td>
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</tr>
<tr>
<td>Fábrica Militar de Aviones</td>
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<td>n/a</td>
<td></td>
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<tr>
<td>SITEA</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>INTESA</td>
<td>n/a</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Tecnología Aeroespacial S.A.</td>
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<td>5</td>
<td></td>
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<tr>
<td>Interbaires (civil product)</td>
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<td>n/a</td>
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</tr>
<tr>
<td>Ercidasा (civil product)</td>
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<tr>
<th>(Navy)</th>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Tandual</td>
<td>12/91</td>
<td>714</td>
<td>7.2 52.56 59.76</td>
</tr>
<tr>
<td>AFNE</td>
<td>8/93</td>
<td>2,697</td>
<td></td>
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<tr>
<td>Astillero Donecq García S.A.</td>
<td>511</td>
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<td>EDES</td>
<td>63</td>
<td>63</td>
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<tr>
<td>SATECNA S.A.</td>
<td>9</td>
<td>9</td>
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<tr>
<td>SISTEVAL S.A.</td>
<td>81</td>
<td>81</td>
<td></td>
</tr>
<tr>
<td>COVIARA</td>
<td>62</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>Subtotal Navy</td>
<td></td>
<td></td>
<td>7.2 52.56 59.76</td>
</tr>
<tr>
<td>Overall total</td>
<td>approx. 29,500</td>
<td>589.32 230.56 819.88</td>
<td></td>
</tr>
</tbody>
</table>

**Notes:** Pre-transfer assets (US$ mn): 5,679; pre-transfer sales (US$ mn): 1,446 (both for 1990/91; see Luzuriaga, 1992); n/a = not available; transf. = transferred; liq = liquidated

**Sources:** Personnel in general taken from Ministerio de Defensa (internal memo, 1991); personnel for Sidinsa, Petropol, Inducelor, Menel, Vinilos, and Covaira are for 1984 (internal government memo); other sources: Pérez Esquivel (1999, p. 94); Luzuriaga (1992); La Nación, 3 October 1990.
weapon systems (Nugent, 1991). Table 15.3, appended to this chapter, shows the extent of these imports. Between 1947 and 1962, India mostly bought weapon systems off-the-shelf from the UK and France. In the 1960s India decided to build its domestic arms industry through foreign imports and technology assistance. Between the mid-1960s and mid-1980s, India's defense deals involved both direct offsets, such as licensed production of weapon systems or subsystems or technology transfers, and indirect offsets, that is trade arrangements involving non-defense goods and services such as raw materials, and consumer and industrial goods (Hammond, 1990, p. 7). Most defense deals with the Soviet Union or Russia involved three kinds of offsets, used separately or jointly: (i) licensed production/technology assistance; (ii) countertrade or barter; and (iii) cheap long-term credit facilities with low interest to finance these deals. Most of the procurement agreements with western countries involved two offset options, namely licensed production/technology assistance and some form of credit arrangements.

Between the 1960s and 1980s, India entered into a number of licensed production agreements. Table 15.3 illustrates this. Except for a small number of procured items from western Europe, most of the major weapon systems were procured from the former Soviet Union and other eastern bloc countries. By 1980, Soviet weapon systems constituted about 70 percent of total imports (Singh, 1990, p. 1081). As the table indicates, this appears to be the situation even in the 1990s. The Indian army is primarily equipped with Soviet/Russian weapons systems. This is also the case for the air force (with few exceptions, such as Jaguar, UK, and Mirage 2000, France, that are currently in service, and a few 1960s generation aircraft such as Gnat fighter and HS 748M AVRO transport, UK). In the case of the navy, although Soviet vessels are predominant, we do find a significant number of ships and weapon systems imported from the UK, including two aircraft carriers (Vikrant and Visat), Leander class frigates, and naval fighter aircraft and helicopters (Sea Harriers and Sea Kings). However, compared to the army and the air force, technology transfers and licensed production arrangements in naval equipment are small.

Licensed production involves different phases, such as assembling of equipment, manufacturing of parts using foreign material, and manufacturing of these parts using local materials. Between the mid-1960s and mid-1970s, India faced serious difficulties to absorb licensed technologies, particularly those involving tanks, aircraft, and naval vessels. The programs faced delays and cost overruns, and resulted in spectacular failures. For example, the Vijayanta tank (a modified 37-ton Chieftain tank of Vickers and Armstrong, UK), which "relied heavily on imported components," was judged "extremely slow" and failed to see action in the 1965 war with Pakistan (Graham, 1984, p. 168). Only in the 1970s did production reach planned levels and unit costs fell. Meanwhile, India found itself compelled to buy Soviet T-55 (1960s) and T-72 (1970s) tanks. Although relatively inexpensive (Graham, 1984, p. 168), this ran counter to the foreign exchange preservation objective of indigenous arms production.

India's effort to locally assemble HS-748 transport aircraft (UK) was a failure as well, and its project to produce Gnat jet fighter aircraft was only a limited success. Licensed production of MIG-21 aircraft faced serious delays. Through 1972, the foreign exchange expenditure on imported components exceeded the foreign exchange cost had the aircraft been imported in its entirety (Graham, 1984, p. 172). However, the MIG-21 project had a "positive impact on HAL's design and production" and helped "HAL's development of its technical base" (Graham, 1984, pp. 172-173). Subsequently, this appears to have helped HAL to absorb new generations of Soviet aircraft technologies, such as MIG-23, MIG-27, and MIG-29.

By the mid-1980s, India's policy of building its domestic defense industry through foreign technology imports and licensed production produced significant results. India became nearly self-sufficient in a range of small arms, ammunition, and medium artillery. Under license, it started producing helicopters, combat aircraft, main battle tanks, armored personnel carriers, tactical missiles, and it built frigates. Nonetheless, the industry failed to acquire capabilities sufficient to close the technology gap with developed countries and keep pace with technological change in weapon systems. As a result, India was forced to import latest-generation aircraft and naval vessels from other countries. Its "cherished objective of self-reliance in military technology still remains an elusive dream" (Gosh, 1996, p. 301).

Apart from licensed production, India's favored offset option is its method of payment for imports. Particularly with the Soviet Union and subsequently with other eastern bloc countries, India entered into rupee based trade arrangements to reduce the foreign exchange burden of imports. This enabled India to import arms for rupee-denominated credit which eastern bloc countries spent to import goods from India. The initial arrangement was for 10 years. Subsequently, it became 15 years and longer. For example, a 1980s defense deal with the Soviet Union involved a 15 year loan of Rs 13 billion at 2.5 percent annual interest and repayment starting after a two-year grace period (Mehrotra, 1990, p. 23). West European suppliers, although they were willing to offer some form of credit, were generally not interested in rupees. Despite this, India entered into a number of defense contracts involving licensed production, especially with UK companies. For example, India reached an agreement with Vickers Armstrong and Yallow to produce Leander class frigates, with the UK government agreeing to fund the foreign exchange component (Graham, 1984, p. 173). But the benefits to India of the UK credit deals were not particularly significant, and perhaps even negative. For example, a deal to buy the HMS Hermes aircraft carrier was worth £50 million but the final bill, after refitting, was expected to cost India £120 million (Statesman, 13 April 1986). Similarly, India purchased the Westland helicopter with an aid package of £65 million from the UK government. Subsequently, it turned out to be a big failure technically and financially (Statesman, 18 February 1987). Although UK aid appeared to benefit India, in reality it was a subsidy for the British company that was selling the helicopter, as it was facing closure (Ray, 1986).

The offsets associated with the purchase of Mirage 2000 aircraft in the 1980s from France were meant as technological assistance to India to develop its Light Combat Aircraft (LCA) and an indigenous aircraft carrier (Tribune, 27 March 1990). But there were criticisms that India had overpaid for the Mirage 2000 deal (Prasannan, 2000). India's contract with Bofors AB (Sweden) in 1988 was the first arms deal with a western country that involved both direct and indirect offsets, that is, countertrade and licensed production. Bofors agreed to license subsystems production in India and buy them back along with other goods. The trade element