CHAPTER- 6

CRITICAL ISSUES OF DEFENCE PRODUCTION SYSTEM

INTRODUCTION

During colonial period, "defence" was a reserved subject. Even, through the various stages of political reforms in India, defence subjects remained outside the domain of Indian Legislature. Therefore, after Independence, a full-fledged Defence Ministry for the political leadership of India was a new and unusual experience. India was used to the functioning of a Defence Department and also a Defence Member of the Viceroy's Council, but as for exclusive authority in defence matters that had always been the prerogative of the India Office and White Hall. The new experience of a defence ministry was also combined with a partition of the country. Undoubtedly, the political leadership remained more engaged with the immediate aftermath of the partition rather than with formulating policies on defence matters and struggling with strategic concepts. The Congress, as the spearhead of the freedom movement, had given hardly any thought to what a divided India's defence requirements would be?

It is also a matter of concern that the people of India knew very little about the defence apparatus and the way it functioned. Therefore, some effort has been made in this Chapter to throw some light on the following important defence matters :-
1. **Defence or Development?** After discussing the theoretical aspect on the subject, a live issue has been discussed: “What matters more for India? Defence or Development?”

2. **Purchase or Produce?** In a situation where India does not possess much technological know-how, what is better? To purchase defence stores from outside or produce them indigenously? How? By collaboration? What are the flaws of collaboration?

3. **The Private Sector and Defence Production.** After Independence, the private sector was kept out of the defence sector; that was a deliberate political and economical compulsion. But, now what should be done? To make the defence sector more self-supporting, there is a requirement of an active partnership with the private sector. More so, in an unipolar world, where competition is more in defence market and therefore, India cannot take the advantage of “buyer’s market” which she has so successfully taken so far.

4. **Defence Exports.** How to make our Defence Industry viable and self-supporting? Without exports, that is not feasible in the present days scenario. This issue of defence exports has been discussed in detail and reasons have been forwarded for the case that India should export more defence stores.

Writing about defence production system of India and the critical issues affecting the defence production present a number of problems to the scholar. First, not much literature is available on the subject matter as Defence is a very guarded subject in India. Second, the available literature varies from a clear bias for defence to a searing controversy about the relationship between defence versus development. While in the developed countries the bias has distinctly shifted to development from defence, in India, there is still an overall attempt to justify high levels of military expenditure not only on grounds of security but also development.
DEFENCE OR DEVELOPMENT?

As an offspring of the Cold War, the debate on defence and development has shifted to defence versus development. The defence versus development argument is now seriously recognized by international institutions: the United Nations, the World Bank, the International Monetary Fund (IMF), and the Asian Development Bank. They all argue that defence should be cut to allow more resources for development. This is something that the international financial institutions did not do during the Cold War. Even now they argue, but do not press the point too much while disbursing loans to member countries.

The purpose here is not to make judgements on the opportunity-cost of defence expenditure. Whether there is a trade-off between economic growth and defence investment remains contentious, even now too. However, for completeness of coverage, it is important that a brief review of the theoretical controversy on the subject is attempted. Following this, a discussion is offered on how the Indian planning authorities have, over recent times, reconciled the defence-development goals.

Theories of Defence versus Development

The first study on the impact of defence spending on growth in the post-World War II era was conducted by Emile Benoit in 1973. Based on a sample of forty-four developing countries including India, Benoit concluded that there was a positive correlation between economic development and defence expenditure in these countries from 1950 to 1965. His study became the Bible for those scholars who have been systematically arguing for high defence expenditure. The study unleashed a series of studies by defence analysts.
The second study was by a group of Massachusetts Institute of Technology (MIT) experts. They tested the validity of Benoit's findings on sixty-nine countries from 1952 to 1970 and arrived at a conclusion that contracted Benoit's findings. Military expenditure, they found, had a clear negative impact on growth. In the case of India, they found a high correlation between the defence burden and the investment-gross domestic product (GDP) ratio. The relationship between defence burden and agriculture output was negative. Overall, however, MIT studies proved that a high defence burden was anti-growth.

There were several other studies carried out to test the validity of Benoit's study. Three of the prominent ones were: Deger and Smith's, for 1965 to 1973 based on a sample of fifty developing countries; Fredericsen and Looney's, for 1950 to 1965 based on forty-four developing countries; and Ravenhill's, on thirty-three African less-developed countries (LDC) from 1960 to 1973. None of the findings of these studies supported Benoit's conclusion. The studies' broad conclusion was that defence siphons away funds from investment and leads to slower growth. In another landmark study, Nicole Ball concluded that higher growth rates in the Benoit study might have been caused by higher bilateral aid and not military expenditure. Ball argued that during the period covered by Benoit the policy followed by many developing countries was to attract foreign investment and aid for development.

Adam Smith, the man who fathered economics, held the view that armed forces were unproductive and did not add value to the national wealth. Subsequently, however, economics chose to ignore defence expenditure. For several of them, this was a necessary evil. Theoretically, defence expenditure has both a positive and negative impact on economic growth. The principal argument for its negative influence on growth is that it siphons away resources from other more productive uses and therefore has direct opportunity costs in terms of investment, educational and health expenditure, and consumption. Besides, high defence expenditure can cause two types of problem: first, it can pose a heavy burden on the fiscal exchequer. Secondly, if
weapons required for defence are imported, a high defence import bill may cause balance of payments problems. However, if the level of aggregate demand in the economy is less than the potential supply, military expenditure can bridge the gap leading to higher employment and improved utilization of capital. However, excess reliance on the defence industry can create problems especially if there is no demand for defence production. Evidence: the problems caused by defence cuts on the American economy.

Details of Defence and Development Issue

To tackle the defence-development conundrum rigorously, it is important to distinguish and define the subject matter. Three salient issues require elucidation:

1. Development Vs Growth.

The focus of interest is on the Third World context including India, where economic growth is usually interpreted to mean increases in the level of national income. Economic development is somewhat different. It is a nebulous concept, having relevance to the quality of life of the population of given countries. Proxies are used, such as infant mortality rates (IMR), nutritional intake, and access to higher education, as a means of evaluating the degree of development. The value of making this distinction between growth and development becomes apparent when related to defence outlays.
2. Nature of the Impact

If discussion focuses narrowly on the kind of impact defence spending exerts on a country's economy, as most academic studies in fact do, then the impact's three influences need to be addressed:

(a) **Direction**: Positive or negative? This asks whether there is valid casual reference. Thus even if military spending is found to be positively correlated with economic growth, it does not indicate whether economic prosperity produces increased defence outlays or whether increased defence outlays lead to economic prosperity. The most celebrated study in this area is that of Emile Benoit which has been mentioned earlier.

(b) **Magnitude**: Big or small? The absolute size of the impact will have a lot to do with: the nature of the economy, the amount of military spending that is directed internally, and the degree of integration the OFs and DPSUs holds with the civil industrial sector. It will also be shaped by the estimated apportionment of changes in economic growth attributable to current levels of defence outlays and to the lagged influence of past levels.

(c) **Timing**: Short Vs long-term? Although clearly in the short-run, military spending will, via the multiplier effect, simulate demand and employment, these beneficial influences will have to be traded-off against probable long-run costs. These will have negative repercussions on investment, inflation, balance of payments, industrial efficiency, and growth of income, and long-term employment creation. Therefore, a net assessment of the short and long run impact of defence expenditure on economic performance must be made.
3. Vehicles of Economic Change

There are four prime modes of impact military spending has on an economy:

(a) Modernisation: The modernising influence attributable to defence expenditure is closely associated with Benoit's pioneering work. Although he admits that spending on the military has a number of destructive consequences like income shift (rising defence out-lay reduces the civilian domestic product), productivity effect (the public defence sector is characterised by low efficiency when compared with private sector), investment effect (defence expenditure crowds out civil investment) etc. Benoit went on to contrast these unfavourable effects of defence expenditure with what he claimed to be the more important beneficial influences like skill enhancement, amelioration of infrastructure (capital projects like roads, bridges, airports etc. adds to civilian infrastructure) and inflationary stimulus (controlled gentle level of inflation). By comparing these two sets of negative and positive influences, Benoit concluded that the latter are of greater significance than the former, so that over all military expenditure leads to a net beneficial impact on the economy.

(b) Capital Accumulation. The burden of evidence here raised heavily in favour of the view that stresses the importance of private investment as a major determinant of future economic growth. Military expenditure must be financed. This necessitates higher taxes and/or increased government borrowing in the capital market, reducing resources available for private investment. Deger and Smith criticize Benoit for giving too much weight to modernisation effects of defense spending, and not enough emphasis to its negative impact on capital formation.

(c) Export Performance. The general consensus is that defence spending diverts capital, both financial and human, from the most dynamic of the civil export oriented industries to the military sector. An increased military burden requires raised levels of investment in the capital goods industries, e.g. machinery, electronics and transport.
equipment, which tend to be those most keenly involved in the export field. By catering for the military's needs, available productive capacity to meet or secure export orders is, therefore, correspondingly reduced.

(d) Technological Innovation. There is concern here that the huge absorption by the military sector of scientists, engineers, and designers drains the host economy of the cream of its engineering talent. In the long-run, it is feared that innovation in civil industry will suffer, leading to unfavourable knock-on effects in industrial productivity and ultimately, economic growth. These negative effects can be mitigated if technological spill-over of innovations in the military sector to civil industries occurs. However, the prevailing belief is that such spillovers are minimal.

Profile in India

India's appreciation of the defence development conduit has been capricious. There have, in essence, been three phases of interpretation.

1. Development is More Important Than Defence. The first phase has regard to Nehru's conviction that the optimal strategy for Indian development was to de-emphasize the importance of defence which has been discussed in Chapter 3. He argued that building-up the military was, de facto, an expensive business; too costly, in fact, for less developed countries like India to consider. Growth and development, irrespective of the linkages defence expenditure might induce, represented a higher priority rating. Post-independence India's benevolent perspective of peaceful co-existence with its neighbours, although perhaps naïve in retrospect, allowed the government to enjoy the privilege of ignoring, almost entirely, considerations of defence. Nehru's neutralist approach to foreign policy was complemented by the Congress government's domestic policy-goal of creating a socialist socio-economic environment. This approach extended into the fledgling defence sector, as existed at
that time. Thus, in India, as in other countries, the Armed Forces are under the control of the government. Nehru's nationalisation of defence activity included non-armaments as well as armaments material. Establishments within the defence sector were assigned to manufacture even clothes and general stores. Efficiency considerations were clearly subjugated by such an arrangement, given that India's private-sector textile manufacturers possessed long experience, and even by the 1950s had acquired a reputation for international specialization, in this area.

2. Development and Defence Both Are Equally Important. The second interpretation India placed on the defence-development nexus came after the Sino-Indian conflict in 1962, which deeply affected the government's and, indeed, the Indian people's psyche towards defence. This has already been outlined in the preceding Chapters. It is true that, by any standards, the mass of the people were poor; but they were free, also. Freed from the chains of colonialism, a sense of national pride of existing and potential achievement was pervasive across all castes of society, from Brahmins to Harijan. A realisation emerged that democracy and development had to be defended. Hence, defence, as a policy goal became significant because without it, the ability to secure the fruit of the development could not be guaranteed.

3. Defence Brings Development. The final interpretation took root after the 1971 Indo-Pak war and is still vogue today. The then Director of the Institute of Defence Studies and Analysis, K. Subrahmanyam, echoed the conclusions of Benoit's empirical investigation, postulating that development benefited, indeed, depended to some extent on the rate of defence expenditure. Of pertinence in this context, was Benoit's findings on India, indicating that in 1963 and 1964, the immediate years after the Sino-Indian war, Indian defence expenditures had reached highs of 4.5 per cent and 3.8 per cent of GNP, and, at the same time, India's Gross Domestic Product had increased at the annual rate of 6.3 per cent per annum. Subrahmanyam developed Benoit's analysis further by assailing the 'mutual exclusivity' view of defence and development; that is, the putative inverse relationship between the two variables. He asserts that government and personal consumption accounted, in the early 1970s, for
almost 90 per cent of national income, so that any reduction in defence expenditure was more likely to be consumed than invested in India's high consumption economy.

**Conclusion**

Currently the principal global dynamic for change in the economic, along of course with technology; and these two being supportive fuels are interdependent. An intermix of these two impacts differently on different societies, variations being determined by the political, economic and the strategic cultures involved. The velocity too of this change, though unprecedented in its totality, varies from one country to another, dictated largely by different individual applications of it. One constant alone remains; the vital importance of the economic.

Though evident that economic prosperity does not always and immediately translate into military effectiveness; still, all the major power shifts in the world's military power balance have followed alterations in the productive balances of nations; but much more important, that victory has always gone to the side with the greatest material resources.

That is where a dilemma confronts India. If she is economically weak, or poor, or if her economic strength declines in direct relation to the changes she faces, then obviously her authority as Nation is enfeebled both internally and also internationally. This then compels India, to allocate more and more resources into the military sector, which in turn squeezes out productive investment and over time leads to the downward spiral of slower growth, heavier taxes, deepening domestic splits over spending priorities and weakening of the capacity to bear burdens of defence.

This is a cruel spiral, relentless in its logic. It is also precisely the dilemma that India faces. The choice is not between defence or development, it is defence through
development. The challenge to India is direct: how to achieve greater national security through a more dynamic and distributionally equating economic development. There has to be a recognition by the political leadership of the country that the more India pushes ahead with economic development and expansion, the more will such a development by itself generate a 'power-political' dynamic. This alone can give the nation the kind of security that is its just and due destiny.

India's most of the imports of defence stores were from the former USSR on long-term, "soft" currency and counter-trade terms. Therefore, arms procurement did not account for much foreign exchange burden. As such, on this issue, the net effect of the defence-development relation in India remains indeterminate. Since 1980s, successive governments have encouraged private sectors investment in certain non-strategic areas of defence sector production. However, with the collapse of of USSR and the consequent reduction in threats and defence expenditures had forced acquisition and merger of, even, large-sized US defence corporations. Russian economy is fast deteriorating and is unable to assist India with defence supplies on soft terms. Therefore, this will affect India's defence imports, on two fronts, firstly it will not be able to operate in a buyer's market as because of merger-acquisition, the competition in saler's market has reduced; secondly, soft-terms loans will not be available from Russia. As a consequent to these developments, heavy import of defence stores will effect India's development adversely.

PURCHASE OR PRODUCE?

Gandhi's pacifism and non-violence as a creed has influenced independent India's strategic culture. This had a more direct and a far more telling influence on the fledging MOD. After Independence, in a sense, the Indian leaders viewed the existing defence manufacturing facilities and, indeed, the military in general, as both British and burdensome. This philosophy was soon reversed when in 1948 the first Indo-Pakistan conflict erupted over the Kashmir sovereignty issue. But, it was,
nevertheless, only grudgingly accepted that defence industry had a role to play. This attitude was reflected in policy. It was essentially two pronged: (1) manufacture only those items that strategically could be regarded as critical and (2) to ensure, as far as possible, that they were produced in the most cost-effective fashion. These conditions effectively constrained arms production to ammunition, small arms, and basic artillery pieces. The more expensive and technologically complex weapon systems were to be procured, if and when required, from abroad. It was recognized that Indian industry and technology were not sufficient to make local production in this sphere a viable proposition, justifying the diversion of scarce economic resources from civil development priorities.

This was certainly an accurate interpretation of India's industrial capability in 1947. However, the soundness of the continuing to employ this argument in the late 1950s is open to criticism. During the intervening years the government policy of import substitution in the civil heavy engineering sector had begun to bite. The increased demand they had created for existing and newly emerging products at substantially increased capacity, turnover, and confidence of not just the infant public sector units, but the established private-sector establishments also. India's leading industrial flagships of 'free enterprise' had earned their engineering pedigrees from decades of productive experience. They were keen to become involved in defence production, which in the late 1950s represented a growing market. For instance, the Tatas and Birlas, both of which were involved in the manufacture of transportation equipment, would have been contracted by the Defence Ministry to produce military trucks, and Walchand Industries, an aircraft manufacturer, could have been encouraged to supply aircraft components. Indeed, Tata Engineering and Locomotive Company and Walchands and Hind Cycles did offer to build tanks and vehicle components for Defence Ministry, but to no avail. The reasons for the government's stubborn resistance in allowing private sector participation in defence production are opaque. There are hints in the literature that the authorities feared the involvement of a military industrial complex, which, because of the private-sector's rapacity for sales growth, could have conflicted with the peaceful hue India was attempting to paint its foreign policy. Rapid expansion of arms production was felt at the time to be contradictory with the goal of non-alignment. Security reasons may also have played
some part. However, perhaps the major conditioning factor related to ideology. A key element of India’s industrial policy hinged on the universal socialist doctrine that the 'commanding heights' of the economy, i.e. key sectors such as machine tools, iron and steel, railways, should be public sector controlled. Within India’s classification of key sectors fell the defence industry.

India's policy approach to 'nationalisation' was formalised in the two Industrial Policy Resolutions of 1948 and 1956; it is the latter which provides the important framework for categorisation of industry into public and private sector designate activities. The Resolution segregated industry into three categories:

Schedule A: These industries referred to as basic industries, became exclusive preserve of the State. These key industries included: Iron and Steel production; atomic energy; heavy machine tool manufacture; heavy electrical plants; railway transport; shipbuilding; and all defense and other industries regarded as strategic.

Schedule B: These industries were those, which it was intended should become progressively State-owned, Though with the caveat that private enterprise be allowed, where appropriate, to supplement public sector activity. An example of private-sector production here, relates to light machine tool manufacture. Big established producers of machine tools such as Coopers and Mysore Kirloskar were allowed to continue operating as privately-owned concerns in the formal sector of industry. There were also hundreds of other artisanal machine tool firms, serving the local market with their customized output. It was a *fait accompli*, however, that these would continue as private-sector operations, as they fell into the informal, largely unregistered, industrial sector.

Private Sector: Those industries not coming within the scope of Schedules A and B were left free for private-sector involvement. The government nevertheless retained the right to intervene in these areas if it so deemed in the future.
It is clear, then, that India's 'mixed economy' possessed a heavy public sector bias. Unequivocally, the heavy machine building industries were to be State-owned. The defense sector fell within this ambit, but in practice this meant little, as the OFs had always been public sector units. However, where the 1956 Industrial Resolution did tread new ground in regard to defense production was to lump into the Schedule A classification the military related fringe areas of production, such as non-combat stores, clothing, and raw materials. Henceforth, military clothing and fabric for such items as parachutes, were produced in defense sector establishments. Many of the smaller items characterized by dual civil-military application continued to be supplied by the private sector, it being felt not worthwhile to change these effectively peripheral procurement arrangements.

**Foreign Collaboration**

In the aftermath of the 1962 Sino-Indian conflict, the government came to the realization that its hitherto policy of outright procurement of major weapons systems from external sources was one of 'short shrift'. Therefore, thereafter, policy emphasis shifted to domestic production of foreign weapons via cooperative ventures. India's new *demarche* in this respect had regard to the growing political fetish of self-sufficiency. Self-reliant armaments production was seen as the only means of escaping pressure from the world's major arms supplying nations. In addition, of course, it also made diplomatic sense for a non-aligned country to take a middle course rather than entangling itself militarily with one or other of the super-powers.

The importance accorded to armaments self-sufficiency arose from the strategic vulnerability India experienced during the Sino-Indian conflict. On cessation of hostilities, military equipment came from any source willing to sell. Supplying countries included the U.S, the Soviet Union, UK, West Germany, Canada, and Yugoslavia. However, this was after the war had ended. When fighting was taking
The initial close post-independence, relationship India enjoyed with Britain and other Western nations crumbled at the edges during the 1962 dispute. When India met further rebuff in subsequent attempts to develop domestic production capacity through acquisition of process-technology, rather than solely importing the weapon system, cracks went to the very foundations of India’s relationship with the West. By contrast, the Soviets were far less than reticent in supplying the techniques and skills required to manufacture its armaments. Thus, the die was cast for close Indo-Soviet military industrial cooperation, which continues to this day.

**Indo-Soviet Cooperation**

But, why were the Soviets so receptive to the idea of releasing military productive know-how to India? Maybe, establishing Indo-Soviet military collaboration would to some extent have compensated for the loss of Soviet influence in China. It would have countered the growing American influence in Pakistan. Finally, Indo-Soviet collaboration in arms production was simply viewed as being feasible. The minimum techno-industrial infrastructure was present in the subcontinent allowing assembly and limited local production to take place. By graduation through progressive development stages, the acquisition by India of consummate manufacturing capability could then be facilitated.

The military-industrial link between the two countries strengthened in the decade after 1962. This was not solely because of the bond of trust that grew apace with the introduction of joint venture production projects. It arose equally from the U.S-British
arms embargo imposed on India during the latter’s 1965 conflict with Pakistan, and also the signing of the Indo-Soviet treaty of friendship and cooperation in 1971. Progress was also facilitated by the concessionary nature of Soviet assistance. From an economic perspective, the terms of the armaments cooperation programmes have generously favoured India. During the 1970s when foreign exchange was in short supply, India concluded deals with its Soviet partner whereby payment would be made in rupees with 2.5 per cent interest rates over 17 years, following a 7 year period of grace.18 This ‘generosity’ continued in 1980s. The MiG 27, for instance, is said to have been offered at about a quarter the price that India paid for France’s Mirage 2000, and both aircraft have comparable performances.19 Indeed, according to one independent defence analyst, the terms that Russia offered to India for defence equipment purchases were so attractive, they work out at a 42 per cent grant.20 The financial terms of Western suppliers are becoming increasingly keen, with government-guaranteed credit being made available to India over periods extending up to 15 years. However, settlement has to be in convertible currency. A burden, which ‘counter-trade’ and ‘buy-back’ can ease, though not eradicate. Here, note that although ‘buy-back’ was a selling point emphasized by the British in the Jaguar aircraft deal, this represented in reality less than Rs. 100 crores or 5 per cent of the then estimated payment cost.21

Nevertheless, although India possessed a close and enduring military-industrial relationship with the Soviet Union, it is chary of over independence. India has learnt its lesson in this regard. Hence, permeating the countries policy framework regarding procurement and armaments technology-sharing is eclecticism. As long as particular weapon systems satisfy the dual requirements of efficiency and modernisation, there is no bar to buying proven technology from any source. In an increasingly competitive international arms market this purchasing policy accords India a feted position. In the late 1970s when India sought a deep penetration strike aircraft, New Delhi’s Ministry of Defence had Western suppliers and the Soviet Union lining-up to supply, at attractive terms of sale, this type of aircraft. The French offered the Mirage F-1; the British and French, the Jaguar. Also, initially, in the reckoning was the Swedish Saab-37 Viggen, though latter withdrawn from contention as the Americans voted re-export of the fighter’s Pratt and Whitney engine. The Soviets entered the competition by
offering a choice of MiG-23, Su-20, and Su-22 aircraft. Selection, eventually, of the Anglo French Jaguar in a $2 billion deal was premised more than any other factor on considerations associated with the transfer of the aircraft’s technology. However, also crucial to India's decision was the supplier’s agreement to allow local production of all spare parts. India's warm arm's cooperative relationship with the Soviet Union had not been damaged by this electric policy. While India buy's Swedish Bofors field guns, it also enters into collaborative ventures with Soviets for co-production of the T-72 main battle tank (MBT). In the maritime area, India’s purchase of West German submarines; British aircraft carriers; and Sea Harriers, does not preclude it from leasing nuclear-propelled Soviet submarines. The procurement of American general electric F404 engines for India’s Lightweight Combat Aircraft (LCA) does not, furthermore, affect its ability to produce the Soviet Union’s MiG-27s and possibly MiG-29 aircraft, nor, seemingly, to purchase the most advanced fighter developed by the Soviets, the MiG-31 Foxhound. Operating in a contracting buyers market, India has been in the strong position to extract the maximum financial and technological advantage from armaments suppliers. This does not mean, however, that production in practice was painless, nor that licensed production was cheaper than buying off-the-shelf.

The Soviet Union produced the main helping hand in India's post 1962 defense-industrialisation thrust, and also in the later modernisation campaign. Reasons for Soviet assistance are straightforward, revolving around enlistment of Indian diplomatic support and, although much less predictable, possibly geo-strategic military and/or logistical support, if and when required. India occupied a key strategic position in the unfolding Asian drama. It is wedged between regional superpower China, ever distrustful of both Indian and Soviet intentions, and the old foe Pakistan, militarily supported by the Americans. These considerations may have carried some weight in influencing India to plumb for a succession of co-production ventures with the Soviets, though it is more likely that benefits such as credit availability; low relative cost; agreement to transfer technology; and, not least, simply Soviet willingness to comply with Indian requests to release the most advanced weapons system in its armoury, would have carried more weight.
However, there have also been costs associated with collaboration. The Soviet Union has participated in the greatest number of joint-venture agreements; thus, it is only to be expected that many of the problems that have arisen would be with these. However, Western partners are not immune to the sorts of problem which commonly plague international collaboration including production breakdowns, bottlenecks, inadequacy of local material and technological resources, and cost escalation. Some major flaws of collaboration are as under:

1. **Spare Parts Diplomacy.** At the political level, there is inherent potential of the "spare parts" diplomacy being employed during periods of crisis. There was the U.S-British arms embargo during India’s 1965 war. Significantly, the Soviets also demonstrated their willingness to withhold critical arms components supplied to the Egyptians.²⁴ This is a problem encountered with any collaborator, giving urgency to efforts to indigenise as quickly as possible, sometimes causing difficulties in project coordination. In 1990s, US placed an embargo on supply of critical parts for Indian space programme.

2. **Re-Export Clause.** A second negative aspect of collaboration stems from the restrictionist nature of the re-export clauses in the co-production agreements. For India, this had been a particular problem regarding the export of locally made MiG components to countries such as Egypt, Syria, and Iraq, deploying various models of MiG aircraft.²⁵ Most famous, perhaps, is the Indian production of Soviet designed MiG-21 fighters, the spare parts for which India sought to sell to Egypt after its break with the Soviet Union but before the latter’s refusal to let India proceed with the sale, which was then replaced by a Chinese offer of replacements for free.²⁷ But again, re-export restrictions should not be considered peculiar to Soviet co-operation programs. Although conditions governing re-export of Western weapons systems are generally accepted as being more liberal, there have been instances where re-export has been
disallowed. Restrictions imposed by the British firm Vickers-Armstrong on Indian sales of spares for its Vijayanta tank to Kuwait is a case in point.  

3. Absence of Inter-Industrial Linkage. Often, the manufacture of advanced weapons systems necessitates the construction of bespoke manufacturing establishments. The major indication of this is that defense factories immediately become isolated from extant industrial units. No opportunity exists, therefore, for technologically advanced military co-production plants to raise local manufacturing capability through inter-industrial linkages, because of the wide foreign domestic technical gap that initially exists, and, often times, is allowed to endure. This highlights the weaknesses of the host nation's industrial base.

This pattern of defense-industrialisation closely approximates to the Indian case. The classic example is, again, the MiG-21 M Project. License manufacture of the Soviet MiG-21 fighter, and transfer of production facilities required for this purpose, were agreed in 1962. The complex of three separately located factories was built at Nasik, Koraput, and Hyderabad. In the Initial years, no bona fide production took place. Instead, Hindustan Aeronautics Ltd. (HAL) the Indian partner to the project was obliged to assemble Soviets supplied CKD kits. Moreover, HAL found it difficult to hire appropriately skilled local labor for the factories. Training facilities were provided at the plants, but they were regarded as being of poor quality. By 1967-68, although HAL was able to sell MiGs worth 21.5 crores to the IAF, manufacture was still confined to assembly of imported components: in two out of the three factories, the buildings were still not complete (nearly six years after the programme began), and in none of the three, but all the workshops in operation. 29 Foreign purchases of 50 Hunters from the UK and 150 Su-70s from the USSR were needed to be made to bridge the gap until sufficient MiG-21 fighters could be produced by HAL. It was December 1968 before the final factory at Koraput, Orissa, entered into production. Thus, given that the Indian government's investment in MiG-21 complex was heavy, with the three plants employing more than twelve thousand workers and paid-up capital being in excess of Rs 150 million by 1969, less than 200 fighters had left the air-frame factory at Nasik in the 7 years since assembly work had commenced, half of these having been supplied by the Soviets in kit form. 30
4. Production Delays. This represents a recurrent problem. Procurement of spares unable to be produced locally is prone to uncertainty, and often subject to delays. Domestic construction of Leander class frigates also suffered from delays. Nilgiri was greatly behind schedule because of late deliveries of certain parts by the foreign collaborators, with the second and third frigates similarly affected. Tardiness in the supply of essential components from collaborators not only retards the pace of armament production, but can also degrade operational efficiency of systems already in service. This was evidenced by MiG aircraft reportedly being out of action for some time due to the Soviets delay in providing fresh supplies of brake pads for the braking gear in 1990s.

5. Preference of Foreign Stores by Defence Forces. A further problem derivative of collaboration is the preference given by local military personnel to systems produced abroad by the foreign partner as opposed to equivalent systems made domestically. The military’s anxieties turn on the comparative reliability of the equipment.

Prejudice, maybe, but sometimes it is embarrassingly supportable. In 1985, eight IAF planes crashed in, as many weeks during the summer; four were MiGs. Pilots who bailed out reported unresponsive controls. Three of the MiGs had caught fire in the air. As a result, the authorities were forced to ground the IAF’s main strike force of about seven MiG 21M squadrons, and additionally order that over 300 MiGs of all types be stripped and systematically checked for defects, raising the specter of vulnerability in the country’s defences.

This citation highlights the self-deprecating aspect of industrial production in India affecting the purchase-produce trade-off. The problem is, however, how to separate fact from prejudice. Nayar has observed in the case of Indian Air Force, and its preference for the procurement of aircraft from abroad, which has ‘...resulted in part from the lack of confidence by IAF in HAL’s products even though HAL was
dominated by IAF officers. This lack of confidence in HAL had arisen out of the IAF laying down excessively stringent aircraft specifications, perhaps deliberately, far beyond the existing capabilities of HAL to meet, which then took too long to deliver, with the result that the planes were usually obsolete when handed over to the IAF. As a consequence, this would later bring on a rejection of the delivered planes by the IAF, which subsequently felt free to press for foreign merchandise.34

6. Cost Effectiveness. Collaboration is not a cheap policy option, either. Mrs. Indira Gandhi criticized the terms obtained by Janata Party Government because the cost of making Jaguar aircraft in India was to be twice that of buying finished planes from Britain.35

Conclusion

Collaborative ventures then, are not without operational and financial deficiencies. However, it is difficult to visualize an effective alternative for countries intending to foster local defence manufacturing capability. Lock and Wulf’s conceptualised model of a vertically integrated arms industry carries minimal validity.36 The much more common approach, which is part of the general ‘industrialisation’ model, is that of producing arms through licensing and/or subcontracting by Western and Eastern producers, with high dependence on imported components, which absorb all potential foreign exchange savings of local production and direct and indirect production cost that make domestic production even more expensive for the national economy than importing the same equipment outright.37

It needs to be emphasized, however, that the economic environment of developing countries, like India, regresses the efficiency of international collaboration. This has a particular application to a bureaucratic country such as India where defence production is centrally organized, and not subject to the stimulants of competitive market forces. A good example of the atrophy in India’s planning, administrative,
and organisational procedures, surfaced in 1987. "The Government of India Public Accounts Committee had expressed its concern over the delay in the production of equipment for the country’s air defence. In the Committee’s 76th Report presented to Lok Sabha, it stated that the IAF had projected an operational requirement for this equipment to serve as an early warning station in March 1967. The R&D establishment then took more than seven years to submit the project for development work, while the Ministry of Defence proceeded to take a further one and a half years to sanction this Rs. 142.5 lakhs project. In 1976, a public sector undertaking was nominated to produce 41 items of this equipment for the Air Force. The Committee regretted that in spite of the fact that the requirement had been projected as operational by the Air Force as early as 1967, the equipment which was an urgent necessity could not be provided, even after a lapse of 19 years."³⁸

THE PRIVATE SECTOR AND DEFENCE PRODUCTION

Since 1947, after Independence, it has been an explicit policy of the government that the armaments branch should be under public sector control. There were essentially three reasons for formation of this policy:-


2. It was recognized that armaments production demands precision engineering and quality standards of the highest level. India, whose private industrial sector was, in 1947, characterised by rudimentary technological processes, had therefore no alternative it was argued but to create DPSUs and OFs to meet the special skills and capacities to work to close tolerances.³⁹
3. Governmental control of defence undertakings has an additional objective of avoiding the perceived unfavourable consequences of an emerging military-industrial complex. The authorities felt concern over the corporate need for continuous output growth; fearing that powerful private sector interests could emerge and induce a war psychosis for their own gain. The government believed that such a process would harm India through the diversion of resources from development, which the other casualty of this approach, non-alignment, was intended to promote.

**Potential Defence Capacity (PDC) of Indian Industries**

What is the capability of Indian industry in the production of defence stores? How do we measure its technical know-how? What is its potential defence capacity?

Professor Gavin Kennedy, an economist, attempted to devise an index for measuring industrial involvement in defense production. This index incorporates both public and private sector establishments involved in productive activity relevant to the manufacture of military related equipment.

Professor Kennedy argues that the defense sector is associated with and integrated into the metal and engineering sector, and there appears to be some positive association between the expansion of both sectors. He believes that certain capital goods and intermediate industries underpin arms production. Their scope spans the spectrum of engineering and metals production activities, covering the following industries: iron and steel; nonferrous metals; metal products; non-electrical machinery; electrical machinery; shipbuilding and repairing and finally, transportation equipment. These industries represent what Kennedy terms the 'Potential Defence Capacity' (PDC), and if it is compared to total manufacturing capacity then an indication can be obtained of the viability of country's arms production programs.
India's potential to manufacture defence equipment as seen in Industrial Statistics Yearbook, UN, New York, also bears favourable comparison from an international perspective. Against selected semi-industrial states, like Israel, South Africa & Turkey, India possesses a PDC-share of comparatively similar strength; it comes close to equaling the powerful arms producing nations of Israel and South Africa, and in terms of output and value added, its suprasses that of Turkey, a NATO member country involved in numerous armaments co-production programmes.43

The reason for India's healthy PDC ratio is not difficult to find. Although World Bank categorizes India as a low-income country, with the per capita income of only US $260, it is, at the same time, the world's tenth most industrialized country, in terms of asset value. Since the second five-year plan in 1956, with its emphasis on capital goods production, India has been rapidly building up heavy engineering capacity. But although the major industrialization programmes were post-independence phenomenon, some of the strategic PDC industries have their roots much further back. For example, when foundations of iron and steel production were laid as early as 1907, when Tata Iron and Steel Co. Ltd. was established at Jamshedpur. Indeed, up to the Second World War it was one of the biggest operations in the world. One of the reasons for this was abundance of easily mine-able iron ore in the country. The industry's growth performance lapsed in the 40s and 50s, obliging the government to create extra capacity through the construction of the Rourkela, Bilai, Durgapur plants during 1956-66. Other steel plants were built later, including of course, the Bokaro project, completed eventually with the Soviet assistance. India is now almost self sufficient in its domestic requirements of steels, including specialized steel. Aluminum is also produced in large quantities in the country. The local availability of bauxite deposits facilitated rapid growth in Aluminum production for the last few decades. In addition, copper, zinc, lead, and other nonferrous metals (including the MIDHANI's defense related output) are produced in India.

Steel represents an important input for the production of machinery. Nehru's slogan was 'build machines, build India', and early industrial plans mirrored his philosophy. But it is again significant to note that the beginnings of machinery manufacture go
back as far as the late 19th century. Machine tool manufacture, one of the more fundamental areas of machinery production, dates from 1890. At that time, a number of workshops in the undivided Punjab had begun to produce machine tools to satisfy their own requirements. These workshops were started by Punjabi artisans who pioneered the manufacture of basic machine tools such as: 'deep gap' cone pulley lathes and 'deep throat' drilling machines, which were then used for fabrication of simple machines like chaff cutters, cone crushers and oil expellers. Machine tool production has developed considerably since then. The big public sector company, Hindustan Machine Tools Ltd., dominates the industry, accounting for over 50 per cent of the output value. The industry produces all forms of standard and specialized tools, and since the 1980s have been building numerically controlled and computer numerically controlled machine tools. Development of the related electrical machinery industry has been similarly impressive. The creation of public sector units, such as Heavy Electricals Ltd. (HEL) and Bharat Heavy Electricals Ltd (BHEL) have mainly supported its growth. These public enterprises produce industrial boilers, turbines, compressors, and a wide range of heavy electrical machinery, including atomic-powered generating plants. Moreover, since, the introduction of industrial planning; India has become virtually self-sufficient in the supply of road, rail and sea transport, and communications equipment.

It is important; finally, to mention India’s increased capability in the production of electronics. A frontier industry on the technological map, making a critical contribution to the production of modern electronic-biased weapons systems. The industry has its beginnings in the early post-war period with the establishment of manufacturing units to produce simple radio receivers and communications equipment. By 1964-65, the value of total electronics production amounted to only Rs. 300 million. Subsequently, however, the sector’s importance was recognized, and growth became rapid as Indian science and technology policy increasingly focussed on the fields of telecommunication and computerization.
Change in Thinking

A number of factors have continued to cause some rethinking on the role of the OFs/DPSUs as well as the private sector.45

1. The economic and psychological effect of the crises of 1991 desperately needed a structural change to revive the stagnant economy, a view that has been gaining ground in policy-making circles over the previous decade. The New Industrial Policy of July 24, 1991, and the document on Economic Reforms of July 1993 stressed technological development and building of manufacturing capacities in areas which are crucial for the long-term development of the economy and where private sector investment is inadequate.

2. Another factor has been the excess or idle capacity in the defence sector. Thus, it has been reported that 60 percent of their production capacity and the remaining 40 percent are running as partial capacity.

3. Military modernization in India for the next decade or so means a large acquisition programme which will push the greater involvement of the public sector in to the defence area. For modernization, India needs above 400 fighter aircraft, nearly 60 warships and about 1500 MBTs to replace the 30 year old Vijayantas and T-55s, besides other equipment. While the private sector can not, obviously, produce these items, they can be encouraged in other areas so that, saving in these areas can allow the government to make purchase in the area of high- tech weaponry.
The Role of the Private Sector

Private sector participation in defence production is seen by some as vital in order to make defence production more efficient and productive. Some see its participation as restricted to non-lethal equipment and materials. Others adopt a more gradualist view which sees increasing involvement of the private sector in the core areas as private industry matures.

K. Subrahmanyam, former Director of the Institute for Defence Studies & Analysis feels that, "the private sector participation in this area of defence production would require huge investments on its part. Defence production has a long gestation period and certainly it will not bring in high demands. These products, especially armaments and weapons, unless the country is a super power as wants to export like South Africa, Brazil and Israel to sustain the defence industry. Continuous production runs, precision and profitability are the keys to success in this activity."46

Air Cmde Jasjit Singh (Retd.), Director, IDSA, sees an increasing role of the private sector in defence production." As the economy grows, there will be increasing industrialization. The private sector's investment is inevitable. At the very outset, the private sector should address the question of investment in defence production in a large scale manner or in a small scale manner... Private sector's participation in defence production in the non-lethal area is a very factor. It should concentrate on components and subsystems manufacturing and where there exists commonality with the civilian technology and defence technology the private sectors should be more responsive to get the best results. Industrial cities like Bangalore and Pune have private sectors contributing to defence equipment production which in turns has led to the economic growth of these two cities."47
The Private sector must note the peculiar things in defence production:

1. Very stringent specifications.
2. Very high quality and precision.
3. High degree of assurance.
4. Fluctuating requirements.
5. Non-economical in nature.

Fostering Convergence

India's planning authorities have made a subtle distinction in the military sector's civil input-output relationship. Although a military-industrial complex does not exist, indicating civil industrial input to defence manufacture does not occur, a sizeable proportion of the defence sector's output, primarily from the DPSUs, is channeled to civil customers: up to 50 per cent for the DPSUs as against three per cent for the ordnance sector. Clearly, then, DPSU output is integrally linked into India's civil market. It was an astute piece of development planning by the country's policy makers: the profitability of many of the DPSUs operating in peace-time conditions, when the domestic market for military equipment quickly becomes stocked-up, is bolstered by the resilience of demand for non-defence goods from the civil market. This contribute to stability in production schedules over the short-term and planning and budgeting in the long-run.

Civil industrial input to defence production, on the other hand, is minimal. From 1965 to 1990 only about Rs.775 crore worth of defence supplies has been obtained from private sector industries. The current annual worth of supplies is only Rs. 50 crores, or around three per cent of the total. In policy terms, the government's stand on this has been ambiguous. In Lok Sabha debates on defence in 1966, some members
expressed fears that the proposed manufacture of aircraft parts by private sector firms, such as Telco, Tata and others, would lead to the emergence of a military-industrial sector that would have vested interests in an aggressive foreign policy and defence expansion. In response, Mr AM Thomas, the Minister for Defence Production, stated that although no decision has been made about TELCO, the Dunlop Rubber Co. Ltd. and Bentex Corporation would be manufacturing some items for Hindustan Aeronautics at Bangalore. Two years later in August 1968, the Minister of State for Defence, Mr L N Mishra was similarly pressed by members to clarify the official position relating to private sector participation in defence production. He replied by stating that: "...the basic policy as enunciated in the Industrial Policy Resolution is that arms and ammunition and allied items of defence equipment should be manufactured in the Government undertakings. There has been no change in the policy. However, for achieving maximum possible self-sufficiency in defence requirements and to speedily arrange the indigenous manufacture of items hitherto imported, increasing efforts have been made to utilize the capacity in the civil sector."

In spite of such statements, little further progress was made in cultivating links with the private sector in the manufacture of major items of military equipment till 1990.

Cognizant of the defects which isolating the defence sector imposes, such as: productive inefficiency due to the vertically integrated structure of defence establishments and lack of industrial and technological spin-off to civil suppliers, the government has recently made efforts to encourage greater civil-industrial involvement. In April 1987, the authorities announced that low technology items like boots, blankets, wooden boxes, etc., would henceforth be allowed to be manufactured by the private, joint, cooperative and small-scale sectors. More significant however, were later policy disclosures. Firstly, it was announced that the domestically designed Arjun MBT would be powered by a diesel engine, provided indigenously by the private sector firm, Kirloskars. Then came the statement by the Defence Minister, Mr. K C Pant in July 1987, that nearly 50 per cent of the systems and subsystems involved in the production of Soviet designed T-72 battle tanks and infantry combat vehicles (BMP) had been identified for indigenous manufacture in the private sector.
These events indicate a more positive commitment by the authorities to move away from the restrictive 1956 Industrial Policy Resolution, reserving defence production solely for the public sector. Nor was it a coincidence that they occurred at the same time deregulation was being fostered in the civil economy. The opening-up of the defence sector to private industry is in tune with the changing economic philosophy of the government. This official policy switch is based on the logic of optimizing established capacity in the civil industrial sector.

It seems the government's policy is now to concentrate on extending the DPSUs know-how and experience to other areas of the economy so that the 'available skilled manpower is profitably used'. The authorities recognize that an adjunct of this policy would be the spin-off to civil producers of quality and reliability in output that is demanded in defence production. These demands can have a vitalizing effect in improving the quality, reliability, and rationalisation of products produced for other sectors as well.

**Organisational Set-Up**

The facility to promote this military-industrial convergence has been in situ for some time. Intended to encourage closer and continuous interaction between defence and industry, a two-tier institutional mechanism was created in 1985, comprising an apex body headed by a secretary (Defence Production and Supplies) and four discipline-wise functional groups. Participating members of this hierarchical structure include representatives from the Service HQs, inspection authorities, DGTD and Development Commissioner and the small-scale industries. The apex body deals with major policy matters such as off-loading of items from the defence sector to civil sector industry, and financing of projects and inter-ministerial assistance relating to the licensing and import of capital equipment. The functional groups deal with identification of sources for development of specific items for which the department is facing difficulties; simplification and rationalization of inspection procedures. Moreover, to increase the participation of the civil sector in meeting defence needs the
government has decided not to create new capacities in the defence undertakings, if both the capacity and capability exists in civil industry for the production of non-sensitive defence equipment.57

1. In the indigenisation process, 10 technical committees in the Department of Defence Production have been set up whose role is to identify the scope of indigenisation for various items in the areas of aircraft, electronic, medical, marine, vehicles etc.

2. In addition, eight empowered committees have been set up for doing more indigenisation.

The Outline of Partnership

The private sector companies have already contributed to some areas of defence enterprise; it is a long list. However, the growing interest in the private sector’s participation in defence is indicated by the following events :-

1. **DEFEX 1988.** This exhibition at Khadki in Pune reflected the extent and strength of the civil industrial base in India. They are a common feature now.

2. **Exhibition-cum-Seminar.** The Confederation of Indian Industry (CII) represents most of the major private companies and is an influential organisation in India. They organised IND AIR 1994 in New Delhi from November 15-16, 1994, an exposition-cum-seminar on indigenisation of Air Force; AIP 1995 (Army Industry Partnership) on September 14-15, 1995 in New Delhi.58
3. **Defence Vendor’s Awareness Programme.** They are regularly organised in various places by DDP&S, DGQA, and SSI. Expo-2000 was organised in Ahmadabad from April 28 to May 1, 2000 in which Shri Harin Pathak, Union Minister of State for Defence Production and Supplies said that the SSIs have the potential to be major players in the areas of Defence Supplies.⁵⁹ AIR (GS) 2000, a seminar to encourage indigenous production for the IAF was organised at Ahmadabad on August 5, 2000.⁶₀

4. **Aero-India 2001.** This international air show was held at Bangalore in February 2001 in which many foreign and Indian firms participated. Originally started in 1996, now, it is a regular feature.

**Private Participation Through Licensing**

One of the last bastion of the controlled economy is about to fall. The government is proposing to de-reserve defence production and open it for private participation through licensing. Under the proposed licensing norms, companies seeking entry in to defence production would need a minimum capital of Rs. 100 crore.⁶¹

1. Foreign investment would be permitted but capped at 26 per cent.

2. A level playing field would be provided to private players through customs duty rationalization on imports.

3. In case of joint ventures, the licensing conditions would prescribe that the foreign joint venture partners must seek clearance from their respective governments.
4. A commitment that spares for a period of at least 20 years will be made available.

However, the Bhartiya Mazdoor Sangh, trade union wing of the Sangh Parivar has criticized this step as, “ex-party”, anti-labour and harmful to the country”. They have threatened for stir in defence units. 62

**Contribution of Small Scale Industries**

The phased programme of off-loading of low technology items to the civil sector has been targeted in particular at the small-scale industries. As a consequence, they have contributed significantly to the production of defence stores. In 1986-87, their share was over 35 per cent of the value of orders placed. The DPSUs have been at the forefront of progress in this respect. For instance, adjacent of BEL’s Bangalore complex is a 20-unit industrial estate constructed to foster the ancillary and small scale sector’s supply of parts, components, and subassemblies. There are also 23 ancillary units established in and around various divisions of HAL, while GRSE’s interaction with ancillaries accounted for 17-18 per cent of total indigenous purchase.

Assisting the involvement of small-scale units in the production of defence equipment has been a government policy inspired by development considerations. These considerations are not confined to the smaller industrial establishments, but affect other fields also. To provide examples of this, it should firstly be noted that a central facet of the Indian Government’s approach to defence production has been that it closely coordinates with regional policy. Partly because of strategic, but also development reasons, the defence establishments have been variously located across India. Some factories, such as the 1984 plants for the manufacture of infantry combat vehicles at Medak, Andhra Pradesh, and the high-caliber ammunition factory at Bolangir, Orissa, have been located in the notified industrially backward areas of these states. In these cases, where the defence plants operate in under-developed and remote areas, they provide employment opportunities to the local people. They may
also act as catalysts for upstream industrial development within these areas. The military embraces the agricultural sector too. As in the Soviet Union, military farms are responsible for the supply of milk and milk products to the troops and dry fodder to the army animals. It is intended that eventually, Ministry of Defence controlled cattle-holding farms will supply the entire requirements of milk for army personnel.63 Finally, the defence sector can, and often does, contribute to infrastructural improvements. The establishment of defence plants in backward regions often involves improvements to the communication system. For strategic purposes, the military has already undertaken several formidable projects. The semi-military Indian Border Road Organisation, for example, was responsible for the construction of the Sikkim Road, running up to the Himalayas crest in the North-East, and, in the North-West, the Hindustan-Tibet Road, winding its way to the border with China.

**Conclusion**

There is a vast scope for civilian involvement in defence production. Civilian industry has made rapid strides, often outstripping the defence sector. The private sector can contribute in developing defence items and prove itself in reengineering and inventing for the future. Initiative from the government can integrate defence and civilian R & D, especially in non-sensitive technologies like transport and communication, electronics, advanced batteries, environment friendly dual use technology, software systems, metal and non-metal materials to provide strength and stealth to the armed forces.

The private sector is governed by cost-benefit costing and management approach. Its entry will have an impact on defence R&D expenditures in long run. It will reduce the excessive costing that the government justifies. As of now, there is a lack of mutual trust and cooperation between the government and the private sector. It needs to grow beyond the letters and spirit of contractual terms to a living and breathing, interactive partnership for the interest of both.
DEFENCE EXPORTS

There are a few other critical issues concerning India’s defence industrialization which, also, need to be addressed by the political leadership but have not been and for understandable reasons. One important concern that has been mentioned earlier is the attitude of India’s political leadership towards the question of arms export. While all Industrially Developed Countries (IDCs) and other new IDCs including China, Brazil and Israel have undertaken export of weapons and equipment, albeit selectively, on a regular basis and in business-like manner, the Indian political leadership has consistently fought shy of squarely facing the issue and adopting a rational policy. And this, despite fact that there is awareness that there is awareness that in the long term it would not be possible for India to bear the cost of maintenance and renewal of her defence R & D and manufacturing bases unless export earnings pay for, at least, a part of this expenditure. If for no other reason, the compulsions of national security in the face of resource crunch alone ought to have persuaded the political leadership to take a more pragmatic view of arms export as a policy option.

Until 1983, exports of military equipment were held to conflict with India’s carefully cultivated status of non-alignment. Thereafter, the policy was changed; henceforth, the approach was to promote exports of armaments, especially to other Third World nations facing similar strategic environments and operating conditions. To date, the export drive has not proved an overwhelming success. But, again, this is partly due to policy choice. In August 1986, the Minister of State, Mr. Sukh Ram, affirmed India’s interest to export the weapon systems currently being manufactured, but not to areas of conflict. Of course, although such a stance is consistent with the country’s non-aligned posture, nearly all the wars in the post-World War II era, and current potential areas of conflict have been located in the poorer regions of the globe. This realistically is where much of the arms demand arises. Due to the present established pattern of international trade, moreover, it seems unlikely that India will be successful in exploring major quantities of armaments to the advanced countries. It is
problematical, therefore, to reason exactly where significant export orders for Indian-made weapons will emanate.

**Conclusion**

If pragmatism eventually wins the day for India’s defence industrialization, the export of non-lethal defence equipment alone will pay a handsome dividend provided India is prepared to provide the usual prerequisites of efficient after sales services of spares and training in support of her sales. And this brings us to the issue of reform of the arms export organization itself. The efficient handling of the nitty-gritty of export management methods is as important as an understanding of the policy implications of arms export, since establishing a viable export base will involve the making of serious efforts at effecting sales in the face of international competition. Most importantly, the political leadership must extend the required moral and material support to the defence export organization. For instance, the setting up of a joint sector company with a reputed export house and then taking a passive role in its management and operations so as to allow the private sector partner to avail of the required freedom to conduct the business within the guidelines set by the government but without any interference from corrupt officials would be a better way for ensuring success than entrusting the bureaucracy with the responsibility and power for managing the affairs of this difficult and competitive trade with the required degree of expertise and efficiency.

While sales of non-lethal items by India’s defence export cause less unease among the leaders, the export of lethal items, e.g. weapons, arms and ammunition, although a better business proposition, have so far been frowned upon. However, both small arms and higher calibre artillery weapons have proved to be highly saleable, and the traditional arms-exporting countries continue to thrive on these items of export. In the Indian case the misgivings which have dissuaded the political leadership from
According approval for arms export for monetary gains in the past are still largely present, but the fact is that most countries use discretion in the choice of customers, and India may ought to do the same in keeping with her foreign policy perceptions. By being selective in choosing buyers India may lose out on getting the maximum mileage out of her arms export venture, but the earnings will still be substantial and keep her DTIB in good shape. Further, there is an additional benefit for a country which manufactures arms to meet both her own requirements and the demands for export of arms: Having to abide by the quality standards and delivery schedules of export commitments enjoins upon the country's defence production units e.g. an OF or a DPSU, to perform more efficiently.

How is India's export performance? In 1986, the country was reported to be the ninth biggest exporter of arms and ammunition in the Third World. For the fiscal year 1981-82 about Rs. 260 million worth of military equipment was sold abroad. Nepal and Bangladesh have received patrol boats and helicopters as part of military assistance programmes and individual trainers and helicopters have found their way to Burma, Thailand Cambodia, Malaysia, and the Seychelles. Frank mentions the export of 'heavy weaponry' to Middle Eastern States, without specifying particular type of equipment or countries involved. Wulf amplifies, however, by stating that Jordan, Lebanon, and Oman have been supplied with Indian-produced small arms, ammunition, and non-armed vehicles; similar have also been sold to Malaysia and Nigeria. The most surprising foreign sale was made in 1982-83 when eight Chetak helicopters were delivered to the Soviet Union. Israel is keen to buy pilotless target aircraft Lakshya from India and negotiation are on in this direction.

As mentioned above, the reports of India's occasional forays into arms export, published from time to time in national dailies and elsewhere, it would appear that her performance in the export of arms and equipment has been patchy or indifferent, no clear picture emerges from the government's own annual reports of MOD's activities or other documents. The reluctance to give much publicity on the government's thinking on this issue is, largely, attributable to the absence of a clear commitment to make a success of India's arms export and the off-again on-again nature of the
government's venture into this field. These hesitancies and half-heartedness have been the hallmark of India's defence export policy in the past and prevented India from reaping benefit from the investments made in her defence production enterprise. These typically Indian characteristics contrast sharply with the attitude and determination displayed by the arms-exporting countries of Europe and the USA and, even, by the NIDCs. If arms export as a policy option is now to be adopted by India as a means to ensure the financial viability of her defence technology and industrial base and to enhance its weapon development capability, the Indian leadership will have to acknowledge the shortcomings of the past policy and infuse the adoption of a new defence export policy with adequate courage and determination.
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