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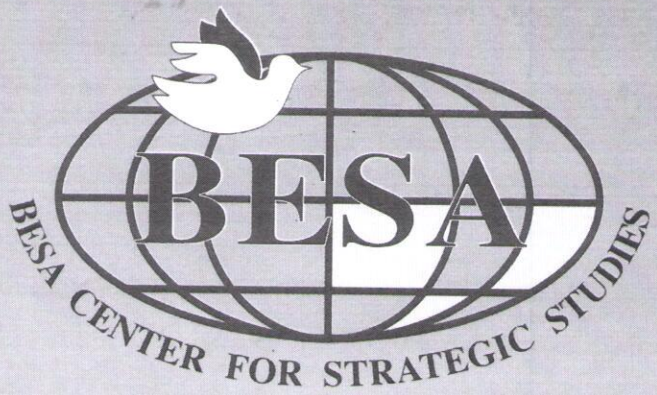

India and Israel

Evolving Strategic Partnership

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BAR-ILAN UNIVERSITY

The Begin-Sadat (BESA) Center for Strategic Studies

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To

Walter Eytan

with warm personal regards

An archer letting off an arrow may or may not kill a single man, but a wise man using his intelligence can kill even reaching unto the very womb.

Kautilya in *The Arthashastra*, around 4 century BC

We cannot and should not make compromises. Technology has to be our mission. That is the only way India can be great.

A.P.J. Abdul Kalam, Scientific Advisor to India's Minister of Defense [1]

India and Israel
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P.R. Kumaraswamy

The decision by India's Prime Minister, P.V. Narasimha Rao in January 1992, to establish full and normal diplomatic relations with Israel was partly influenced by an appreciation of the potential security cooperation between the two countries. Both countries perceive their non-conventional ambitions -- regarding nuclear weapons, missiles or satellites -- as an integral part of their search for technological independence, as a source of national power and as the tools for furthering national interests.

The threats confronting India and Israel are dissimilar, neither do they have a common enemy. However, the rationales behind both countries' modernization, arms buildup and exports are not all that different. They both underscore a search for qualitative weapons and technological independence.

Without outside help, India's key defense projects would incur cost and time overruns. Even if completed, they are likely to become quickly outdated. However, since there is no need for India to re-invent the wheel, a possible solution could be found in arms trade. Likewise, without exporting its expertise or procuring external funding for its research, Israel's long-term plans are in jeopardy; Notwithstanding the favorable intentions of the current US administration, it is becoming increasingly difficult for the US to justify huge economic and military aid to Israel, classified as a developed country with an annual per capita income in the whereabouts of $20,000.

The study would argue that prolonged neglect and indifference should not inhibit either country from evolving towards strong security cooperation. Yet, while strategic partnership would be in the interest of both countries, arms transfers alone would be unable to sustain and develop a

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strong strategic partnership between India and Israel. Thus, instead of focusing on arms trade, the study suggests both countries to identify certain key strategic areas and to seek joint research, development and production.

I. Background: Indo-Israeli Political Relations

In pursuing normalization, Prime Minister Rao (1991-96), rectified an anomalous situation which was in existence for over four decades. The roots of India's Israel policy can be traced to the early 1920s, when the Indian nationalist leadership emerged a staunch supporter of the Arabs.[3] For historical reasons India's attitude towards the Jewish nationalistic aspiration was different from that of the West. Perceiving it through an Islamic prism, the Indian nationalists argued that the consent of the Arab inhabitants was essential for the creation of a Jewish national home in Palestine. While being sympathetic towards the Jews and their sufferings in the Diaspora, they were unable and unwilling to endorse the Zionist demands. For its part, the Zionist leadership was apathetic and indifferent towards India and was unable to find a common cause with India's anti-colonial struggle. In 1947, as a member of the United National Special Committee on Palestine (UNSCOP), India proposed a minority plan which called for the establishment of a federal Palestine with internal autonomy for the Jewish population. When the UN General Assembly voted for the majority plan, India joined the Arab and Islamic countries in opposing the partition of Palestine.

The establishment of the State of Israel created a new political reality in the Middle East, and after protracted deliberations and repeated Israeli persuasions, in September 1950 Prime Minister Jawaharlal Nehru (1947-64) granted Israel *de jure* recognition.[4] A few months later, Israel opened a trade office in Bombay which gradually became a consular mission, and the first Israeli consul took over in June 1953.[5] Largely due to financial constraints and scarcity of personnel, India was reluctant to open a mission in Israel. However, when Walter Eytan, Director-General of Israel's Ministry of Foreign Affairs, visited India in early 1952, Nehru expressed his willingness to establish diplomatic relations.[6]

Gradually, a host of regional and international developments prevented any meaningful interaction and understanding between India and Israel. The Suez crisis of 1956 and Nehru's newly found friendship with Egyptian President Gamal Abdul Nasser inhibited progress on the Indo-Israeli track and the Indian leaders began to argue that the time was not ripe for normalization. India's initial willingness to establish relations and its subsequent reluctance remains one of the controversial aspects of India's foreign policy.

Following his electoral victory in 1984, Rajiv Gandhi (1984-89) initiated a few direct and indirect contacts with Israel.[7] This process became an integral part of the pragmatic and non-ideological approach to foreign policy pursued by Narasimha Rao. The end of the Cold War, the relaxation of international tension, the willingness of the Arab countries to secure a negotiated peace with the Jewish state, and the inauguration of the Madrid peace process enabled Rao to pursue a new policy towards Israel. The opening of embassies by the two countries in late 1992 was followed by a steady flow of political and commercial visits, indicating the scope for cooperation in various fields.

However, one cannot ignore the security considerations in Rao's decision. In the past, the absence of diplomatic relations did not inhibit India from seeking Israeli assistance, and during national crises such as the Sino-Indian conflict in 1962 and the Indo-Pakistani wars in 1965 and 1971, it sought and obtained a limited quantity of small arms and ammunition from Israel.[8] Rarely acknowledged in public, however marginal the military impact of these weapons, they signaled a certain shared security understanding, if not friendship.

There was also prolonged cooperation between India's Research and Analysis Wing (RAW) and its Israeli counterpart, the Mossad. Such cooperation existed even during the premiership of Mrs. Indira Gandhi (1966-77 and 1980-84), generally considered unfriendly towards Israel. According to one account

> [The RAW] has always had links with the Israelis and the US. In the late 1970s it engineered the visit of Moshe Dayan to India; it also played an important role in trying to get the

> Israeli defense industry a foothold in India. RAW sent its personnel to Israel for specialized training and in late 1984, in the wake of Indira Gandhi's assassination, it also [sought the advice of]... a senior Israeli security specialist on the Prime Minister's security systems. RAW probably also buys electronic intelligence equipment from Israel.[9]

While the political leadership was adopting a more circumspect and less than friendly policy towards Israel, and even when it became overtly pro-Arab, a different trend prevailed in the Indian military and security establishment. Its subordination to the political authorities and their decisions did not prevent the military from developing a professional appreciation of Israel's military experience and expertise. The absence of political contacts and interactions intensified the interest of the Indian security establishment, who followed closely Israel's military adventures and successes, such as the bombing of the Osiraq nuclear reactor near Baghdad in 1981 and the destruction of Syrian MiGs over the Bekaa Valley the following year. With this in view, normalization thus presented a formal structure and opportunity for greater understanding and cooperation in the security arena.

II. Mutual Security Concerns

A strategic partnership presupposes a broad understanding of mutual security concerns. At present, any Indo-Israeli security cooperation is unlikely to revolve around a common (stated or implicit) enemy. India is unlikely to share Israeli concerns over Iranian and Islamic radicalism nor Israel of India's concerns over China. Due to traditional political relations, geographic proximity, dependency upon petroleum resources and labor migration to the Middle East, India is unlikely to abandon its close ties with the Arab world. Indian Muslims have been sympathetic towards the Islamic countries and their perceived opposition significantly contributed to the prolonged absence of political relations between India and Israel. However, the violence in Kashmir during the past few years and the series of bomb blasts in Bombay following the demolition of the historic mosque at

Ayodhya in December 1992 do indicate that India is not immune to Islamic radicalism. This is a sensitive and delicate political issue which India will have to handle without dragging Israel into the picture.

Nevertheless, at least in the foreseeable future, Islamic fundamentalism, a most prominent agenda in the security debate in Israel, is unlikely to be shared by India in the dialogue between the two countries, since, for domestic as well as regional considerations, India intends to continue consolidating its political and economic cooperation with Iran. In recent years it has seen Iran as a principal ally in countering the anti-India campaign by Pakistan in the Islamic world and looks to Iran as a major transit route in economic relations with Central Asian republics.[10]

For its part, Israel is unlikely to abandon its two-decade old military ties with China to lessen Indian concerns.[11] While Israel has expressed its concerns over India's suspected nuclear cooperation with Iran, there are no indications to suggest that India has raised the Chinese issue during bilateral discussions.[12] This silence should not be taken as a sign of India's acquiescence or endorsement.[13] Israel's involvement and participation in projects such as China's F-10 fighter are bound to undermine India's long-term security interests and it is extremely likely that the belated posting of a military attache is partly aimed at monitoring Israel's arms deals with China. Furthermore, Israeli relations with Pakistan are likely to include a military dimension. While not objecting to or even endorsing political relations between the two, India is bound to view any security-related dealings between Israel and Pakistan with apprehension.

Absence of a clearly definable enemy should enable both parties to concentrate on the need to decrease and eventually eliminate their external security dependency. Their respective dependence on Russia and the US for weapons, technology and financial assistance substantially undermines their political and diplomatic maneuverability, while even commercial decisions, such as the purchase of civilian aircraft, are subjected to political pressures.[14] India's MiG-21 upgrading contract with Russia was partly influenced by political considerations and was linked to future support and supplies. While technology is an impediment for India, a limited domestic market is a major hurdle for Israel. While the prevailing economic condition would prevent the complete technological independence of either country, a

well thought out and executed cooperation would significantly reduce their defense-related dependency upon Russia and the US respectively.

Both countries share an identical view of the non-proliferation regimes such as the Nuclear Non-Proliferation Treaty (NPT). Though couched in principles, India's primary objection to NPT revolves around regional security considerations similar to those articulated by Israel. Both aspire to be treated as 'haves' in the struggle against nuclear and missile proliferation. Israel still retains its status as a threshold nuclear power, while India, by conducting nuclear tests in May 1998, has abandoned its long-held nuclear ambiguity. Since the collapse of the Soviet Union and the end of the Cold War, some of both countries' strategic programs have come under greater American scrutiny, and as a common stand is likely to put them in confrontation with Washington, neither side would be eager to place proliferation as an immediate agenda.[15]

III. Technological Independence and Qualitative Superiority

India is both a regional power and an emerging market and it serves Israel's interest to maintain close political as well as economic ties with India. Both have adopted similar positions on various arms control issues, and Islamic radicalism does pose a serious threat to both countries. However, the real scope for Indo-Israeli strategic partnership can be found in India's search for technological independence and Israel's quest for qualitative superiority. India's substantial difficulties in upgrading and modernizing its armed forces, due to lack of suitable technology and financial constraints, compel India to seek long-term collaboration with Israel. The framework for a sustained and substantial security dialogue and strategic partnership involving the military/security establishments is particularly likely to revolve around the areas of light combat aircraft, main battle tanks, aircraft upgrading, and missile development, while in the absence of immediate monetary gains, the same cannot be said of other financially attractive military transactions nor of the transfer of earlier generation Israeli technology.

Arms export remain an essential and integral part of Israel's security, since they reduce the unit cost of production, offset the cost of

research and development, reduce Israel's balance of payment deficits, provide employment to significant portion of the labor force and moderate the 'brain drain'.[16] In the words of one analyst

> In a broad sense, exports [of advanced weapons, including missiles and technology] are necessary to offset the high cost [of strategic deterrence] and the overall cost of maintaining Israel's technology-intensive weapons industry. ... Although sales of small arms and ammunition to a number of states in Asia and Western Europe provide some income, they are not nearly as profitable as advanced weapons and technology.[17]

Explaining the rationale behind arms exports, former Defense Minister, Moshe Arens, told an American audience: "Our industrial base is microscopic compared to the US industrial base, and so Israel has no choice but to export some defense items ..."[18]

Similarly, the incumbent Defense Ministry Director-General, Ilan Biran, warned the defense industries that in order to be viable, they cannot depend on the Israeli market. 75 percent of the orders received should be designated for export.[19] Confronted with growing security demands and meager internal financial resources, the Israeli defense industries have two options: "either to abandon all efforts to develop the systems, or to find a foreign partner willing to finance the development cost in exchange for a partnership arrangement during the course of the project."[20]

For the recession-ridden Israeli military industry, a military relationship with India presents an attractive and challenging offer. However, it is unlikely to be a cash-and-carry affair. There is no cash in India and Israel does not have as many complete systems as India requires. The problems facing Indian and Israeli military industries and security forces are real. Prolonged external dependence for supplies, technology and financial aid and assistance have seriously eroded their freedom in security procurement. Over the years, the dependency has grown to alarming levels which can only be tolerated at the expense of a heavy cost in future. Normalization between the two came at a time when India's dependence on the Soviet Union was exposed, and the continued supply of hardware,

spares and other support facilities became uncertain. The disintegration of the Soviet Union and the multiplicity of suppliers meant that India had to negotiate with numerous and independent production units from various countries of the Commonwealth of Independent States. The fragmentation of the supply system made India extremely vulnerable, considering that any military confrontation at that period would have been disastrous.[21]

The position of Israeli military industries is not encouraging either. The recession following the cancellation of the *Lavi* fighter in 1987 continues, and the dismissal of a third of the work force has not improved the situation.[22] Even after posting nearly $2 billion worth of sales (most of them in exports) in 1997, the Israel Aircraft Industries (IAI) had to depend on government assistance to pay the salaries of its work force. As the IDF orders dwindle, Israel's ability to economize production, develop special weapons and continue research and development is jeopardized.

In short, India's search for technological independence and Israel's quest for maintaining a large scale defense industry, in order to guarantee a qualitative superiority over its regional rivals, cannot be achieved by either alone. Neither side can generate enough internal sources to continue some of the sensitive and vital projects, nor do they enjoy the largesse of a generous benefactor. This precarious situation presents the best scope for a strategic partnership. It is essential for both countries to look for unconventional solutions to challenges and opportunities, such as the vast domestic Indian market, difficulties facing Defense Research and Development Organization (DRDO, the prime force behind India's defense projects), India's great power aspirations, Israel's lead-time in a number of areas and its need to reduce the unit cost of production through exports or external assistance.

IV. Defense-Related Contacts Since Normalization

Emphasizing the commercial and cultural aspects of the relations, both countries are extremely wary of discussing the military and security dimension of their relationship. Both governments go out of their way to minimize, if not halt the flow of information pertaining to those issues. In August 1994, Israeli officials tried unsuccessfully to prevent the local media

from reporting the presence of Defense Ministry's Director-General David Ivry in New Delhi, even after the Indian media gave widespread coverage to the visit.[23] Similarly, Indian diplomats were unwilling to acknowledge the presence of Defense Secretary T. K. Banerji in Israel, though the media discussed his agenda even before he left Indian soil.[24]

Most defense-related visits and contacts do not reach the media or are reported after the delegations' return home. Aware of the domestic opposition to defense cooperation with Israel, Indian leaders and officials have regularly denied reports that the two countries have signed defense agreements. They do, however, concede that negotiations are being held with various Israeli companies and agencies.

It is not difficult to fathom the rationale behind this approach. Military relations are sensitive, controversial and hence are subject to official and unofficial censorship as well as restrictions. Defense Minister Sharad Pawar's remarks, in February 1992, on cooperation with Israel on counter-terrorism, evoked strong protests from a few Muslim Members of Parliament.[25] Like other members of the establishment, the military prefers conditions where the flow of information can be controlled, limited and even manipulated. Undue and unnecessary publicity concerning security relations and cooperation with foreign countries undermine vital state security. Premature and needless disclosures of intelligence cooperation or special operations involving external powers could be politically costly or unacceptable to India.

Besides this general reluctance, India and Israel have certain additional reasons for their secrecy. Portrayed as an integral part of national security, Israel exercises strict censorship over the publication of details concerning defense exports. Though recent developments, such as the end of the Cold War, the thaw in Arab-Israeli confrontation and the growing recession facing the defense industries, have led to marginal relaxation of official restrictions, arms export still remains a sensitive issue. The silence is also compelled by political considerations whereby close ties with a number of developing countries, especially in the security arena, remain controversial. For instance, in April 1997, the Israeli television reported that a MiG-29 fighter from an unnamed country was in Israel "to check the compatibility of various weapon systems."[26] The general Israeli practice of

identifying arms exports only by regions is problematic because, for some strange reason, Israel classifies India as part of Southeast Asia.

Military cooperation remains a major issue in bilateral discussions. Senior officials from the Defense Ministries of both countries regularly exchanged visits. Defense cooperation figured prominently in numerous visits between the two countries' political leaders, as in the high profile state visit to India of President Ezer Weizman in December 1996. Anti-terrorist cooperation was discussed also during the brief visit of Foreign Minister Shimon Peres in May 1993. The official delegations which accompanied both these leaders included a number of industrialists from the defense industry, and even visits by Foreign Ministry officials were not free from the defense angle.

The bilateral contacts and negotiations covered a wide range of issues and areas such as counter-terrorism, intelligence cooperation, avionics, radars, anti-missile systems, aircraft upgrading, etc. A number of these visits and contacts related to the air force, underscoring the importance of the air force in the emerging relations. The Israeli Air Force chief visited India in March 1995 and his Indian counterpart was in Israel in July 1996. From a strategic perspective, the most important development occurred in June 1996 when a leading defense scientist, Abdul Kalam, paid an unannounced visit to Israel. Likewise, the arrival in April 1996 of a defense attache to Israel, which marked a new phase in the bilateral relations. The appointment of an air force officer as the first attache emphasizes the important role played by the air force in the bilateral military relations.

Absence of a detailed discussion of the bilateral defense contacts makes it essential to closely examine these developments. Because of the overlapping nature of these contacts and negotiations, the narrative adopts a chronological rather than thematic approach.

In early February 1992, days after India announced its decision to establish diplomatic relations, Ya'acov Lapidot, Director-General of the former Police Ministry remarked that India was interested in Israeli assistance in anti-terror activities.[27] Lapidot had returned from India where he attended an international police convention. Reacting to the Indian decision, junior minister and government spokesman Benjamin Netanyahu told a visiting Indian journalist that Israel had "developed expertise in

dealing with terrorism at the field level and also internationally, at the political and legal level, and would be happy to share it with India."[28] Since then combating terrorism has become a constant theme in Indo-Israeli security discussions.

On 23 February, Defense Minister Sharad Pawar declared that normalization had paved the way for "drawing on Israel's successful experience to curb terrorism."[29] In an unprecedented manner, Israel's charge d'affaires, Giora Becher (who had then moved to New Delhi from Bombay and was holding the fort till the nomination of the first Israeli ambassador), clarified that "it [was] not the right time" to discuss defense cooperation.[30] Amidst speculations of impending military cooperation, junior Defense Minister S. Krishnakumar informed the Rajya Sabha (the Upper House of the Indian parliament) that there was 'no proposal', 'no initiative' and 'no offer' of any kind of defense ties with Israel. Briefly intervening in the debate, Prime Minister Rao remarked that as there were no contacts at the government level for a long time, "we obviously know less than some of the members. Once the relations start functioning, we will see what we can learn from them."[31]

In March, Moshe Yager, Deputy Director-General in the Israeli Ministry of Foreign Affairs, visited India to lay the groundwork for the Israeli embassy in New Delhi.[32] Besides meeting senior Indian officials in the Ministry of External Affairs, he also met India's Defense Secretary (permanent Under-Secretary for Defense) N.N. Vohra. Having been forced to admit that the meeting had taken place, Yager was evasive about its nature and observed that "Nobody told us of Indian needs in the areas of defense."[33]

In late May, an Israeli delegation comprising of 'military equipment manufacturers and exports' was in India for negotiations. Neither the Indian government nor the Israeli embassy were willing to confirm the presence of the delegation. Interestingly, at that time the first Israeli ambassador Ephraim Dubek had not yet assumed office.[34] In August, within weeks after the opening of the Indian mission in Tel Aviv, a delegation from Malat (a subsidiary of the IAI) came to India and offered cruise missile technology for unmanned reconnaissance aircraft.[35] According to some reports the offer included the joint development of *Searcher* Unmanned Aerial Vehicles

(UAVs) and the supply of an Israeli secure digital data link to India's MiGs.[36] Another delegation from Malat came in December to brief officials of the Indian army and air force, potential users of UAVs, and offered the third-generation *Searcher* long-endurance multi-role UAVs and *Ranger* multi-purpose tactical UAVs.[37]

In February 1993, a spokesman for the Confederation of Indian Industry told *Defense News* that a delegation from IAI including defense experts would visit later on that month to negotiate with the Indian government. Likewise, a senior official of the Israel Export Institute disclosed that in October that year the Institute would send a large delegation to India including those specializing in "the whole spectrum of electronics, telecommunications, data communications, electro-optics, software and avionics." Meanwhile an official of the Remotely Piloted Vehicles (RPVs) project at the Aeronautical Development Establishment (ADE) denied reports that India was buying Israeli RPVs or that ADE was seeking collaboration with Malat for joint production of UAVs in India.[38]

The issue of defense cooperation was raised when Foreign Secretary (permanent Under-Secretary of Ministry of External Affairs) J.N. Dixit became the first senior Indian diplomat to visit Israel, in March 1993, accompanied by Rakesh Sood, head of the Disarmament Division at the Foreign Office.[39]

The following month, a high level delegation of Israel's Manufacturers Association went to India for a two-week visit, and included representatives from the defense industry.[40] There were hints that when Maharashtra Chief Minister Sharad Pawar led the Indian delegation for the AgriTech exhibition in May, he was accompanied by a high-level military team that visited Israeli military facilities and establishments.[41]

Amidst speculations of growing defense cooperation, days before Foreign Minister Shimon Peres' highly publicized visit in May 1993, ambassador Dubek denied that defense cooperation was in the offering and ruled out discussions concerning a defense pact or nuclear energy cooperation during Peres' visit.[42] The twelve-member business delegation accompanying Peres included chief executives from IAI, Elbit and Elul Technologies and it is believed that the question of upgrading of MiG-21s was on the agenda.[43]

Only weeks earlier, *India Today* charged that the Indian government "had been sleeping on an Israeli offer to modernize and upgrade the aging MiG-21 for fear of a political fallout in the Islamic world. The government had even said no to posting a military attache in Israel for the same reason."[44] Meanwhile both in parliament and elsewhere, Indian leaders vehemently denied any defense cooperation with Israel.[45]

In June, *Aviation Week & Space Technology* reported that India had purchased $400 million worth of fire-control systems for installations in the license-produced *Vijayanta* tanks and artillery equipment and ammunition for its Soviet-made T-72 tanks.[46] That same month, G. S. Iyer, Joint-Secretary at the Indian Defense Ministry led a 16-member National Defense College (NDC) team to Israel.

The following month, Prime Minister Yitzhak Rabin delineated to H. K. Dua, editor of *The Hindustan Times,* the limitations of military cooperation between the two countries. He was categorical on whether Israel would consider a technology transfer

> We are limited by our commitments to the United States... Whatever we get from the United States as an end-user, we are bound by our commitment... not to give others such technology. But we have technology which is quite advanced and which is not limited, except by certain international agreements.[47]

The Prime Minister was probably referring to Israel's commitments to the Missile Technology Control Regime (MTCR).

A 14-member delegation, representing Israeli telecommunications and electronics visited India in September, primarily to promote cooperation with the ADE, developing *Falcon* RPVs. Nine members of the delegation represented firms such as IAI, Tadiran, Rafael, Future Technology, Elbit Computers, El-Op Electro-Optics Industries and Rada Electronics, which manufacture and export defense hardware and software used in missiles, guided weapons systems, anti-missile systems, military electronics and fire control systems.[48]

A delegation of the Association of Electronic Industries of Israel visited India for three weeks in October, and included representatives from IAI and its subsidiary Elta, the manufacturers of electronic weapon systems.[49] Weeks later, *Jane's Defense Weekly* disclosed that Sibat, the Foreign Defense Assistance and Defense Export Organization of the Israeli Defense Ministry, had appointed over fifty agents in New Delhi to sell various defense items to India.[50]

As the media was reporting on possible and potential defense cooperation with Israel, on 16 December 1993, junior Defense Minister Mallikarjun told the Upper House that India had not signed any defense agreement with Israel in defense cooperation and that only exploratory talks were being conducted with Israel.[51]

In December 1993, India's first air show, AVIA-93, in Bangalore, provided an opportunity for Israel to exhibit its defense skills and acumen.[52] Capitalizing on the occasion, Sibat put up the second largest display after the Commonwealth of Independent States, and the exhibit became a star attraction for the top brass of the Indian defense establishment, including Abdul Kalam. At that time, both IAI and Elbit were actively campaigning for the MiG-21BIS contract, and held several rounds of discussions with the Indian defense officials. They were competing with India's Hindustan Aeronautics Ltd. (HAL), the Russian MiG-Moscow Aircraft Production Organization (MiG-MAPO), a French consortium led by Thompson-CSF and Grumman Corporation of the United States. Keen on securing the lucrative MiG upgrading contract, Elbit displayed the remodeled MiG-21 2000, which incorporated advanced avionics, including weapons delivery navigation, communication and display systems. Both Air Chief Marshal S.K. Kaul and his naval counterpart V.S. Shekhawat were extensively briefed by the Elbit officials.[53]

Shortly afterwards, in March 1994, *Defense News* disclosed that India would purchase 16 *Hunter* and *Seeker* UAVs from based Malat for $1.6 million a piece and two control stations. It was estimated that India required about 60 control stations and 560-70 UAVs, and that Israel would assist India's *Falcon* RPVs and *Lakshya* advanced Pilotless Target Aircraft (PTA) project.[54] The issue of RPVs was raised during the visit of Deputy Minister Yossi Beilin and his discussions with Indian leaders in April

1994.[55] The following month, however, the DRDO dismissed reports of Indian purchase of RPVs from Israel.[56]

Around this time, *The Times of India* disclosed that an Israeli offer to assist in defending the Indo-Pakistani border and high mountain passes along the Line of Control (LOC) in the Kashmir valley was being examined by the government. The proposal, already studied by defense experts and Home Ministry officials, envisaged sealing in stretches of nearly 600 kms of border along the tough terrain in the Valley, which would be equipped with electronic systems to monitor human movements.[57]

Citing Israeli defense officials, *Defense News* reported in July that while focusing on intelligence exchanges and upgrading India's Russian inventory, Israeli cooperation with India would "preclude cooperation on ballistic missile technology that could run afoul of international arms control guidelines" such as the MTCR.[58]

In August 1994, David Ivry led a high level delegation to India, "reciprocating the visit to Israel last year of his Indian counterpart."[59] In October, Prof. U. R. Rao, member of the Indian Space Commission, came to Israel with a four-member delegation. Among others, he met Prof. Yuval Ne'eman, head of Israel's Space Agency. Not long ago, Prof. Rao was the chairman of the Indian Space Research Organization and in 1992 negotiated the cryogenic engine deal with Moscow.[60]

In January 1995, a delegation from the Indian Home Ministry came to Israel on an introductory tour to the Gaza Strip, to study the four-tiered specialized barbed wire system.[61] This step was part of the Indian strategy to combat illegal crossing from Pakistan along the 1,500 km border, as the Western Indian states of Gujarat and Rajasthan are of similar terrain and weather conditions.

In March, Israeli Air Force Chief, Maj. Gen. Herzl Bodinger became the first serving defense chief to visit India since normalization. He spent a week in India, accompanied by members of the Air Defense, Combat Air Arm and Air Intelligence units. According to a media report, he offered a package deal which included "Airborne Warning and Control Systems (AWACS), RPVs, access to an air platform for anti-defection and anti-jamming maneuvers, a window on a recently launched Israeli military communication satellite, specialized weapons .... and training of [Indian air

force] personnel in the fourth generation fly-by-wire systems." In return, Israel apparently demanded the use of the Indian Air Force bases at Jodhpur or Bhuj as air staging and refueling facilities. Bodinger reportedly told his interlocutors that Israel was seeking air staging facilities due to "strategic and regional interest compulsions."[62]

The following month, *Flight International* disclosed that both countries had sealed a $50 million deal for *Harpy* drones and that Israel had offered its airborne early warning technology based on *Phalcon*.[63]

In June, quoting an unnamed "senior diplomat from an Asian country", *The Jerusalem Post* denied speculations that the Indian Defense Secretary had visited Israel.[64] Visiting Israel a month later than originally planned,[65] K. A. Nambiar reportedly discussed Indian acquisition of RPVs and the possibility of Israeli cooperation in upgrading indigenous T-72 tanks.[66] That same month Kaushal Singh, Joint Secretary at the Defense Ministry led a 16-member NDC delegation to Israel.[67]

A few months later, an Israeli delegation representing the Defense Production Wing visited India and offered a series of radar systems much needed by the Indian defense establishment, following the installation of three Chinese radars in Myanmar to monitor India's eastern coast. [68]

Towards the end of October, Israel hosted Ashok Tandon, Director-General of the National Security Guards (NSG), an elite commando unit responsible for VIP protection. An unnamed Home Ministry official was quoted saying that India was looking for cooperation with Israel for "training and upgrading the skills of commandos and purchase of gadgets and weaponry."[69] It is widely believed that ever since its creation in 1984, following the assassination of Prime Minister Mrs. Indira Gandhi, absence of political relations did not inhibit NSG from developing limited cooperation with the Shabak (the Israeli General Security Service) and a number of NSG commandos were even sent to Israel for training. The timing of Tandon's three-day visit could not have been more inauspicious as within a couple of days after he left Israel, the Shabak failed the ultimate test of protecting Prime Minister Yitzhak Rabin. Rabin's assassination overshadowed the goodwill visit a few days later of two Indian naval ships *INS Gomati* and *INS Subhadra*, the arrival of which constituted a major development in relations since the early 1950s.[70]

In December, Air Vice-Marshal V.K. Bhatia, Assistant Chief of Air Staff Operations, led a four-member delegation to Israel, to discuss flight safety measures in preventing loss of aircraft due to bird hits,[71] since Israel, as a major transit point for millions of European birds migrating to the warm southern hemisphere, had experience in confronting problems posed by birds' migration to air force training.[72] According to the Ministry of Defense, the Indian Air Force had an annual loss of 40 aircraft in the 1960s and 30 each during the 1970s and 1980s, on average. During the 1990s, the annual loss reached an average of 24 aircraft.[73] These accidents result in the loss of trained pilots, often leading to a shortage of manpower for a particular type of aircraft, in addition to the loss of expensive aircraft.

In January 1996, it was reported that India was close to placing a $100 million order with Elta Electronics for 90 radar-jamming pads for its air force.[74] However, in March India signed a $300 million deal with Moscow for upgrading and modernizing 125 MiG-21BIS fighter jets first introduced in India in 1976.[75] This effectively eliminated the IAI and Elbit as the prime contractors.

Amidst the controversy over India's position vis-a-vis NPT, India's ambassador in Cairo, Kanual Sibal, told the Egyptian media in March that though both countries were opposed to the NPT, his country did not "maintain relations with Israel in the field of nuclear weapons and nuclear technology."[76]

What can be described as the high point of Indo-Israel security cooperation and potential for partnership came in June 1996 with the visit to Israel of the noted scientist Abdul Kalam, nominally Scientific Adviser to the Defense Minister and the brain behind India's most promising military projects: missiles, the Light Combat Aircraft, the main battle tank *Arjun* and a host of other defense ventures. In the words of Aaron Karp, for two decades "all major space launch and ballistic missile projects were the direct responsibility of A.P.J. Abdul Kalam, whose skill, authority and success reinforced each other."[77] Kalam's presence in Israel was revealed only weeks after he had returned to New Delhi, as the visit took place days after new governments assumed office in both countries and when the victory of Netanyahu was viewed with skepticism in the Middle East and elsewhere.[78]

Citing foreign sources to circumvent the censorship regulations, *Globes* reported in July, that Rafael had offered India its first radar-guided *Alto* air-to-air missiles. Originally developed as a secret project, the missile was undergoing testing, and was expected to be utilized for upgrading Israel's F-16s.[79]

Later that month, just weeks after a new coalition government led by the United Front assumed office in New Delhi, Air Chief Marshal S. K. Sareen came to Israel as the guest of Air Force Commander Maj. Gen. Eitan Ben-Eliyahu. By then Israel had lost the contract for MiG upgrading to the Mikoyan Design Bureau of Russia, but managed to secure the sub-contract for avionics. Besides the avionics component of the upgrading program, Sareen's agenda probably included AWACS, UAVs, electronic counter-measures and electronic counter-counter measures.[80] Sareen was shortly followed by Deputy Air-Chief Marshal M.S. Vasudev.[81] Israeli naval chief Vice-Admiral Alex Tal was in India in early November 1996 and held talks with Indian officials including junior Defense Minister N.V.N. Somu.[82]

That same month it was disclosed that Elta had won a $80 million tender to supply electronic warfare tools to India's MiG-21s.[83] Amidst media speculations, the DRDO denied suggestions that it planned to procure *Phalcon* systems, with the explanation that even after ten years of development the Israeli AWACS still lacked 360 degree vision.[84] Rafael, Cyclone Aviation and Sibat were the principal participants of the Aero India '96 international air show, hosted in Bangalore in early December.

Meanwhile, a report in the Indian media disclosed that the Indian air force had bought a sophisticated Air Combat Maneuvering Instrumentation (ACMI) system from Israel for developing air combat tactics. Described as the "first major defense purchase" from Israel, the ACMI was installed at the high security Tactics and Air Combat Development Establishment (TACDE), located at Jamnagar air base.[85] It also reported that the navy had bought electronic support measure (ESM) sensors from Israel for installing in the solitary operational aircraft carrier *INS Virat*. Both navies are believed to be jointly developing ECM capability.

That same month, the Indian Navy awarded a $10 million contract to the IAI's Ramta Division and the state-owned Goa Shipyard to build two *Dvora* MK-II patrol boats for maritime surveillance, to be built in India.[86]

Around the same time as the visit of IAI head, Moshe Keret, in New Delhi,[87] a senior official from the Elta division of the IAI told reporters in Bangalore that Israel has offered its EL M-2022A multi-mode maritime surveillance radar which could simultaneously track up to 100 targets.[88] This radar is primarily aimed at threats emanating from Pakistan's acquisition of P-3C Orion maritime surveillance aircraft from the US.[89]

On President Ezer Weizman's week-long state visit in December 1996-January 1997, following a sentimental journey to Yelahanka air force base near Bangalore, where he served as an RAF pilot during the World War II, Weizman said he would recommend to Israel's Defense Minister the opening of an air attache's office in New Delhi, in order to enhance greater cooperation between the two air forces.[90] Unaccompanied by journalists, he visited military industries and India's space center located near Bangalore. On this trip Weizman made an offer to the Indian air force of the *Kfir* aircraft, named by a section of the press as "a New Year gift."[91] The offer was a non starter and the obsolete *Kfir*, an unauthorized copycat of the French *Mirage III*, could not substitute, let alone replace India's aging MiG-21s.[92] Weizman was trying to relinquish the unwanted aircraft lying in Ben-Gurion airport and India naturally declined the offer.[93] During the visit, Elta reportedly signed a $100 million agreement with India to provide electronic warfare systems while Iscar initialed a partnership contract with the Indian Air Force's blade factory.[94]

In February 1997, Defense Secretary T. K. Banerji led a high level defense delegation to Israel to discuss the "exchange of technology".[95] Even though the delegation spent five days in Italy prior to their arrival in Israel, only the latter visit drew widespread attention in the Indian media. Shortly after Banerji returned home, *The Hindustan Times* identified Russia as the prime conduit for Israeli arms and gave three prime rationales behind this circuitous route: not to irk the Arab world with whom India has close historical ties, to prevent Pakistan from indulging in anti-India bashing over Israeli connections and to prevent the US from intervening and raising the 'bogey' of MTCR.[96] For technical as well as financial reasons, Russia is unlikely to abdicate its role as the principal defense supplier to India, and sub-contracting Russian defense deals to Israel would be prudent and less controversial.[97] The report also identified a host of areas where Israeli

expertise and skills would be useful, including anti-missile technology, self-propelled guns, RPVs, air defense systems, counter-insurgency operations, MiG-21 and T-72 upgrading and anti-ship missiles.

Later, a report in the *Defense News* suggested that India was interested in Israel's missile technology, especially the *Arrow* anti-missile missile system, currently being developed by Israel.[98] Having failed to persuade the US to impose sanctions on the suspected Chinese transfer of M-11 missiles to Pakistan, India appears to be gearing for an anti-ballistic missile program.[99] The undisclosed visit of Abdul Kalam in June 1996 should be seen in this context. The *Arrow*, however, is not a missile that India could acquire off the Israeli shelf. Jointly developed with substantial American funding and support, Israel cannot sell the *Arrow* missile or its technology without American permission. Given Washington's concerns over India's nuclear and missile programs such permission seems unlikely.

In April 1997, more than five years after normalization, Wing Commander N. Brown assumed office as India's first Defense Attache in Israel. This has been one of the issues highlighting the delicacy with which the Indian government has approached its relations with Israel. In June 1992, soon after his appointment as the first Indian Charge d'affaires, Virendra Gupta was quoted saying that India was considering assigning a military attache to Israel.[100] If it took the political leadership over four decades to establish diplomatic relations, the security establishment needed five more years to persuade the political leadership to send a military attache, the inordinate delay in the whole process underscoring the complexity of the situation. Around January 1996 or a few months prior to the 1996 elections to the Lok Sabha (the Lower House of the Indian Parliament), the Indian government approved the air force proposal to send an official of the rank of Group Captain as military attache to the Indian embassy in Tel Aviv. However, the professional enthusiasm of the military establishment for closer cooperation with Israel was curbed by the sensitivity of the politicians towards Muslim voters. Thus it took over a year to implement the decision. Prime Minister Netanyahu told a group of visiting Indian journalists in July that Israel could share defense technologies with India without any strings attached.[101]

The Indian parliamentary elections, which led to the formation of a government led by the Right-wing Bharatiya Janata Party (BJP), took place during the period of the visit to Israel early in March 1998, of Gen. Prakash Malik, who became the first serving Indian Chief of Army Staff to visit Israel since normalization.[102] Hints of a visit by the Indian general to the disputed Golan Heights were strongly denied by India.[103]

In short, since 1992 both countries have maintained serious and substantial contacts, dialogues and transactions covering a wide arena of defense and security issues. From these publicly known developments it is clear that, in spite of their diversity, most of these developments revolve around the air force, indicating the direction of emerging ties.

V. Areas of Cooperation

From these visits and high level contacts, reported in the media but rarely discussed by either government, one can identify certain broad areas of security-related cooperation between the two military establishments. They revolve around India's ambitious and ongoing attempts to design, develop and produce major platforms, mostly pertaining to the air force. In all these areas, India has been pursuing specific projects and has made significant progress in some of them. One cannot ignore the possibility of cooperation in other areas such as intelligence cooperation, counter-terrorism, coastal patrol, small arms, mines, electronic fencing or joint air, military or naval exercises; Even in the absence of normal diplomatic relations, some working relations did exist between the intelligence establishment of both countries. The problem of infiltration from Pakistan and Bangladesh compels India to look to Israeli expertise in confronting similar threats. Likewise, India procured from Israel small arms in the 1960s and in the early 1980s, as well as two patrol vessels after normalization. However, such cooperation was neither unique nor special and even some of the Arab regimes overtly opposed to Israel maintained professional contacts with the Israeli intelligence services.

Under Abdul Kalam, India's defense establishment has been made aware of the issue of technology and the securing of vital national interests as "a viable and effective instrument of power."[104] Western concerns over

exports of dual-use technologies, and determination to prevent them, together with the disintegration of the erstwhile Soviet Union, have exacerbated the importance of indigenous technological progress. India shares the view that Western concerns over non-proliferation have often served as camouflage for sound commercial considerations.[105]

Defense-related research in India is conducted by the DRDO which is comprised of fifty laboratories and establishments spread across the country.[106] The approximate Indian equivalent of Rafael, it is involved in design and development of activities "in a variety of disciplines, such as aeronautics, armaments, combat vehicles, naval technology, rockets and missiles, computer science, electronics and instrumentation (including communication, radars and electronic warfare), artificial intelligence, robotics, engineering, terrain research, explosives safety, materials (metallic, non-metallic and composite), life sciences (including high altitude agriculture, high altitude and desert physiology and food), nuclear medicine, psychology, camouflage, avalanche forecast and control, work study, systems analysis, training and information systems."[107] As a result, the DRDO would be in the forefront of any security partnership between India and Israel.

A. Light Combat Aircraft

Developing a Light Combat Aircraft (LCA) remains the most ambitious military program currently undertaken by the DRDO. The need for a new range of fighter aircraft cannot be overstated. As a middle-sized air power with significant expertise in the license production of Russian-made MiGs, the desire to keep its defense requirements free from external pressures encouraged India to pursue the LCA option, which, with a sufficient domestic market, need not depend on exports to economize the cost of production. For instance, India currently has over 300 MiG-21s (including the 125 slated for upgrading) which would have to be replaced within a decade. In the post-Cold War era, the cost of replacing aging fleets with unsubsidized imports has become astronomical and prohibitive.[108]

With the declared intention of replacing the license-built *Ajeet* (British *Gnat Mark I*) and MiG-21 fighters by 1991, the DRDO launched

the LCA program in 1983.[109] The launching coincided with India's policy to look for non-Soviet options for its military needs and to gradually reduce its dependence upon Moscow for military supplies. Though not as acute as Israel's situation, India's dependence on a single supplier has been enormous and in certain key areas almost total.[110] The LCA has been projected as the most cost-effective and relatively inexpensive alternative for the air force as well as "the front-line air superiority fighter aircraft, with secondary close air-support capabilities, of the Indian Air Force in the early part of the next century (years 2005-2020)."[111] The first technology demonstrator was completed on 17 November 1995 and the first flight test has been re-scheduled for late 1998 as steps have been taken "to accelerate the pace of development, fabrication, flight testing and flight clearance leading to induction of LCA into the Indian Air Force by the year 2003."[112]

Like many other projects, the LCA program was constrained, from the start, by technological and financial limitations. Having opted for technological independence, the DRDO found itself dependent on foreign technology for the LCA, and according to some estimates, as much as 70 percent of the LCA components are imported.[113] Delays in the production schedule not only escalate the cost, but add to the technological obsolescence of the finished product. Even if the presented timetable of 2005 is maintained, there would still be a time gap of 23 years since the conception of the project.[114] Further, the preference of the air force for a modern aircraft over a local product modeled on earlier versions at times contributed to the slow progress. India's decision to purchase multi-role combat aircraft from Russia, in the wake of the Hank Brown amendment that enabled Pakistan acquire advanced weapons and platforms from the US, has put further pressures on the resources available for the LCA.[115]

Many Western observers have been skeptical as to the rationale behind the LCA, as well as about India's ability to successfully assemble and produce an aircraft suitable for the future needs of the air force. Portrayed as India's white elephant, the LCA has come under severe criticism from abroad, claiming that the project, like other Indian aeronautics projects was "chaotic and subject to flux, cost overruns, technological slippage and time delays."[116] Yet another critic estimated that, if and when completed, the LCA "[would] be about one-third the size of a

US-built F-22, half that of the French *Rafael*, and about the same size as Sweden's JAS-39 *Gripen*."[117] According to another estimate, when fully operational the LCA would be "neither indigenous nor state-of-the-art."[118] Its dependence on the West for critical technologies would be an impediment and would subject it to prevailing political considerations. With its excessive dependence on western companies, the success of the LCA depends on the 'good will' of four Western governments namely, the US, UK, France and Sweden.[119]

Amidst the continued uncertainty over the delivery schedule of the LCA, in December 1996 Abdul Kalam disclosed that the DRDO planned to develop its new Medium Combat Aircraft (MCA) that would "mainly carry out deep penetration" operations.[120] According to LCA Project Director, Kota Harinarayana, the MCA only reached the stage of the "conceptual design study". A start now would mean producing the aircraft within 15 to 20 years.[121] Simultaneously, the DRDO unveiled its AWACS based on Avro HS-748 aircraft, and according to the DRDO, no foreign help was sought in developing this early warning system. Though reaction and assessment of the 'demonstrator', which took a decade, was anything but complementary, the demonstration of the Airborne Surveillance Platform was a formal acknowledgment of the existence of such a program.[122] Its rejection of the *Phalcon* due to technical deficiencies should not be seen as the final word on the subject as one DRDO official admitted that "What is being considered from our Israeli friends is to share their expertise in our development project."[123]

The difficulties confronting the LCA are similar in many ways to the hurdles that Israel endured in pursuing and eventually abandoning the *Lavi* project.[124] At the height of the *Lavi* controversy one Israeli commentator pondered on whether a small country, which relied on foreign aid, could "afford to compete with the big powers in such an expensive field without courting economic collapse and without exceeding the limits of reason in a no less sensitive area, namely its political and technological autonomy."[125] Some of the arguments are valid for India, too. As a country with a limited military-industrial base, doubts have been raised both domestically and outside India over the wisdom of developing a complete system as important as a fighter aircraft. Like the Israeli experience, the cost of the

project has been subject to vague and unscientific estimates leading to periodic cost escalation. The government's inability to find regular and continuous funding has slowed down the project and even before the first test flight, the cost of the LCA project to the state exchequer has reached about $600 million and has come under severe criticism from parliamentarians.[126]

Unlike the *Lavi*, India's endeavor has not received political endorsement or financial support from any foreign power and hence has been relatively less susceptible to external intervention. Likewise, the successful completion of the project depends entirely on India's ability to find substantial financial resources to procure or develop the required technologies. Moreover, unlike the *Lavi*, the LCA depends on the US for its engines only for the initial phase: In a significant move the DRDO undertook the ambitious task of designing and developing GTX 35 VS *Kaveri* engines for the LCA. The detailed drawings of the Mach-2 capable aero-engine were completed in 1992, the engine is expected to be tested aboard the LCA in the year 2000 and would become fully operational three years later. While the first two prototypes would use GE-F2J3 engines, *Kaveri* would be used for the remaining five LCA prototypes.[127] The option of the US engine during the initial phase was adopted "to avoid any uncertainty that could arise in the behavior of various systems and airframe."[128]

Israeli experience would be particularly useful in areas such as avionics, airframes and the incorporation of engine and weapons into the airframe. While a number of key *Lavi* technologies were obtained from Washington and hence are subjected to American laws and restrictions, a substantial portion of technologies developed during the *Lavi* phase are owned by Israel and can be easily exported to, or shared with India. In the past Israel reportedly offered and supplied *Lavi*-associated technologies to countries such as China, Taiwan and South Korea and there is no reason why India could not benefit in like manner from Israeli expertise and exports.[129] The question of technology 'ownership' has often been a bone of contention in US-Israeli relations, often leading to accusations of un-authorized Israeli transfer of American technology to countries such as China.[130] For a variety of political reasons, such an approach by the US,

vis-a-vis Israeli dealings with India, need not be taken, thus enabling close cooperation between the two defense establishments, which would both significantly reduce duplication on the part of India, and atrophy on the part of the Israeli military establishment.

B. Aircraft Upgrading

As India would still have to wait for nearly a decade before acquiring the first batch of LCAs, the concern of the air force to upgrade its existing aging fleet would still be an issue. Acquiring new aircraft would not only be costlier, but may even be financially prohibitive, since such a move would further reduce the budget for the LCA. For instance, in early 1993 the Defense Ministry argued that until the LCA could enter into service, and with the view to optimally utilize the available fleet of MiG-21 BIS aircraft "it has been decided to upgrade the aircraft by integration of avionics and weapon systems compatible with comparable state-of-the-art systems fitted on other aircraft of [that] class."[131] As result, India signed a $400 million contract with Moscow for upgrading 125 MiG-21s and prolonging their life-span by 15 years.

Meanwhile, in April 1993, Prime Minister Narasimha Rao declared that MiG-21s would be phased out by 2002 and would be replaced by the LCA.[132] However, this would entirely depend on their timely replacement, over a short period, by the DRDO, since the inability to do so would compel the air force to upgrade an additional number of MiGs, or to look for 'temporary' replacements. Besides the ongoing MiG-21 BIS upgrading, the Standing Committee of the Parliament on Defense had recommended that the upgrading of MiG-27 and MiG-29 be given priority, as in the next couple of years a large portion of six squadrons of MiG-27 and three squadrons of MiG-29 are due for upgrading.[133]

The Defense Ministry ruled out the acquisition of a new fighter aircraft, due to financial constraints, and underscored the need for selective upgrading of various combat aircraft.[134] The Parliamentary Standing Committee for Defense wanted priority to be given to the upgrading program for the MiG-21 BIS, MiG-27 and MiG-29, as it presented a cost-effective method for maintaining the operational capability of the existing

fleet to meet perceived threats, by modernizing existing aircraft rather than paying the exorbitant cost of the acquisition of a new type of aircraft.[135]

In short, the problems facing the LCA involve the upgrading of the existing fleet of MiG aircraft, and though Israel lost the main MiG-21 BIS contract to the Russians, the upgrading market in India is still large and would involve at least over one hundred later versions of the MiGs before the arrival of the first LCA. It is essential to remember that while India is not among the leading actors in upgrading MiGs, it is not a novice either. State-owned HAL had license to assemble, manufacture, overhaul, maintain, service and improvise MiGs since the early 1960s.[136] HAL, which had obtained certain expertise in the field, has been given the task of upgrading all but two of the 125 MiG-21 BIS at HAL workshops in Nasik and Bangalore. Hence, instead of competing with these firms, the IAI should consider cooperating with them for the Indian market.

C. Missiles and Satellites

Launched in 1983, the Integrated Guided Missile Development Program is another equally ambitious yet relatively successful defense program undertaken by the Indian defense establishment in recent years.[137] This project was different to anything undertaken by India in the past, signaling a dramatic change in the way missile research was done in India for it was "a well-funded, broad-based effort, involving not only the defense laboratories but also technical institutions, universities, Defense Ministry ordnance factories, and public and private sector firms."[138] Raju Thomas (a strong critic of the LCA) went a step further and stated that almost every need of the missile program was supplied domestically, including computers, computer software, special alloy aluminum, precision gyroscopes, rocket propellants and radar.[139]

As the first Indian attempt to simultaneously develop several missile systems, the program involved design, development and production of five missile systems: Intermediate Range Ballistic Missile (IRBM) *Agni*, battlefield support surface-to-surface missile *Prithvi*, short range surface-to-air missile *Trishul*, medium range surface-to-air missile *Akash* and the anti-tank missile *Nag*. While all other missiles had either completed their

user trials or had entered the production stage, *Nag* "appears to have slipped" and was expected to begin user trials in mid-1998.[140]

The progress of the guided-missile program and the close coordination between *Agni* and *Prithvi*, the two most prominent missile systems, is remarkable. The first stage of *Agni* is based on India's success in satellite launching and the second is "a shortened *Prithvi* stage, modified for high-altitude operations."[141] Since its inaugural launch in May 1989, *Agni* has completed three successful test flights. However, following pressures from the US, the Indian government described *Agni* as a "technology demonstrator", and appeared to have quietly capped the program.[142] No *Agni* tests were conducted since February 1994, and even the change of government in New Delhi following the 1996 election has not altered this position.[143]

Adopting a missile-in-the-basement posture, Abdul Kalam declared in April 1994 that if and when a political decision is taken, *Agni* could be made operational within two years.[144] Referring to external pressures he declared that India's defense preparedness was based on perceptions of threat to the nation's security. "We cannot go by the suggestions of other countries on such matters. Can I ask one country to destroy all its nuclear weapons? It is like King Lear asking the waves to stop rolling."[145] Technology embargoes and sanctions such as MTCR have slowed down the missile program, and pressures reached a crescendo prior to the indefinite extension of the NPT which India refused to sign.[146] After a two-year ban on Indian Space Research Organization following the cryogenic engine controversy, the US imposed new restrictions in May 1997 on all "dual-use technology components" on the state-owned Bharat Electronics Ltd., due to its suspected involvement in India's missile programs.[147]

External pressures, in the long run, intensified the process and compelled India to be selective in its approach. The US refusal in the early 1980s to supply supercomputers to India, due to proliferation concerns, has only led to the indigenous development of *Anurag*.[148] It is recognized that India's "missile-related infrastructure has been developed to the point that it is no longer feasible for outside interests to bring the program to a halt."[149] Likewise, it has been concluded that, while it is possible to question the comparative international quality of the Indian missile program, "the

acquisition and absorption of technological expertise...has been more successful than in other areas of military technology procurement."[150]

Israel's need to develop ballistic missiles and its need to export this technology, was the result of the threat to national survival posed by the Arab and Islamic states, who were armed with massive quantities of both conventional and unconventional weapons by other states.[151] Without the need for the *Jericho,* for example, there would also be no exports.[152] Thus Israel has an impressive arsenal of indigenous missiles including the ship-to-ship missile *Gabriel,* air-to-air missile *Python*, air-to-surface missile *Popeye*, surface-to-surface missile *Jericho I* and IRBM *Jericho II.* They were developed and some even deployed prior to India's guided missile development program in the early 1980s, and hence are more advanced and battle-tested. In May 1997, Israel and Turkey agreed to a deal worth $100 million to jointly produce *Popeye II* missiles while *Gabriel* missiles were exported to countries such as South Africa and Taiwan.[153]

For quite sometime it was suggested by the Israeli media that certain foreign countries had expressed an interest in 'purchasing' *Arrow* missile technologies, with countries such as Japan, Taiwan, Turkey, South Korea and even the UK mentioned as potential clients.[154]

As a project substantially funded by the US (partly as a compensation for the reluctant Israeli cancellation of the *Lavi*), such a move would not be easy and in May 1996, Uzi Rubin, Head of the *Arrow* Project in the Ministry of Defense, disclosed that Israel and the US had signed an agreement arranging a "division of rights" on the *Arrow* project.[155]

This move was aimed at avoiding erstwhile controversies regarding alleged Israeli illegal and unauthorized sales or transfer of American technology to third parties such as China. In February 1997, the Indian media suggested that India was negotiating with Israel to purchase components and technology of the *Arrow.* The issue was believed to have been discussed during the visit of a senior Ministry of Defense official earlier that month.[156]

The DRDO began working on the pilotless target vehicle *Lakshya.* Following launch trials in 1983, it is currently being produced in a limited series.[157] Another aeronautical venture, the *Nishant* RPV made its first flight test in 1995 and was scheduled to be inducted into the army by late

1996/97.[158] However, production delays and technical snags led the army to look to Israeli-built *Searchers* to compensate for the delays.[159]

It is essential to remember that while Israel has been using and exporting UAVs/RPVs since the Lebanese invasion of 1982, India is a late entrant in the field. Both countries however would have to find ways of overcoming the impediments over Israel's membership in the MTCR. While *Agni* and *Jericho II* come under the limits set by the missile cartel, other missiles including *Prithvi* and RPVs are beyond the preview of its limitations.

If Israel has more experience and expertise in missiles and RPVs, India enjoys lead-time in space technology.[160] Established in the early 1950s, the Indian Space Research Organization has been primarily concerned with the civilian space program. The use of space technology for military purposes has been a recent phenomenon and the *Agni* missile is based on a successful satellite launch vehicles used to launch civilian satellites.

D. Main Battle Tank (MBT)

For over two decades the DRDO has wanted to design, develop and produce the main battle tank *Arjun,* which would replace the license- produced *Vijayanta.* Commissioned in 1974, the first prototype was to have been ready by 1980 and was to have replaced the *Vijayanta* by 1985. However, as the project design was finalized only in July 1996, a parliamentary committee felt that the delay of approximately twenty four years rendered the production of the *Arjun* MBT unjustifiable."[161]

The first technical trial of *Arjun* began in 1988 and user trials began six years later. Based on 20,000 km trials under varying terrain conditions, the army proposed ten 'basic imperatives' for improving the performance of *Arjun,* including improved accuracy of the guns and enhanced cruising range.[162] As a result the government cleared a 'limited series production' of *Arjun,* and in June 1997 the army opted for 100 *Arjun,* expecting the first tank to be due in 2002. Besides *Arjun,* which would eventually replace 1,700 *Vijayanta* tanks, India is planning to upgrade a similar number of T-52 tanks.[163]

In all these four areas, namely the LCA, aircraft upgrading, missiles and MBT, India has been pursuing some of the most ambitious, expensive technology-oriented programs ever undertaken by a developing country. If one adds the space dimension, where India plans to launch by the year 2000 a Geostationary Satellite Launch Vehicle (GSLV) capable of placing a two-ton satellite in orbit, the ambitions of the DRDO can be seen as astronomical. Most of these programs "have experienced major cost and time overruns and it would not be surprising if the dates currently set as production targets are not met".[164]

Unlike the *Lavi,* there is no foreign option for the Indian military establishment and it cannot argue that imports are possible and would be cheaper than indigenous endeavors. Even those unsatisfied with the projects, progress and achievements of the DRDO are unable to offer a cost-effective alternative. As such, these endeavors enjoy widespread domestic political support, with various political parties, from the Communists on the Left to the Nationalists on the Right, viewing them as vital to national security.

The ambitions of the DRDO provide a real, meaningful and long-term challenge and opportunity for Israel. Exports have become an integral part of Israel's quest for qualitative edge. However, instead of viewing India as a market for exports to subsidize its defense research and weapon development, Israel could exploit the opportunities provided by India's unprecedented quest for technology and modernization.

VI. Preconditions for Strategic Partnership

Having been indifferent if not hostile to one another for over four decades, it would not be easy for both states to forge a security relationship posthaste. The prolonged absence of political interaction has to be overcome and remedied prior to the pursuit of any meaningful security cooperation. Nor can one ignore certain obvious limitations.[165] Any attempt to establish a strategic partnership between India and Israel would have to address and meet at least some of the following preconditions.

A. Overcoming Past Blinkers

It is essential for both countries to discard past blinkers and to adopt a realistic attitude towards security cooperation. Since the *Khilafat* movement in the early 1920s, India viewed Israel primarily through an Arab and Islamic prism. In so doing it failed to perceive the value of normalization with Israel in promoting its interests in the Middle East. Although not everyone is happy with normalization, it has ceased to be a contentious issue in India, and even parties such as Janata Dal which opposed the move in 1992, have gradually come to terms with the reality, and have even endorsed and encouraged bilateral cooperation.

The traditional Indian sympathy for the Arabs assumed a security dimension in the 1980s when Israel was drawn into the Sri Lankan civil war. In the words of J.N. Dixit, a former diplomat and key player in India's Sri Lankan policy

> India's involvement in Sri Lanka...was unavoidable not only due to the ramifications of Colombo's oppressive and discriminating policies against its Tamil citizens, but also in terms of India's national security concerns due to the Sri Lankan Government's security connections with the US, Pakistan and Israel... Israel continued to be the northern point of the arc of containment which the US Government [had created] on the south-western flank of the Soviet Union, stretching from Turkey and Israel via the Gulf up to Pakistan.[166]

As such, Narasimha Rao's decision of normalization in January 1992 was a significant departure from the past.[167]

It is impossible for India to be immune to the vagaries of the peace process and its impact upon security cooperation. Even the most pro-Israeli government in New Delhi could not remain indifferent to India's historical ties with the Arab world, its growing economic relations with the Middle East, and the domestic pressures in support of the Arabs.[168] Succumbing to the temptation of linking it to the peace process, however, would severely

undermine any strategic partnership with Israel, particularly as most of the joint cooperation in areas suggested in this study would materialize only in the early part of next century, long after the mid-1999 deadline set by the Oslo process. Thus it would be prudent for India to emphasize its support for a negotiated settlement acceptable to all parties to the conflict. Without going into specifics, India could reiterate its opposition to all unilateral actions aimed at changing the status quo. Making security relations hostage to the peace process would make the whole idea a non-starter.

For its part, Israel still remains indifferent towards India, which draws Israeli media attention only at times of natural calamities and disasters. The emerging Asian power is largely perceived through the romanticized view of the Orient, while contemporary India does not figure in Israel's academic discourse. It is difficult to ignore the enormity of India's socio-economic problems and lack of adequate basics like health, education, clean water, nutrition and infrastructure facilities, requiring sustained, long-term planning and execution spread over a couple of generations. At the same time, one cannot ignore the progress made by India in certain key areas such as industrialization, science and technology. Any defense and security cooperation would be confined to a segment of Indian society that is set apart from the teeming millions and thus differs from the general image of poverty and social backwardness. Security cooperation with India hence requires an Israeli ability to understand contemporary India and to be willing to recognize India's military potential and progress in defense research. Past stereotypes and romanticized understanding are great impediments to a better appreciation of the expertise and potential of one another.

B. Joint Research and Production

India's annual defense budget in the early 1990s hovered around 2.5 percent of the GDP and in 1996-97 the budget was close to $10 billion, five percent of which went to defense research. India is committed to increasing the indigenous content of defense equipment from 30 percent at present to 70 percent by 2005, and within the next decade will need to replace or upgrade a large number of its aircraft and main battle tanks.

However, India does not have the financial resources for its enormous military needs and modernization programs. Its indecisive stand on acquiring Advanced Jet Trainers (AJT) for over a decade and the time overruns faced by a number of key projects such as the LCA, MBT or MiG upgrading are partly due to the military's inability to find sufficient and uninterrupted financial resources. Even the decision concerning the MiG-21 upgrading was taken only after the air force resorted to 'cannibalization'. As a result, despite the number of visits and regular contacts, the quantum of Israeli exports to India is unlikely to be massive.

Equipment from the Former Soviet Union constitutes a vast segment of Indian inventories, and even if India were able to find a willing supplier, India's financial ability to replace this dependency with non-Russian weapons is rather bleak. The indirect costs for spare parts, training, repairs, overhauling and organizational coordination, to name a few, would be tremendous.

Likewise, the nature of India's demands rules out Israel as a prime supplier in certain areas, such as LCA, where the primary concern regards the design and development of a platform. Another major arena that draws attention and funding is the development of *Kaveri* engines for the LCA. Israel's capabilities in exporting finished products are limited to the *Merkava*, RPVs and missiles such as *Gabriel*, *Python AAM*, *Jericho 1* and *2*, and *Popeye,* out of which *Gabriel*, *Python* and *Popeye* are attractive to India since it appears that India is not known to be involved in developing the latter types of missiles. However, even if Israel were interested in export, both the *Jericho* missiles would be unlikely to be included in India's shopping list as they are simply an advanced version of the *Prithvi* and *Agni* missiles. The position of RPV is somewhat different. Pressing demands from the services, coupled with production delays, brighten the prospects of importing a limited number of Israeli RPVs and UAVs, although substantial imports would be opposed by the DRDO as well as by the parliamentarians.

Israel's ability to compete with other potential suppliers is rather limited as India's prolonged dependence upon Moscow for military supplies was largely influenced by attractive financial terms such as 'friendly prices', a long payment schedule, and barter and credit arrangements. Given the

financial difficulties faced by the Israeli military industries, the possibilities for such attractive financial terms are remote and unrealistic.

A number of principal defense projects currently underway in India began in the early 1980s, when there was no serious threat to supplies. Coming after the Soviet invasion of Afghanistan, which it refused to condemn, India was assured of a continuous supply of advanced Soviet weapons, systems and platforms. Nevertheless, Mrs. Indira Gandhi consciously opted for the indigenous production of main battle tanks, light combat aircraft and a series of guided missiles. If modernization and the reduction of dependency upon Moscow were the prime considerations, she would have opted for imports and even dove-tailed some of her policies to suit Washington. However, the aim of these financially exorbitant projects was to acquire substantial technological experience and independence. As such, despite the time and cost overruns and technological impediments, India is unlikely to abandon its high profile programs currently underway.

However, though undertaken without any external financial support, successful and early completion of a number of these projects would require an influx of foreign technology and expertise. This would be an ideal situation for Israel as not only are technology and improvisation in the realm of Israeli expertise, they also are available for export.

These three considerations, namely, India's drive for technological expertise and independence, its financial constraints and Israel's need to export its expertise, make joint research and development an attractive proposition. Facing similar challenges in a number of fields, both countries could coordinate and complement their experience, expertise and demands. This is not to suggest that these projects exhibit identical technical expertise or that the products have similar performance standards. Nevertheless, it is a fact that a number of ongoing programs in India are not radically different from their Israeli counterparts, including the LCA (*Lavi*), *Arjun* (*Merkava*), *Prithvi* (*Jericho I*) and *Agni* (*Jericho 2*). The same can be said of a number of other Indian programs such as UAV/RPV, airborne early warning system, anti-ballistic missile system or cruise missile technology.

Irrespective of the DRDO's ability to deliver the LCA by 2005, India would not be able to replace its entire fleet overnight and would be compelled to upgrade the existing MiG fleet including MiG-21 as well as

MiG-27 and MiG-29. Upgrading is vital even if India sought to deplete the MiGs through exports. It is not certain that Russia would again be chosen for such an endeavor. Instead of competing for the contract, it would be worthwhile for Elbit and IAI to explore the possibility of collaborating with HAL, which, like Elbit and IAI, also sought the Mig-21 contract unsuccessfully, and bid jointly for the upgrading contract. Given the high labor cost in Israel, a joint venture with HAL would significantly reduce costs, thereby making the offer financially attractive and competitive. Such joint ventures could also be extended to third party contracts.

Factors such as access to more advanced Western technology, a pressing security situation and an early commencement of research, have given Israel technological superiority over India. A number of Israeli inventories have undergone substantial improvements and modernization based on the battle-field experiences of earlier models. For instance, *Jericho 1* was introduced in the early 1970s, nearly two decades before India's *Prithvi*. The *Merkava* tank, introduced in the late 1970s, has been remodeled twice since, likewise the fourth generation of *Popeye,* currently being used by Israel. Collaboration with Israel would thus significantly reduce time and cost overruns for India and would enable it to overcome some of the technical bottlenecks facing the DRDO. Thus *Arjun* could benefit from the battlefield experiences and competence of three generations of *Merkava* tanks, and if HAL is keen to stay in the upgrading market, it could join hands with Elbit or IAI and compete for a larger market

In joining hands with India, Israel would not be doing it a favor. Israel's success in maintaining the technological edge amidst growing Arab conventional and non-conventional power depends entirely upon its ability to fund special projects. For a variety of reasons, commercialization of technology appears to be the only realistic alternative. With a shirking defense budget, exploration of collaborative ventures with India makes economic as well as strategic sense for Israel. Even if third party exports are ruled out, India still presents a large market for Israel. For instance, within the next decade India has to replace most of its over 2,000 MBTs and must upgrade and replace around 400 MiGs. With more advanced Western countries pursuing joint ventures, with several principle weapons being produced in collaboration, it would be difficult for India or Israel to pursue

vital programs each on their own. The era in which a single country made a whole system or platform may truly be over.

C. US Component

Even though since 1948 the US consistently pressed India to move closer towards the Jewish State, one cannot be sure that Washington would completely endorse and encourage the current Indo-Israeli security cooperation.[169] A favorable attitude would mitigate, if not nullify tensions between New Delhi and Washington over a number of key issues. For strategic reasons as well as commercial ones, the US is apprehensive of some of India's ambitious plans, and at regular intervals has sought to impose economic and political sanctions to slow down and even bring about the termination of some of the projects. There are clear Indo-US differences over issues such as NPT and the Comprehensive Test Ban Treaty (CTBT), and perceived Israeli influence in the US is insufficient to mitigate these differences.

A strong security cooperation in areas underlined in this study, especially in anti-missile, cruise missile or *Lavi* technology is bound to bring the US into the picture. Some of these projects are transferred or funded by the US and hence would be subjected to end-user conditions. Having been vehemently opposed to the testing of *Agni* or the deployment of *Prithvi*, the US is unlikely to be indifferent to Israeli willingness to transfer its *Jericho* expertise. American criticism of Israeli export of *Lavi* technology to China becomes hollow if it is indifferent towards a similar Israeli venture with India. The American ability to override sensitive Israeli commitments to India would be much larger than those exhibited over Russia's attempts to sell cryogenic engines in 1993. Political proximity has not immunized Israel from American displeasure and threats of sanctions.

Hence Indo-Israeli security relations would have to be coordinated with the US and prior understanding and transparency with Washington becomes essential. Establishing a certain *modus vivendi* with the US State and Commerce Departments would lessen the friction which could arise by any uncoordinated security deals between India and Israel. Direct or indirect

involvement of American companies in Indo-Israeli joint ventures might partially ease the situation.

D. Institutional Framework

As functioning democracies, the political leaderships in both countries have to confront a host of pressing domestic and regional concerns which divert their attention from promoting bilateral security cooperation. Their interest in foreign policy is rather limited and is largely devoted to promoting political and economic relations with the great powers. The picture is further complicated by frequent political changes in India, which had as many as five prime ministers during 1996-98. The problem of continuity is hampered by the frequent changes of bureaucrats in India.[170] "At the political level, India remains tentative in seeking deeper cooperation with Israel. At the administrative level, the wheels of Government grind far too slowly for New Delhi to get its act together and generate a policy momentum in any direction."[171] Unlike in Israel, there is very little cooperation between the Indian Defense and Foreign Ministries. For its part, Israel is primarily concerned about its relations with the US and its immediate neighbors, and countries such as India do not figure in its defense and foreign policy debates.

Establishing a professional, non-political arrangement, responsible for security partnership is essential for the elimination of some of the difficulties such as political instability, procrastination in decision-making, absence of continuity, bureaucratic entanglement and lack of professional input. Establishing a joint commission at the ministerial level would be an ideal if unnecessary solution. Likewise, one can dispense with certain key players on either side: As a non-specialist bureaucrat selected from the general pool of career civil servants, the ability of India's Defense Secretary to influence the decisions of the political leadership is marginal. With frequent changes and transfers he is largely confined to implementing decisions made by the political leadership.[172] Though the appointment of the defense attache is a significant move, he would be confined to providing professional inputs and would have very little say in the decision-making process. Besides, his interest and expertise would be confined to the specific

service from which he comes, thus an attache from the air force is likely to be less inclined towards other services, and vice-versa.

On the Israeli side, though Rafael is the primary weapons development authority, a large number of defense research studies and projects useful for India are undertaken by other state-owned and private Israeli firms. Rafael hence should rather be considered an actor rather than a decisive authority. Likewise, though more appropriately, Sibat has a conflict of interest, since, as an agency aimed at promoting arms exports, its decisions are based on economic considerations, thus undermining its professional judgment.

Therefore, it would be appropriate for both countries to establish a permanent body headed by the Scientific Adviser to the Defense Ministry (India) and the Director-General of the Defense Ministry (Israel). Both these positions would maintain continuity, as those appointed in recent years were in office for a long duration and have served under various governments.[173] As professionals they have considerable influence and can easily implement and execute decisions based on sound professional considerations.

Israel does not have answers to all Indian ills nor India the solution to the economic hardships of the Israeli military industries. Absence of interactions in the past makes creditability of agreements and reliability of weapons essential for the success of security cooperation. From the very start it is essential that the Indian parties are informed of weapons requiring third-party clearance for containing non-Israeli components, otherwise Israel would be raising false and unrealizable expectations. For instance, during President Weizman's visit, Israel offered to sell *Kfir* fighters to India though it was unclear whether Israel had sought and obtained American permission before making this offer. If denied permission, Israel would have to sell a less powerful version than the original offer. Likewise, any weapons or systems not used by the IDF are unlikely to find favors in India. For example, it would be difficult for IAI to sell *Phalcon* radar as the state-of-art system, when the IDF itself is reluctant to use it. In the long run, overselling would be a bad strategy. It has been implied that most of the RPVs supplied by Israel failed during test runs, thus questioning the wisdom of dealing with Israel.[174]

For its part, it is essential that India expedites the process of decision-making. Frequent change of personnel and the web of bureaucracy greatly undermine the trust and confidence of Israeli firms in doing business with India. The prevailing tendency of frequent 'familiarization' trips raise doubts as to the genuineness of India's motives and purpose.

E. Israel-Pakistan Rapprochement

Any significant and substantial security cooperation and understanding between India and Israel largely depends on the position of a third party: Pakistan.[175] The prolonged absence of Indo-Israeli diplomatic relations was partly influenced by India's preoccupation, if not obsession with Pakistan. Despite the frequency of the visits and contacts, especially in the military and security arena, there is a great Indian reluctance to forge strong political relations with Israel. Since normalization, senior Indian diplomats felt it necessary to 'brief' Arab ambassadors in the Indian capital at regular intervals of India's ties with Israel, the last major occasion being the highly publicized visit of Israeli President Ezer Weizman in January 1997.[176] At the same time, leaders and political figures also give regular reassurance of India's commitments to the Palestinian cause.

One cannot dismiss this reluctant and somewhat apologetic approach merely as a continuation of the traditional policy. Even during the absence of diplomatic relations, Pakistan accused India of conspiring with the 'Zionist enemy' to threaten and undermine the larger Islamic world. Ever since normalization, 'Hindu-Jewish', 'Brahmin-Zionist' or Indo-Israeli conspiracies have periodically become a prime theme in the Pakistan media. For instance in October 1997, an editorial in *The Muslim* commented

> One objective of such cooperation [between the Mossad and RAW] is to destabilize Pakistan internally through various means in order to subjugate it and ultimately tame its leadership. This tactic is a classical one, used by the Mossad against Arab countries, especially against Egypt. It is with this in mind, one notices a rather strange domestic situation [in Pakistan]...

The editorial went on to attribute terrorist and sectarian violence in Pakistan to 'the Indo-Israeli connection' and warned that Pakistan had plenty of options which would lead to the "radicalization of Pakistan and the entire Muslim world, against Americanism, Zionism and Hinduism." [177]

Neither India nor Israel can influence such a paranoid portrayal. However, normalization of relations between the Jewish state of Israel and the Islamic republic of Pakistan would immensely facilitate India to skillfully articulate its interests in forging close ties with Israel, thus preventing Indo-Israeli normalization from becoming a stigma. Not obliged to constantly explain or justify its relations, India would be free to evolve a strong security relationship with Israel. Political relations or even a public understanding between Pakistan and Israel would indeed facilitate and encourage India to be freed from its obsession with Pakistan and would pave the way for a strong security relationship between India and Israel. Conversely, the absence of an Israel-Pakistani relationship or understanding would remain a major impediment to Indo-Israeli strategic partnership.

F. Greater circumspection

Premature disclosures have become a major operational impediment to Israeli arms exports, and the tendency to disclose more than absolutely necessary has often lead to controversies and even to the cancellation of certain deals. Secrecy is a rare commodity among talkative politicians, indiscreet bureaucrats and inquisitive media in both countries. For example, in its eagerness to forge strong cooperation with the NATO member, Israel found itself embroiled in Turkish internal politics with the Islamists opposing the military's preference for Israel. Moreover, Arab displeasure and anger over security cooperation between Israel and Turkey was preceded by widespread media coverage in Israel over proposed military deals and the possible use of Turkey as a base for monitoring hostile countries such as Syria, Iran and Iraq. Given the credibility of the Israeli media, it is natural that these countries are reluctant to accept the official denials to the contrary.

Likewise, the official or non-official portrayal of Indo-Israeli security cooperation being targeted at third countries such as China, Iran, Iraq, Pakistan or Syria would put severe and irresistible pressures on bilateral relations. If the cooperation between the two non-Islamic countries in the region is portrayed as a conspiracy against the Islamic world, even the most pro-Israeli government in New Delhi would find it difficult to endure domestic pressures to abandon security ties with Israel.[178] While total blackout is not possible, military and security cooperation must be handled with greater circumspection and care. Those at the helm of affairs (the usual source of media leaks and disclosures), must be reminded of the consequences and be advised to be discrete. Otherwise, limited military deals would be accompanied by a lot of hot air. Unnecessary coverage would also make things difficult for the Indian government. Though normalization has ceased to be controversial, a sizable section of the population has not totally reconciled itself to the idea and is vehemently opposed to military cooperation.

> India is capable of tackling the Pakistani threat by itself and on the basis of its own capability and experience. But to give the impression that India will tackle this threat with [Israeli] expertise or experience, sends the wrong signal to many people both at home and abroad.[179]

Even those reconciled to normalization often adopt emotional positions over security cooperation with Israel. Hence circumspection becomes vital for strategic partnership.

VII. Conclusion

The intense and diverse nature of contacts between India and Israel since 1992 indicate that the prolonged absence of political relations has not inhibited either India or Israel from seeking security cooperation. Largely revolving around the air force, they also cover areas such as intelligence cooperation, naval patrol and anti-terrorism. Both countries have yet to develop a common threat perception that would give a focus to security ties.

They do, however, share the common objective of seeking technological independence and qualitative superiority. Numerous strategic programs currently undertaken by both countries provide the best possible framework for strategic partnership. India's search for technology and Israel's need for economizing defense research are complementary and could pave way for a sustained and long-term cooperation and partnership.

The five nuclear tests conducted by India in May 1998, and Pakistan's decision to follow suit, add a new dimension to the security cooperation between India and Israel. These tests, after a twenty-four year lapse, appear to have been motivated by security concerns over nuclear China. However, the major powers see this primarily as an India-Pakistan security issue. Realizing the impact of these tests upon the non-proliferation regime and the CTBT and NPT, the US decided to impose economic and technological sanctions against India and then against Pakistan. The US seeks the support and participation of other major powers against India (and later against Pakistan) for challenging the post-World War international order. It is not accidental that the five nuclear powers are also the permanent members of the UN Security Council.

Any Western sanctions unaccompanied by political concessions cannot lead to an understanding between India and the major powers. However, while a concerted Western sanction regime would severely undermine India's economic progress, this is unlikely to occur, due to the differing interests of the major powers: While China is keen for stringent measures against India, other European powers have avoided adopting a hostile position against India. Further, the effectiveness of the sanctions against India are questionable, as they are more effective against the vulnerable, thus Western sanctions against China following the Tiananmen crackdown did not last long. Moreover, clearly given the status of its economy, prolonged sanctions could lead to the reversal of the democratization process in Pakistan, undermining its political stability and heightening regional insecurity.

Israel would be happier if these developments remain an Indo-Pakistan development and would not spill over into the turbulent Middle East. It is not in Israel's interest to see the Pakistani bomb become an 'Islamic' bomb. The nuclear tests and growing military contacts between

India and Israel have rekindled speculations of Indo-Israeli nuclear cooperation. Past and unsubstantiated fears of both countries seeking to attack the Pakistani nuclear installations have resurfaced. Not to give vent to such conspiracy theories, and aware of the American position, within days after the Indian tests, a reciprocal visit by Israel's Chief of Staff Lt. Gen. Amnon Lipkin-Shahak, scheduled for June 1998, was canceled.

Israel cannot be indifferent to American concerns and objections to military cooperation with India. However, Israel cannot be expected to easily abandon the attractive Indian defense market and the prospects for a long term security cooperation. With its dwindling foreign aid budget, the American ability to offer similar financial compensations to dissuade Israel appears remote. Therefore, though sanctions might delay the defense cooperation between India and Israel, their long-term implications would be limited. Above all, most of the issues discussed in this study such as joint research, development and production, have had a long gestation period and hence would be immune to any temporary delays and hiccups over India's nuclear tests.

Notes

[1] Abdul Kalam's interview to *Sunday* (Calcutta), 12 September 1993, pp. 21.

[2] The author is grateful to the BESA Center for Strategic Studies for its financial support for this study and to Prof. Efraim Inbar for his continuous encouragement and critical comments on an earlier draft. The author is also grateful to Prof. Stuart Cohen for his useful remarks.

[3] For discussions on the Indian position see *India and Palestine: The Evolution of Policy* (New Delhi: Ministry of External Affairs, nd.); Richard Edward Ward, *India's Pro-Arab Policy: A Study in Continuity* (Westport, Colorado: Praeger, 1992); Prithvi Ram Mudiam, *India and the Middle East* (London: British Academy Press, 1994), pp. 143-99; and M.S. Agwani, "The Palestine Conflict in Asian Perspective," in Ibrahim Abu-Lughod, ed., *The Transformation of Palestine* (Evanston, IL: Northwestern University Press, 1971), pp. 443-62.

[4] P.R. Kumaraswamy, "India's Recognition of Israel, September 1950," *Middle Eastern Studies*, vol. 31, no. 1 (January 1995), pp. 124-138.

[5] In spite of the junior position and non-diplomatic status, the Israeli Consul often had direct access to the Indian prime ministers, a privilege normally not accorded even to accredited ambassadors resident in New Delhi. On other occasions however, his activities were confined to the State of Maharashtra of which Bombay (now Mumbai) is the capital.

[6] Walter Eytan, *New Delhi Diary*, Israel State Archives, Jerusalem file F.O. 2383/21.

[7] P.R. Kumaraswamy, "India and Israel: Prelude to Normalization," *Journal of South Asian and Middle Eastern Studies*, vol. 19, no. 2 (Winter 1995), pp. 58-70.

[8] A detailed and provocative discussion can be found in Subramaniam Swamy, "The Secret Friendship between India and Israel," *Sunday*, 28 November 1982, pp. 18-24.

[9] Manoj Joshi, "Changing Equations: The Coming Together of India and Israel," *Frontline* (Chennai), 4 June 1993, p. 113. For a first person account of Dayan's visit in August 1977

see Moshe Dayan, *Break-through, A Personal Account of the Egypt-Israel Peace Negotiations* (London: Weidenfeld & Nicolson, 1981), pp. 26-32.

[10] P.R. Kumaraswamy, "The Strange Couple," *Ha'aretz*, 26 July 1995.

[11] P.R. Kumaraswamy, "The Star and the Dragon: An overview of Israeli-PRC Military Relations," *Issues and Studies*, vol. 30, no. 4 (April 1994), pp. 36-55; and "The Military Dimension of Israel-China Relations," *China Report*, vol. 31, no. 2 (April-June 1995), pp. 235-42; Gill Bates and Kim Taeho, *China's Arms Acquisitions from Abroad: A Quest for 'Superb and Secret Weapons'* (London: Oxford University Press, 1995), pp. 81-86; and Yitzhak Shichor, "Israel's Military Transfers to China and Taiwan," *Survival*, vol. 40, no. 1 (Spring 1998), pp. 68-91.

[12] *The Jerusalem Post*, 26 March 1993.

[13] P.R. Kumaraswamy, "Israel-China Military Relations: India's Red Lines," *Strategic Analysis*, vol. 18, no. 6 (September 1995), pp. 781-792.

[14] For an interesting discussion of Israel's dependency see, Aharon Klieman and Reuven Pedatzur, *Rearming Israel: Defense Procurement Through 1990s* (Jerusalem: The Jerusalem Post, 1991), pp. 139-202. For a background discussion on India's dependency see P.R. Chari, "Indo-Soviet Military Cooperation: A Review," *Asian Survey*, vol. 19, no. 3 (March 1979), pp. 230-244; Jyotirmoy Banerjee, "Moscow's Strategic Link with New Delhi: an Interim Assessment," *China Report*, vol. 19, no. 1 (January 1983), pp. 7-20; and J. Mohan Malik, "India Copes with the Kremlin Fall," *Orbis*, vol. 37, no. 1 (Winter 1993), pp. 69-87.

[15] Israel is no longer immune to technological sanction; for instance, it was coerced into MTCR, following disclosures that IAI violated apartheid-related US arms embargo on South Africa.

[16] Efraim Inbar, "Israel's Arms Exports," *Jerusalem Letter*, no. 95, 7 May 1987, pp. 2-3.

[17] Gerald M. Steinberg, "Israel: Case Study for International Missile Trade and Non-proliferation," in William C. Potter and Harlan W. Jencks, *The International Missile Bazaar: The New Suppliers' Network* (Boulder, Colorado: Westview, 1994), p. 244.

[18] *The Washington Times*, 12 March 1992.

[19] *Globes* (Internet edition) 14 December 1997.

[20] Klieman and Pedatzur, *Rearming Israel*, p. 217.

[21] For a narration of India's woes see, Shekhar Gupta, et al, "A middle-Aged Military Machine," *India Today* (international edition), 30 April 1993, pp. 22-31.

[22] P.R. Kumaraswamy, "Israel's Defense Industries and Recession: the Economic Cost of Self-Sufficiency," *Strategic Analysis*, vol. 18, no. 11 (February 1996), pp. 1523-43.

[23] *The Jerusalem Post*, 28 August 1994.

[24] *The Hindu* (Chennai), 5 February 1997; and *The Jerusalem Post*, 16 February 1997.

[25] *Statesman* (New Delhi), 28 February 1992.

[26] *Israel Television*, 24 April 1997, in *FBIS-NES*- 97/114, 24 April 1997.

[27] *Al-Hamishmar*, 9 February 1992, in *FBIS-NES*, 11 February 1992, p. 36.

[28] Netanyahu's interview to *India Today*, 29 February 1992, p. 170.

[29] Quoted in A.K. Pasha, *India and OIC: Strategy and Diplomacy* (New Delhi: Center for Peace Studies, nd.), p. 40. Interestingly on 27 February the government informed the parliament that it could not ascertain the 'veracity' of Pawar's statement. *Indian Express* (New Delhi), 28 February 1992.

[30] *Telegraph* (Calcutta), 10 April 1992.

[31] *The Statesman*, 28 February 1992.

[32] This was Yager's second 'official' visit to India. In June 1991 shortly after P.V. Narasimha Rao assumed office, Kashmiri militants killed an Israeli tourist and kidnapped another. In an unprecedented gesture India agreed to the visit of Yager to coordinate the humanitarian efforts with Israeli consul Giora Becher.

[33] *The Hindu*, 26 March 1992.

[34] *The Economic Times* (New Delhi), 26 May 1992 and 1 June 1992; *The Jerusalem Post*, 3 June 1992; and *The Jerusalem Report*, 2 July 1992, p. 8.

[35] *The Independent* (Bombay), 17 August 1992; *Jane's Defense Weekly*, 29 August 1992, p. 12.

[36] *Asian Defense Journal*, 12/92, pp. 28-36.

[37] *Defense News*, 15 February 1993.

[38] Ibid.

[39] *The Times of India* (New Delhi), 4 April 1993. According to Dixit, Prime Minister Yitzhak Rabin assured him that "Israel would be willing to cooperate with India in every sphere without any reservations." Emphasis added. J.N. Dixit, *My South Block Years: Memoirs of a Foreign Secretary* (New Delhi: UBS, 1996), p. 313.

[40] They were Emmanuel Gill of Elbit and David Kolitz of Elul. Neal Sandler, "Trade Winds," *The Jerusalem Report*, 6 May 1993, p. 38.

[41] *Sunday*, 30 May 1993, p. 27.

[42] *Indian Express*, 18 May 1993; and *The Statesman*, 19 May 1993.

[43] *Defense News*, 12 July 1993, p. 6; and *Jane's Defense Weekly*, 13 November 1993, p. 38.

[44] *India Today*, 30 April 1993, p. 30.

[45] Among others see, *Statesman*, 28 February 1992; and *All India Radio* (English), 16 December 1993, in *FBIS-NES*, 16 December 1993, p. 55.

[46] *Aviation Week & Space Technology* (Washington, DC), 7 June 1993, p. 29.

[47] *The Hindustan Times* (New Delhi), 26 July 1993, reproduced in *Strategic Digest* (New Delhi), December 1992, pp. 2013-17.

[48] *Jane's Defense Weekly*, 13 November 1993, p. 38.

[49] *Strategic Digest*, December 1993, pp. 2086-7.

[50] Rahul Bedi, "India Eyes Israeli Arms Upgrades," *Jane's Defense Weekly*, 13 November 1993, p. 37. See also Neal Sandler, "Trade Winds".

[51] *All India Radio*, 16 December 1993, in *FBIS-NES*, 16 December 1993, p. 55.

[52] *Business India* (Bombay), 3 January 1994, pp. 141-144.

[53] *The Times of India*, 20 December 1993.

[54] Vivek Raghuvanshi, "India Buys UAVs from Israeli Firm," *Defense News*, 21 March 1994, p. 6. *Jane's Defense Weekly*, 5 March 1994, p. 29.

[55] *The Pioneer*, 23 May 1994.

[56]*The Economic Times*, 5 May 1994.

[57] *The Times of India*, 11 May 1994.

[58] Richard C. Bernard & Barbara Opall, "Peace Process Nets Israel New Recognition," *Defense News*, 25 July 1994, p. 29.

[59]*The Jerusalem Post*, 28 August 1994.

[60] Dixit, *My South Block Years*, p. 218.

[61] Soumya K. Ghosh, "Hi-tech Border Fence Import from Israel Likely," *The Hindustan Times*, 27 January 1995.

[62] Avinash Singh, "Israel Offers Hi-Tech Air Defense Deal," *The Hindustan Times*, 8 April 1995; *Flight International*, 22 March 1995, p. 13.

[63] *Strategic Digest*, June 1995, p. 892; and *Aviation Week & Space Technology*, 12 August 1996, p. 23.

[64]*The Jerusalem Post*, 6 June 1995.

[65] The visit was originally planned for late May/early June and was postponed due to violence in Kashmir. Ashok K. Mehta, "Tel Aviv Calling," *Sunday*, 23 July 1995, pp. 65-66.

[66] *The Asian Age*, 4 July 1995.

[67] The author is grateful to Sudakar for the details.

[68] Avinash Singh, "India Keen on Israeli AWACS," *The Hindustan Times*, 1 August 1996.

[69] *Strategic Digest*, March 1996, p. 446.

[70] The author is grateful to Prasad for his valuable assistance collecting the details.

[71] Swaraj Thapa, "India, Israel will Sign Deal on Flight Safety Technology," *The Asian Age*, 30 December 1995. According to another report Air Vice-Marshal Bhatia came to Israel to 'evaluate certain sub-systems.' *The Times of India*, 15 July 1996.

[72] For a recent discussion of the Israeli experience see, Amy Klein, "Wings of Destruction," *The Jerusalem Post* Magazine, 14 November 1997, pp. 15-17. In case of India however, accidents are primary caused by the presence of slaughter houses, huge garbage and waste dumps near the air force bases or training areas.

[73] *Fourth Report of the Standing Committee on Defense (1996-97) of the Ministry of Defense* (New Delhi: Lok Sabha Secretariat, 1997), p. 11. During 1989-90 the Indian air force lost 47 engines due to bird-hits and during 1993-94 the figure slightly dropped to 40 engine losses; the air force lost 31 aircraft in 1994, 25 in 1995 and 22 in 1996 and significant portion of them were caused by bird hits. See also *The Times of India*, 22 January 1997; *India Today*, 31 January 1996, pp. 90-91.

[74] *Strategic Digest*, March 1996, p. 392.

[75] *The Tribune* (Chandigarh), 18 March 1996.

[76] Kanual Sibal's interview to *Al-Sha'b* (Cairo), 26 March 1996, in *FBIS-NES*, 2 April 1996, p. 63.

[77] Aaron Karp, *Ballistic Missile Proliferation: The Politics and Techniques* (London: Oxford University Press, 1996), p. 77.

[78] *Defense News*, 21 October 1996, p. 27. There are suggestions that Kalam was again in Israel in January 1997. *Ha'aretz*, 4 June 1998.

[79] *Globes*, 11 July 1996.

[80] Singh, "India Keen on Israeli AWACS".

[81] *Aviation Week & Space Technology*, 9 September 1996, p. 13.

[82] *The Hindu*, 7 November 1996.

[83] *Globes*, 7 November 1996.

[84] P.S. Ameer, "Indo-Israeli Tie-Up Likely for AWACS," *The Pioneer*, 4 November 1996; and Manvendra Singh, "India Shops Abroad for AWACS," *Indian Express*, no. 22 (December 1995).

[85] Dinesh Kumar, "New System from Israel will Boost Air Combat Tactics," *The Times of India*, 27 December 1996. In the 1980s Jamnagar was mentioned as a possible refueling site for an Osiraq-type Indo-Israeli pre-emptive strike against Pakistan's nuclear facilities at Kahuta. According to one Indian account, this idea predated the Osiraq bombing. Bharat Karnad, "Knocking Out Kahuta," *The Sunday Observer*, 17 January 1988. See also, *Indian Express* 28 March 1988; and Debashis Bose, "Pakistan, Terrorism and the Israel Card,"

The Telegraph, 20 July 1991. However in late 1993 Prime Minister Rabin categorically denied suggestions that Israel made such a suggestion to India and added: "Israel has never advised any country to start hostilities against another country. I do not believe that Israel has dealt with anything other than its own defense." *Sunday*, 5 September 1993, p. 17.

[86] *The Jerusalem Post*, 3 December 1996; and *The Hindu*, 6 December 1996.

[87] *The Jerusalem Post*, 31 December 1996.

[88] *The Times of India*, 30 December 1996.

[89] The sale of Orion was part of the 1995 Brown Amendment which diluted the Pressler Amendment aimed at curtailing Pakistan's nuclear program. For an Indian view see, Rahul Roy-Chaudhury, "The Brown Amendment: Implications for the Indian Navy," *Strategic Analysis*, vol. 18, no. 11 (February 1996), pp. 1453-64. Interestingly 'friends of Israel' in Washington had not opposed the Brown Amendment, a gesture Pakistani Prime Minister Benazir Bhutto chose to acknowledge in her interview to Israeli daily *Yedi'ot Aharonot* (Tel Aviv) Weekend supplement, 19 January 1996, pp. 44-5.

[90] Batsheva Tsur, "Weizman Goes on Sentimental Journal to Old Air Force Base," *The Jerusalem Post*, 3 January 1997; and *The Hindu*, 3 January 1997. However upon returning home Tsur who accompanied the President changed her story and wrote, "Weizman promised to look into an Indian request for the posting of an air attache to Delhi." *The Jerusalem Post*, 14 January 1997.

[91] K.P. Bhanumathy, "Reinforcing Indo-Israeli Relations," *Mainstream* (New Delhi), 15 February 1997, p. 35.

[92] For a discussion of the modus operandi of *Kfir* development see Dennis Eisenberg et al., *The Mossad: Israel's Secret Intelligence Service* (New York: New American Library, 1978), pp. 198-214.

[93] *Kfir*s were first introduced in 1975 and Israel still has about 86 *Kfir*s in service and another 62 are year-marked for exports. *Middle East Military Balance, 1994-95* (Tel Aviv: Jaffee Center for Strategic Studies, 1996), p. 253. The author is grateful to Amnon Ben-Arieh for his valuable insights.

[94] *Globes*, 19 January 1997 and 5 May 1997.

[95] *The Hindu*, 5 February 1997; and *The Jerusalem Post*, 16 February 1997.

[96] Rahul Datta, "Israeli Arms for India through Russia," *The Hindustan Times*, 13 February 1997.

[97] Since the late 1980s Israel and Russia has been maintaining defense cooperation. During Prime Minister Netanyahu's visit in March 1997, President Boris Yeltsin agreed to allow Russian aircraft manufacturer Mikoyan to cooperate with IAI in upgrading and marketing Russian combat aircraft. Netanyahu also sought to convince Russia to Ilyushin-76 plane to China so that Israel could sell its early-warning system. Eugene Kogan, "Clandestine Liaisons: Israeli-Russian Defense Cooperation," *Jane's Intelligence Review* (May 1996), pp. 218-9; and *Globes*, 12 March 1997 and 16 March 1997.

[98] *Globes*, 20 February 1997.

[99] In recent years Pakistan had joined China in posing series strategic threat to India and Pakistani missiles can easily attack a number of India's population centers and economic targets including New Delhi, Bombay and the eastern city of Calcutta. Ben Sheppard, *Jane's Intelligence Review*, January 1998, p. 34.

[100] *Ha'aretz*, 2 June 1992, in *FBIS-NES*, 2 June 1992, 3 June 1992, pp. 25-26.

[101] C. Raja Mohan, "A Source of High Technology," *The Hindu*, 22 July 1997.

[102] In the past BJP and its predecessor *Jana Sangh* strongly demanded close relations between India and Israel.

[103] *The Jerusalem Post*, 9 March 1998; and Manoj Joshi, "Military Diplomacy: Uniform to Pinstripes," *India Today*, 6 April 1998, pp. 36-37.

[104] Rahul Roy-Chaudhury, "Defense Research and Development in India," in *Asian Strategic Review 1994-95* (New Delhi: IDSA, 1995), p. 223.

[105] In a blatant use of non-proliferation concern for commercial consideration, the US successfully blocked Russia's sale of cryogenic rocket technology to India. Initially General Dynamics offered to sell the engines but due to more attractive financial terms India opted for Russia. Shahid Alam, "Some Implications of the Aborted Sale of Russian

Cryogenic Rocket Engines to India," *Comparative Strategy*, vol. 13, no. 3 (July-September 1994), pp. 287-300; and P.R. Chari, *Indo-Pak Nuclear Standoff: The Role of the United States* (New Delhi: Manohar, 1995), pp. 63-67.

[106] A comprehensive discussion can be found in Roy-Chaudhury, "Defense Research and Development in India," pp. 223-55. See also Rahul Roy-Chaudhury, "Defense Industries in India," *Asian Strategic Review, 1993-94* (New Delhi: IDSA, 1994), pp. 232-273.

[107] Roy-Chaudhury, "Defense Research and Development in India," p. 233.

[108]It is estimated that the Su-30 that India is obtaining from Moscow "costs around $35 million as against the $1.1 million worth of MiG-21 that it will replace." Jasjit Singh and Swaran Singh, "Trends in Defense Expenditure," *Asian Strategic Review, 1996-97* (New Delhi), p. 55.

[109] Eric Arnett, "Military Technology: The Case of India," *SIPRI Yearbook 1994* (London: Oxford University Press, 1994), pp. 349-50; and Chris Smith, *India's Ad hoc Arsenal: Direction or Drift in Defense Policy* (London: Oxford University Press, 1994), pp. 169-77.

[110] For instance, at the time of its disintegration the Soviet Union's share in India's arsenal was extremely high, especially in air defense missiles (96 percent), submarines (85 percent), fighter and ground-attack aircraft (60 percent), fighters AD (85 percent) and Transport aircraft (70 percent). Sandy Gordon, "Australia's Perspective on Indian Ocean," in Jasjit Singh, ed., *Maritime Security* (New Delhi: IDSA, 1993), p. 68; *Far Eastern Economic Review*, 15 October 1992, p. 16.

[111] Roy-Chaudhury, "Defense Research and Development in India," p. 233. For technical details about the LCA see, Muhammed Ali Malik, "LCA: India's Answer for a Cost Effective Fighter," *Defense Journal*, reproduced in *Strategic Digest*, vol. 26, no. 10 (October 1996), pp. 1500-6.

[112] *Fourth Report of the Standing Committee on Defense (1996-97) of the Ministry of Defense* (New Delhi: Lok Sabha Secretariat, 1997), p. 10

[113] Arnett, "Military Technology," p. 349.

[114] Interestingly the LCA is yet to be christened.

[115] In November 1996 India signed a $1.7 billion deal with Moscow to supply 40 SU-30 MK multi-role fighter aircraft. Rajiv Nayan, "India Purchases Sukhoi-30," *Strategic Analysis*, vol. 19, no. 12 (March 1997), pp. 1759-1761.

[116] Chris Smith, *India's Ad hoc Arsenal*, p. 175.

[117] *Aviation Week & Space Technology*, 25 July 1994, p. 45.

[118] *Strategic Comments* (London), vol. 3, no. 1 (January 1997).

[119] Arnett, "Military Technology," p. 350.

[120] *The Hindu*, 5 December 1996.

[121] *Frontline*, 31 December 1996, p. 68.

[122] Ravi Sharma, "India's Plans: Indigenous Production and Acquisition," *Frontline*, 10 January 1997, pp. 66-8; and Avirook Sen, "Bangalore Air Show: Ground Realities," *India Today*, 31 December 1996, pp. 94-95; and *Aviation Week and Space Technology*, 20 January 1997, p. 49.

[123] *The Pioneer*, 4 November 1996.

[124] For a first person account of the American attempts to the *Lavi* see, Dov S. Zakheim, *Flight of the Lavi: Inside a US-Israeli Crisis* (Washington: Brassey's, 1996). See also, Duncan L. Clarke and Alan S. Cohen, "The United States, Israel and the *Lavi* Fighter," *Middle East Journal*, vol. 40, no. 1 (Winter 1986), pp. 16-32.

[125] Ramon Priester, "Back to Reason," *Ha'aretz*, 24 July 1987, in *JPRS-NEA*/87-087, 9 September 1987, p. 11.

[126] *Fifth Report of the Standing Committee on Defense (1995-96), Ministry of Defense* (New Delhi: Lok Sabha Secretariat, 1995), pp. 19-22.

[127] *Jane's All the World's Aircraft, 1996-97* (Coulsdon, Surrey: Jane's, 1996), p. 138; and N.K. Pant, "Waiting in the Wings," *The Pioneer* (New Delhi), 16 May 1997.

[128] C.V.G. "HAL Master's High Technology," *The Hindu Survey of Indian Industry 1997* (Chennai), p. 391.

[129] Steve Rodan, "Fast Plane to China?" *The Jerusalem Post*, 3 April 1997.

[130] See Duncan L. Clarke, "Israel's Unauthorized Arms Transfers," *Foreign Policy*, no. 99 (Summer 1995), pp. 89-109; and P.R. Kumaraswamy, "Israel, China and the United States: The Patriot Controversy," *Israel Affairs* (London), vol. 3, no. 2 (Winter 1996), pp. 12-33.

[131] *Ministry of Defense Annual Report, 1992-93* (New Delhi), p. 27.

[132] *Indian Express*, 29 April 1993.

[133] A.K. Ghosh, *India's Defense Budget and Expenditure Management in a Wider Context* (New Delhi: Lancer, 1996), p. 207.

[134] *Ministry of Defense Annual Report 1994-95*, p. 18.

[135] Ghosh, *India's Defense Budget and Expenditure Management in a Wider Context*, pp. 289-90.

[136] Smith, *India's Ad Hoc Arsenal*, pp. 157-8; C.V.G. "HAL's Steady Progress," *The Hindu Survey of Indian Industry, 1991* (Chennai), pp. 311-15.

[137] For serious and details discussion see, Timothy V. McCarthy, "India: Emerging Missile Power," in William C. Potter and Harlan W. Jencks, *The International Missile Bazaar: The New Suppliers' Network* (Boulder, Colorado: Westview, 1994), pp. 201-33; and Raj Chengappa, "The Missile Man," *India Today* (International edition), 15 April 1994, pp. 38-45.

[138] McCarthy, "India," p. 204.

[139] Raju C.G. Thomas, "Arms Procurement in India: Military Self-Reliance Versus Technological Self- Sufficiency," in Eric Arnett, ed., *Military Capacity and the Risk of War: China, India, Pakistan and Iran* (London: Oxford University Press, 1997), p. 127.

[140] *Strategic Comments* (January 1997); and *Jane's Defense Weekly*, 15 October 1997, p. 15.

[141] McCarthy, "India," p. 208.

[142] The nomenclature appears rather odd because as a developing country India cannot afford such 'technological white elephants'. For a discussion of the implications see Manoj Joshi, "*Agni*: Technology Demonstrator or Missile?" *The Times of India*, 11 May 1994.

[143] For instance in October 1996 the government declared: "*Agni* is a re-entry technology demonstration project, which has been successfully completed and all the objectives have been met. The *Agni* project did not envisage development of a missile system. The decision to develop and produce a missile system based on AGNI technologies, however, can be taken at an appropriate time consistent with the then prevailing threat perception and global/regional security environment." *Second Report of the Standing Committee on Defense (1996-97), Ministry of Defense* (New Delhi: *Lok Sabha* Secretariat, 1996), p. 14.

[144] *India Today*, 15 April 1994, p. 42.

[145] *The Asian Age*, 20 March 1995.

[146] For a critical evaluation of American endeavors in this direction see, Brahma Chellaney, *Nuclear Proliferation: The US-Indian Conflict* (New Delhi: Orient Longman, 1993), pp. 244-89 and "Non-Proliferation: An Indian Critique of US Export Controls," *Orbis*, vol. 38, no. 3 (Summer 1994), pp. 439-456.

[147] Parvathi Menon, "On the Hit-List," *Frontline*, 27 June 1997, p. 106; *The Hindustan Times*, 26 May 1997; and *Deccan Herald* (Bangalore), 29 May 1997, in *FBIS-NES*-97-149, 29 May 1997. Under similar grounds the Commerce Department simultaneously imposed sanctions on the Ben-Gurion University.

[148] Abdul Kalam's interview to *Sunday*, 12 September 1993, p. 21.

[149] McCarthy, "India", p. 224.

[150] Thomas, "Arms Procurement in India," p. 127.

[151] Ibid., p. 259.

[152] According to Gerald Steinberg, "Israelis note that their economic and military requirements provide a far stronger rationale for arms exports than can be found for American, German or French sales. Israel would not need to develop ballistic missiles if other states did not continue to arm the Arabs with massive quantities of both conventional and unconventional weapons. Without the need for the *Jericho*, there would also be no exports." Steinberg, "Israel," p. 259.

[153] *AFP Report*, 18 May 1997, in *FBIS-NES*-97-138.

[154] See *Globes*, 16 May 1996, 3 March 1997 and 26 August 1997.

[155] Ibid., 15 May 1996.

[156] *Business Standard* (New Delhi), 25 February 1997. This probably refers to Defense Secretary Banerji's visit.

[157] McCarthy, "India," p. 212.

[158] Roy-Chaudhury, "Defense Research and Development in India," p. 235.

[159] *The Asian Age*, 23 April 1997.

[160] Gerald M. Steinberg, *Dual Use Aspects of Commercial High-Resolution Imaging Satellites* (Ramat Gan: *BESA Security and Policy Studies* no. 37, 1998), pp. 16-18. A detailed discussion on India's endeavors in space can be found in Mohan Sundara Rajan, *India in Orbit* (New Delhi: Publications Division of Government of India, 1997).

[161] *Fifth Report of the Standing Committee on Defense (1995-96), Ministry of Defense* (New Delhi: Lok Sabha Secretariat, 1995), pp. 24-26.

[162] Ibid. Because of the cost factor the army is more inclined towards T-72 which costs a third of Arjun. *The Hindustan Times*, 16 August 1996.

[163] Roy-Chaudhury, "Defense Research and Development in India," pp. 237-8; and *The Hindustan Times,* 16 August 1996.

[164] Ian Anthony, "The 'Third Tier' Countries: Production of Major Weapons," in Herbert Wulf, *Arms Industry Limited* (London: Oxford University Press, 1993), p. 376. Furthermore in 1989 the DRDO found itself saddled with as many as 989 projects and out of them 618 were shelved following an intense review. This astronomical number of projects came under severe criticisms from the parliamentary committee on Defense. *Fifth Report of the Standing Committee on Defense (1995-96),* p. 10.

[165] P.R. Kumaraswamy "The Limitations of Indo-Israeli Military Cooperation," *Contemporary South Asia*, vol. 5, no. 1 (March 1996), pp. 75-84.

[166] J.N. Dixit, *Assignment Colombo* (New Delhi: Konark Publishers, 1996), p. 327. Though there are a number of references about Israeli involvement affecting India's Sri Lankan polices, Dixit does not specify the concerns.

[167] This did not prevent the traditional and conservative elements both within and outside the government from criticizing 'hasty and unprincipled' moves towards Israel. Among others see, Punyapriya Dasgupta, "Betrayal of India's Israel Policy," *Economic and Political Weekly* (Bombay), vol. 27, no. 15-16, 11-18 (April 1994), pp. 767-772; and Mani Shankar Aiyar, "*Chutzpah*," *Sunday*, 6 June 1993, pp. 14-17.

[168] For instance India's total trade turnover with the Middle East increased from $5.6 billion in 1990 to over $9.5 billion in 1996.

[169] Kumaraswamy, "India's recognition of Israel, September 1950," p. 131.

[170] Stephen David, "Junket Mania," *India Today*, 21 July 1997, p. 30. This report discusses the frequent foreign trips by the bureaucrats of the Southern state of Karnataka who were often transferred upon their return and this is equally true of the Center government and number of its agencies including the military establishment.

[171] C. Raja Mohan, "A Source of High Technology".

[172] One retired general aptly summed up the situation: "The Defense Secretary is a bureaucrat, who would be posted from the Animal Husbandry Department and would be going on to Culture." *India Today*, 30 April 1993, p. 30.

[173] David Ivry who held the post for a decade is presently a special adviser to the Defense Minister and likewise the Indian government, who still utilizes the services of Kalam's predecessor Dr. V. S. Arunachlam.

[174] *Globes*, 4 May 1997.

[175] P.R. Kumaraswamy, "Israeli-Pakistani Normalization: Green Light from India?" *Strategic Analysis*, vol. 20, no. 9 (December 1997), pp. 1355-65.

[176] See also, Rajiv Shukla, "Talking Too Much," *Sunday*, 13 June 1993, p. 40; and N.V. Subramanian, "Storm in the Desert," *Sunday*, June 27, 1993, pp. 8-9.

[177] "The Axis of Americanism, Hinduism and Zionism," editorial, *The Muslim* (Islamabad), 12 October 1997, in *FBIS-NES*-97-287, 14 October 1997.

[178] One such portrayal of conspiracy can be found in Muhammad Hamid, *The Unholy Alliance: Indo-Israeli Collaboration Against the Muslim World* (Lahore: Islamic Book Center, 1978).

[179] Pasha, *India and OIC*, p. 42.

Glossary

ADE- Aeronautical Development Establishment
AWACS- Airborne Warning and Control Systems
CTBT- Comprehensive Test Ban Treaty
DRDO- Defense Research and Development Organization (India)
ESM- Electronic Counter Measure
HAL- Hindustan Aeronautics Ltd.
IAI- Israel Aircraft Industries
IDF-Israel Defense Force
IRBM- Intermediate Range Ballistic Missile
LCA- Light Combat Aircraft
MBT- Main Battle Tank
MTCR- Missile Technology Control Regime
NDC- National Defense College (India)
NPT - Non-Proliferation Treaty
NSG- National Security Guards (India)
RAW - Research and Analysis Wing (India)
RPV- Remotely Piloted Vehicles
UAV- Unmanned Aerial Vehicles

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