4. Israel

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I. Introduction

The Israeli security environment is very complex and, in many ways, unique. The long history of intense conflict, the difficulties encountered with respect to weapon procurement (both imports and indigenous production), the unprecedented role of US military assistance ($1.8 billion annually over the period 1991–95) and other factors all contribute to this complexity.

In other respects, however, the Israeli decision-making structure has much in common with those of industrialized states and democratic systems. This chapter shows that the arms procurement decision-making processes in Israel are strongly influenced by interest groups and domestic political considerations. Although some institutional checks and balances exist—as in the form of the State Comptroller, legislative oversight and the press—hitherto their roles have been quite limited.

Given the perceived importance of and emphasis on secrecy in national security matters, the balance between accountability and confidentiality in the decision-making process is particularly important in the Israeli case. Some aggregate budget data regarding procurement are published in official documents, such as the annual reports of the Bank of Israel and the budget presented to the Knesset, and the unclassified reports of the State Comptroller often provide more detailed information on selected procurement-related issues. However, there are no unclassified White Papers, and few other public documents provide more specific and systematic information on the arms procurement decision-making process. Generally, there is very little public controversy over arms procurement in Israel. While there are often intense conflicts regarding procurement priorities and allocations within the military, these conflicts rarely spill over into the public sphere.

This research project coincides with major changes in the decision-making environment for defence procurement in Israel. The combination of the changes

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in the international environment and the region since the end of the cold war and the beginning of the Middle East peace process has altered the strategic and political frameworks for arms procurement. Conditions for the defence industry have also changed significantly. Domestic arms procurement and export markets have declined steadily. As a result, the defence industry and decision making concerning domestic production of weapon systems are under intense scrutiny.

Background to Israeli arms procurement

From the establishment of the state of Israel in 1948 until the early 1980s, Israeli weapon procurement was characterized by a high level of uncertainty. Most of the major arms-supplying countries preferred to sell to the Arab states, and Israel lacked the political and economic resources to purchase weapons from a variety of suppliers. However, Israeli diplomatic and military activities led to purchases from Czechoslovakia (with the approval of the Soviet Union) between 1949 and 1951. France became Israel's primary supplier between 1955 and 1967. In both cases, however, political changes led to an abrupt halt in arms transfers to Israel. The USA began to sell arms to Israel on a regular basis in the late 1960s, but at the beginning this relationship was also viewed as unreliable. Periodic reassessments of US policy, embargoes and attempts to use arms supplies to gain political concessions characterized this relationship until the end of the 1980s.[1]

This uncertainty and insecurity with respect to external sources of weapons, as well as a sophisticated technological infrastructure, led the Israeli leadership to embark on the development of a broadly based indigenous arms production capability. This began with upgrades and improvements to imported weapon platforms.[2] In the 1950s, the local production of weapons was restricted to ammunition, small arms and the Uzi sub-machine-gun (1952). In the 1970s, Israel developed and began to produce the Kfir combat aircraft, various air-to-air missiles, fast patrol boats, the Merkava (Chariot) main battle tank (MBT) and other major weapon systems. This was accompanied by a massive growth in the size of the domestic defence industry, in terms of both employment and investment.[3] In this period, the defence sector accounted for over 20 per cent of total industrial employment and was a leading component of national export policy.[4] In the view of major decision makers, such as Shimon Peres, who

[1] See, e.g., Ben-Zvi, A., *The United States and Israel: The Limits of the Special Relationship* (Columbia University Press: New York, 1993).

[2] A detailed technical history of the Israeli defence industry is contained in Evron, Y., [The defence industry in Israel] (Ministry of Defense: Tel Aviv) [no date]; Mardor, M., [Rafael] (Ministry of Defense: Tel Aviv, 1981); Reiser, S., *The Israeli Arms Industry* (Holmes and Meier: New York, 1989); and Peres, S., *David's Sling* (Weidenfeld and Nicolson: London, 1970).

[3] Steinberg, G., 'Israel', eds M. Leitenberg and N. Ball, *The Structure of the Defense Industry: An International Survey* (Croom Helm: London, 1983); and Mintz, A., [The military–industrial complex: the American idea and the Israeli reality], *Medinah, Mimshal Veyachasim Beinleumim*, spring 1987, p. 17.

[4] Steinberg, G., 'Israel: high technology roulette', eds M. Brzoska and T. Ohlson, SIPRI, *Arms Production in the Third World* (Taylor & Francis: London, 1986), p. 172.

served as Prime Minister and Minister of Defense, and Moshe Arens, who also served as Minister of Defense, the Israel Defense Forces' (IDF) procurement of major weapon systems was to become increasingly based on locally designed and produced systems.

However, since 1985 the environment for arms procurement decision making has changed radically. In contrast to the grandiose dreams of the 1960s and 1970s, almost all major platforms, including combat aircraft, naval ships and armoured vehicles (with the exception of the locally made Merkava MBT), are now imported, mostly from the United States.

These radical changes in procurement policy can be attributed to two major factors. First, it became clear that Israel did not have the economic resources to maintain such a large and diverse indigenous defence production capability. In 1987 the Israeli Government ended the Lavi fighter aircraft project. Expected increases in export earnings did not occur (in part owing to the end of the cold war), and levels of employment in the primary defence firms fell radically. As a result, local defence production has been increasingly focused on specific technologically advanced systems and components, while reliance on imports for most platforms and other weapons has increased.[5]

During this period, the relationship with the USA stabilized, and the level of insecurity with respect to weapon imports decreased significantly. A repetition of the 1967 scenario, when the major arms supplier (France) suddenly halted its weapon deliveries, seemed increasingly unlikely. The terms of annual US military assistance have also contributed to the decline in orders from local firms. Most of the military aid ($1.4 billion out of $1.8 billion annually) is in the form of Foreign Military Financing (FMF) grant assistance that must be spent to purchase weapons and services from US firms. As a result, Israeli firms making these products stopped receiving orders from the IDF, and this contributed significantly to the crisis in the Israeli defence industry.

These trends are reinforced by changes in the political environment. Since the initiation of the Middle East peace process in 1991 and the reduction of Israel's political and economic isolation, the possibility of purchasing weapons from other suppliers has increased. Germany is building two diesel-powered submarines for the Israeli Navy, and France, the UK and other European states have also expressed interest in weapon sales and cooperative projects.[6]

As a result of these factors, the arms procurement decision-making process in Israel is changing rapidly. The size of the defence budget and the level of subsidies provided to the defence industry are subject to intense debate. In addition, there are questions regarding the future and the level of US military and economic assistance. (The USA provides a total of $3 billion in aid annually,

[5] Klieman, A. and Pedatzur, R., Jaffee Center for Strategic Studies, Tel Aviv University, *Rearming Israel: Defense Procurement through the 1990s*, JCSS Studies no. 17 (Jerusalem Post/Westview Press: Jerusalem/Boulder, Colo., 1991).

[6] In 1995 the UK signed a general agreement for the purchase of military equipment from Ta'as (formerly IMI) with an option for future orders.

including $1.2 billion in economic assistance, which balances the annual Israeli debt repayment to the USA.)

At the same time, changes in the regional security environment have led to discussions about the threat and the type of weapons that are necessary for the next century. While the peace process has achieved some marked successes, including the 1993 Declaration of Principles between Israel and the Palestinians and the 1994 Israel–Jordan Peace Treaty, the military threats have not disappeared. Since the 1991 Persian Gulf War, the probability of conventional attack has decreased, while long-term threats involving ballistic missiles and chemical and biological weapons from Syria and Iran have grown.[7] Syria maintains a major arms procurement programme, and Iraq could be a long-term threat once sanctions are lifted and the military is built up again. Terrorism also continues, particularly from Iranian-supported groups such as Hezbollah, operating from southern Lebanon, and other Islamic fundamentalist groups.[8] Threats, the history of arms procurement, economic factors, and Israeli political and bureaucratic institutions all influence the decision-making process.

II. The arms procurement decision-making process

It is difficult and potentially misleading to present a single formal and functional description of Israeli decision making for weapon procurement. As Yehuda Ben-Meir and other analysts have pointed out, government decision making tends to be ad hoc and highly complex, particularly as regards indigenous development and production.[9] The processes in the cases of the Kfir and Lavi aircraft, the Merkava tank, the Arrow (Hetz) anti-tactical ballistic missile (ATBM), the Ofeq satellite and other major platforms and weapons were influenced by specific individuals and structures. However, a number of common factors and processes link these and other cases.

In general, four basic models of decision making can be used to explain and analyse procurement decision making in Israel. These include: (*a*) rational actor models (most useful in analysing the process in the IDF and, to a lesser degree, the Ministry of Defense, the MoD); (*b*) organizational models, standard operating procedures and related factors (useful for studying the roles of the IDF and the MoD); (*c*) interest group models, to explain the relationship between the defence industry and the MoD; and (*d*) political models, for analysing the role

[7] Shoham, D., [Chemical weapons in Egypt and Syria: development, capability, and safeguards] (Begin–Sadat (BESA) Center for Strategic Studies, Bar-Ilan University: Tel Aviv, 1995); and Shapir, Y., 'Proliferation of nonconventional weapons in the Middle East', eds S. Gazit and Z. Eytan, Jaffee Center for Strategic Studies, Tel Aviv University, *The Middle East Military Balance 1993–1994* (Jerusalem Post/Westview Press: Jerusalem/Boulder, Colo., 1994).

[8] For an analysis of the impact of the changing threat environment on IDF missions, see Steinberg, G., 'Israeli security in the context of the peace process', *Security Dialogue*, vol. 25, no. 1 (Mar. 1994); and Cohen, S., 'The peace process and its impact on the development of a "slimmer and smarter" Israel Defense Force', *Israel Affairs*, vol. 1, no. 4 (summer 1995).

[9] Ben-Meir, Y., Jaffee Center for Strategic Studies, Tel Aviv University, *National Security Decision Making: The Israeli Case* (Jerusalem Post/Westview Press: Jerusalem/Boulder, Colo., 1986).

of the Cabinet, the Knesset and the press. The discussion that follows draws on these models in different degrees.

In general, the basic decision-making structure for the procurement of major weapon systems involves the heads of the services, the General Staff of the IDF, the MoD (usually the Minister of Defense, the Director-General and the Economic Adviser), the Ministry of Finance and the Prime Minister. In the case of indigenous production the relevant firms and worker groups are also involved.

For relatively routine procurement (such as tanks, armoured personnel carriers or tactical missiles) that does not involve research and development (R&D) or local production of expensive and complex new systems, the process is relatively straightforward and constant and can be described in terms of the rational actor model.[10] The basic elements in these decisions include threat assessment, definition of operative requirements and assessment of options. In larger technology-intensive R&D and procurement decisions, bureaucratic and institutional factors become increasingly important.

Three major actors dominate the Israeli defence establishment: the MoD, the IDF and the defence industry—both private and state-owned (see figure 4.1).

The MoD is the most powerful ministry and dominates all other government bodies in defence issues. Israel's first Prime Minister and Minister of Defense, David Ben-Gurion, set the precedent for the MoD's power within the national security establishment.[11]

In addition to the Minister of Defense, the Director-General of the MoD generally plays an important role in arms procurement decision making. In recent years, he has been a former military officer. Within the MoD, the Director of the Agency for Procurement (MANHAR), which has a major procurement mission in New York, the Director of the Agency for Research and Development (MAPHAT) and the assistant to the Minister of Defense for industry all play major roles in the arms procurement decision-making process. MANHAR is responsible for placing orders and purchasing goods from funds provided by US military assistance.[12]

The IDF is the second major institutional decision maker. As a military organization it has a clearly defined and hierarchical structure for decision making and planning. The General Staff, which consists of officers from the different services (who, however, in contrast to the US Joint Chiefs of Staff, are not assigned to represent those services), is responsible for procurement, training and force structure. The IDF's Planning Division is a relatively large office, with significant analytical capabilities, and it plays a major role in many aspects of decision making. Its staff of military officers from the different services has taken on increased functions in terms of long-term and operational planning.

[10] Weber, M., *Theory of Social and Economic Organization* (Oxford University Press: New York, 1947), p. 329.

[11] Greenberg, Y., [The Ministry of Defense and the General Staff: the debate over control of the defence budget, 1949–67], *Medina V'Mimshal*, no. 38 (1993).

[12] Klieman and Pedatzur (note 5), p. 108.

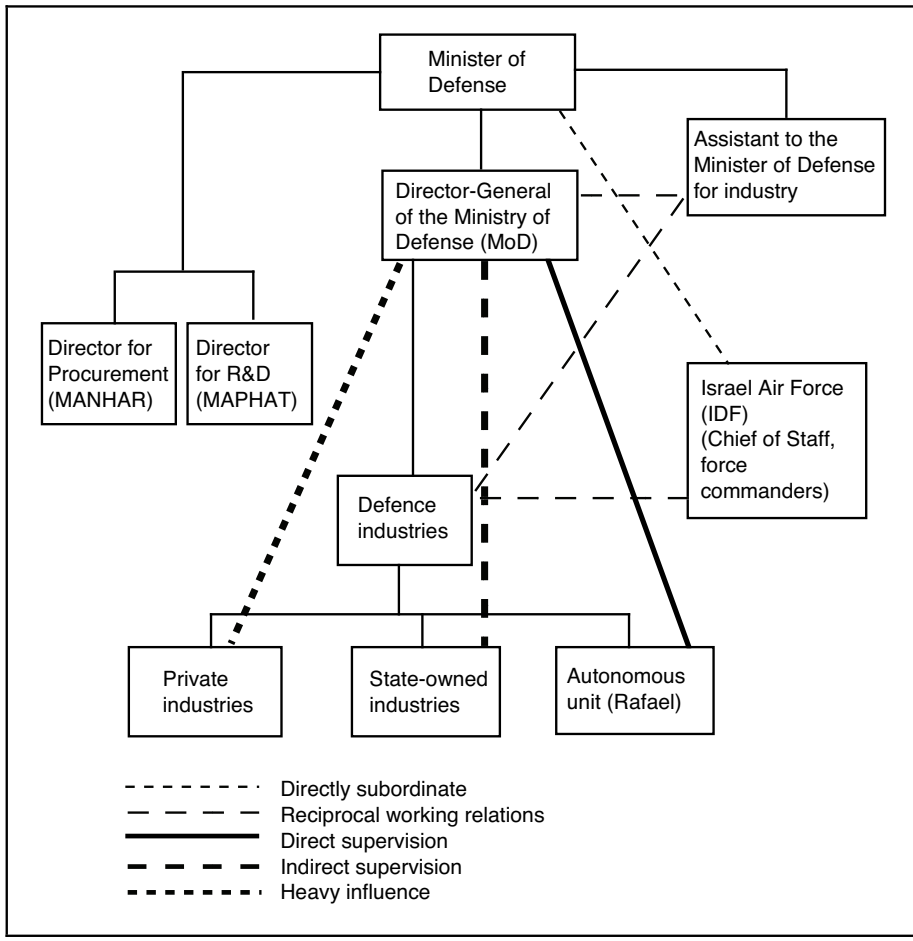

Figure 4.1. Major actors in the Israeli defence establishment

Source: Klieman, A. and Pedatzur, R., Jaffee Center for Strategic Studies, *Rearming Israel: Defense Procurement through the 1990s*, JCSS Studies no. 17 (Jerusalem Post/Westview Press: Jerusalem/Boulder, Colo., 1991), p. 108.

According to former IDF officials, the greater resources of the IDF in planning and assessment give the military a great deal of independence in presenting its needs and priorities and incorporating them in budget requests and official planning documents. In contrast, although the MoD technically controls the IDF, it has limited planning resources and thus usually follows the recommendations of the IDF in formal decision and planning documents.

The last of the triad is the defence industrial sector, consisting of state-owned firms and private industry. The former includes three key organizations: Israel Aircraft Industries (IAI), founded in 1951; Ta'as (formerly Israeli Military Industries, IMI); and Rafael, the national armaments development agency,

which has both production and R&D functions. Together these firms develop and produce a significant proportion of Israeli weapons and technology, including the Merkava MBT and tactical missiles. They produce upgrade packages for US and Russian combat aircraft, including avionics, electronics, radars and communication systems, and are major contractors in the development of advanced technologies such as the Arrow ATBM system. They are important components of the arms procurement decision-making process (see section VI in this chapter).

The three state-owned firms are controlled by the MoD. Rafael is formally a sub-unit of the MoD, under its direct control and budget, while IAI and Ta'as are operated by directorates appointed by the MoD. The status of Ta'as changed from that of a unit of the MoD to that of a firm in 1990,[13] and in 1995 the Israeli Government formally decided to change Rafael's status to match that of IAI and Ta'as. As of November 1997 this had not been implemented because of objections of the employees, who fear that it will lead to more lay-offs and reduced remuneration. Privately owned firms have played a less significant role historically, but since the mid-1980s their share of the market has increased. Major firms in this group include Elbit, El-Op and Tadiran, as well as over 100 smaller firms.

Historically, in arms procurement decision making the military leadership has given highest priority to short-term threats, emphasizing off-the-shelf weapon purchases, operations and maintenance (O&M), and upgrading. The General Staff and individual service heads have afforded high priority to ready access to weapons and less priority to long-term threat scenarios and R&D, involving a high degree of uncertainty. In contrast, the MoD has tended to reverse these emphases, giving priority to R&D and responses to long-term threats.

For the most part, this conflict of interests between shorter-term development of upgrades, on the one hand, and longer-term platform development programmes, on the other, was resolved by the early 1990s. After the cancellation of the Lavi project and the end of local production of missile boats, a large proportion of local production was focused on design of sub-systems for platforms procured from the USA, such as the avionics on the F-15 fighter aircraft and electronics and other systems for the Saar missile-armed fast attack craft. The R&D process for such systems involves far less investment and, therefore, less risk than the development of major platforms. In this sense, the development and production of 'mini' remotely piloted vehicles (RPVs) and unmanned airborne vehicles (UAVs) in Israel should be seen as similar to sub-system development in terms of the relatively smaller scale of investment and risk, as compared to full-scale platforms. Although the Arrow ATBM system is an exception, in that it is a major platform involving significant investment and

[13] The transition was analysed in a report by the State Comptroller (June 1994). The report charged that the management of Ta'as and the DG of the MoD had concealed information regarding the losses of the firm in 1985–91, thereby interfering with the transition process and related transfer of funds between the Treasury and the MoD. A judicial investigation is under way and could lead to charges against the people involved. Sadeh, S., [Ta'as and government firm authority developing general privatization], *Ha'aretz*, 21 Dec. 1995, p. 4c.

risk, the major portion of the R&D costs are borne by the US Government. For precisely the reasons cited above, the General Staff has indicated reservations regarding funding of production and deployment of this system.

As the economic importance of the Israeli defence industrial sector has grown, decision making in this area has increasingly come to encompass related factors. These include employment, regional development (particularly in the peripheral and undeveloped areas of the country), development and maintenance of the industrial infrastructure and export income. For purchases financed from the Israeli defence budget, not by US aid, local producers are given preference and may charge up to 15 per cent above the equivalent cost of similar imported systems.[14]

III. Threat assessment and Israeli security planning[15]

Israel's procurement policies are closely linked to perceptions of the military threat posed by the Arab and Islamic states in the Middle East. While all states and military establishments base their military posture, organization, training and weapon procurement on particular short- and long-term threat environments, the Israeli situation is unique. From its inception, Israel has remained under acute existential threat and in a state of belligerency. During this period, it has had to defend itself on multiple and sometimes simultaneous fronts.

The overall strategic approach, initially developed four decades ago, is still considered valid, although in the 1990s some of its elements have changed in response to changes in technology, economics and political conditions.[16] Israel has been faced with multiple armies consisting of large standing forces. Planners have had to develop a relatively powerful and multifaceted capability, while at the same time leaving resources for economic development and the absorption of immigrants.

In response, Israeli strategy has been based on three key components: (*a*) a large and powerful standing air force and an advanced intelligence capability; (*b*) limited standing ground forces (177 500); and (*c*) large armour and infantry reserve forces (427 000).[17] The reserve units are able to respond to a short-notice call-up, if the situation warrants, in order to confront much larger standing enemy forces.

[14] Additionally, under MoD regulation 40.06, a producer located in a development zone can receive a contract if its bid is up to 15% above the bid of non-development zone firms, but these discounts cannot be combined. Tropp, Z., 'Economic aspects in military procurement', SIPRI Arms Procurement Decision Making Project, Working Paper no. 26 (1995).

[15] This section is based in part on Meron, M., 'Threat perceptions in Israel's strategic environment and their impact on the decision-making process', SIPRI Arms Procurement Decision Making Project, Working Paper no. 21 (1995).

[16] Lanir, Z., *Israeli Security Planning in the 1980s: Its Politics and Economics* (Praeger: New York, 1983).

[17] Kam, E. and Eytan, Z., Jaffee Center for Strategic Studies, Tel Aviv University, *The Middle East Military Balance 1994–1995* (Jerusalem Post/Westview Press: Jerusalem/Boulder, Colo., 1996), p. 249. The figures are based on unofficial estimates for 1997.

In addition, Israeli doctrine and strategy are based on rapid war termination. The very nature of the Israeli force structure, based on reserve units, requires rapid and decisive victories. Long battles or wars of attrition that keep reserve units in service for long periods are too costly for the civilian economy.

Doctrine and procurement in the air force and combined ground forces

The small geographic size and lack of strategic depth of Israel are additional factors in strategic planning and procurement policies. Because the country does not have manoeuvring room, strategy emphasizes shifting a conflict on to enemy territory and has led to an emphasis on air power. The Israeli Air Force (IAF) is the primary element in strategic planning, and procurement policies emphasize advanced technology, including the platforms, computers, navigational equipment and air-to-air missile systems. Such systems are very costly, in terms of both purchase and maintenance, and resources are limited.

As a result, Israeli decision makers have emphasized flexibility in procuring multi-role systems and refrained from acquiring single-purpose weapons. For example, Israel has invested few resources in dedicated anti-aircraft weapons (aircraft or missiles). This is not the result of a limited threat of air attack, but rather because anti-aircraft weapons are designed as single-purpose systems.

The same factors govern decisions on the procurement of armoured vehicles. The IDF's combined ground forces command (MAF'CHASH) was created in the 1980s from previously independent units (armoured corps, artillery and infantry).[18] It stresses two factors: mobility and fire-power. Armoured units require limited manpower and are designed to bring about a rapid victory. Rather than acquiring large numbers of anti-tank units (self-propelled and stationary) for defensive roles, the IDF uses tanks both as primary defensive and as offensive weapons.

Changing threat assessments and procurement

Despite the Arab–Israeli negotiations and the peace process, Israel is still required to maintain a formidable military capability for the foreseeable future. There is consensus in Israel that the gradual progress in the peace process, while important, will not allow for a significant decline in military readiness for the foreseeable future. Even if the negotiations with Syria succeed, a high level of uncertainty will continue. As noted above, the threat from more distant states (for example, Iran, Iraq and Libya) is growing.

Indeed, the peace process and withdrawal from designated territories could increase defence requirements and the resources devoted to arms procurement.

[18] The decision to create a combined ground forces command was largely based on the lessons of the 1973 Arab–Israeli War and on the realization that these various elements needed to be carefully coordinated in order to fight effectively in modern war. In addition to creating a unified command structure, this reorganization led to joint training and procurement policies that reflected the balanced requirements of the combined branch, rather than the priorities of each of the individual units. Their integration is still considered incomplete.

Israeli analysts and policy makers are concerned about the implications of the continued modernization of the Egyptian military, including the procurement and upgrading of MBTs and combat aircraft. The nature of any agreement with Syria and the degree to which any agreement is accompanied by a thinning out of the Syrian forces between Damascus and the Israeli border will also have a major impact on threat assessments and resulting arms procurement policies.

Long-term planning

Like those of the advanced industrial states, the Israeli military uses long-term planning to assess trends and likely requirements beyond the immediate 12-month period on which the budget cycle is based. Early efforts to develop and implement multi-year planning and budget documents in the 1980s had little impact on the arms procurement decision-making process, as noted in reports by the State Comptroller (see in particular section VII of this chapter). In 1991, a new multi-year planning process was implemented and the five-year plan, known under the general name of Merkam, has been updated annually since then. Merkam documents are classified but some elements are released to the press. The preparation of these documents is the responsibility of the IDF's Planning Division and is based on general policy goals and threat assessments formulated by the MoD and the IDF Intelligence Branch, as well as economic factors and assessments. Changes in threat assessments, economic conditions or the regional security environment generally lead to changes in the planning guidelines. The five-year plan includes general procurement guidelines as well as specific plans for procurement of particularly costly systems, such as combat aircraft. This plan and the annual budgets are formally presented to the office of the IDF Chief of Staff and the cabinet for approval.

In this process, the key variables are the perceived changes in the balance of power and threats in the region, the supply of weapons and technology, and political developments. The growth of the perceived long-term threat, particularly from Iran, is reflected in the growing emphasis on weapons R&D and technology designed for future scenarios involving more distant opponents and new weapons. For example, the Merkam 2000 programme includes the purchase of the long-range F-15I aircraft as the IAF's future primary combat platform, modernization of the F-15 and F-16 aircraft in the IAF inventory and the specifications to be used in choosing the next generation of combat aircraft.[19] The Arrow ATBM system and military space assets, such as Ofeq reconnaissance satellites, are also designed to respond to these long-term and long-distance threats.

[19] Ben, A., *Ha'aretz*, 3 Dec. 1995, p. 2A.

Technology evaluation[20]

In the early 1960s, then US Secretary of Defense Robert McNamara sought to revolutionize defence procurement in the USA, bringing in professional analysts to prepare technical cost–benefit analyses of variables, limitations and options to present to decision makers. Although these techniques and their implementation have been widely criticized and revised, the fundamental approach has not changed.

This approach, based on the general theory of rational decision making, can be summarized in three basic stages: (*a*) threat analysis and the definition of requirements; (*b*) responses to these requirements; and (*c*) evaluation of options and choice. This evaluation procedure is shown in figure 4.2.

The first stage, focusing on threat analysis, begins with intelligence data, summarized periodically by the head of Military Intelligence. This stage defines the short-and long-term threats and potential responses, filtered through the established strategic and tactical frameworks.

In the second stage, options are defined and evaluated, focusing on technological opportunities and quantitative as well as organizational factors. Some procurement options will take advantage of more advanced technology, at the expense of numbers. The 'quality versus quantity' dilemma must be considered in any procurement decision-making process, and this methodology seeks to systematize this analysis. Each possible option is based on a package including the platform, weaponry, ammunition, support equipment and logistics.

The options derived in the second stage are examined and compared with respect to operations and tactics, logistics and sustainability, economics (initial costs and life-cycle costs) and accessibility of the technology. On this basis, options are rank-ordered and decisions are made. For new weapons or components, the R&D and production processes are periodically examined and tested against initial assumptions, and, when necessary, decisions are revised.

This procedure explicitly seeks to exclude political and other non-rational factors. It is highly abstract and cannot be implemented in its pure form. It also assumes 'complete information', when in reality procurement decisions take place under conditions of great uncertainty. Despite the efforts of Military Intelligence, no one can know how political, military, technological and economic variables are likely to develop over a period of 5 or 10 years, and in an increasing number of cases even longer.

In an effort to limit the effects of this uncertainty, various techniques are used, including the Delphi method and decision tree analysis. In the Delphi method a group of experts is questioned, usually remotely, in an iterative process. In each round, participants are given information about the responses of other participants, in an effort to reach a consensus. This method has been used

[20] This section is based in part on Sharan, Y. and Naaman, D., 'Technology assessment and methods in procurement procedures', SIPRI Arms Procurement Decision Making Project, Working Paper no. 25 (1995).

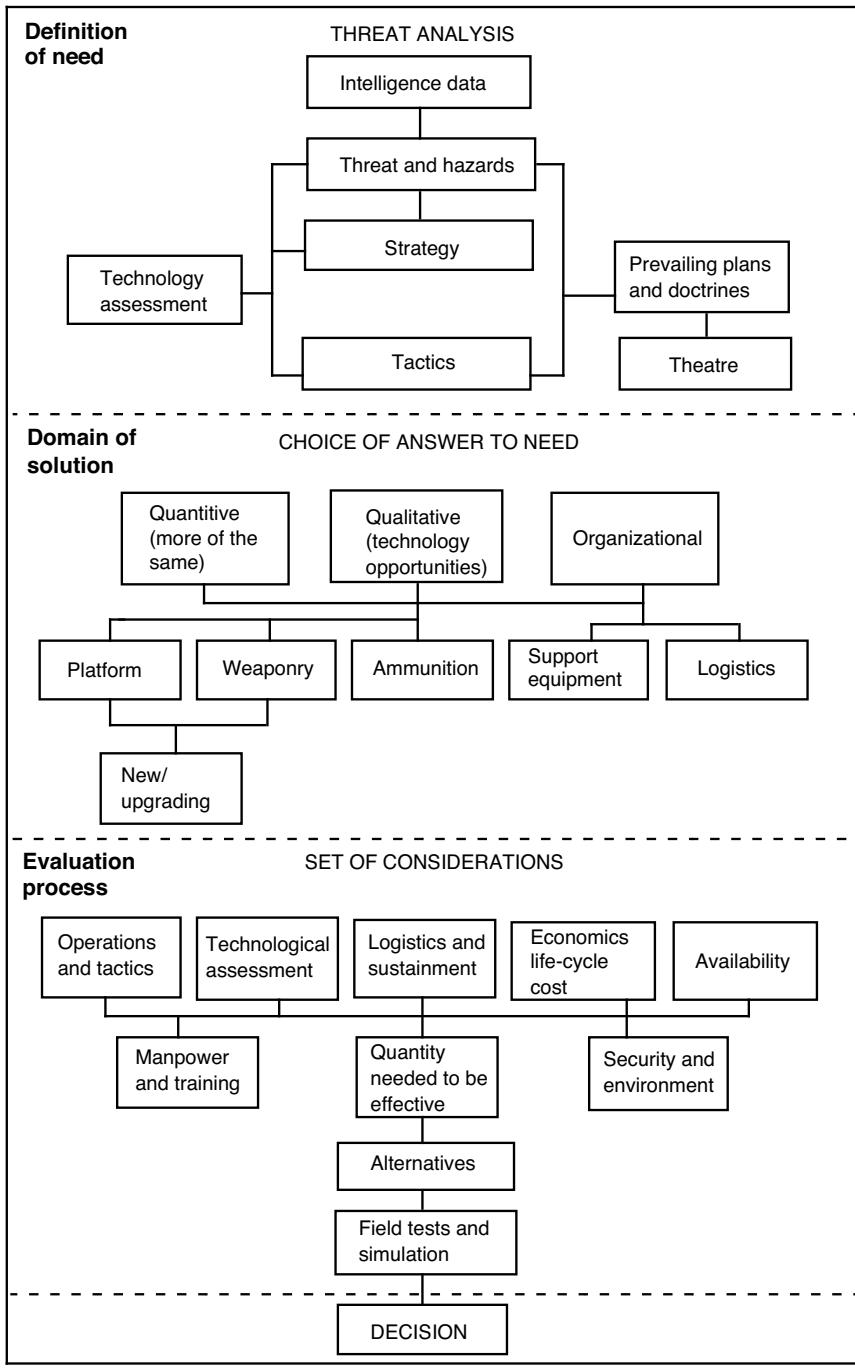

Figure 4.2. Military technology evaluation procedure in Israel

Source: Sharan, Y. and Naaman, D., 'Technology assessment and methods in procurement procedures', SIPRI Arms Procurement Decision Making Project, Working Paper no. 25 (1995).

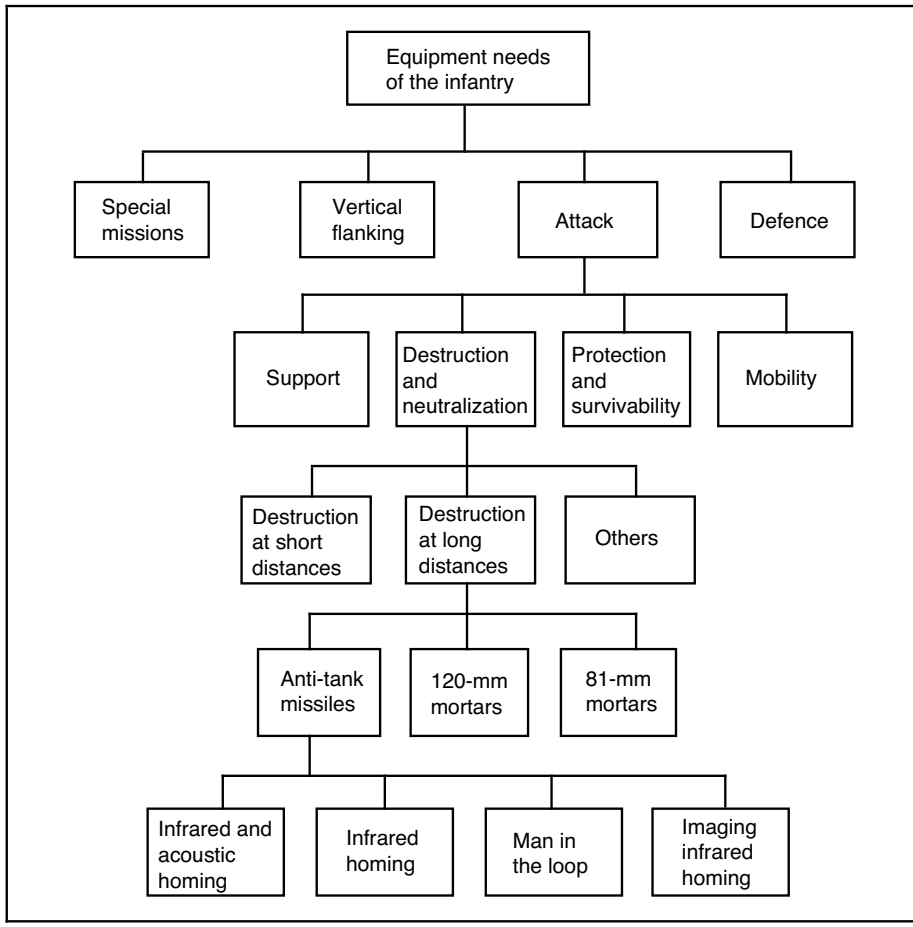

Figure 4.3. Evaluation of the equipment needs of the Israeli infantry based on decision tree analysis

Source: Sharan, Y. and Naaman, D., 'Technology assessment and methods in procurement procedures', SIPRI Arms Procurement Decision Making Project, Working Paper no. 25 (1995), pp. 13–14.

by the Interdisciplinary Center of Technological Assessment and Forecasting at the University of Tel Aviv (ICTAF). A similar but less structured 'brainstorming' approach has also been suggested for reducing the impact of uncertainty in decision making.

The decision tree analysis method is used to assess the overall potential and utility of technologies under consideration. It involves breaking down a particular decision to the lowest level of analysis. For each option, the different possible outcomes are assessed and the probabilities of each path are estimated. Strategic attributes and values for each outcome are assigned by the IDF and

the MoD. Tactical attributes of weapons are based on evaluations provided by field commanders. Figure 4.3 demonstrates the decision tree analysis method by showing the steps for the evaluation of the equipment needs of the infantry.

IV. External influences on arms procurement

Israel's unique security situation and the high level of defence industrial dependence on the USA compel its leaders to harmonize security policies and strategy with foreign policy concerns and objectives.

The relationship with the United States

Until 1966, the USA refused to sell weapons to Israel and a de facto arms embargo was in effect, with the notable exception of the sale of Hawk air-defence missile batteries in 1962.[21] However, in the 1970s the USA became Israel's main source of weapons.

The supply of weapons was accompanied by a steady growth in loans and grants (see table 4.1). After the 1973 Yom Kippur War, this increased. In 1985 the 30- to 40-year loans were converted to grants, and since then the annual amount has been fixed at $1.8 current million, all of which is spent on military procurement and weapon system R&D. This amount has remained constant and has not been adjusted for inflation, so that the purchasing power of the military assistance has declined steadily. In this period, the USA and Israel also signed a series of memoranda of understanding and in the 1980s the military relationship was formalized. In 1994, US FMF grant assistance constituted 30 per cent of the Israeli defence budget—a substantial portion by any measure.[22]

After the 1991 Persian Gulf War, Israel received additional weapons from the US inventory, valued at over $2 billion. These included 71 aircraft and helicopters, 12 of which were used for spare parts.[23]

Influence of US aid on Israel's arms procurement decision making

Since 1973, US military aid has been the single most important element in the Israeli defence budget and over the years it has affected procurement decision making in a number of ways. It has created a conflict between the Israeli military establishment (the MoD and IDF), which views it as 'an unmitigated benefit',[24] and the economists in the Ministry of Finance, who are concerned

[21] Ben-Zvi (note 1); and Spiegel, S., *The Other Arab–Israeli Conflict* (University of Chicago Press: Chicago, Ill., 1985).

[22] Government of Israel, *Ikaray HaTakziv* [Fundamentals of the budget] (Government Printing Office: Jerusalem, 1994), p. 63.

[23] Government of Israel (note 22), p. 70.

[24] Halperin, D., 'The impact of American military aid on decision making in Israel', SIPRI Arms Procurement Decision Making Project, Working Paper no. 32 (1995).

Table 4.1. US military aid to Israel, 1949–95[a]

Figures are in current US $m.

Year	Loan	Grant	Year	Loan	Grant
1949	–	–	1973	307.5	–
1950	–	–	1974	982.7	1 500.0
1951	–	–	1975	200.0	100.0
1952	–	–	1976	750.0	750.0
1953	–	–	TQ	100.0	100.0
1954	–	–	1977	500.0	500.0
1955	–	–	1978	500.0	500.0
1956	–	–	1979	2 700.0	1 300.0
1957	–	–	1980	500.0	500.0
1958	–	–	1981	900.0	500.0
1959	0.4	–	1982	850.0	550.0
1960	0.5	–	1983	950.0	750.0
1961	[b]	–	1984	850.0	850.0
1962	13.2	–	1985	–	1 400.0
1963	13.3	–	1986	–	1 722.6
1964	–	–	1987	–	1 800.0
1965	12.9	–	1988	–	1 800.0
1966	90.0	–	1989	–	1 800.0
1967	7.0	–	1990	–	1 792.3
1968	25.0	–	1991	–	1 800.0
1969	85.0	–	1992	–	1 800.0
1970	30.0	–	1993	–	1 800.0
1971	545.0	–	1994	–	1 800.0
1972	300.0	–	1995	–	1 800.0
			Total	**11 212.5**	**27 214.9**

[a] US fiscal years. Figures include guarantees for commercial loans.

[b] < $100 000.

TQ = Transition quarter (the US fiscal year changed from July–June to Oct.–Sep.).

Sources: 1949–94, Clyde, M. R., 'Israel: US foreign assistance', *CRS Issue Brief*, Congressional Research Service, Library of Congress, updated 24 Feb. 1994, p. 13; 1995, Transcript from the 1995 Israeli State Budget.

about the costs of repayment and the negative impact on the domestic defence industry.[25]

The military has gradually gained confidence in the reliability and stability of the US–Israeli relationship and the continued availability of weapons. The Israeli Government's decision to cancel the Lavi fighter aircraft programme in

[25] In the late 1970s, the interest rate on US loans exceeded 15%, but this did not affect Israeli Government borrowing or MoD policies. However, the MoD did question the costs of troop redeployment in the Sinai following the 1979 Egyptian–Israeli Peace Treaty, which was being financed by loans. Pressure from the Ministry of Finance led the Israeli Government to seek to change part of the loans to a grant for this purpose. In 1982, a major debate broke out between the MoD and the Ministry of Finance over this issue. The MoD strongly opposed the restructuring, despite the economic costs of continued loan repayment.

1987 marked a major turning-point and a recognition that Israel could not achieve independence and that the USA would continue to be a reliable source. Israel is classified as a non-NATO US ally and is granted access to many advanced US weapon systems, excluding strategic weapons and technologies whose transfer is prohibited by international supplier regimes such as the Missile Technology Control Regime (MTCR).[26] This has also affected Israel's strategic doctrine to a significant degree. Since 1968, the IAF has relied increasingly on US combat aircraft, including the A-4 Skyhawk (from the late 1960s to the early 1980s), the F-4 Phantom (late 1960s to the present), the F-15 and the F-16 (1980s to the present).

While most US funding is earmarked for the purchase of US-manufactured weapons, a smaller amount has been designated to be spent on locally manufactured weapons and R&D. In 1977 this amount totalled $107 million; in 1987 it was $450 million.[27] The initial amount was earmarked for the development of the Merkava. At the time Israel was having difficulty obtaining a modern tank, following the British decision not to sell the Chieftain (after Israeli participation in the design of this tank) and the US rejection of Israeli requests to acquire the M-60.[28] These difficulties illustrate the problems Israel had in securing a reliable supplier for primary weapon platforms. In the early 1980s, the USA earmarked assistance for the development (but not production) of the Lavi fighter aircraft, and since the late 1980s the USA has supported the development and testing of the Arrow ATBM defence system.

One important limitation of the US aid package is the high level of inflexibility that it creates in the planning for specific local R&D projects. The Lavi project is a prominent example. R&D on the aircraft began in the late 1970s and was cancelled in 1987 by the Israeli Cabinet. During much of the R&D phase, both the military and the MoD questioned the importance and priority of this single project. However, one of the major reasons for the continuation of the programme was that US funding had been designated explicitly and exclusively for the Lavi. Cancellation would not have made those funds available for any other R&D or procurement programme, and many thousands of jobs would have been lost. It was only after the USA changed the terms of funding to allow for its application to other Israeli R&D programmes that the Lavi was cancelled and some money was made available for other programmes.

The Arrow ATBM project is similar. Approximately 80 per cent of the money has come from the USA and funding is allocated explicitly for this project and no other. This is a clear case of economic factors, determined in large part by

[26] In 1995, the Israeli press reported that Israel was interested in obtaining US Tomahawk cruise missiles. However, the transfer of cruise missiles and related technologies is banned under the MTCR, which was established in 1987 as an instrument for nuclear non-proliferation policy. Israel has accepted the terms of the MTCR, but its application to join this suppliers' framework has been consistently rejected.

[27] Clyde, M. R., 'Israel: US foreign assistance', CRS Issue Brief, Congressional Reference Service, Library of Congress, 24 Feb. 1994.

[28] Crossman, R., *The Diaries of a Cabinet Minister*, vol. 3 (Holt, Rinehart and Winston: New York, 1977); and *Military Technology and Economics*, vol. 4, no. 20 (1980), p. 34.

political relations, influencing military procurement choices and processes and, in the case of the Arrow, strategic capabilities.

The US-designated funds have been used primarily for the procurement of advanced weapon platforms, technology components and other sophisticated military equipment. In contrast, an increasing share of local currency resources is required to finance the initial deployment of these systems, including the preparation of appropriate technical infrastructure, familiarization and training and, at later stages, O&M costs.

In the early 1990s, the USA agreed to allow Israel to convert up to 20 per cent of FMF grant assistance into local currency to purchase items from the indigenous defence industry, without the exclusive designation of a specific weapon project or development programme. In addition, local industry has been boosted by the offset and 'buy back' arrangements that provide substantial export orders. In this way the USA has become one of Israel's primary export markets, with hundreds of millions of dollars in orders annually.

International and regional arms control initiatives[29]

Until the 1990s, international arms control initiatives were seen either as irrelevant or, at worst, as an impediment to stability and security in the Middle East in general and Israel in particular. Because of Israel's isolation from the international community and the factors discussed above, its decision makers generally had no incentive to support such initiatives.

This view was reinforced by experience with regional arms control efforts. In August 1949, France, the UK and the USA announced a coordinated effort to 'regulate the flow of arms' to the region. The Tripartite Declaration was formalized in May 1950 and led to the establishment of the Near East Arms Coordinating Committee (NEACC). From the Israeli perspective, this effort was a failure. The declaration included significant loopholes, including the recognition that all states 'need to maintain a certain level of armed forces to assure their internal security and their legitimate self-defence'. The appropriate level for each state was open to interpretation, and this was exploited by both suppliers and recipients. All three major powers provided weapons to their Arab clients, as did the USSR. In reality, the major effect of the declaration was to prevent Israel from obtaining weapons.[30]

However, with the global and regional changes that began in the early 1990s, Israeli policies in this area have changed to some degree. Israel has participated in the multilateral Arms Control and Regional Security (ACRS) negotiations. Arms control units have been created in the Ministry of Foreign Affairs and the MoD, and these units, as well as other arms of the Government, have become

[29] This section is based in part on Steinberg, G., 'The influence of foreign policy and international agreements on arms procurement decision making in Israel', SIPRI Arms Procurement Decision Making Project, Working Paper no. 24 (1995).

[30] Steinberg, G., 'Arms control in the Middle East', ed. R. Deran Burns, *Encyclopedia of Arms Control and Disarmament*, vol. 1 (Charles Scribner's Sons: New York, 1993), pp. 169–86.

active in many of these forums. Israel has recently offered to open some defence industry plants for inspection by Arab delegations.

Israel has also submitted annual reports to the United Nations Register of Conventional Arms, in contrast to most other Middle Eastern nations.[31] The effects on Israeli procurement policy appear to be marginal. Most major weapon platforms imported by Israel come from the USA, which practises a policy of openness.[32]

There has been some discussion of the extension of the UN Register to include countries' total holdings and domestic defence production. From the Israeli perspective, transparency in these areas has greater security implications than has the reporting of the export and import of major weapon systems. Unilateral transparency regarding holdings and indigenous production would provide potential enemies with potentially significant information, and the security risks could be formidable. If the other major states in the region (Egypt, Iraq, Jordan, Saudi Arabia and Syria) were to participate in such an expanded register and provide reliable and verifiable information on holdings, Israel might be inclined to do the same in the context of regional confidence- and security-building measures.[33] However, without this symmetry and reciprocity, and while the present threat environment remains, the prospects of such a change in policy are unlikely.

V. Procurement budgeting[34]

The state budgeting cycle is relatively short—usually no longer than six months—and incremental, based on previous allocations with small changes in most cases. The budget is approved by the Government and the Knesset. Before the 1967 Arab–Israeli War the military share in the state budget averaged 23 per cent; after the 1973 Yom Kippur War it reached a peak of 40 per cent.[35] Since then, the share has gradually decreased to 31 per cent by the end of the 1970s, 21 per cent a decade later and 17 per cent on average at the beginning of the 1990s.[36] By any measure, this is a very large allocation to defence compared to those of advanced industrial states.

[31] Chalmers, M. and Greene, O., *Taking Stock: The UN Register After Two Years,* Bradford Arms Register Studies no. 5 (Westview Press: Boulder, Colo., 1995), p. 45; and Wezeman, P. D. and Wezeman, S. T., 'The trade in major conventional weapons', *SIPRI Yearbook 1998: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1998), pp. 312–14.

[32] Wagenmakers, H., 'The UN Register of Conventional Arms: a new instrument for cooperative security', *Arms Control Today*, Apr. 1993; United Nations Register of Conventional Arms, *Composite Tables of Replies of Governments*, 20 June 1994; *Moving Toward Transparency: An Evaluation of the United Nations Register of Conventional Arms* (British–American Security Information Council: Washington, DC, Nov. 1993); and *UN Arms Register Implementation Continues: Expert's Panel Cautions About Change* (British–American Security Information Council: Washington, DC, 16 May 1994).

[33] *Non-Proliferation Review*, vol. 2, no. 1 (fall 1994), pp. 106–11.

[34] This section is based in part on Lifshitz, Y., 'Budgeting for defence and development of the domestic military–industrial base', SIPRI Arms Procurement Decision Making Project, Working Paper no. 30 (1995).

[35] Lifshitz (note 34), p. 4.

[36] Lifshitz (note 34), p. 4.

Table 4.2. The Israeli defence budget by category, 1989–94
Figures are in current US $m.[a]

	1989	1990	1991	1992	1993	1994
Manpower	2 208	2 491	2 687	2 758	2 610	2 997
Local purchases[b]	2 262	2 541	2 519	2 790	2 547	2 623
Direct defence imports	1 483	1 853	2 223	1 911	2 632	1 865
Total defence expenditure	**5 953**	**6 885**	**7 429**	**7 459**	**7 789**	**7 485**

[a] The figures have been converted from current Israeli shekels into current $ million using IMF yearly average exchange rates.

[b] Construction, operational costs, training, equipment, weapons and R&D.

Sources: Bank of Israel Annual Report 1991 (Bank of Israel: Jerusalem, 1992), p. 323; and *Bank of Israel Annual Report 1994* (Bank of Israel: Jerusalem, 1995), p. 234.

The budget process for defence and arms procurement differs sharply from that used in other sectors, where the Ministry of Finance and Prime Minister's Office determine budget shares and the representatives of the various ministries do not have a dominant role in the decision-making processes. In the case of defence budget decisions, senior representatives of the IDF and MoD are active participants in the cabinet meetings at which budgets are discussed. This provides the military with a unique opportunity to exert direct influence on arms procurement allocations. The role of the Ministry of Finance is very limited.

After the Government approves the defence budget, it is discussed by a special Knesset committee composed of members from the standing committees on security and foreign affairs and on finance. As in other areas under its jurisdiction, the activities of this special committee are confidential. The results which are brought to the full Knesset for approval are encompassed in a few aggregate figures, and there is little public debate on the defence budget or procurement decisions.

Trends in the defence budget and infrastructure development

The defence budget is divided into three basic categories: (*a*) manpower costs (salaries and benefits); (*b*) local purchases (construction, operational costs, training, equipment, weapons and R&D); and (*c*) imports of major weapon systems. In the early 1980s, approximately 55 per cent of the budget was allocated to the first two categories.[37] In the 1990s the share of local expenditure has increased to 70–75 per cent, while that of weapon imports has decreased. As table 4.2 illustrates, there are some statistical fluctuations, particularly with respect to direct defence imports, reflecting the fact that the value of weapon deliveries from the USA in a given 12-month period changes depending on the delivery schedule and other non-substantive factors.

[37] Neubach, A., 'The defence burden and the Israeli economy', eds Z. Offer and A. Kober, *The Price of Power* (Ministry of Defense: Tel Aviv, 1984), p. 48.

In general, the Israeli military is relatively technology- and capital- or weapon-intensive in comparison with those of the advanced industrial states. As a percentage of the total defence budget, Israel devotes less resources to manpower and personnel costs than most countries and relatively more to procurement of weapons and other equipment.[38] Between one-quarter and one-third of defence expenditure is allocated to weapon imports and an additional amount goes to purchases of weapons from domestic production. In comparison, the USA devotes approximately 25 per cent of its defence budget to equipment purchases. Most NATO countries allocate smaller proportions of their budgets to equipment.[39]

This allocation of resources reflects in part the relatively large numbers of conscripts as a percentage of the armed forces personnel, which lowers personnel costs. More importantly, the relatively large share of the defence budget devoted to weapon procurement and R&D reflects the Israeli military doctrine and the emphasis on technology and fire-power. By any measure, weapon procurement is a key aspect both of Israeli strategy and of the defence budget.

Pricing and costing methodologies[40]

Three major approaches to 'cost plus' budgeting of defence R&D are used in Israel: (*a*) the engineering approach; (*b*) the analogical approach; and (*c*) the parametric approach.

The engineering approach seeks to break down project costs into components and sub-assemblies and to assess the cost of each segment. This method is useful primarily for weapon systems for which the development process has been completed and the specifications are well defined.

In the analogical approach, estimates of the cost of a new weapon system are based on the prices of similar existing systems, such as previous generations of the same weapons. In Israel, this approach is used for initial decision making and in long-term planning, but not for contracting.

The parametric approach is based on statistical analysis (primarily regressions) of data on the performance and costs of systems and sub-assemblies. For each performance parameter (range, fire-power, speed, weight and so on), a cost is calculated based on the statistical analysis of data indicating the cost of such capabilities in existing systems. The estimates of the cost of the Lavi were based on a combination of engineering and parametric analysis, using data regarding aircraft development in the USA.

The cost estimates for the Lavi were strongly criticized by the State Comptroller. Defenders of the estimates, such as Zvi Tropp, former Economic Adviser in the MoD, argue that in Israel the average final cost of new systems is

[38] International Institute for Strategic Studies, *The Military Balance 1996–1997* (Oxford University Press: Oxford, 1997), p. 40.

[39] NATO, Financial and economic data relating to NATO defence: defence expenditures of NATO countries 1975–97, Press release M-DPC-2(97)147, 2 Dec. 1997, p. 7.

[40] This section is based on Tropp (note 14).

180 per cent of the original forecast, as compared to 240 per cent in the USA. Tropp also notes that the deviation in both cases is, in part, a result of design changes and technological improvements added during the R&D process. The engineering and parametric analysis were deemed to be the best available guidelines for estimating costs under these circumstances.

These methodologies are important in contracts based on 'cost plus fixed fee' and 'cost plus incentive fee' (CPIF) methods. In CPIF-based development, the contract provides an incentive to the producer to keep costs down. If actual costs are lower than target costs as specified in the contract, the producer and customer share the savings, but in case of an overrun, the profits decrease. The formula for the profit is:

$$P = P0 + a(B–C) \text{ such that } P \geq 0$$

where: P = profit; $P0$ = target contractual profit; B = target cost of production; C = actual cost of production; and a = the share of the supplier in cost savings.

VI. Influence of the defence industry

The concept of a military–industrial complex, which was developed in the USA, has been used widely to analyse the links between the military, the political leadership and the defence industry.[41] In Israel the military is a dominant political force, and the close links between the political leadership, many of whom are retired senior officers, the current military leadership, and the heads of the defence companies (who are also often drawn from the military) have created powerful interest groups which have a significant impact on arms procurement decision making.[42]

The political system and the structure of the defence industry distinguish the Israeli situation from that of the USA. In Israel, the electoral system and the Knesset are based on a single national constituency; as a result, the type of local pressures to channel contracts and funding to local industries that is found in the USA is absent in Israel.[43] In addition, while the US system is based on privately owned weapon industries, in Israel the dominant firms are state-owned and under the control of the MoD.

Defence industrial considerations

The defence budget, military procurement and the status of the defence industry are also closely linked to long-term industrial development. Between 1966 and

[41] In his farewell address in Jan. 1961, President Dwight D. Eisenhower warned of the power of the 'military–industrial–technological complex'. See also Mills, C. W., *The Power Elite* (Oxford University Press: Oxford, 1956); and Melman, S., *Pentagon Capitalism* (McGraw Hill: New York, 1970).

[42] See, e.g., Mintz, A., 'The military–industrial complex: the Israeli case', *Journal of Strategic Studies*, vol. 6, no. 3 (1983), pp. 103–27; and Mintz, A., 'An empirical study of military–industrial linkages in Israel', *Armed Forces and Society*, vol. 12, no. 1 (1985) pp. 9–27.

[43] The development of regional primary elections among some parties in Israel in the 1990s may lead to a change in this situation.

Table 4.3. The Israeli defence industry: sales and exports, 1980–95

Year	Total sales (US $b.)	Exports (US $b.)	Exports as share of total sales (%)
1980	. .	0.67	. .
1983	. .	0.73	. .
1988	1.3	0.78	*60.1*
1990	1.6	0.93	*59.2*
1992	1.6	0.82	*52.1*
1993	1.7	0.94	*56.6*
1995	(2.0)	1.20	. .

Notes: The difference between total sales and exports is the amount of procurement from domestic production. The percentages may not correspond exactly to the figures because of the conventions of rounding.

Sources: 1995 exports: *Ha'aretz*, 6 Feb. 1996; other data: Ortasse, M., 'The Israeli defence industry and exports', SIPRI Arms Procurement Decision Making Project, Working Paper no. 22 (1995).

1993, procurement from domestic production grew by a factor of 4.4 (in constant prices). The share of domestic defence purchases in gross domestic product (GDP) grew from 3 per cent in the mid-1960s to 12 per cent in the mid-1970s and levelled off at 4 per cent at the beginning of the 1990s.[44]

The rapid expansion of the Israeli defence industry began after the 1967 Arab–Israeli War and France's unilateral severing of the cooperation link with Israel. It followed two years of economic depression, with relatively high rates of unemployment and non-utilized industrial capacity. The defence industry developed rapidly in the mid-1970s, following an increase in demand for domestic production and related services. Rapid growth continued until the end of the 1980s as a result of rising exports and total sales, as shown in table 4.3. The defence industry was instrumental in returning full employment to the economy and in accelerating economic growth. From 1966 to 1975, the defence industry absorbed 60 per cent of the new employees in the manufacturing sector.[45]

In addition to its general contribution to full employment and economic growth, the defence industry also significantly influenced the direction of economic development by considerably enlarging the share of high-technology and science-based industries in the economy. A substantial investment in defence R&D and the development of high-technology industries was necessary in order to generate spin-offs in the civilian industrial sector. In parallel, defence exports grew rapidly and, in the mid-1980s, accounted for 25 per cent of total industrial exports.[46] Defence exports also paved the way for civilian industrial exports by penetrating new markets and attracting potential customers.

[44] Lifshitz (note 34), p. 8.
[45] Lifshitz (note 34), p. 14.
[46] Lifshitz (note 34), p. 15.

Traditionally, within the defence establishment there have been two conflicting approaches to the issue of procurement from domestic production. Civilian officials in the MoD have generally sought to use allocations from the military budget for the development of the domestic defence industry. This group, led by Shimon Peres, who served as Director-General of the MoD in the 1950s, has given very high priority to the development of a high degree of independence. From this perspective, the development of local industry in Israel was to be led by the defence sector, which would bring in technology, develop production and managerial skills, and create jobs. In contrast, the military leadership emphasized current readiness (O&M, war reserves and so on) and consequently preferred proven weapon systems from abroad to local and technologically uncertain R&D projects. In general, the first approach was dominant in the 1960s and 1970s, while the second (military) perspective dominated during the 1980s and 1990s.

In contrast to most other sectors in the defence budget, the shares of procurement from domestic production and R&D are the subjects of some debate and controversy. R&D, which is funded through the central defence budget (rather than being allocated to the individual services and divisions, as in the case of many other defence budget sectors), was reduced by 43 per cent between 1985 and 1994.[47] Decisions on the future of projects and technological centres have been taken without consideration of the long-term impact on the military and economic technological infrastructure. Zeev Bonen claims that the reduction of the military R&D budget has 'endangered core military R&D competencies and caused great difficulties in the nurturing of new, innovative ideas'.[48]

Similar debates have taken place in connection with 'make or buy' decisions and attempts to introduce internal market mechanisms in the defence industrial sector. In the early stages, because of limited capacity in the relatively undeveloped industrial sector, special units in the armed forces (Heyl Hatachzoka—military logistics—and Heyl HaHimush—military ordnance) were created to undertake upgrading of weapon systems, maintenance of heavy vehicles and ammunition, and, in some cases, assembly and production of complete weapons and platforms. (These units are like ordnance manufacturing groups in other military forces.) At first, the funding for these units was centrally budgeted in the overall IDF allocation; the various military 'consumers' considered these services to be free goods. Later, in order to improve budgetary efficiency, they were organized as independent profit centres and the costs of goods and services were allocated to the military services.

Thus, the defence industry continued to constitute an important economic factor in procurement decision making, despite the steady availability of weapon systems from the USA. In addition, the defence industrial sector has become an important source of domestic political pressure in the decision-making process.

[47] [State Comptroller's report], no. 44 (Office of the State Comptroller: Jerusalem, 1994), pp. 1028–30.
[48] Bonen, Z., 'The Israeli defence industry', SIPRI Arms Procurement Decision Making Project, Working Paper no. 27 (1995).

Defence industrial interest groups[49]

As analysts such as Mintz and Etzioni-Halevy have noted, Israel lacks the separation between the government/political élite and the military élite commonly found in Western democracies.[50]

However, there are significant divisions within the military élite and, with respect to arms procurement decision making, this group cannot be viewed as a united entity with common interests and perceptions. There are sharp differences in policy, ideology, political affiliation and institutional interests. In some cases, the different institutional objectives of the MoD and the IDF lead to conflict over priorities with respect to specific procurement decisions. In the early 1960s Minister of Defense Pinhas Lavon argued against the position of then MoD Director-General Peres, who favoured the indigenous production of weapon platforms in all areas. Between the mid-1970s and 1987 (the end of the Lavi project), Yitzhak Rabin took the same view as Lavon, in opposition to Peres.[51]

The state-owned defence companies can also be analysed in terms of interest group models. Their workforce is large, they have a great deal of political leverage and they represent a powerful lobby. According to government statistics, more than half of employment in the defence industry is accounted for by IAI, Rafael and Ta'as.[52] (In the 1980s they accounted for 40 per cent of the workforce in the large state industrial sector.[53]) Being state-owned, they are less concerned with profits than with maintaining employment, budgets and influence.[54] Their influence is based on four factors: (*a*) an extensive network of personal alliances between industry, military officers and high-ranking defence personnel; (*b*) the size of the industry; (*c*) government and MoD control of the defence industry, which provides the managers with direct access to key decision makers and has allowed them to avoid substantial reorganization to date; and (*d*) control over information relating to production costs.[55]

[49] This section is based in part on Pinkus, A., 'Domestic considerations, élite motivations, the bureaucracy and the political culture of arms acquisitions in Israel', SIPRI Arms Procurement Decision Making Project, Working Paper no. 23 (1995).

[50] Mintz, A., 'The military–industrial complex: the Israeli case' (note 42), pp. 103–27; and Etzioni-Halevy, E., 'Civil–military relations and democracy: the case of the military–political élites' connection in Israel', *Armed Forces and Society*, vol. 22, no. 3 (summer 1996), pp. 401–18. For additional analysis of this issue, see Lissak, M., 'Paradoxes of Israeli civil–military relations: an introduction', *Journal of Strategic Studies*, vol. 6, no. 3 (Sep. 1983), pp. 1–12; and Peri, Y., 'Civilian control during a protracted war', ed. E. Kraus, *Politics and Society in Israel* (Transaction Publishers: New Brunswick, N.J., 1989).

[51] Mintz (note 3), p. 15. Yitzhak Rabin was Prime Minister between 1974 and 1977 and returned to office as Minister of Defense in 1985.

[52] In 1996, *c.* 20 000 persons were employed in these 3 companies. SIPRI arms industry database.

[53] Mintz (note 3), p. 17.

[54] Sadeh, S., 'The restructuring process in the Israeli defense industries', in *The Israeli Defense Industry*, Begin–Sadat (BESA) Center for Strategic Studies, Studies in National Security no. 9 (Bar-Ilan University, Ramat Gan, 1995), pp. 15–29 (in Hebrew).

[55] Klieman and Pedatzur (note 5), p. 125; and Pedatzur, R. and Weisblum, C., 'The decision-making process and public awareness', SIPRI Arms Procurement Decision Making Project, Working Paper no. 29 (1995), p. 2.

Historically, the major state-owned firms have been given preference in funding and contracts over privately owned companies. In the late 1980s the sales and revenues of the three major state-owned companies began to decline, leading to reduced employment[56] and initiating a crisis in this sector that has continued. The end of the cold war and other external factors also led to reduced arms exports and efforts to reorganize the firms.[57] However, the employees have sought to win more contracts and state subsidies through demonstrations and lobbying. The extent of subsidization of the industry before 1994 is shown in table 4.4.

In Israel, as in the USA and other Western nations, senior officers and their former commanders or colleagues who have established new careers in politics or as executives within the defence industry maintain close contact, forming an Israeli 'military–industrial élite'. This social network includes the state-owned defence companies, the MoD, and the privately owned arms manufacturers in Israel and the USA.[58] For example, when General Dan Shomron finished his term as IDF Chief of Staff, he was appointed Chairman of Ta'as despite his lack of business experience. The Board of Directors included four other former generals, and many attribute the crisis in Ta'as to the failures of these individuals.[59]

Since the mid-1980s, the MoD and major defence companies have also taken an interest in the conversion of defence industrial units to civilian production. Conversion is particularly noticeable and relatively successful in the area of electronics and communications. In addition, relaxations in the application of export controls regarding Central European countries have created opportunities for exports or collaboration in various areas.[60] Some private firms, such as Elbit and Tadiran, which began primarily as defence suppliers, are now largely oriented towards the civilian sector (although since 1992 Elbit has increased its role in military production, including military exports). IAI has also maintained a significant role in civilian production (civilian aircraft, such as the Astra and related services): in 1995 approximately 30 per cent of its sales were in the civilian sector.[61] In contrast, the efforts of Ta'as and Rafael to enter the civilian market have been unsuccessful.

[56] In IAI the number of employees declined from 20 000 in 1987 to 13 000 in 1995. Sadeh, S., [IAI will miss forecast], *Ha'aretz*, 3 Nov. 1995, p. 1c; and Sadeh (note 54), pp. 15–29.

[57] Sköns, E. and Gill, B., 'Arms production', *SIPRI Yearbook 1996: Armaments, Disarmament and International Security* (Oxford University Press: Oxford, 1996), pp. 448–49.

[58] Etzioni-Halevy (note 50), pp. 401–18.

[59] According to the State Comptroller, despite the heavy losses, Ta'as expanded its workforce during this period and did not provide accurate financial records to the MoD. 'The request of the financial comptroller of the defence ministry to Ta'as for substantive answers and statistics on the basis of real assessments was not answered.' [State Comptroller's report], no. 44 (note 47). In 1995, Shomron was replaced by Yaacov Lifshitz, an economist and former Director-General of the Ministry of Finance. Gen. (reserve) Yanosh Ben Gal, who had served as head of the Northern Command, was appointed to head the IAI Board of Directors in 1995.

[60] Bonen, Z., 'The Israeli defence industry: past and future', *RUSI Journal*, June 1994, pp. 56–59.

[61] Despite the interest in defence conversion among West European and North American analysts, conversion is economically and politically complex and its practicality is limited. The defence production process and market are fundamentally different from the competitive civilian sector, requiring quite different management and economic structures, manufacturing techniques and R&D processes. This is as

Table 4.4. Subsidies for Israeli state-owned defence firms, 1991–94
Figures are in US $m.

	IAI	Ta'as	Rafael	Total
Budgeted transfers	535	376	35	**946**
Loan guarantees	200	76	–	**276**
Return of dividends, payments	30	35	–	**65**
Total	**765**	**487**	**35**	**1 287**

*Source*s: Sadeh, S., 'The restructuring process in the Israeli defense industries', in *The Israeli Defense Industry,* Begin–Sadat (BESA) Center for Strategic Studies, Studies in National Security no. 9 (Bar-Ilan University: Ramat Gan, 1995), pp. 24 (in Hebrew); and Office of the Economic Adviser, Ministry of Defense (Tel Aviv), personal communications.

The crisis in the defence sector has continued and a number of restructuring proposals have been outlined. The possible approaches to restructuring include privatization, combining the three firms into a single mega-firm, and the creation of smaller units based on integration and merger of the related operating sections of these companies. However, there is strong political resistance in the state-owned firms to restructuring.

In 1987 over 20 000 IAI workers organized mass demonstrations and civil disobedience in an effort to prevent the cancellation of the Lavi. While this failed, they did succeed in gaining pledges from the Government for replacement projects. Workers from Rafael and Ta'as blocked government plans to reduce the workforce of these firms. The employees of Israel Shipyards sought to prevent the government from privatizing this enterprise. In the 1992 elections, a leader of the IAI worker's organization (Yaakov Shefi) was elected as a Labor Party candidate for the Knesset. It is difficult for any government to ignore such large, powerful and well-organized institutions. Although there have been some reforms and reductions in force, these have been costly early-retirement and voluntary programmes, subsidized through special allocations.

VII. Checks and balances

The high level of confidentiality that is a central factor in Israel's military strategy has slowed the development of effective checks and balances on the decision-making processes and of the role of interest groups. In Israel, there are three major sources of external checks and balances on the military: the Knesset

true for Israel as for the USA, Canada and the countries of Western Europe. In the Israeli case, in particular, defence industries exist primarily to provide necessary military capabilities for national security requirements. This objective includes weapons that introduce an element of surprise on the battlefield (such as the electronic equipment and drones used to defeat the Syrian Air Force in 1982) and maintenance of an infrastructure to produce weapons not available to Israel from other sources, such as modern MBTs. Thus, the role of conversion is limited.

Committee on Foreign Affairs and Security, the State Comptroller and the press.

The Knesset Committee on Foreign Affairs and Security[62]

The Knesset Committee on Foreign Affairs and Security monitors the activities of the MoD and the IDF. For many years procurement issues were not a central focus, but this changed with the establishment of a special subcommittee on Israel's defence doctrine in 1986. Chaired by Member of Knesset (MK) Dan Meridor, the committee held more than 50 hearings, with testimony from officers from all the services of the IDF, former officers and civilians specializing in advanced technology. The Meridor Report was issued in 1987 and remains classified. It addressed the IDF decision-making process, the interaction between the political and military establishments, and the economic aspects of the force structure. The hearings and report coincided with a broad review of Israeli defence posture within the IDF, and the specific recommendations regarding procurement priorities were a factor in military decision making.

In the wake of the Meridor Report, the Subcommittee on Procurement and IDF Readiness was established.[63] The subcommittee sought to follow up on the Meridor Report, update it periodically and supervise the General Staff's procurement policy in the light of the strategic doctrine. It generally meets to receive and discuss biannual reports from the heads of the land, air and naval forces, defence R&D and the state-owned defence firms. In addition, ad hoc discussions are held on various topics such as computer systems in the military and new developments in the field of armour, anti-armour, and command and control systems. Each topic is prepared well in advance and the approval of the Minister of Defense is required before it is discussed. In 1995, a special committee was established to examine the impact, direct and indirect, of defence spending on the Israeli economy.

Since 1988 the Subcommittee on Procurement and IDF Readiness has held several hearings a year. The protocols constitute a unique, comprehensive (and highly classified) body of data on strategic issues and procurement. In addition, the subcommittee conducts one-day visits to military installations and defence industry facilities several times a year.

There is a high degree of coordination between the military and the subcommittee. A representative of the General Staff Planning Division participates in all meetings, providing continuity and communicating the policies and responses of the General Staff. The officials and officers range from commanding generals, heads of departments within the MoD and the Chief Scientist, to colonels or even captains in charge of specific programmes or sub-units. (Their presentations are approved by the Deputy Chief of Staff.)

[62] This section is based in part on Begin, Z. B., 'Parliamentary supervision of military procurement in Israel', SIPRI Arms Procurement Decision Making Project, Working Paper no. 28 (1995).

[63] The name of this committee has been changed several times but for the purposes of this study it is called the Subcommittee on Procurement and IDF Readiness throughout.

The subcommittee also plays a role in specific procurement issues. For example, in 1994 the IAF considered three US aircraft (the F-15E, F-16 and F-18) for its future front-line fixed-wing combat platform. There was no debate in the Knesset, but the subcommittee asked the IAF to explain the rationale of its choice (the F-15, redesignated the I model). When the decision to procure the US Apache attack helicopter was made, the IAF did not present an alternative, and the subcommittee initiated a closed hearing to discuss another possible option. MK Ze'ev B. Begin notes that the members of the subcommittee view the very fact that the discussion was held as an important contribution to the decision-making process. Similarly, when the Israeli Navy presented its decision to procure the Dolphin submarine, the subcommittee raised an alternative which was then considered.

The subcommittee's major contribution comes from its role in providing an independent body to which government and military officials must report and justify their procurement decisions. Minutes are taken, questions are asked and there is a follow-up discussion regarding implementation. In some cases the very fact that the subcommittee asks for a report compels the military to look into an issue in broader terms and to examine basic assumptions. With its professionalism and non-partisan nature (both unusual in the Israeli context), the subcommittee has gained a high level of respect among the Israeli Government and the military.

However, it has a number of significant limitations. First, it has only five members and, while this allows for efficient deliberations, resources and time are limited and the issues are complex. To compensate for the limited time of the committee members, experts can be used as permanent advisers. However, in the Knesset, resources for this task are almost non-existent. No budget has been allocated for professional staff members and, at best, the subcommittee has been able to get assistance on a voluntary basis. Second, the total secrecy which characterizes its activities is a significant limitation to its regulatory role. In Israel, as noted, there is almost no history of open, public discussion of major weapon procurement issues. Such discussion could be important in providing alternative analyses and information, thereby balancing the defence establishment, bureaucratic interests and organizational inertia. However, secrecy is seen as essential in maintaining the cooperation of the Minister of Defense, the IDF and other actors with the subcommittees. Not only are the contents of the meetings classified, but even the topics and the names of participating guests are generally not made public.

Minister of the Environment Yosi Sarid, who served as a member of the full committee, has charged that secrecy allows the committee to be manipulated by interest groups in the military and defence establishment.[64] In Sarid's view, as well as that of other analysts, including Pedatzur, the members of the committee tend to support the military and defence establishment and do not, in reality, serve as an independent check on its activities, including arms procurement

[64] Sarid, Y., [Fear of retribution in the General Staff], *Ha'aretz*, 15 Jan. 1987.

decision making. The Knesset did not have an impact in the case of the Lavi, and there is no independent assessment of the role of the Meridor Report or of the actions of the subcommittee. Neither the subcommittee nor the full committee has been effective in influencing policy with respect to the defence industry.

The State Comptroller[65]

The State Comptroller is responsible for auditing all aspects of public policy, including the defence sector, arms development and procurement. He reports to the Knesset and, in most cases, issues reports that are available to the public.[66] The analysis focuses principally on economic aspects of procurement or development,[67] the state-owned defence companies,[68] the allocation of US aid[69] and the multi-year budgeting process.[70]

In general, the power and independence of the defence bureaucracy have traditionally limited the role of the State Comptroller. However, since the late 1980s (and the crisis over the Lavi project) the scope and impact of the State Comptroller with respect to defence procurement have increased significantly.[71] Other indications of this increasing influence include the changes made in connection with the IDF's multi-year plan,[72] R&D, the decision-making process for the development of naval weapons,[73] the Merkava III tank, decision making with respect to US weapons such as the Apache helicopter and the F-16 combat aircraft, and the defence industry. Broader issues, such as the impact of changes in available technology in the post-cold war era and the impact of the political changes in the Middle East on force structures, are also addressed.[74] In examining specific decisions to procure from domestic production, the audit covers the prime contractor, project leadership, project administration—usually in the IDF, the Special Projects Office (SPO) or a specific military unit—and the role of management in production.[75]

Since the Lavi project was cancelled in 1987, audits have been increasingly conducted during procurement and development, rather than *ex post facto*. The analysis by the State Comptroller of the decision-making process in the case of

[65] This section is based in part on Ya'ari, A., 'The role of the auditor in the purchase, production and development of arms', SIPRI Arms Procurement Decision Making Project, Working Paper no. 31 (1995).

[66] Given the highly sensitive nature of military auditing in general, and procurement auditing in particular, many reports are kept secret for a specified period.

[67] Ya'ari, A., *Iyunim BiBikoret HaMedina* [Issues in state auditing] (Office of the State Comptroller: Jerusalem, 1995).

[68] [State Comptroller's report], no. 44 (note 47); and State Comptroller's Report, no. 45 (Office of the State Comptroller: Jerusalem, 1995).

[69] [State Comptroller's report], no. 45 (note 68).

[70] [State Comptroller's report], no. 44 (note 47).

[71] The State Comptroller's report on the Lavi influenced the government's decision to cancel this project. [State Comptroller's report], no. 37 (Office of the State Comptroller: Jerusalem, 1987).

[72] [State Comptroller's report], no. 38 (Office of the State Comptroller: Jerusalem 1988); and [State Comptroller's report], no. 44 (note 47).

[73] [State Comptroller's report], no. 38 (note 72).

[74] Havens, H. S., 'What we are and who we were', *Armed Forces Controller* (summer 1990).

[75] [State Comptroller's report], no. 42 (Office of the State Comptroller: Jerusalem, 1992), p. 1110; and [State Comptroller's report], no. 43 (Office of the State Comptroller: Jerusalem, 1993), p. 817.

Israel's naval procurement programme took place during the debate within the defence establishment. In contrast to the report on the Lavi, this report remained mainly classified (a small part was published) and was designed to influence the internal debate only.

In a general sense the impact of the auditing process on decision making for defence procurement in Israel is still limited, but growing. Despite the exceptions noted above, the investigations and reports by the State Comptroller are often 'after the fact' and ineffective in changing decision-making procedures or challenging powerful interest groups and bureaucratic structures. The 'intrusion' of the auditors is still resisted by military commanders and political leaders, such as the Minister of Defense. In many cases, the reports of the State Comptroller are published and given prominent coverage in the press, but the power relationships involving the MoD, the IDF and defence firms are not affected. For example, a number of reports on the management and economic problems of IMI/Ta'as were published over a five-year period, but the evidence indicates that they did not change the decision-making process.

The role of the press

In any democratic system, the press is important in stimulating public debate about and oversight of government decision making in general and major defence procurement decisions in particular. However, the degree of transparency and accountability in Israel has always been limited by the emphasis on military secrecy which has been deemed necessary in national defence.

This is gradually changing as society in general is becoming more willing to criticize 'sacred cows', including the IDF and the defence establishment. This change has been marked by 'the gradual erosion in the domestic public status of the IDF itself': the armed services 'have increasingly become objects of more mature public scrutiny' and 'operational deficiencies have been subjected to intense press coverage'.[76] The press has played an increasingly important role in developing greater openness and accountability regarding weapon procurement, particularly since the Lavi debate. The Arrow programme has been discussed in significant detail in the press. The crisis in the defence industry has also been covered in great detail, and a higher proportion of the reports of the State Comptroller are now published.[77] These reports are covered extensively in the press, and the combination of the State Comptroller and the press constitutes an increasingly important external check on defence procurement decision making. Journalists such as Zeev Schiff and Alouf Benn of *Ha'aretz* and Ron Ben-Yishi have become increasingly critical of the decision-making processes. In many cases they have access to key decision makers, and their reports are widely read.

[76] Cohen, S. A., 'The Israel defense forces (IDF): from a "people's army" to a professional military—causes and implications', *Armed Forces and Society*, vol. 21, no. 2 (winter 1995), p. 241.

[77] See, e.g., discussion of Ta'as in [State Comptroller's report], no. 45 (note 68); and Sadeh, S., [1441 accidents in Ta'as in 1992–94], *Ha'aretz*, 18 Jan. 1996, p. 1.

In contrast, procurement decisions on imported weapon systems (largely from the USA) are not generally discussed until the decisions have been announced. The internal debates regarding offsets and the implications of certain purchases (such as the decision to acquire F-15 fighter aircraft instead of a larger number of less expensive aircraft) are rarely discussed in the press. Exceptions occur when leaks from participants in the internal debates within the IDF or the MoD are published and lead to wider discussion and analysis. However, any system of review that relies on sporadic leaks from the press to provide external review and public debate cannot be considered reliable.

Failures of accountability

Public debate may be limited before major procurement decisions are made, but a number of controversial decisions have led to debate after the fact and to scrutiny of the MoD's and the IDF's dealings with the defence industry. These cases have involved many sectors of Israeli society and provoked a re-examination of the way FMF funds from the USA and local budget allocations are being spent.

Three specific cases provide important examples of the failures in the procurement system: the Lavi aircraft, the 120-mm tank gun (which was to be mounted on the Merkava tank) and the Dotan Affair. These cases, in different ways, illustrate the roles and limitations of the MoD, the IDF and the defence industry. Public awareness has increased as a result of these much publicized debates, leading to greater scrutiny of new projects such as the Arrow.

The Lavi project

In the mid-1970s, production of combat aircraft became the core of IAI's activities. The number of employees grew to over 20 000, making IAI the largest industrial firm in Israel. During this period, IAI produced over 100 Kfir aircraft, based on the French Mirage V and powered by an engine of US manufacture. The technology was outdated and the Kfir never became the front-line combat aircraft of the IAF. When production of the Kfir ended, IAI needed to develop a follow-on project to preserve and expand its military aircraft production facilities and workforce. The initial design, known as the Arye, gained the support of Minister of Defense Peres (one of the founders of IAI) in the mid-1970s. In the early 1980s, the two-engine aircraft was replaced by a project to develop a lighter, less expensive single-engine system known as the Lavi.

The General Staff of the IDF was not enthusiastic about the development and production of an Israeli aircraft and favoured continued purchase of platforms from the USA, which was considered to be a reliable supplier. Israeli firms were seen as better suited to the development and production of electronics, avionics, fire control and weapon systems to be used by the platform. However, with the support of the Minister of Defense, Ezer Weizman (who had also served as the head of the IAF), and other key figures in the Government and

MoD, the proposal for the Lavi was approved by the Ministerial Committee on Defense and the Subcommittee on Procurement and IDF Readiness.

As noted above, most of the R&D costs were funded by earmarked US military assistance, and the project continued until August 1987. At that time, after the first test model had flown, the Israeli Government was faced with the decision to budget for procurement, and it became apparent that the costs were beyond Israel's resources. In addition the F-16 in particular was a better option in terms of costs and benefits.

At the same time, the State Comptroller issued an unprecedented public report that was highly critical of decision making in the case of the Lavi project. The report concluded that the MoD analysis did not take into account key variables, known at the time, which pointed to higher cost estimates, and stated that the price of the F-16 was exaggerated and that no efforts had been made to determine whether it might be obtained at a lower cost if a larger quantity were ordered. According to the State Comptroller: 'In almost every phase of the project, the absence of proper financial indicators was a key antecedent to a departure from original targets. Manipulated reports were presented to decision makers, and as a result only in 1985 was it brought to their attention that there was a deviation of 100 per cent from initial project costs. In hindsight it was revealed that the cost of the Lavi was $2 billion more than the F-16'.[78]

The State Comptroller also stressed the exclusion of other government bodies from decision making in regard to the Lavi project and the manipulative skills of the MoD. The MoD had created a Special Project Office to manage the Lavi programme, and this office acted as a powerful interest group in promoting the project. Its officials maintained control over information and decision making, and external actors, including those from the IDF and the MoD, were largely excluded. The Ministry of Finance was unable to assess the project independently or to challenge the MoD's monopoly of data as it lacked analysts specializing in defence issues. The Lavi was also designated a 'national project', which was justified in terms of expected benefits to national scientific and technological infrastructure and the creation of jobs in the high-technology sector. These expected benefits were never quantified, but the designation of a national project served as an additional barrier to detailed economic analysis by independent evaluators.

Given the direct links between the MoD and the large state-owned defence companies, these firms have access to information not available to their competitors or to other actors and government institutions. IAI's feasibility study, prepared in March 1980, had claimed that the Lavi would be up to 70 per cent cheaper than the F-16. The State Comptroller found that IAI had intentionally excluded factors such as delays in production and irregularities in the plane's weight. Most importantly, no independent analysis of these data was sought.[79]

[78] Klieman and Pedatzur (note 5), p. 2.
[79] Klieman and Pedatzur (note 5), p. 13.

In August 1987, after the cancellation of the Lavi, the Planning Division of the IDF presented a report to the Israeli Cabinet entitled 'Alternatives to the Lavi', which included a list of weapons deemed essential for the future. The IDF General Staff emphasized the need to channel funds formally allocated to the Lavi to alternative projects which were deemed vital to Israel's security. Although the Cabinet approved this proposal, it took no steps to monitor the implementation of these projects. In fact, the IDF redirected these special funds to the standard operations of the army. MK Eliahu Ben-Elissar, Chairman of the Knesset's Foreign Affairs and Security Committee, charged that the MoD misled the public by failing to implement the 'Lavi replacement' package. However, no investigation was sought by the Cabinet or by the Knesset.[80]

Pedatzur argues that the ongoing Arrow-2 ATBM project provides another example of the lack of checks and balances.[81] The development process is managed behind a tight screen of secrecy and is not subject to review. As in the case of the Lavi, the Arrow-2 programme is managed by a specially created SPO in the MoD, which provides a great deal of independence and control over decision making. A number of questions have been raised as to the effectiveness of the Arrow against incoming ballistic missiles, its efficiency against jamming and deception measures, and its costs.

Although there are many indicators of the IAF's lack of enthusiasm for this project, it has not been subject to external review.[82] Approximately 80 per cent of the R&D funding is provided by the USA and, as indicated above, FMF-funded projects are generally not subject to detailed examination within the Israeli defence establishment. However, public and parliamentary debate has grown since the Lavi case, as has the extent of discussion of this project in the press.

The 120-mm tank gun

In 1984, the Minister of Defense decided to proceed with production of a 120-mm cannon to be incorporated with the Merkava III with plans for its eventual export. IMI (now Ta'as) was the prime contractor. By 1990, the R&D costs had doubled from an initial estimate of $10.8 million in 1982–85 to $21.1 million.[83] The cost overruns caused the MoD to divert funds from higher-priority areas in an attempt to rescue the project. MoD funding doubled from 25 to 50 per cent of the total cost, while IMI investment fell to 50 per cent. (In the initial agreement IMI was to pay 82 per cent of the costs.)[84]

[80] Klieman and Pedatzur (note 5), pp. 95–96.

[81] Pedatzur, R., 'Evolving ballistic missile capabilities and theater missile defence: the Israeli predicament', *Security Studies*, vol. 3, no. 3 (spring 1994), pp. 521–71; Pedatzur, R., [The Arrow: possibility of a catastrophe], *Shishi*, 17 June 1994; and Pedatzur, R., [White elephant in the Minister of Defense's yard], *Ha'aretz*, 8 Jan. 1995.

[82] See note 80.

[83] [State Comptroller's report], no. 41 (Office of the State Comptroller: Jerusalem, 1991), p. 779–81.

[84] [State Comptroller's report], no. 41 (note 83).

In his report, the State Comptroller determined that the decision-making process was flawed from its inception and in many different ways.[85] The report charged that the IDF had failed to compare other options, that no independent analysis had been sought and that there was no assessment of IMI's ability to manage the project. The IDF unit directly in charge of overseeing the project had failed to follow MoD procurement regulations requiring a clear statement of operational specifications and formal contracts. Overall management responsibility was divided, contributing to the cost overruns.

Corruption: the 'Dotan Affair'

As noted above, the IAF plays a vital role in IDF strategic planning, and its commander has extraordinary autonomy in the arms procurement decision-making process. In the 1970s and 1980s, 70 per cent of the procurement budget was allocated to the IAF. Ezer Weizman has stated that 'the air force commander has tremendous authority. Once he has defined his needs for himself, he need only interpret them for the weapons developers'.[86] The IAF acts as the sole authority in assessing the cost and efficiency of various weapon systems and, in most cases, its evaluation is largely unchallenged by other professional bodies.[87] In addition, IAF decisions have a major impact on the various defence companies, particularly IAI.

Unregulated arms procurement decision making by the military as a whole, and the air force in particular, led to serious financial misappropriations in the mid-1980s. In addition, US FMF grant assistance, a large portion of which is used for IAF procurement, led to the creation of conditions in which IAF officers had direct access to large sums, with little external oversight. The growing role of Israeli firms as subcontractors to US defence firms in providing weapon systems to Israel under FMF grant assistance increased the problems of oversight and control.[88]

As a result, although the MoD signed contracts with US firms, it often had little means of evaluating the options or implementation. The MoD did not have the resources to exercise oversight over the US firms providing weapons through FMF assistance, and its ability to monitor the Israeli subcontractors was also limited.

In October 1990 Brigadier-General Rami Dotan, IAF Chief of Equipment and Acquisitions, was arrested and in 1991 he was convicted of accepting over $10 million in bribes in connection with air force procurement. In his sentencing statement, the judge described the improprieties committed by Dotan as 'having no precedent in their severity and magnitude in IDF history'.[89]

[85] [State Comptroller's report], no. 41 (note 83), p. 779–90.
[86] Klieman and Pedatzur (note 5), p. 114–17.
[87] [State Comptroller's report], no. 37 (note 71).
[88] Ben, A., [Fooling the Americans], *Ha'aretz*, 27 Mar. 1991.
[89] Harel, Z., [Dotan sentenced to a 13-year prison term and 5 years of probation], *Ha'aretz*, 28 Mar. 1991, p. 5a.

The MoD created a special committee (the Flomin Committee) to investigate the affair and to recommend measures to prevent similar abuses. The committee recommended the formation of a civilian professional assistance unit to advise the MoD in economic and technical matters. Its report stressed the need for cooperation between the IDF and MoD in procurement decision making, recommended the establishment of professional criteria for the evaluation of candidates for positions involving significant procurement roles, and proposed that a civilian police unit be incorporated into the military police for the sole purpose of investigating fraud in the IDF.[90]

In 1993 the State Comptroller reviewed the implementation of the recommendations of the Flomin Committee. It was found that almost a year and a half after the Flomin report was completed, the IDF had not implemented many of its fundamental recommendations.[91]

Although press coverage and the report of the State Comptroller did put some pressure on the military establishment to open arms procurement to greater external scrutiny, this pressure decreased over time, although additional cases continue to appear. In late 1996 another case of suspected corruption in military procurement surfaced, this time involving the purchase of Panther helicopters for the Israeli Navy. As in the Dotan case, this case was uncovered by US investigators looking into allegations of impropriety by senior personnel of the Eurocopter Corporation, the manufacturer of the Panther helicopter.[92]

VIII. Analysis and recommendations

The political, military, technological and economic changes since the late 1980s have affected the nature of arms procurement and the parameters of decision-making processes in Israel. However, the institutional checks and balances with respect to the defence industrial sector are relatively weak. Although the Subcommittee on Procurement and IDF Readiness of the Knesset's Foreign Affairs and Security Committee has examined many of the issues and there have been some analyses by academics,[93] no large-scale and detailed reorganization proposals have been presented. This reflects the structural and institutional limitations on policy reform in Israel,[94] particularly in the defence industrial sector.

The need for professional analysis

According to normative theory, policy reform in any sector should be based on the rational actor model of decision making. This approach is well known and

[90] [State Comptroller's report], no. 44 (note 47), pp. 992–93.
[91] [State Comptroller's report], no. 44 (note 47), p. 990.
[92] Barzilai, A., [Tat Aluf Eyal will be investigated with a lie detector in the case of the additional costs in the purchase of Panther helicopters for the navy], *Ha'aretz*, 27 Jan. 1997, p. 14a.
[93] Klieman and Pedatzur (note 5).
[94] See, e.g., Steinberg, G. and Bick, E., *Resisting Reform* (University Press of America: Lanham, Md., 1994).

can be viewed as the 'ideal type' of model.[95] In the area of military procurement, this model is based on threat assessment, alternative war scenarios, resource availability, prioritization, national economic development and the options for procurement policies to match these scenarios.

Normatively, professional analysts would play a major role in decision making. The structure of decision making would be designed to maximize efficiency, prevent waste and take account of the major global and regional political changes. These changes include the end of the cold war, the demise of the Soviet Union and the Arab–Israeli negotiations and agreements. The impact of precision-guided weapons and other technological changes and the rapidly increasing costs of such technology would also be factored into this analysis.

The IDF has made significant changes in personnel structures and reduced the size of the military, while increasing the emphasis on the professionalism of the standing army,[96] but there has been no similar coordinated effort to restructure arms procurement decision-making or the defence industry. As far as is known, there have been no detailed studies of possible mergers or reorganizations of the state-owned defence firms. Changes have been minimal, largely ad hoc and reactive. According to Emanuel Wald, who served as a staff officer in the IDF and wrote a very critical analysis of the Israeli military, 'the General Staff has for years carried on "preparatory meetings", during which sporadic and contradictory ad hoc decisions on weapons procurement and development are made. Meanwhile, the overall view and integrative, multi-year planning of force construction are neglected to the point where they do not exist at all . . . for over eight years, the IDF has had no written, comprehensive, and approved multi-year plan'.[97]

Although the IDF's multi-year planning process had an impact (pressure having been applied by the State Comptroller), much of the criticism is still valid. External analysts, independent of the government bureaucracies, are still exceedingly rare. The universities, which can and should play a central role in training independent professional analysts, have failed to develop public policy programmes and train analysts in general or in security policy making. Professor Yechezkel Dror of the Hebrew University, a leading academic who has served as a policy analyst and consultant for the Israeli Government, has advocated the creation of special programmes and institutions for professional policy makers.[98] As of late 1996, his proposals had not been implemented. A number of universities offer MA programmes in public policy and public administration whose graduates may in future improve the quality of decision making and external analysis in many areas, including defence procurement. Academic research groups such as the Begin–Sadat (BESA) Center for Strategic Studies and the Jaffee Center employ strategic analysts and they may also

[95] Dror, Y., *Public Policymaking Reexamined* (Chandler: San Francisco, Calif., 1968), p. 130.
[96] Cohen (note 76), p. 237.
[97] Wald, E., *The Wald Report: The Decline of Israeli National Security since 1967* (Westview Press: Boulder, Colo., 1992) [English translation of Hebrew original].
[98] Dror, Y., *Livnot Medina* (Akadamon: Jerusalem, 1989).

focus on arms procurement decisions in the future.[99] At the same time, without information and cooperation from the military and defence establishment (including the MoD), it will be difficult for external institutions to provide a detailed examination of arms procurement decision making.

The small number and limited nature of independent and professional bodies to evaluate critical procurement decisions impedes informed discussion. The defence establishment and the military censor control the flow of information in the arms procurement decision-making process and, even though the role of the censor is decreasing and there are occasional leaks, systematic analysis is limited. Various proposals for the establishment of external bodies to provide independent sources of information and analysis in areas of national security have been made. MK Begin drafted legislation to establish a National Security Council and, although this legislation was voted into law (as part of the Basic Law) and some efforts were made in this direction by the late Prime Minister Rabin in 1992, no council was ever set up. Such a council would provide checks and balances, but political resistance to independent bodies and to the loss of power they would cause among interest groups is still strong.

Attempts at reform

As a result of the inefficiency of and growing cost overruns in the development and production of new weapon systems within the IDF,[100] the MoD created the Sadan Committee in 1993 (named after a former Economic Adviser to the Minister of Defense.) A number of weapon systems, most notably the Merkava MBT and numerous sub-systems, are manufactured or assembled within the military. In a report entitled 'Make or Buy', this committee recommended transferring responsibility for weapon development from the military to the private sector and the setting of strict economic criteria for decisions on domestic weapon production.[101] While it is too early to assess the impact of this report on arms procurement, there is evidence that the recommendations are being implemented.

However, this study is an exception. No full-scale study of the procurement infrastructure has been conducted. This would require the personal involvement and initiative of the Minister of Defense. After the 1992 elections, then Prime Minister Rabin attempted to initiate sweeping reforms of the defence industrial sector. Like many other policies in this area, this decision was not taken on the

[99] The Begin–Sadat (BESA) Center for Strategic Studies and the Center for Defense Economics and Peace at Bar-Ilan University have sponsored a series of workshops and conferences on the Israeli defence industries and co-sponsored the Israeli contribution to the SIPRI study on defence procurement, including the research for this study.

[100] In the past decade, defence projects are estimated to have deviated by 70% from initial projections in terms of budget and 80% in terms of duration.

[101] Israel, Ministry of Defense, [Economic Adviser's report: make or buy?] (MoD: Tel Aviv, 1994). Note that this report did not consider the question whether to produce weapons domestically or to increase procurement from abroad and was confined to examining the internal production functions of the military services.

basis of detailed analysis or clear programmes. The general direction was towards privatization of some activities and further consolidation.

The numerous transfers of responsibility that took place in 1995 and 1996 and the lack of impact on the structure of the defence industry illustrate the difficulties the Israeli Government has faced in dealing with the problems in this sector. In December 1995, shortly after Rabin's assassination, the successor government under Shimon Peres created a new cabinet Ministry of Internal Security. In addition to responsibility for the police and civil defence, the Minister, Moshe Shahal, for whom this position was created, was given control over the defence industry. This decision was based on internal political factors (and reports that Shahal had demanded the addition of this sector to his portfolio to balance other cabinet shifts which had reduced the budget and number of high-level appointments in other areas). However, there was no impact on policies. Following the elections in May 1996, the new government under Benjamin Netanyahu transferred the responsibility for this sector to the newly created Ministry for Infrastructure, headed by Ariel Sharon. As of June 1997, this organizational shift had not resulted in changes in policies or structures with respect to the defence industry. The Government and individual ministers and ministries have been preoccupied with other issues and have also seen the reorganization of the defence industrial sector as politically costly. Changes such as privatization and the accompanying reductions in the workforce would be resisted by the employees.[102]

If the MoD does not do so, it is possible that the Knesset Subcommittee on Procurement and IDF Readiness could take the initiative. However, since it has limited staff resources it cannot be expected to support a broad analysis of the procurement infrastructure or to make detailed recommendations.

Transparency and accountability

Both public discussion and the quality and efficiency of decision making with respect to large-scale procurement decisions would be improved by the preparation and publication of defence White Papers or similar studies examining and comparing options and consequences. The decision-making process for procurement of combat aircraft since the start of the Lavi project in 1979 would have benefited from such external and professional analysis of options and comparative costs and benefits. That would, however, require some relaxation of the secrecy which surrounds defence-related decision making.

It is assumed here that, as in other countries, useful analyses and comparisons can be made without access to classified details of weapon systems or specific missions and deployments. The challenge for the Israeli Government and the military is to provide greater access to data without endangering national security.

[102] The obstacles to reform and organizational change are discussed in *The Israeli Defense Industry* (note 54), pp. 15–29.

Israel is a democratic state and its institutions, including the military and the MoD, are accountable to the public. As noted above, the State Comptroller and Knesset Committee on Foreign Affairs and Security exercise this oversight function. However, while the defence establishment in general is becoming increasingly open and public discussion and debate are growing, the closed nature of its arms procurement decision making and the small number of participants have contributed to several failures. The level of secrecy continues to limit discussion and open, public debate involving the decision makers themselves is still quite rare. For example, the future of the Arrow ATBM system and very costly military space projects are the subjects of some journalistic analyses, but there are no White Papers or public hearings.

Some actors and analysts argue that the nature of Israeli society itself constitutes a significant check on the military. A high proportion of men (estimated at 70–80 per cent) serve as conscripts, and many continue as professionals; the rest serve in reserve units for many years, participating in annual training exercises and related operations. A large percentage of eligible women are also called for compulsory military service at the age of 18. This gives them first-hand knowledge of major defence issues, allowing them to make judgements based on their personal experience and not necessarily consistent with the policies of the military establishment on procurement and related issues.

It would be misleading to claim that there is a great public demand for more openness or accountability in this area. The Israeli political system is already overloaded with complex and critical issues, including the risks and benefits of the peace process and of territorial withdrawal. Defence and national security questions are of major concern to the public, receive extensive coverage and are widely debated. Specific procurement issues are occasionally included in these debates, as in the case of the Lavi and Arrow projects, but the general tendency to support the IDF leadership and leave ultimate responsibility in the hands of the Chief of Staff and the Minister of Defense remains very strong.

For the general public, as well as the decision-making élite, the dominant perception of Israel is still that of a small country under siege. Initiatives to develop greater openness in the wider Middle East region could be one way of fostering confidence and modifying this perception. However, without reciprocity from the other countries in the region, a change in policy is unlikely.

Although the IDF is still largely independent, the prestige of the military has declined somewhat since the 1973 Yom Kippur and 1982 Lebanon wars. This and the reduction in threats to national survival resulting from the peace process have meant that the extent of confidentiality and the independence of the IDF have decreased. The tendency to ignore the existence of vested interests in the military and in the defence industry has declined, and it is increasingly difficult for these institutions to use confidentiality as protection from public scrutiny and accountability. As noted above, the State Comptroller has become increasingly critical. As external examination of decision making becomes more accepted, the demands for accountability in arms procurement will also grow.

However, decision making in the IDF and the MoD is highly centralized, particularly with respect to procurement of major weapon systems. Decision-making structures are usually based on small homogeneous groups. Broader involvement is not likely to be readily accepted. The obstacles to the implementation of rational decision-making processes and to decreasing the role of interest groups and external factors are most prominent with respect to the Israeli defence industry. Policy making in this sector continues to be ad hoc, generally in response to specific financial crises in the individual organizations.

IX. Conclusions

The framework developed for this SIPRI study includes the hypothesis 'that national arms procurement processes can become more responsive to the broader objectives of security and accountability'.[103] In the case of Israel, it is clear that deterrence and defence are the major objectives of national security policy and arms procurement decision making. At the same time, the broader objectives of security, including economic aspects, are increasingly important in defence decision making. Foreign policy factors continue to play a part, particularly relations with the USA. However, there are inefficiencies and distortions related to the power of various organizations and interest groups in the state-owned defence firms. The maintenance of the current structure has become an end in itself, rather than a means to achieve the objectives of national security. By reducing the impact and power of these interests, the arms procurement decision-making process can become more efficient and responsive.

With respect to accountability, the balance between the level of confidentiality necessary to meet national security requirements and the openness that increases public accountability is exceedingly delicate. Some officials continue to view a very high level of confidentiality as essential to national security and even survival. They see public accountability as a distant objective and a 'luxury' that only other states that do not face threats to their survival can afford. Although there is some change in the balance, as noted above, it is unrealistic to expect a fundamental change in the Israeli calculus on this issue for many years.

[103] Singh, R., 'Introduction to project participants', SIPRI Arms Procurement Decision Making Project (1994).