JERUSALEM LETTER / VIEWPOINTS

Jerusalem Center for Public Affairs

VP:63 29 Tammuz 5747 / 26 July 1987

THE LAVI AND THE FUTURE OF THE ISRAELI DEFENSE INDUSTRY

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Whatever decision is made on the Lavi does not really concern what type of aircraft the Israel Air Force is going to have to replace its Skyhawks and Kfirs ten years from now. The basic question is really, "What is going to be the future of the Israeli defense industry and how is that going to fit into the broader Israeli economy?"

The Establishment of Israel Aircraft Industries

The establishment of Israel Aircraft Industries (IAI) in the early 1950s was really the basis for Israel's sophisticated defense industry. IAI began in 1953 with about 170 employees. By 1964 it had grown to 4,000 and to 13,000 by 1970. In 1980 IAI had 22,000 employees, which made it the largest single firm in Israel. The process by which these people were added exemplifies the classic process of development for a high-tech and defense-oriented firm. IAI started by refurbishing aircraft engines and then later, in cooperation with the French, was involved in licensed production, first of the Fouga Trainer and then the Mirage, even beginning to produce some of the parts. In the late 1960s it began to develop missiles like the Gabriel.

Up to 1969, most of the emphasis was on taking French technology and assembling its products in Israel. After the French left, IAI's future direction had to be reassessed. The question was

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21 Arlozorov St. Jerusalem, 92181, Israel; Tel. 02-639281. ISSN: 0334-4096

the same as that which faces Israel today, whether or not to close down certain production lines or to look for new projects and continue to expand. This was at a time when there were already over 10,000 employees at IAI.

The Debate Begins with the Arava

A temporary solution was reached when IAI was able to obtain government financial support for building its own aircraft. The government, pressed by the IAI, decided that instead of laying off thousands of employees and scaling down, the company would continue to expand by developing an indigenous aircraft industry. IAI's first two planes were the Arava and the Westwind. The Arava was a small military transport plane that did not interest the Israel Air Force.

When the decision was made to build the Arava, there were no customers in line and it was not a great financial success. It became a make-work project, rationalized in terms of preventing IAI's high-tech engineers from leaving the country. IAI also talked about the importance of the project in terms of helping to build up Israel's technological infrastructure. Today we are hearing the same sorts of arguments in favor of the Lavi.

The Westwind

At approximately the same time, IAI bought the rights for the Westwind executive jet, which was originally the Commodore designed by North American Rockwell, and produced it as well as a second version called the Astra. That was strictly a commercial plane, designed to give IAI experience in producing and marketing full-scale aircraft. It was more successful than the Arava and from the number of aircraft sold it appears that the Westwind at least broke even.

Foreign-Made Platforms vs. Indigenous Production

It was then that the major argument first arose between the foreign-made platform advocates and the indigenous production advocates within the military and the government. The platform advocates believed in buying the basic machines wherever they could be obtained. They did not want to be bothered with having to build large weapons platforms in Israel. They wanted to buy an airplane with an engine from the United States and put in Israeli-designed electronics or optics or computers.

This group is identified with Defense Minister Yitzhak Rabin, especially during the period when he was Chief of Staff, and their philosophy represents the hard-core military attitude toward indigenous production. They would rather go out and buy platforms off the shelf from someone else who is responsible for the warranties. If there is a design problem with the F-16, they argue, then it is up to the manufacturer in the United States to deal with it. If it becomes outdated, the manufacturer is going to be responsible for redesigning it. Since the United States is going to continue to develop its own F-16s for the next generation, it will not be a problem for the Israeli military to worry about. Someone else will be developing it. All we have to worry about is whether they are going to sell it to us or, if we cannot afford it, whether they are going to give us loans to purchase it.

Basically, this is the internal view of the IDF, including the present Chief of Staff, Dan Shomron, and, to a large extent, the Defense Ministry, with the exception of Shimon Peres and the military industry proponents. They are not interested in using IDF money to expand the military industry sector or to absorb products which cannot be sold on the export market.

Is defense production primarily a military issue or an economic one? If it is primarily a military issue, then the IDF is not interested in buying weapons it did not ask for and has no interest in the expansion of an industry which must sell abroad to make ends meet. It could live with an industry with a much smaller infrastructure and which built only under army specifications to meet army requirements. This would mean reducing the

present size of the defense industry by at least 50 percent. Then it would pay for itself internally.

Those in the military industries, and also some individuals within the government, argue for indigenous production in light of the repeated difficulties Israel has faced since 1948 in obtaining weapons from abroad. During the War of Independence, the United States and most of the Western European countries embargoed arms sales to Israel. The French imposed a partial embargo in 1967 and a full one in 1969. The United States sells weapons now, but it may cut them off tomorrow. If the United States does not like the fact that Israel annexed the Golan Heights or bombed the Iraqi nuclear reactor, they could and have imposed delays or embargoes on the delivery of certain weapons. Shimon Peres represents the school of thought that says Israel should have an indigenous capability for developing the weapons it needs and it should continue to expand that capacity as far as its technology will take it. This clash between the indigenous development advocates and the platform advocates has been going on for decades.

The Kfir

After the French embargo, the decision was made to build a combat aircraft -- the Kfir -- to be used by the air force along with Skyhawks for ground support missions. Basically, the Kfir was a Mirage 5 with an American General Electric J-79 engine. The research and development costs to Israel were very small, an estimated $250 million, and the cost of each plane was around $5 million. There is a whole story connected with the smuggling of its designs from Switzerland and there is a question about whether this was really necessary because the Israelis were very much involved with the French in the design of the Mirage 5. It was quite clever to take the American engine and put it into the Mirage. It involved changing a lot of the technology to accommodate the extra heat and weight that was added to the system, but it was a successful effort.

There was a lot of talk at the time about selling the Kfir abroad. To the best of this writer's knowledge, 52 Kfirs were sold, most of them to Ecuador. As a result of pressure from AIPAC and Congress and the IAI representative in Washington, the U.S. Marines leased without cost two squadrons of Kfirs that were sitting in IAI warehouses unsold, for use in training exercises to simulate enemy planes. The profit came from the contract for maintaining them and now there is a Congressional investigation to see whether those profits are justified.

The Birth of the Lavi

When the production of the Kfir was completed by 1972-73, the same problem arose that existed back in the late 1960s with the Arava. What was IAI to do next? This is where the story of the Lavi begins. The IAI proposed to make an improved Kfir, called the Aryeh, a relatively low-weight, low-cost ground support aircraft. But the air force said it was not interested since it would be outdated when compared with the American F-16 and the Soviet Mig-25 and 29. Then-Defense Minister Ezer Weizman approved a study of what could be done after the Kfir as a follow-up to it.

At that stage the Lavi was proposed, a faster, much more sophisticated aircraft with extremely advanced technology, utilizing advanced materials and electronics, and, of course, much more expensive than the Aryeh. The research and development costs were estimated at somewhere around $500-700 million. The government never met to consider whether or not to proceed with the Lavi. Research was begun by agreement between the Minister of Defense and the IAI to see what could be developed, how much it would cost, and who would be interested in it. It was initially supported by Weizman, strongly supported by Moshe Arens, a professor of aeronautical engineering before entering public life, who had been one of the primary managers of the Kfir project, by Prof. Yuval Neeman, Israel's chief scientific advisor in defense matters for many years before he entered active

politics, and by a few people in the air force.

Weizman later looked more closely at the project and, seeing the costs involved, became opposed to it and froze further activity. Then in 1980 Weizman resigned, Menachem Begin became Defense Minister as well as Prime Minister, and at that point the Lavi project was approved. At that time, research and development costs were projected to be somewhere around $700 million and the plane was expected to be ready sometime in the late 1980s.

What Will the Lavi Cost?

The Economic Advisor's office in the Defense Ministry did not really have a very accurate way to assess what the project would cost. One of the basic policy-making problems in Israel is that while IAI is a government-owned firm and the largest firm in the country, it does not provide information to the Ministry of Defense. It is a chronic problem to pry information out of IAI. No accounting was being done within the government and the project was continued without a firm idea of the investment required.

At first this was not a problem because it appeared that the United States was going to pay for the Lavi, whatever it cost. In 1983, the U.S. Congress approved the use of foreign military sales (FMS) funds to finance the Lavi. The discussion in Congress lasted about a week, with AIPAC playing a very important role in winning Congressional approval. The administration was firmly opposed to it. U.S. Defense Secretary Weinberger opposed the use of American funds for research on the Lavi in Israel or the United States. FMS funds were supposed to be used for purchasing weapons and equipment in the United States, although what was supposed to have been a one-time exception was made for research on the Merkava tank. As a result of Congressional action, since 1983, $350 million and later $550 million a year have been earmarked for the Lavi out of the total U.S. military aid package for Israel. Whatever money for the Lavi that did come from Israel did not come from the defense budget. So since they did not have to pay for it, the Defense Ministry did not have to decide at any level whether the Lavi was worth it.

Today the question of cost is paramount. Even the lowest estimate of the cost of production is $20 billion, which equals the Israeli GNP for one year, the equivalent of one national budget. The main cost comes in developing the assembly line for building the first 50-100 planes. When scheduled production starts in 1990, over $1 billion a year will be required. There is just no money to finance that within Israel, unless the American government continues its support for the project.

The Rapid Growth of Israel's Defense Industry

During this same period, beginning with the late 1960s, while the advocates of an indigenous defense industry were supporting its expansion, there was not only a growing aircraft industry but also the development of a series of very successful missiles -- the Gabriel, the Shafrir, the Python -- together with an expansion in computers and a whole series of very successful military industrial projects. It was argued that the defense industry is the leading edge of all Israeli industrial expansion and technology and that a strong defense industry is needed in any case to support the IDF. These arguments came together and resulted in tremendous investment in this sector.

In addition to the expansion of IAI, there was a tremendous expansion at Rafael, at Tadiran, at TAS-Israel Military Industries, at many new firms, all expanding in the same direction and heralding the future direction of Israeli industry and exports (see JL:95, "Israel's Arms Exports," by Efraim Inbar).

By the end of the 1970s, weapons had became a major Israeli export item, totalling approximately $1 billion a year. Today roughly 20 percent of all industrial and 50 percent of all metal and electronics exports are defense-related.

By the mid-1970s there were literally hundreds of firms that were associated with the Israeli defense industry or were

selling directly to the United States military as subcontractors. The number of people employed in this sector grew tremendously. Today between 75,000-100,000 people are associated directly with defense industries, although some of them work on the civilian aspects of those technologies.

The Lavi: The Only Game in Town

When a great deal of investment began to flow into the Lavi project, it became the pivot of the Israeli defense industry. A great many of the firms that grew up in the late 1960s and 1970s as subcontractors employing tens of thousands of people became subcontractors for the Lavi. In a sense the Lavi became the only game in town because it was not possible to support the expansion of other projects and the Lavi at the same time. A number of projects related to missile development, submarines, and other areas were curtailed because of the great emphasis placed on the Lavi.

Unfortunately, weapons systems are very short-lived and have to be continually developed and upgraded. The Gabriel anti-ship missile was very successful for a very short period until the first French-made Exocet missile knocked out the Sheffield in the Falklands. No one bought a Gabriel after that, even though it is argued that technically the Gabriel Mark III is still superior to the Exocet. Even after 200-300 Lavis are built, it will encounter the same problem of what to do next that had to be faced after the Arava and the Kfir, only the problem will be bigger because another generation of a few thousand engineers has been added with a different type of training.

Export Problems Begin

The markets for Israeli military products are very unstable and shift on a yearly basis. A stable export program cannot be based on sales to Iran or South Africa, to Somoza in Nicaragua or on sales to Zaire, or sales supported indirectly by the U.S. to the Contras or to African states, or to Argentina or other countries that cannot afford to pay for the weapons that are sold to them. So in fact the expansion in exports was short-lived.

There was an effort made to absorb the decline in exports by going to the United States and becoming part of the U.S. system, but as long as the Lavi project was the focus, the American military-industrial complex did not appreciate Israeli competition. Even though from our perspective it may seem like a small matter, every time an Israeli firm won a contract there was tremendous pressure from the Congressman in whose district was located the contractor who lost the bid to find out how the Israelis won.

In one classic case, Soltam had won a Defense Department competitive bid to sell mortars to the U.S. Army for over $100 million. Congress asked for an investigation and eventually an American supplier got the contract. There is a perception in Congress and in the American defense industry that American money is going to support Israeli firms which are then coming back to the United States and competing.

A second classic case which generated problems for Israel involved the F-20. The F-20 was designed and developed by Northrop with the expectation that it would be the replacement for the F-5. It was to be purchased by American allies and other countries who could not afford or to whom the United States would not sell the F-15 and F-16. According to Northrop, if Israel had bought the F-20, then Taiwan, South Korea, the Philippines, Ecuador, and everybody else would have done the same. But Israel went ahead and built the Lavi, nobody bought the F-20, and Moshe Arens and other Israelis were going around saying that we were going to export the Lavi. So Northrop and its friends had the perception that the Lavi was competing, financed by American money.

When Congress approved FMS money for the Lavi in 1983, it was not done on the basis of any kind of detailed analysis. The cost of the Lavi, the type of technology involved, and whether there was a

U.S. interest in the Lavi were not considered. It was all part of aid to Israel, supported basically by AIPAC and the Israeli lobby, and there was no opposition to it. Then the U.S. administration and the American aircraft manufacturers began to realize what was happening and sought a way out. They became even more concerned after reading Arens' statement on page one of the Wall Street Journal that the Lavi was going to be such a good plane that the Americans were going to buy it.

In fact, there is very little likelihood of anyone buying the Lavi or of the Americans giving permission for anyone to do so. None of the poorer nations can afford to buy it and the Americans and European nations will never buy a major weapons system from Israel. Even if it proves itself in another war, the Americans still have to give permission.

The Zackheim Study

When the U.S. Defense Department sent Dov Zackheim to Israel to look into the cost of the Lavi, he found that no detailed systems analysis had ever been done, that there was no assessment of the hourly cost of the engineers who were working at IAI, for instance. Zackheim came up with the first serious estimates on how much it would cost to produce the Lavi. It was only in response to Zackheim that IAI began to develop internal accounting of the research and development costs for the aircraft and at that point IAI came in and said that Zackheim's numbers were wrong.

The research and development costs for the Lavi are now estimated to be between $1.8 and 2 billion. This became clear only about a year ago when Zackheim issued his initial report. Supporters of Zackheim who argue that his numbers may not be correct will say in his defense that at least he was able to coax numbers out of the IAI that even the Defense Ministry had not been able to get out of them for some sort of basis for assessing the cost. Zackheim claimed that because he had no other better system, he based his assessments on what it would cost to develop the Lavi in the United States. A lot of the argument over whether Zackheim's numbers are valid or not revolves around whether this assumption is valid. If the basic cost per man hour of research and development in Israel is significantly less than the United States, then the Lavi will cost less than an equivalent American project. Whatever the cost, it is certainly more than the initially estimated $700 million and even more than the $1.2 billion estimated in 1985.

For the first time within Israel it had become clear to the Economic Advisor in the Defense Ministry and others that the Israeli budget could not continue to support the Lavi project. It also was clear that the United States would not support production and questionable as to whether it would continue to support research and development. As part of the political pressure to maintain the project, IAI began to rush preparations to get the first aircraft off the ground by the end of 1986 and stage a flyover on Independence Day, 1987.

In the meantime, the General Accounting Office issued a report which had numbers in between those of the IAI and Zackheim's. However all of the reports said the same thing, that no one really knew how much it was going to cost; that whatever it cost, it was very expensive; and that whatever that expense was, Israel could not support it on its own and the United States was not going to continue to pay for it. Therefore, the more time it took to reach a final decision, the more expensive the results of that decision were going to be.

The Question of Israeli Independence

The primary argument in favor of the Lavi continues to be independence. But now we see that the engine and the wings will come from the United States. Even if the Lavi were all made locally, it is only one type of aircraft and Israel will still need F-15s from America and whatever comes after F-15s, as well as tanks

and everything else. The Lavi is not going to solve the independence problem.

While it is true that nothing is assured, let us look at the record. The United States has supplied top of the line aircraft to Israel since Golda Meir obtained the first Phantoms. Since 1967, Congress has supported America's arms sales to Israel. Very rarely, with the exception of dual use nuclear capable missiles, has the United States refused to sell weapons to Israel in the last few years, to the best of this writer's knowledge. So there is no reason to suspect that the United States would not continue to do so. In fact, the United States military is very interested in continuing to supply Israel with advanced weapons. The U.S. does not use its planes in combat very often and the American military was very excited after the bombing of the Iraqi reactor because it was the first combat use of the F-15. They had invested billions of dollars in it and the first ones to use it were the Israelis. After every war they send over hundreds of people to learn how American weaponry performed and that is what Israel trades them. In 1982 there was a big fight because the Americans had embargoed the sale of the next shipment of aircraft for a while and Sharon at that time said he was not going to tell them how we knocked out the Syrian Soviet SAMs until they lifted the embargo, so there is some leverage on the Israeli side.

Defending the Lavi

A second argument in favor of the Lavi is that it will contain technology which will be a surprise for Syria or whatever Arab military force confronts Israel. The argument of military superiority was one that Zackheim to some degree acknowledged, that at least until the advanced tactical fighter comes out, the Lavi will likely have some significant advantages over the F-16 for Israeli tactics. On the other hand, as soon as the next generation of either Soviet or American aircraft comes out, the Lavi is going to be obsolete, so the superiority aspect may be short-lived.

A third argument for the Lavi concerns its spillover advantages for the economy. That argument was questionable but possible during the period of the Kfir. When a country invests in a middle level technology, begins to use computers, begins to use advanced managerial techniques for high-tech quality control, develops optical fibre systems and composite materials for the first time, those are all things that can be filtered into the economy. But what is happening now in both Israel and the United States is that when you go to the next level of highly advanced military technology, there is very little if any civilian use possible. In the United States there is no civilian use for a tiny radiation-hardened computer to guide a missile, especially if it costs $100 million. At the very advanced level of military technology, technology is extremely specific and is useful only for military purposes. It has gone beyond any kind of civilian spillover or trickle down. Indeed, the contrary is true. When a country begins to focus on these very highly specialized technologies and then they finish the Lavi and go on to something else, the engineers are trained in something which may have no civilian application and they will have to be retrained.

The Alternatives

For Israel today there are basically three possibilities: 1) Buy the F-16, perhaps for assembly in Israel, at a cost that is lower than the Lavi and which the Americans will support at relatively favorable credit terms. 2) Push for the Lavi with continued U.S. funding. This might have been possible politically before Pollard, but clearly it is not going to be supported by Weinberger, not in the atmosphere of Irangate and Pollard. 3) A third and interesting alternative is to produce an aircraft jointly with an American firm -- an F-Lavi. At one time, co-production with Grumman was proposed. It would match

Israeli specifications, have a lot of the research and development paid for by the American firm, be called something else, and be marketable then as an American aircraft. That may be the most interesting option, politically and economically, but it is dependent on a number of basic changes.

The Basic Changes Required

If Israel is to maintain a defense industry based on weapons exports of $1 billion a year, it cannot plan to compete with the major military powers on large scale systems. It has to become part of the American or the NATO military contracting systems. That means accepting the status of a subcontractor. IAI, Rafael and the other firms would no longer maintain complete independence and freedom of choice. Today they are free to choose whichever projects they find important as long as they can get money for them from the Israeli government. To get the cooperation of American firms in marketing, in research and development, and in defining projects, Israel has to provide its technology and know-how on a long term basis, to develop special types of relationships with American firms, and to go jointly rather than competitively in bidding for American contracts. Teaming up with American firms is not only the prescription for Israel, it is the direction in which European firms are now going.

By getting involved in a number of these subcontracting relationships, Israeli firms would reduce the risks involved in the failure of a single project. They would eliminate the political costs involved in competing against American firms, while at the same time maintaining the inflow of technology to enable them to remain up to date on whatever new systems are being developed. They would also maintain their export earnings on a more sound long-term basis. American firms would be interested in getting Israeli technology on a subcontract basis because it is cheaper and at least as good or better than that of many American subcontractors. In the last analysis, the best solution to the Lavi problem is to try to find an American partner for the use and joint development of that technology.

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