

Preface

The Israeli defense industry is one of the most prosperous industries in Israel. It originally emerged as a response to the country's immediate military needs and to cope with restrictions on arms procurement from abroad. Today, the Israeli defense industry manufactures advanced weapons systems for the Israel Defense Forces (IDF) and enjoys a high rating in the global arms market. According to the Stockholm International Peace Research Institute (SIPRI), Israel is in eighth place in the world in arms exports, and in first place in defense exports in relation to its size.

Despite the capabilities of the local defense industry, most of the IDF's military procurement is from the United States through US Foreign Military Financing (FMF). At the end of the previous American aid plan, which covered the years 2009-2018, defense aid amounted to \$3.1 billion annually, not including contributions to joint projects by the US Department of Defense. Since 1985, all American defense aid to Israel has been in the form of grants, due to Israel's economic difficulties. In addition, since the 1980s, Israel has been allowed to systematically convert part of the aid into shekels ("conversions") for the purpose of procurement from local industries. This money was used to fund the Lavi project and, since that project was shut down, to finance IDF procurement from local industries. For example, in the last five years of the previous aid program, 2013-2018, the amount converted was \$815 million a year (26.3 percent of the \$3.1 billion FMF total). The conversions were and remain a key source of income for the defense industries.

In September 2016, Israel signed a memorandum of understanding (MOU) with US President Barack Obama for an aid program for 2019-2028, starting in October 2018. The framework of the program was \$33 billion in FMF and \$5 billion more in financing for joint projects (mostly anti-missile defense programs) – a total of \$38 billion over 10 years. The new aid

program stipulates a gradual decrease in the conversion option, until its total elimination in 2028. A steep decrease in the proportion of conversions was set for the period after 2025, and this is likely to have serious consequences for the local defense industries.

In view of this situation, in the summer of 2018, Brigadier General (res.) Dr. Sasson Hadad, head of the INSS program for Economics and Security, assembled a research team on the subject of the defense industries and ways for Israel to deal with the expected decline in conversions. The team members were:

- INSS senior research fellow Colonel (res.) Dr. Shmuel Even, a consultant for corporations and government ministries,
- Dr. Tomer Fadlon, a researcher in the INSS economic program,
- Former Tel Aviv Stock Exchange managing director and chairman Saul Bronfeld, and
- Lior Mertens, who worked with the defense industries in Israel for several decades.

Other people who contributed to the team's work were economist and entrepreneur Prof. Moshe Gerstenhaber, Colonel (res.) Tzachi Segev, Rafael Advanced Defense Systems CFO David Vaish, INSS research assistant Liran Dostov. Representatives of the Ministry of Finance and the Ministry of Defense also joined the team.

The team held meetings with senior representatives from the IDF, the Ministry of Defense, the Ministry of Finance, the Bank of Israel, the Administration for the Development of Weapons and Technological Infrastructure (MAFAT), the defense industries in Israel, and academic researchers dealing with the subject. Meetings were held with former Minister of Defense and IDF Chief of Staff Lieutenant General (res.) Moshe (Bogie) Ya'alon, Major General (res.) Yaakov Amidror, former Governor of the Bank of Israel Dr. Karnit Flug, MAFAT head Brigadier General (res.) Dr. Danny Gold, former US Ambassador to Israel Daniel Shapiro, and others.* The team also held a seminar on March 31, 2019, with the participation of Ministry of Defense director general Major General (res.) Udi Adam, Israel

* Other people who made presentations and held discussions with the INSS team were Ministry of Defense chief economist Ze'ev Zilber, Prof. Asher Tishler, Dr. Yaacov Lifshitz, Brigadier General Guy Paglin, Colonel Gil Pinchas, Lieutenant Colonel Guy Elfassy, and Manufacturers Association of Israel President Shruga Brosh.

Aerospace Industries (IAI) president and CEO Major General (res.) Nimrod Sheffer, Elbit Systems president and CEO Bezahel (Butzi) Machlis, and Rafael Advanced Defense Systems CEO Major General (res.) Yoav Har-Even.** All of the participants emphasized Israel's strategic need to continue its development of independent weapons production capabilities. Vaish said at the seminar that the elimination of the conversions would have a greater effect on Rafael than on Elbit Systems and IAI, because the proportion of Rafael's sales to the Ministry of Defense was double that of the other two large companies.

This memorandum contains a diverse collection of views presented by the team. The first part includes two articles that provide a broad perspective of the defense industries in Israel and worldwide. In the first of these, Dr. Yaacov Lifshitz, a lecturer in defense economics and former economic consultant to the Ministry of Defense and Ministry of Finance director-general, outlines the role that Israel's defense industry can and should play in the coming years. According to him, the balance of the global defense industry's roles changed in the aftermath of the Cold War. Gaps have emerged in various areas between the capabilities required to optimally meet the revised strategic needs, while at the same time the industries' economic importance has waned. Lifshitz finds that the defense industry fulfills no important macroeconomic function at the present time. Therefore, he posits, the character of the defense industry that Israel needs should be molded by weighing the security threats it faces, on the one hand, and its potential contribution to reducing them, on the other.

In the next article, Prof. Asher Tishler and Colonel Gil Pinchas address the challenges facing the Israeli defense industry in the competitive context of the global defense market. Tishler and Pinchas note that the Israeli defense companies serve a very small defense establishment in comparison with

** In addition to this list, former National Security Council head Major General (res.) Yaakov Amidror, former chief Israeli negotiator Brigadier General (res.) Prof. Jacob Nagel, Ministry of Defense chief economist Ze'ev Zilber, Rafael Advanced Defense Systems CFO David Vaish, Ministry of Finance deputy budget director Eli Bing, former Ministry of Defense head of R&D Brigadier General (res.) Nir Halamish, Prof. Asher Tishler, MAFAT head Brigadier General (res.) Dr. Danny Gold, Dr. Yaacov Lifshitz, Colonel Gil Pinchas, and Lieutenant Colonel Guy Elfassy also made presentations at the seminar.

those of the United States, Russia, and Western Europe. The lion's share of their production is therefore designated for export. According to the authors' findings, private defense firms are more efficient and have better marketing capabilities than government-owned companies.

The second part of the collection presents the viewpoints of officials who conducted the negotiations that led to the MOU, signed in September 2016, that is being applied in the current American aid program (2019-2028). Brigadier General (res.) Prof. Jacob Nagel outlines the Israeli viewpoint. He describes the ups and downs in the dialogue between Israel and the United States during a tense period in their relations, especially in view of the dispute over the nuclear agreement with Iran supported by President Obama and the speech by Prime Minister Benjamin Netanyahu to the American Congress in March 2015. The two sides nevertheless signed the MOU for a further decade of aid, which reflects the US' longstanding commitment to Israel's security. Nagel deems the MOU an excellent agreement that (nominally) increases the amount of aid granted to Israel by the United States and facilitates long-term planning by the IDF. From the other side, US Ambassador to Israel Daniel Shapiro explains the American viewpoint. Shapiro, now a Distinguished Visiting Fellow at the Institute for National Security Studies, holds that the MOU achieved the core goals of both countries. It extended their defense cooperation by setting levels for American military aid over the coming decade, guaranteed Israel's ability to maintain a qualitative military edge, provided stable and predictable financing for joint anti-missile programs, and revised the aid program in the US in order to maximize its influence and effectiveness. Shapiro adds that the agreement took Israel's impressive growth and development into account. He emphasizes that as in any negotiations, there was a need to resolve differences of opinion and attempt to attain harmony on disputed points, but nevertheless the negotiations were conducted professionally and with mutual good will. The result was an agreement that serves the interests of both parties.

The third part of the collection deals with the new agreement's effect on the defense industries in Israel. Lieutenant Colonel Guy Elfassy, Dr. Ronny Manos, and Prof. Asher Tishler hold that the new agreement dramatically changes the conditions for receiving defense aid in comparison with the previous agreement. Their article has two main objectives: to present a database with information from the mapping of 603 defense companies

operating in Israel, and to develop a model for estimating the vulnerability (or resilience) of an Israeli defense company to the new MOU. The article compares the model's results to questionnaires sent to 50 senior executives at defense companies. According to the results, a defense company's resilience depends on its level of technology, the industrial sector in which it operates, its location in Israel, and its ability to cooperate with companies in the United States.

The sixth article in the collection addresses the budgetary challenge. Here, former Tel Aviv Stock Exchange managing director and chairman Saul Bronfeld notes the growing needs posed by the Iranian threat, on the one hand, and the anticipated gradual elimination of shekel resources from US aid money, on the other. Bronfeld cites three areas in which the defense budget's effectiveness can be enhanced. First, he says, there is a need to better align the directions of research and development and force building with the defense concept and the IDF's strategy. The second is the need to remove obstacles to realizing the technological potential, so that the IDF and the defense industries can supply effective weapons systems in rapid development cycles at low cost. The third is awareness of the human and command factor.

The final article in this section is by Brigadier General Guy Paglin, head of the Ministry of Defense's Merkava and Armored Vehicles Directorate. Paglin analyzes a number of trends now influencing the defense innovation apparatus in Israel in general, and the defense industry in particular. He lists a number of trends: the technologies transfer revolution and the use of shelf products in weapons; the changing character of warfare, the threats, and the weapons required; the information revolution and the emergence of the cyber dimension; the relative decline in investment in defense research and development (in comparison with commercial R&D); and the expected decrease in orders resulting from the changes in the new aid agreement with the US. In Paglin's opinion, these trends pose major challenges to the defense establishment, and require an effort involving multiple government ministries that will enable Israel to maintain the IDF's relative advantage through the Israeli defense industries and preserve the attractiveness of their exports.

The fourth and final part of this collection offers a broad perspective of the aid agreement and American aid to Israel. The two articles in this section were written by two scholars in the INSS Economics and National

Security Program. Dr. Shmuel Even claims that the indisputable great benefit of American aid to Israel outweighs the disadvantage of dependence on the United States. First of all, even without the aid, he argues, Israel's political and security dependence on the US is very high, due to its willingness to sell the most advanced weapons to Israel and especially its support for Israel in decisions by international bodies. On December 23, 2016, this was highlighted by an event in which this support was withheld, when the Obama administration refrained from vetoing an anti-Israel resolution in the UN Security Council. It is difficult to envision strategic scenarios in which forgoing aid will increase Israel's freedom of action vis-à-vis the United States. Second, the aid does not consist only of grants for procurement purposes; it also provides regular access on preferential terms to the purchase of advanced weapons in the rest of the world. The aid makes an enormous contribution to IDF force building. In the test of time, the American weaponry received by Israel outperformed the Soviet weaponry in the hands of Israel's enemies. The aid was granted in 10-year programs, thereby enabling the IDF to make long-term force-building plans (Israel would have difficulty undertaking such programs from its own resources). The aid is also augmented in difficult defense crises. Third, without the aid, Israel would have to devote more of its own resources to defense at the expense of essential civilian needs and/or accept a much higher level of security risk. In the political sphere, the aid is a concrete expression of great and continuous commitment by the US to Israel's security, which too is of great significance in deterring Israel's enemies. Additionally, the aid is accompanied by the principle of the preservation of Israel's qualitative military edge in the Middle East, which restricts American arms exports that are liable to contravene this principle. Finally, even after the conversion option is drastically cut in 2025 and later eliminated, Israeli industry will benefit from involvement in the production of American weapons that will be purchased with FMF aid, from funding by the US Department of Defense for joint projects, and possibly also from reciprocal procurement by American companies and joint exports to other countries. Future changes in the aid terms, if any, will require reconsideration.

The concluding article in the collection presents an opinion that differs slightly from Even's. Here, Brigadier General (res.) Sasson Hadad presents a cost-benefit analysis of the aid agreement. His main contention is that in the overall balance between cost and benefit, it appears that most of the benefit

can be obtained regardless of the amount or existence of the aid agreement, in comparison with the drawbacks, which become mostly irrelevant with cancellation of the agreement. Hadad contends that the aid, which amounts to approximately 1 percent of Israel's GDP, 2.5 percent of the state budget, and 20 percent of the defense budget, is important, and brings considerable advantages, including direct access to the political and defense establishment in the United States. The agreement does have major drawbacks, however, reflected in Israeli dependence on the US. These drawbacks are highlighted in trade with China, the possibility of political conditions recently advocated by some representatives of the Democratic Party in the Palestinian context, legitimacy for aid and advanced weapon sales to Arab countries, and an absolute preference for American technology and weaponry in the IDF force build-up, a preference that has intensified with the elimination of the ability to convert the aid in the new agreement.

This memorandum, which is very diverse in terms of its authors and the topics they cover, sheds light on both the defense industries in Israel and the agreement for US aid to the Israeli defense establishment. Its goal is to bring these topics into the public discourse and to encourage discussion on these matters.

One closing point: the articles that appear here were written in 2019, that is, before the coronavirus crisis hit Israel and, indeed, the whole world. If anything, the ongoing pandemic has highlighted the need for an independent, strong security industry that can adapt to a range of situations: in Israel, the industry quickly mobilized to apply its resources to produce ventilators, for example. This is an angle for future research. For now, we hope that you will find the articles that appear here to be interesting and beneficial.

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Editors
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