

India-Israel Relations: With Special Reference to Use and Exchange of Technology

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Abstract

India and Israel are strategic partners and important partners in use and joint development of technology. The security concerns of both countries, cross-border terrorism, close ties with America and new challenges being generated by the neighboring states motivate them to strengthen mutual relations. In 2022, 30 years of diplomatic relations between the two countries were completed. So, it is necessary to study the areas of cooperation between the two countries. Therefore, this research paper focuses on using and exchanging technology between India and Israel in agriculture, defence, cyber security and innovation. Along with this, there is an attempt to study its impact on the geopolitics of India.

INTRODUCTION

The year 2022 has been a historically important year in India-Israel relations as the two have completed 30 years of established relations this year. Despite being extremely small in terms of area and population, Israel is a major regional power in West Asia. In the fields of technology, agriculture, innovation, defense, research, etc., the world has considered Israel a great power. It had to face conflict with Arab countries only after attaining independence in the year 1948. Being surrounded by enemies on all sides, the need to protect its existence helped Israel to become technologically and militarily powerful.

India recognized Israel as a country in 1950, but diplomatic relations between the two countries began in 1992. Israel repeatedly extended a hand of friendship towards India, but there were some challenges before India which kept this friendship in check for many years. The biggest challenge was the energy requirement, for which India was dependent on the Arab countries, which had hostile relations with Israel. India sought to deny Pakistan support by Arab states, particularly on the issue of Kashmir. After Indo- Soviet Friendship Treaty of 1971, India and Israel supported opposite camps. So normalization in relations was difficult. In addition, India's support of Palestine at the international level has also been a major reason for the delay in relations. Despite all this, Israel helped India by providing military weapons in the difficult times of India in the year 1962 China war, 1965, 1971 Indo-Pak war and the Kargil war.¹ With the establishment of full diplomatic relations in the year 1992, both countries embarked on a new journey together. After that the relations kept on developing gradually.

A new dynamism in India-Israel relations came in the year 2014 with the victory of the Bharatiya Janata Party in the Lok Sabha elections. Right-wing parties in both countries, BJP in India and Likud in Israel, have many similarities at the level

of ideology. The historic visit of President Pranab Mukherjee to Israel in the year 2015 made it clear to the world that India no longer feels any compulsion in relations with Israel.² Prime Minister Narendra Modi was the first Prime Minister of India to visit Israel in the year 2017. This was the first time that an Indian leader traveled only to Israel, as earlier delegations used to visit both Palestine and Israel at the same time. Many important agreements were signed between the two countries regarding space, technology, agriculture, water, innovation, defense and cyber security during this.³ Israeli Prime Minister Benjamin Netanyahu visited India in the year 2018.⁴ The growing closeness of relations between India and Israel is evident from the statement of Indian Foreign Minister S. Jaishankar that "Israel is our most trusted ally."⁵

In present times, the growing closeness of relations between India and Israel lies in several similarities found in both countries, 1. Vibrant democracies, 2. Victims of cross-border terrorism, 3. Close ties with US, 4. Both countries are surrounded by such states that constantly present new challenges. Therefore, the common goal is a strategic partnership by forging ties on subjects like agriculture, technology, space, water, innovation. Where India is acquiring technical knowledge in various fields through these agreements. At the same time, these agreements are continuously increasing soft power of Israel, which is keeping a good image of Israel in front of the world.

Research Question

- What is the role of the exchange of technology in strengthening India-Israel relations?
- In which areas is the transfer of technology being done between the two?
- What is the impact of Indo-Israel technological relations on the geopolitics of India?

Technological Cooperation between India and Israel

The cooperation takes place in the area of agriculture, defense, cyber security, innovation, water management etc.

Agriculture and Water Management Technology Cooperation

According to World Bank statistics, only 29.9% of Israel's total land area is used for agriculture and related activities. More than half of the total land area of the country is desert. Israel receives an average of 508 mm of rainfall per year.⁶ While Israel has one harsh geographical condition, other harsh climatic conditions exist. Despite all this, Israel produces 95 percent of its food requirement by itself.⁷ Agriculture in Israel is on top of the world list regarding the use of advanced technologies, productivity in general and productivity per unit of production factors and production efficiency.⁸ Creating a prosperous agricultural sector in desert conditions and reversing the trend of desertification is one of Israel's greatest agricultural achievements. More than 40 percent of the country's vegetables and field crops are grown in the desert. Israel has 84 cubic meters of internal renewable water per person per year. Despite this, Israel is now a world leader in domestic, agricultural and industrial water management. India's ever-increasing population, limited land resources, changing monsoon pattern, side effects of environmental pollution, increasing unemployment, and increasing pressure on the economy due to imports from abroad demand improvement in India's agricultural technology.

Agriculture formed the cornerstone of India-Israel relations and has remained a major area of cooperation between the two countries since 1993. The area of cooperation are: water management, fruit and vegetable production, arid and semi-arid crop production, animal husbandry and dairy, water and soil management, plant protection and control, agricultural training, post-harvest management, farm mechanization, etc.⁹ The first India-Israel agriculture project started in 2008 and has since been extended at three years in 2011, 2015, 2017 and 2021, respectively. From the implementation of the first project till the year 2021, Rs. 254 crore has been spent in four phases in 14 states of India. Centers of excellence have been set up for rapid dissemination of agricultural technology to the farmers and for their training. By the beginning of the year 2022, 29 such centers are functional in 12 states of India.¹⁰ According to government statistics, the centers of excellence produce more than 387 thousand high quality fruit plants, 25 million vegetable plants and train more than 1.2 lakh farmers every year.¹¹

Under the fifth project, an innovative concept of India-Israel Village of Excellence has come into existence, which aims to establish an ideal ecosystem for best agricultural practices in eight states, consisting of 75 villages. Under this, the focus will be on developing modern agricultural infrastructure, capacity building and market linkage.¹² The responsible authority for cooperation in this sector is the Israel Agency for International Development Cooperation, i.e. MASHAV. Other important stakeholders are: MIDH (Mission for Integrated Development of Horticulture), State governments and the Israeli Embassy.

India has been fascinated by Israel's water management techniques since its inception. Drip system in irrigation and using domestic wastewater in irrigation are such techniques that can solve the water problem in India. In 2018, Prime Minister Narendra Modi and Prime Minister Benjamin Netanyahu signed a strategic partnership on water.¹³ Currently, there are more than 30 Israeli water projects in India. Also, more than 7 desalination plants in India are using Israeli technology. The India-Israel

Table 1: Major Israeli defence equipment purchased by India

Missiles	• Derby Beyond Visual Range Air to Air Missile (BVRAAM) • Harop loitering munition • Python-5 BVRAAM • SPICE-2000 guided bombs • Popeye-1 Air to Surface Missile (ASM) • Griffin guided bombs • Spike anti-tank guided missiles • Popeye II (Crystal Maze) ASM • SkyStriker loitering munition
Unmanned Aerial Vehicles	• Heron • Searcher MkII • Harop
Sensors and Radars	• EL/M-2075 Phalcon airborne early warning radar system • EL/M-2248 MF-STAR multi-function radar • EL/M-2084 multi-mission radar systems • EL/M-2238 naval radar system • EL/M-2052 airborne AESA fire control radar • Litening electro-optical infrared sensor system
Air Defence Systems	• Spyder medium-range Surface to Air Missile (SAM) system • Barak SAM system
Small arms	• Negev NG-7 light machine guns

Bundelkhand Uttar Pradesh Water Project is a prime example of cooperation between the two countries in the field of water management.

Defense Technological Cooperation

Defense relations between India and Israel predate full diplomatic relations between the two countries. Israel has supplied defense equipment in all the wars fought by India. Israel has no match in the technology of defense equipment. The challenge of defending its existence has brought Israel to the forefront of the technology of defense equipment. India needs those technologies to protect itself from external and internal enemies. Being equipped with modern weapons is one of the most important requirements of India to protect its borders and prevent terrorist infiltration. India is the biggest buyer of Israeli military hardware. Areas of cooperation between the two countries are :For the development and upgrade of India's aircraft systems such as the MIG 21, Light Combat Aircraft (LCA) and Advanced Light Helicopter (ALH), Hindustan Aeronautics Limited (HAL) and Bharat Electronics Limited (BEL) collaborate with Israeli Elbit System and Israel Aerospace Industry (IAI); Missiles like, Derby Beyond Visual Range Air to Air Missile (BVRAAM), Harop loitering munition, Python-5 BVRAAM, SPICE-2000 guided bombs, Popeye-1 Air to Surface Missile (ASM), Griffin guided bombs, Spike anti-tank guided missiles, Popeye II (Crystal Maze) ASM and SkyStriker loitering munition; Unmanned Aerial Vehicles(UAVs) like Heron, Searcher MkII and Harop; Sensors and Radars like, EL/M-2075 Phalcon airborne early warning radar system, EL/M-2248 MF-STAR multi-function radar, EL/M-2084 multi-mission radar systems, EL/M-2238 naval radar system, EL/M-2052 airborne AESA fire control radar and Litening electro-optical infrared sensor system; Air Defense Systems like Spyder medium-range Surface to Air Missile (SM) system and Barak SAM system ;Small arms like Negev NG-7 light machine guns etc.

Israeli companies have formed several alliances with the Indian private sector, helping the Indian government's efforts to develop national defense industry capabilities. Israel's IAI, Elbit Systems and Rafael Advanced Defense Systems have formed joint ventures with Bharat Forge, Tech Mahindra, Adani Group and Tata Advanced Systems to manufacture specialized equipment and home security equipment. For example, IAI's subsidiary ELTA Systems has teamed up with Tata Advanced Systems to form Hela Systems, a company that manufactures equipment for communications, electronic warfare and internal security. A joint venture between Elbit Systems and Bharat Forge, BE Elbit Advanced Systems provides artillery, guided weapons

and motor systems to the Indian Army. Israeli companies have been quick to identify specific technologies and have forged partnerships with Indian companies that are engaged in manufacturing such equipment themselves. For example, Tonvo Imaging in Bangalore specializes in electro-optics technology. This company has been working for a long time to power Israel's precision targeting bombs. To promote innovation and research for the development of dual-use technologies, Defence Research and Development Organization (DRDO) and Israel Directorate of Defence Research and Development (DDRDR) signed a Bilateral Innovation Agreement (BIA) on November 9, 2021.¹⁴ Israel, the maestro of the world of remotely operated equipment entered into an agreement with India to lease, operate and maintain fixed-wing unmanned aerial vehicles (UAVs) to the Indian Defense Forces. This agreement was signed between HAL and IAI Limited at the Defense Expo 2022 held in Gandhinagar, Gujarat.¹⁵ According to India's Srijan Portal, an initiative of the Government of India to provide data on Indian defense indigenization that became active from August 2020, India has procured around 92 defense-related orders from Israel worth Rs 2, 111 million (US\$ 27.53 million) imported goods. Of the 92 items, eight items clubbed under guided missile warheads and explosive components MRSAM, electrical insulators and insulating materials engine equipment, transformers, hardware and abrasive laboratory equipment etc. are indigenous.¹⁶

Cyber Security Cooperation

Keeping in mind the ever-increasing cyber attacks on India, the Government of India is now planning to exchange technology with Israel on this subject as well. Nearly a third of the world's cyber security unicorns are located in Israel, and Israel's 37th place in the National Cyber Security Index, reflecting Israel's supremacy in this area.¹⁷ In this context, the first step between the two countries was taken in 2018 when Israeli Prime Minister Benjamin Netanyahu was visiting India.¹⁸ After this, on July 15 2020, both countries signed an agreement to expand their cooperation in cyber security. In this regard, Israel's National Cyber Directorate General Yigal Unna said "Deepening cooperation with India is another important step in confronting global cyber threats. Israel can contribute from its experience and can benefit from the vast experience gained in India in dealing with cyber attacks."¹⁹

Innovation Cooperation

India and Israel signed an agreement for cooperation in the field of science and technology on May 26, 1993. In March 2010, a working program for joint research and development cooperation was signed between the two countries. Under this, the assistance of Rs 4 crore was given to 10 joint projects in the field of big data analysis in health care and cyber security for a period of two years.²⁰ On December 6 2016, a joint declaration was signed between the Ministry of Science and Technology of India and the Ministry of Science, Technology and Space of Israel. These include: Special programs to promote women in science, Frontiers Science and Engineering Symposium targeting the next generation to further strengthen science and technology ties in the future and exploring the possibility of collaboration between Israeli universities, research centers and Indian centers of excellence for establishing Networked Research Centers.²¹

India and Israel signed an agreement to establish the India-Israel Industrial R&D and Technological Innovation Fund (I4F) to promote, facilitate and support joint industrial research and development between India and Israel in 2017, when PM Modi was on a visit to Israel. This \$40 million fund was created over

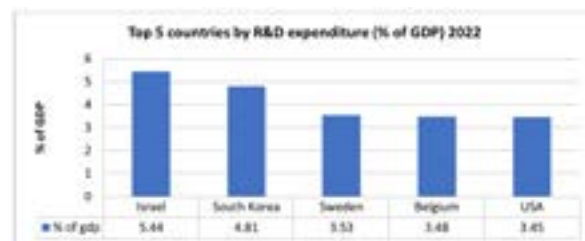


Fig1:

five years with equal contributions from both countries. Its objective is to develop commercial and localizable technologies through joint collaboration, responding to global issues related to science and technology. Under this, the main areas of cooperation are water, health care, agriculture, energy and information and communication technology. The authority from the Indian side for its implementation is the Global Innovation and Technology Alliance (GITA), while the Israeli implementing agency is the Israel Innovation Authority.²²

Israel has been ranked 16th out of 132 countries in the Global Innovation Index 2022 published by the World Intellectual Property Organization. Israel was the most prominent innovation economy in the North Africa and Middle East region. Israel was ranked 10th in the 2019 index. Israel ranks first in the world in terms of spending on research and development as it spends only 5.4% of its GDP on research and development activities.²³ More than 300 multinational companies have research and development centers located in Israel. Israel derives 13% of its GDP from the high-tech industry. There are about 9000 start-up companies in Israel. Israel has the highest concentration of leading start-up companies. Israel is ranked fourth in the global start-up ecosystem ranking for the year 2019.

Challenges and Going Forward

Reflecting on new global strategic challenges, India resolves to enhance its defense indigenization process by involving public and private organizations and companies and reducing the quantum of arms imports. The growing self-reliance on arms will influence the quantum of the India-Israel defense relationship which is largely guided by arms trade. The recent status of cooperation in terms of equipment procurement and co-development confirms that there will be no negative impact on the growing defense relationship between India and Israel, especially in the short term.²⁴

India's drive and demands towards military modernization are huge, and its requirements of growing internal and external security concerns are also huge. Pakistan China defense cooperation cannot be ignored from the point of view of India's security. Thus, the Indo-Israeli defense relationship will be stronger in the future, even if the arms trade slows down. The Srijan portal gives the impression that Israel supports India's indigenization decision. Strong ties with Israel will prove to be important in improving the defense export profile of the country. For example, with increased focus on joint development and production, countries can explore markets in developing countries such as Africa, South East Asia and Asia to import Indian-made Israeli products such as UAVs, small arms and ammunition, radars, etc. can be exported.

Israel has a different reputation in the world regarding counter-terrorism and border security strategy. Israel has not only protected the lives of its citizens but has also responded by adopting tactics such as rocket attacks and targeted killings. India has benefited from efforts to emulate Israel's technological

solutions related to border security. However, there are many difficulties in the security of thousands of kilometers-long borders. Along with this, the sources of danger for both countries are also different, where Israel has to face Palestinian terrorism, Hezbollah and Iranian conspiracies. On the other hand, Jihadi elements against India have been given direct support by Pakistan for a long time.²⁵

Another characteristic of Israel is military activity aimed at destroying enemy capabilities before they can be harmed. Experts considered the Balakot strike by India as the use of Israeli strategy by India. India can benefit from Israel's experiences to protect its own people.

India has adopted an anti-Israel policy on the Iranian nuclear issue because the Indo-Iran trade and energy security relations have been seriously affected by US policy on the Iran nuclear policy issue. However, India opposes the possibility of nuclear Iran from the point of view of regional security and stability. Yet there is significant Indian investment in the Chabahar port and Iranian energy infrastructure, which is facing serious hurdles. Although the port is beneficial for access to Afghanistan and Central Asian countries.²⁶

The Abraham Accords between the United Arab Emirates and Israel in the year 2020 have made the regional geo-strategic division more clear. The first I2U2 summit between the leaders of India, Israel, the United Arab Emirates and the United States in the year 2022 highlights the geo-economic importance between West Asian, South Asian and American countries.²⁷ In fact, the West Asian Quad starkly contrasts Iran's increasingly close partnership with China. China is a rising major power which is contrary to the interests of both India and the US. Iran and China signed a 25-year strategic partnership agreement in March 2021. Bilateral trade between the two countries was about \$23 billion in 2019 and \$15 billion in 2021.²⁸ Apart from this, cooperation in the defense sector has increased. Iran conducted military exercises in the North Indian Ocean in 2022 with China and Russia. Also signed an agreement on joining the Shanghai Cooperation Organisation. According to the SIPRI report, 20% of Iran's weapons were imported from China by 2000-21.²⁹ Taking advantage of this. China is increasing its presence in the Indian Ocean and the Persian Gulf. This is a big threat to India's maritime border. Therefore, relations with West Quad members will be beneficial for India for the near future.

CONCLUSION

The last three decades have seen momentum in India-Israel relations, which has become more intense since the Modi government came to power. Cooperation in defense, development, technology, innovation, water, agriculture etc. has strengthened ties. Both countries can earn profit by cooperating with African, South East and West Asian countries. Relations with Israel give India a powerful position in South Asia as well as a key ally in West Asia. Along with this, it also gives important cooperation in weakening India's anti-state Pakistan. According to the SIPRI report, India's arms imports have decreased by one-third between 2011-2015 and 2016-2020. One of the major reasons behind this reduction in imports is Israel's support to The Atmanirbhar Bharat Abhiyan. Therefore, India-Israel relations are a profitable deal for both countries.

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