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Executive Summary

**Israeli Agri-tech and Indian
Agricultural Challenges:
Recommendations for an Updated
Governmental Policy**

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About the Milken Innovation Center Fellows Program

The Milken Innovation Center Fellows Program accelerates Israel's economic growth through innovative, market-based solutions for long-term economic, social, and environmental challenges. Our goal is to accelerate Israel's transition from a Start-up Nation to a Global Nation with solutions that others can replicate.

The Program awards annual fellowships to outstanding Israeli graduate students. We train and deploy some of Israel's best and brightest young professionals to create pragmatic financing and economic policy solutions. Our applied research and Financial Innovations Labs® are a launching pad for transformative change, using innovative financing mechanisms, programs and policies to bridge social, regional, economic and productivity gaps within Israel and between Israel and the world.

In addition, Fellows craft their own projects during their internship aimed at barriers to job creation and capital formation in Israel. The Fellows' research, carried out under the guidance of an experienced academic and professional staff, support business and policy makers to shape economic reality in Israel. The program offers the ultimate training opportunity, combining real-life work experience with applied research.

Throughout the year, Fellows receive intensive training in economic and financial analysis, public policy and research methods. They acquire tools for communication and presentation, policy analysis, leadership and project management. The fellows participate in a weekly research training workshop where they work with senior economic and government professionals, business leaders, and top academic and financial practitioners from Israel and abroad. They also participate in an accredited MBA course, taught at the Hebrew University School of Business Administration by Prof. Glenn Yago.

Fellows Program alumni can be found in senior positions in the public and private sectors. Some serve in key positions in government ministries while others work at private-sector companies or go on to advanced graduates studies at leading universities in Israel, the United States and Great Britain.

The Fellows Program is a non-partisan. It is funded, in part, by the Milken Institute and other leading philanthropic organizations and individuals in the United States and Israel.

The Israeli agri-tech sector has grown significantly in recent years. Today, there are about 500 Agri-tech companies in Israel. Most of the start-ups are in various stages of developing innovative technologies to change the face of global agriculture. In addition, the number of investors and venture capital funds that focus on this area has increased in recent years. In 2017, an estimated \$190 million was already invested in agri-tech companies, representing 4.5% of the global investments in the sector. At the same time, several leading international agriculture companies operate in Israel, having grown out of Israel's unique history in leading in agricultural innovations, such as drip irrigation. The diverse, interdisciplinary, and inter-connected Israeli innovation ecosystem enables entrepreneurs and researchers to create connections between different industries and find technological solutions to a wide range of challenges faced by farmers around the world.

Unfortunately, an examination of the Israeli agri-tech sector indicates that most companies aim to reach the markets of the Western world. Very few Israeli entrepreneurs consider business opportunities in developing countries, and few researchers are developing technologies designed to deal with the challenges of agriculture in these countries. This is troubling because most of the world's agriculture, in terms of added value, agricultural land, and the number of those engaged in agriculture, is found in developing countries. India is a significant case study as the world's second largest agricultural producer. In India, around 265 million people make a living from agriculture and produce the food needed to feed the India's population of 1.4 billion, along with an increasing stream of exports. Israeli agri-tech companies hold enormous business opportunities in India, but they face significant barriers to entering this market. This paper examines these barriers and suggests strategies for overcoming them.

To increase Israeli agri-business activity in India, Israeli entrepreneurs must become familiar with the types of challenges faced by Indian farmers. These challenges are completely different than the challenges of the Western world. Therefore, the types of solutions must also be different. Farmers in India are largely smallholders, most of whom are not connected to electricity or water irrigation. They earn an average of NIS 5,000 a year, do not have access to credit, and therefore cannot invest in technologies that will improve their agricultural output. Nonetheless, there is a constant growth in the number of foreign companies that identify business opportunities in India and develop products and solutions to meet the needs of these farmers.

In addition to being familiar with the challenges of the developing world, Israeli entrepreneurs and companies interested in operating in developing countries need initial funding and investments to

create business activity. Importantly, early-stage companies have no access to appropriate guarantees, and therefore the volume of credit extended to them by the private sector and the banking system is very limited. In addition, Israeli companies have a particularly low level of familiarity with the field of international development and international financing entities, which may be critical sources of financing for activities in developing countries. In addition to funding, many Israeli companies lack the necessary connections to locate suitable business partners in India, and often do not have the resources to conduct demonstrations and pilots of their technologies among potential customers.

An overview of the programs currently offered by the Israeli government reveals that they only partially address the needs of Israeli companies interested in operating in developing countries. Government involvement is particularly lacking in two aspects. The first aspect is government action to create an Israeli international development eco-system that will increase entrepreneurs' familiarity with and exposure to challenges and opportunities in developing countries. The second aspect is assistance in financing business operations in developing countries by providing credit and guarantees.

Promoting agriculture in developing countries is a central goal of international development efforts involving many governments, international organizations, NGOs, academia and international companies. In recent years, Western countries have focused their international development strategies on creating partnerships between the public and private sectors. Emphasis is placed on the activity of development finance institutions (DFIs). These institutions provide concessional loan channels in the form of investments, loans, guarantees and insurance, which are provided on terms more favorable than those provided by the private financial sector. In addition, many countries support a wide range of programs to encourage start-ups and entrepreneurs to address development challenges and develop businesses, and create diverse cooperation between the various sectors. The implementation of these programs in other Western countries places Israeli companies at a competitive disadvantage due to their lack of access to similar programs in Israel.

Considering all this, this paper offers several policy recommendations to encourage innovation and the export of Israeli agri-tech technologies to India. Many of the recommendations are relevant to increasing Israeli activity in other developing markets and within other sectors related to international development such as energy, infrastructure, health, and education.

The main policy recommendations that emerge from the study include the following:

1. Establishment of an Israeli Development Finance Institution (DFI):

The institution will provide concessional financing for the activities of Israeli companies in developing countries and will provide a variety of credit solutions that are currently inaccessible or unavailable in Israel. In addition, it will be an integrated government entity for international development activities involving the private sector in Israel. The activity of an Israeli DFI does not need to rely on the annual government budget, except for the establishment of the initial funds needed to initiate the activity. The institution will leverage its investments through private sector funding (PPP - Public Private Partnerships).

2. Establishment of International Development Startup Incubators:

The Israel Innovation Authority operates a program of technological incubators for Israeli start-ups. The establishment of a similar program of incubators that focus on international development challenges will encourage the creation of an Israeli development eco-system. Start-ups aiming to develop solutions for developing countries need different types of consulting and connections than those provided by the existing technological incubators. Incubators like these are already available in many different countries and Israel should learn from their experience.

3. Promotion the Innovation Villages Initiative:

This initiative is designed as a platform for the assimilation of Israeli agricultural technologies in Indian villages. It will enable an effective mechanism at a relatively low cost to overcome the barriers that Israeli companies and start-ups face in examining their technologies in the realistic environment of farmers in India. The program will include inter-sectoral cooperation between the government, the private sector, academia and other organizations in both countries.

4. Extension of the Centers of Excellence in India for Private Sector Initiatives - The Ministry of Foreign Affairs operates a network of twenty demonstration farms in India that offer farmers training courses in advanced cultivation technologies and methods. There is potential to expand the activity at the Excellence Centers and to use their infrastructure and deployment to offer a

range of additional services such as the allocation of space for piloting Israeli technologies, the provision of consulting and applied research services to Indian companies and corporations, and the integration of financing solutions and fintech for farmers undergoing training to enable them to acquire the technologies to which they were exposed.

5. **Promotion of cooperation in innovation** - A major barrier to startup activity with India is the lack of familiarity with the relevant contacts, companies and organizations. Israel should take an first step to resolve these knowledge barriers by establishing a joint Indian-Israeli website that will enable start-ups from both countries to access information and establish contacts.

6. **Programs for integration with academia** - A better knowledge of International Development within Israeli academia will make it possible to expand the exposure of young students and entrepreneurs to these issues. Today, there are few academic programs that promote these aims. Tools for integrating and expanding academic activities include government assistance to create partnerships in the field of transfer technology, promotion of unique study tracks, and establishing research grants in the field.



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