

DIHAD SESSION 1 – ZERO HUNGER
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Achieving Zero Hunger is a shared commitment by all stakeholders, to end malnutrition in all its forms and realize inclusive, resilient and sustainable food systems.

There is no shortcut to food security. It can only be attained by developing partnerships that at all levels, are guided by a shared vision of a sustainable zero hunger world.

Agricultural growth is the primary source of poverty reduction in most agriculture-based economies. Three-quarters of the world's poorest people get their food and income from farming small plots of land, most of them under difficult climatic conditions. The majority of these smallholder farmers are women; therefore, the expansion of smallholder and family farming can lead to a faster rate of poverty alleviation by raising the incomes of rural cultivators and reducing food expenditure.

Increasing food and nutrition insecurity and growing poverty, in the face of a rapidly changing climate and degrading natural resources, are daunting challenges for agriculture in general and for smallholder farmers in particular.

Four main agricultural situations can be identified virtually in every developing country: Subsistence Agriculture, Improved Traditional Agriculture, Market Oriented Agriculture and Market-Oriented Specialized Agriculture.

In this context, subsistence agriculture has been and is the most problematic one, mainly due to a vicious circle of deficient nutrition, shift agriculture and a low level of inputs used with negative effects to the soil resulting in the advance of desertification processes. There seems to be a clear correlation between the level of nutrition and the ability of rural communities to transition from a subsistence situation to a more advanced one.

To address these challenges, there is a need to move towards the implementation of an integrated climate-smart agriculture approach including the development of efficient agro-technologies to allow smallholder farmers to move towards more productive and sustainable food systems.

In light of climate changes, it is important to note that raising animals for food is one of the major drivers of the world's most pressing environmental problems, including global warming, land degradation, air and water pollution, and loss of biodiversity.

Food innovations enable us to tackle these problems by rethinking the way we make our food and to invest in alternative protein solutions. Alternative protein foods replicate the taste and cultural experience of meat, eggs, and dairy, but are made from plant or crop ingredients, cells, or microorganisms, - which means they use vastly less land and water, have lower greenhouse gas emissions, and create vastly less risk to public health.

While in some countries, including Israel, one can already taste a steak printed in a lab, we must take into consideration that the eco-system in developing countries needs to be adjusted for such a change of paradigm. It is our responsibly to join hands today and work together towards the alternative protein supply of the future - one which supports global health, tackles malnutrition, benefits farmers, and creates jobs for millions.

With the knowledge accumulated in Israel in this field we should work with partners across the globe. Together, we can bring to developing countries creative solutions for using food technology that will allow them to produce and consume quality, safe, affordable and environmentally clean protein.

Within this framework, MASHAV, Israel's Agency for International Development Cooperation is committed to sharing with the developing world the State of Israel's own creative solutions and first-hand experience in agricultural and rural development, to develop the agro and rural sectors under semi-arid and arid climatic conditions.

This includes the management of limited natural production resources and the integration of modern agro-technologies, water management and irrigation, research and development, agricultural extension and the delivery of knowhow to farmers and to the rural areas at large, to enhance overall national employment and economic growth.

MASHAV emphasizes the importance of creating effective partnerships for development and of implementing cooperative projects both in Israel and abroad with a wide range of partners with each side contributing its strengths and unique experience and expertise, as is represented in the following example:

The Smallholder Horticulture Project in Ethiopia

Improving smallholder farmers' livelihoods through the competitive and sustainable development of the avocado sector

The agricultural sector is the largest sector of Ethiopia's economy, primarily consisting of small farms. In recent years, population growth and the depletion of land and water resources have deteriorated the condition of these farms, causing poverty and triggering migration to cities.

In order to find solutions for improving smallholders' livelihoods and generating income, all the aspects of agriculture should be addressed, including soil quality and irrigation systems, better crops and plant material, agro-techniques, agricultural extension, post-harvesting and marketing. Adding horticultural crops, both fruit and vegetables to the smallholders' production basket, can greatly improve their economic situation and avoid the risks involved in monoculture farming.

The Smallholder Horticulture Project (SHP) is a Joint Technical Cooperation Program between Israel, the United States and Ethiopia. Implementing partners are MASHAV USAID, and Ethiopia's Ministry of Agriculture.

The program was mainly implemented in five areas: Mecha, Meskan, Boloso Sore, Raya Alamata and Kersa and provided technical assistance to avocado growers in the country.

The project was designed to identify and access new domestic and export markets for avocados, as well as to provide technical support to improve phytosanitary regulations for Ethiopian horticultural crops. The project's ultimate goal was to promote economic growth in rural areas by strengthening the commercialization of horticulture production through the competitive and sustainable development of the avocado sector.

It also aimed to increase smallholder farmers' income by allowing access to new markets through the sharing of Israeli expertise in high-value horticultural production, the establishment of tissue labs and horticultural nurseries, the scaling up of production and supply of improved plant material, capacity building of extension agents and smallholder farmers, and through the improvement of production and marketing skills.

This initiative addressed all steps of production including the introduction of new high-quality avocado varieties; quality training and consultancies; capacity-building for nursery and tissue culture lab management and extension services; and the establishment of tissue culture laboratories, new nurseries and demonstration plots for the propagation of avocado trees. The Ethiopian Government provided administrative coordination and nursery equipment; USAID, in its role as partner, directed the project including allocation of budget, monitoring and evaluation; and MASHAV provided knowledge, budget, training (in Israel and Ethiopia) and a long-term expert who accompanied the project from its establishment.

The project was based on demonstration of innovative agricultural technologies, training and capacity building, transfer of knowhow and management skills applying a 'training of trainers' approach. Activities included:

- Introduction of new, high-quality Israeli avocado varieties for the domestic and export market (the supply of Israeli avocado scions, grafting seedlings in nurseries)
- Provision of quality training and consultancies, both in Ethiopia and Israel
- Capacity building for nursery and tissue culture lab management and extension
- The establishment of tissue culture laboratories, new nurseries and demonstration plots for the propagation of avocado trees
- Development of professional instructional materials addressing local conditions.

The project also worked to provide adequate production and supply of planting materials, specifically that of the grafted Hass avocado variety. In order to overcome shortages of Hass planting material in the country, the project imported more than 280,000 scions from Israel, grafting them at nurseries in four regions. The project also provided several hundred thousand scions to the nursery centers from local sources. In total, more than 600,000 grafted avocado seedlings were delivered to the growers, with most of the seedlings supplied by the nurseries involved in the project.

At the last stage of the project, six avocado nurseries were managed by the project in the areas mentioned previously. In the areas surrounding these nurseries, Ethiopian farmers planted commercial avocado plantations purchased from the project's nurseries. The project also set up pilot solar drip irrigation systems in four regions.

More than 2,500 smallholder farmers were trained on improved orchard management practices, specifically on compost preparation and application, tree pruning and top working, pest and weed management, and mulching. The farmers also received training on post-harvest handling of fruit.

Over 500 experts, development agents and grafting technicians were trained on commercial agriculture project development as well as on post-harvest handling techniques. More than 5,000 farmers participated in capacity-building activities, with 6,308 direct project beneficiaries.

Nurseries and extension activities were documented to fulfil the Global Good Agricultural Practices requirements for the export of avocado fruits.

The sustainability and replicability of the initiative is reflected in MASHAV's approach of 'training of trainers', resulting in building a cadre of local professionals who continue training local plant propagation technicians for nurseries and micro-propagation laboratories. They transfer knowledge and plant material to the farmers, suggest improvements and follow up on the implementation of these recommendations; and accompany them while accessing local and export markets by providing information on prices, markets and inputs.

MASHAV's cooperation focuses on providing developing countries with tools for sustainable capacity building. In its triangular cooperation, Israel focus was placed on capacity building, and through cooperation with a funding partner and a developing country, the parties were able to achieve their goals.