



MASHAV

ISRAEL'S AGENCY FOR INTERNATIONAL
DEVELOPMENT COOPERATION



AGRICULTURE METEOROLOGY

An introduction to basic and updated knowledge on the principles of Agro-meteorological models enhances the capabilities of participants in the application, modification and management of hydro-meteorological models. The program deals among others, with the following aspects: Establishment of

an agro-meteorological data base; Meteorological and biological observations; Verification and quality control; Collection, archiving and extraction methods; Data base management concepts; Case studies and practical exercises; Field trips.

R&D IN POSTHARVEST PRACTICES

The most important subjects as related to postharvest physiology, pathology and handling of fresh produce are discussed and shown during the program: Cause and site of loss; Physiological and pathological factors affecting storage and shelf life; Cooling, Packaging, Standardization and inspection of fresh produce;

Quality factors and analysis; Methods for prolonging storage life; and Postharvest technologies. Special professional field trips are conducted to export terminals, packing houses, central cooling facilities. During the program participants are also introduced to physiology and pathology postharvest laboratories.

R&D OF NEW CONCEPTS IN INTEGRATED PEST MANAGEMENT

Integrated Pest Management (IPM) is an effective and environmentally sensitive approach to pest management that relies on a combination of practices. This especially designed professional program focuses on number of key aspects of plant protection: biological, physical and balanced chemical control; plant resistance and sanitation;

early detection of pathogens and pests; forecasting seasonal development of pests using modern, environment-friendly approaches. The program consists of lectures, field trips to farms as well as supervised design of IPM programs for specific agricultural systems.

BIOTECHNOLOGY IN AGRICULTURE

The program is aimed at promoting the use of new biotechnological techniques in modern agricultural production. Biotechnology, including genetic engineering, has expanded the horizons of agricultural development. Industrial technologies

related to agriculture have also benefited. The main areas of current biotechnological are: Crop Improvement, Plant Protection, Biofertilization, Cell and Tissue Culture, Recycling of Agricultural Wastes and Bioremediation.



ALL PROFESSIONAL PROGRAMS AND MODELS CAN BE ADAPTED TO REGIONAL, NATIONAL AND LOCAL DEVELOPMENT STRATEGIES. ADDITIONAL DETAILS ARE READILY AVAILABLE UPON REQUEST



State of Israel



Israel Ministry of Foreign Affairs

Development is a global issue which requires immense attention, resources, and political efforts by the international community's many fora such as the United Nations, ECOSOC, OECD, as well as multilateral development banks and agencies. Guided by the Millennium Development Goals (MDGs), adopted by the UN General Assembly, MASHAV's approach is to ensure social, economic and environmental sustainable development.

One sixth of the human race, 1.2 billion people, live in extreme poverty, defined by the UN as having an income of less than one dollar per day. More than three hundred million of these people live in Africa, where they make up almost half of the total population.

People living in extreme poverty suffer from starvation, lack of safe drinking water and proper sanitation, poor medical care and chronic unemployment. They cannot afford to send their children to school, and they frequently lack suitable clothing, shoes and shelter. The population is ravaged by HIV/AIDS, other diseases, by drought, civil war, and isolation from urban centers. Many live without hope for the future.

Coinciding with the UN Millennium Declaration, MASHAV's first priority is to take part in the international community's commitment to achieve the MDG's and halve poverty and hunger by the year 2015. Since its inception, MASHAV's work in the developing world has been guided by the basic approach that development work is organic in nature. It is impossible to concentrate efforts in one area, such as food security, without providing proper attention to health care, community building and education. Only through a sustainable and comprehensive development program can measured results be obtained and the desired impact felt by those who need assistance the most. As no one country or aid agency can single-handedly tackle the causes leading to extreme poverty, the need to coordinate and combine efforts and resources is essential if the donor community and client countries are to realize the the Millennium Development Goals.

MASHAV's activities focus primarily on areas in which Israel has a competitive advantage including: agriculture and rural development; water resources management; micro-enterprise development; community development; medicine and public health, empowerment of women and education. At the same time MASHAV operates according to the needs and demands originating from the partner countries, as opposed to a supply initiated by Israel that might not be relevant and effective elsewhere.

Programs are based on a "train the trainers" approach to institutional and human capacity building, with professional programs conducted in Israel and in-situ. Project development is supported by the seconding of short and long-term experts, as well as on-site interventions.

In its programs and philosophy, MASHAV adheres to the accepted international principles as stated, among others, in the Earth Summit in Rio de Janeiro; the Johannesburg Summit on Sustainable Development; the Monterrey Consensus; the Paris Declaration on Aid Effectiveness; the Accra Agenda for Action; and the Doha Conference on Financing for Development.

Since its establishment, MASHAV has promoted the centrality of human resource enrichment and institutional capacity building in the development process – an approach which has attained global consensus.

The success of development work necessitates a responsible and involved political leadership, either on the national or local level, and a cadre of locally based professionals capable of taking ownership, while adhering to regional, national and local development strategies and goals.

Moreover, the approach of any development program must be comprehensive, inclusive and carried out in an integrative fashion, thereby endorsing a holistic approach to meeting all basic human needs.

Israel's own development experience enables it to design comprehensive and integrative programs both for urban and rural settings, which are of critical concern to developing countries.

Following is an overview of MASHAV's programming in the field of Agriculture and Rural Development



MASHAV's agricultural programming deals with the introduction of modern technologies and agro-technical methods designed to increase the levels, sustainability and quality of agricultural production to ensure food security. It also concentrates on introducing effective support systems to enhance the economic viability of agriculture in areas such as marketing, storage and transport, the supply of agricultural inputs, granting of credit and finance to the agricultural sector and upgrading the work of extension services.

There is no other way to attain basic food security and sustainability other than promoting and engaging countries in the enhancement of their primary sector – agriculture – in basic food crop production, food storage and post harvest care.

There is no shortcut to food security. MASHAV's approach to agricultural development is based on harnessing science, technology and extension. Applied research, the introduction of innovative technologies and the promotion of agricultural crop intensification and diversification are key elements in attaining food security.

The challenge is to adapt many of the known improvements in the use of agricultural practices and technologies such as fertilizer application, crop production, and protection methods, and make them more accessible and adjustable to the circumstances and the needs of the small-holder farmer in the rural areas.

COMBATING DESERTIFICATION

According to the UN, desertification is the degradation of land in arid, semi-arid, and dry sub-humid areas. It is caused primarily by human activities and climatic variations. Desertification does not refer to the expansion of existing deserts. It occurs because dryland ecosystems, which cover over one third of the world's land area, are extremely vulnerable to over-exploitation and inappropriate land use. Poverty, political instability, deforestation, overgrazing, and bad irrigation practices can all undermine the land's fertility. Over 250 million people are directly affected by desertification. In addition, some one thousand million people in over one hundred countries are at risk. These people are amongst the world's poorest, most marginalized, and politically disenfranchised.

Degraded drylands need not be irrevocably lost. Desertification can be halted, dryland productivity can be increased, and these lands can be nurtured to sustain growing populations while retaining their delicate ecosystems. Hope

lies with countries sharing their experiences and applying practical, scientifically-supported solutions to ensure that we learn how to live in and with the desert. Economic development is balanced against conservation of the unique and fragile desert ecosystems.

Technological innovations will increasingly be called upon to address the growing challenges associated with adapting to the threat of global warming and the anticipated impacts of climate change. Most of Israel is dryland and 60% of it is the Negev Desert. MASHAV places special emphasis on the critical issues of desertification and developing the desert by introducing international cooperative programs of training, project development and research; these relate to land and water limitations (e.g. desert agriculture, aquaculture, afforestation, management of water resources) yet always aim at identifying comparative advantages that may be inherent in specific dryland locations.

WORLD WATER ISSUES

The issue of water is connected to many challenges facing us today, such as growing global water scarcity, polluted water reservoirs, environmental hazards, food security, sanitation desalination technologies and water management. These global concerns are of high priority on the social, economic, environmental and political agendas of the international community.

MASHAV's approach combines the transfer of technology, research and development, and hands-on experience with hi-tech technologies originating from leading Israeli experts and institutions – ranging from the public/government sectors to the corporate community, as well as to academia. To improve the services needed to provide access, safety, and security in countries facing serious water challenges,

MASHAV is poised to share the knowledge and modern technologies gained during Israel's own development process on subjects including water management, irrigation techniques, desalination, urban water loss, and sewage and brackish water treatment.

MASHAV's main areas of expertise in agriculture include the following subjects: Combating Desertification; Water Issues; Crop Diversification and Intensification; Livestock and Dairy Milk Development; Land Conservation and Efficient Use of Natural Resources; Greenhouse and Protected Agricultural Technologies and Practices; Environmentally Friendly and Sustainable Farming Systems; Marketing of Agricultural Production; Integrated Pest Management.



THE FOLLOWING ARE BRIEF DESCRIPTIONS OF SOME OF MASHAV'S PROFESSIONAL PROGRAMS IN THE FIELD:

COMBATING DROUGHT AND DESERTIFICATION AND PROMOTING SUSTAINABLE DEVELOPMENT IN DRYLAND AREAS

Following the growing global awareness of drought and desertification, the United Nations Division for Sustainable Development, Department of Economic and Social Affairs (UN-DESA), in collaboration with MASHAV, organized this international capacity building workshop based on MASHAV's expertise in "training the trainers" in science-based decision making tools and processes in combating drought and desertification.

The workshop is structured around the following main themes: Benchmarks and Indicators of Desertification; Assessment Tools; Overgrazing and Carrying Capacity; Drought and Early Warning Systems; Sustainable Water Management and Water Harvesting;

Desert Agriculture; Irrigation Techniques and Best Practices in Arid and Semi-Arid Areas; Sustainable Management of Forests in Drylands.

Objectives: Our program aims to share with participants an enhanced understanding of the sciences relating to the incidence of drought and desertification and to develop better capabilities for addressing the economic, social, and environmental challenges of drought and desertification. Participants will learn to employ science-based decision making tools and processes in agriculture, forestry, and water resource management, and to identify and share best practices in combating desertification.

TIPA: LOW PRESSURE IRRIGATION SYSTEM FOR SMALLHOLDERS

TIPA is a small-scale horticultural production package based on low-pressure drip-irrigation, a mix of annual and tree crops, and an "operating system" which allows the farmer to irrigate according to scientific principles.

The benefits of using the TIPA system include higher yields of improved quality vegetables and fruits, the ability to produce crops year-round, a most efficient utilization of water resources, decreased labor requirements for irrigation and weeding, and greater likelihood of maintaining the productive capacity of the soil. The hardware components of the system are a concrete reservoir, a plastic drip irrigation kit (a basic unit covers an area of 500 m²), and a water pump.

In the majority of semi-arid regions, gardens for the production of vegetables, tubers, and fruit for the family and for markets are usually the only form of irrigated agriculture. The mix of crops allows households to meet their own needs and sell excess in local markets. The size of market gardens ranges from tens of square meters to a few thousand square meters.

Constraints of the present systems in developing nations are that:

- Irrigation is labor intensive;
- Poor water and nutrient management result in low and inferior quality yields;
- There is a limited production period due to unfavorable climatic conditions and unavailability of labor during the rainy season;
- Soil salinity and groundwater in surface irrigated systems negatively impact the environment.

The TIPA system overcomes all of these constraints. It results in considerable labor conservation, marked increases in yields, and real improvements in quality. TIPA optimizes the use of problematic soils, minimizes soil and ground water contamination and, in semi-arid Africa, it facilitates the extension of the production season from the present 5 months of the year to 12 months, or year-round. The TIPA system is being successfully implemented in South Africa and Senegal.

