SUSTAINABLE IRRIGATION

CLIMATE CHANGE IN ARID ZONES & OTHER CHALLENGES

THE UNITED NATIONS CLIMATE CHANGE CONFERENCE
POZNAŃ, POLAND, DECEMBER 2008

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State of Israel

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המשרד להגנת הסביבה
وزارة حماية البيئة
שלום עם הסביבה

UNFCCC

NETAFIM™
GROW MORE WITH LESS

THE ENIGMA Of TULEILAT EI ANAB
GRAPE MOUNDS

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THE ENIGMA Of TULEILAT EI ANAB

Improving Water harvesting efficiency by ancient farmers in the Negev.

How did it work?

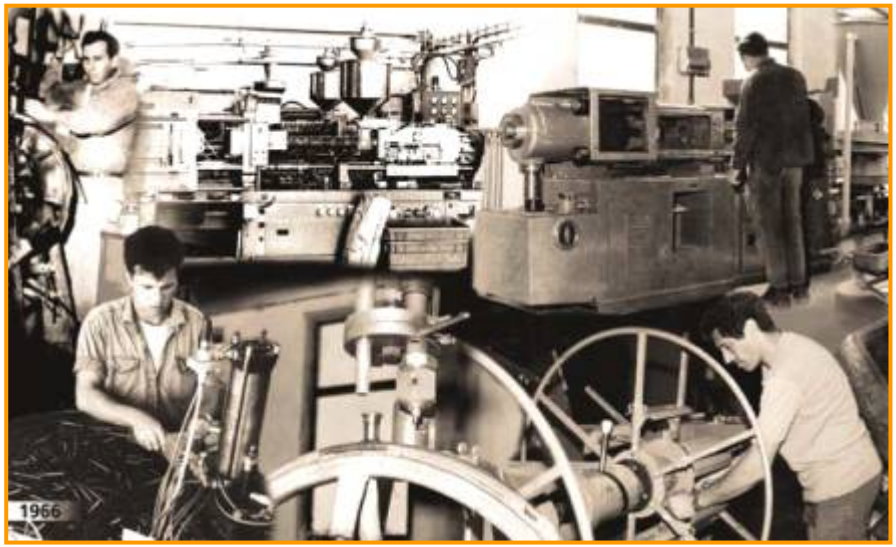
1. Dew accumulating at night, dripping down in the morning – an ancient drip irrigation system?
2. Shield the surface from the impact of the falling rain thereby reducing runoff and increasing runoff yield under the “Tuleilat”?
3. Removing stones and piling them to Increase impact on the surface thus increasing runoff carrying fertile soil to the valley?
4. More suggestions?

NETAFIM™ AT A GLANCE

- Born out of a need to make the Israeli desert bloom
- Simcha Blass and Kibbutz Hatzerim founded Netafim in 1965 with the concept of drip irrigation

- Netafim joined by
  Kibbutz Magal (1975)
  Kibbutz Yiftach (1979)

- Ag2Ag Business



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NETAFIM™ AT A GLANCE

- Total revenues 2007 – $500 M
- Employees worldwide – above 2,400
- Active in 110 countries on 5 continents
- 35 subsidiaries
- 13 manufacturing plants worldwide

DRIP IRRIGATION ADVANTAGES

- More efficient, accurate use of water & nutrients
- Prevents soil erosion
- Lower evaporation rate prevents run off, deep percolation & leaching
- Carries water & nutrients directly to the root zone
- Facilitates preplanning of plant growth & harvest schedules
- Saves water & energy

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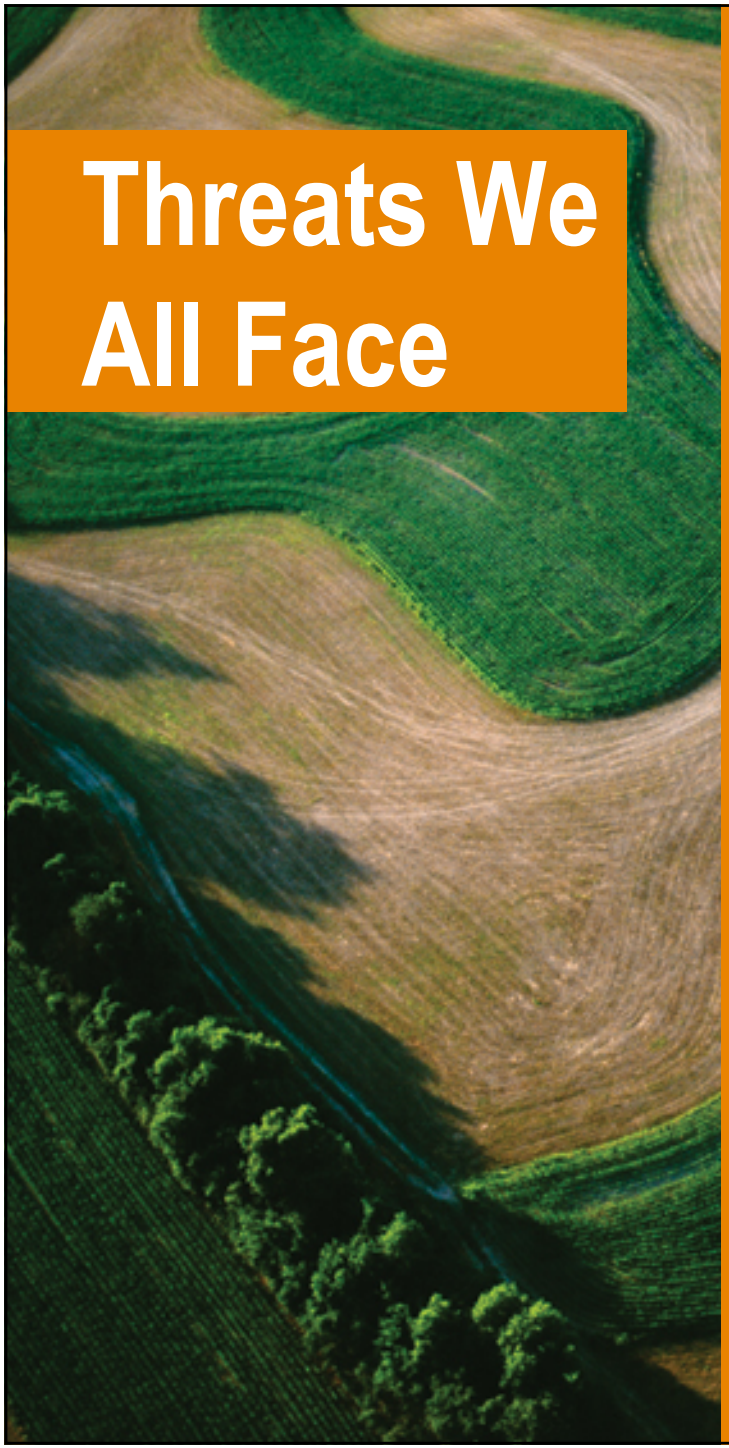


Threats We All Face

GLOBAL WARMING

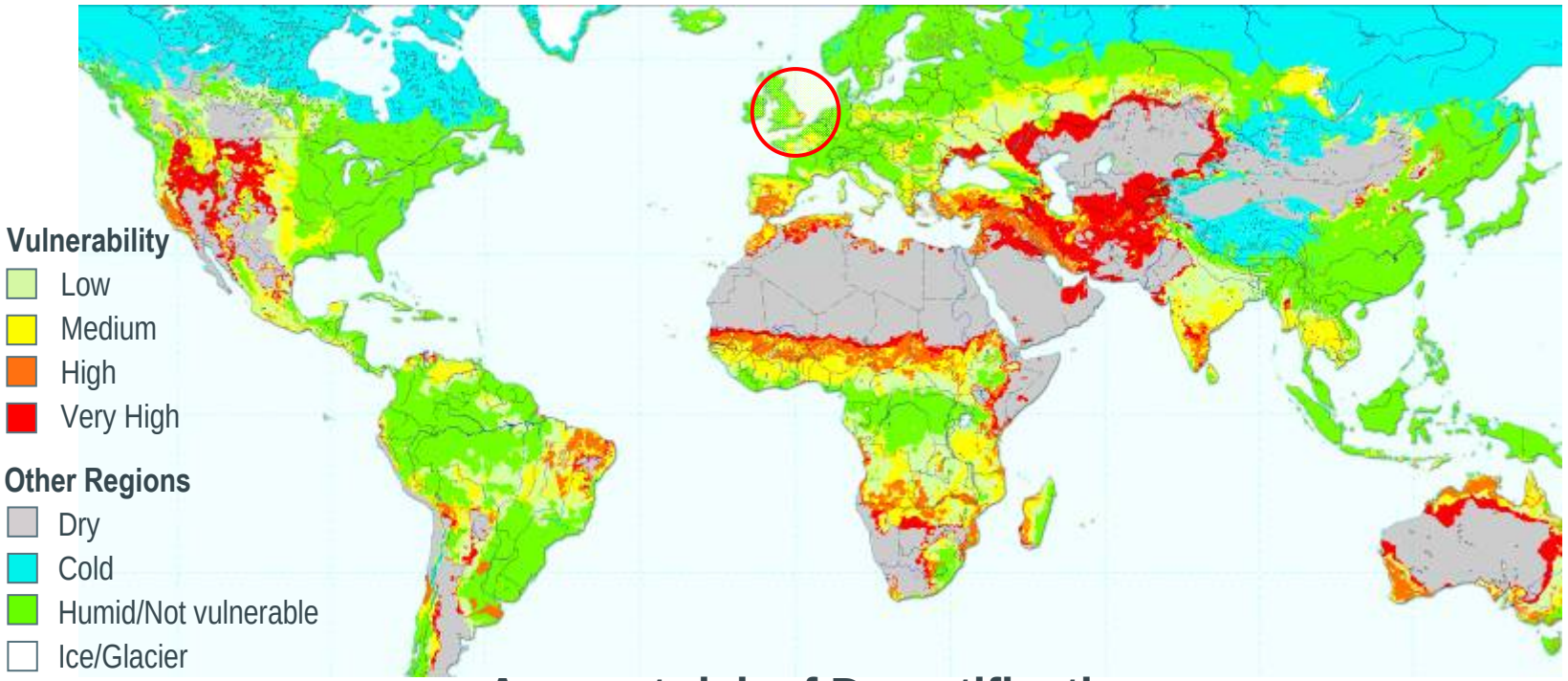
WATER SCARCITY

FOOD SUPPLY

ENERGY CRISES

GAS EMISSION & CLIMATE CHANGE

Greenhouse gases emitted to the environment are boosting a warming trend. Some of the consequences are:
Increasing Drought Seasons and Expanding the World's Arid Areas.



Areas at risk of Desertification

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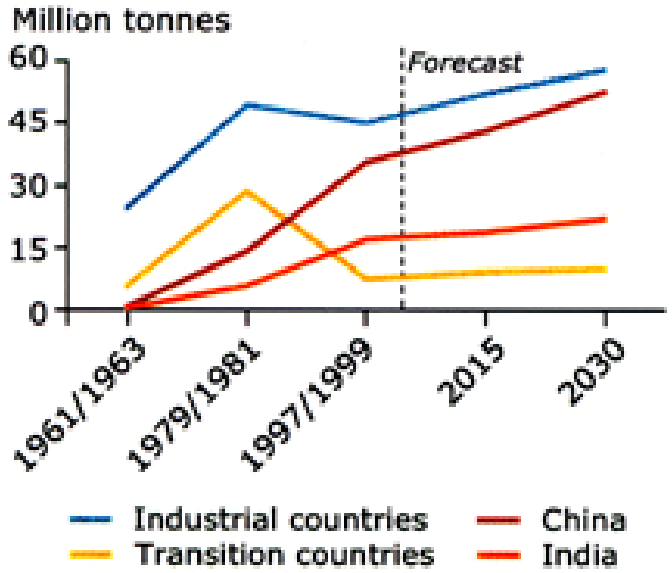
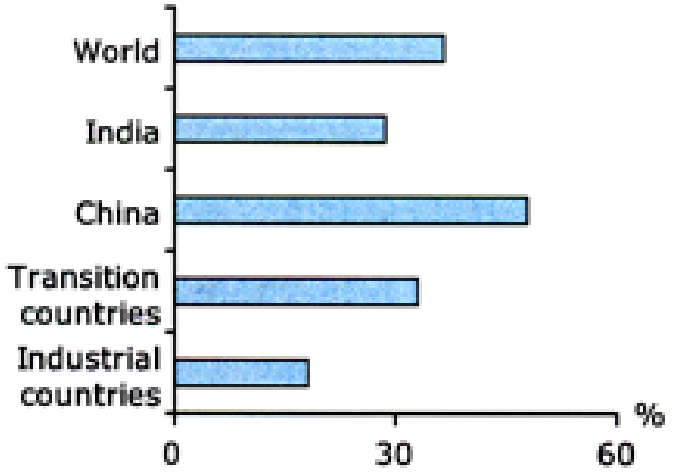
REDUCE GAS EMISSION

- Growing biomass crops for producing Clean Energy Resources.
- Implementing precise irrigation methods that monitor and Minimize Usage of Chemicals.
- Recycling Non Disposable material

Projections of fertiliser consumption



Change in fertiliser consumption from 1997/1999 to 2030



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WATER SCARCITY

The world is increasingly facing a serious water shortage and lack of quality water supply as global industry and agriculture compete with local populations for freshwater access and use.

- 0.3% of the world's water is usable.
- 70% of the world's usable water consumed by agriculture *
- In mid-century, annual average of water availability is projected to decrease by 10-30% over some dry regions at mid-latitudes **

*Source: * UNESCO 2000 ** UN Report on Climate change 2007*

WATER CONSERVATION

- Water Use Efficiency - Precise & Efficient Irrigation Methods
- Reduce Water Source Pollution - Monitor Nutrients applications
- Wastewater recycling - Agriculture and Landscape Irrigation

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FOOD SUPPLY

World population:

- 2007 - 6.3 Bn.
- 2030 - 8.1 Bn (Approx)

Food availability does not keep pace with population growth.

- 2030 - food consumption worldwide is expected to increase by >30%*

  It is estimated that about 70% of increase in food production is expected

  to come from higher yield**

Source:
** UN Report 2001*
*** ICID - 'WATER FOR FOOD AND RURAL DEVELOPMENT, July 2001*

MORE FOOD LESS WATER

Advanced Drip Irrigation methods and agronomic know-how:

- Increase yield & Enhance Productivity per soil and water unit.
- Enables irrigation of areas that suffer from Water Shortage.
- Prevents soil erosion and thus Preserve Soil Fertility.
- Crop productivity values:
  - Rain fed 1.0-2.0 tons/Ha,
  - Irrigated 3.0-5.0 tons/Ha

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Desertification – what can be done?

- Efficient and rational management of existing resources (water and soil) to produce more food.
- Provide growers with the know-how and means for agricultural production, economical and simple to operate
- Expand Irrigation areas to crops that relied on rain-fall only

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THE ISRAELI ARAVA DESERT EXPERIENCE

The Technology

OPEN FIELD DRIP IRRIGATION

GREENHOUSE TECHNOLOGY

CROP MANAGEMENT TECHNOLOGY

FAMILY DRIP SYSTEM

IRRIGATION SOLUTIONS FOR OPEN FIELD

Promoting advanced farming

Leading farmers into the future by **Educating** and **Implementing intelligent precise drip systems**

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SUB SURFACE IRRIGATION

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SUB SURFACE IRRIGATION

Low Pressure System
LPS™

Low Pressure System
LPS™

GREENHOUSES – ADVANCED AgTech

- Allows higher productivity per m2.
- Allows cultivation in areas with limited hydric resources and difficult / unreliable climates

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STRAWBERRIES
250T vs. 50 T!!

TOMATOES

650T vs. 100 T!!

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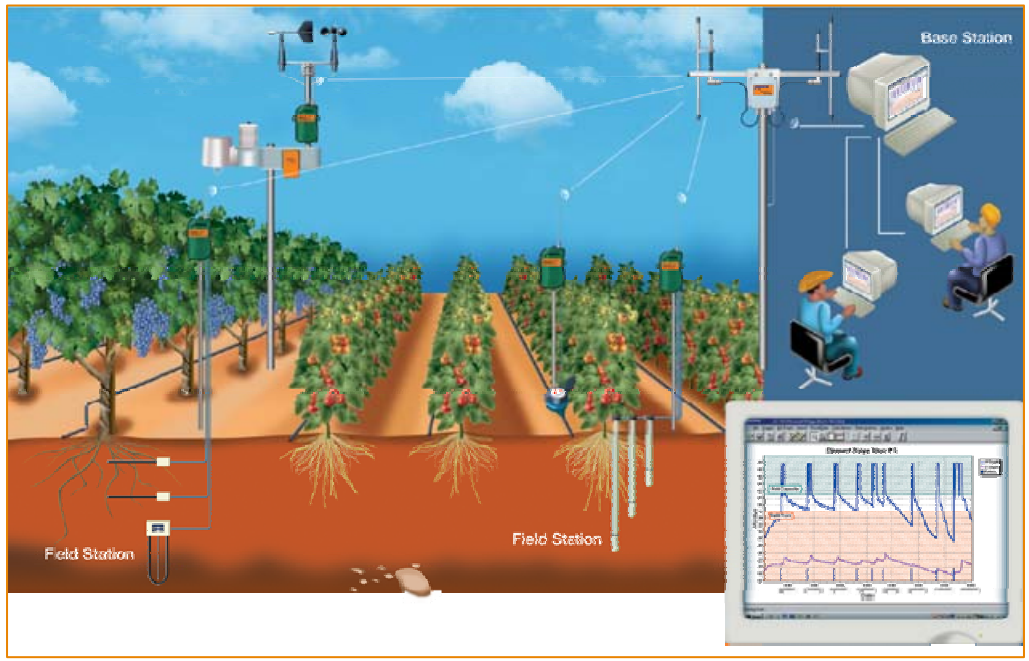
CROP MANAGEMENT TECHNOLOGY - CMT

Precise Nutrigation™ via State-of-the-Art Technology

- Unique hydro-mix technology
- Dosing channels with no moving parts
- EC/pH measurement & control
- Quick action valves



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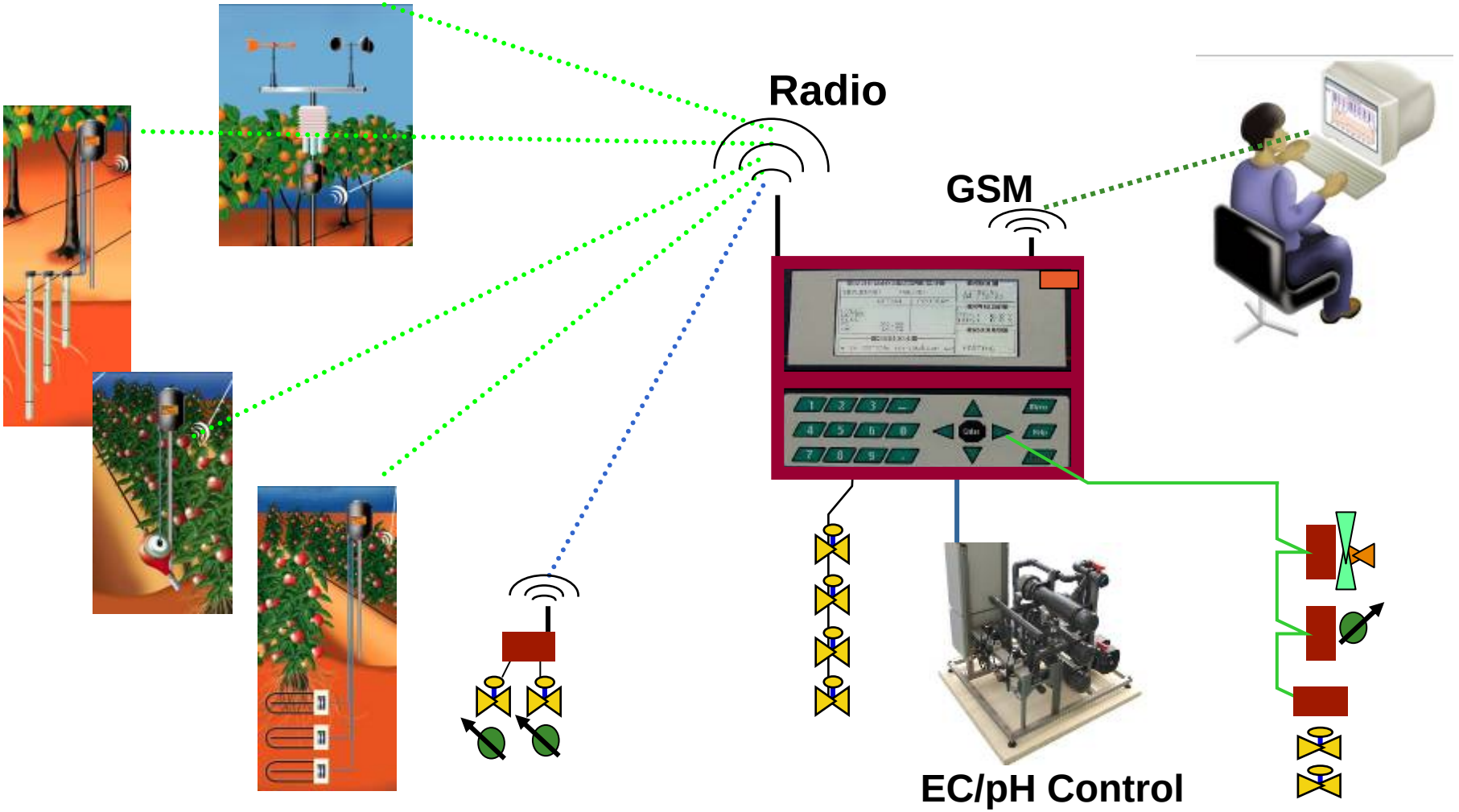
CMT



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MORE FOOD LESS RESOURCES

Family Drip System
Gravitation based Irrigation systems:

- The role of the Small Holders in developing countries
- Provide growers with the Know-How and Means for self sufficient agricultural production, economical and simple to operate

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FAMILY DRIP SYSTEM (FDS™)

- A comprehensive gravity-based drip irrigation system based on Netafim's Maximizes productivity using current and existing resources
- No additional investment in infrastructure
- Planning, training, technical
  & agronomic field support available

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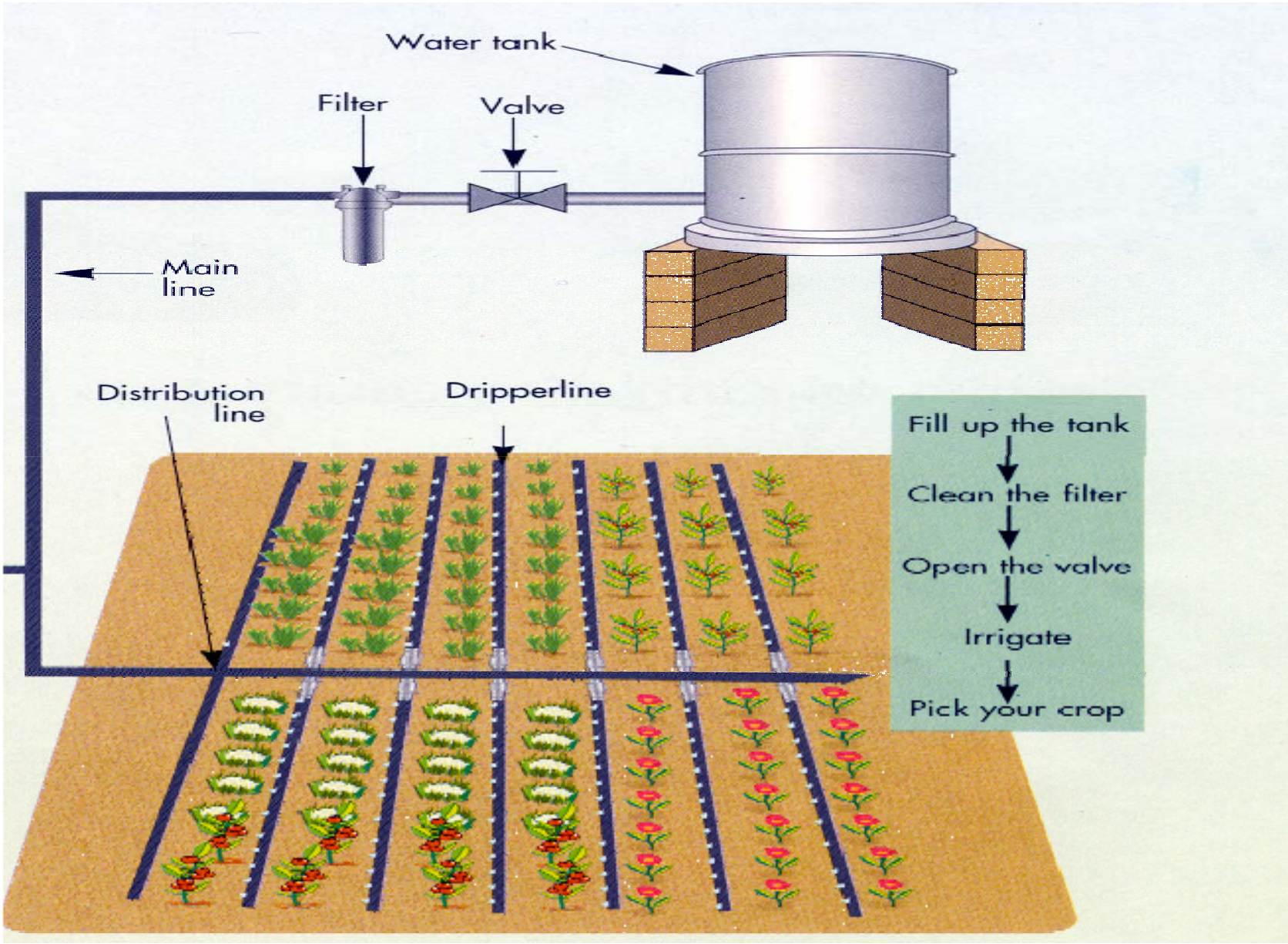

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FAMILY DRIP SYSTEM

Africa: Family Security

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Family Drip System - FDS™

Crop	Conventional		FDS		Revenue Increase	
	Yield (Kg)	Revenue ($)	Yield (Kg)	Revenue ($)	%	$
Tomatoes	2000	1215	7,200	6171	508	4956
Melons	2000	999	2950	1685	167	686
Eggplants	3000	1392	8150	4657	335	3265
Lettuce	2000	928	7800	5013	540	4085
Cabbage	3000	1070	11200	4800	449	3730

Yield and Revenue from five vegetable species, each planted in a 500m² plot and irrigated with a conventional and with a Family Drip System in Niamey-Niger

Values are the total of two (June-Oct. and Nov.-April) production seasons per year

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IRRIGATION IS A KEY COMPONENT OF THE

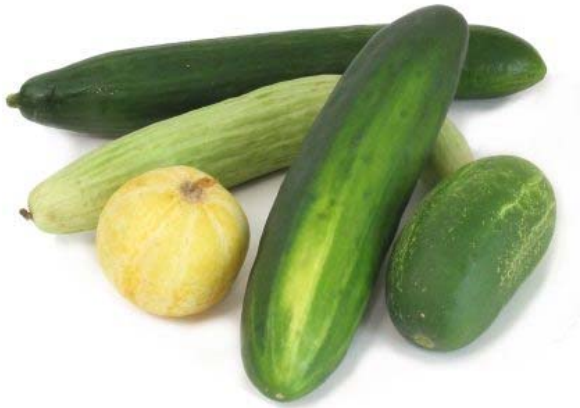
WATER REVOLUTION

DRIP IRRIGATION IS A KEY COMPONENT IN

SUSTAINABLE WATER MANAGEMENT SOLUTIONS

MORE GROWTH
LESS WATER

Sustainable irrigation is the answer !



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THANK YOU

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