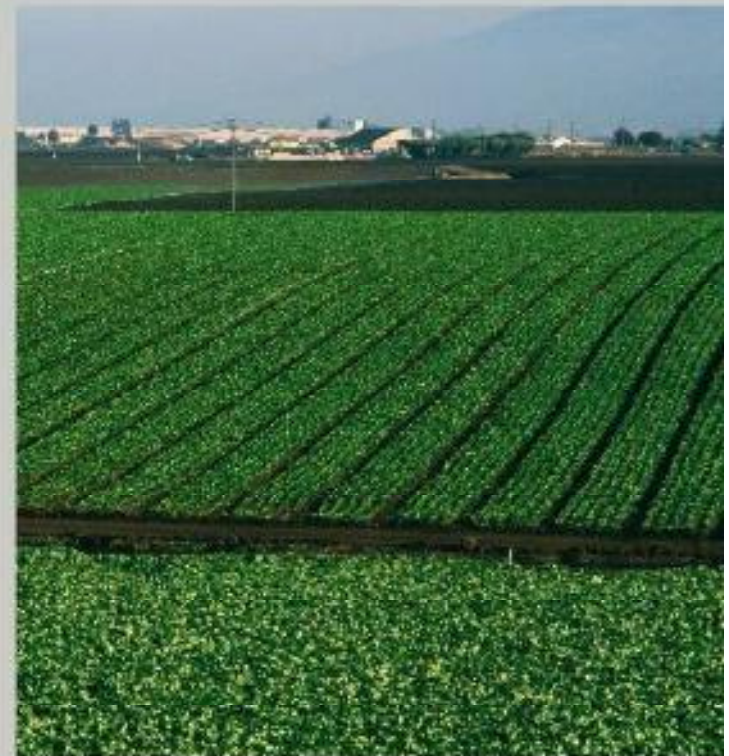


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“Everyone understands that water is *Essential to Life*.  
Many are only just now beginning to grasp how essential it is to  
*Everything in Life...*”

The time has come for us to add “*Water Thinking*”  
to our strategic planning.

Source: *The WBCSD water scenario project*





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## Threats We All Face

*Global Warming*  
**WATER SCARCITY**  
*Food Supply*  
**Energy Crises**



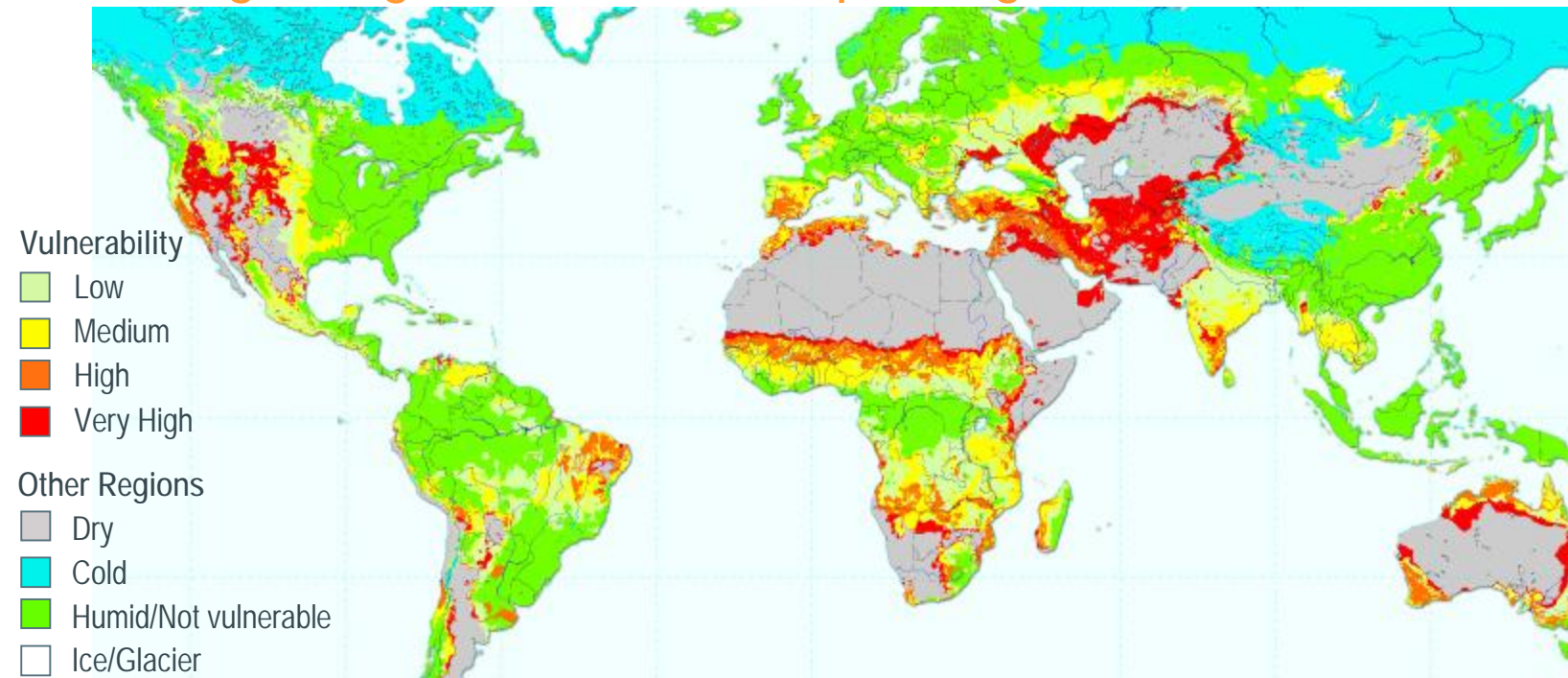
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## Gas Emission & Global Warming

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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## 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 \*\*

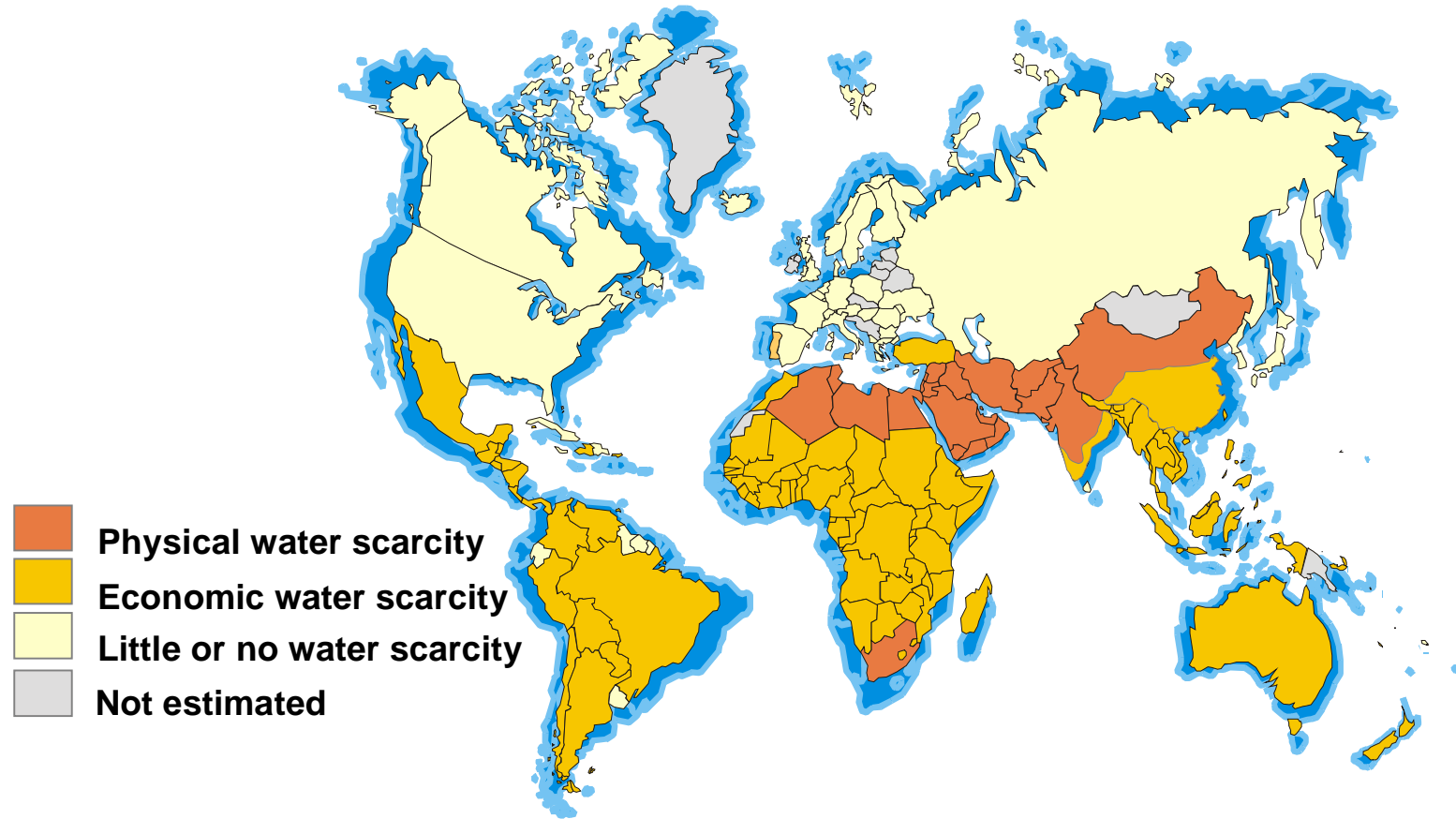
Source: \* UNESCO 2000 \*\* UN Report on Climate Change 2007





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## Projected Water Scarcity in 2025





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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

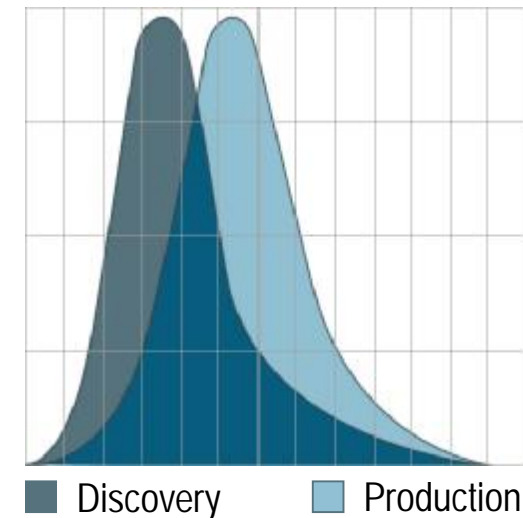




## Energy Crises

**Fossil Fuel Reserves** are declining.

- Amount of **oil discovered** in the US has dropped since the late **1930s**.
- Amount of **oil production** in the US had peaked in **1970**, and has fallen ever since.



**World discovery** of oil peaked in the **1960s**, and has declined since then.

According to Hubbert's Peak theory - Global peak of oil production is right about now; after which oil becomes less available, and more expensive.

**Today we consume around 4 times as much oil as we discover!!**

Source: \* Hubbert Peak Theory



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## Energy Crises

Available **Energy Services** fail to meet the needs of the world's poor:

- **2.4 Bn** people relying on traditional biomass
- **1.6 Bn** not having any access to electricity \*\*

Awareness has grown across the world of the **Impact of Energy Consumption** on our environment and especially on our global and regional climate \*\*

Source: \*\* UN-Energy report on Sustainable Bio Energy





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# *Global Trends*

## Implementing Environmental Solutions





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## Environmental Challenges

*Reduce Gas Emission*  
WATER CONSERVATION  
*Secure Food Supply*  
*Energy Savings*





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# *Reduce Gas Emission*



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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



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# *Water Conservation*

Replacing *eroding* agriculture  
with *conserving* agriculture

Environmental Irrigation is the answer !





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## 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 Availability*

*Moving from **Subsistence** agriculture to  
**Conserving** agriculture*





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## Food Availability

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





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# *Energy Savings*

*There are alternative sources for energy*

*There are no alternatives to water!*

*Source: The WBCSD water scenario project.*





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## Energy Savings

Growing biomass crops for producing alternative resources for energy supply:

- **European** leaders have decided that at least **10%** of fuels will come from bio-fuels by **2020**
- **U.S. Congress** is working on a proposal that would increase production of bio-fuels by **7 times by 2022**

Biofuels is an attractive alternative **Energy Source for Poor Countries**, some of which spend 6 times as much money importing oil than on health care.



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## Taking Action

# *Drip Irrigation*

*Effective Contribution to  
Sustainable Water Management*





## Cultivated Land Worldwide

■ 1,628 M/Ha – Total world Agriculture Area

■ 277 M/Ha – Currently under Irrigation

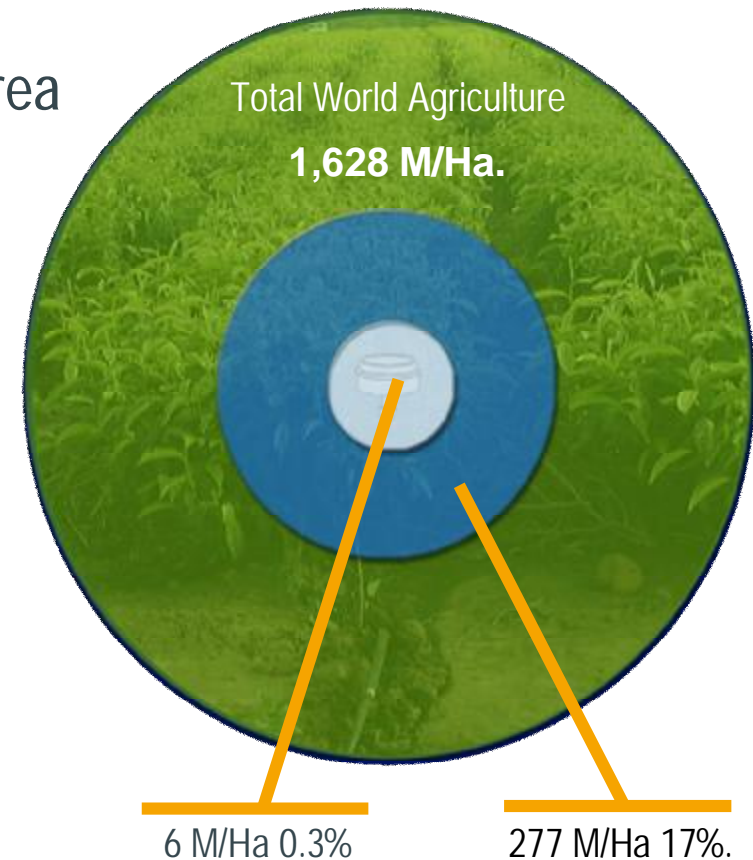
**17%** of total agricultural land area  
supplies about **40%** of the world's food

■ 6 M Ha. are drip irrigated

Crop productivity values:

- Rainfed 1.0-2.0 tons/Ha

- Irrigated 3.0-5.0 tons/Ha





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Irrigation is a key component of the *Water Revolution*  
***Drip Irrigation*** is a key component in  
*Sustainable Water Management Solutions*



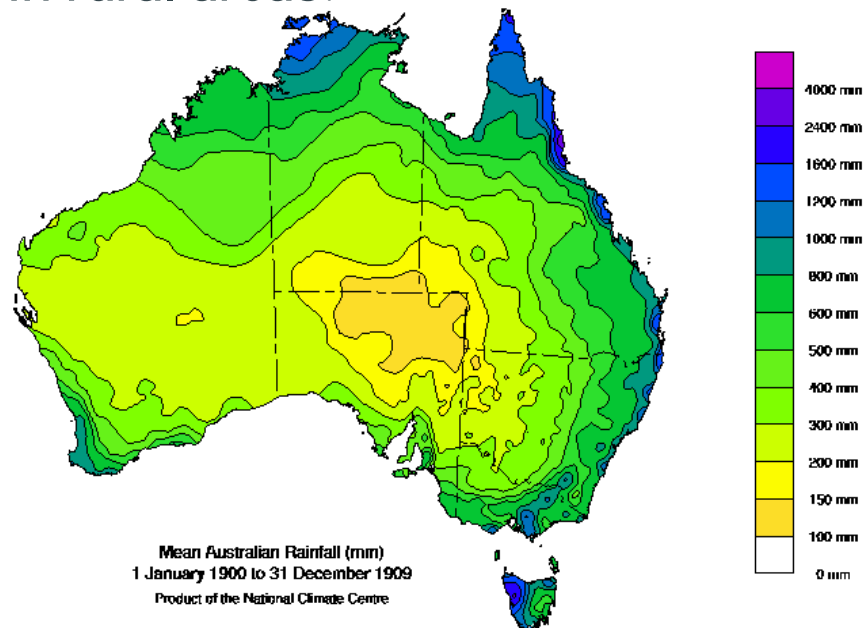


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## Regulation

Governments worldwide implementing a variety of regulatory methods  
Enhancing water conservation Reducing water pollution

**Australia** – A **\$10 Bn** national plan for water security, issued on Jan. 2007 Focusing on **improving water efficiency** and address over allocation of water in rural areas.





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## Drip Irrigation Contribution *Water Conservation*

### Water Use Efficiency of Drip Irrigation Methods:

- Minimize Water Resources Depletion  
*Irrigate the Plant, Not the Soil.*
- Reduces the usage of nutrients and crop protection material thus **Prevents Water Source Pollution**
- Enables the **Usage of Recycled Water** for irrigation.





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## Drip Irrigation Contribution *Reduction of Gas Emission*

- Precise application of nutrients and crop protections materials **Reduces the Release of Gases** to the atmosphere
- Collecting & **Recycling** used dripperlines (Polyethylene)



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## Drip Irrigation Contribution *Energy Savings*

Agronomic solutions that offer:

- Optimize yield and ensure supply of **Bio-Energy Crops** for bio-fuel production
- Irrigation systems that significantly require **Low Energy Input**
- Irrigation solutions for areas that have **No Accessibility to Energy** sources





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## Drip Irrigation Contribution *Secure Food Supply*

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 and accessibility.
- Prevents soil erosion and thus **Preserve Soil Fertility**.





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## Drip Irrigation Contribution *Secure Food Supply*

### 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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*“Among the many things I learnt as a president, was the centrality of water in the social, political and economic affairs of the country, the continent and the world”*

*Nelson Mandela,  
World Summit on Sustainable  
Development, 2002*





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# Thank You

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**Natan Barak**  
**NETAFIM**

**Grow More With Less**

