

# ***MALAYSIA WATER RESOURCES MANAGEMENT FORUM 2014***

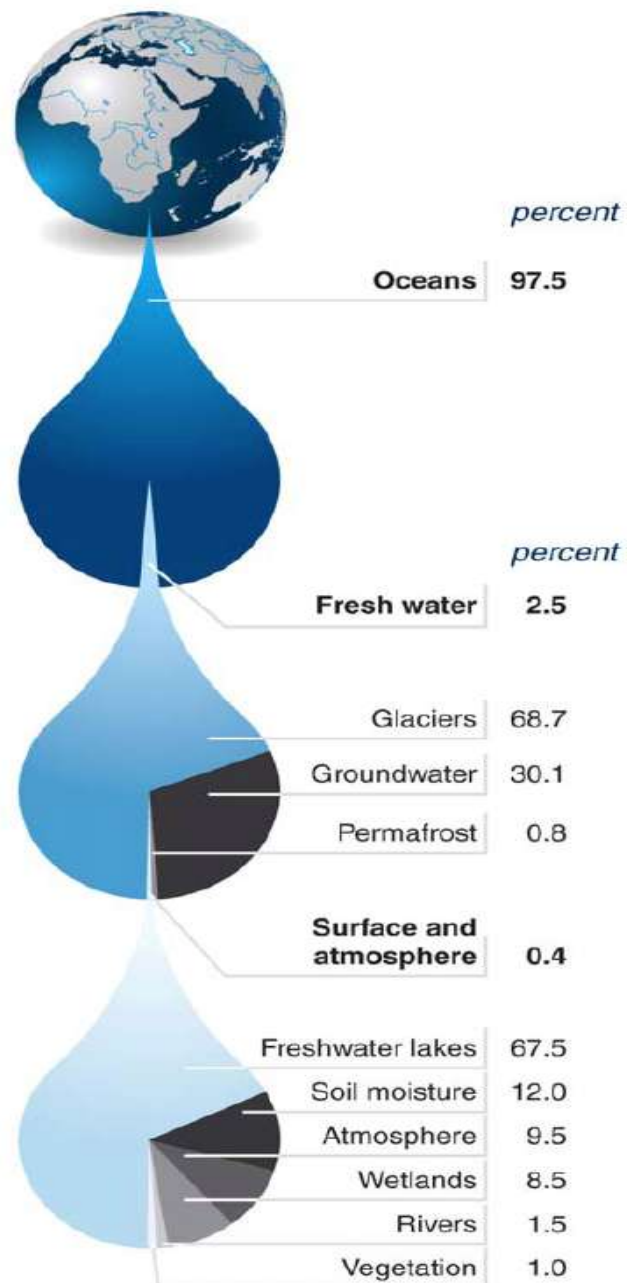
***“WATER INNOVATIONS AND  
COOPERATION – SHAPING THE FUTURE  
WE WANT FOR ALL”***

***9 & 10 June 2014, PUTRAJAYA,  
MALAYSIA***

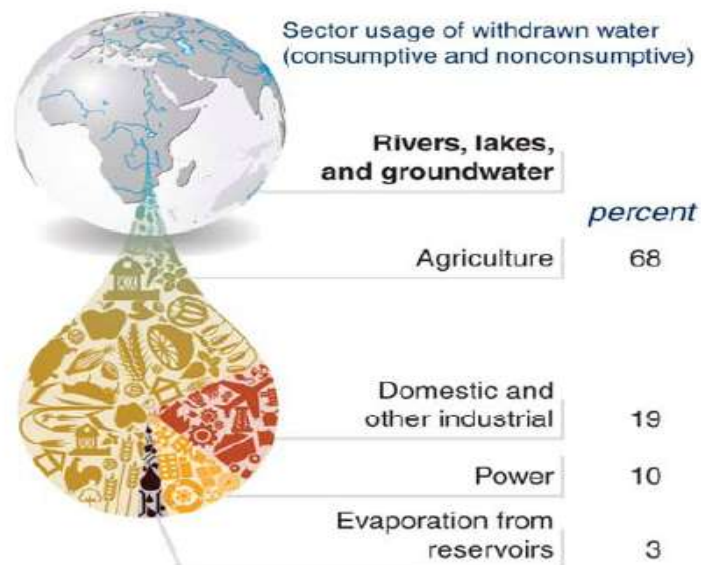
***Dr. Olivia laO’ Castillo***

***Member, United Nations Sec.Gen  
Advisory Board on Water & Sanitation  
(shared by Margaret Catley-Carlson,  
UNSGAB member)***

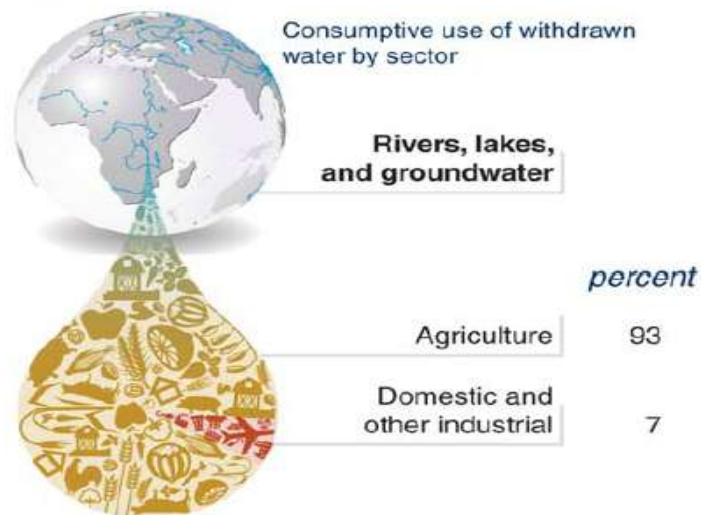
## Water Distribution



## Freshwater Use



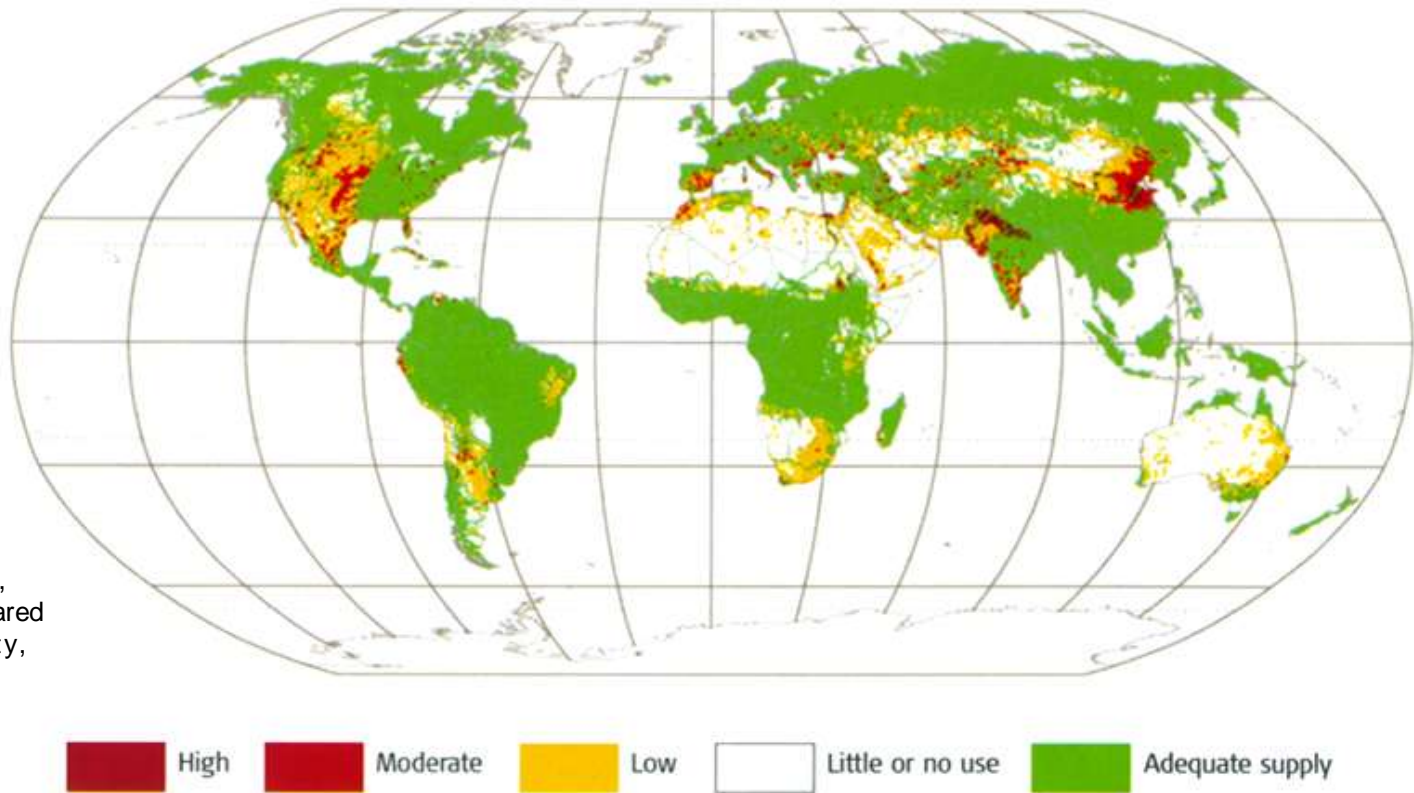
## Freshwater Use



# Let's look at what we have to change

## Regions where water withdrawals are

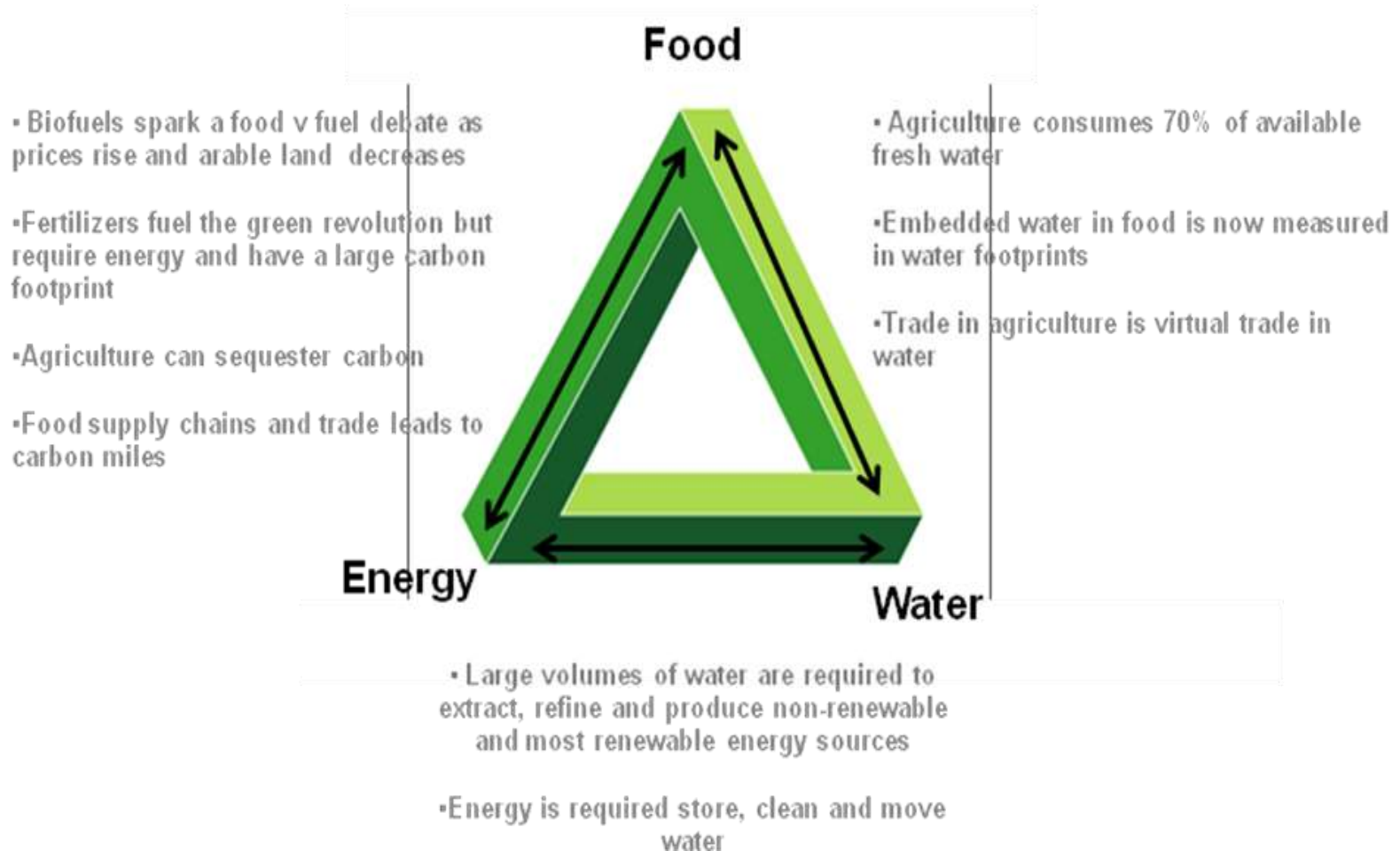
- 'exceeding natural supply



# IT'S ALL ABOUT BALANCE: CONTEST OFTEN LOCAL

## WATER FOR FOOD, WATER FOR ENERGY, WATER FOR HUMAN USE

### WHAT'S MISSING?.....THE ENVIRONMENT



# What's missing

- **how to get policy into practice, ideas into use** – we already have a lot of good policies and good ideas.
- **Work at the real level of the problem,**
  - Water is local, local, local
  - ie look at the farmer not at global water use in agriculture
- **STUDY SUCCESS/INNOVATIONS/  
COOPERATION**

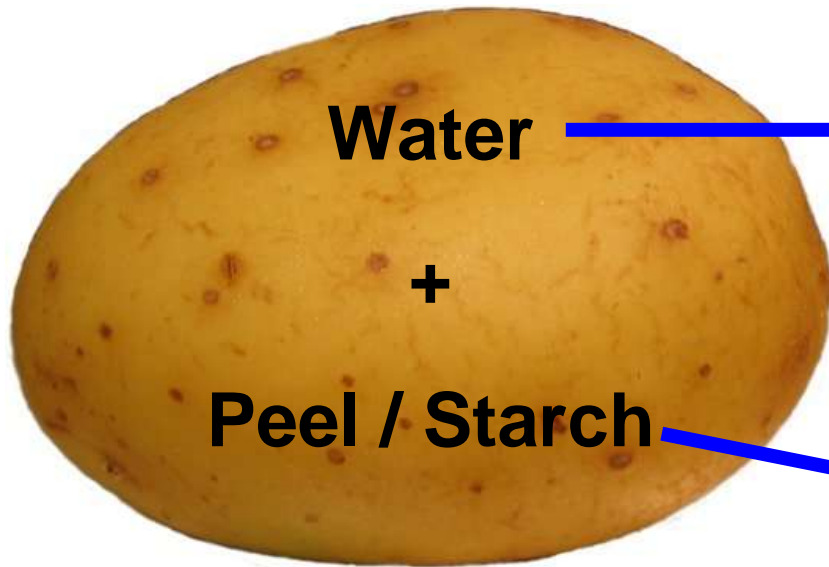
# **What can Governments DO? – find the issue tough?**

**Private Sector is doing things interesting**

- **Some of the most innovative water savings**
  - **Coke, Pepsi, Nestle, several Breweries.**
  - **Go to the websites.**
- **Some Companies are rethinking wastewater reuse as a possible business**
  - **Heineken**
- **Many companies investing now (eg financing farmers to switch to in new irrigation) to increase long term supply possibility.**

We are developing the first near Zero Water Potato Chips process in Canada...

**Near Zero Water  
Potato Chip Processing**



4 Phase Plan in Development

1<sup>st</sup> Near Zero Water Large scale Food plant in  
Canada

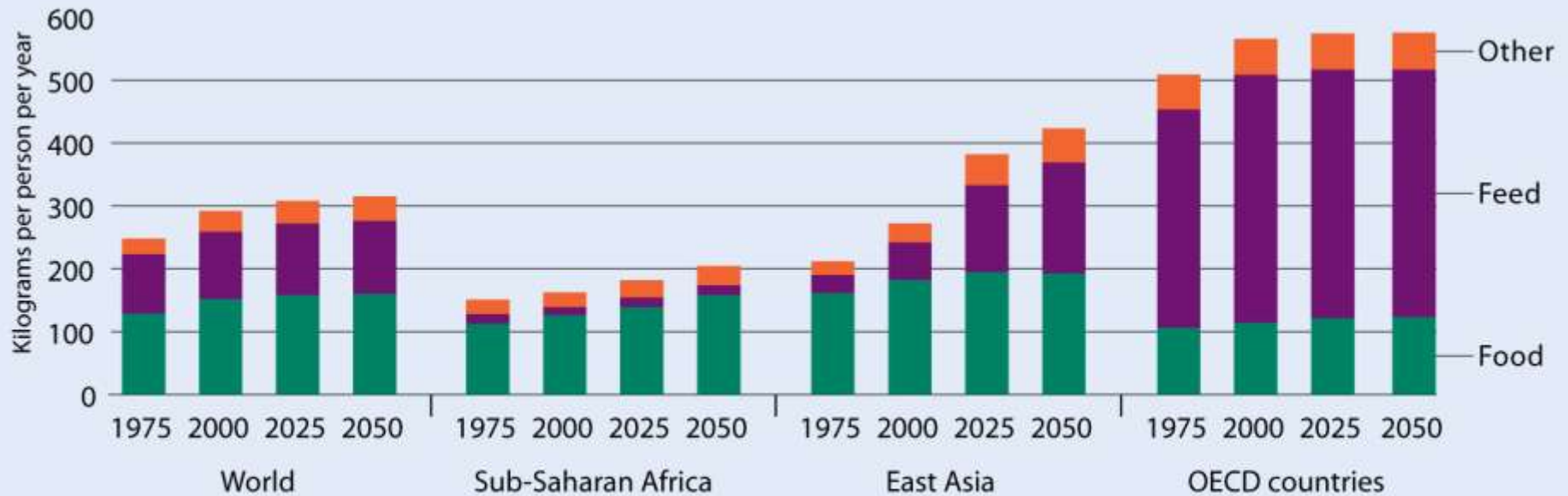


# How much more water for cereals?

1 calorie = 1 litre

About 75%

global use



Source: For 1975 and 2000, FAOSTAT 2006; for 2025 and 2050, International Water Management Institute analysis done for the Comprehensive Assessment of Water Management in Agriculture using the Watersim model.

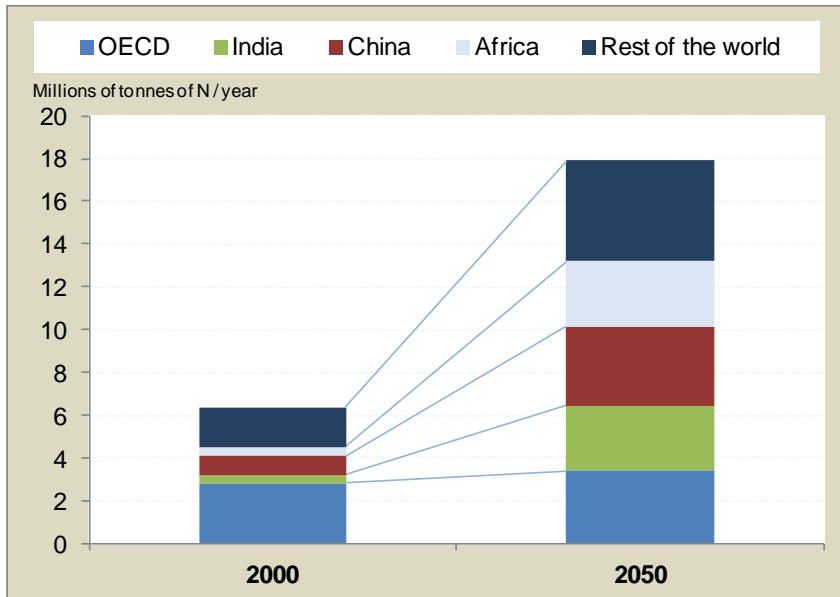
**Food demand doubles over the next 50 because of diet and population**

**Water Needs (ET) will double – without water productivity gains**

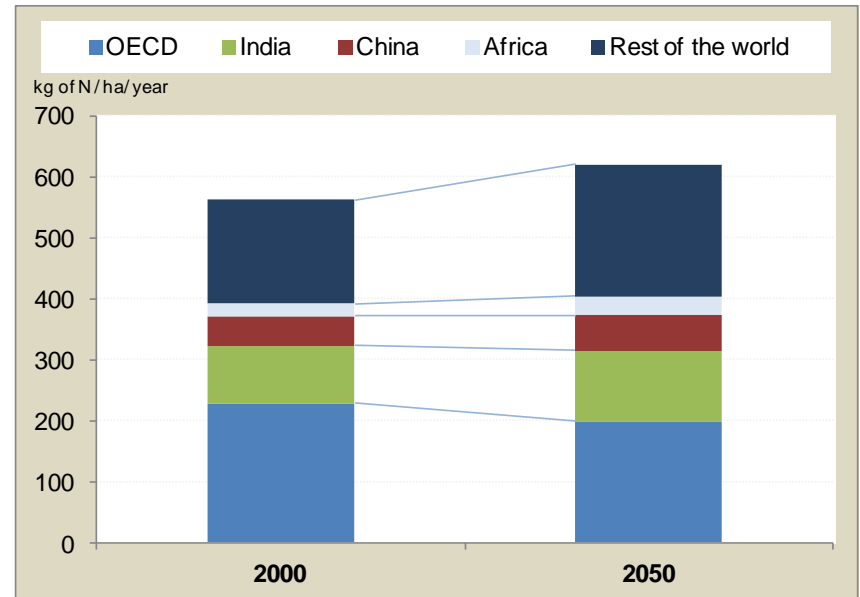


# Wastewater and water quality an increasing concern

## Nitrogen effluents from wastewater



## Nitrogen surpluses from agriculture



Margaret Catley-Carlson, UBC November 2013

# SUCCESS: new fertilizer model

IFDC

## New Fertilizer Technologies

The Soil-Plant-Human Relationship is Dynamic and Inextricable



- **Primary Nutrient Fertilizers Infused with Secondary & Micronutrients**
- **Recycled Sludge/Waste**

- **Recycling & Reuse of Primary Nutrients like Phosphorus**
- **Other Nutrient Delivery Technologies**

# Fertilizer Deep Placement



## Benefits of FDP:

- Yields increased by ~20%.
- Fertilizer use reduced by 33%.
- Nitrogen losses reduced by 40%.

## In Bangladesh:

- More than 4.65 million farmers have adopted FDP technology on 1.5 million ha in three rice crops.
- Incremental rice production has been more than 1.3 million mt.
- Participating farmers have realized an average of \$300/ha incremental net income per year.
- UDP can reduce urea's GHG footprint in Asian paddy rice production by 62%.

# Energy for water

THROUGHOUT THE WATER CYCLE, ENERGY IS NEEDED TO...

**Purify & distribute water for use**



**Pump water from underground aquifers**



**Desalinate brackish & seawater to provide new supplies**





# Saving water in energy

Water is a crucial input at all stages of the power generation cycle:

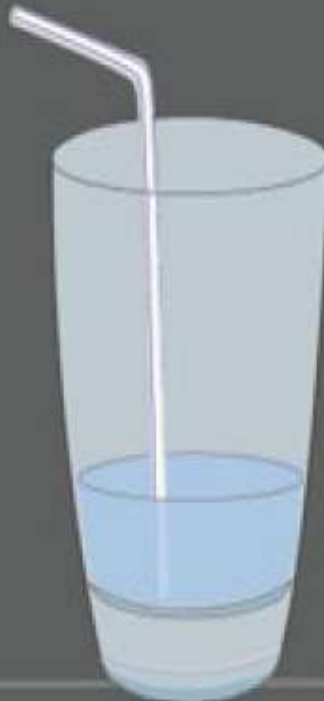
## MINING & REFINING ENERGY MINERALS



## HYDROPOWER GENERATION



## COAL & GAS LIQUEFACTION & GASIFICATION



## PROCESSING



Crude Oil

Tar Sands

Oil Shale

Gas

Uranium

Coal

## FUEL EXTRACTION

## GROWING & PRODUCING BIOFUELS



## THERMOELECTRIC COOLING



## TRANSPORTATION

## EMISSIONS CONTROL & CARBON SEQUESTRATION

## ***COOPERATIONS UNDERTAKEN***

- ✓ ***Multilateral/Bilateral Agreements***
- ✓ ***Regional Development Banks***
- ✓ ***ASEAN/APEC/EU/ others***
- ✓ ***G7/8/20/77, etc***
- ✓ ***Regional, National, Local Agreements***
- ✓ ***Public-Private-Partnerships***
- ✓ ***International Donors like UNESCO and the UN system,***
- ✓ ***Academe, Media, Communities,***
- ✓ ***Many Others***

# ***Shaping the Future We Want For All***

- ❖ After the MDGs, is it SDGs?***
- ❖ There are 11-17 thematic consultations...what are we going to choose?***
- ❖ To give you an idea about these consultations...there are the following:  
water, energy, food security and nutrition,  
inequality, conflict, violence and disasters,  
education, environmental sustainability,  
governance, growth and employment,  
health, hunger, population dynamics***



***WHAT ARE YOU GOING TO DO? For starters,***

# **POSSIBLE PASSION #1**

- **CUT AGRIC WATER USE**
- **MORE CROP PER DROP**
- **YIELDS UP, INPUTS DOWN**
- **LIFT 800 MILLION FARMERS  
STILL AT YIELD LEVEL OF  
ROMAN EMPIRE**

## **POSSIBLE PASSION #2**

- **REDUCE WATER  
NEEDED TO MAKE  
ENERGY AND ENERGY  
NEEDED TO DELIVER  
AND PROVIDE  
WATER**

# What's the fix? INNOVATIONS?

- New ways of designing city water systems
  - Decentralizing waste water treatment facilities closer to source: apartment buildings, shopping centers.
- Using the energy of wastewater to run wastewater treatment plants,
  - Or city busses – Rotterdam, Amsterdam
  - Or small or large scale biogenerators – look at Barda and explosion of biogas based energy
- Fix leaks
  - Edmonton EPCOR a great winner here (and Singapore, Phnom Penh and others).
  - ***SMART TUNNEL IN KUALA LUMPUR***
  - ***SMART WATER RESERVIOR AT THE YOKOHAMA STADIUM***
  - ***OTHERS***

# *Cares?*

*If all we leave our  
children are*



*Dead Rivers and  
Lakes,  
Slum Housing*

*We all Do !!!*





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