

rotary international

# Rotary International

Lausanne, January 2011

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## Dilemmas in Food and Nutrition

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# the “perfect storm”

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**January 2011**

**UK Chief Scientist Sir John Beddington warns that by 2030 the rising global population will create a 'perfect storm' of food, energy and water shortages**

## the “perfect storm”

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- **1 billion hungry**
- **1 billion inadequate nutrients**
- **1 billion eating too much**
  
- **poorest of poor spend 2/3 on food!**

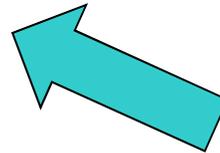
# the “perfect storm”

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**Beddington**

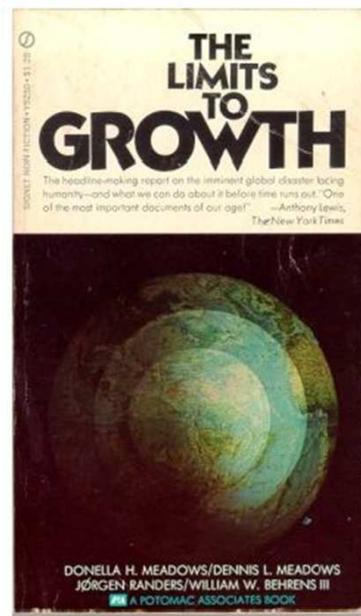
## Meadows, Meadows and Randers



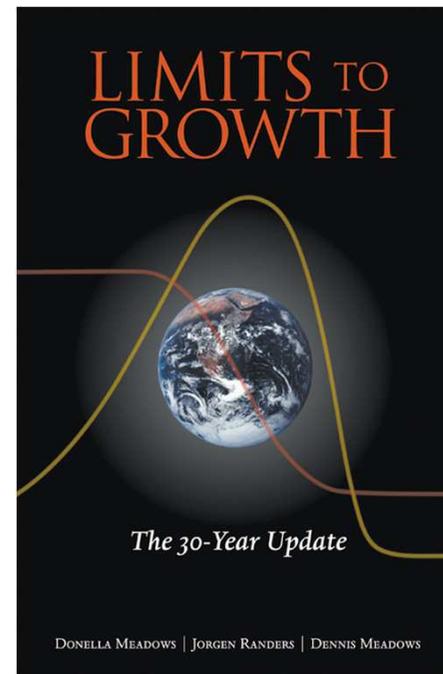
# the “perfect storm”

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## Club of Rome



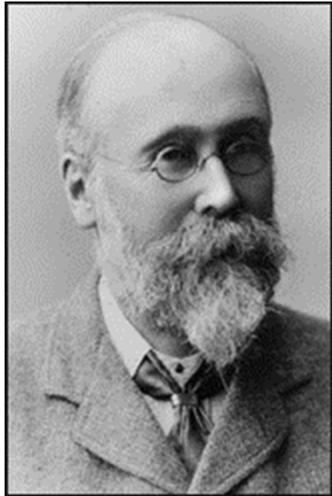
1972



1992

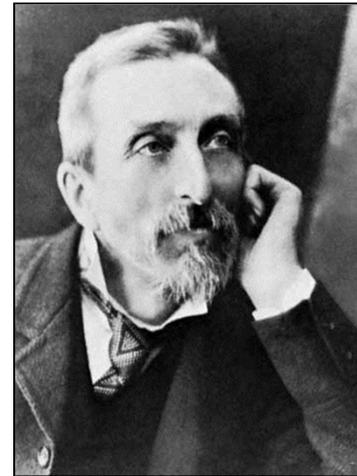
# dilemmas in nutrition: poverty

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*Joseph Rowntree 1836 – 1925*

**... the poor eat less and worse...**



*Charles Booth 1840-1916*

**... have more health problems and die younger**

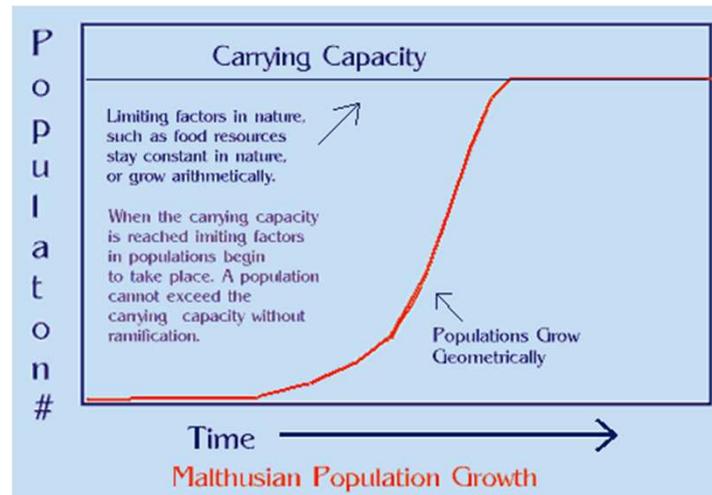
# the “perfect storm”



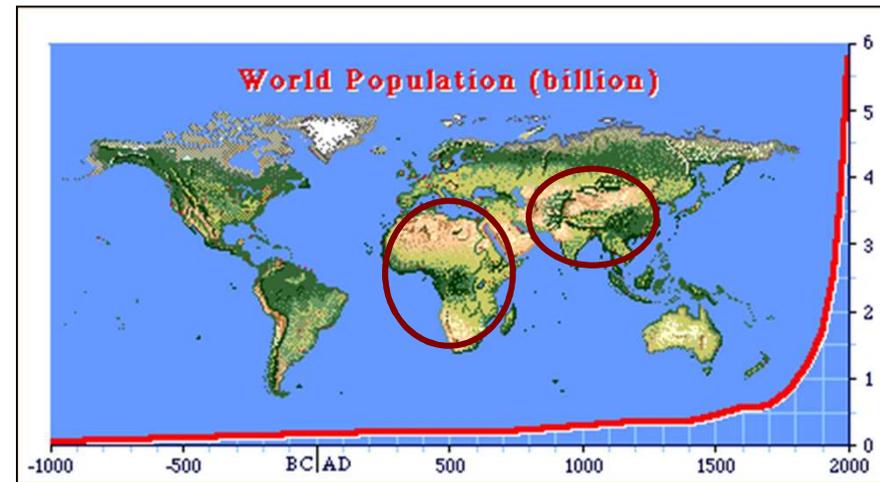
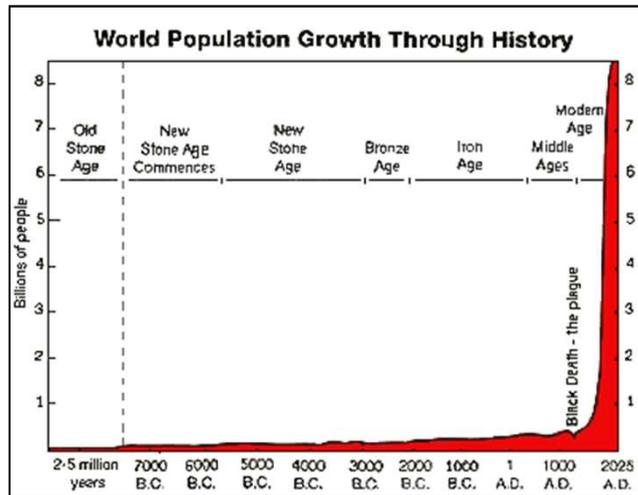
## Thomas Malthus (1798) An Essay on the Principle of Population

$$f(t) = a \times 1.01^t + b \times 1.02^t, \text{ where } a > 0 \text{ and } b > 0.$$

$$g(t) = b \times 1.02^t$$

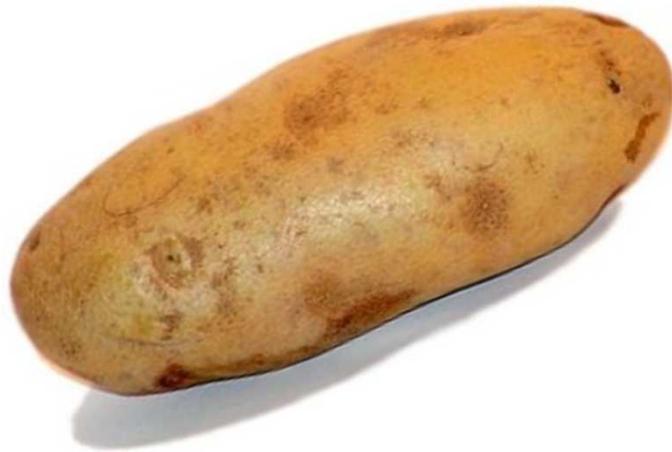


# the “perfect storm”



# dilemmas in nutrition: virus famine

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**in Ireland over 1 million died of disease and starvation**

# dilemmas in nutrition: abusive famine

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**went to England**

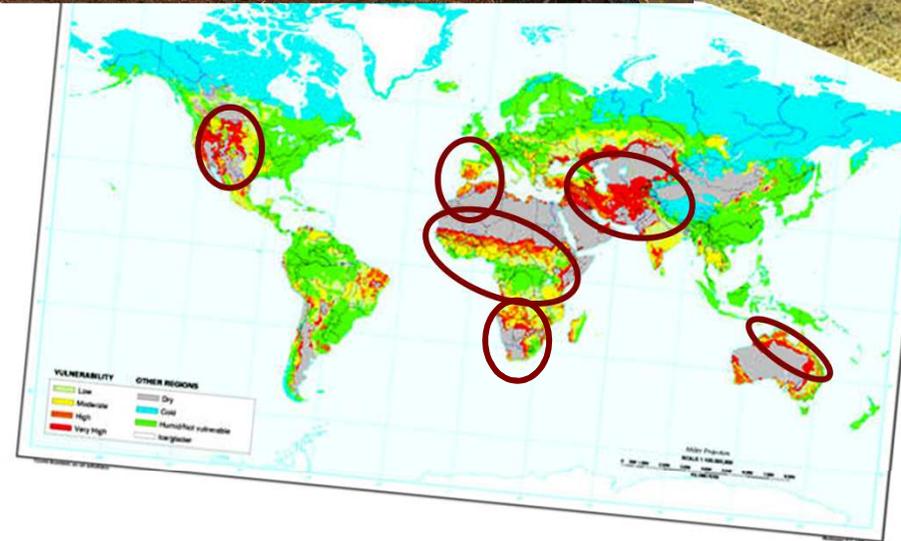
# dilemmas in nutrition: climate famine

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famine

- China 1896-1892 >1 million died
- Ethiopia 1888-92 >33% pop. died
- India 1896-1892 >1 million died
- Russia 1891-1892 >500,000 died

# dilemmas in nutrition: climate change



# dilemmas in nutrition: climate change

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# dilemmas in nutrition: climate change

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# dilemmas in nutrition: conflict

1998 - 2004 at least 3.8 million people died in the DRC from disease and starvation resulting from **WAR**



# dilemmas in nutrition: conflict

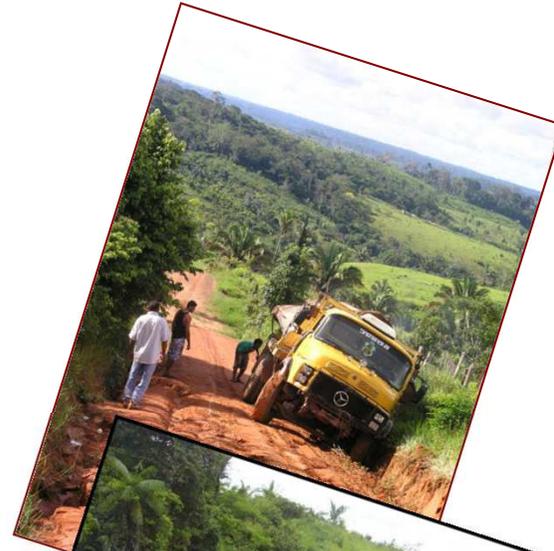
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Changing nature of war and its implications for public health

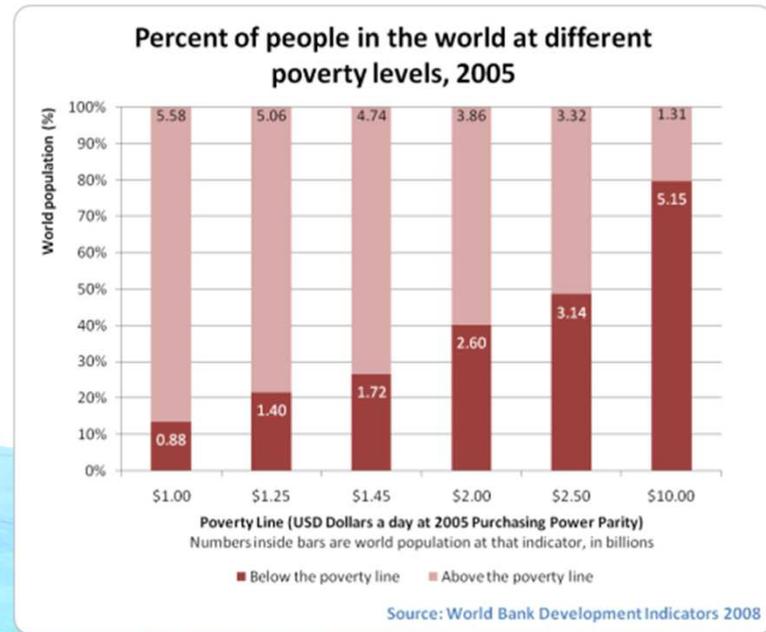


# dilemmas in nutrition: logistics

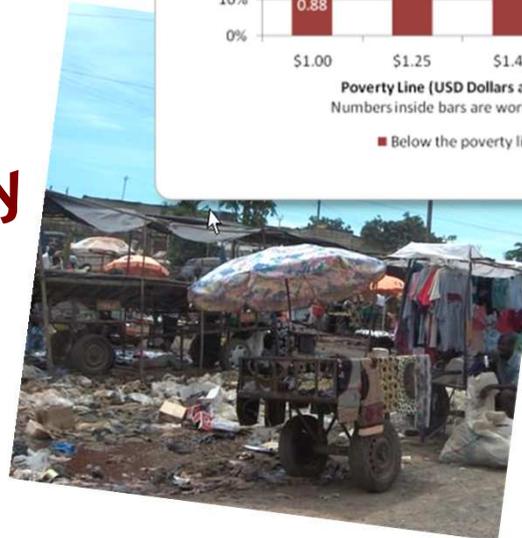
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# dilemmas in nutrition: poverty



at least 80% of humanity  
lives on less than \$10 a day



# dilemmas in nutrition: poverty

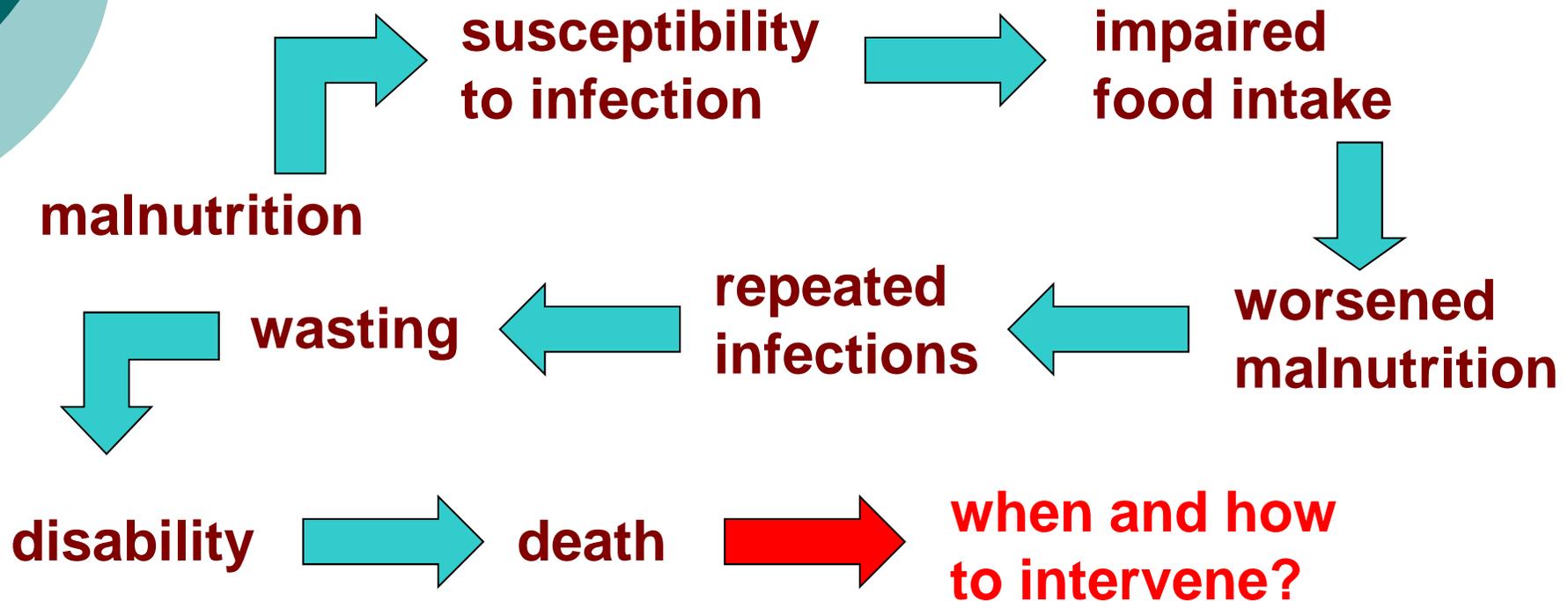
malnutrition kills 5 million children every year



.... one child every 6 seconds

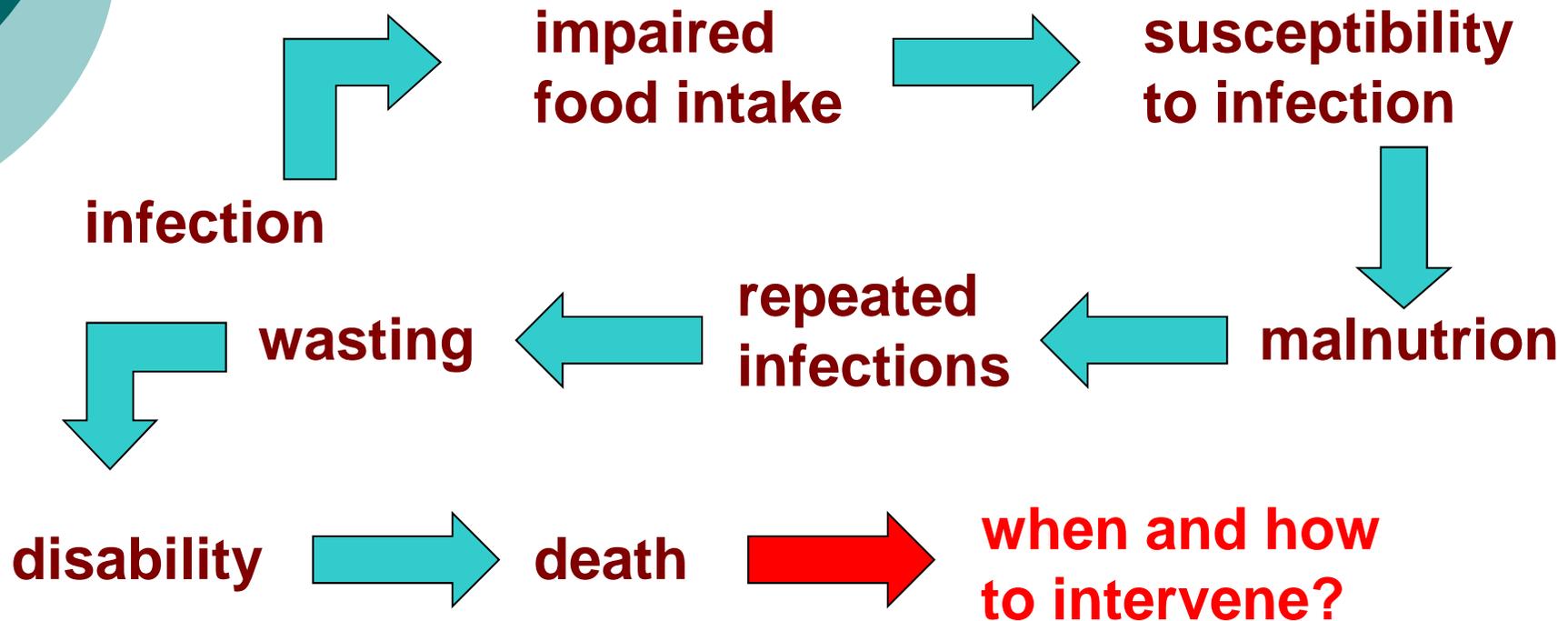
# dilemmas in nutrition – too little

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# dilemmas in nutrition - infection

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# dilemmas in nutrition - rehabilitation



rehabilitation works...



...again, again and again

# dilemmas in nutrition – too much

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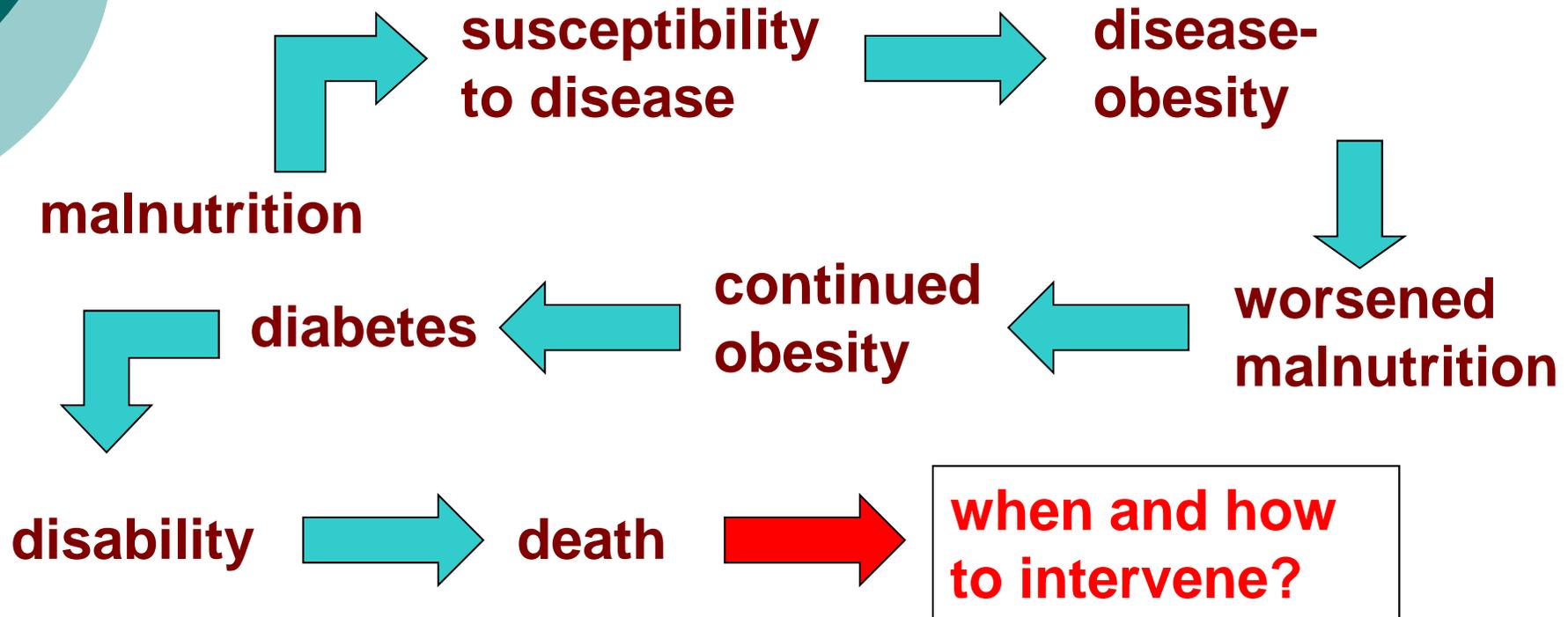


**...33% of American babies either overweight or obese as young as 9 months**



**...pediatric diabetes is a growing problem**

# dilemmas in nutrition – obesity diseases



# dilemmas in nutrition - rehabilitation

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rehabilitation works...



...sometimes and at great financial cost

# dilemmas in nutrition: how to feed

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**infant  
nutrition**



**infant  
infection**



**infant  
development**



# dilemmas in nutrition: how to feed

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**immunologically ideal**  
**nutritionally ideal**  
**psychologically good**



**immunologically deficient**  
**nutritionally sound**  
**psychologically can be**

# dilemmas in nutrition: how to feed



...not as simple or straight forward as it seems

# dilemmas in nutrition: preparing food

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**1/6 people in the world have no safe drinking water**



**boiling water means collecting firewood**



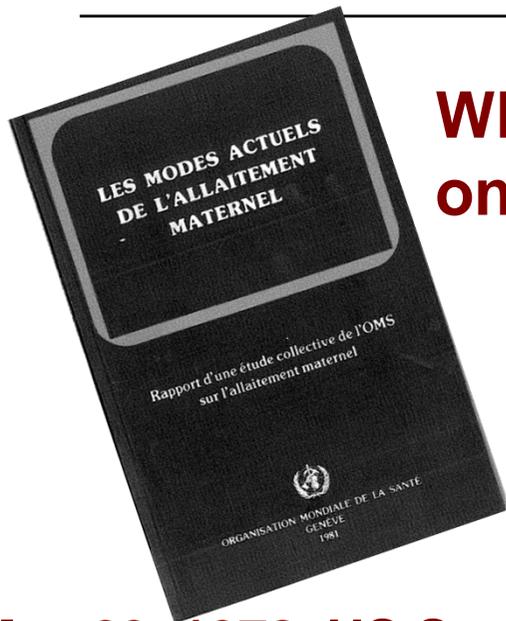
# dilemmas in nutrition: how to prepare

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...hygiene is not as simple as it may seem



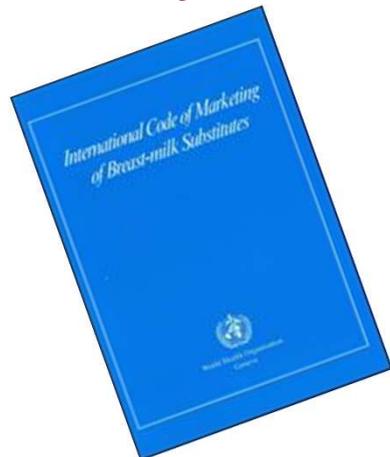
# dilemmas in nutrition: what to feed



**WHO publishes reports on breastfeeding**



**May 23, 1978, US Senate holds hearings on formula promotion**



**May 21, 1981, the World Health Assembly overwhelmingly adopts the International Code**

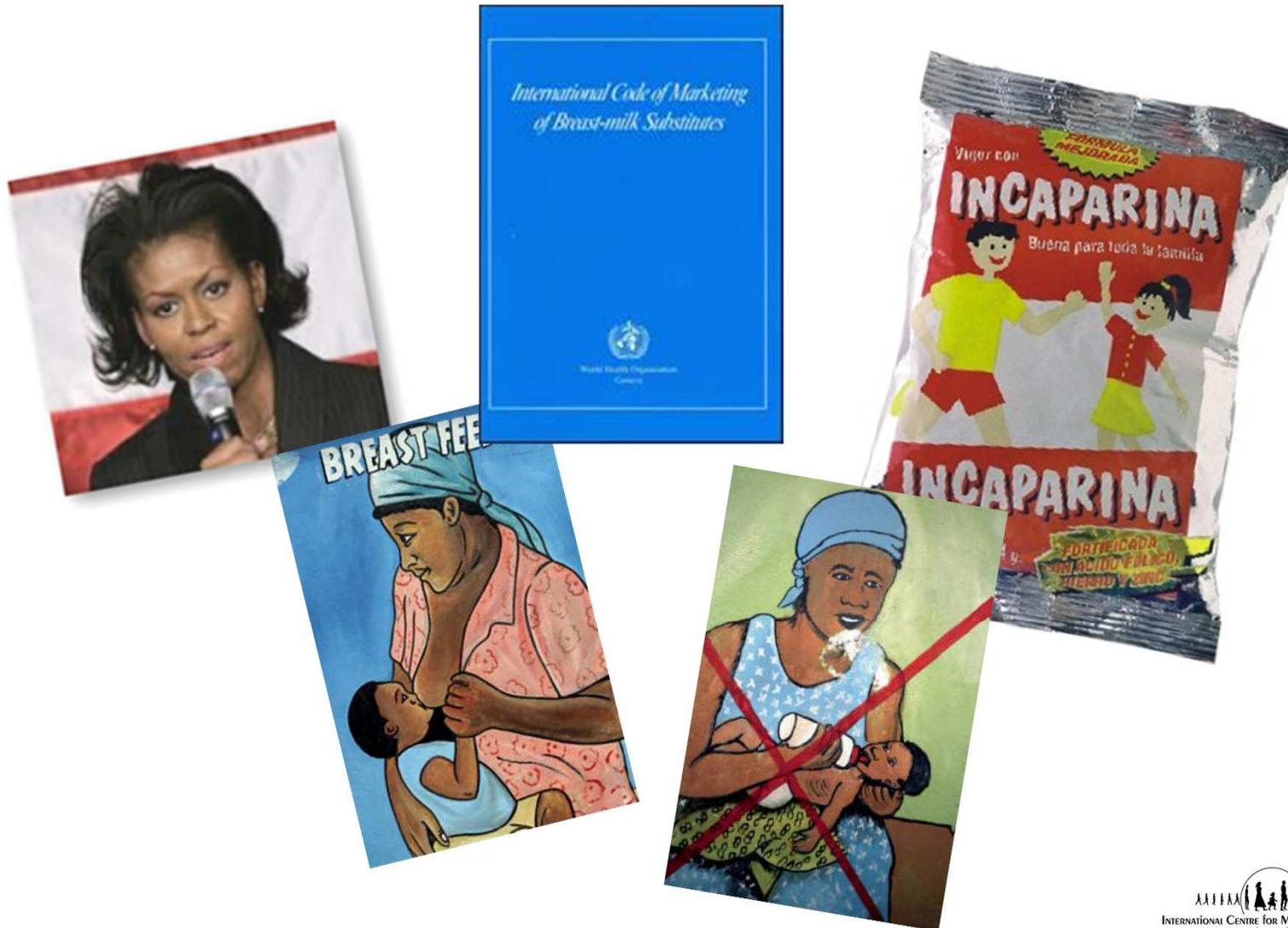
# dilemmas in nutrition: what to feed

...from home prepared to industrially processed



*All you can eat in Zurich*

# new opportunities in nutrition



# new opportunities in nutrition

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# new opportunities in nutrition

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**...in 2009 China planted 5.88 million hectares of forest, more than double the number of trees that the rest of the world plants in a year**

**...by 2050 the artificial forest will reach 400 millions of hectares and will cover more than 42% of the whole of the country**

# new opportunities in nutrition



# new opportunities in nutrition

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# **new opportunities in nutrition**

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**national/international food & nut. plans**

**food & nutrition education**

**global food “pooling”**

**national food “rationing”**

**public-private initiatives**

**better subsistence farming**

# new opportunities in nutrition

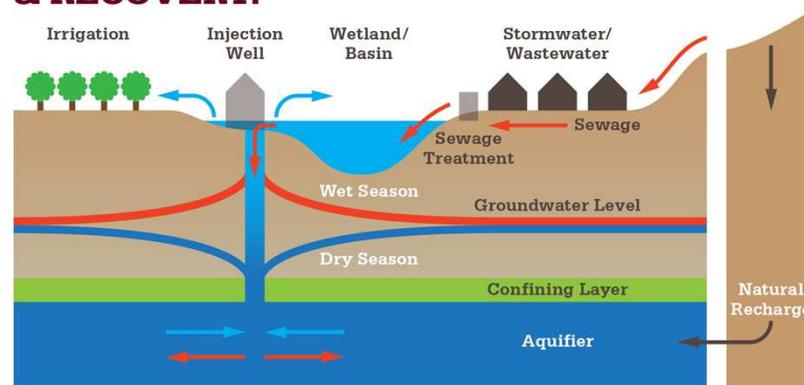
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**better and more use of fertilizer**

**new adapted seed varieties**

**better use of water**

## AQUIFER STORAGE & RECOVERY.



- Storm/Waste-water to aquifer in wet season
- Recovery from aquifer in dry season

# new opportunities in nutrition

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**...the future is full of opportunities  
for improving food and nutrition**

# dilemmas in nutrition

