



# Ensuring Global Food and Nutrition Security: The Role of Europe

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INTERNATIONAL FOOD POLICY  
RESEARCH INSTITUTE

# Key messages



- Global hunger and malnutrition persist
- Current / future challenges threaten global food and nutrition security
- An integrated approach is needed to sustainably improve food and nutrition security
- Europe has a key role to play

# 50+ countries have **serious / alarming / extremely alarming** levels of hunger

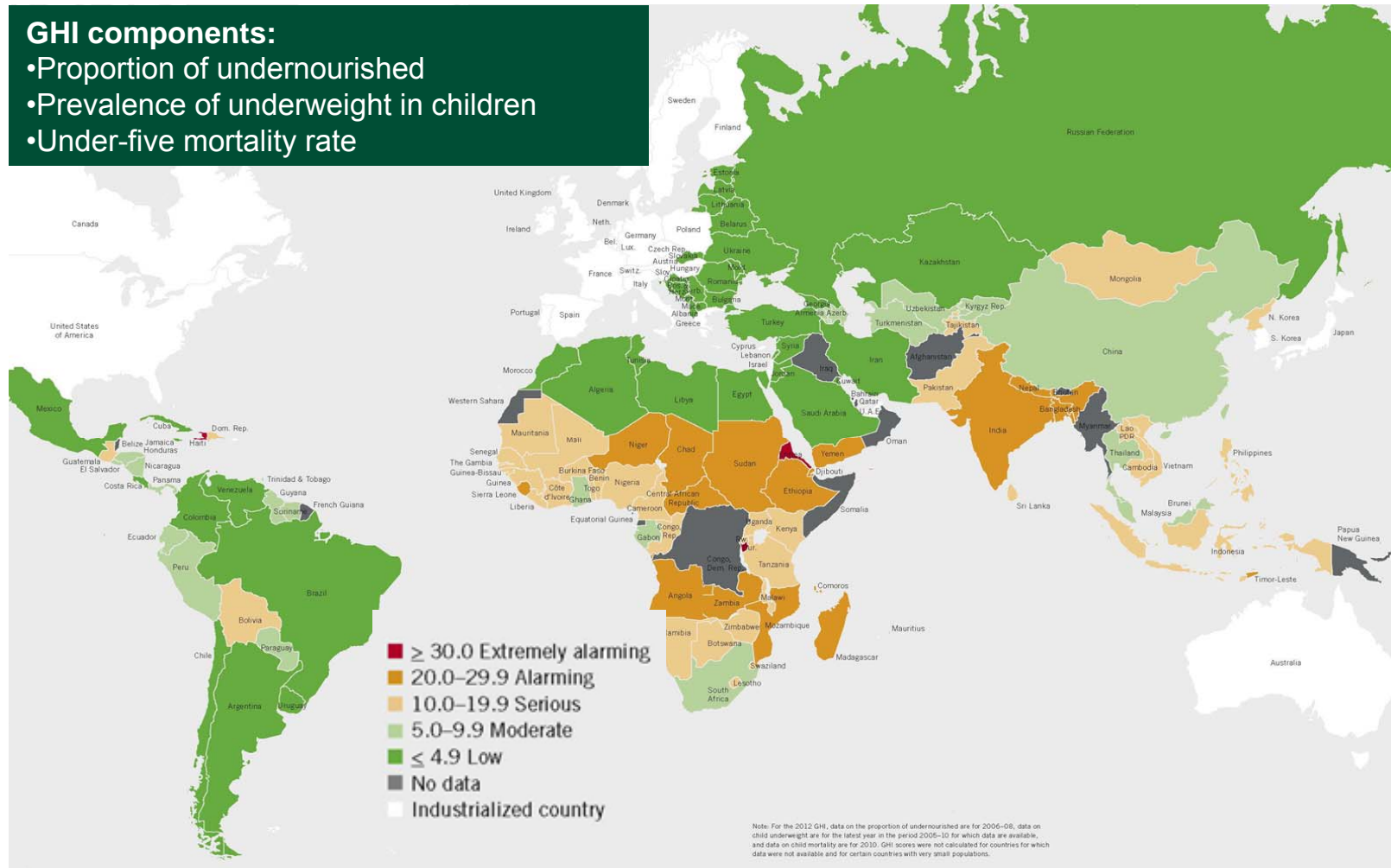


## 2012 Global Hunger Index

(Deutsche Welthungerhilfe, IFPRI, and Concern Worldwide)

### GHI components:

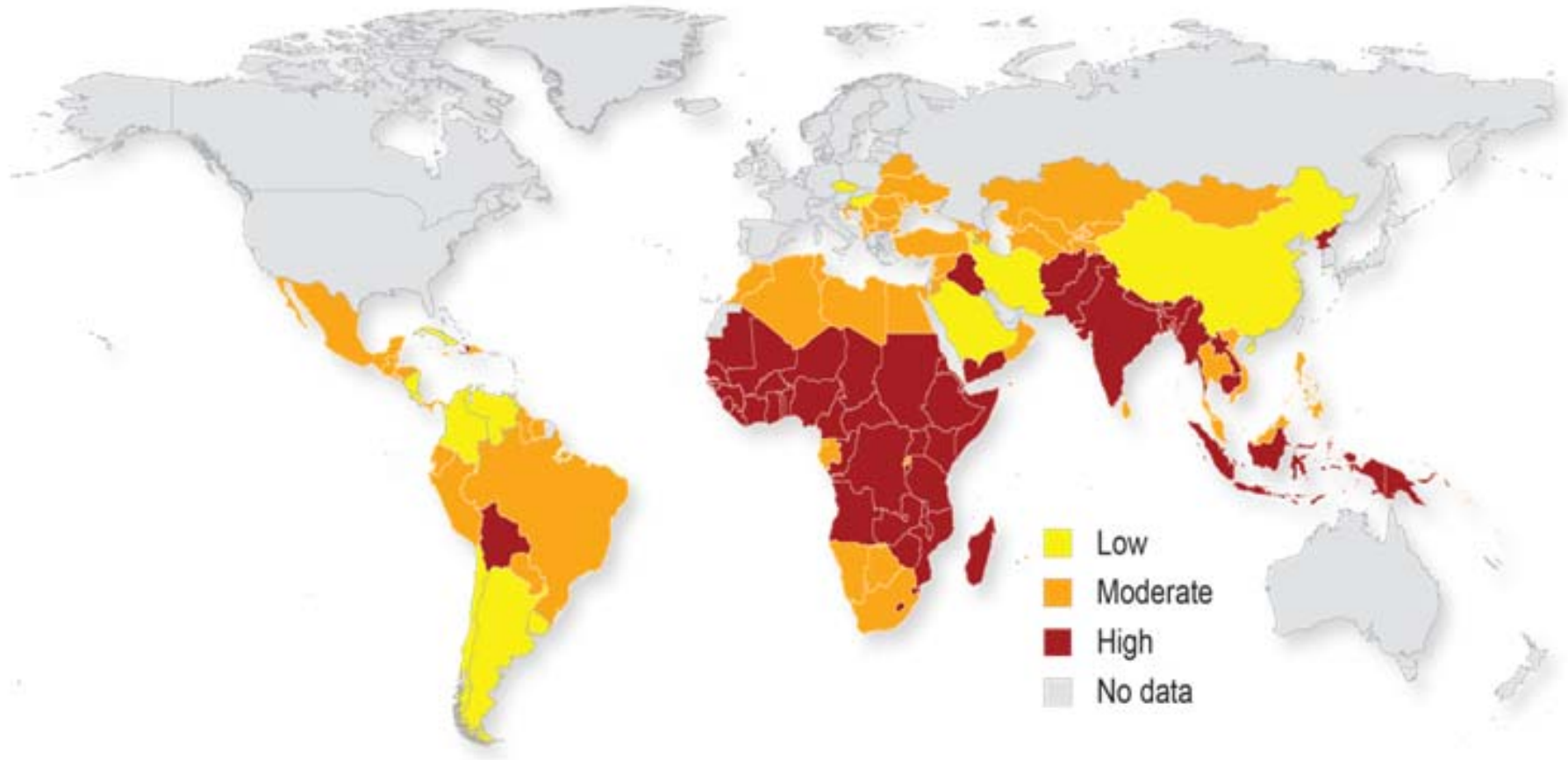
- Proportion of undernourished
- Prevalence of underweight in children
- Under-five mortality rate



# 2 bil. + people suffer from hidden hunger



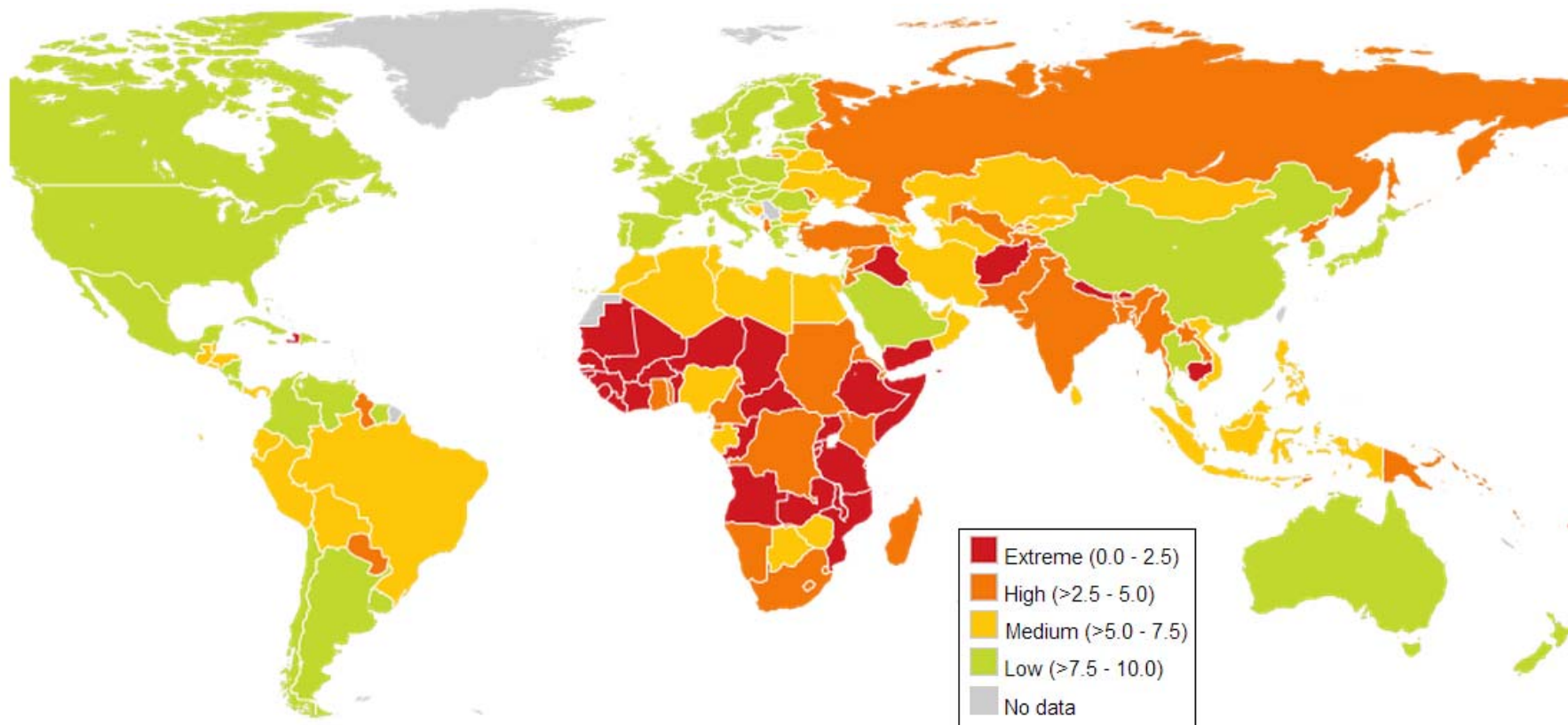
## Prevalence of micronutrient deficiencies



# The cost of undernutrition is high



## GDP losses due to micronutrient and vitamin deficiency



Source: Maple Croft 2011

**E.g. Economic cost of micronutrient deficiencies in India =  
US\$17.3 bil. (2004 dollars) or 2.5% of GDP**

# Current / future challenges threaten food and nutrition security

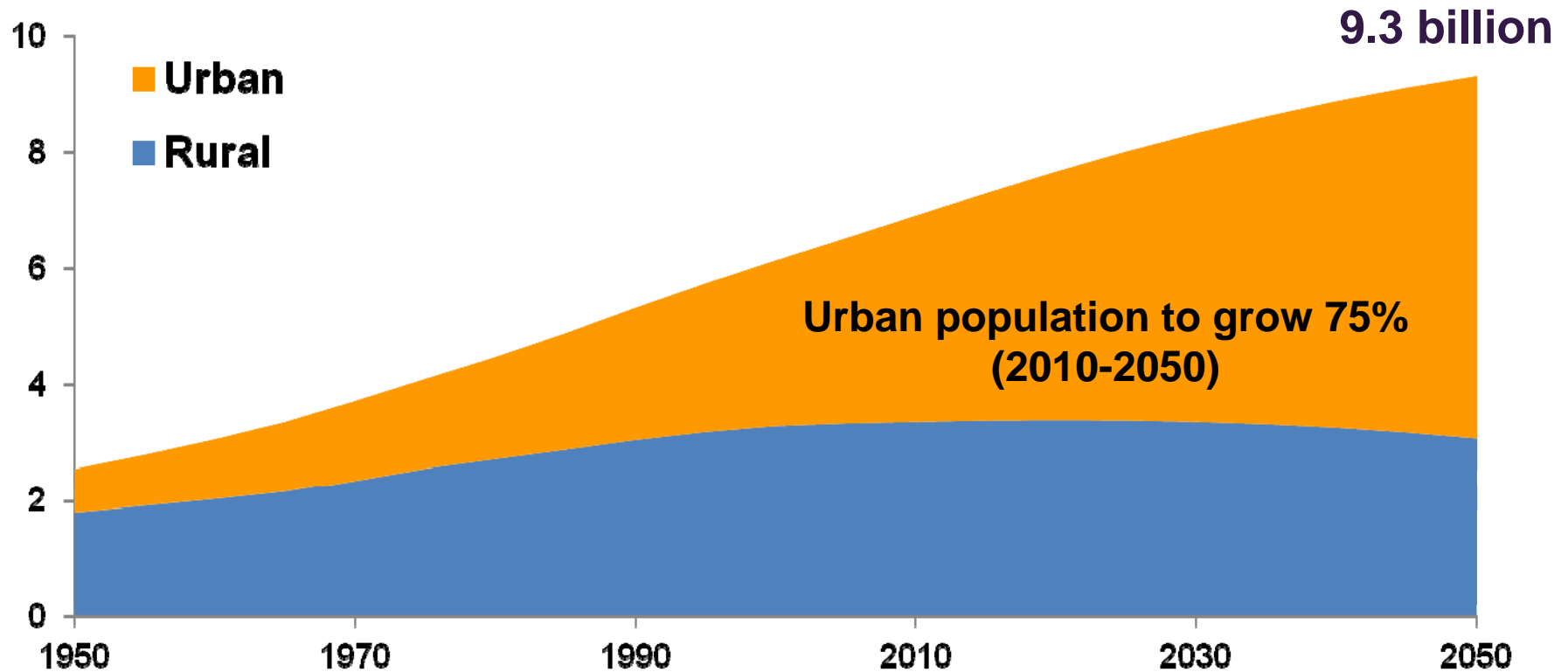


- Increasing population and urbanization
- Rising incomes and demand; diet changes
- Growing natural resource constraints
- Rising oil prices and biofuel expansion;  
Increasing volatility of food prices
- Climate change; higher frequency and  
intensity of extreme weather events

# Global population will be larger and more urban



World population (billions)



Source: Data from UN 2011

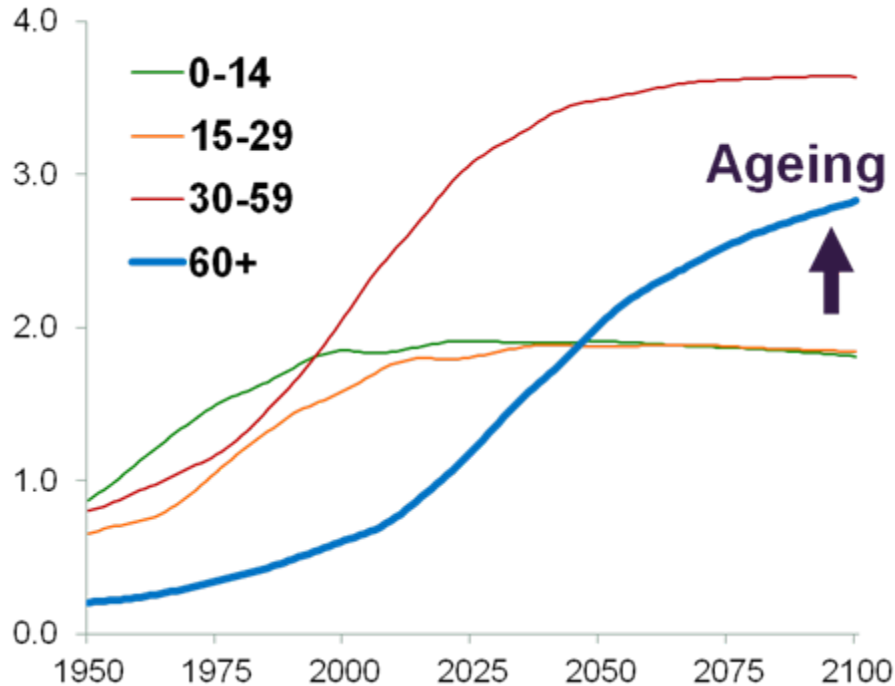
**Larger and more urban population will demand more and better food**



# Global population will be much older, BUT Africa will be younger

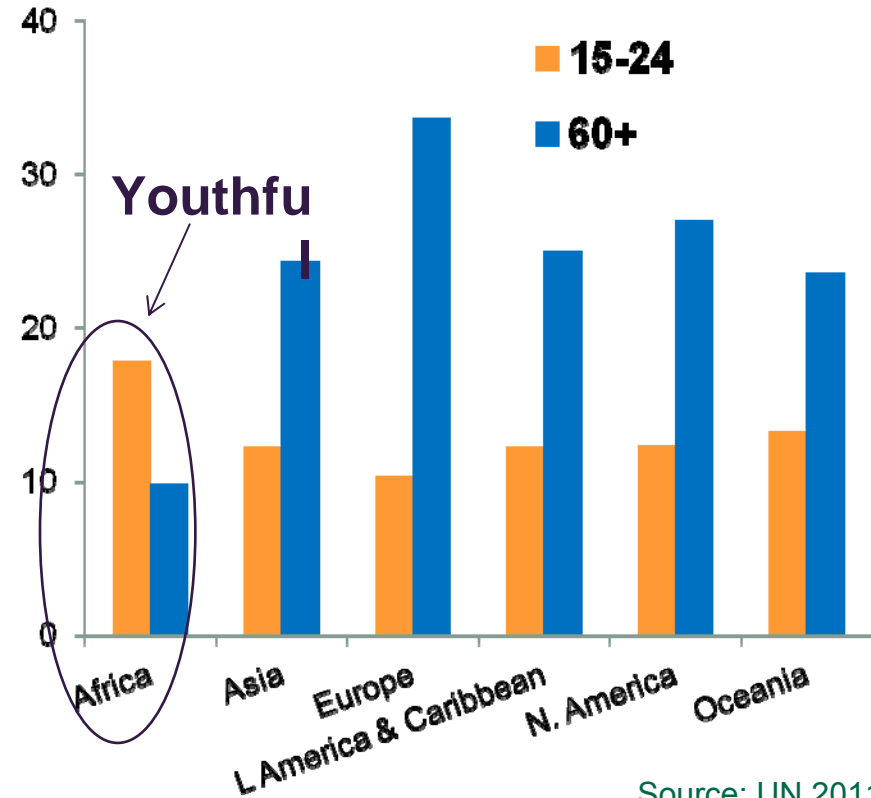


Number of population by age group (billions)



Source: UN 2011

Share of population aged 15-24 and 60+ (%)



Source: UN 2011

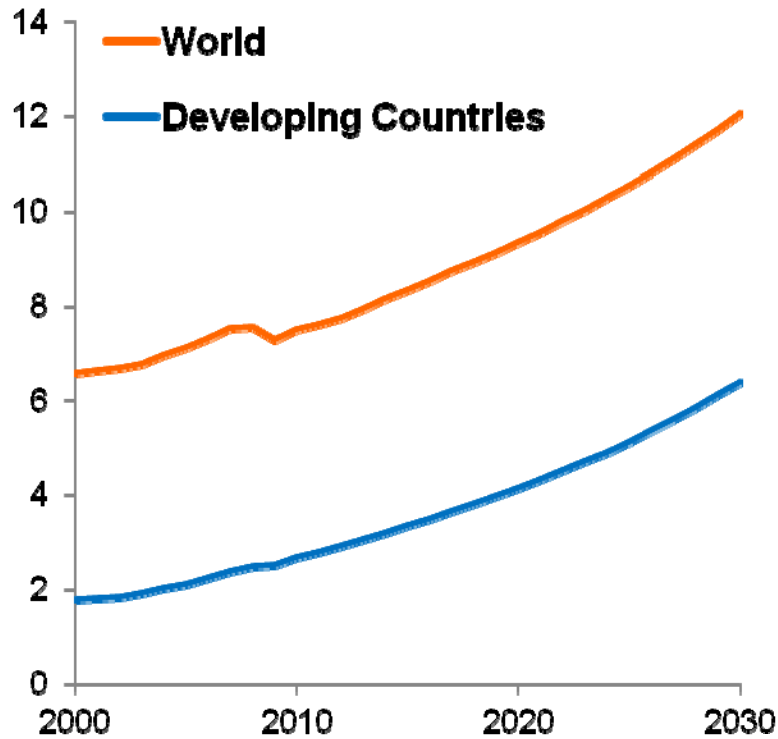
**Social protection and social security for poor & vulnerable groups AND jobs for the youth are needed**



# Rising incomes will lead to higher food demand and diet changes

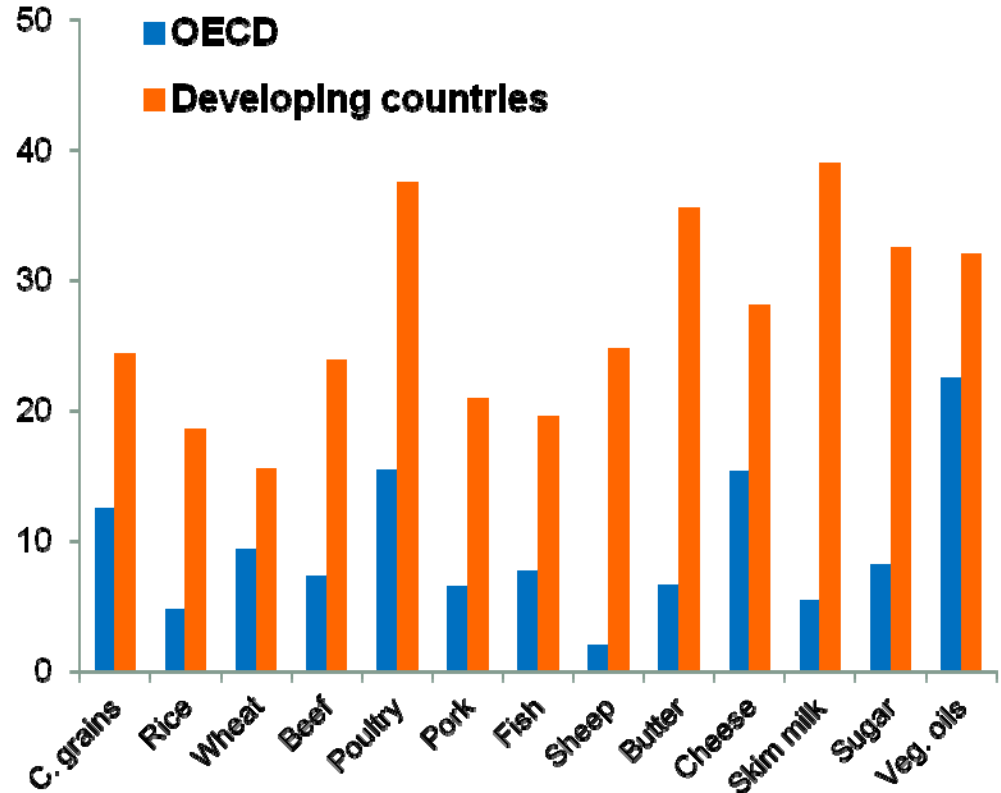


GDP per capita (2005 \$US in '000s)



Source: Data from ERS-USDA 2012

Change in consumption of agric. products, 2009-11 to 2021 (%)



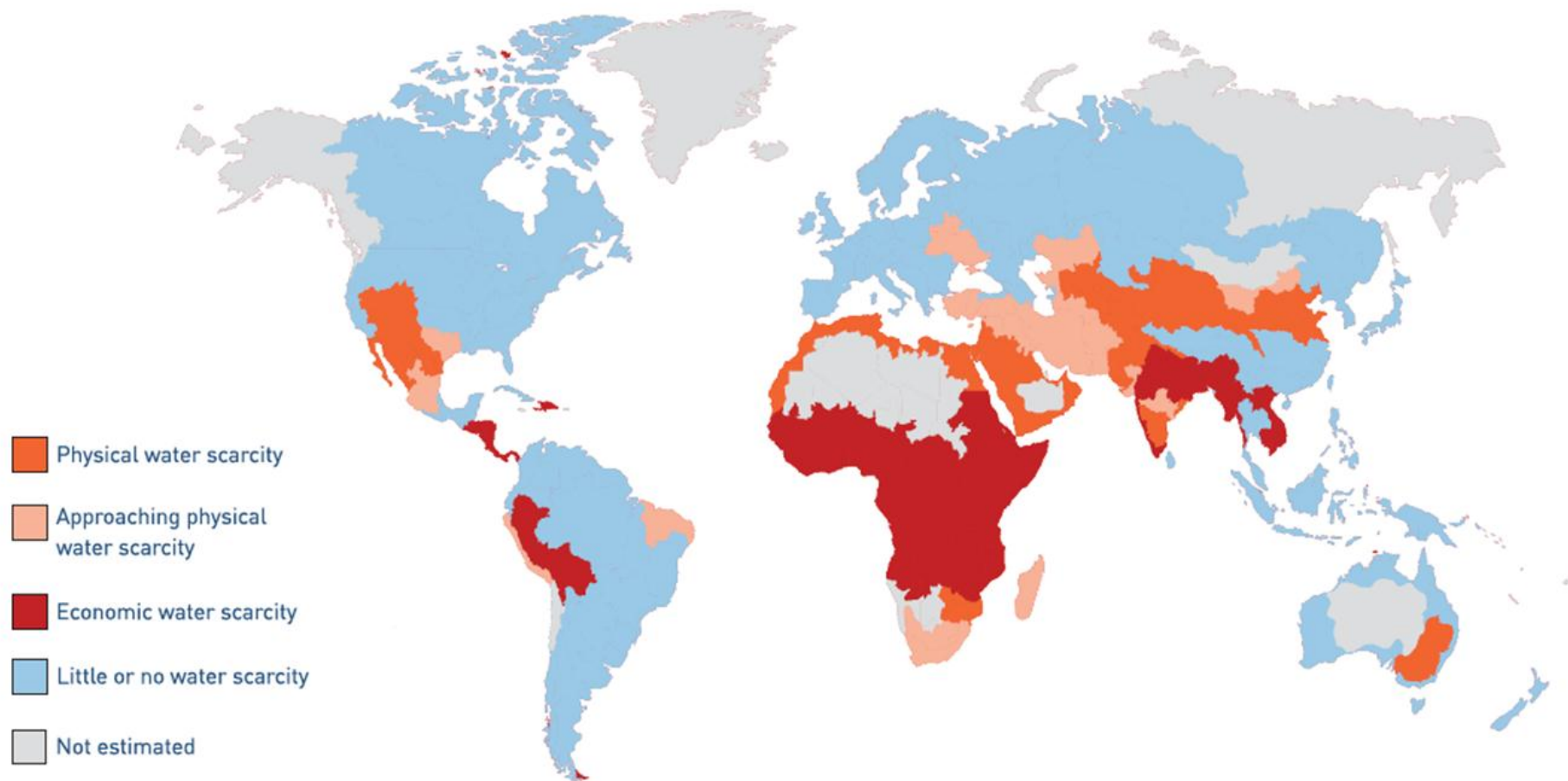
Source: Data from OECD-FAO 2012

**Global food demand expected to rise 60% by 2050** (FAO 2012)

# Water scarcity is a growing problem



## Areas of physical and economic water scarcity



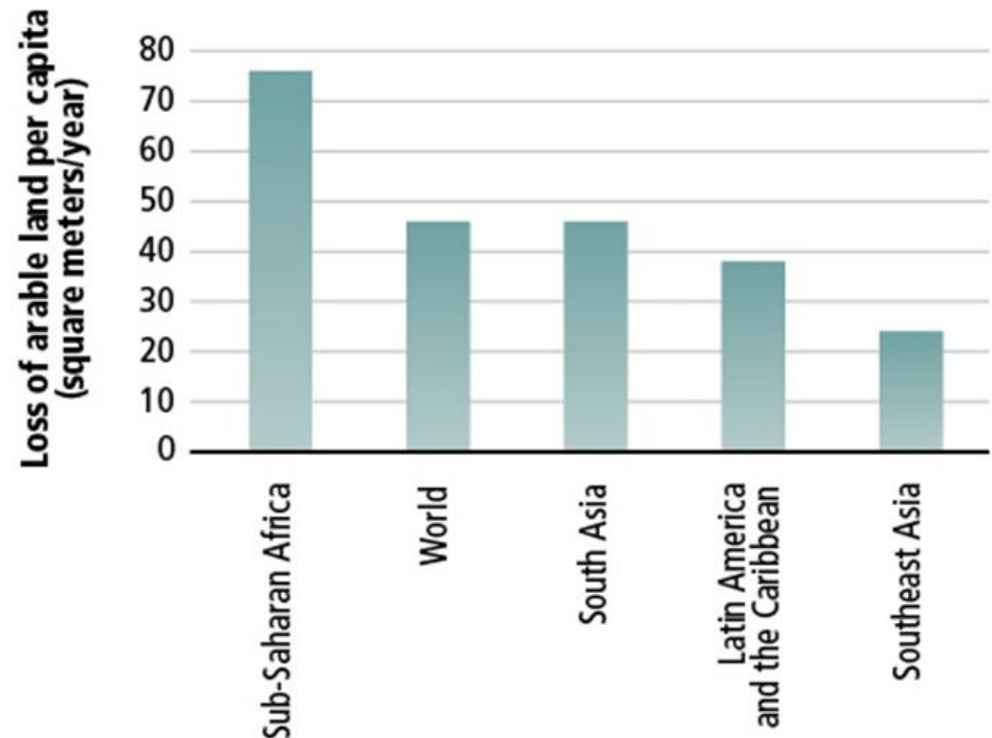
Source: FAO 2013

# Arable land scarcity is also a growing problem



- **Global farmland is degrading rapidly**
  - 24% of global land area is affected
- **Arable land per capita is decreasing**
  - **↓ 65%** (1970-2000)
  - Expected to **↓** further by **50%** by 2050

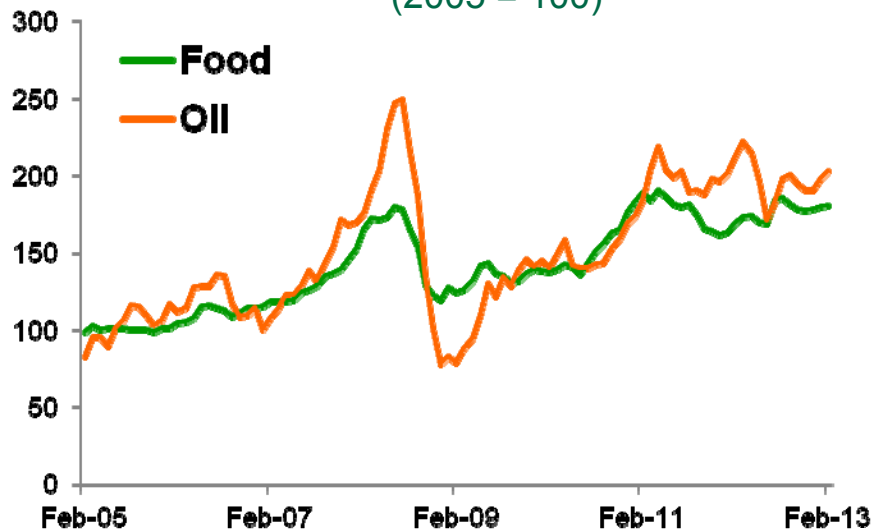
Annual loss of per capita arable land in developing countries, 1961–2009



# Rising oil prices continue to drive biofuel expansion

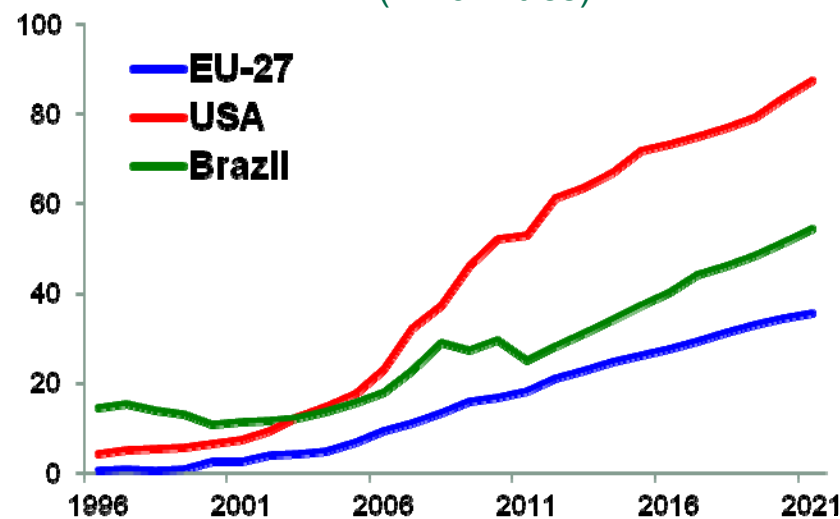


Oil and food prices, 2006-12  
(2005 = 100)



Source: Data from IMF 2012

Biofuel production, 1996-2021  
(Billion litres)



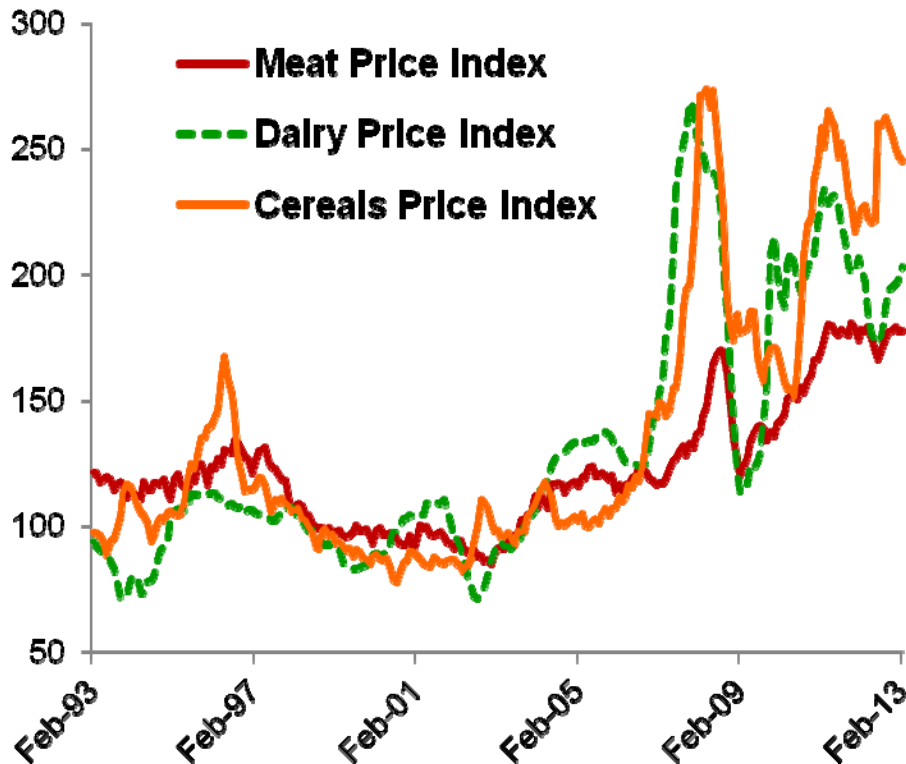
Source: Data from OECD-FAO Outlook 2012

- Oil prices are **highly correlated** to food prices
- Rising oil prices **make biofuels more profitable** (Abbott, Hurt, and Tyner 2008)
- Global biofuel production projected to almost **double** from 2009-11 to 2021
- Cereal use for biofuels to **rise by 7%** annually—compared to 1.5% for food and feed

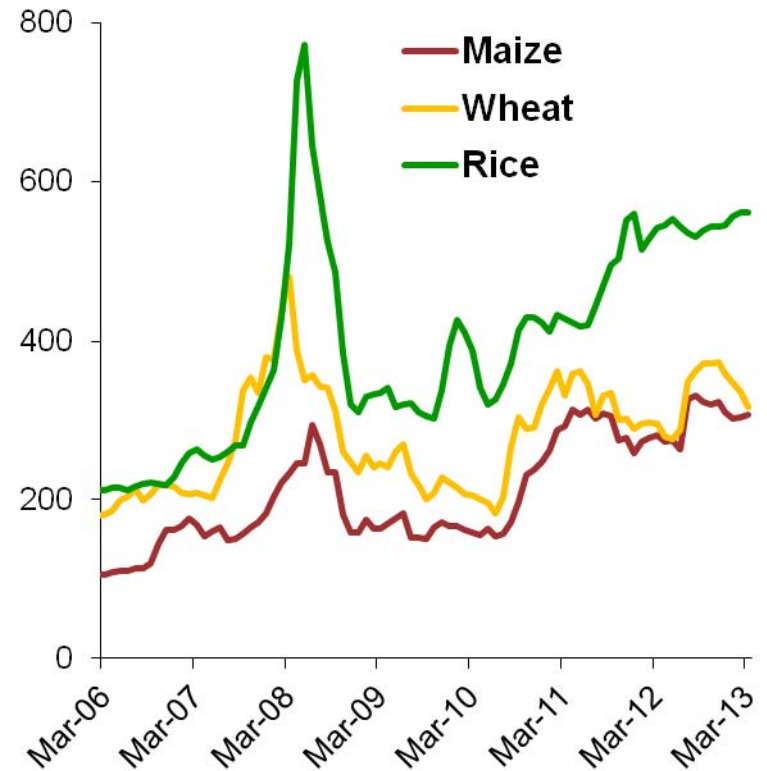
# Food prices are high and more volatile



FAO food price index



Global cereal prices (US\$/ton)



# Climate change is a serious challenge

## A 4° warmer world must be prevented



**Business as usual = 4° Warmer by 2100**



**SEA LEVEL RISE** is likely to be 15-20% higher in the tropics than global mean

**DROUGHT AND ARIDITY** would likely increase in tropical developing countries



**An integrated approach is needed**  
to sustainably improve food and nutrition security

**AND**

**Europe has a key role to play**



# Towards an integrated approach to enhance global food and nutrition security



1. Accelerate investments in agriculture to enhance smallholder productivity, nutrition, and resource-use efficiency
2. Scale-up productive social safety nets to protect poor and vulnerable groups
3. Invest in climate-smart technologies and policies
4. Improve global coordination to reduce food price volatility
5. Support country-led processes for food and nutrition security

# 1a. Accelerate investments in agriculture, esp. for smallholder productivity



- **Invest in agricultural R&D and rural infrastructure**
- **Improve access to inputs** e.g. seeds and fertilizer
- **Increase access to high-value supply chains and markets** e.g. fruits, vegetables, and milk
- **Promote smallholder-friendly innovations**
  - Financial and information services e.g. community banking, ICTs
  - Risk management mechanisms e.g. weather-based index insurance
  - Institutional arrangements e.g. producer cooperatives

# 1b. Leverage agriculture for enhanced nutrition and health



**Biofortification** - Reduces micronutrient deficiencies by improving nutrient content of food crops

## HarvestPlus (IFPRI)

Target Crops, Nutrients, Countries, & Release Dates



Bean	Iron	DR Congo, Rwanda	2012
Cassava	Vitamin A	DR Congo, Nigeria	2011
Maize	Vitamin A	Nigeria, Zambia	2012
Pearl Millet	Iron	India	2012
Rice	Zinc	Bangladesh, India	2013
Sweet Potato	Vitamin A	Mozambique, Uganda	2007
Wheat	Zinc	India, Pakistan	2013

Note: All varieties are conventionally bred.

**Prioritization of public R&D investment to increase innovation AND adoption by small farmers is needed**

# 1c. Promote resource-efficient technologies and practices



## Integrated soil fertility management

### ▪ Sustainable fertilizer use

- Fertilizers + manure/compost → increase soil nutrient availability, boost production, and reduce energy use
- Nanofertilizers (slow-release)

## Water conservation

### ▪ Low-cost (solar panel) drip irrigation

### ▪ Recycling

- Reed-bed recycling of wastewater
- Water storage reservoirs to capture rainfall → serve also as hydropower facilities

# 1d. Address food losses and waste



Addressing food losses and waste is key to resource-use efficiency

## ▪Developing countries

**Losses** mainly at early & middle stages of food supply chain

➡ Improve harvest techniques, farmer education, storage facilities, & cooling chains

## ▪Developed countries

**Waste** mainly at the retail & consumer level

➡ Increase consumer awareness and promote behavior change

## 2. Scale-up productive social safety nets



Better-targeted and more productive social protection policies are needed to

- secure basic livelihoods
  - protect poor people from risk and vulnerability
- Explore new approaches, e.g. cross-sectoral social protection, to reach poor more effectively

### **Ethiopia Productive Safety Net Program (PSNP)**

- Part of broad food security program
- Access to both safety nets and ag. support more beneficial than stand alone programs (Gilligan, Hoddinott, and Taffesse 2009)

### 3. Invest in climate-smart technologies and policies



- **Promote innovative GHG emission reduction measurement tools to**
  - Measure, track, and map e.g. ArcGIS for carbon sequestration maps
- **Exploit GHG reduction potential of agriculture**
  - Adaptation/mitigation/productivity “triple wins”
- **Promote low carbon policy and market incentives**
  - E.g. Brazil’s Low Carbon Agriculture Program
  - Integrate smallholders into carbon trading markets
- **Plan for and prioritize low carbon agriculture options**
  - Involve all stakeholders in planning, priority-setting, and decision-making processes



## 4. Improve global coordination to reduce food price volatility



- **Create global and regional grain reserves**
  - Located in poor food importing countries e.g. Horn of Africa
- **Support transparent and free global trade**
  - Eliminate harmful trade restrictions and prevent new ones
- **Minimize food-fuel competition**
  - Halt grain-based biofuel production
- **Monitor global food prices and speculation**
  - G-20's information system (AMIS) / IFPRI's Excessive Food Price Variability Early Warning System

## 5. Support country-led processes



- Policies should come from developing countries to maximize local impact of global agenda
- Improve evidence on what policies have and have not worked
  - Small-scale, local experimentation followed by gradual implementation, e.g. China and Vietnam
  - Impartial monitoring of experiments

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**Country-owned policies should be continually tried, evaluated, adjusted, and tried again before being scaled up**

# Europe has a key role to play

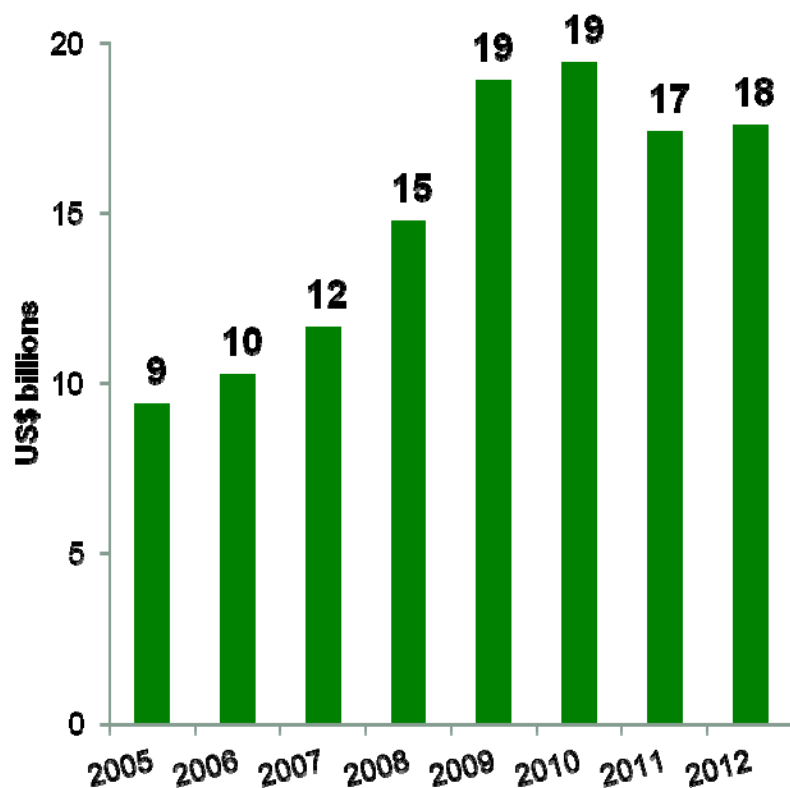


- Increase development assistance to agriculture
- Expand investment in agricultural R&D and support technology transfer
- Reform domestic agricultural policies and promote open trade
- Promote South-South and North-South learning
- Build national capacities

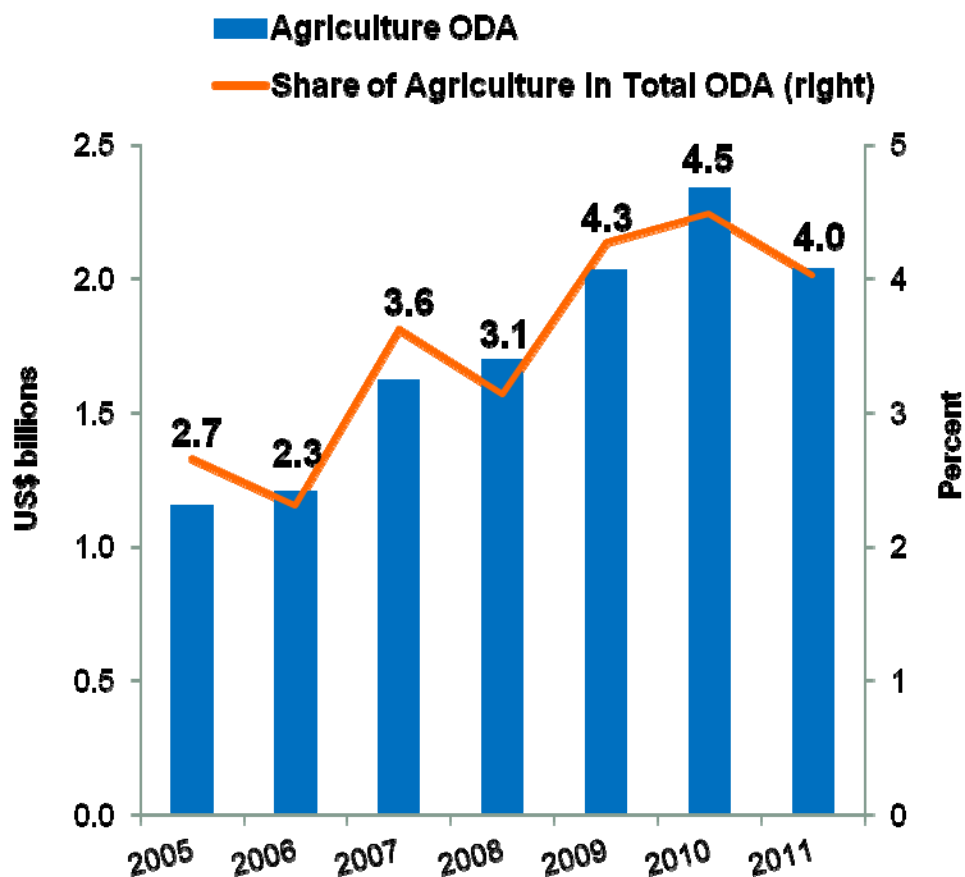
# Increase assistance to agriculture (10% of total ODA by 2015)



ODA from EU institutions,  
net disbursements



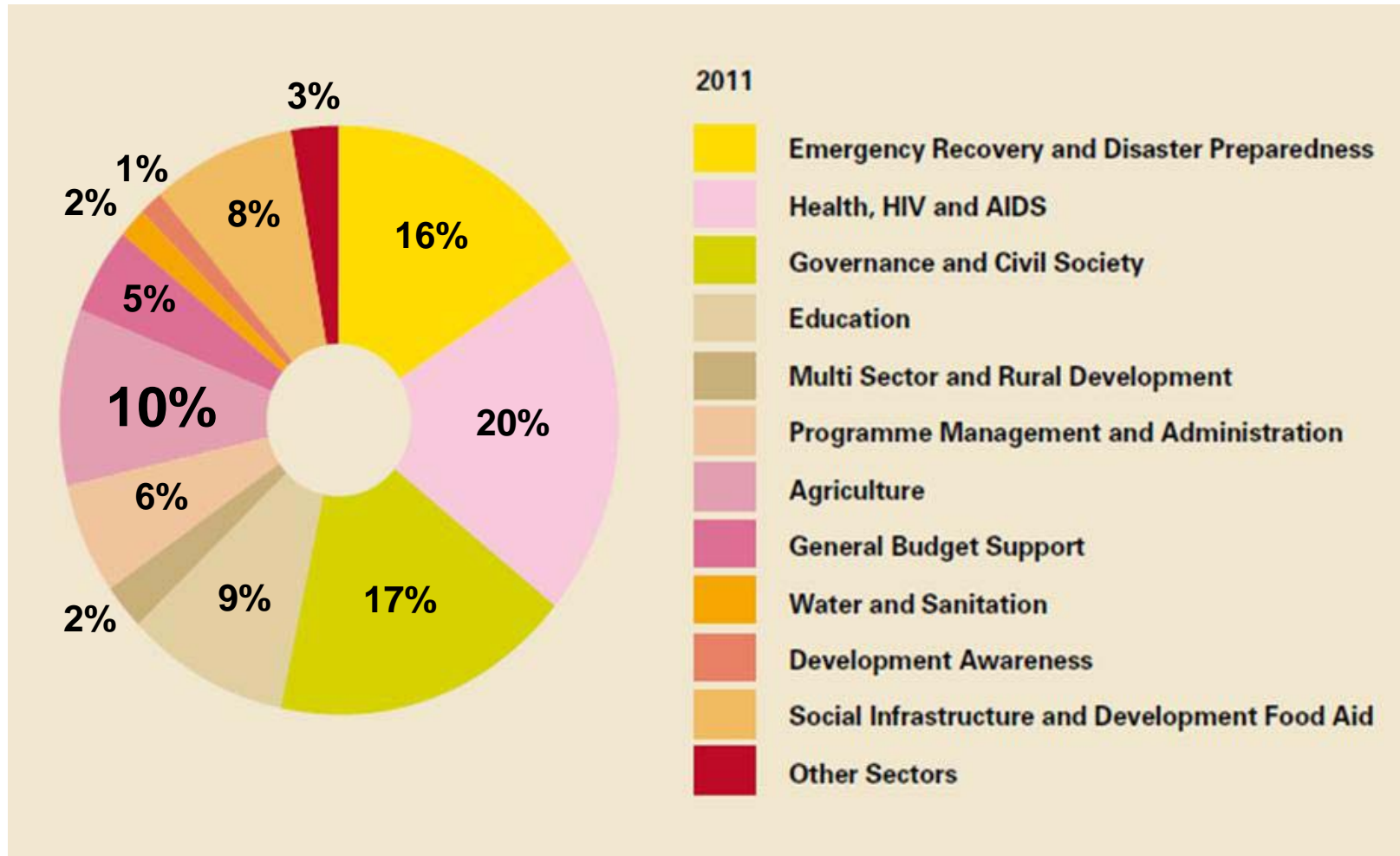
Amount and share of agriculture ODA from  
DAC EU members



# Ireland is a global leader in advancing food and nutrition security



## Irish Aid: Bilateral ODA by sector, 2011



# Expand investment in agricultural R&D and support technology transfer



## Invest in technologies for

- Crop and livestock breeding
- Water and energy saving
- Low carbon agriculture
- Food safety
- 2<sup>nd</sup> generation biofuels (non-food feedstock)





- Part of EU Food Security Thematic Programme
- Transfer of appropriate and effective technology to Asia's poorest small farmers
- 2 pronged approach
  - Raise agricultural productivity in sustainable manner and promote effective market linkages
  - Encourage South-South dialogue and intra-regional learning





# Reform domestic agricultural policies and promote open trade

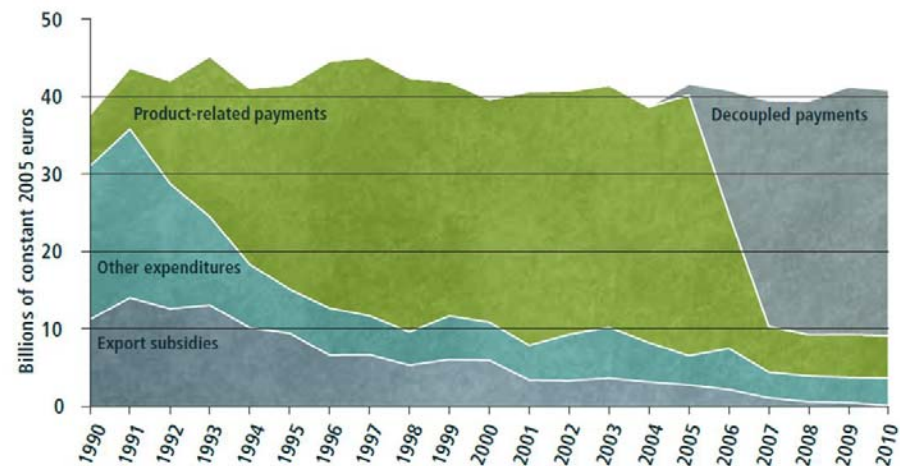


- Revisit farm policies and cut subsidies
- Promote non-distorting trade policies and engage in WTO trade negotiations
- Reduce or eliminate grain-based biofuels

Open trade has mutual benefits,  
completion of Doha Round =

- Annual trade gains
  - \$29bn - Developed countries
  - \$9bn - Developing countries
- Global income gains
  - \$70bn

Composition of EU agricultural budget,  
annual expenditures, 1990-2010



Source: J.-P. Butault and J.-C. Bureau, based on EU Commission budget data.

# Promote South-South and North-South learning



- **Exploit large knowledge base**
  - E.g. Knowledge-sharing processes between EU and developing countries
- **Engage in broader partnerships**
  - E.g. Multi-disciplinary and multi-stakeholder research partnerships
- **Promote successful partnerships**
  - E.g. National as well as global research institutions, esp. CGIAR
- **Develop innovative partnerships**
  - E.g. Agriculture Pull Mechanism Initiative (AGPM)
- **Facilitate South-South knowledge exchange**
  - E.g. Programme for South-South Cooperation - Benin, Bhutan, and Costa Rica

# Build national capacities



## Support for CAADP

- Provide analysis, data, and tools
- Improve awareness of agriculture's role
- Fill knowledge gaps; promote dialogue
- Facilitate benchmarking and review processes



- Promote access to and use of state-of-the art modeling tools
- Facilitate access to data, improve data quality, bridge data gaps
- Support collaboration among scientists and build dynamic research community

## Agricultural education and training

- Improve education and research capabilities
- Provide integrated training (Masters, PhD, international academic exchange etc.)



# Towards a post-2015 agenda



- Scaling Up Nutrition (SUN) Movement
- Rio+20 “The Future We Want”
- UN Secretary General’s Zero Hunger Challenge
- Consultations on Hunger, Food Security and Nutrition in Post-2015 Development Agenda
- Etc.

Vision:

**End hunger sustainably by 2025**

# It is time to Walk the Talk!

