



# Agricultural and food security situation in Asia- Pacific

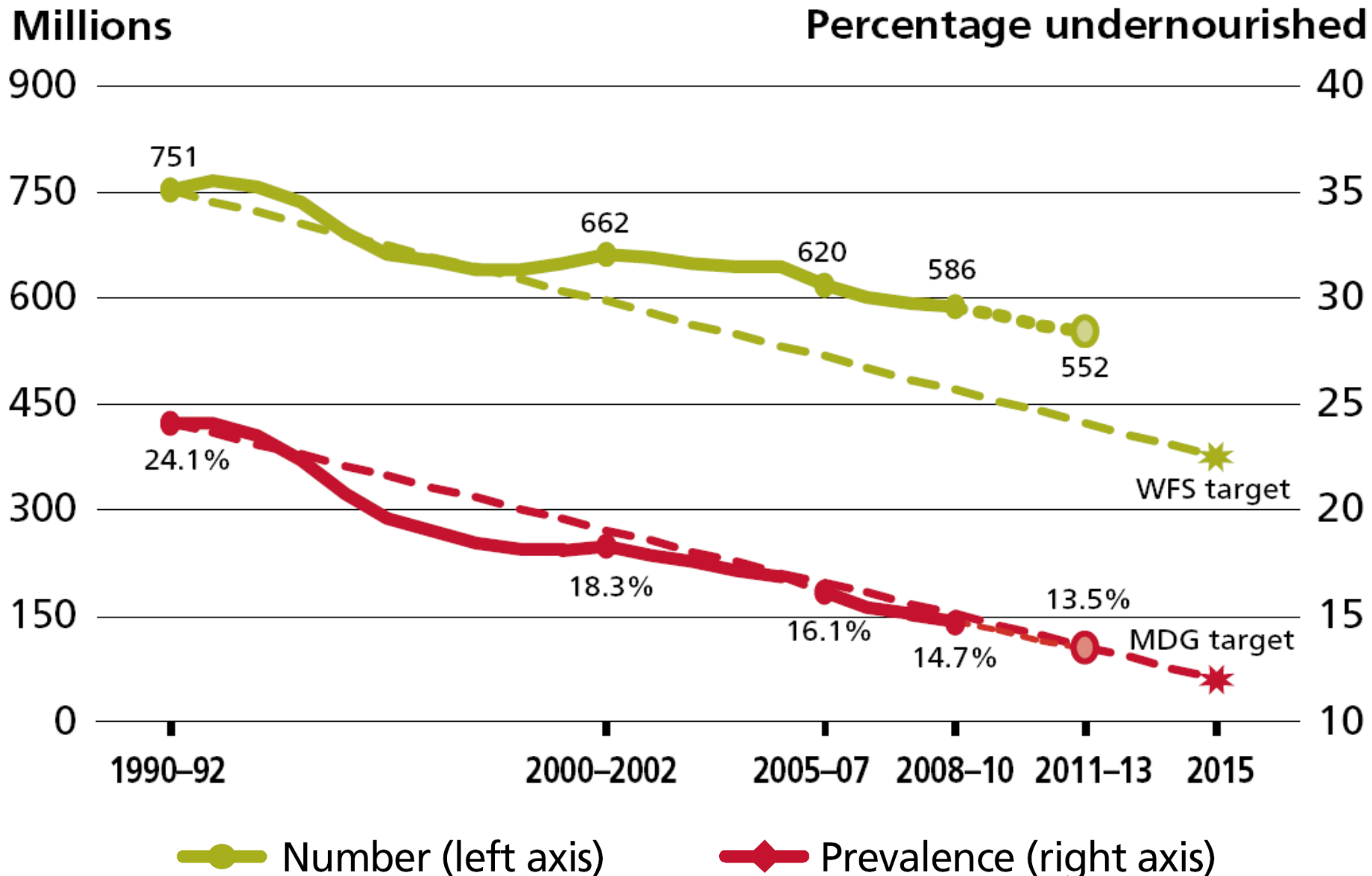


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**IFA Crossroads, Bali  
7 November 2013**

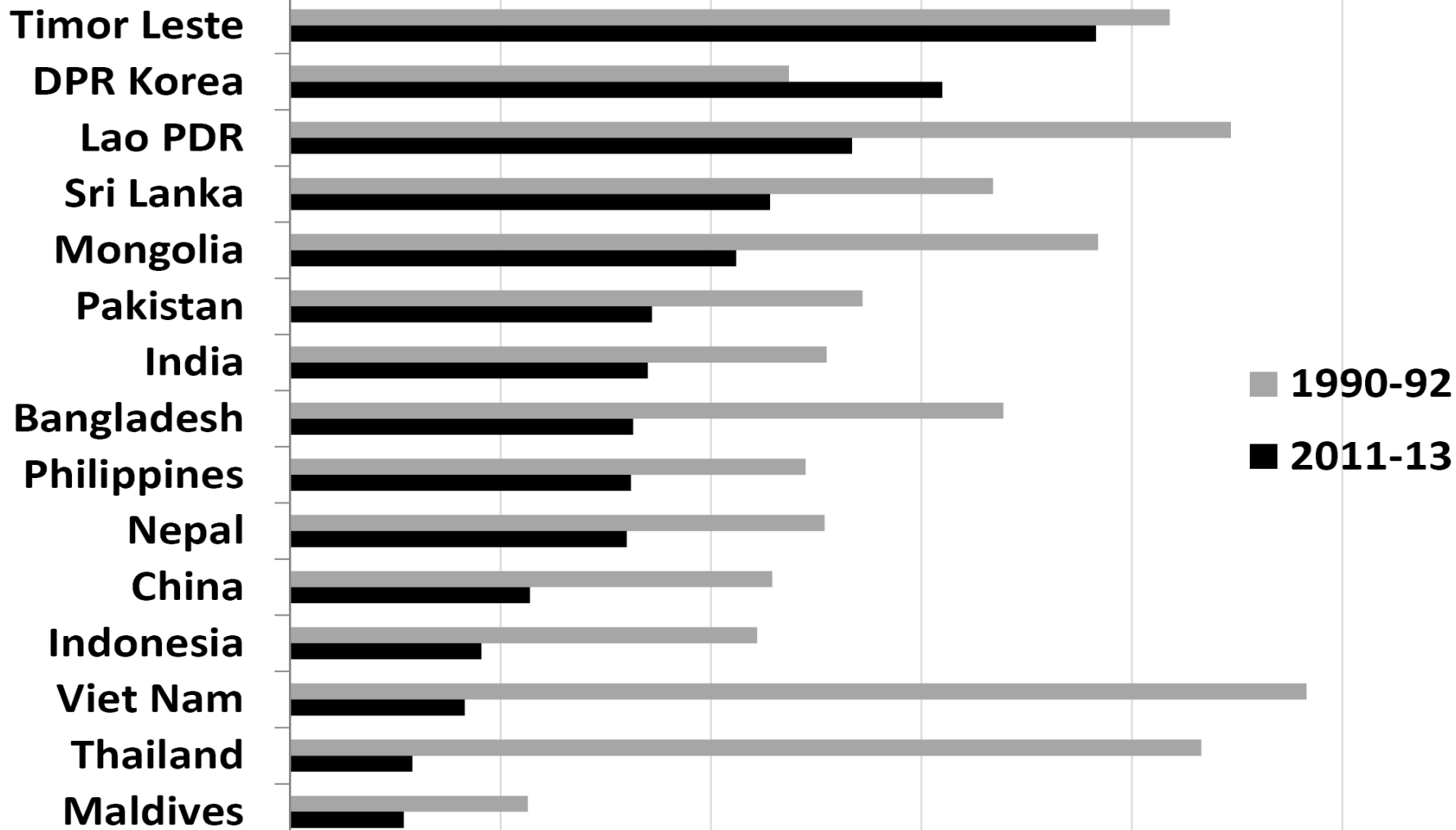
# Undernourishment trends in Asia-Pacific



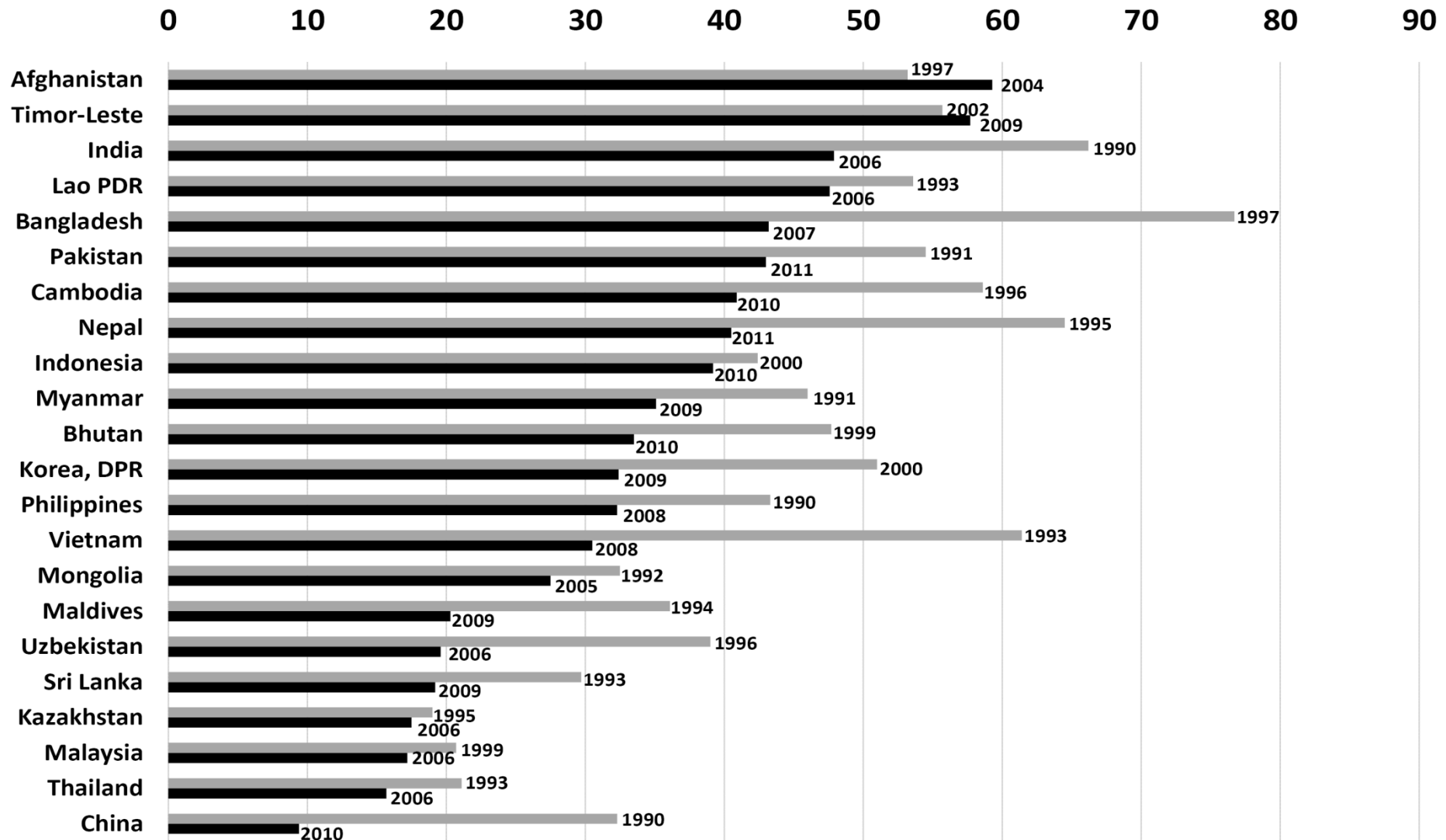
Source: FAO/IFAD/WFP: State of Food Insecurity in the World 2013

# Proportion of undernourished in total population, selected Asian countries

0.0 10.0 20.0 30.0 40.0 50.0



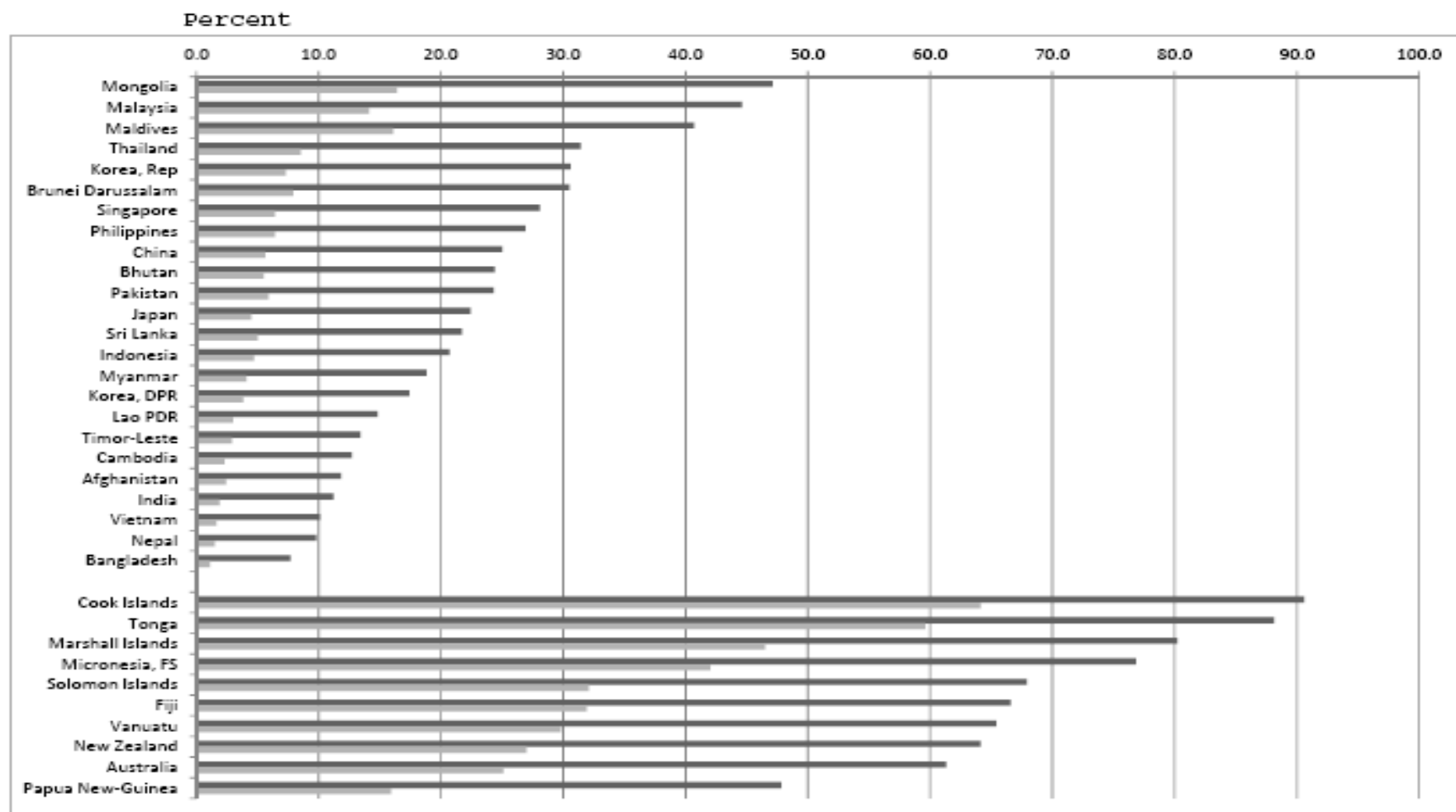
# Prevalence of stunting in children under 5 in selected Asian countries



Source: World Bank, World Development Indicators, 2012

# Obesity and overweight in Asia-Pacific

Prevalence of overweight (BMI $\geq$ 25.0) and obesity (BMI $\geq$ 30.0) in adults (Age $\geq$ 20.0)  
 Selected countries in Asia and the Pacific  
 2008



Note: Overweight prevalence in black, obesity prevalence in gray

Age standardized rates, 2008

Source: WHO Global Health Observatory Data Repository, <http://apps.who.int/gho/data/node.main.A897?lang=en>

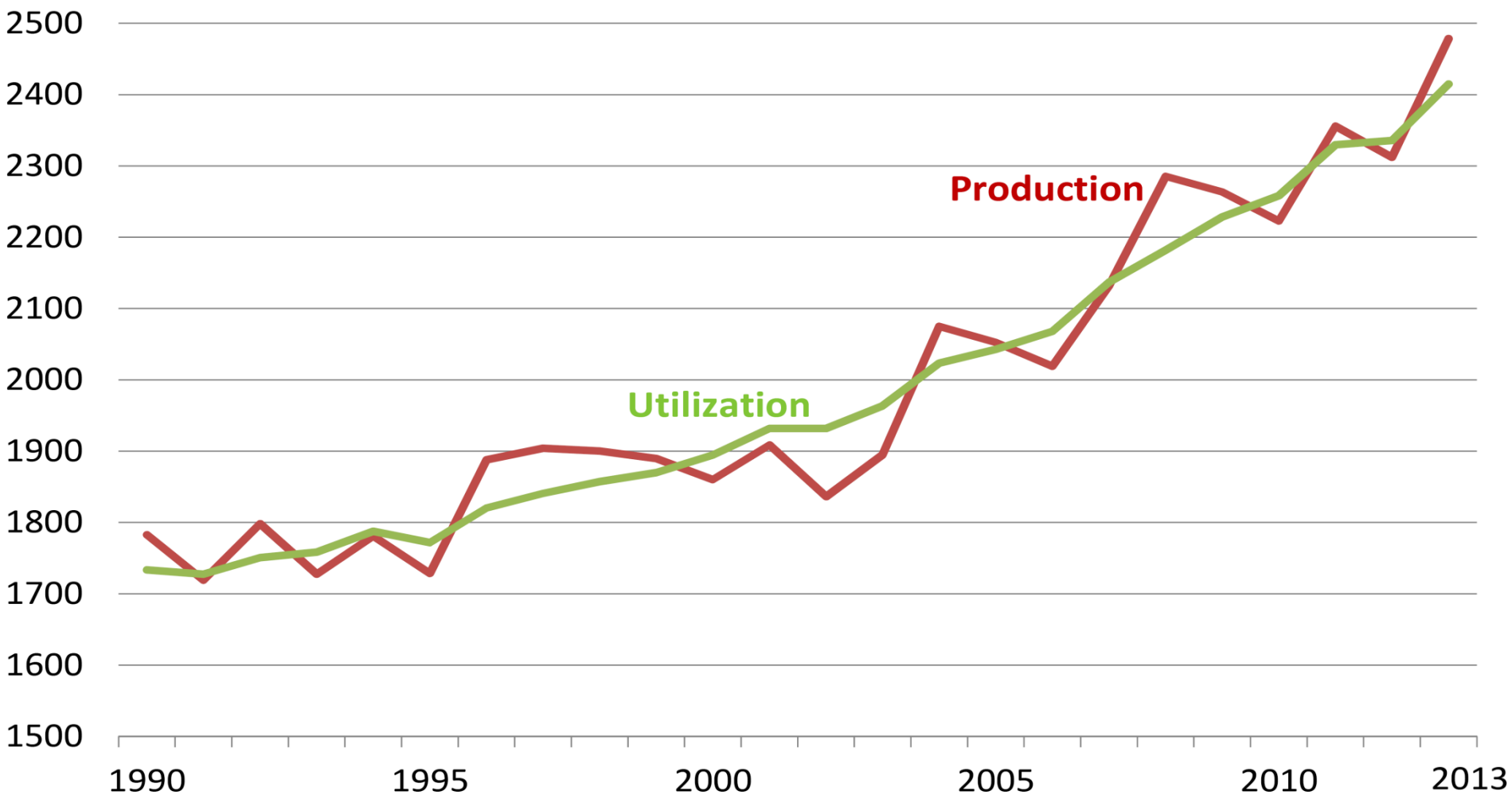
Downloaded 12 Oct 2013

# Food demand and supply balance

- Food demand depends on:
  - Population growth
  - Income growth relative to food prices
    - Dietary diversification, especially towards livestock products
  - Demand for biofuels etc.
- Production depends on
  - Area harvested
    - Arable area
    - Cropping intensity
      - Irrigation and climate
  - Yield per hectare

# Cereal production / utilization balance

Million tonnes



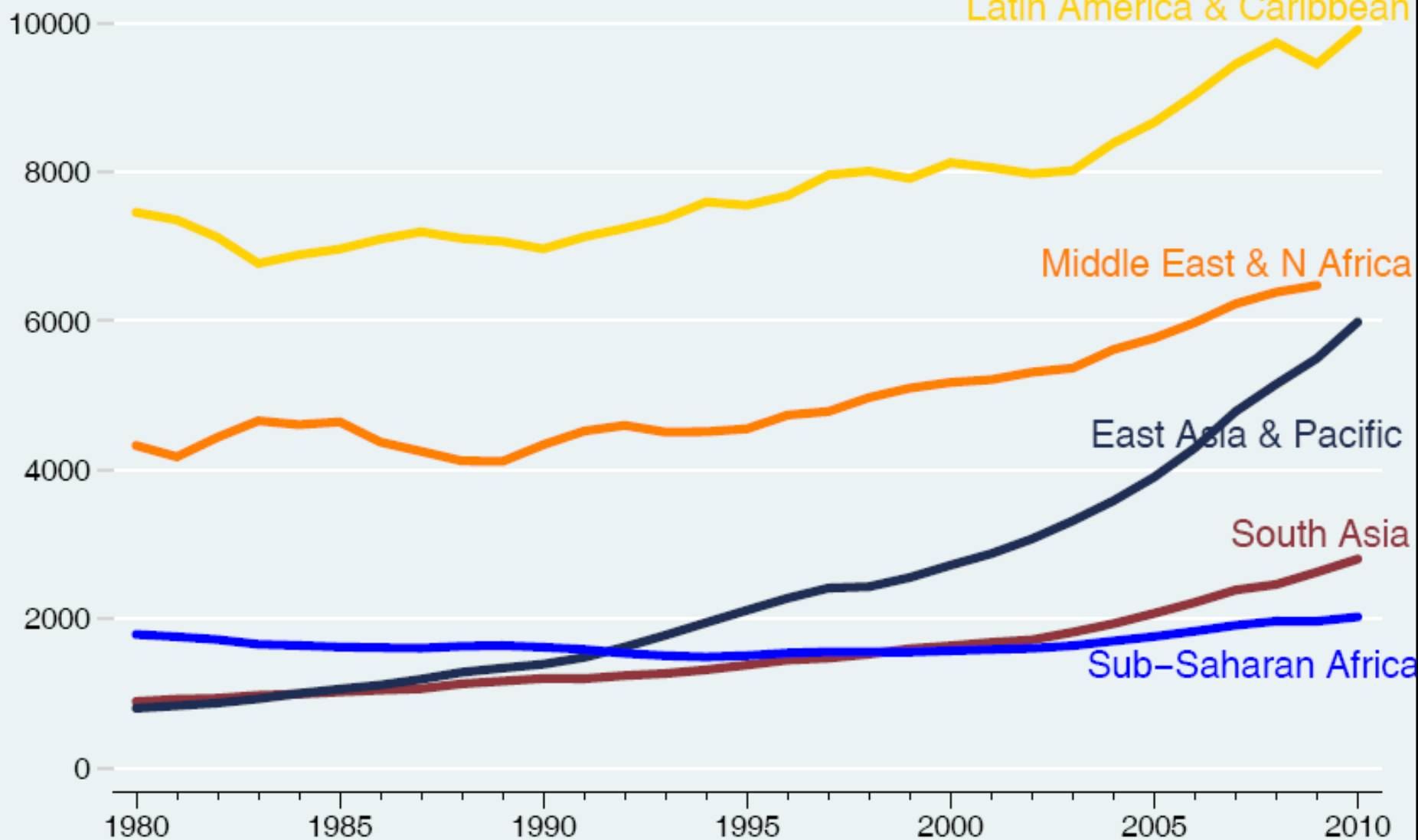
Utilization is the sum of food, feed and other use

Source: FAOSTAT

# GDP per capita, PPP (Constant 2005 International \$)

1980 to 2010

International dollars

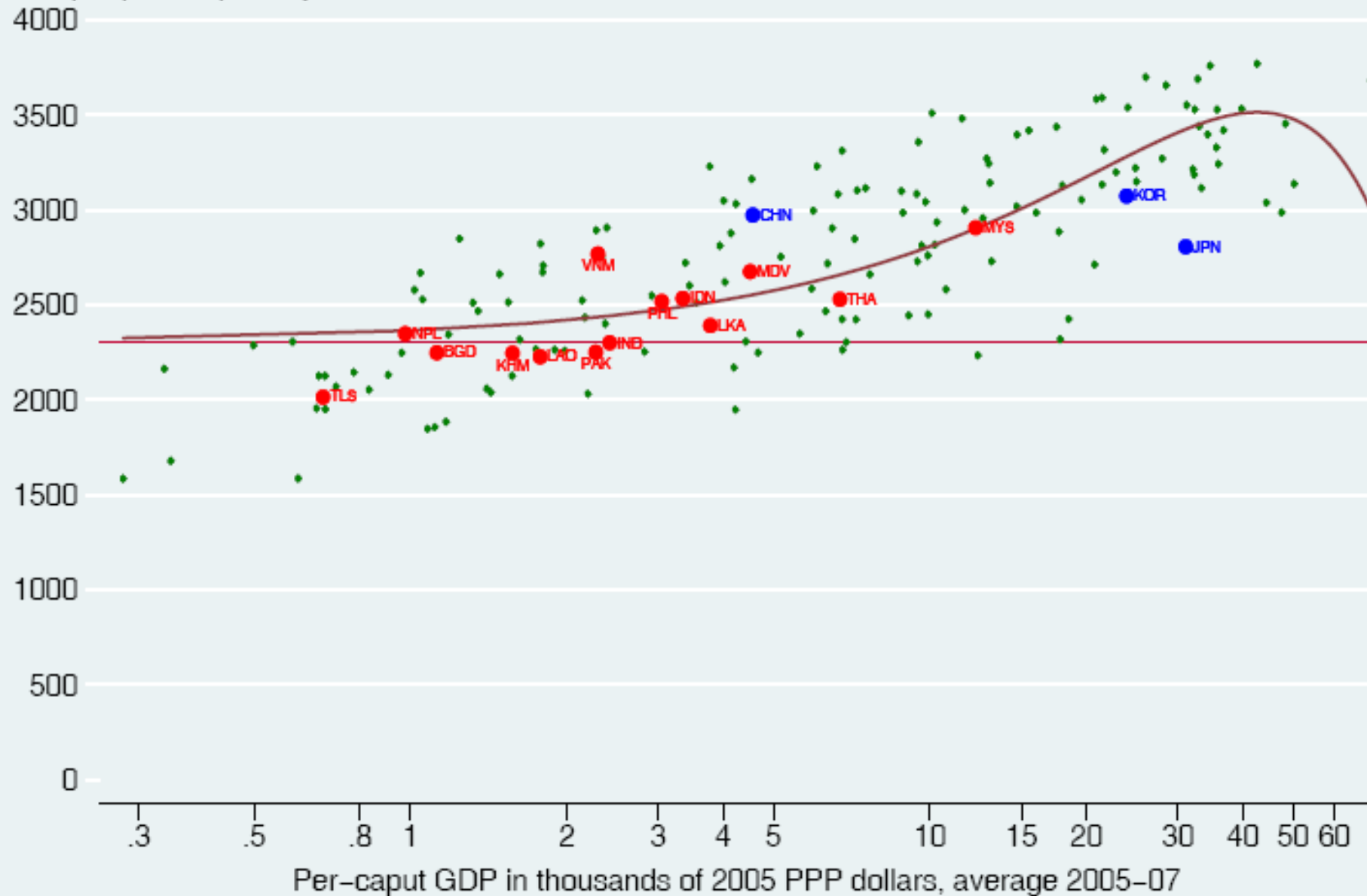


Source: World Development Indicators 2012



# Daily energy supply and per-caput GDP, 2005-07

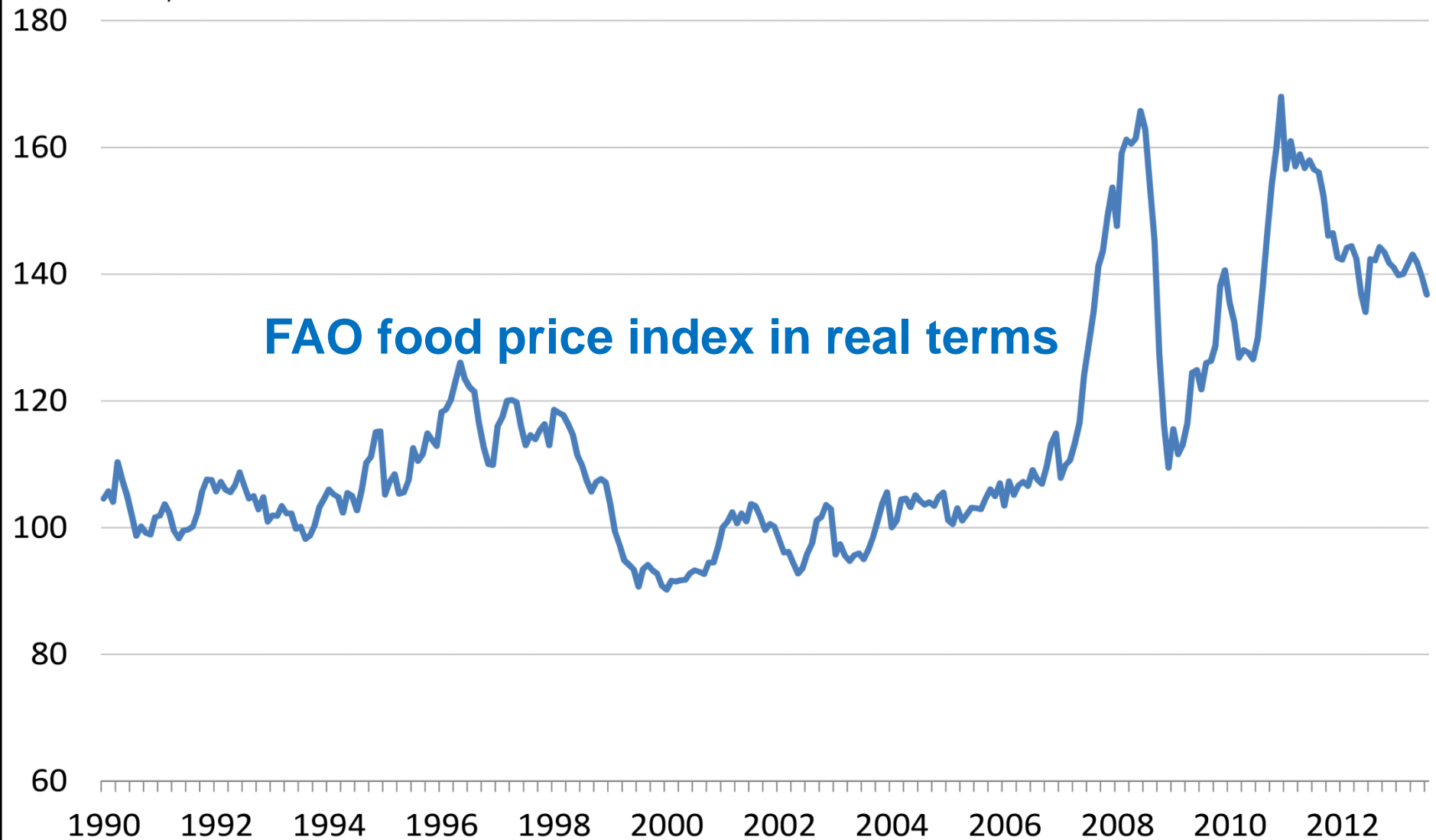
Kcal per person per day



Source: FAOSTAT Food Balance Sheets and World Development Indicators 200

# Food prices have been high and volatile in recent years

Index value, 2002-04=100



**FAO food price index in real terms**

Source: FAO, Global Information and Early Warning System

# International prices of rice, maize and wheat, 2005-2013

US dollars per tonne

1200

1000

800

600

400

200

0

Jan-05

Jan-06

Jan-07

Jan-08

Jan-09

Jan-10

Jan-11

Jan-12

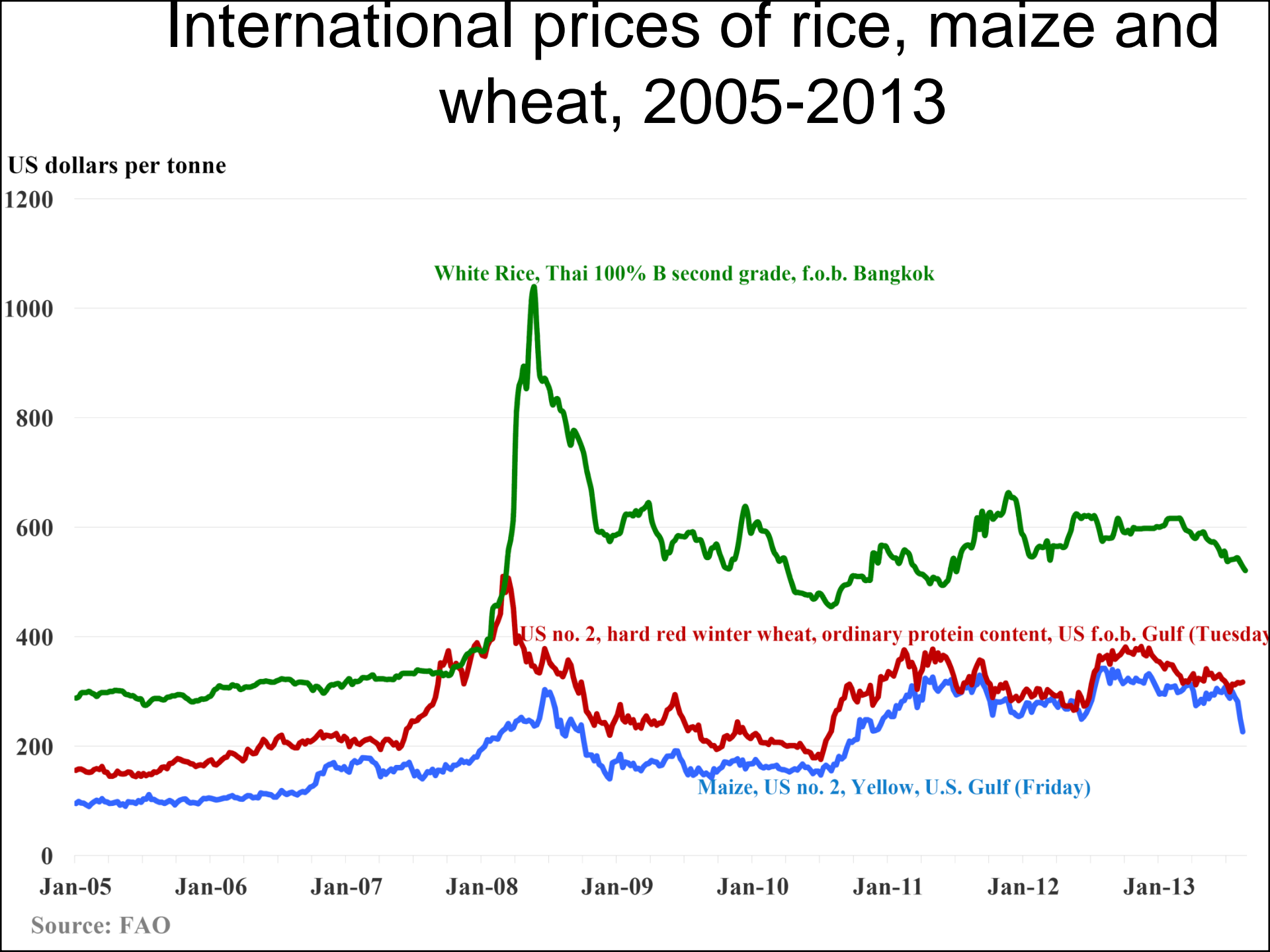
Jan-13

White Rice, Thai 100% B second grade, f.o.b. Bangkok

US no. 2, hard red winter wheat, ordinary protein content, US f.o.b. Gulf (Tuesday)

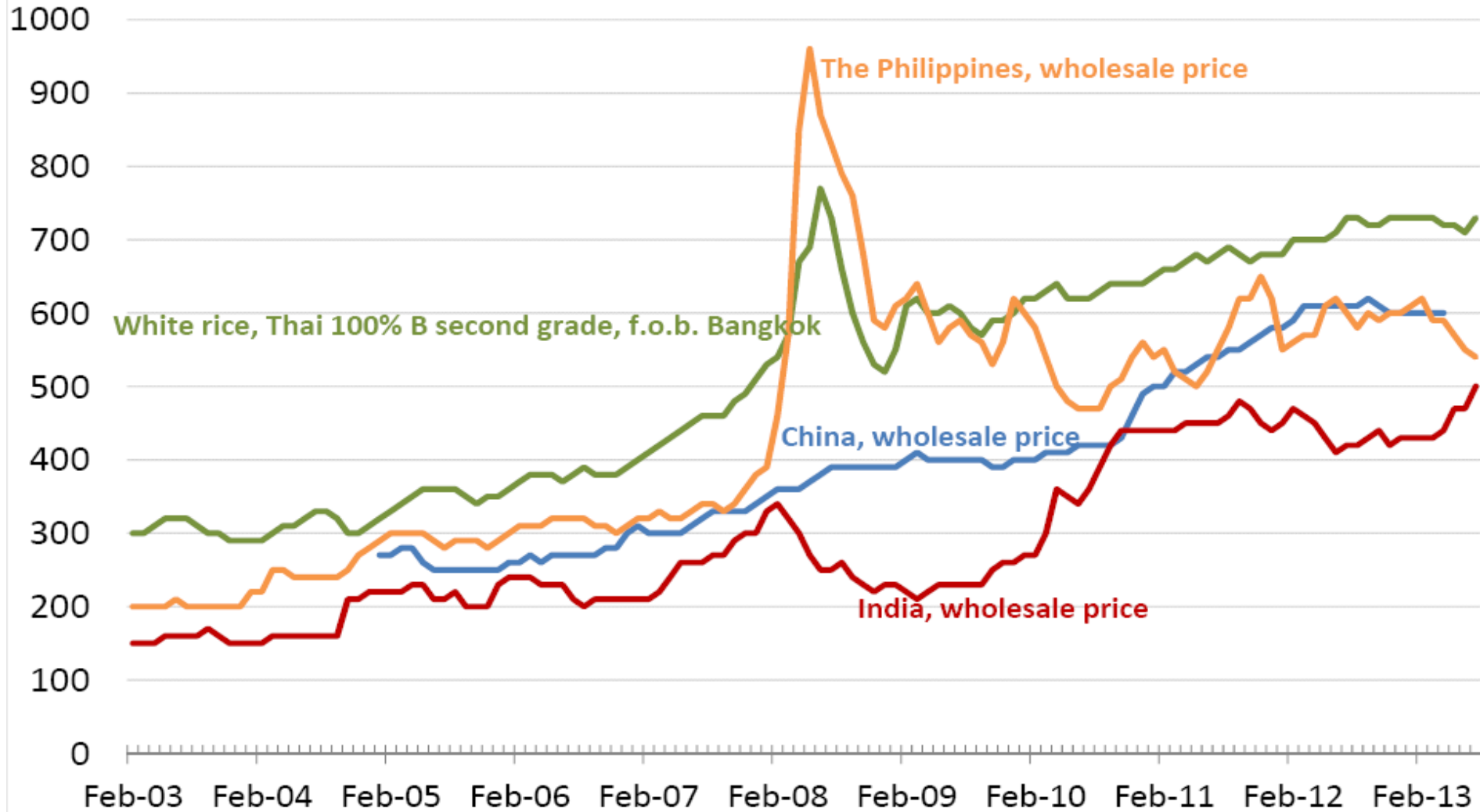
Maize, US no. 2, Yellow, U.S. Gulf (Friday)

Source: FAO



# Domestic and international rice prices: China, India and the Philippines

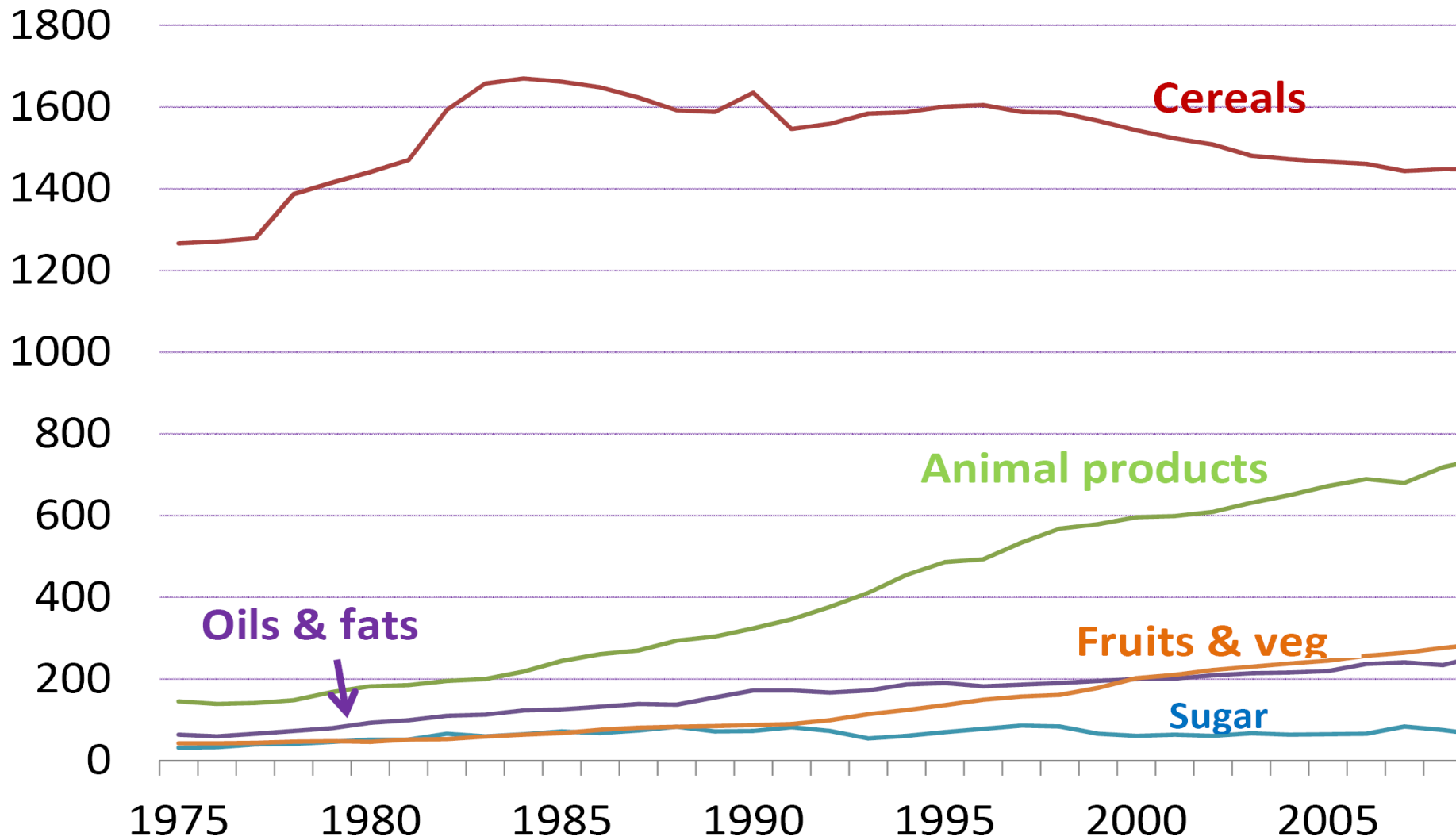
US dollars per tonne



Source: FAO

# Diet diversification in China 1975-2009

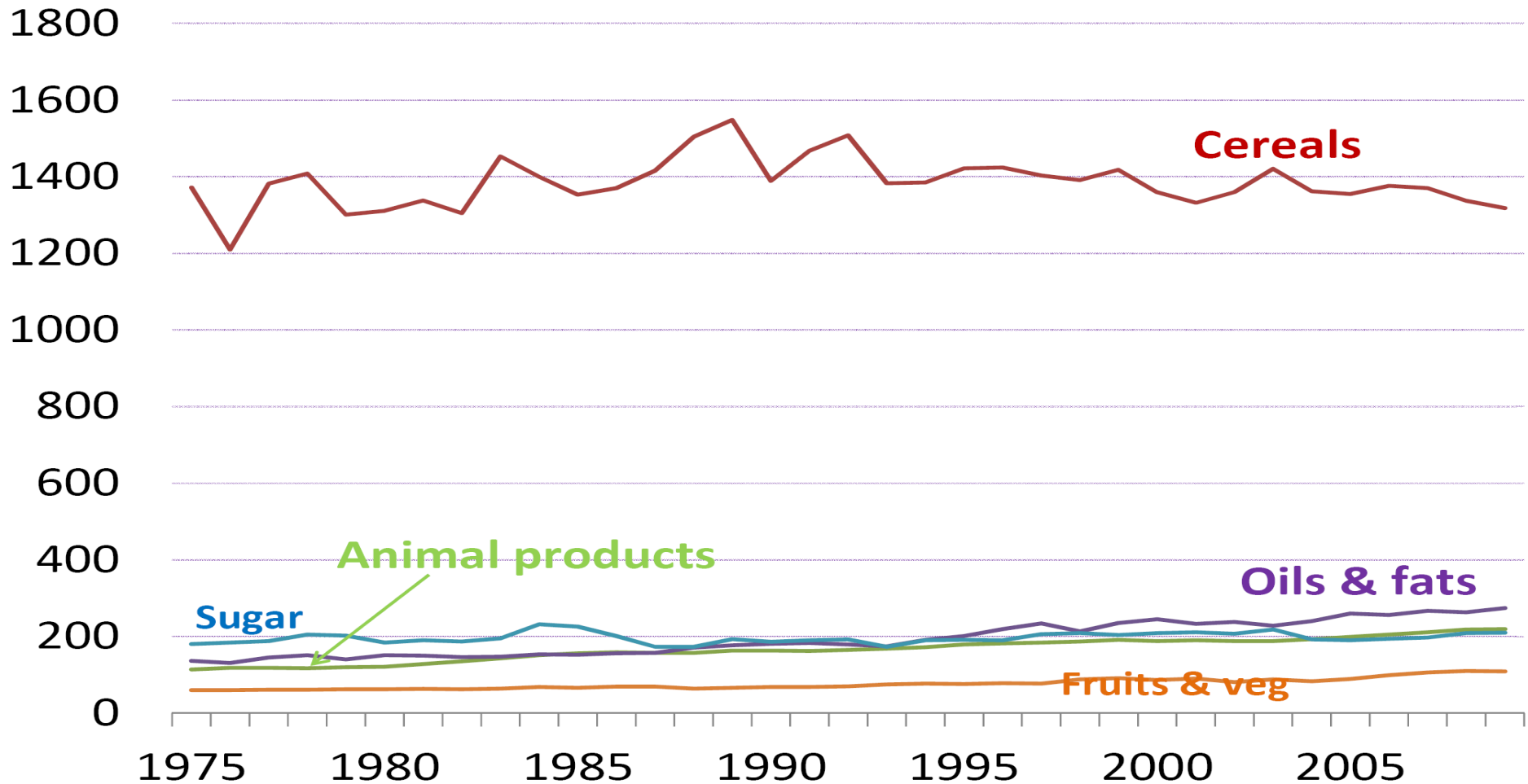
Kcal/person/day



Source: FAO Food Balance Sheets

# Diet diversification in India? 1975-2009

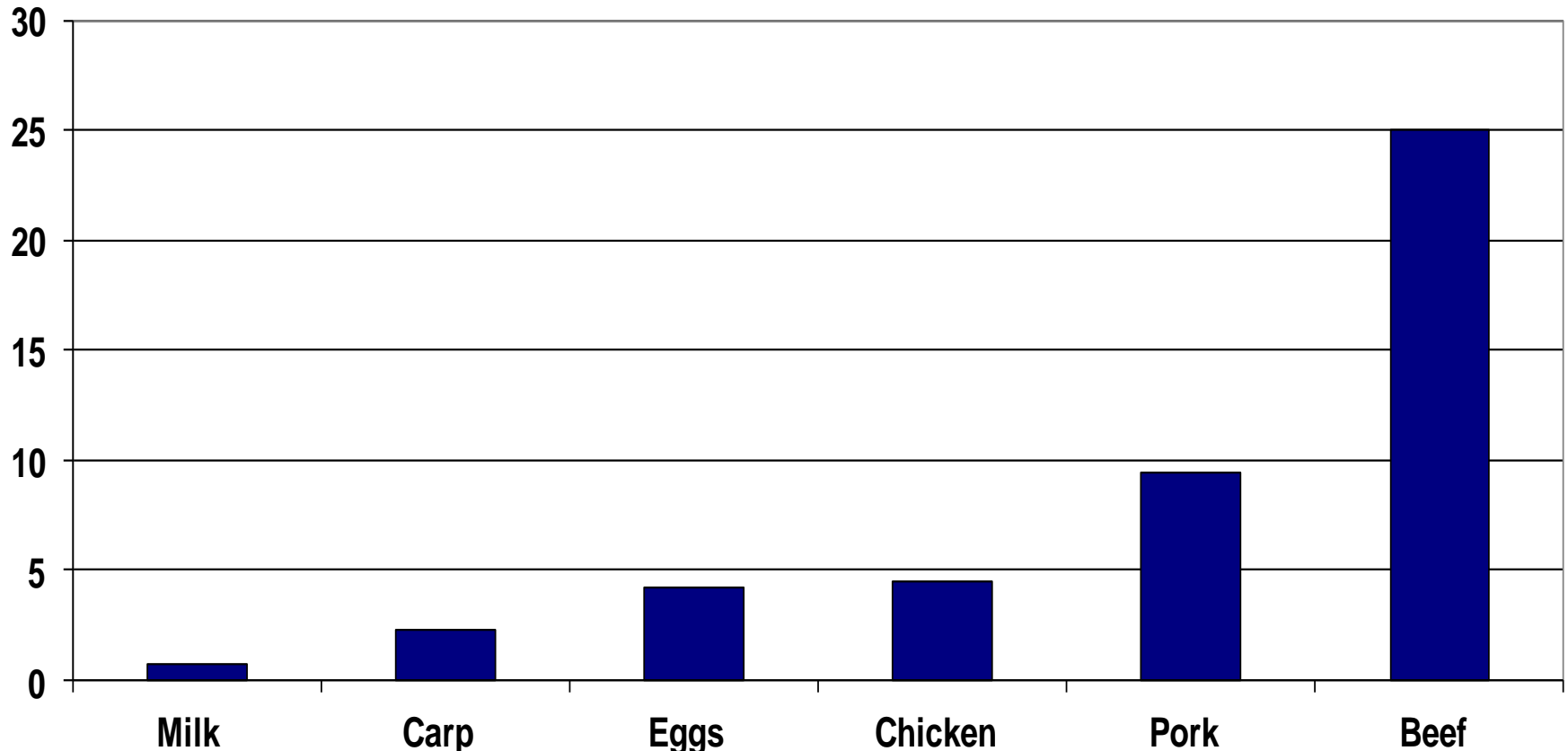
Kcal/person/day



# Grain requirements for feed

**Feed conversion rate**  
**Kilograms of feed per kilogram of edible weight**

Kilograms



Source: Smil, Vaclav (2002). Eating Meat: Evolution, Patterns, and Consequences  
Population and Development Review, 28(4):599–639

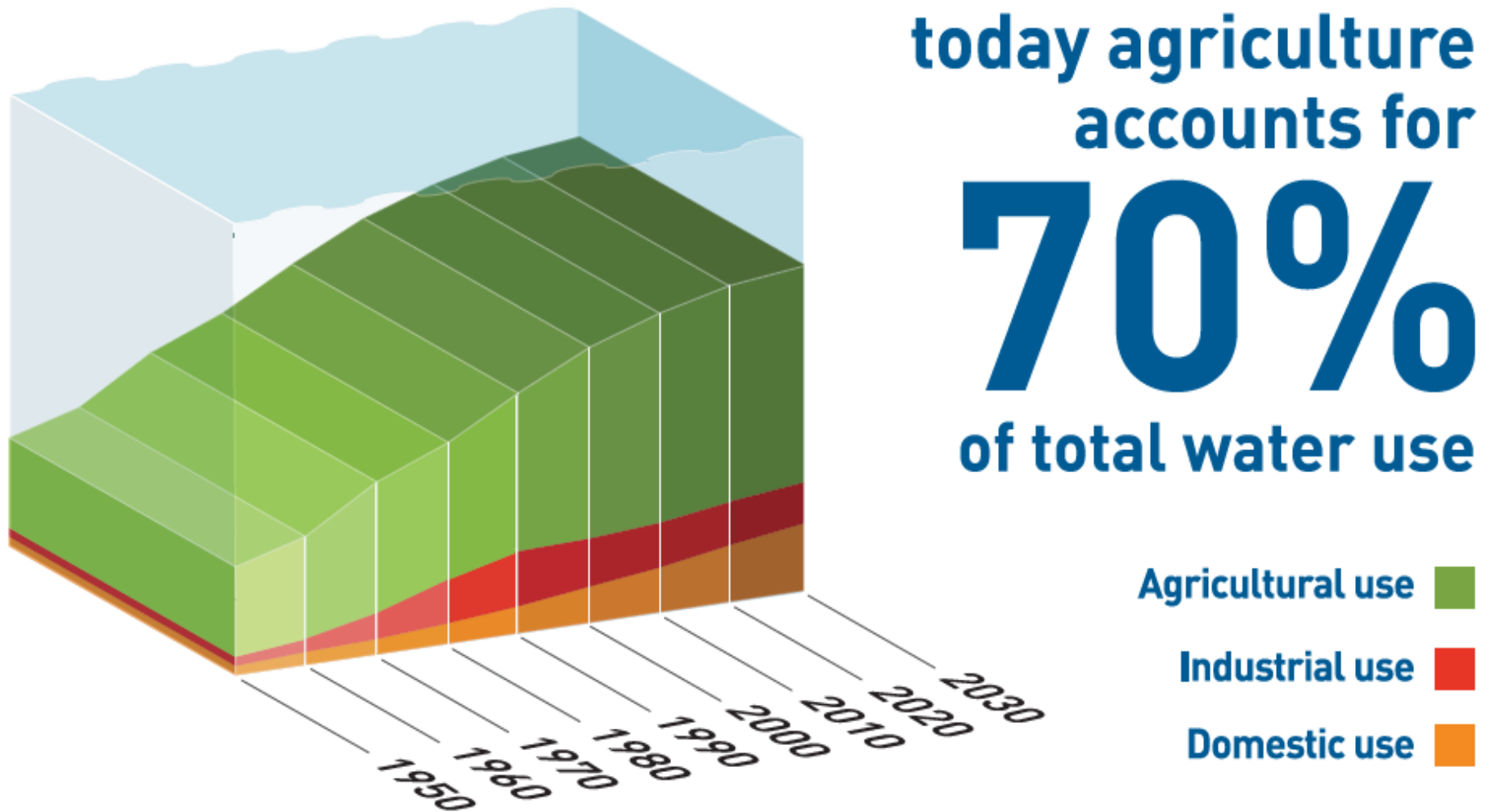
# Global production in 2050

Compared to 2005/07, the world needs to produce every year

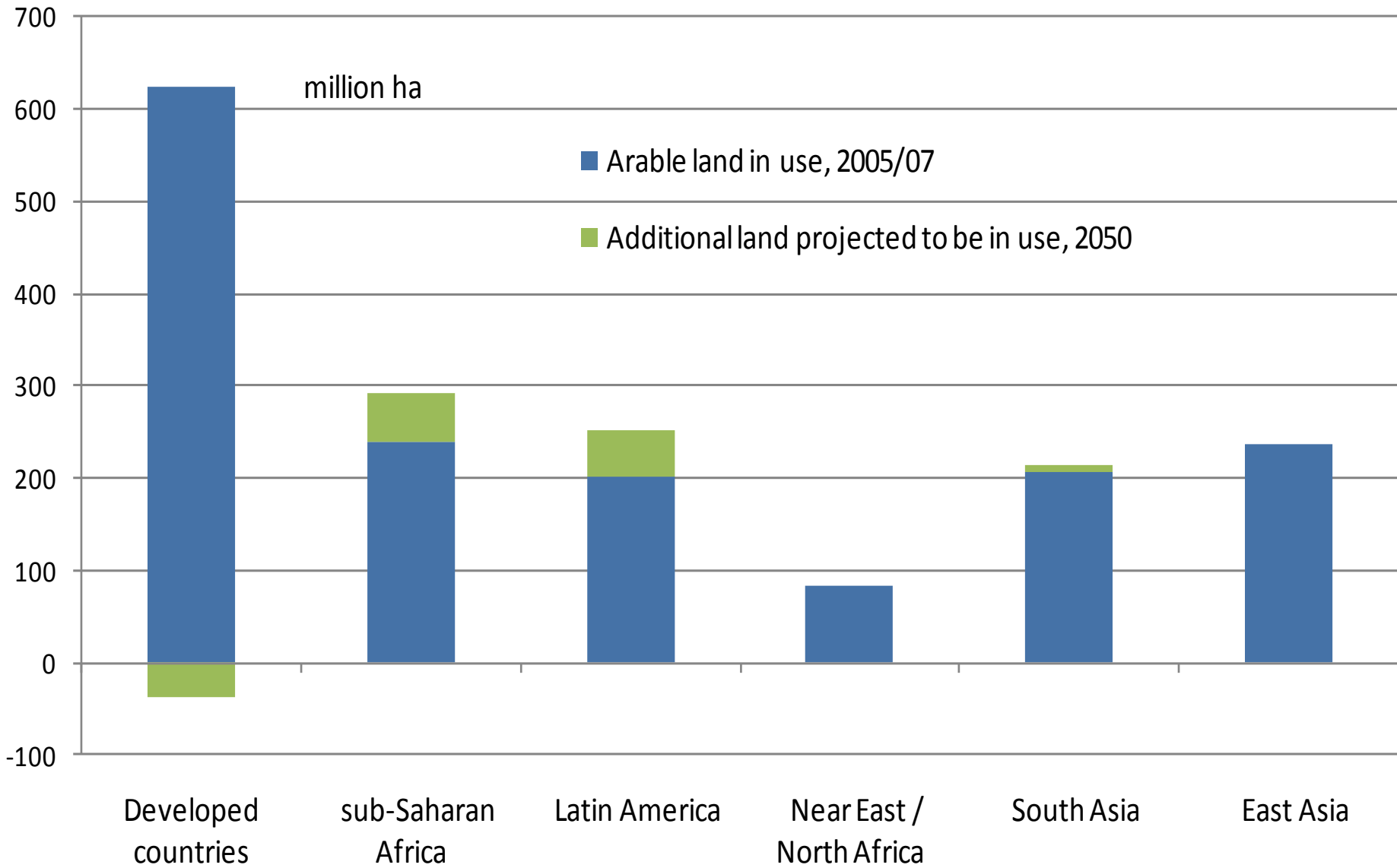
- one billion tonnes more of cereals (45%)
- 196 million tonnes more of meats (76%)
- 713 million tons more of roots and tubers (64%)
- 172 million tons more of soybeans (79%)
- 429 million tons more of fruits (68%)
- 365 million tons more of vegetables (47%)



# Is there enough water?

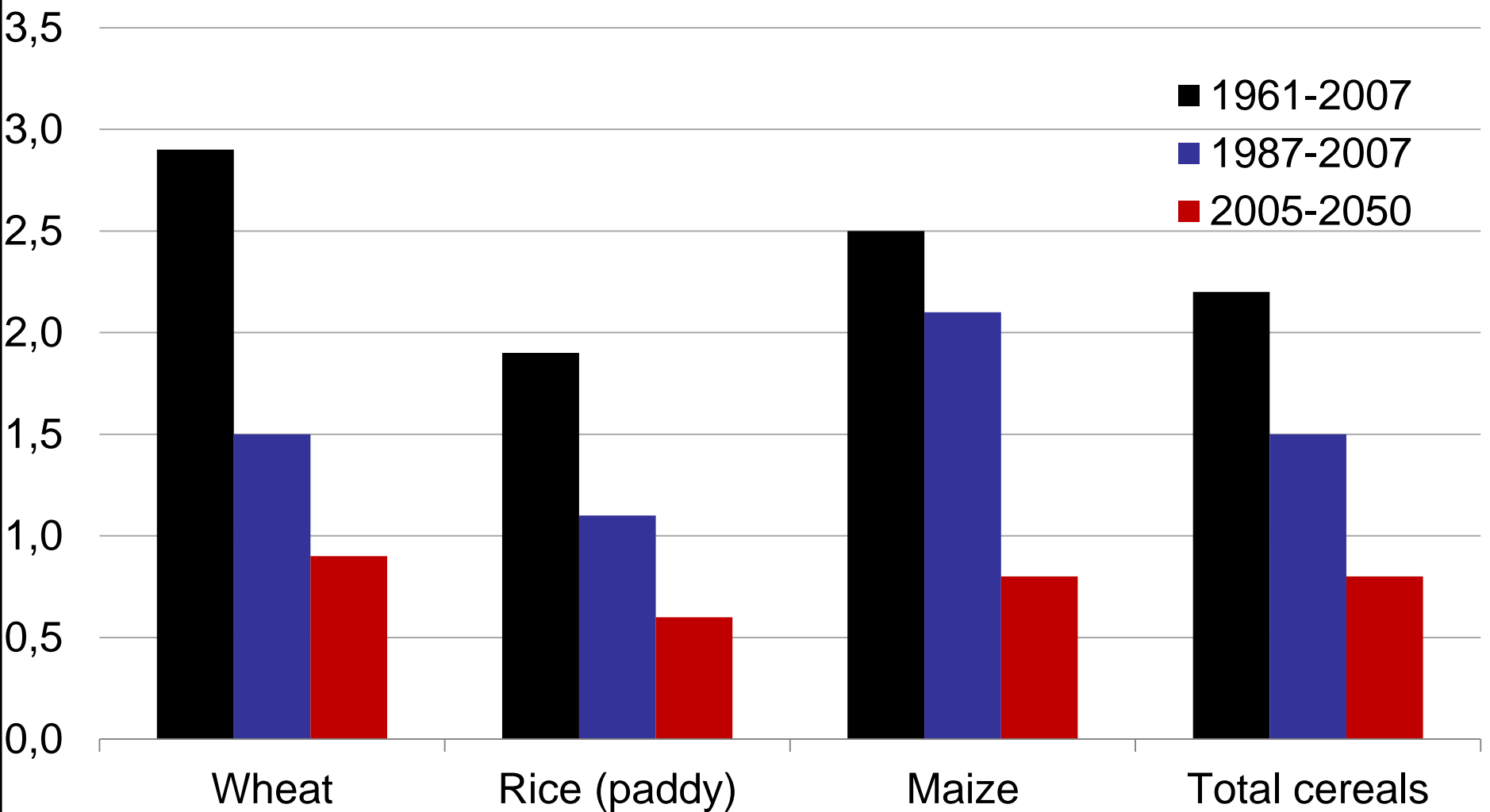


# Is there enough land?



# Cereal yield growth is slowing

Growth rate, percent per year

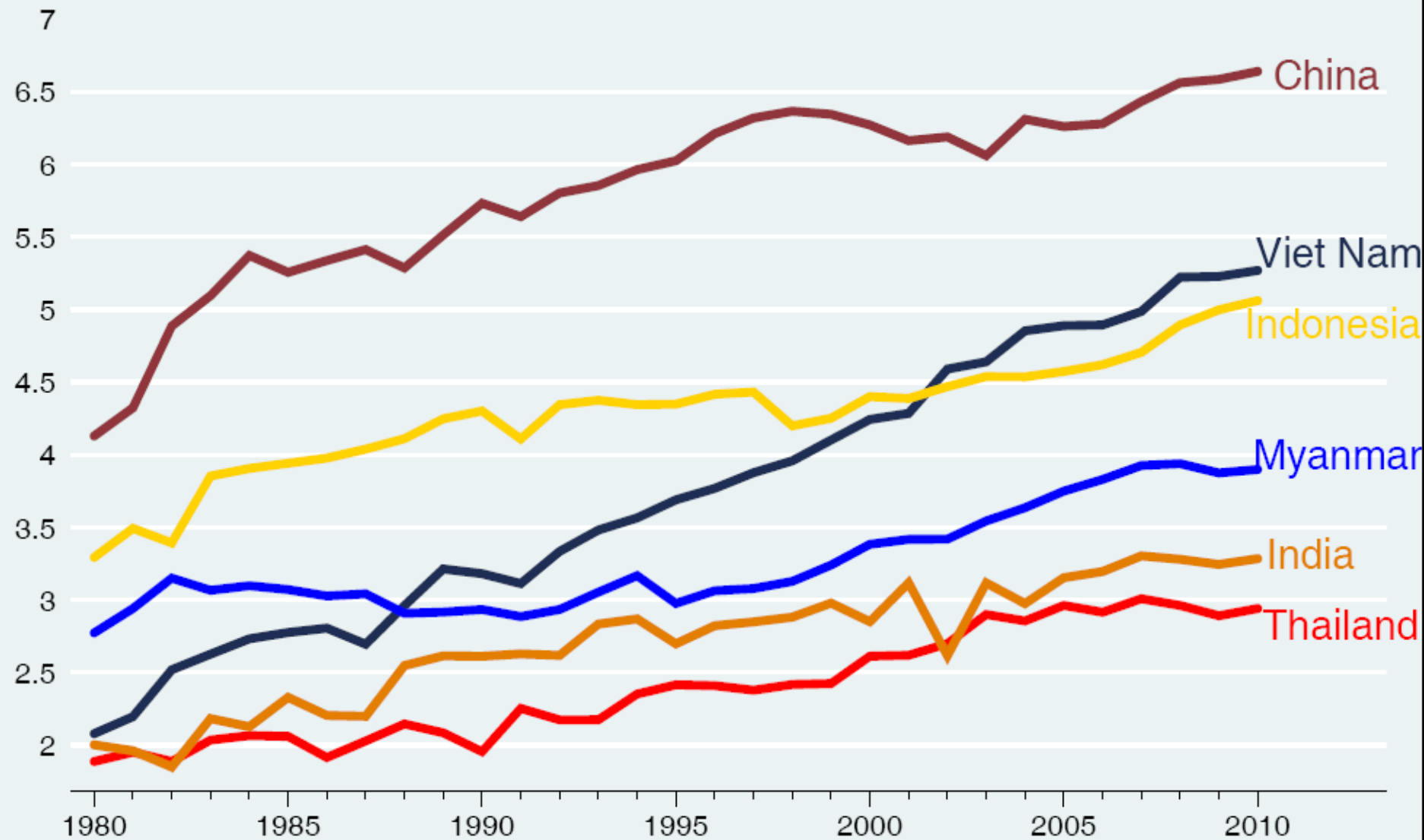


Source: Bruinsma 2011

# Rice paddy yield in selected Asian countries

1980 to 2010

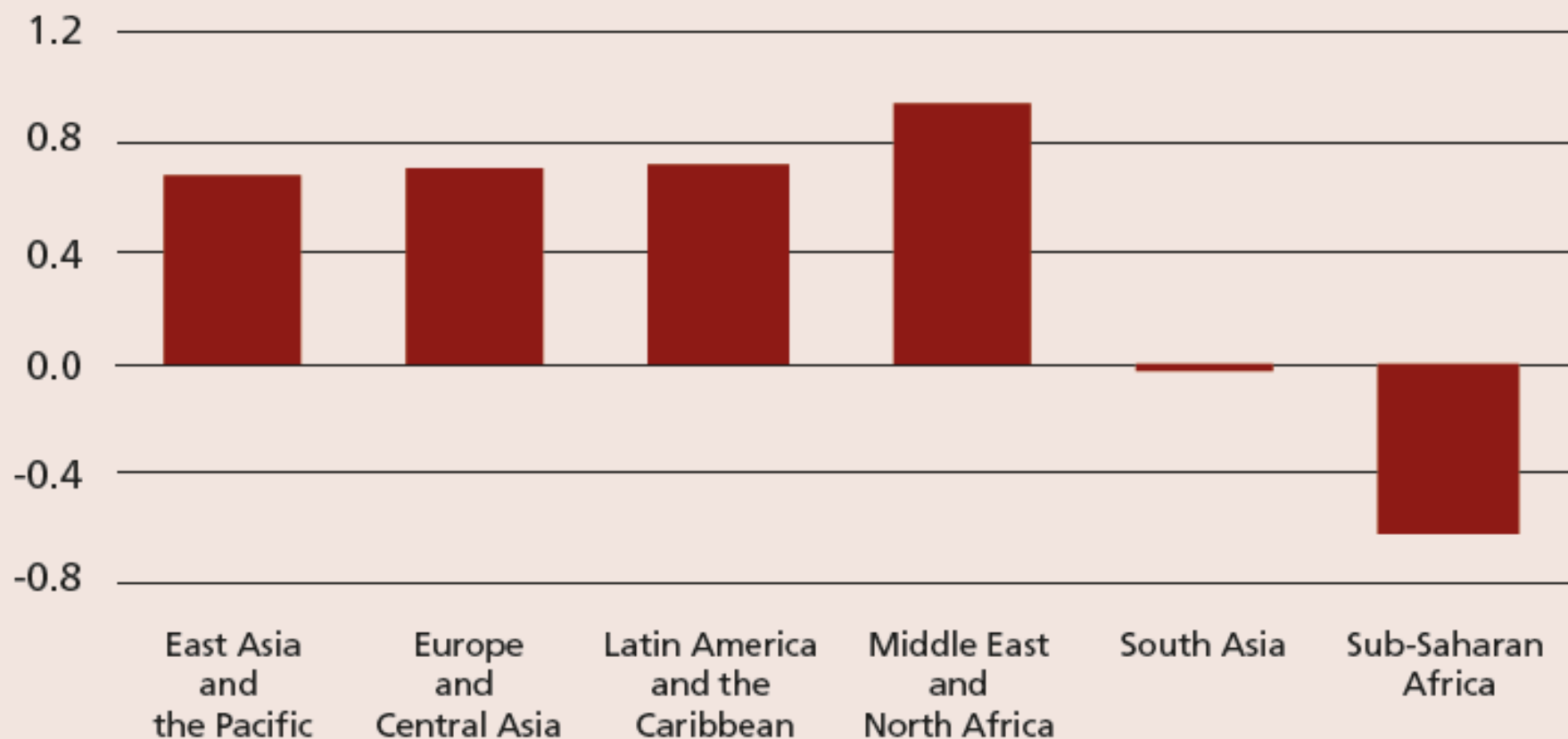
Tonnes per hectare



Source: FAOSTAT

## Average annual change in agricultural capital stock per worker in low- and middle-income countries, 1980–2007

### Percentage change

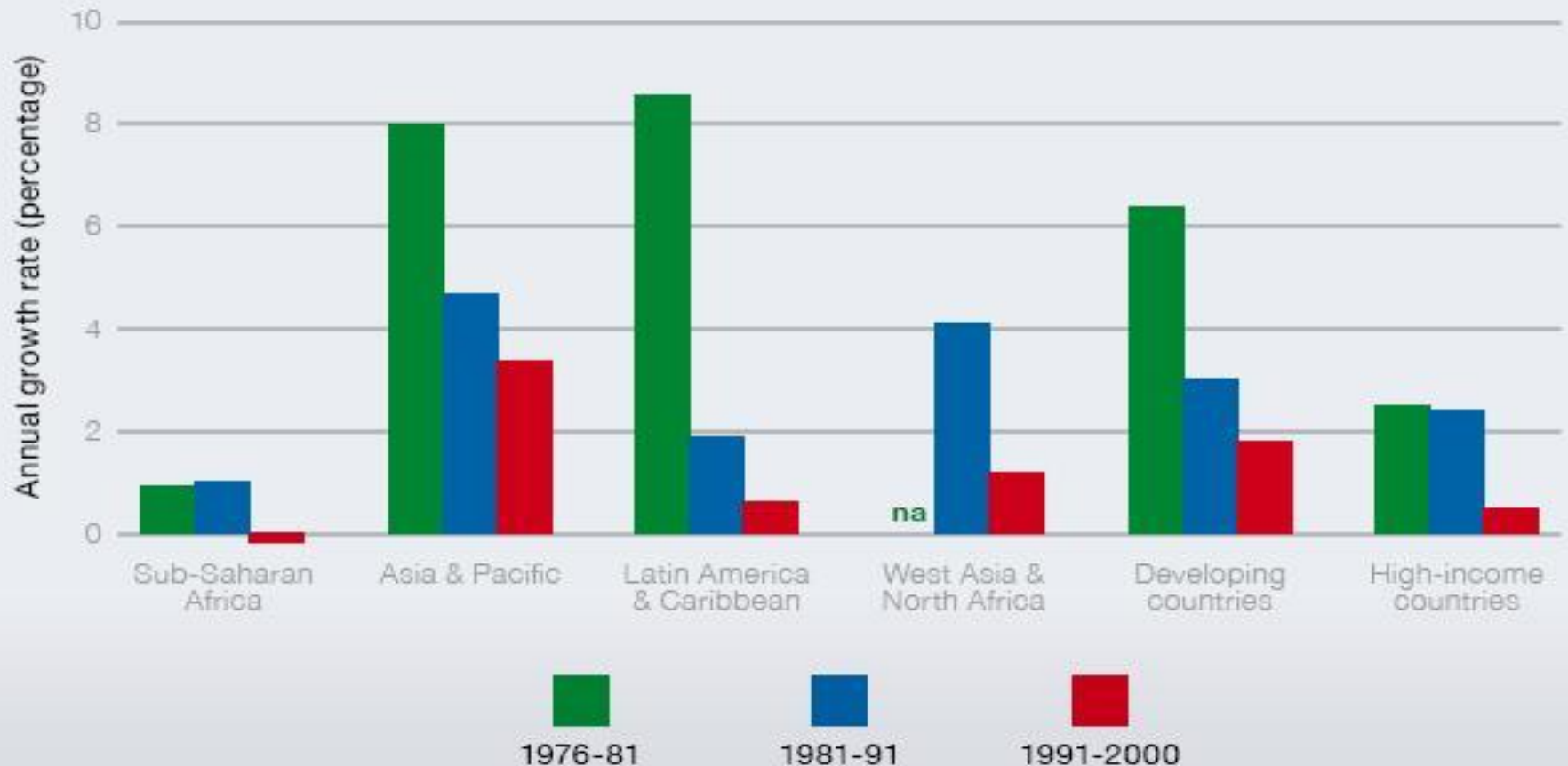


*Notes:* For countries in Europe and Central Asia, average annual changes are calculated for the period 1992 to 2007.

*Source:* Authors' calculations using FAO, 2012a and World Bank, 2012.

# Agric R&D expenditure growth slowed sharply from 1976-81 to 1991-2000

Figure 2: Annual growth rates in agricultural R&D, by geographic area



# To sum up...

- The region's agriculture has supplied enough food to satisfy demand and reduce food insecurity since 1975
- But agricultural growth continues to be critical
- Technological change is critical: yield growth will be the major source of agricultural growth from now onwards

# To sum up... (continued)

- Policy advice to governments:
  - Investments in infrastructure for production, communications and storage and agricultural research are critical
  - Should be combined with social protection to provide direct and immediate access to food for the most vulnerable



# To sum up... (continued)

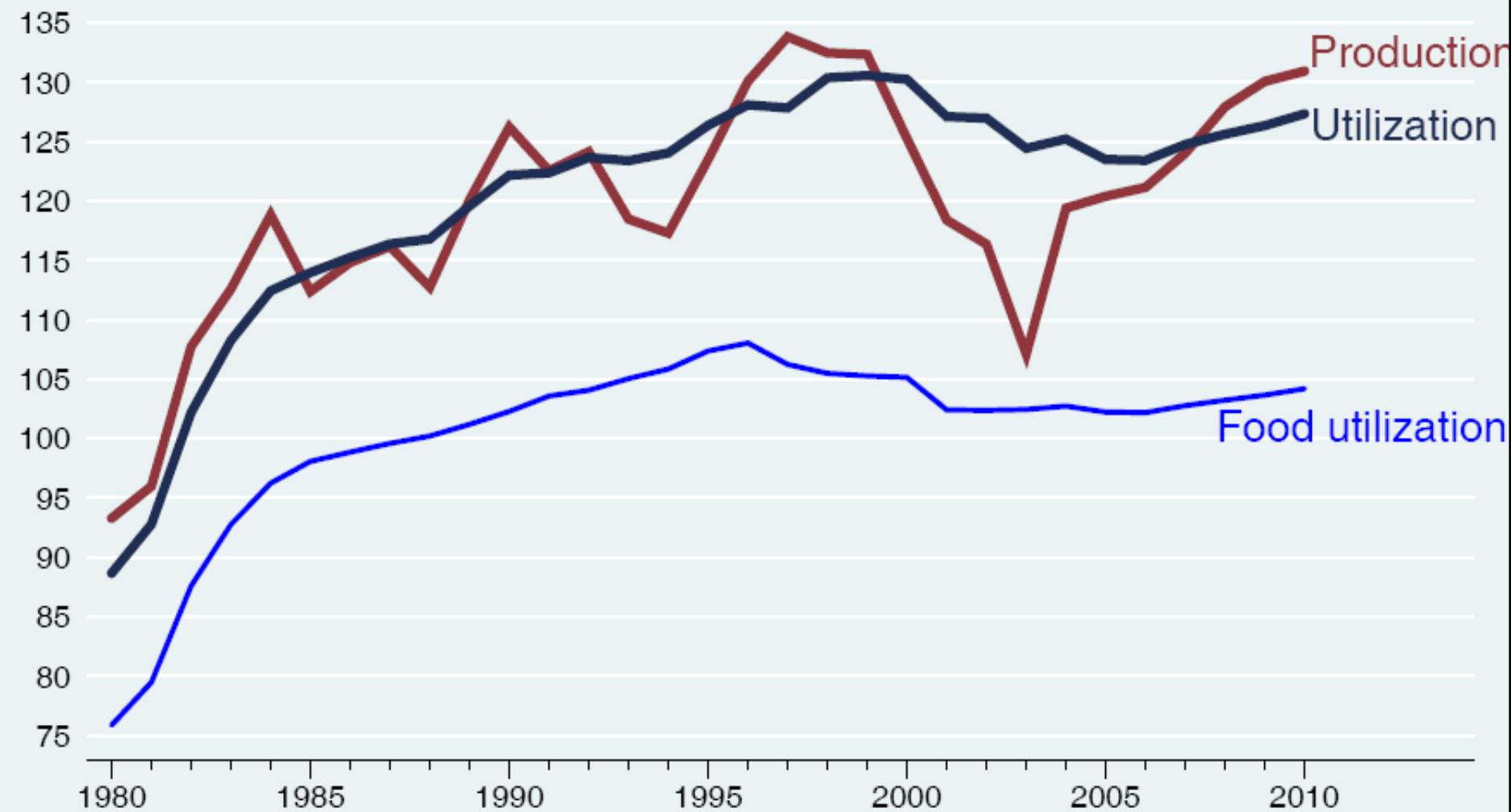
- Make investments to deal with the very serious long-term threat posed by climate change
  - improve and disseminate technologies that reduce carbon emissions and the environmental impact of agriculture
- Improve functioning of markets and price transmission
  - reduce price volatility and ensure that scarcity signals are orienting producers and consumers

Thank you

# Rice production and utilization

China: 1980 to 2010

Million tonnes

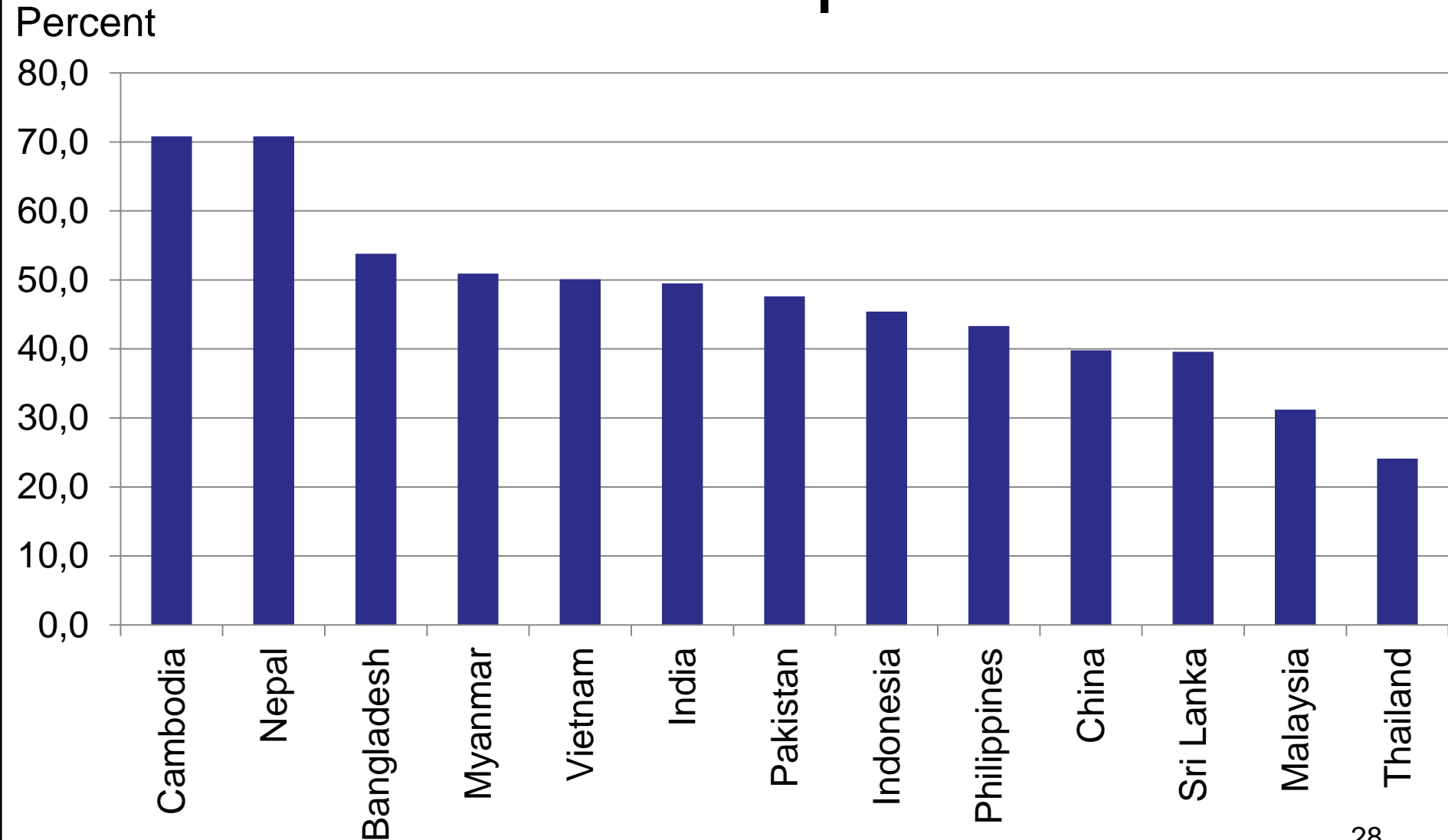


Rice in milled equivalent

Utilization is the sum of food, feed and other uses

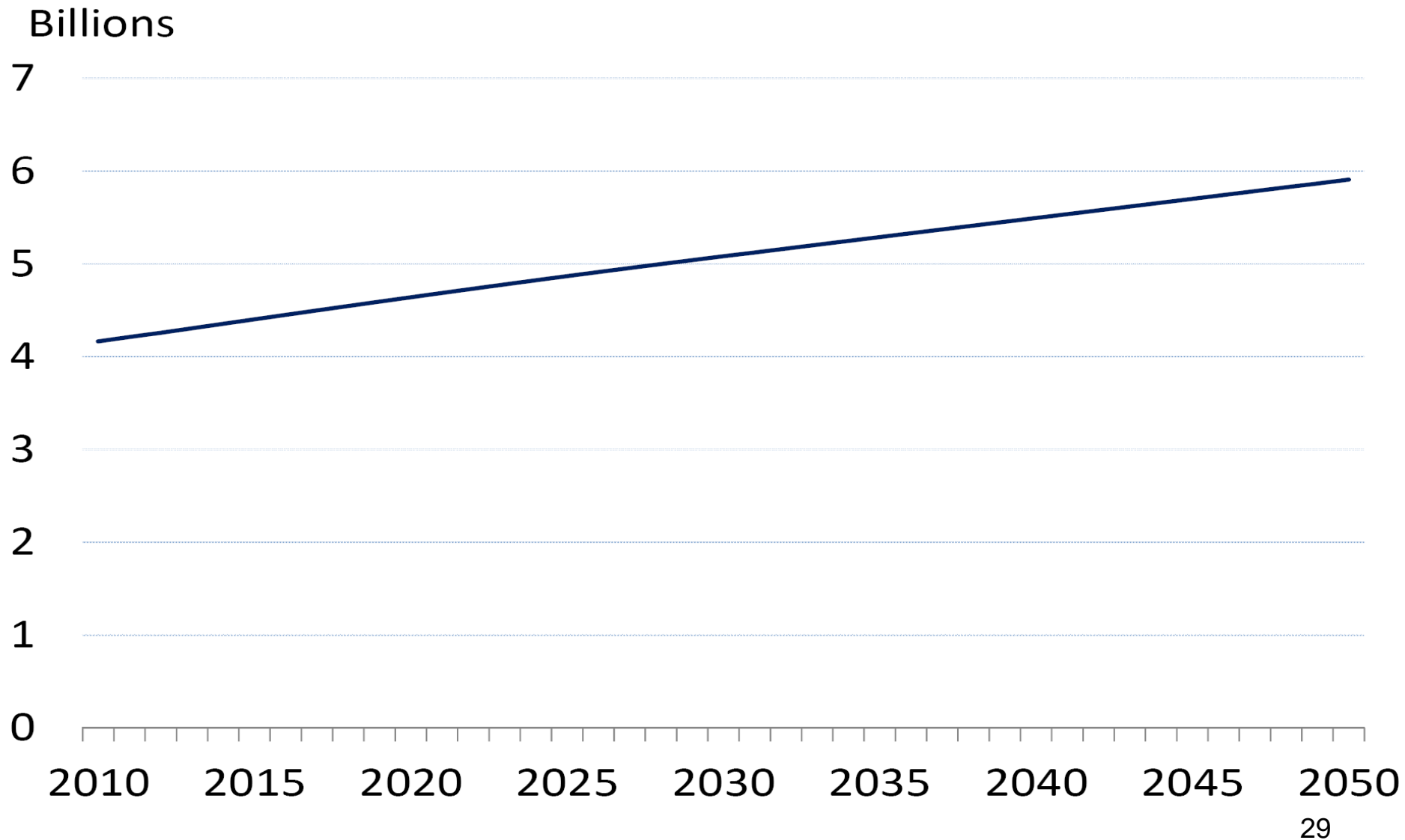
Source: FAOSTAT

# Food expenditure as a share of household expenditure



EIU: Food Security Index, derived from FAO data

# Population projections for Asia 2010-2050



# Returns to various investments: Example from India

*Returns in agricultural GDP (Rs per  
Rupee spent)*

**1990s**

Agricultural R&D

6.93

Road Investment

3.17

Educational Investment

1.53

Irrigation Investment

1.41

Irrigation Subsidies

n.s.

Fertilizer Subsidies

0.53

Power Subsidies

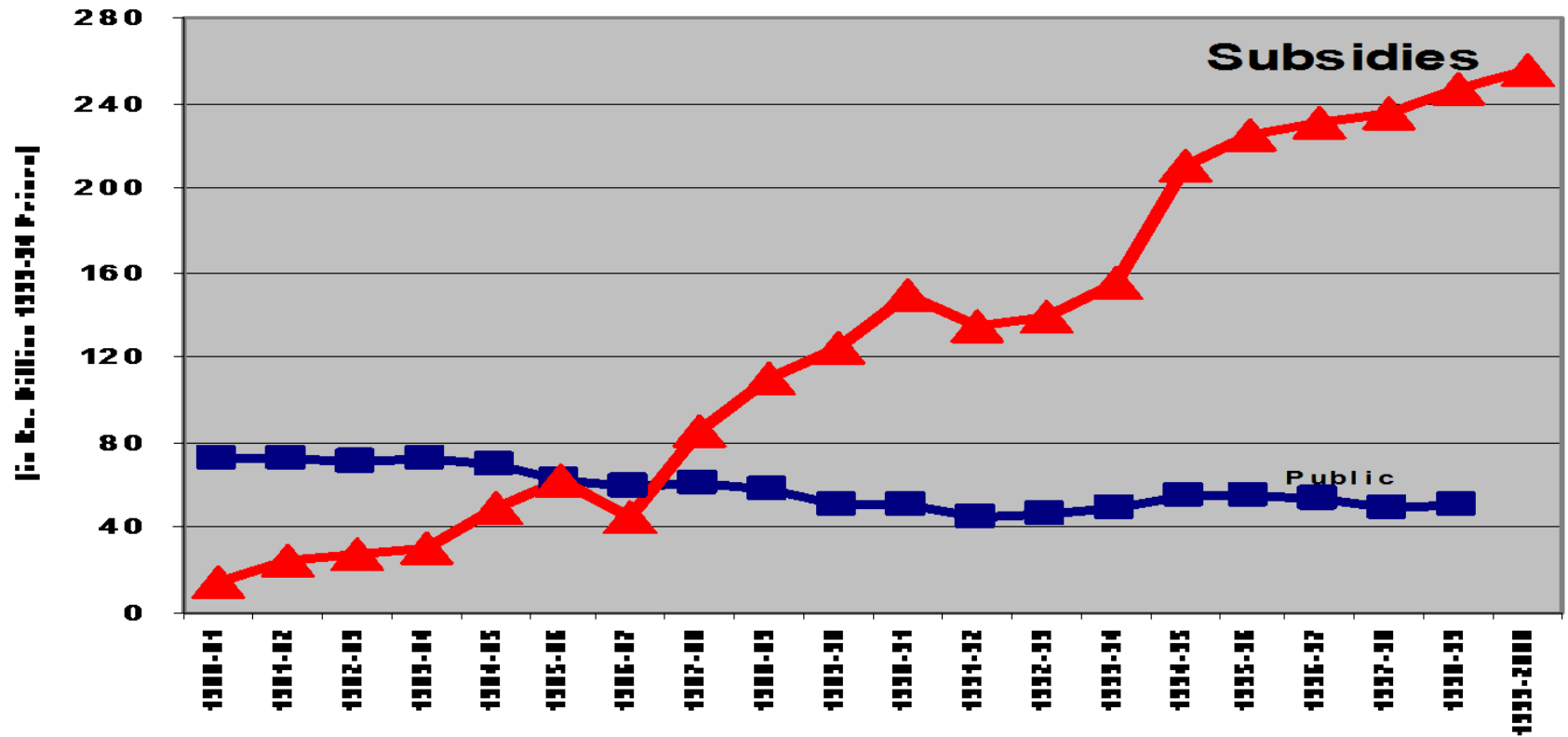
0.58

Credit Subsidies

0.89

Source: Fan, Gulati and Thorat: Investment, Subsidies, and Pro-Poor Growth in Rural India. IFPRI 2007

# A warning from India: Subsidies versus investments



**Public Investment**