



PTIN Module on Managing the Supply Chain

Beijing 5-7 November 2010

Improving Food Safety In and Across APEC Member Economies: Proposing a Conceptual Framework on Which to Base Strategy



John E. Lamb

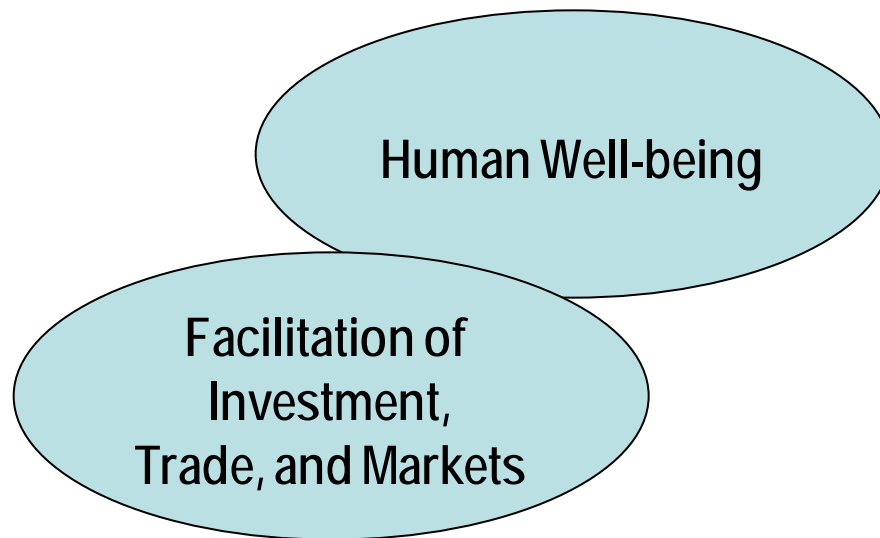
Agro-investment Strategy Advisor
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The World Bank, Washington DC

Why are we all here?

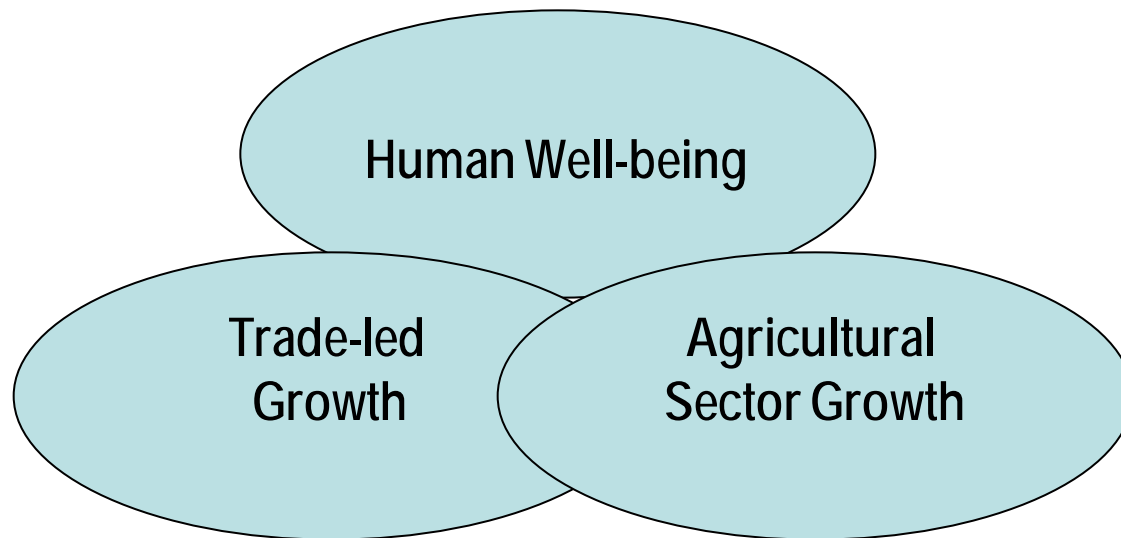


Human Well-being

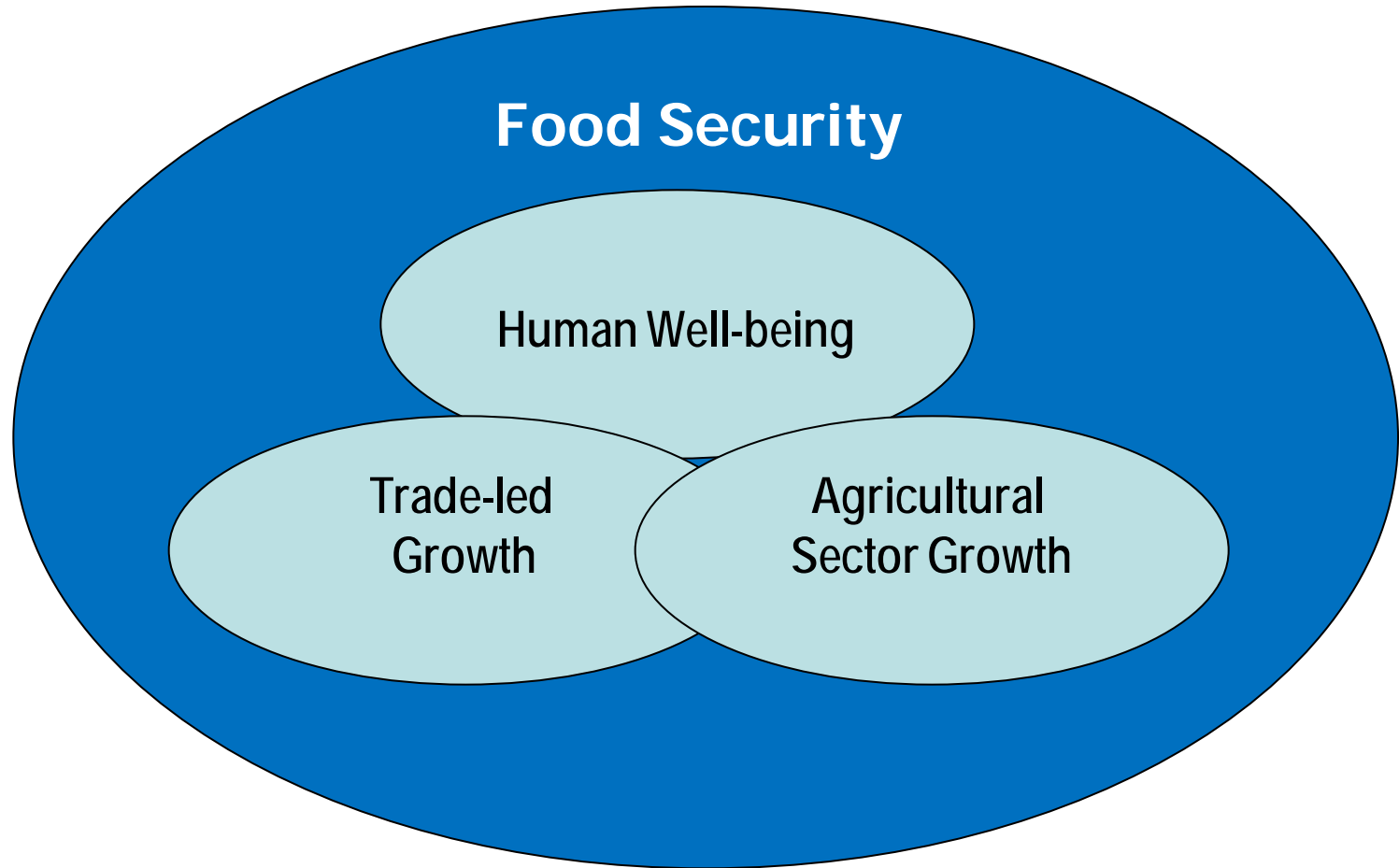
Why are we all here?



Why are we all here?



Why are we all here?



Recommendation #1

- 👉 *The PTIN food safety strategy should explicitly recognize and be guided by APEC's broader objective of enhancing food security for those who dwell in member economies and those whose food needs are supplied by APEC members*



Strategic Framework for Food
Security in APEC



APEC Leadership has consistently acknowledged the importance of these objectives

“The current growth crisis will not shake our determination to address the important challenges facing the region including...the fight against poverty [and] hunger...”

APEC Leaders' Statement on the Global Economy, Lima, 2008

“Building the capacity of economies to produce, access, and distribute safe food, as well as developing appropriate food safety regulation, is an integral element of food security”

Declaration on APEC Food Security, First APEC Ministerial Meeting on Food Security, Niigata, October 2010)

Countries are coming together around the food security challenge...



Leaders Statement on Global Food Security



“L’Aquila” Joint Statement on Global Food Security
L’Aquila Food Security Initiative (AFSI)



G20 Leaders' Statement

International institutions are responding by researching, informing, partnering, and creating new funding mechanisms as well as technical support programs



High-Level Task Force on the
GLOBAL FOOD SECURITY CRISIS

COMPREHENSIVE
FRAMEWORK FOR ACTION



Global Food Crisis
Response Program (GFRP)



World Summit
on Food Security




*Asia Pacific Regional Food Security
Partnership Framework*



SEE THE
FEED CHANGE **FUTURE**

Various types of shock have caused food security to resurface as a global issue...




Food, fuel and commodity price crisis 2006-2008



Global financial crisis 2008 - ????




Apparent effects of climate change




Questionable yet understandable policy responses

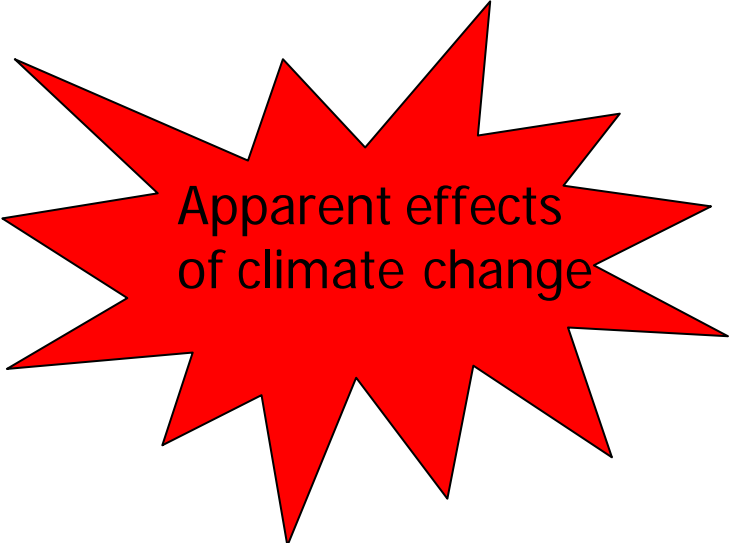
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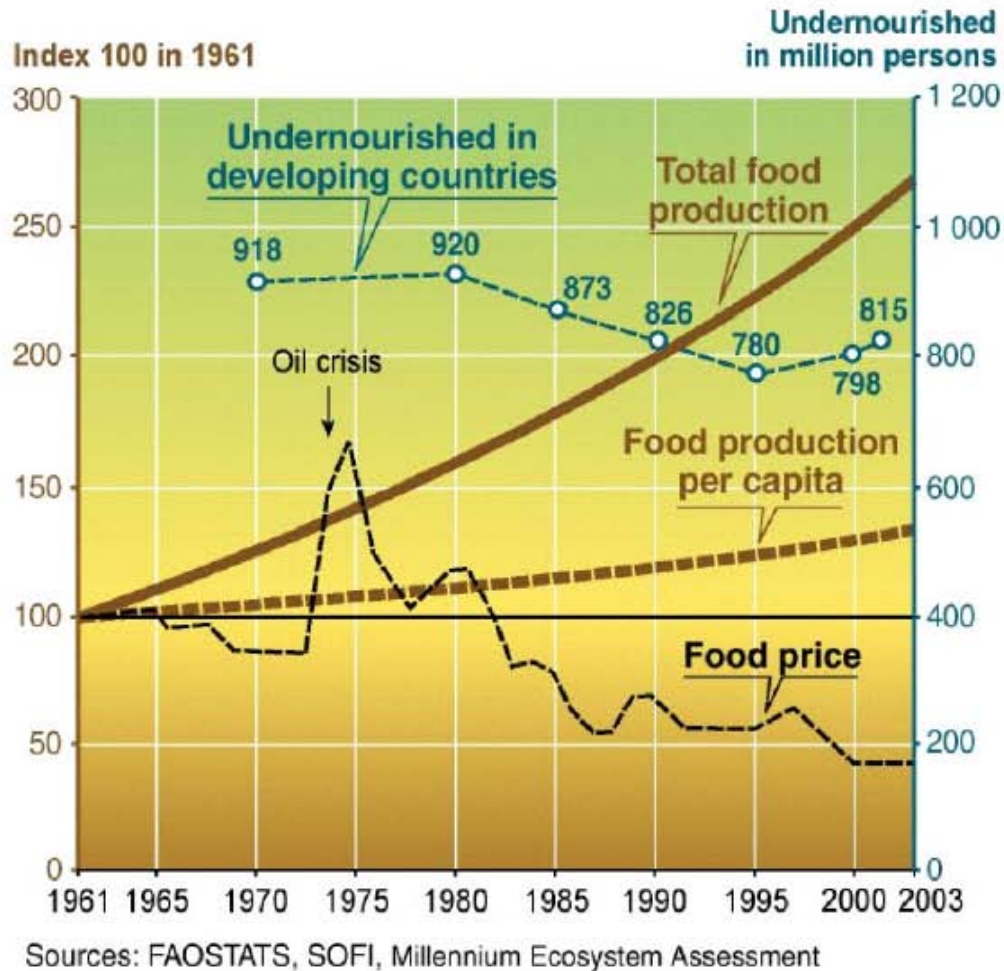
Apparent effects of climate change



Questionable yet understandable policy responses

...and these led many to re-examine the situation¹¹

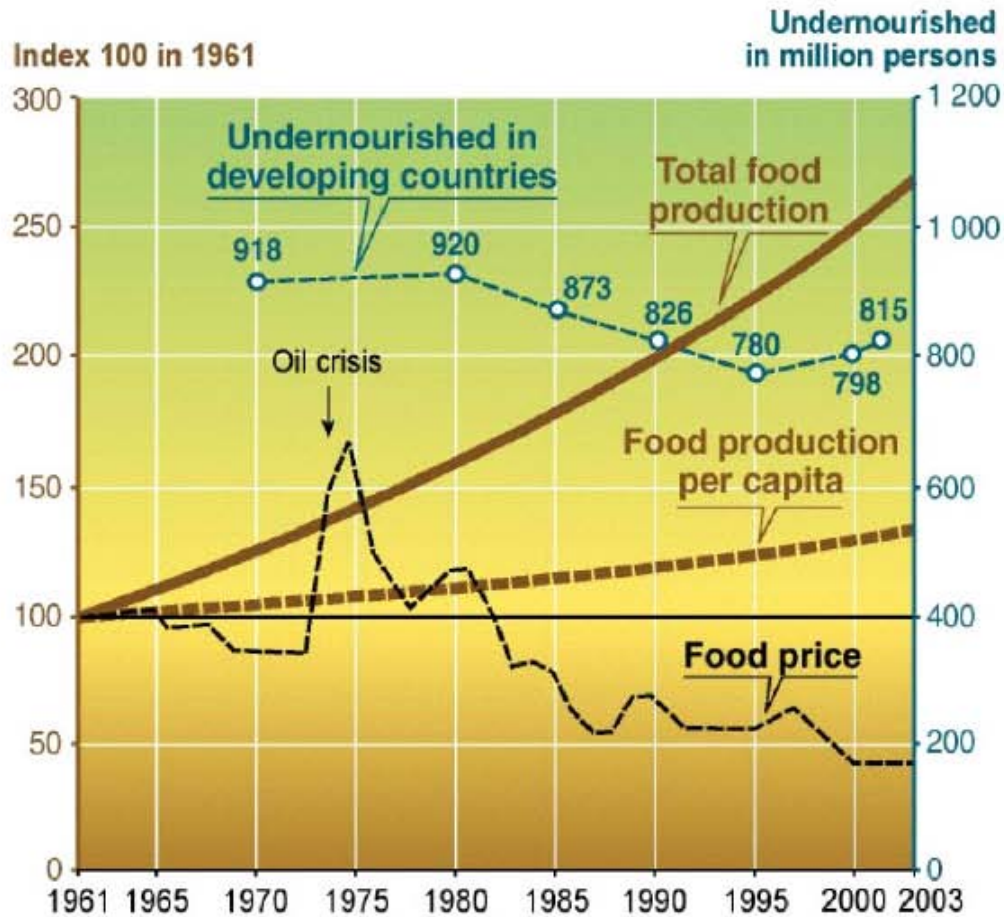
For several decades the world made great progress against food insecurity



...which led to a certain complacency



For several decades the world made great progress against food insecurity



Sources: FAOSTATS, SOFI, Millennium Ecosystem Assessment

From 1975 to 2005, dietary energy supplies grew faster than the world population, which itself more than doubled.

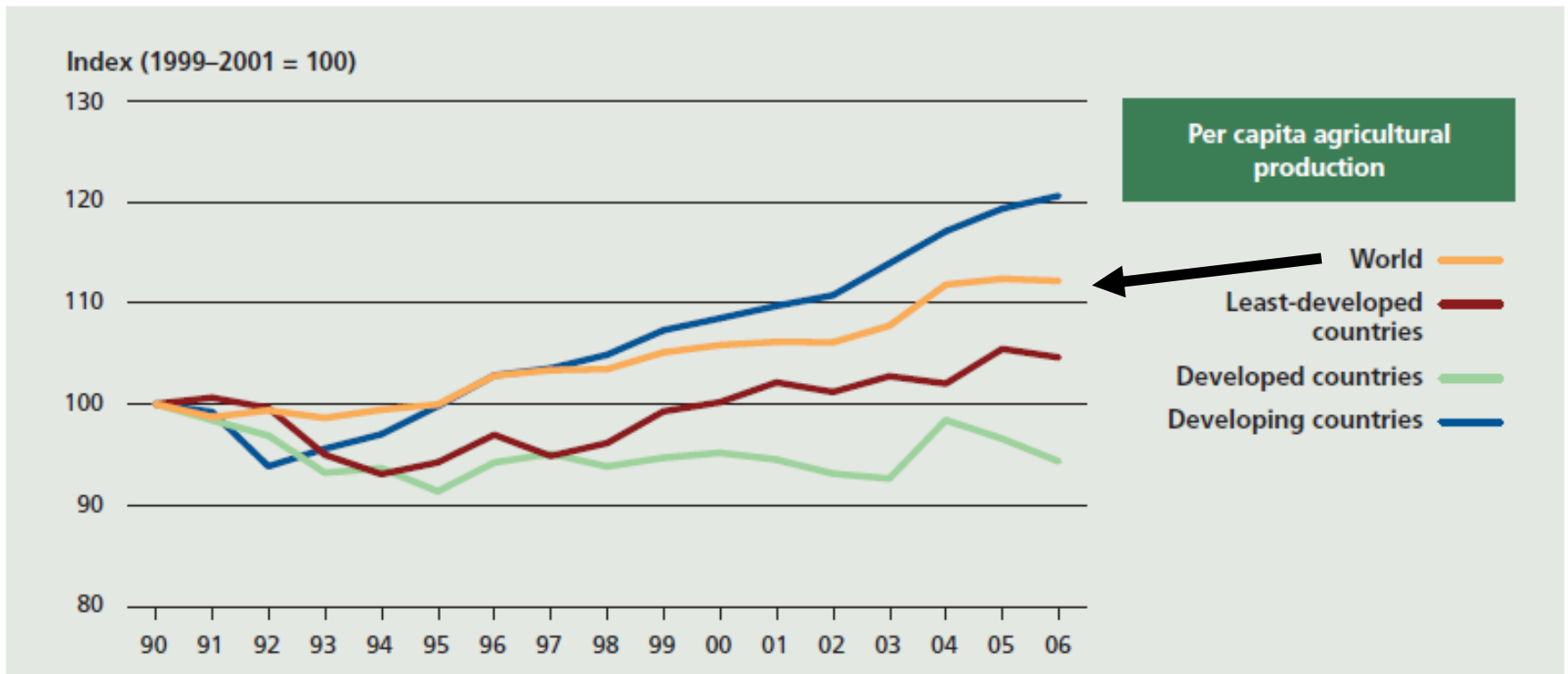
Food availability rose from 2400 to nearly 2800 kcal/person/day.

In developing countries increase was steeper, from 2200 to 2600 kcal/person/day.



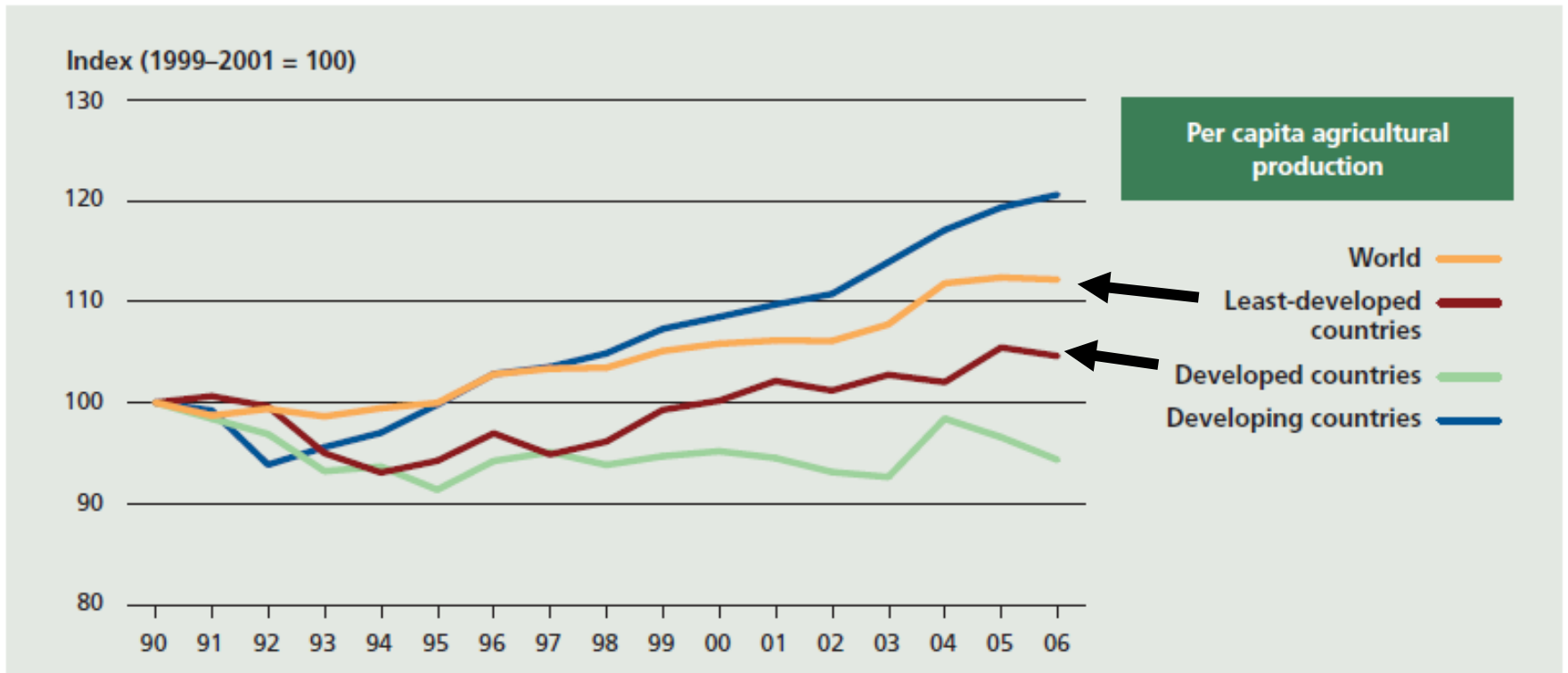
...which led to a certain complacency

Per capita agricultural production has been leveling off on a global basis...



Source: FAO, 2008i.

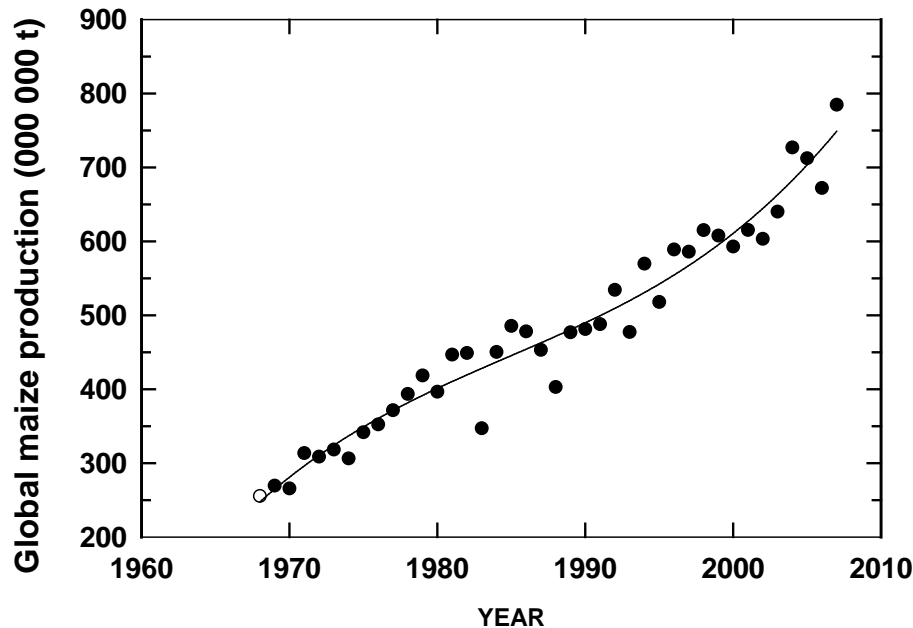
Per capita agricultural production has been leveling off on a global basis...



Source: FAO, 2008i.

...and has been falling in both the developed and least developed countries

Corn yield increases under best practice conditions have kept pace with population...

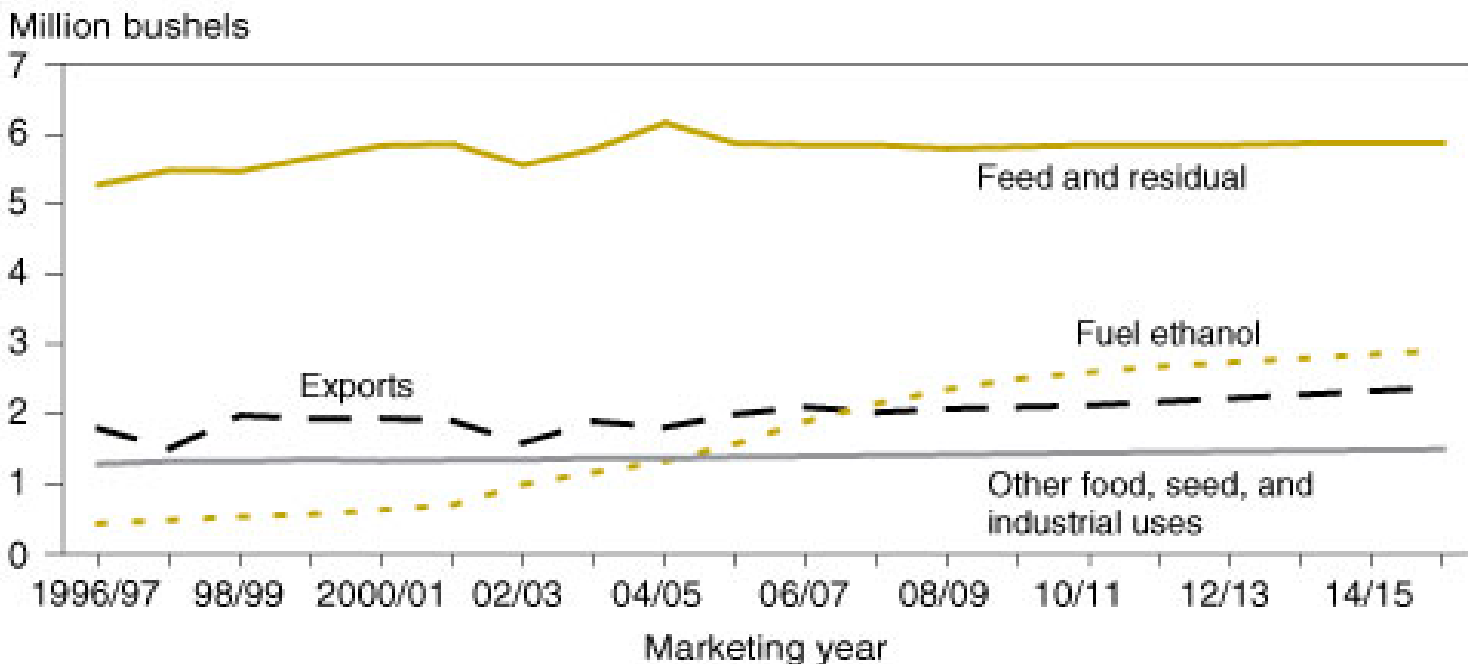


1980s: 2.2% per year
1990s: 2.5% per year
2000s: 3.5% per year

...which does mean a rise in
per capita availability...

...yet an increasing share of global output is being diverted to biofuel use

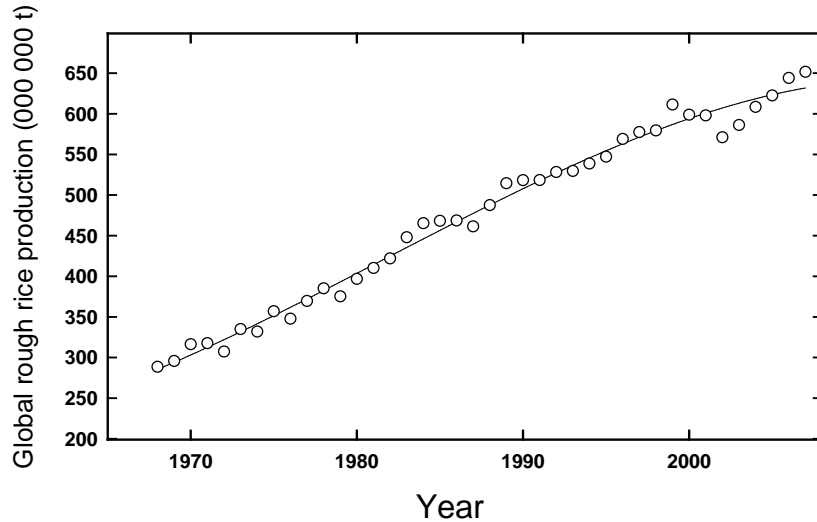
USDA's Baseline Projections suggest that corn use by ethanol producers will grow much faster than corn use by other industries



➤ US used 80 million tons of corn (24%) for ethanol in 2007 and around 100 million in 2008 (31%)

➤ In effect, 75% of increase in global corn production from 2004-07 went for ethanol in US

Meanwhile global yield growth for rice and wheat has been slowing down

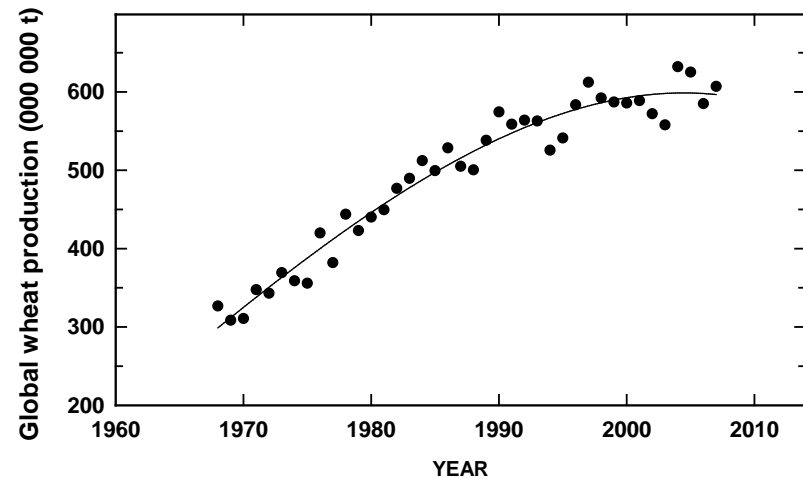


Rice

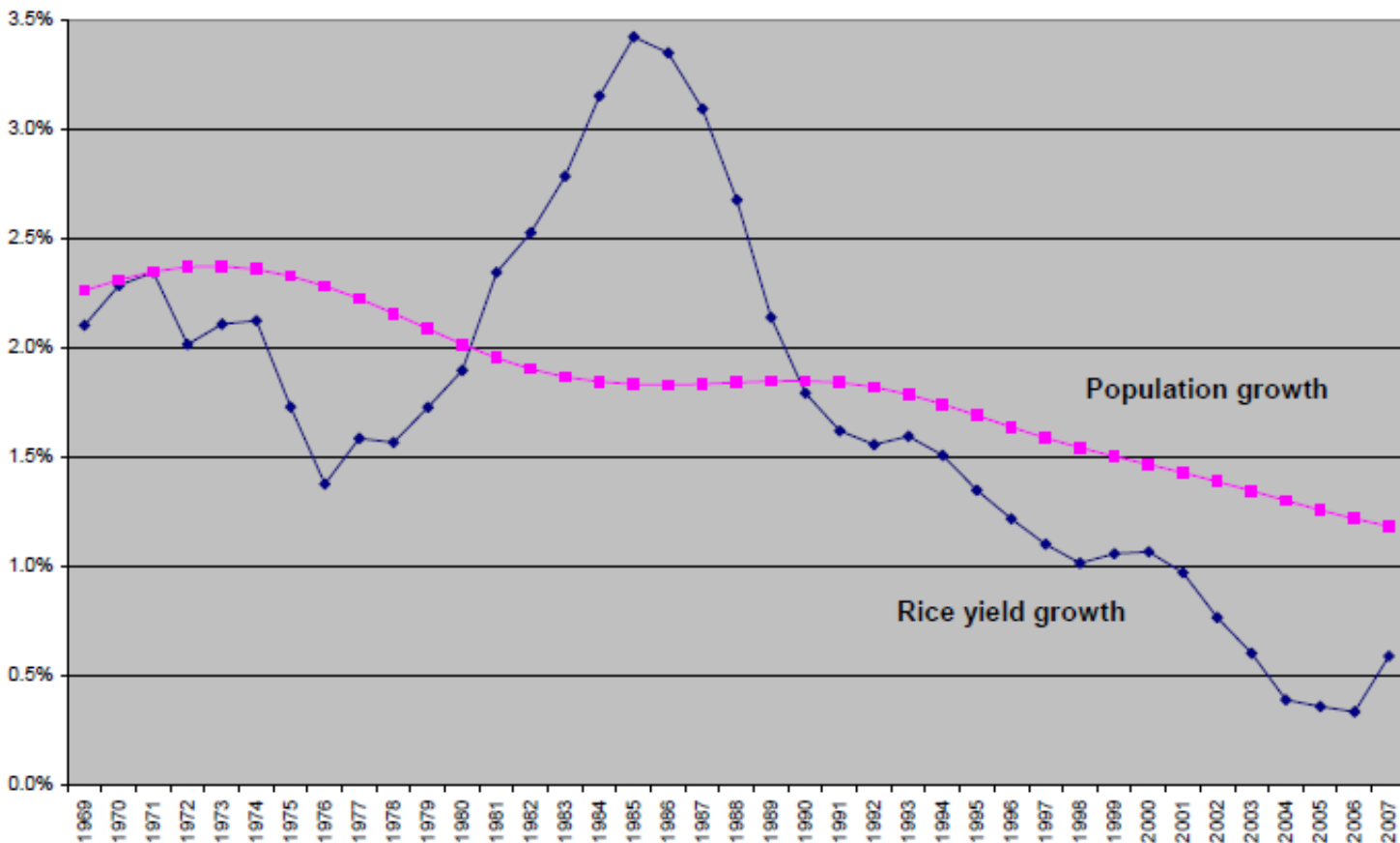
1980s: 3.1% per year
1990s: 1.4% per year
2000s: 0.8% per year

Wheat

1980s: 2.9% per year
1990s: 0.9% per year
2000s: 0.4% per year

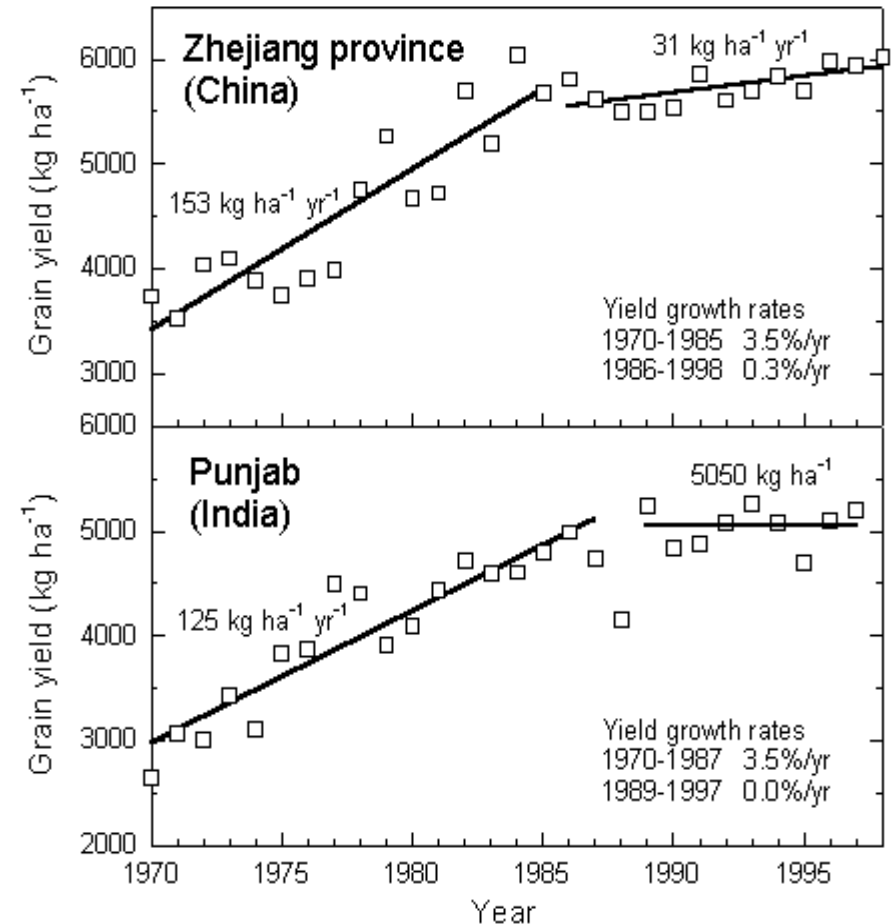
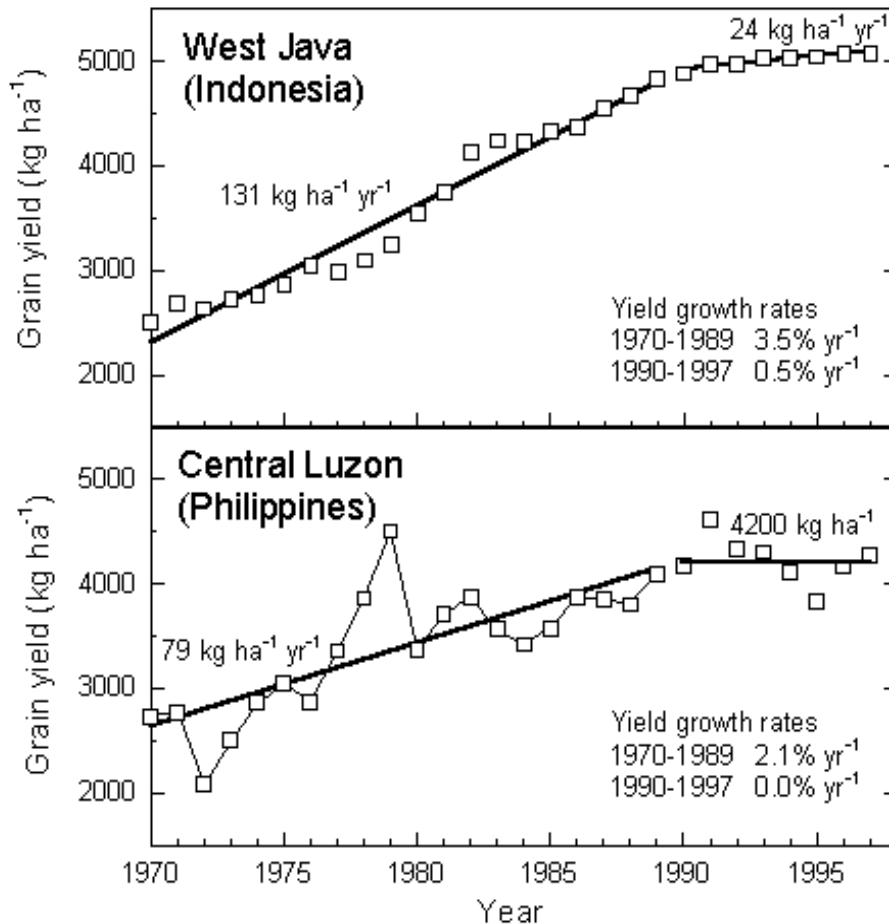


Annual average percentage increase in rice yields between successive rolling 5-year periods in rice-producing Asia



Source of raw data: USDA for yields, FAO for population [Chart from Dawe, 2008c]

The slowdown affects many APEC countries

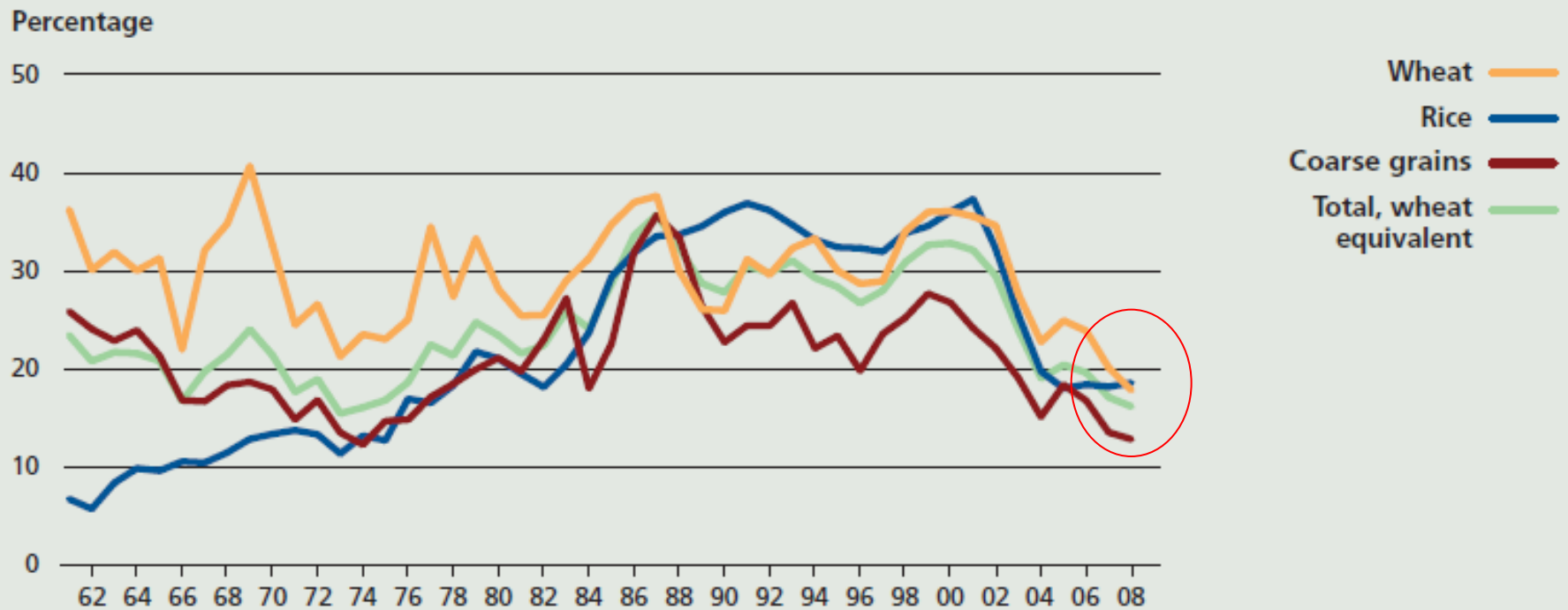


Source: Cassman, 1999

...so the Green Revolution has largely run its course²⁰

Other policy changes have affected our collective ability to feed the world

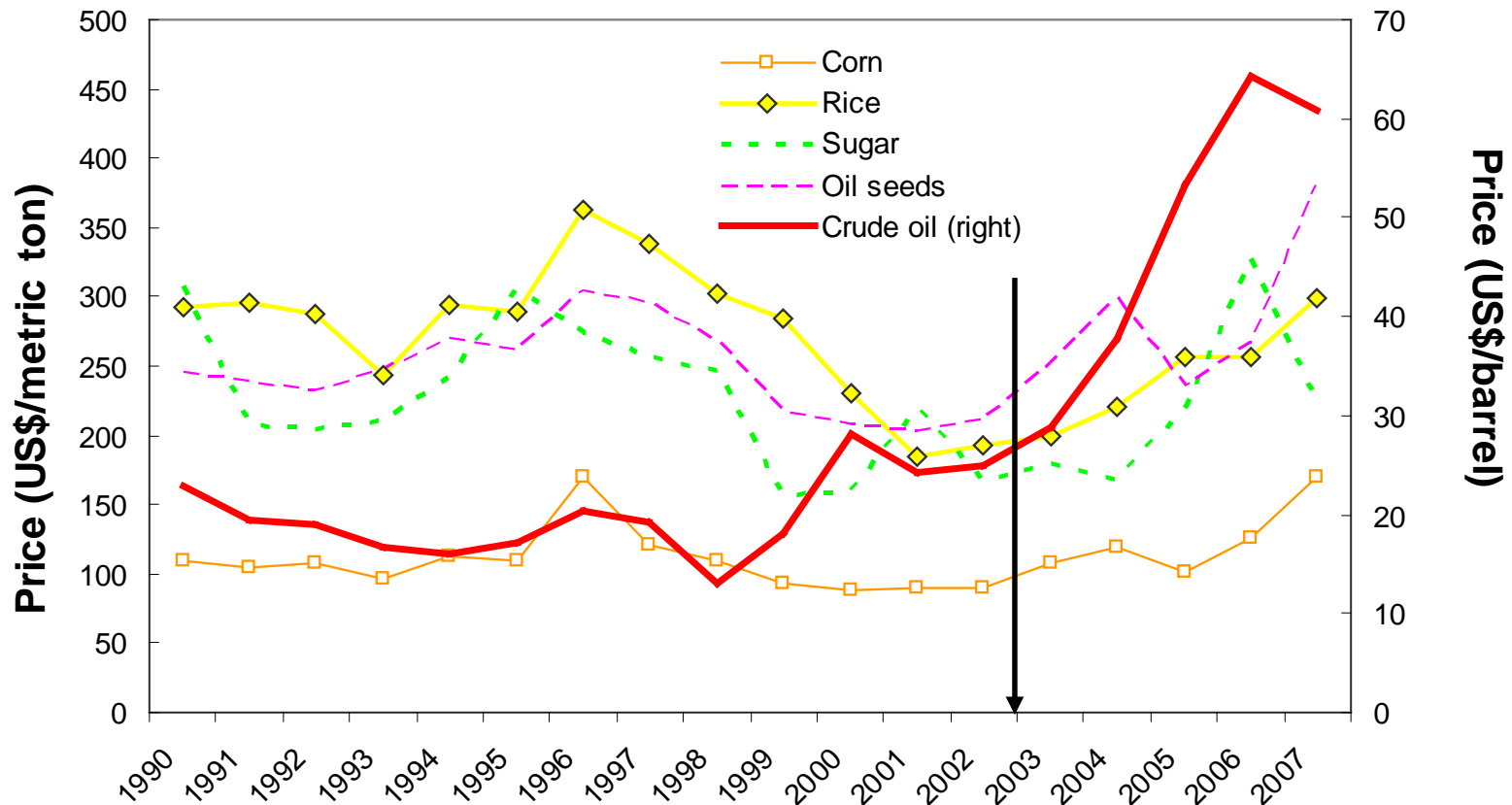
Five Decades of Global Stocks-to-use Ratios for Cereals



Note: Wheat equivalent based on relative 2000–02 prices from OECD–FAO, 2008.

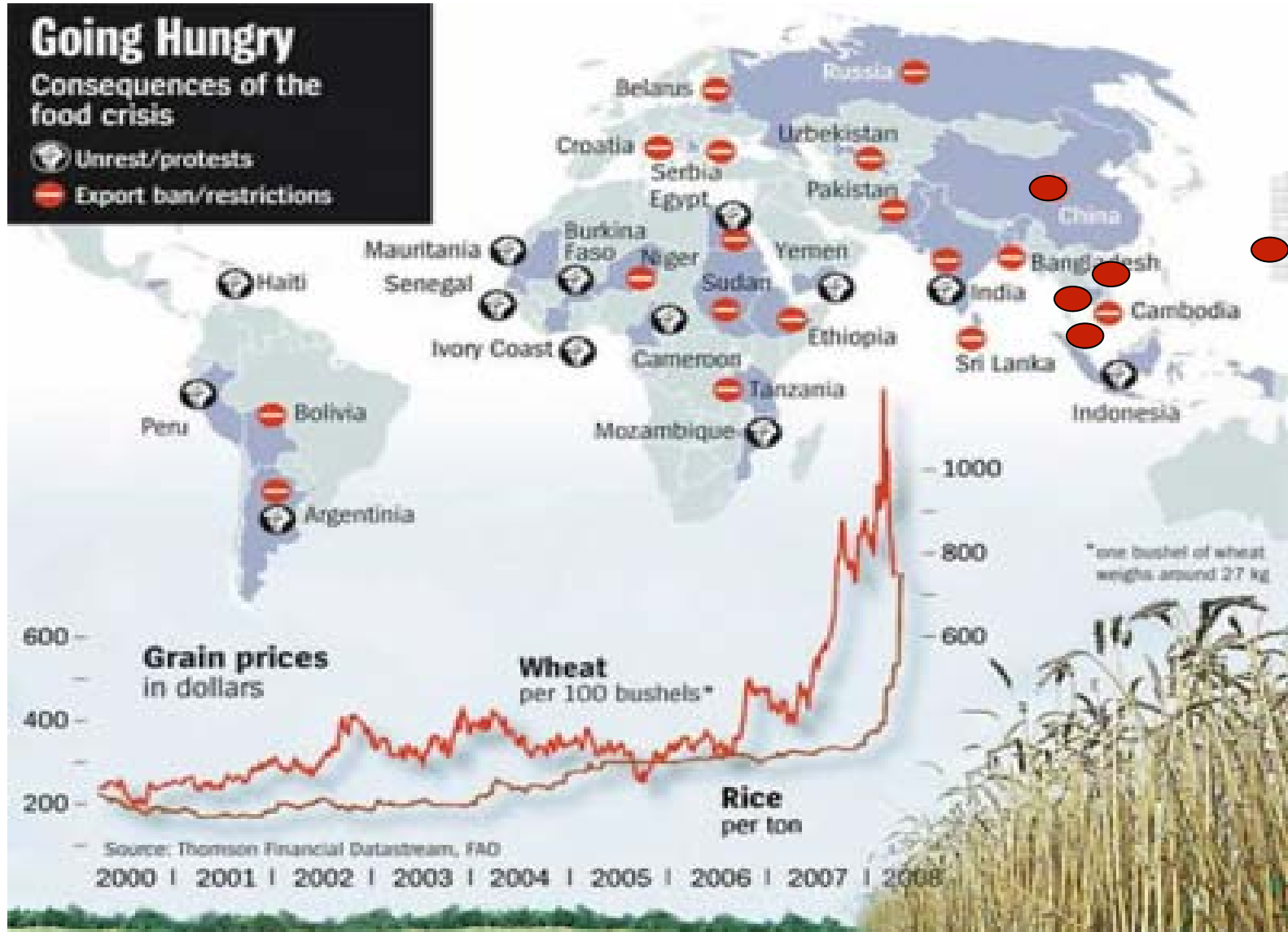
Source: Stock and use data from USDA Foreign Agricultural Service, 2008.

In retrospect, we should not have been surprised when food prices spiked in 2008

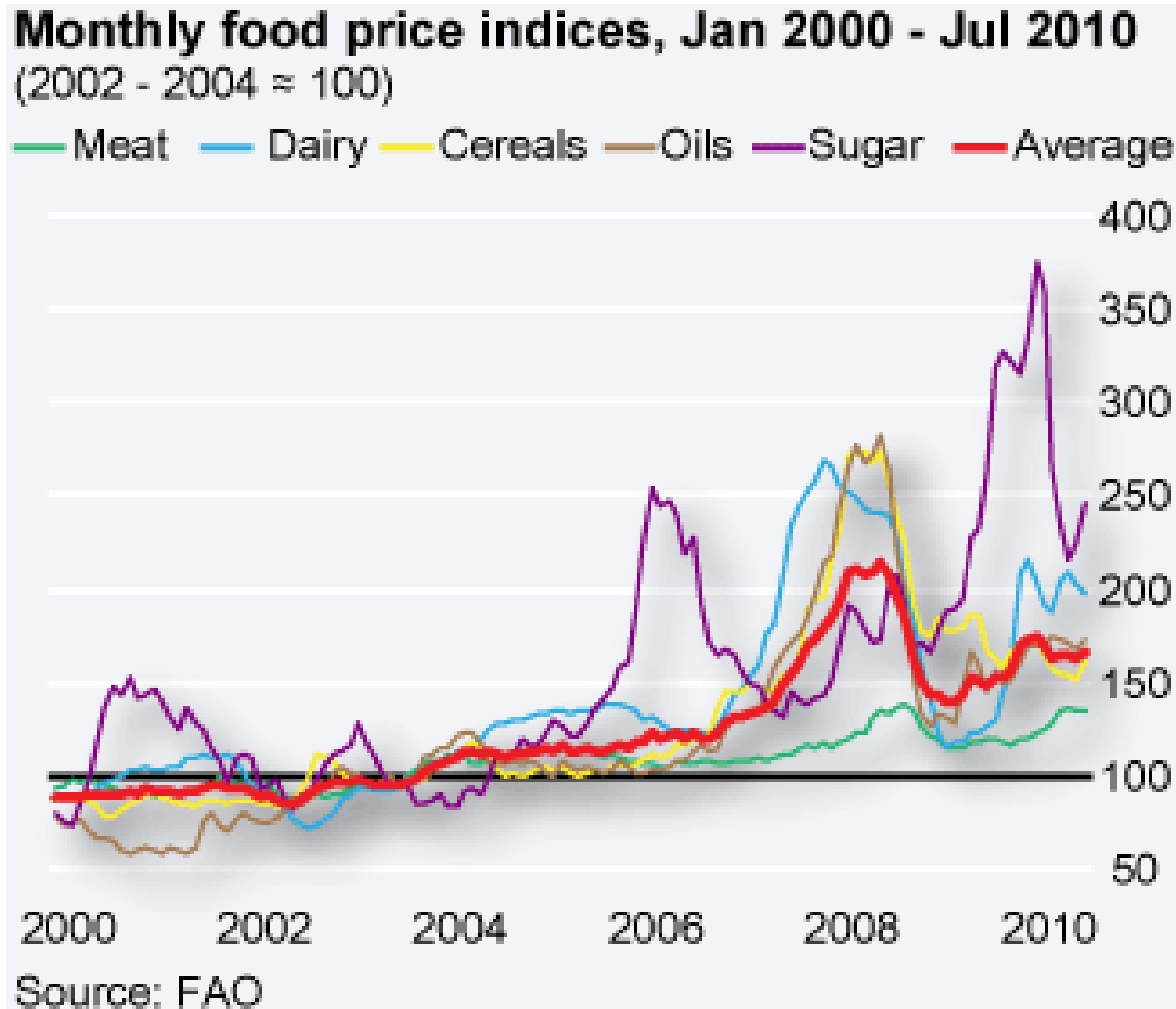


Sources: Corn, rice, sugar, and oilseeds for 1990–2005 - OECD 2005; 2006-07 – WB 2007
Crude oil - IMF 2007, all as quoted by Rosegrant, 2008

...nor that the 2008 spike led to both social unrest and export restrictions



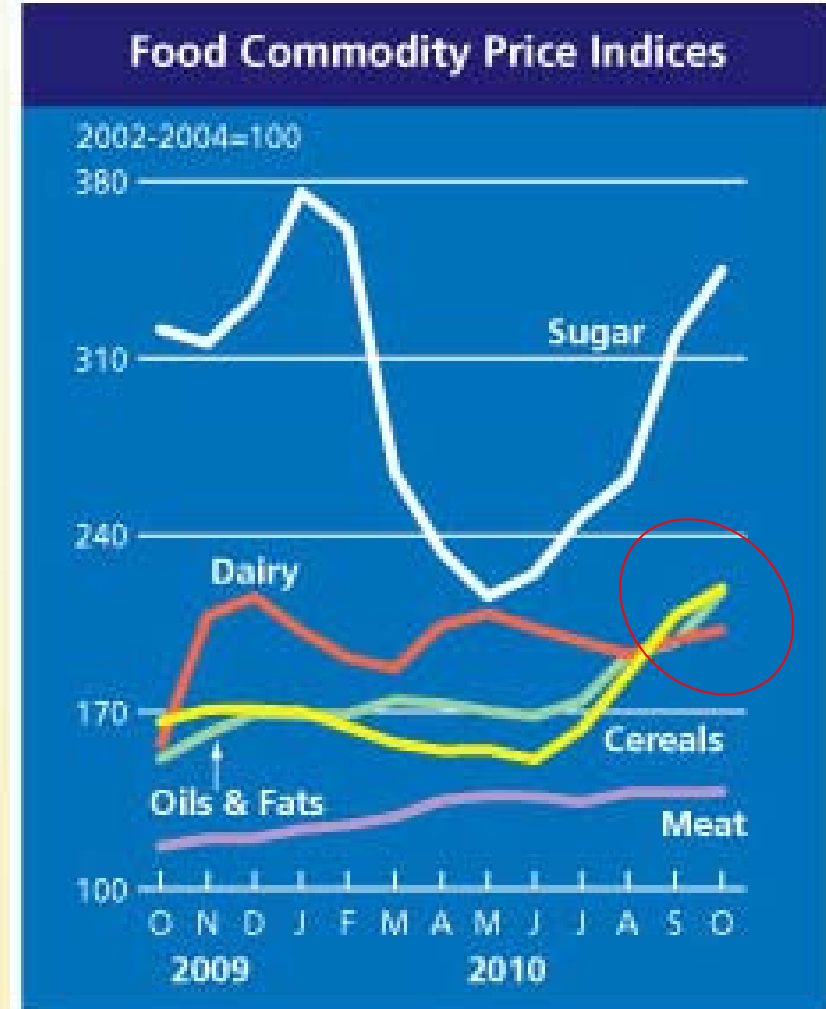
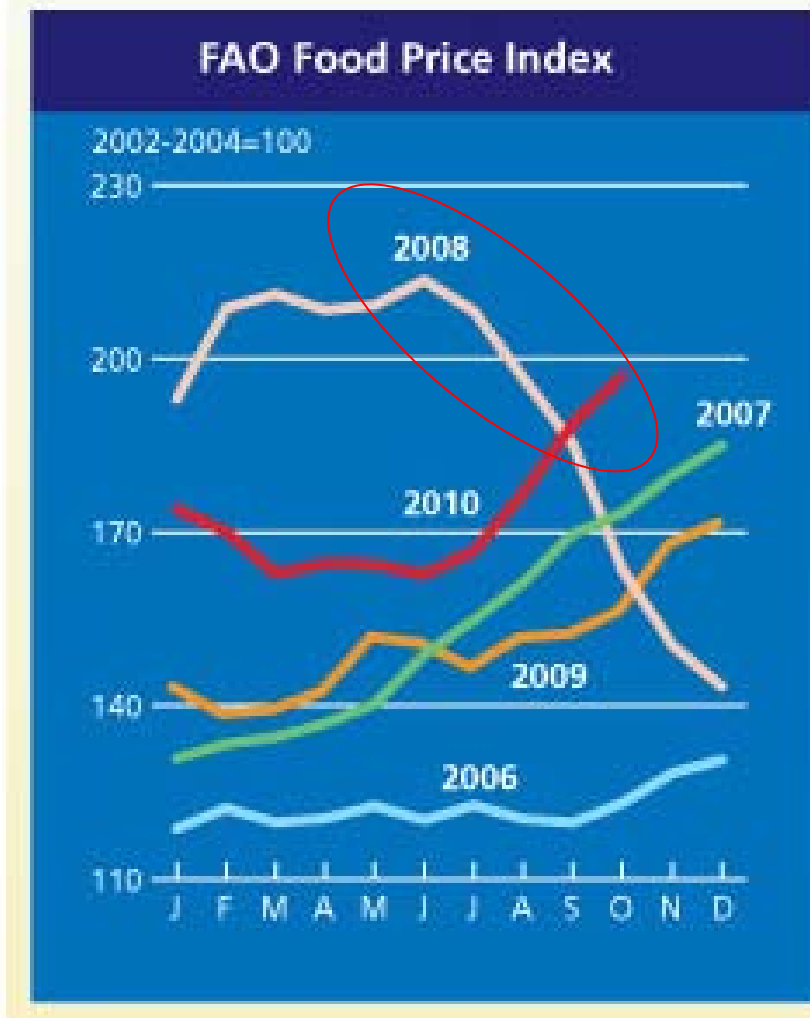
We did not foresee that the volatility that ensued would persist...



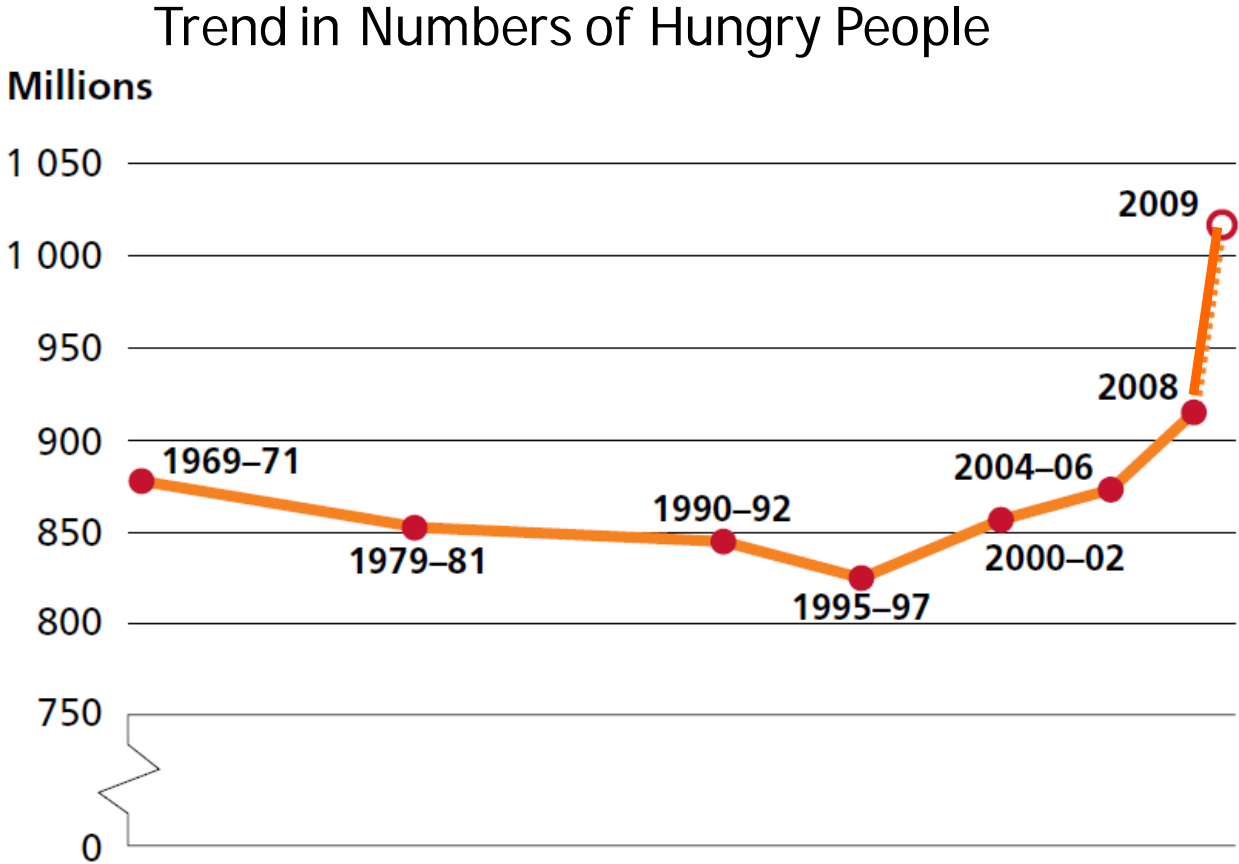
...exacerbated by both natural and man-made supply and trade disruptions



The food price crisis of 2008 is not over... in fact it may have become chronic

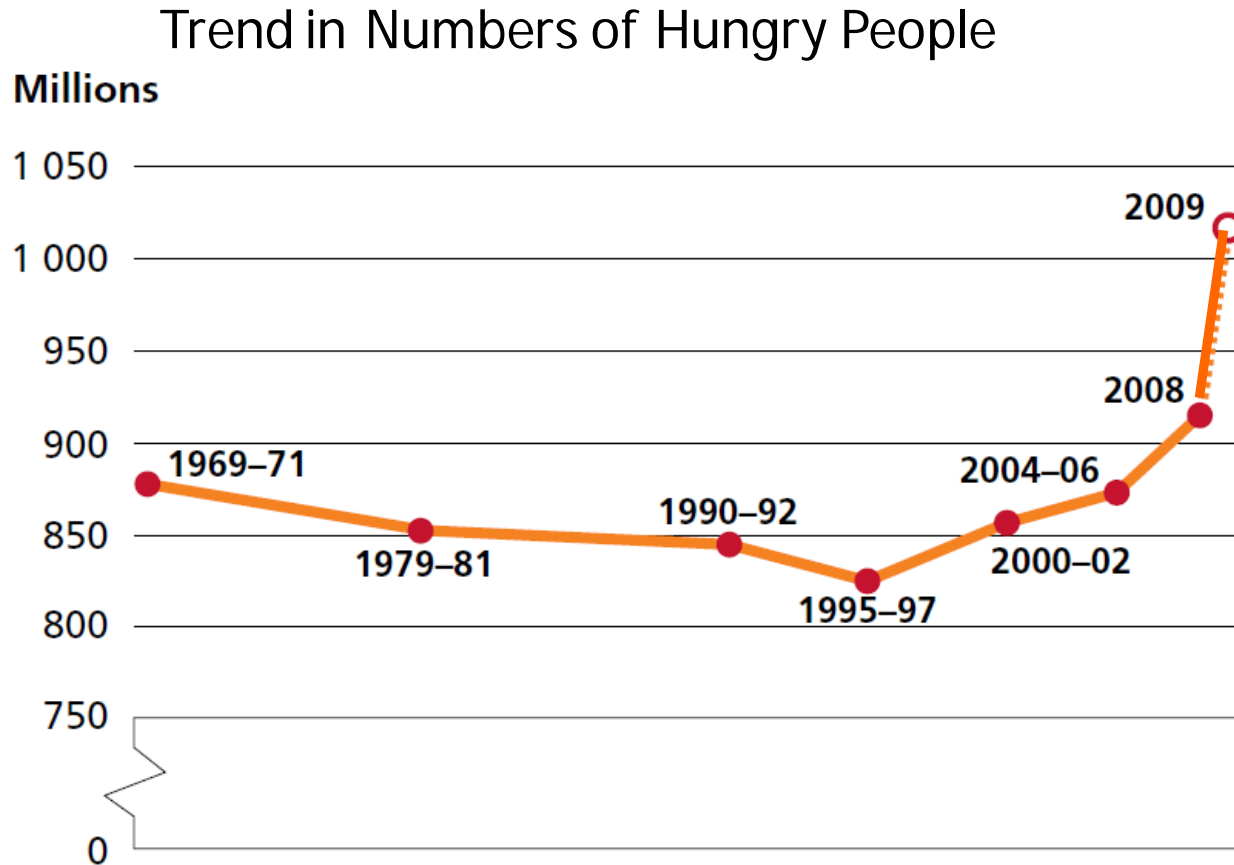


The total number of chronically hungry people actually rose from 2000 to 2009, by 150 millions



Source: The State of Food Insecurity in the World, FAO (2009)

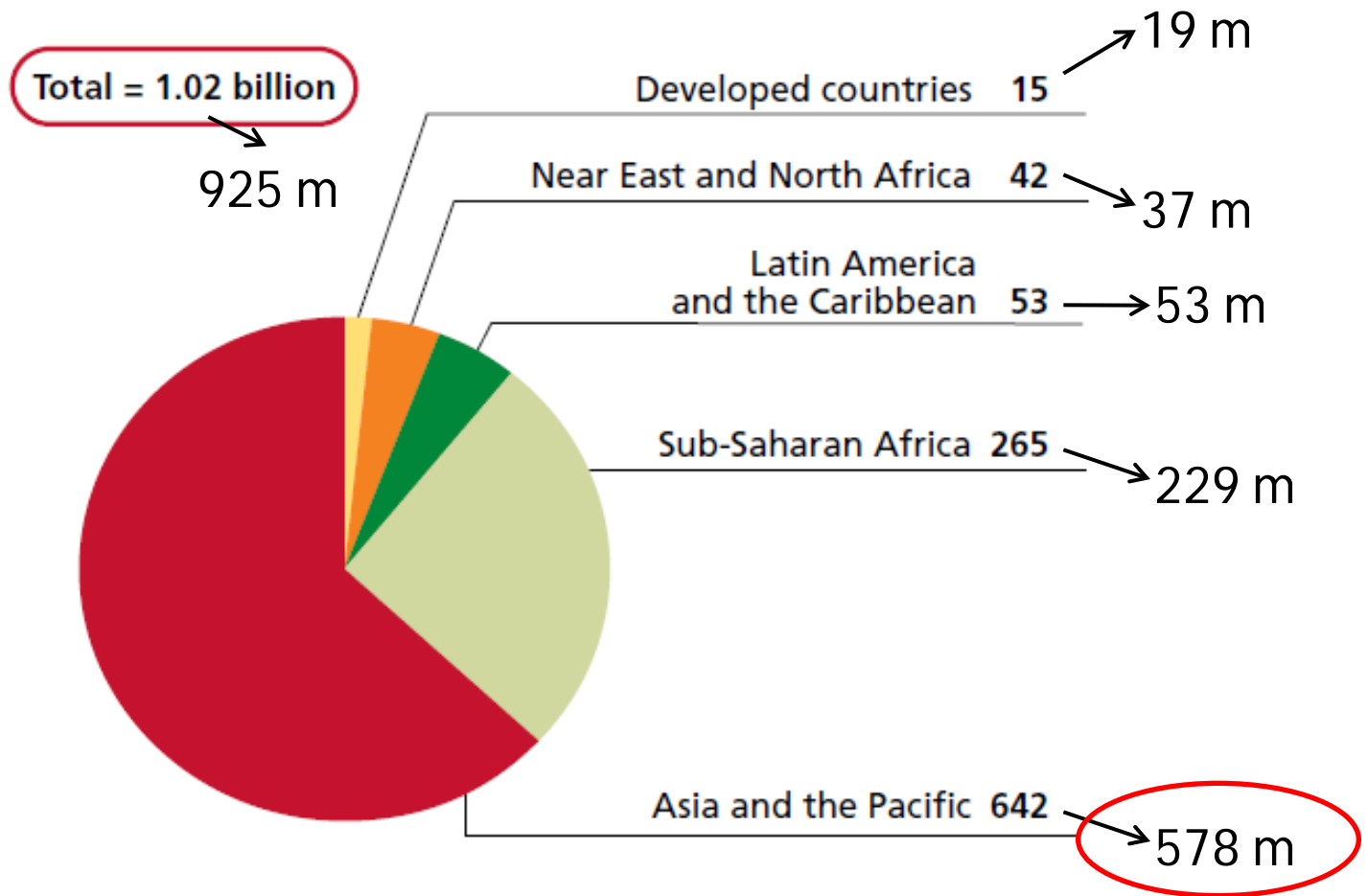
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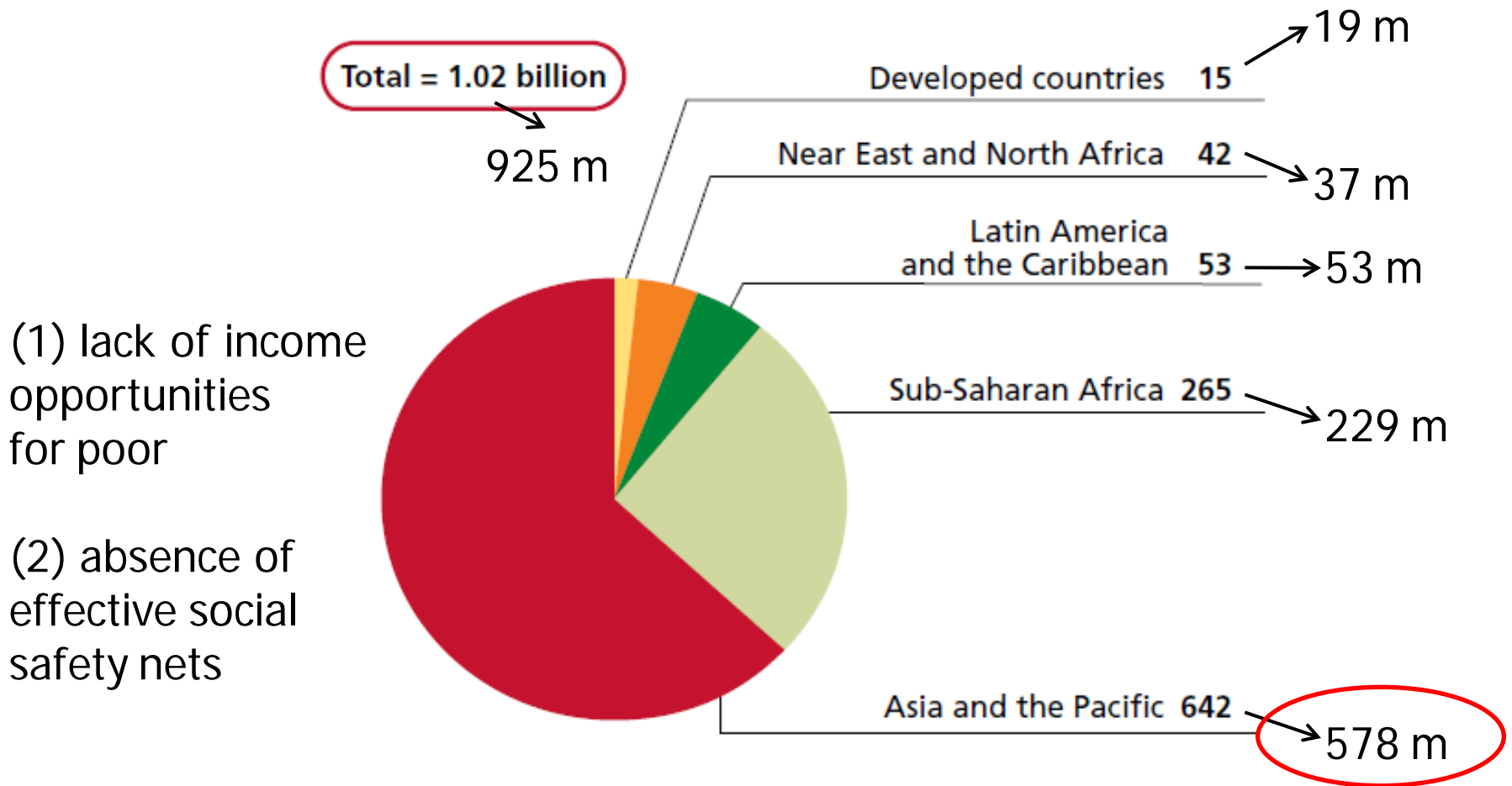
...surpassing the billion-person mark
for the first time in human history

By 2010 chronic hunger had receded somewhat, yet 60% of the billion live in Asia and the Pacific



Source: FAO (2010)

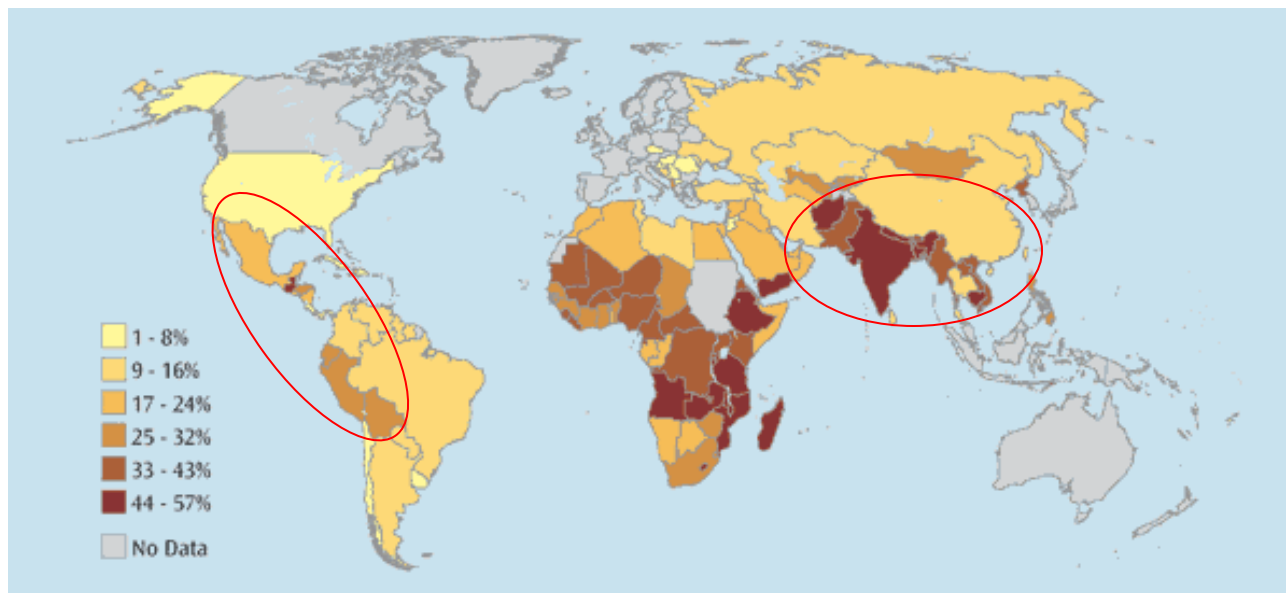
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We still have a long way to go with respect to Dietary Energy Supply (DES)

39% of children under 5 years of age in the
developing world are stunted
= 209 million kids

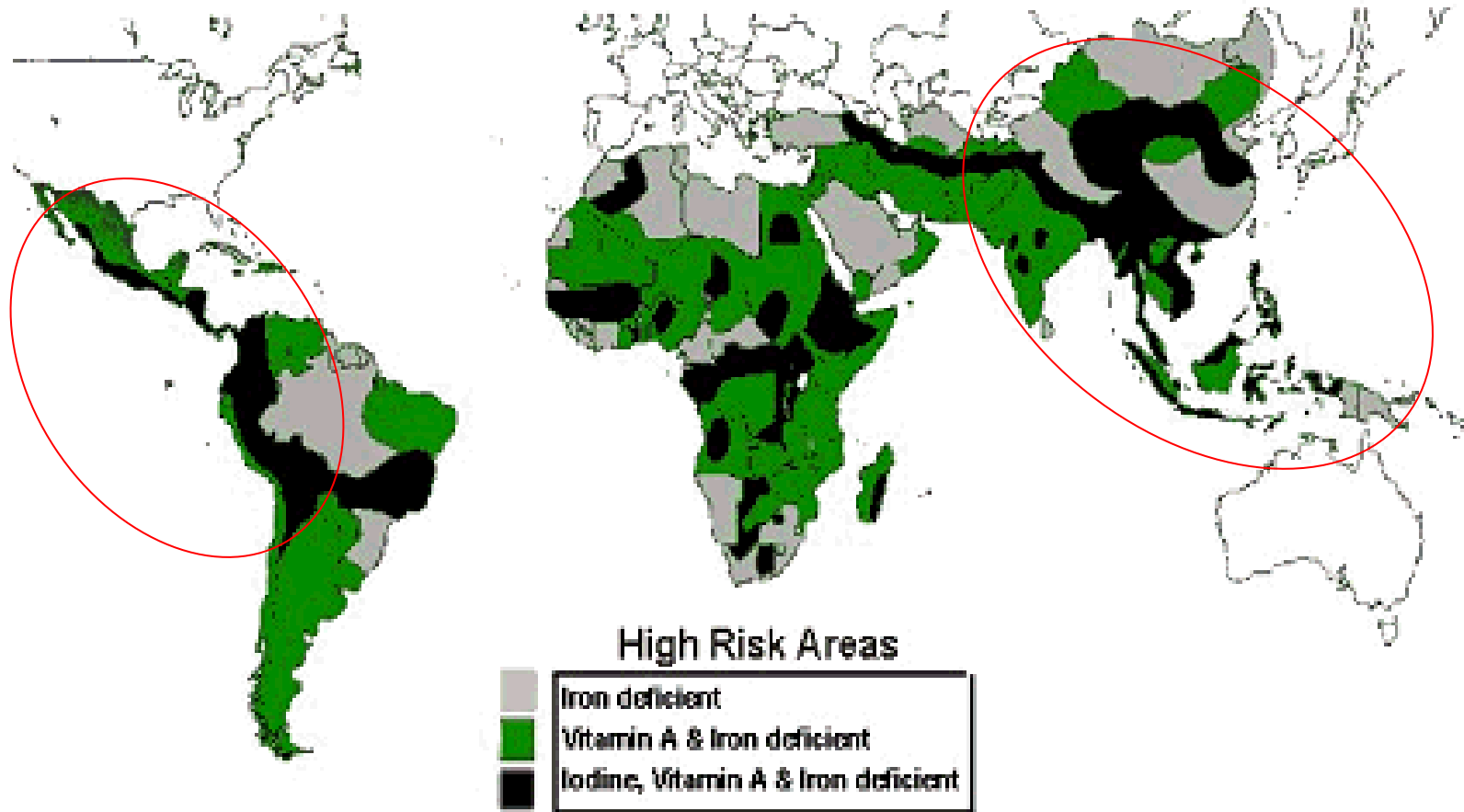


90 million
kids in Asia

Source: The Global Education Project

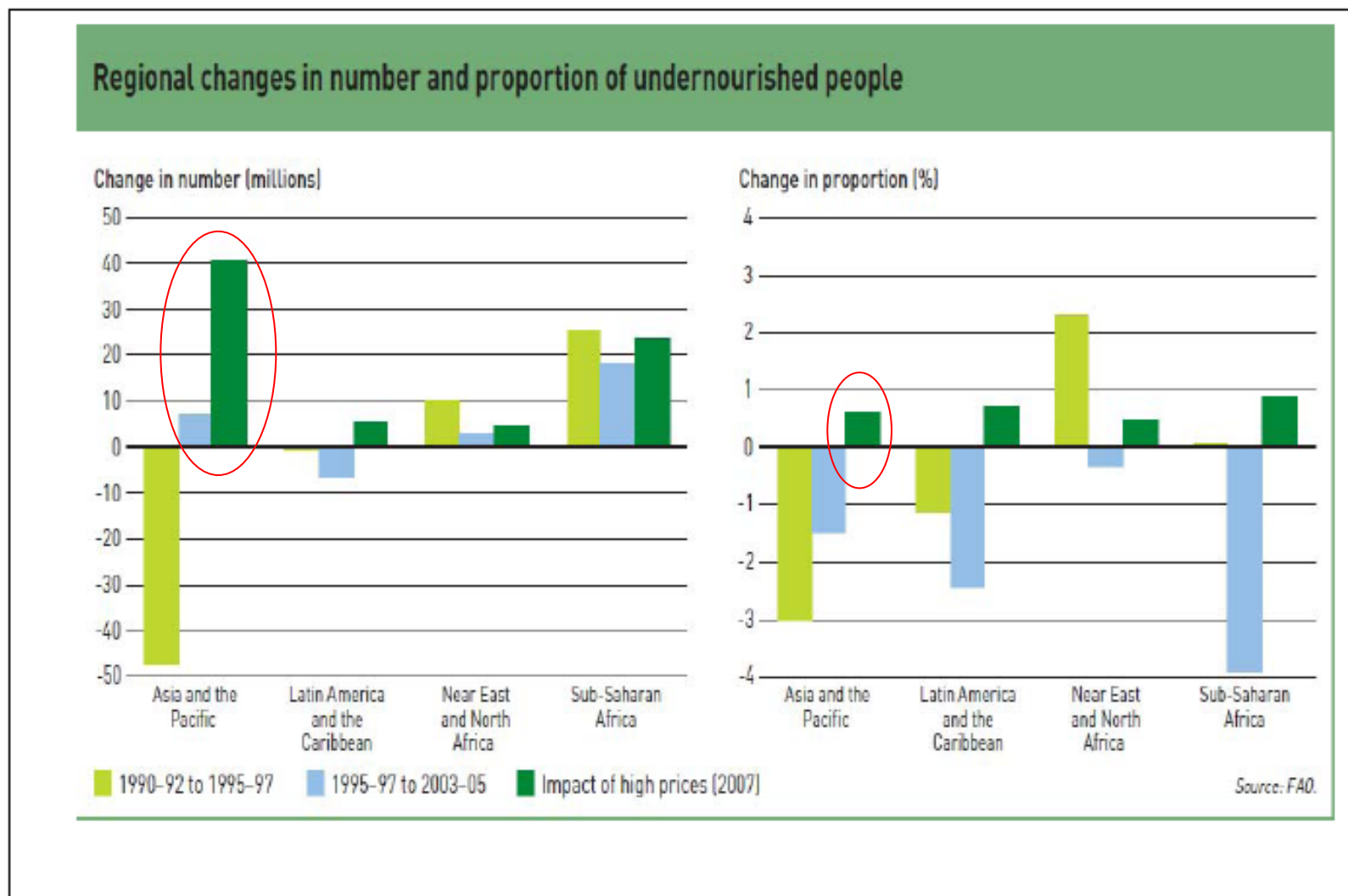
There remain major challenges in terms of Prevalence of Food Inadequacy (PFI)

Vitamin A Deficiency (VAD), Iodine Deficiency Disorder (IDDs), Iron Deficiency Anemia (IDA)



Source: The Regional Institute, Australia 2004, based on USAID data

Asian Pacific economies have been losing ground in absolute numbers of undernourished



Source: FAO (2008)

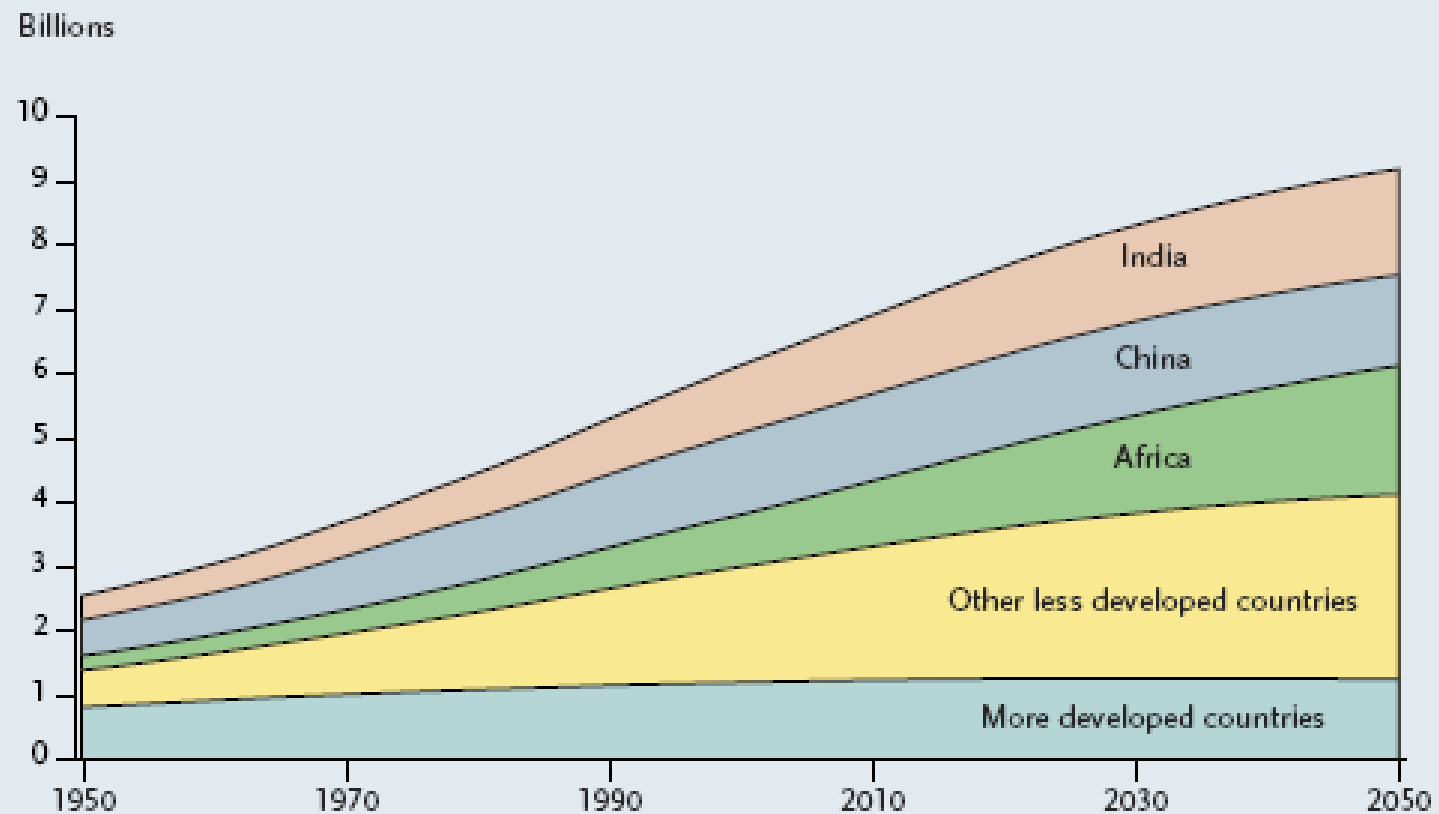
Reducing malnutrition is essential to both poverty reduction and economic growth

- Malnutrition in early years is linked to a
 - Greater susceptibility to disease in general
 - Specific diseases tied to micronutrient deficiencies
 - 4.6 cm loss of height in adolescence
 - 0.7 grades loss of schooling
 - 7 month delay in starting school
 - Diminished capacity to learn and think
- >10% reduction in potential lifetime earnings for each malnourished individual
- GDP loss \geq 2-3%

Source: Adapted from Repositioning Nutrition,
World Bank, 2006 and others

Raw population growth is always the first determinant of increases in food demand...

Africa and Other Developing Regions Make Up an Increasing Share of World Population.



SOURCE: UN Population Division, *World Population Prospects: The 2006 Revision, Medium Variant (2007)*.

...but as disposable income rises, dietary preferences tend to change

➤ As incomes rise from about \$2 to \$10 per day, people eat more meat, dairy products, fruits, vegetables & edible oils, causing rapid growth in raw agricultural commodity demand.



➤ After about \$10 per day, people buy more processing, services, packaging, variety, and luxury forms, but not more raw agricultural commodities.



Source: adapted from Robert L. Thompson, Global Harvest Initiative Symposium, 2009

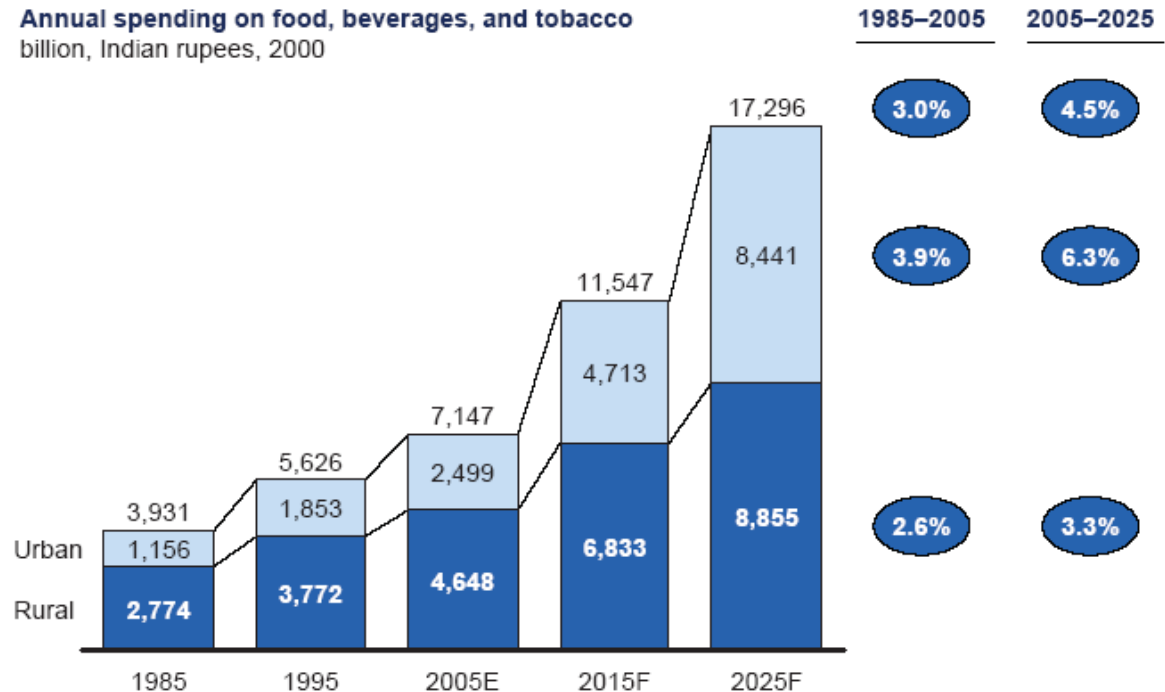
Asian economies will experience both population and disposable income effects

People in developing countries living in households with incomes above \$16,000 per year will rise from 352 million in 2000 to 2.1 billion by 2030.

TOTAL FOOD CONSUMPTION WILL GROW BY MORE THAN 10 TRILLION INDIAN RUPEES IN THE NEXT TWO DECADES

● Compound annual growth rate

Annual spending on food, beverages, and tobacco
billion, Indian rupees, 2000



Source: Sanjeev Asthana. Reliance Fresh. "Agroenterprise without Borders" Conference, Singapore, 2009

Taken together, the fundamental challenges of food supply and demand are compelling

- ☞ Population will reach 9.1 billion in 2050, 34% higher than today. and nearly all of increase will occur in developing countries
- ☞ Urbanization will continue at an accelerated pace, reaching 70% compared with about 50% today
- ☞ Income levels for many will be much higher than today, yet there will still be more than a billion who can't access enough food
- ☞ To feed this larger, less self sufficient population , food production (net biofuel use) must increase by 70% percent globally, and 100% for staples in developing countries
- ☞ Annual cereal production will need to rise to about 3 billion MT from 2.1 billion today
- ☞ Annual meat production will need to rise by over 200 million MT to 470 million MT

Recommendation #2

☞ *Since food security concerns figure prominently in the APEC agenda, PTIN's food safety strategy should be consistent with generally accepted thought and practice in the food security field*

It starts with a shared definition of the desired end-state...

“Situation that exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food that meets their dietary needs and food preferences for an active and healthy life”

Source: FAO, 2004



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



..which the October 2010 Niigata declaration adopted




In Niigata, the Ministers of Agriculture also accepted the “Four Pillars” of food security

- 1) Availability → overall ability of the global system to meet demand for safe and nutritious food of high quality

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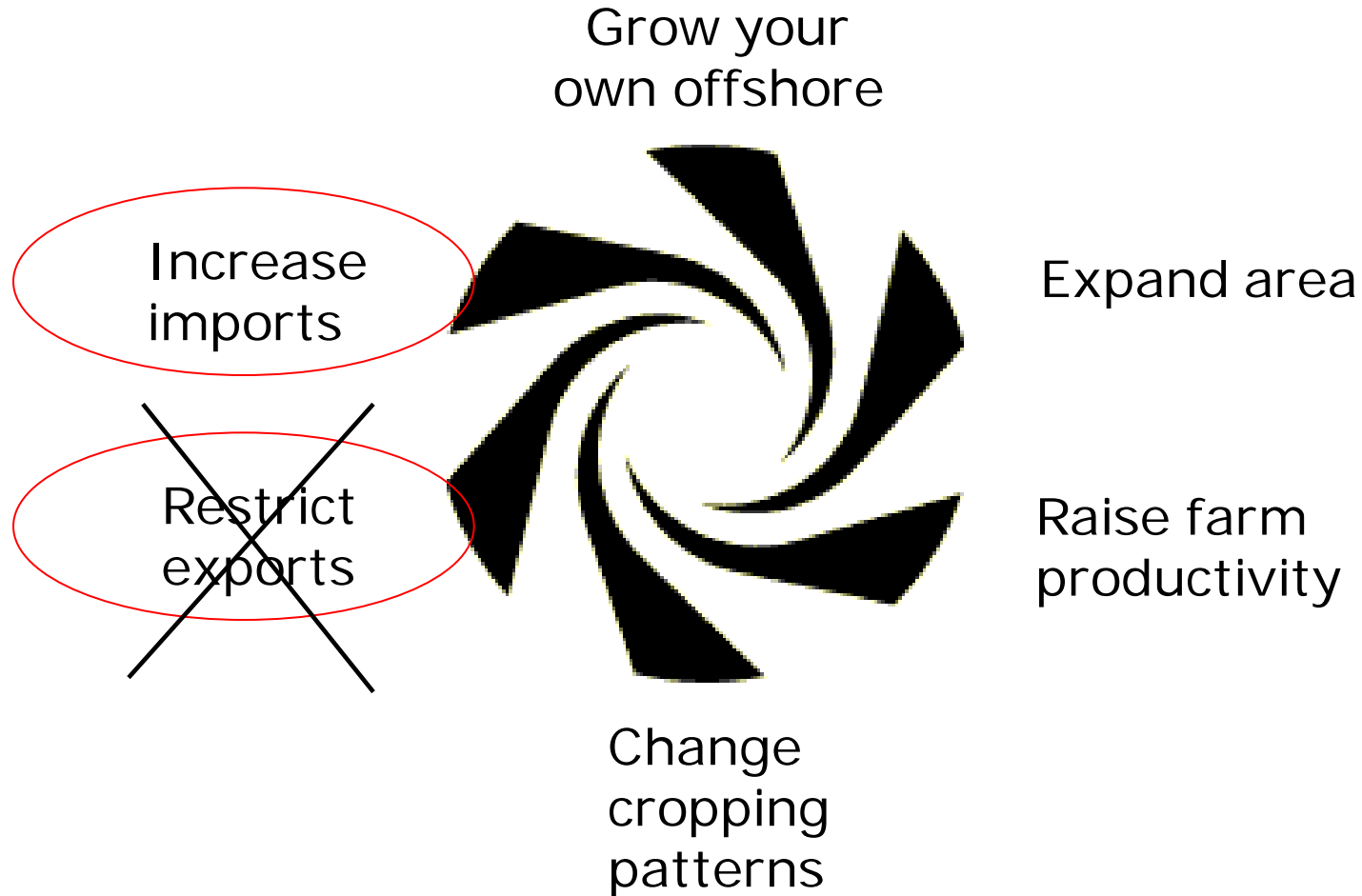
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- 3) **Utilization**  postharvest management, storage, use, waste, water & sanitation

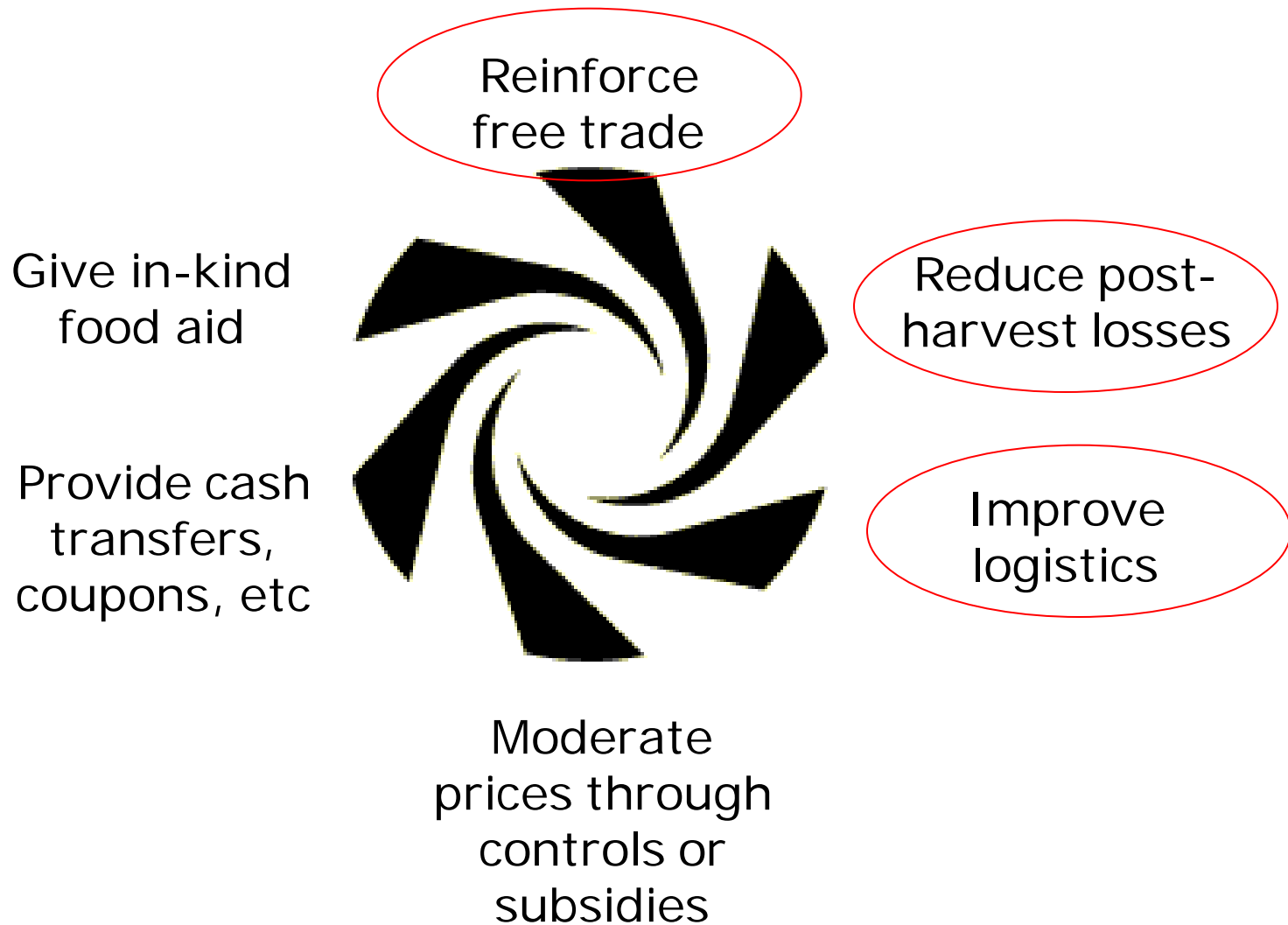
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- 3) Utilization \Rightarrow postharvest management, storage, use, waste, water & sanitation
- 4) Stability \Rightarrow risks and volatility associated with availability, access and utilization

Food availability involves: domestic production, import capacity, stocks and food aid



Food access involves: levels of poverty, purchasing power, prices, infrastructure & distribution



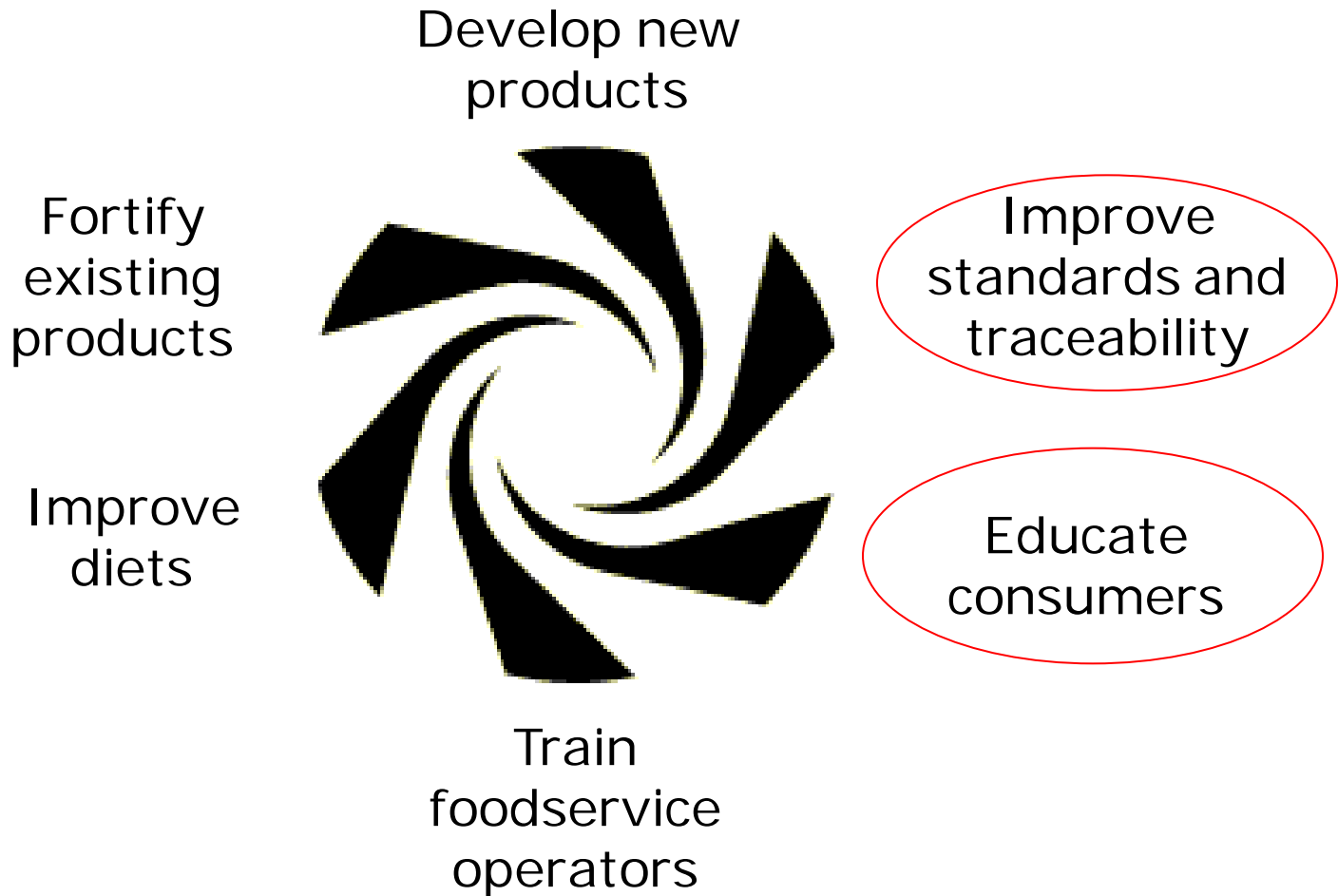
Reduction of post-harvest losses goes hand in hand with improved safety of food

- 1) Physical (i.e. volume shrinkage or deterioration in condition)
- 2) Nutritional (e.g. grain contaminated by aflatoxin)
- 3) Monetary (i.e. change in unit sales value)
- 4) Opportunity (i.e. loss of access to certain markets)

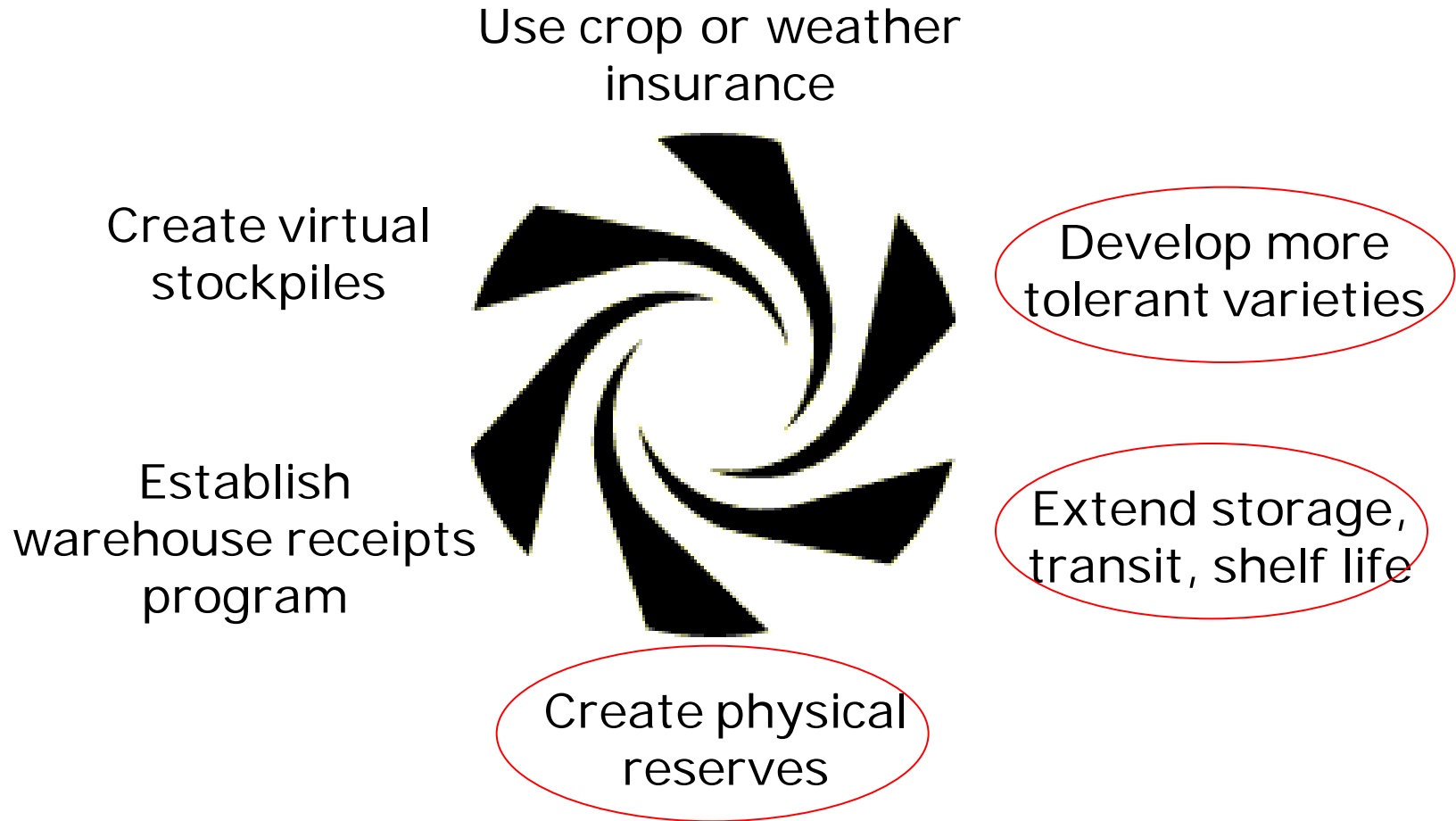
Better supply chain management can bring many benefits

- Increasing efficiency of the supply chain from farm to fork can
 - ☞ Lower transaction costs
 - ☞ Reduce shrinkage in transit
 - ☞ Improve condition of arrival
 - ☞ Enhance supplier competitiveness
 - ☞ Add value all along the chain
 - ☞ Contribute to the food and nutritional security of farmers and consumers

Food utilization involves: quality, safety, care & feeding, clean water, health, & sanitation



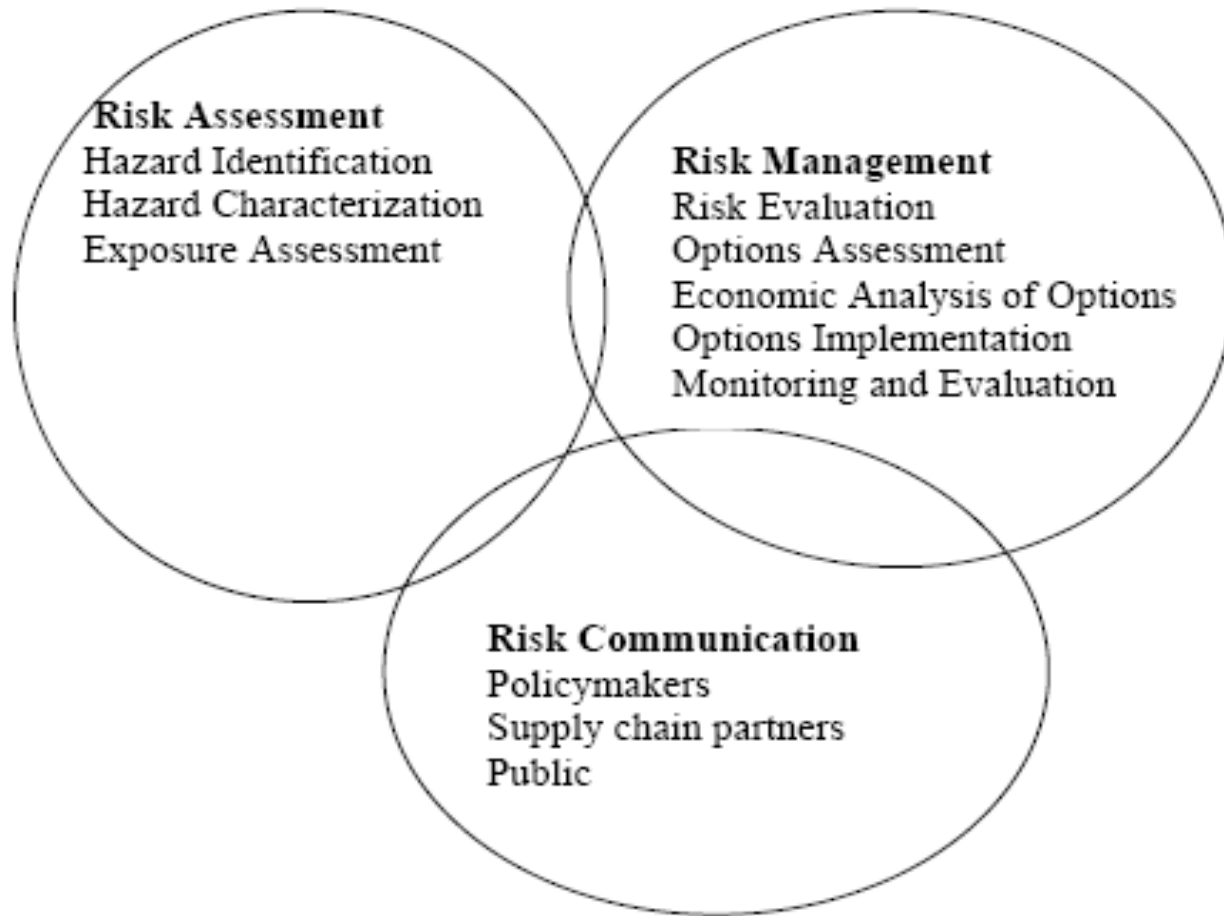
Food stability involves: growing conditions, weather, price volatility, man-made disasters



Recommendation #3


- ☞ *The PTIN food safety strategy should have relevance to all member economies*
 - *As supply sources, or*
 - *As target markets, or*
 - *As development stakeholders*

Recommendation #4



☞ *PTIN strategic priorities should reflect best practices in risk analysis, including both science and economics*

Recommendation #5

 *In addition to the four cross-cutting capacity-building priorities already defined PTIN's food safety strategy should consider (but not necessarily address) all major food hazards*

- **Microbial contamination** (e.g. mold, parasites, E.coli 157, Salmonella, Listeria, Campylobacter, Cyclospora)
- **Mycotoxins** (e.g. aflatoxin)
- **Pesticide residues** (e.g. EBDCs, methomyl)
- **Veterinary drug residues** (e.g. chloramphenicol, nitrofurantoin metabolites)
- **Heavy metals** (e.g. mercury, cadmium)
- **Food additives** (e.g. sulfites, colorants)
- **Allergens** (e.g. peanuts)
- **Food contact materials** (e.g. migrations)
- **Other** (e.g. melamine, dioxin, spoilage, filth)

Recommendation #6

👉 *Although the PTIN food safety strategy should recognize food safety concerns of domestic origin, in its risk management approach PTIN should weight priorities in terms of trade impacts, because APEC is fundamentally a trade organization*

Recommendation #7

☞ *While APEC supports and is engaged in an open global trading system, given limited resources and the need to have partner buy-in, PTIN should focus on issues arising from intra-APEC trade*

Recommendation #8

👉 Initial prioritization of potential targets for PTIN risk mitigation should initially be done at the level of major product categories rather than subcategories or straight commodities...

- **Fresh produce** rather than fruits or spinach
- **Oilseed crops** rather than peanuts
- **Processed spices** rather than chillies
- **Dairy products** rather than cheese
- **Poultry products** rather than eggs

...however

Recommendation #9

👉 Final selection of key targets for PTIN risk mitigation should be based on combinations of risk and food type that are identifiable and actionable

- Violative use of pesticides in fresh tomatoes
- Over-tolerance aflatoxin levels in maize
- Listeria in soft cheese
- Salmonella in chicken

...however

Recommendation #10

☞ *For each priority risk/product combination, PTIN should facilitate a multi-member task force approach designed to demonstrate tangible progress through joint action*

Recommendation #11

☞ *Participation in the risk mitigation efforts should involve active and balanced participation by relevant public agencies, private for profit enterprises, international agencies and consumer groups concerned with food safety*

Recommendation #12

☞ For each priority mitigation effort, PTIN should define an actionable outcome whose achievement can be measured across participating member economies

- Reduce the CIF value of aflatoxin-related rejections in the major affected commodities by 30% by 2012
- Reduce the number of pesticide-related border interceptions in fresh produce by 25% by 2013