Food Security under Globalized Economy

- Roles of Science and Technology Cooperation -

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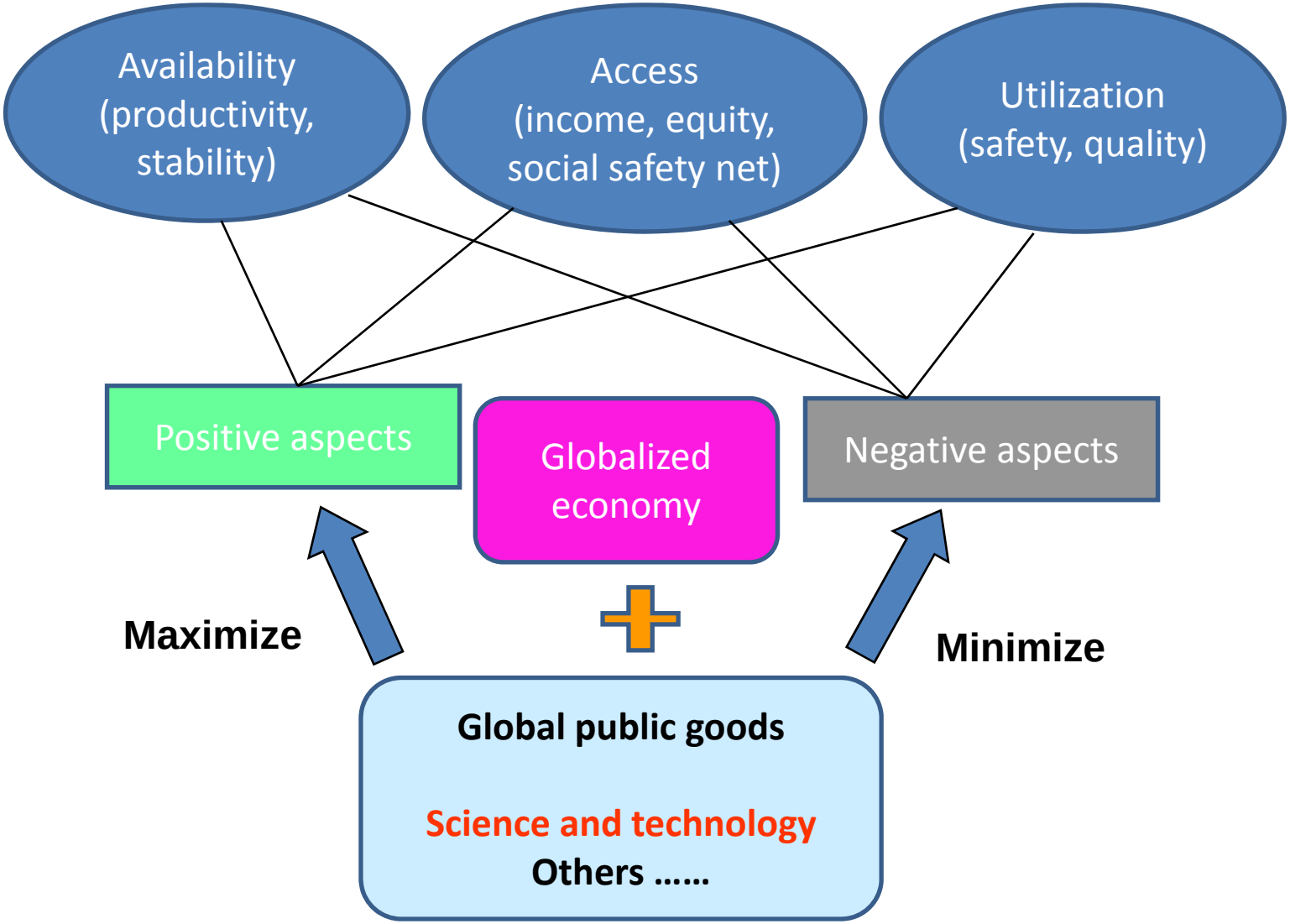
Key message


Availability (productivity, stability)
Access (income, equity, social safety net)
Utilization (safety, quality)
Positive aspects
Globalized economy
Negative aspects
Maximize
Minimize
Global public goods
Science and technology
Others ……

Main Issues to be Discussed

1. Food markets in the globalized economy

   What did we learn from the last turmoil?

2. Implications of the globalization for food security

   Is the globalization good for food security?

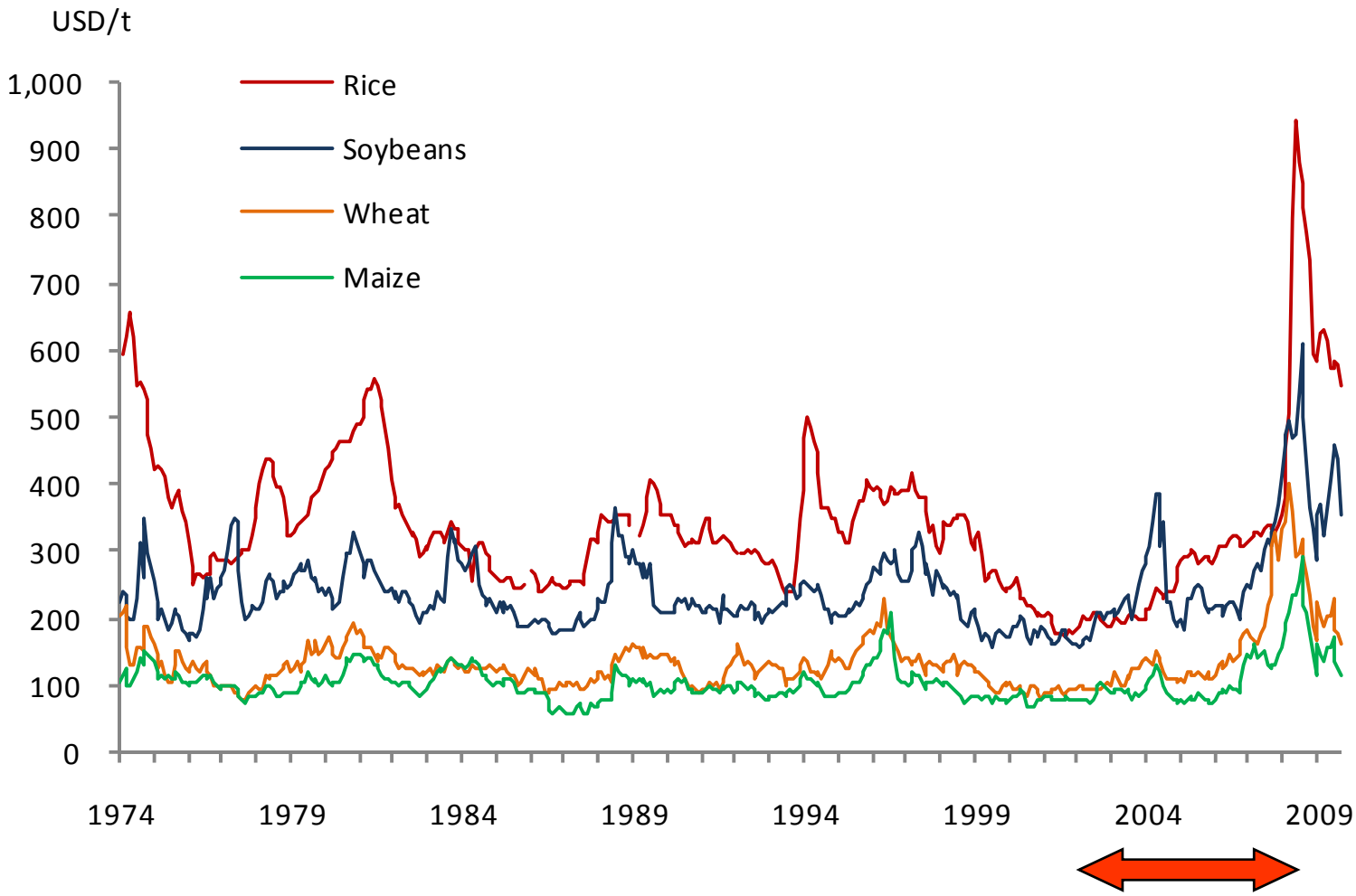
3. Competition and coexistence in world agriculture

   How do we optimize the globalized society?

4. Roles of science and technology cooperation

   How should Japan act ?

Long-term changes in international food price in US$

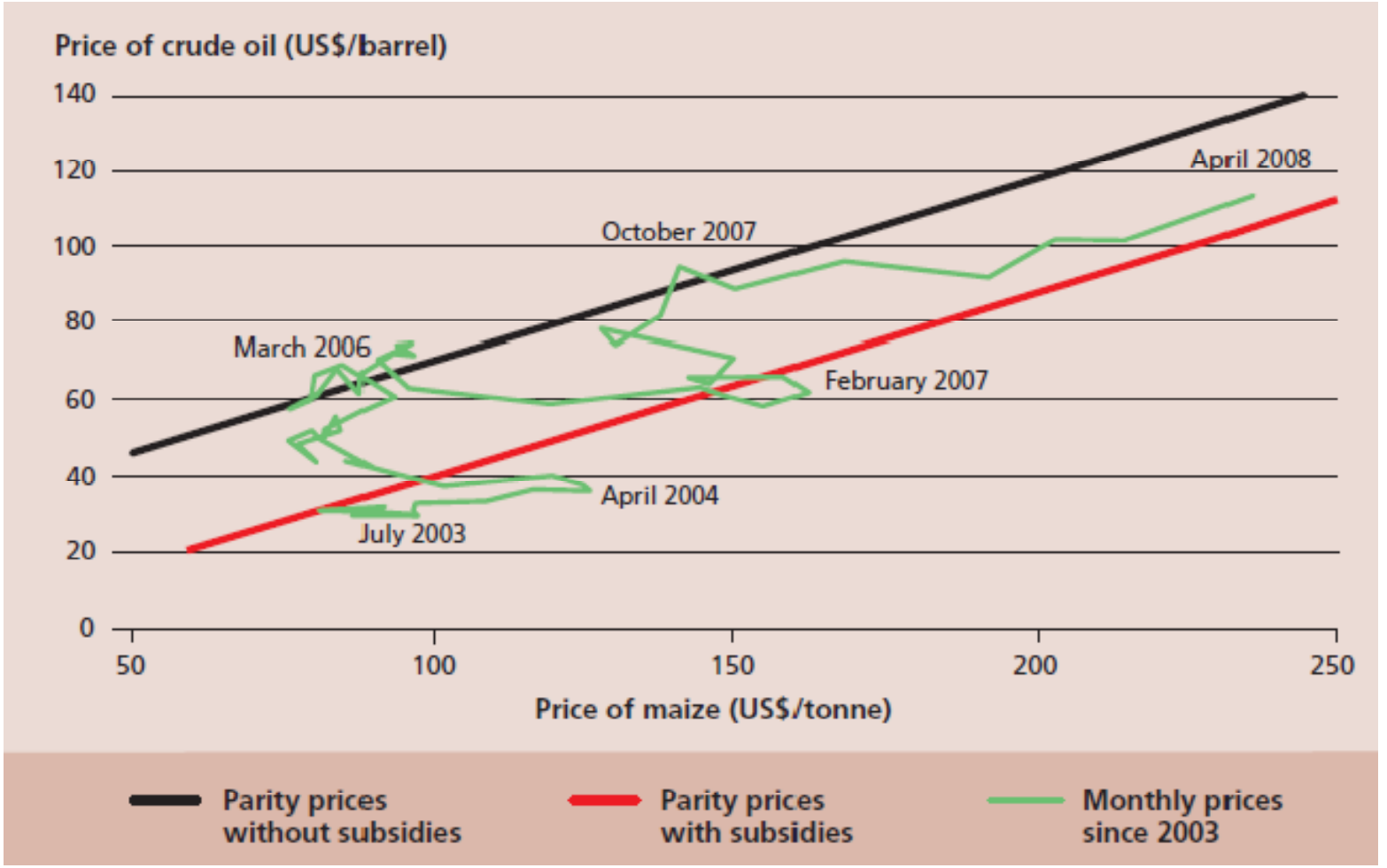


Food price hike in 2007-2008

- Policies to promote biofuels
- Linkages between financial and commodity markets ➡ Global phenomena
- Main driving force behind ➡ Fundamental supply-demand situation

- Relatively tight situation may continue for some period.

Relation between crude oil price and corn price



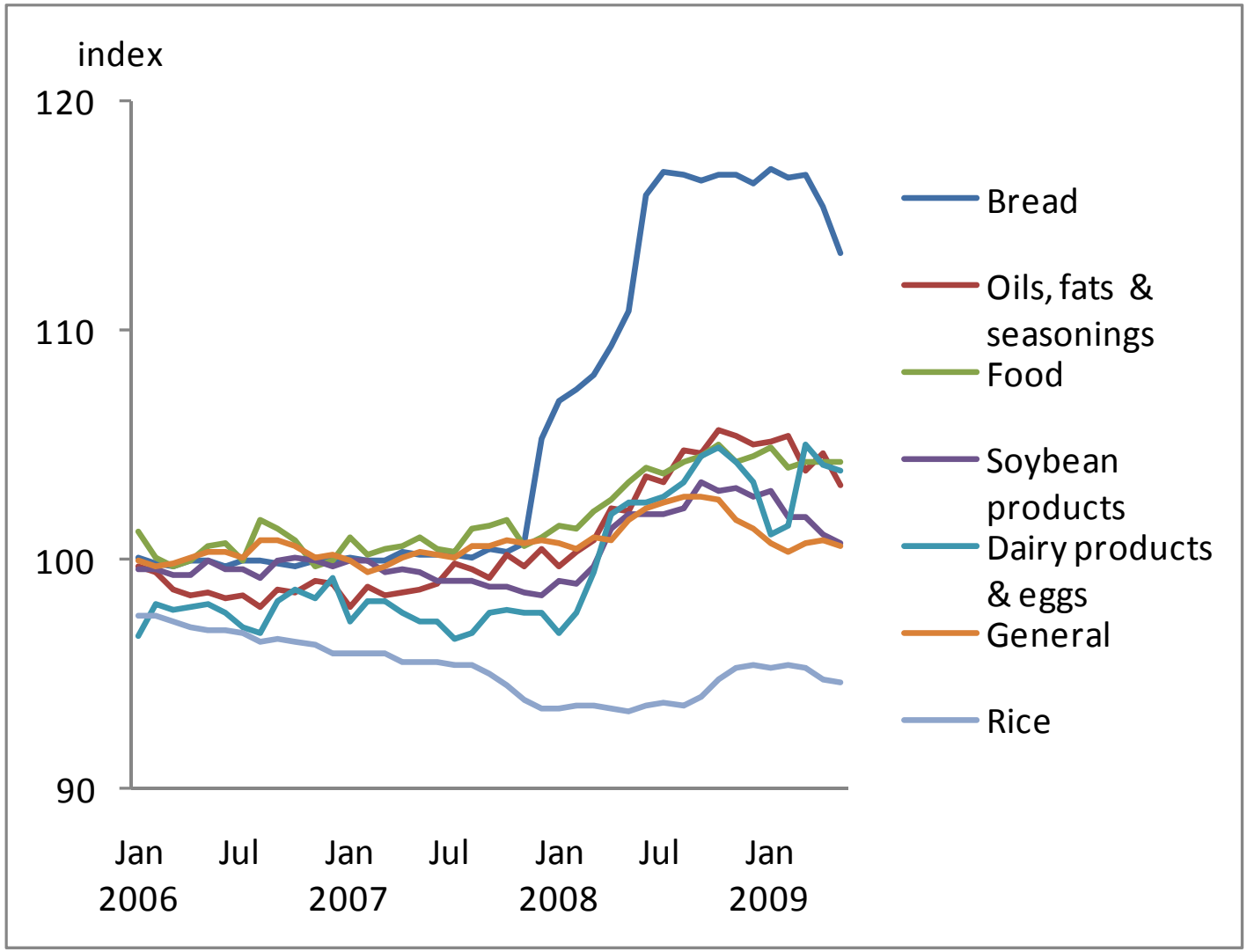
Source: FAO SoFA (2008)

Lessons learnt from the crisis

- Stable food supply has to be one of the most prioritized policy targets.
- Low income food importing countries were revealed to be unprotected and vulnerable against price instability.
- Export restrictions were recognized as inevitable and sometimes acceptable policy options.

⇒ International solutions have to be pursued.

Consumer Price Index by commodity groups (2005=100)



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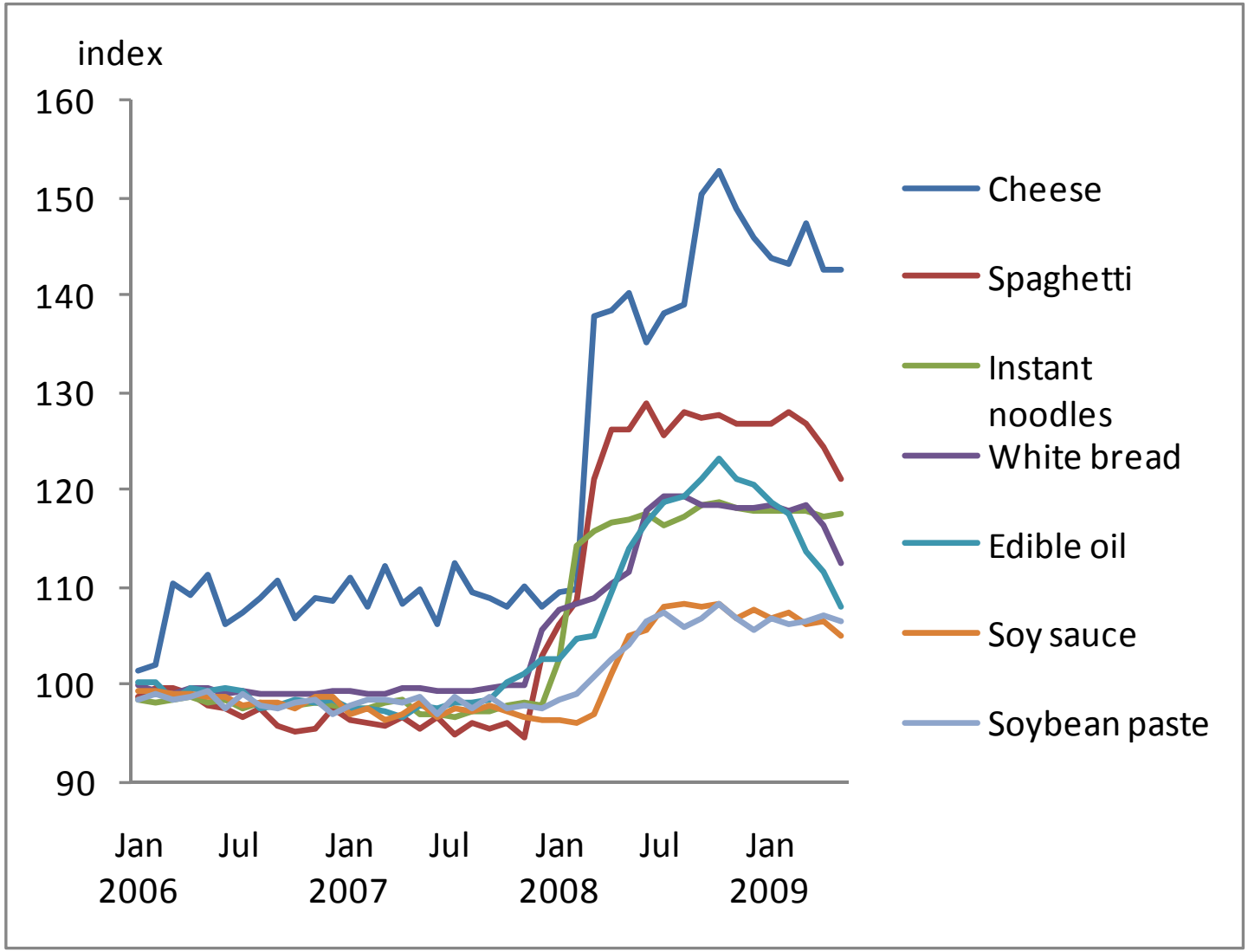
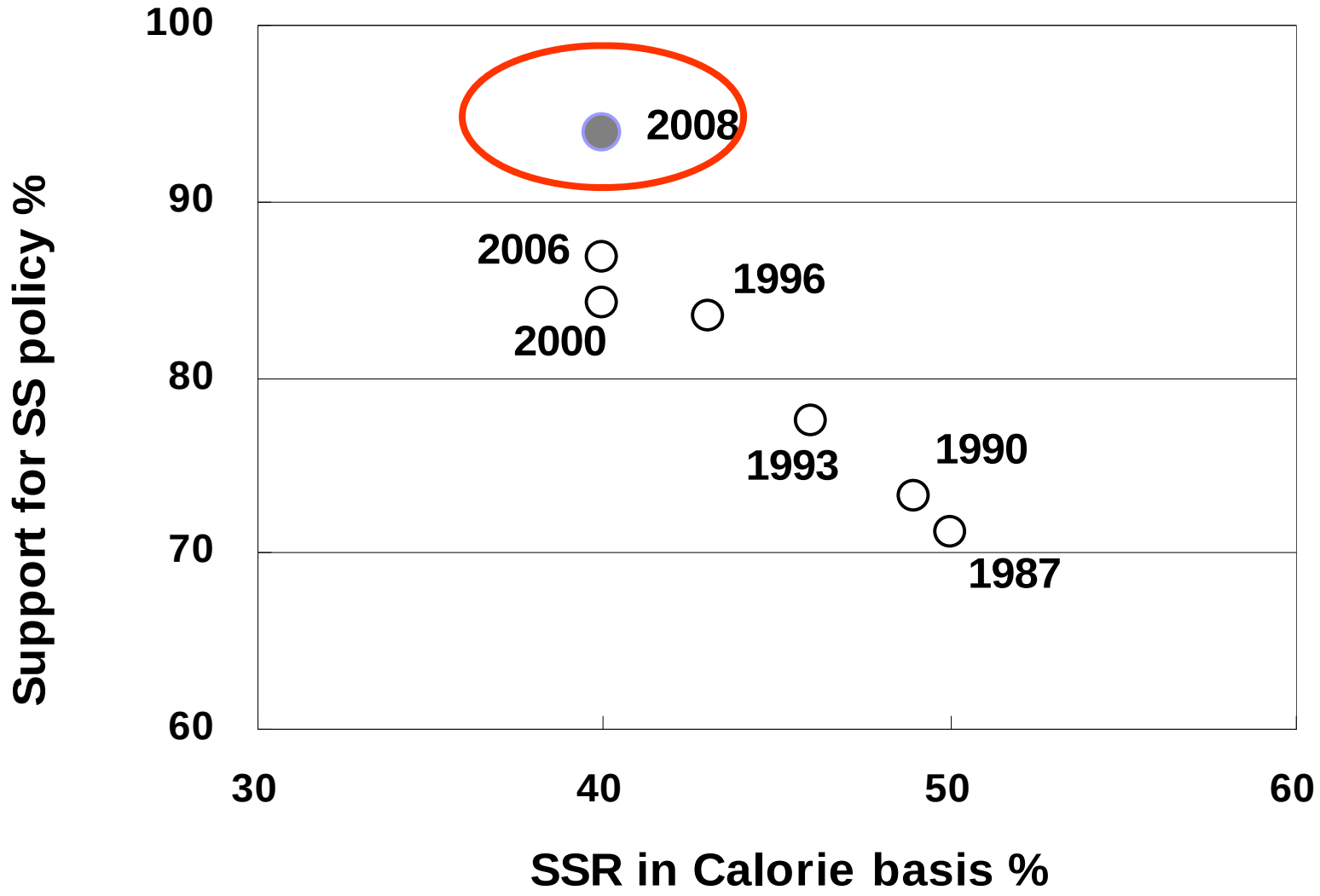
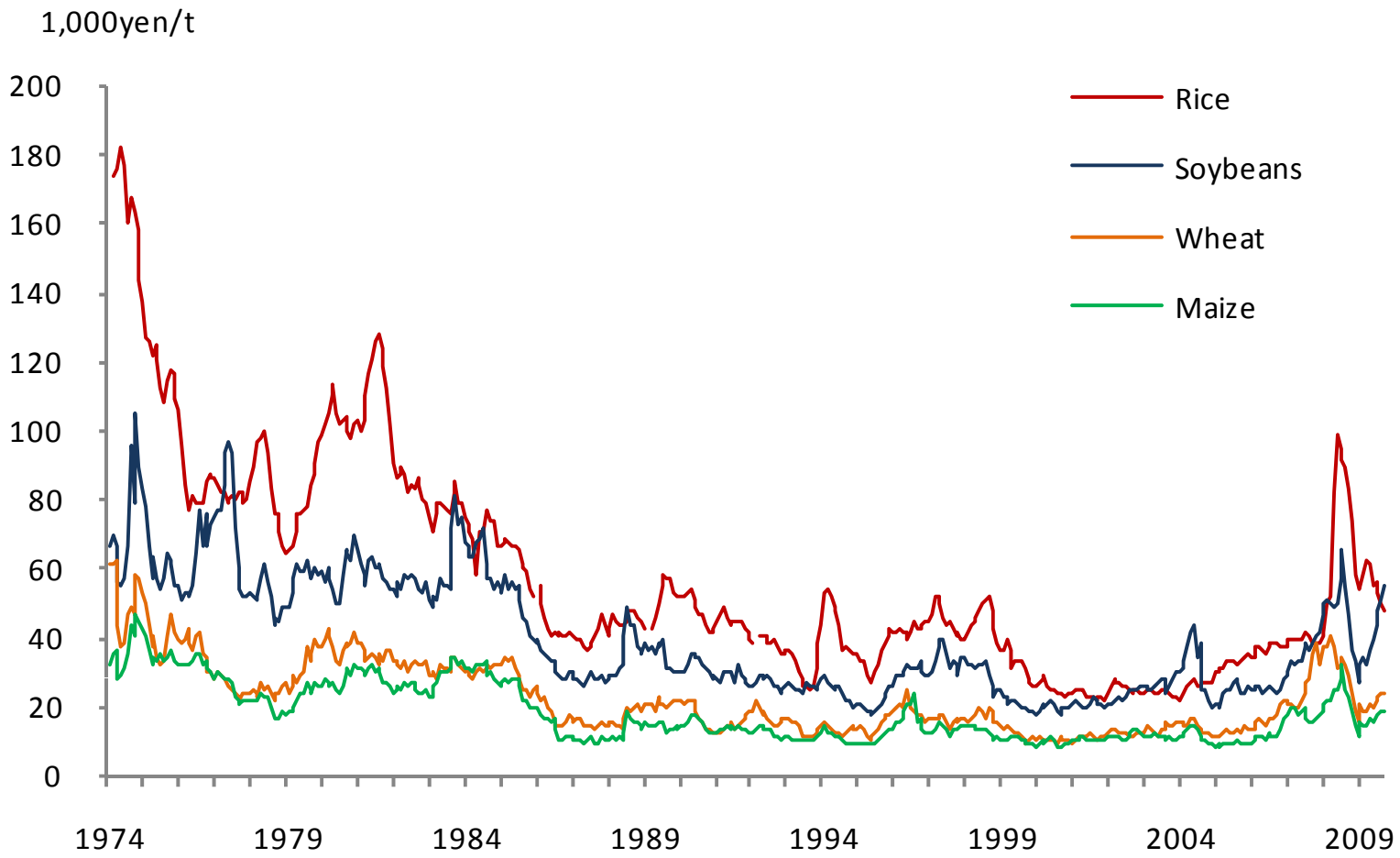


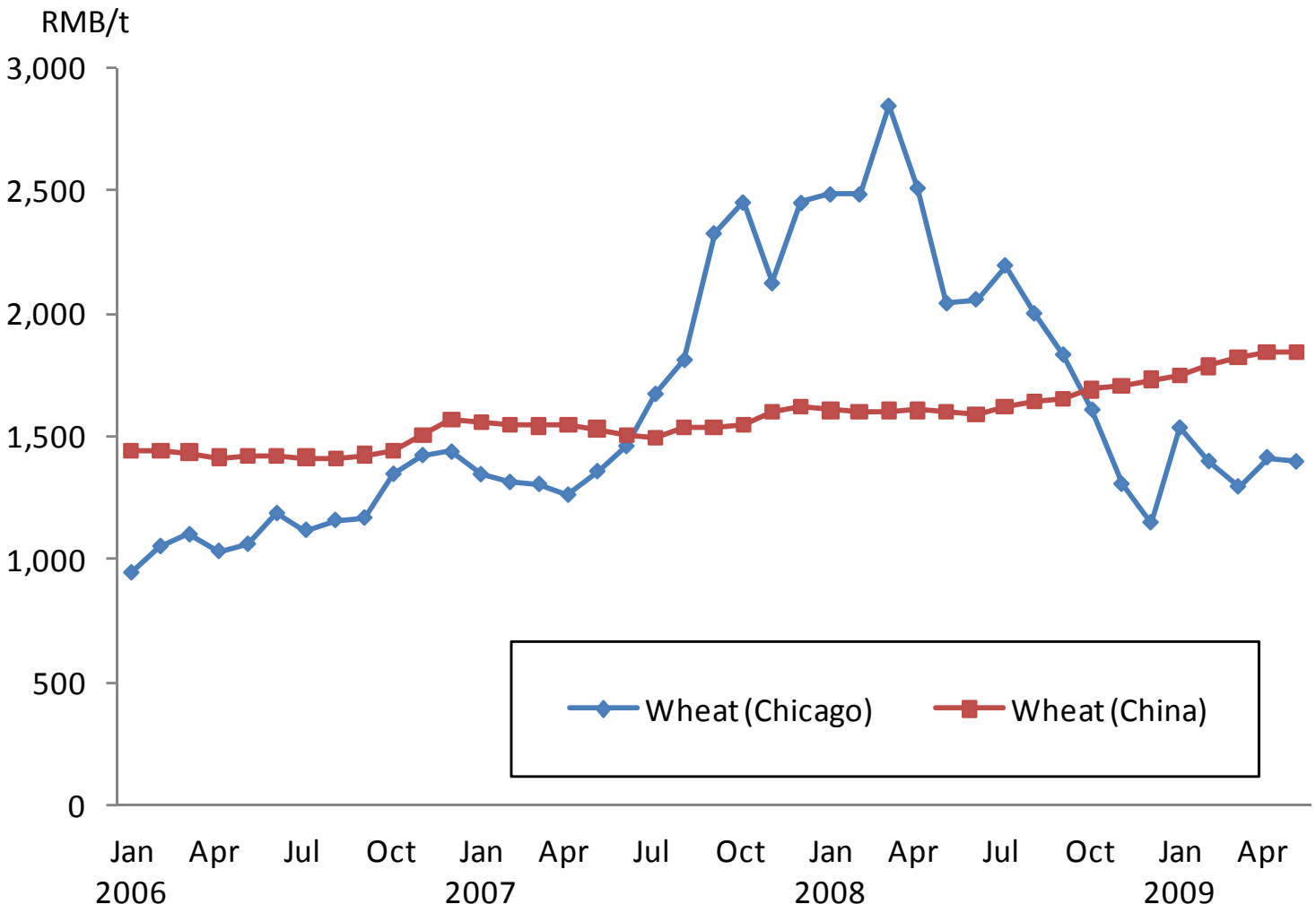
Result of opinion poll on food security in Japan



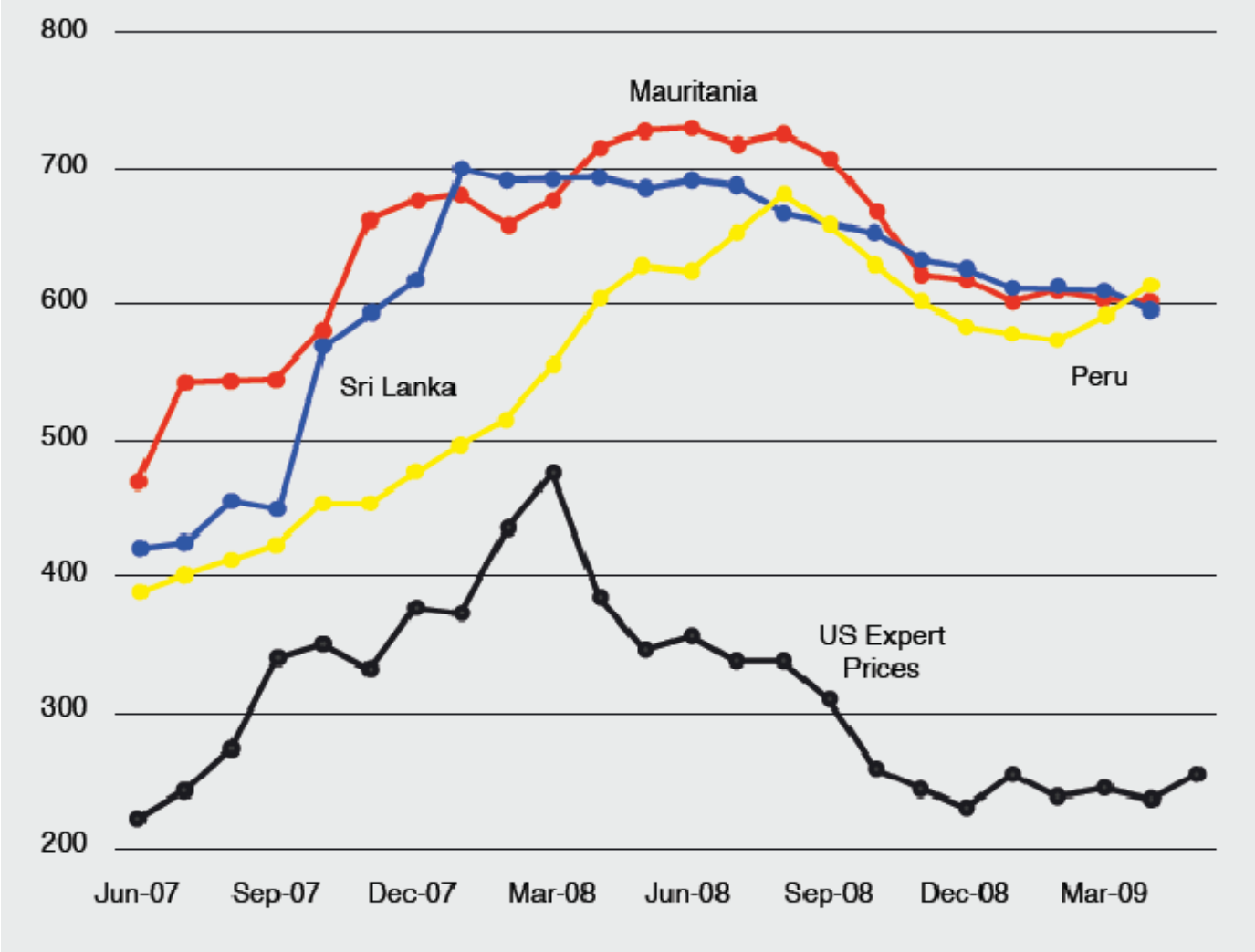
Long-term changes in international food price in Yen term



International wheat price and market price in China

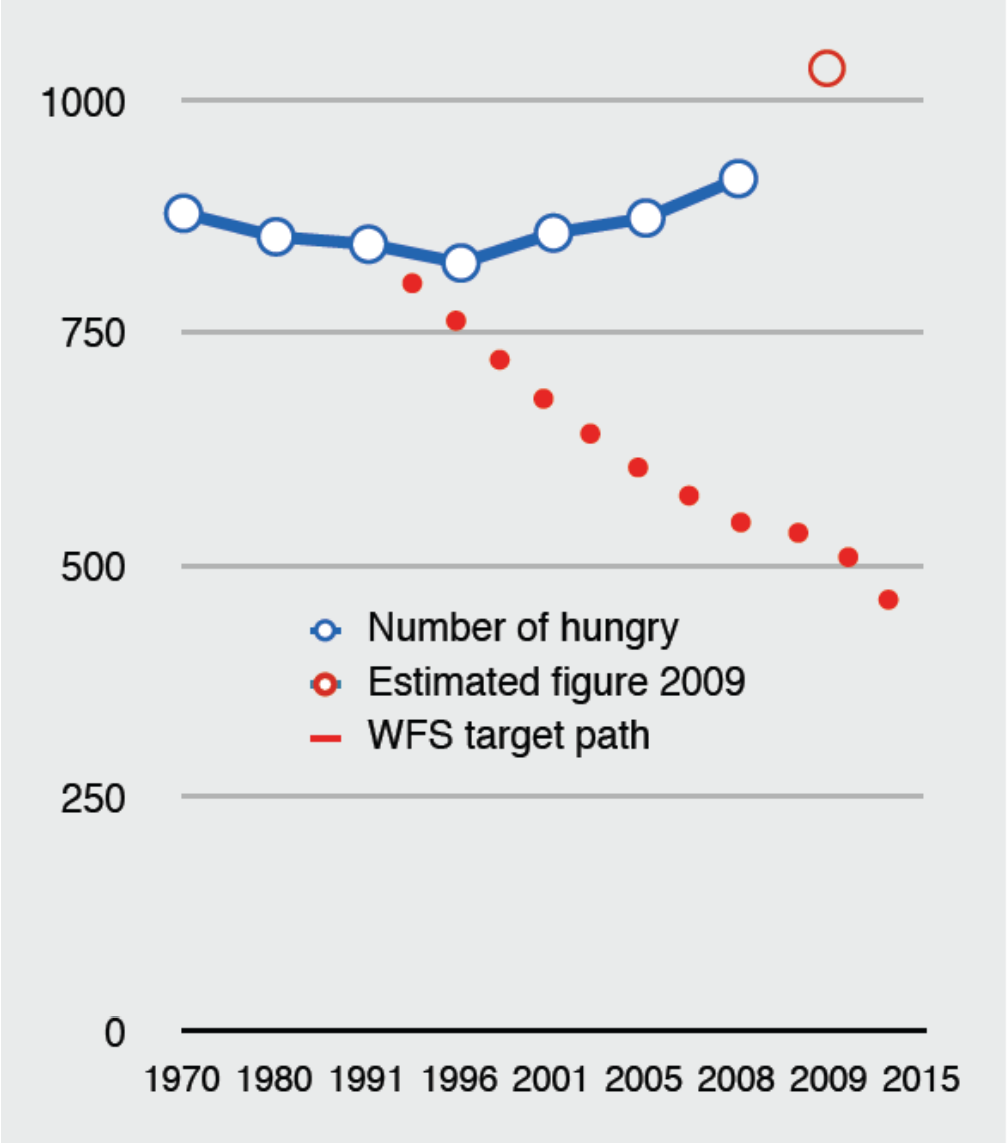


Domestic wheat price and international price (US$)



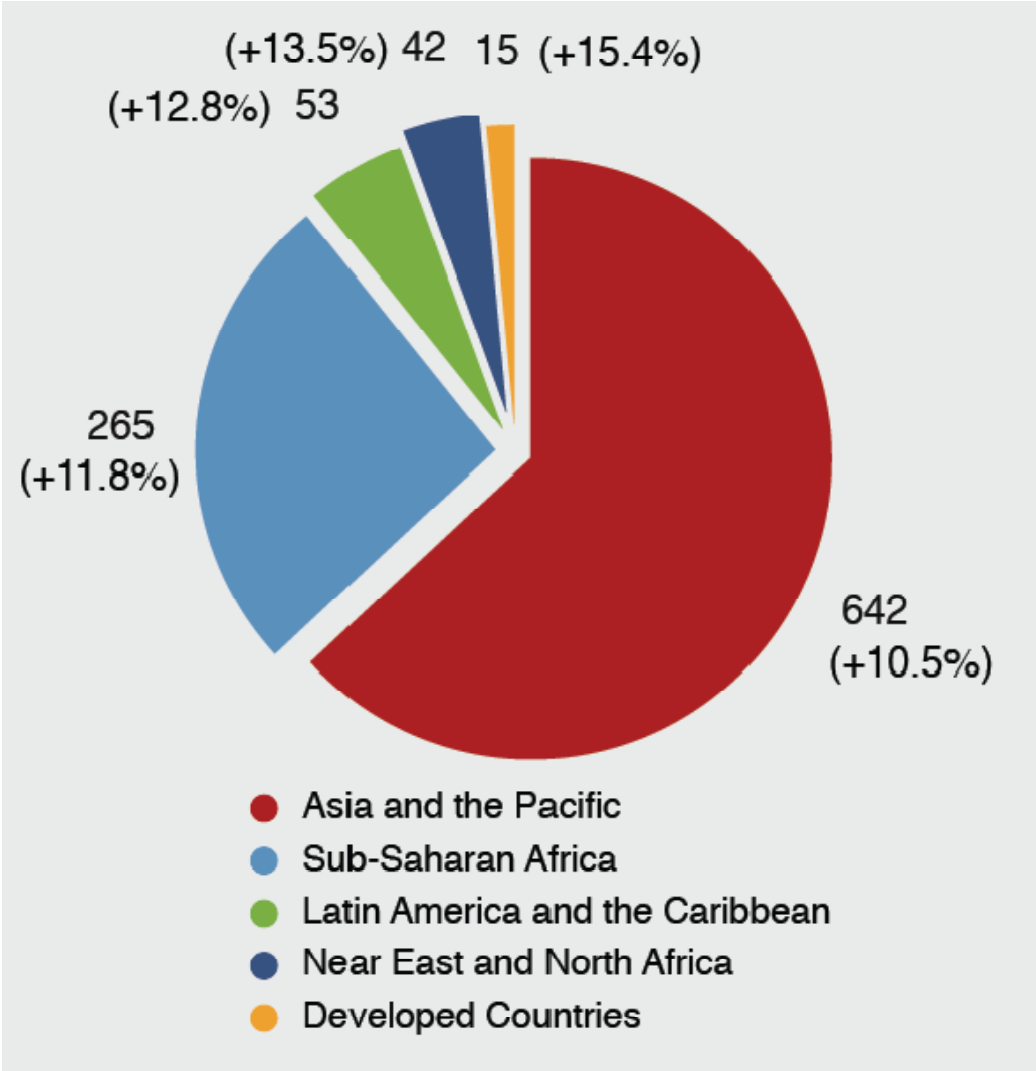
Source: FAO

Number of hungry people in the world (in millions)



Source: FAO

Estimated regional distribution of hunger in 2009 (in mil.) and increase from 2008 levels (in %)



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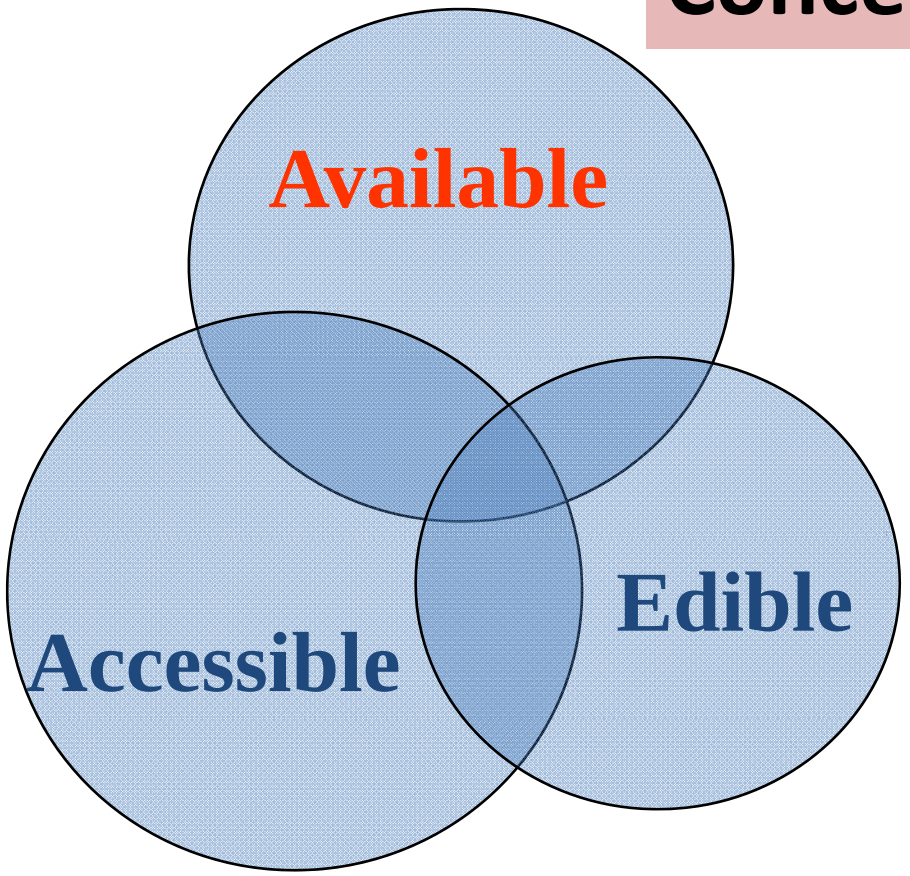
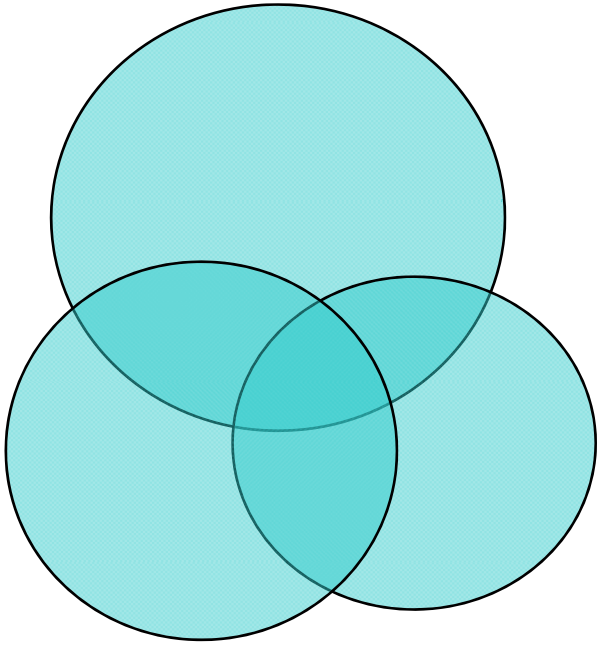
Concept of Food Security



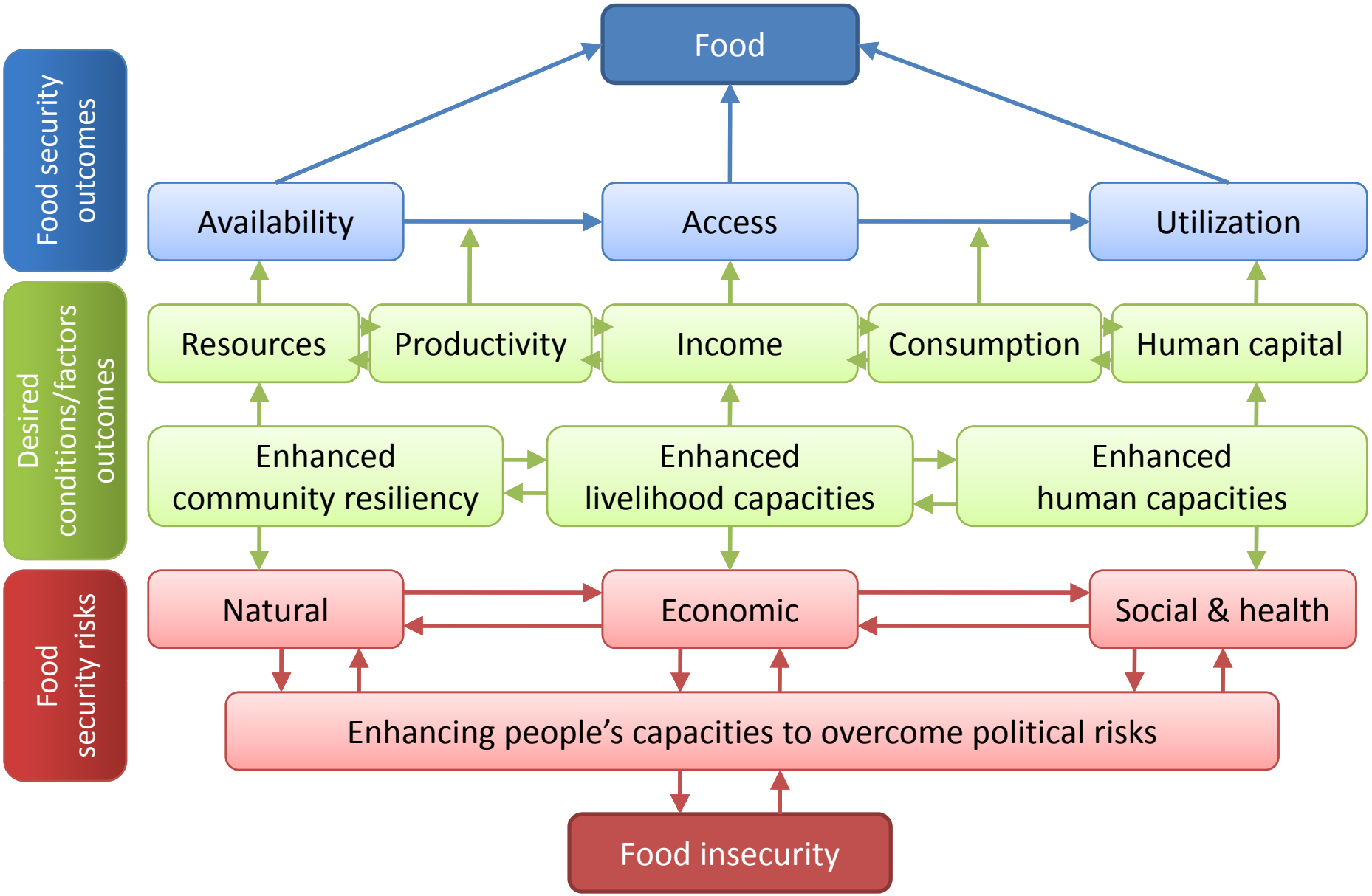


Present threat

Future risk

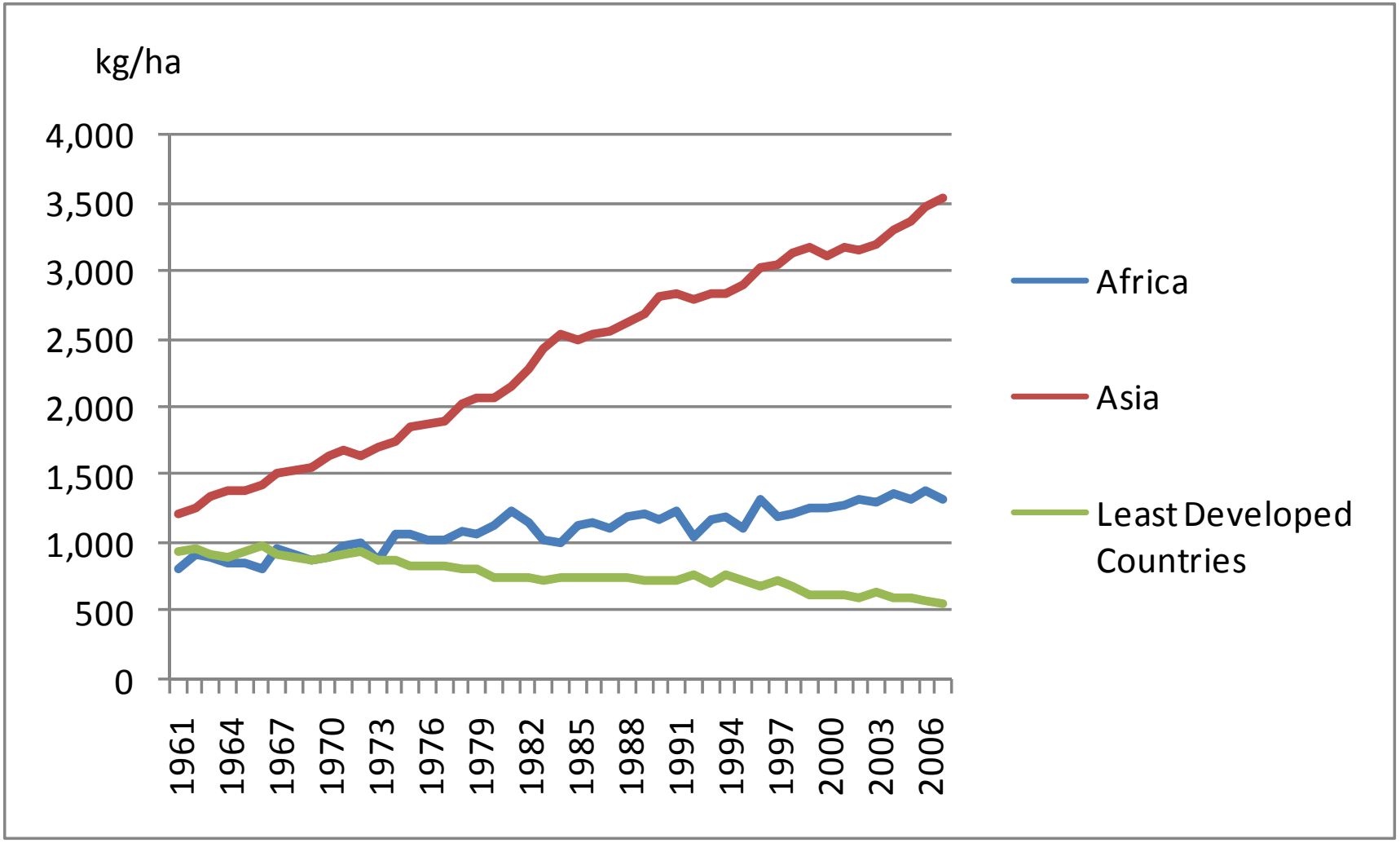
Instability

A framework for understanding food security

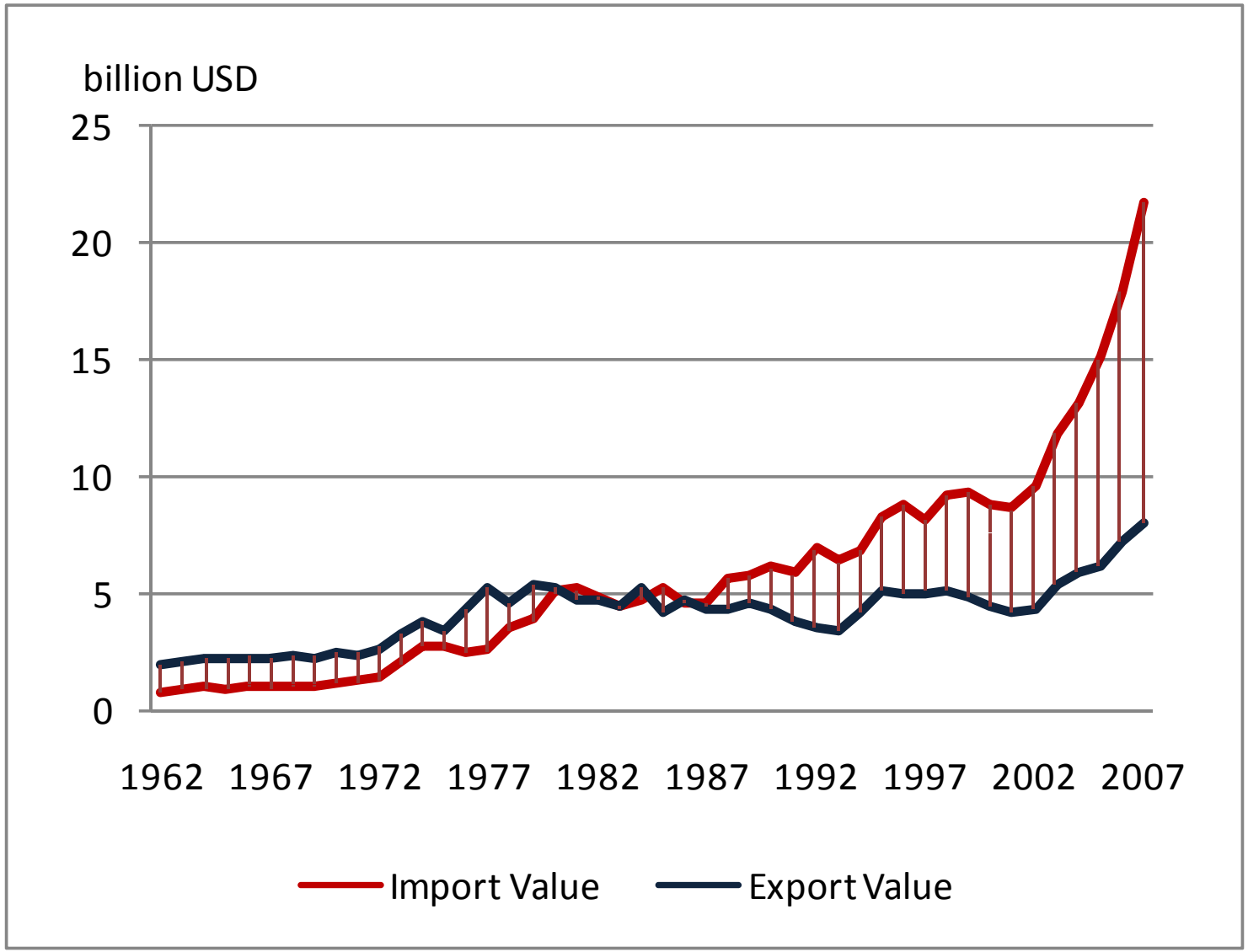


Source: Webb and Rogers, 2003.

Cereal yield per ha in LDCs is declining



LDCs are paying for imported food



Returns to investment in agricultural R&D are estimated to be very high.

- 43 % (average of 1673 cases) (Alston and others, 2000)
- If so, why is it underfunded?
- Public goods: commercially unprofitable
- Risky and long-term: politically unattractive
- Borderless spillover: free riding is safer.
- Somebody must provide them.

Public agricultural R&D expenditure Regional gaps enlarge

	Public R&D 1981	Public R&D 2000	% Ag. GDP 1981	% Ag. GDP 2000
Developing	6,904	12,819	**0.52**	**0.53**
Sub-Saharan Africa	1,196	1,461	0.84	0.72
Asia and Pacific	3,047	7,523	0.36	0.41
West Asia and N. Africa	764	1,382	0.61	0.66
L. America and Caribbean	1,897	2,454	0.88	1.15
Developed	8,293	12,819	**1.41**	**2.36**
Japan	1,832	3,828	1.45	3.62

Source: WDR 2008
Unit: million Int'l $, %

Position of Agricultural Support in G8
（Hokkaido Toyako Summit 7, July 2008）

G8 Leaders Statement on Global Food Security (excerpt)

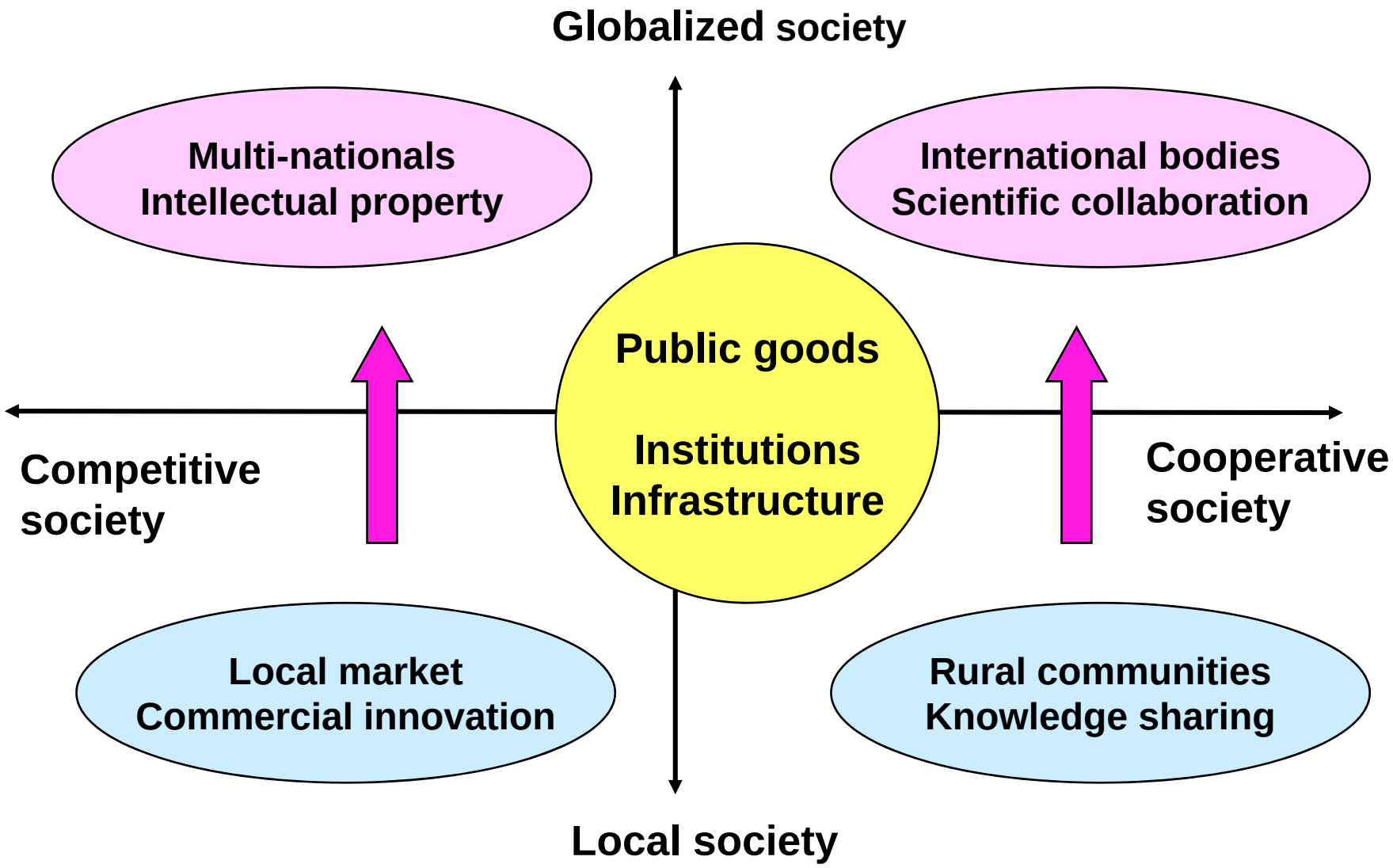
・・*promote agricultural research and development, and the training of a new generation of developing country scientists and experts via the Consultative Group on International Agricultural Research (CGIAR)・・*

・・*accelerate research and development and increase access to new agricultural technologies to boost agricultural production; we will promote science-based risk analysis including on the contribution of seed varieties developed through biotechnology.*

・・*accelerate development and commercialization of sustainable second-generation biofuels from non-food plant materials and inedible biomass*

22

Who is the main actors in S&T development?



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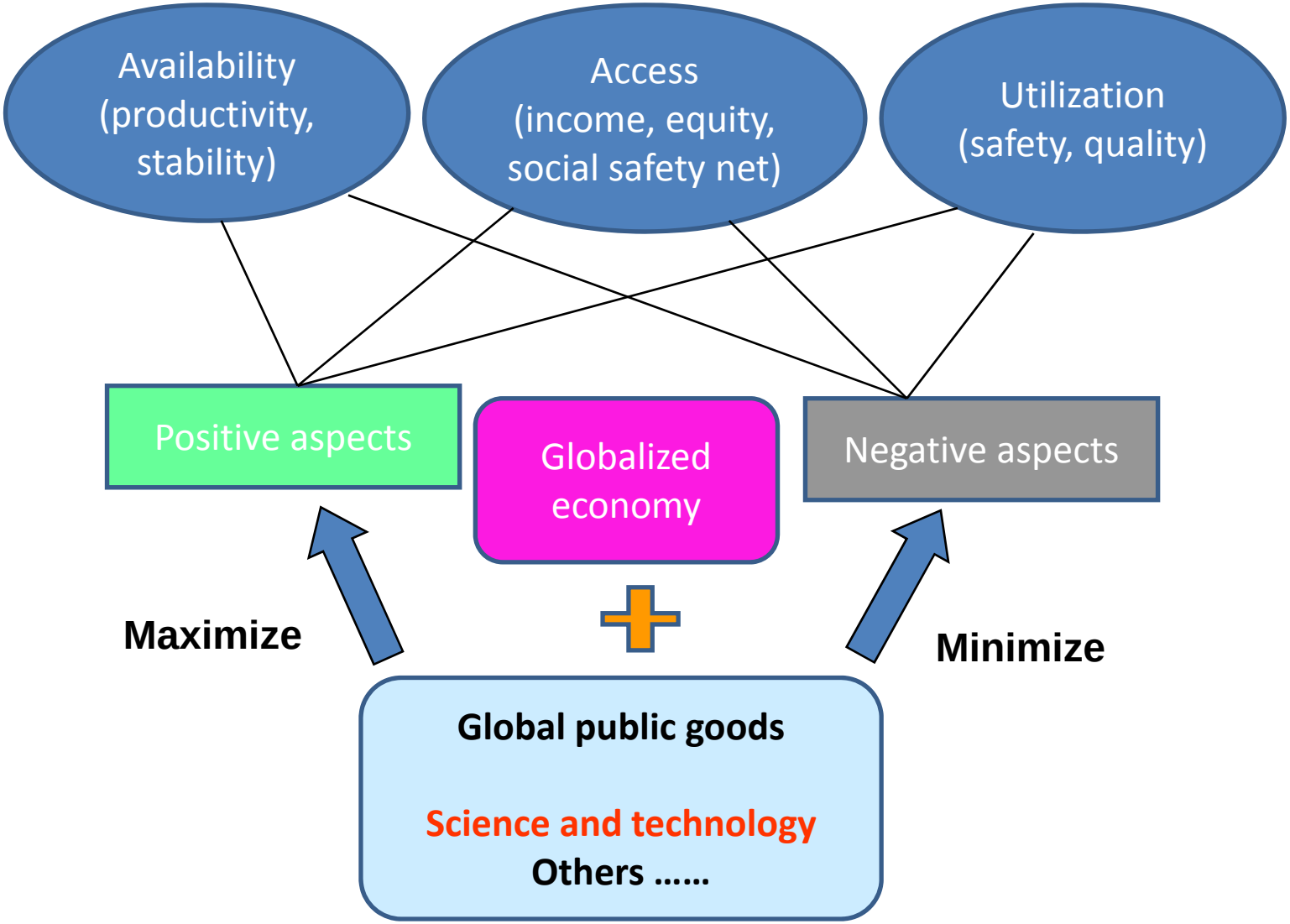
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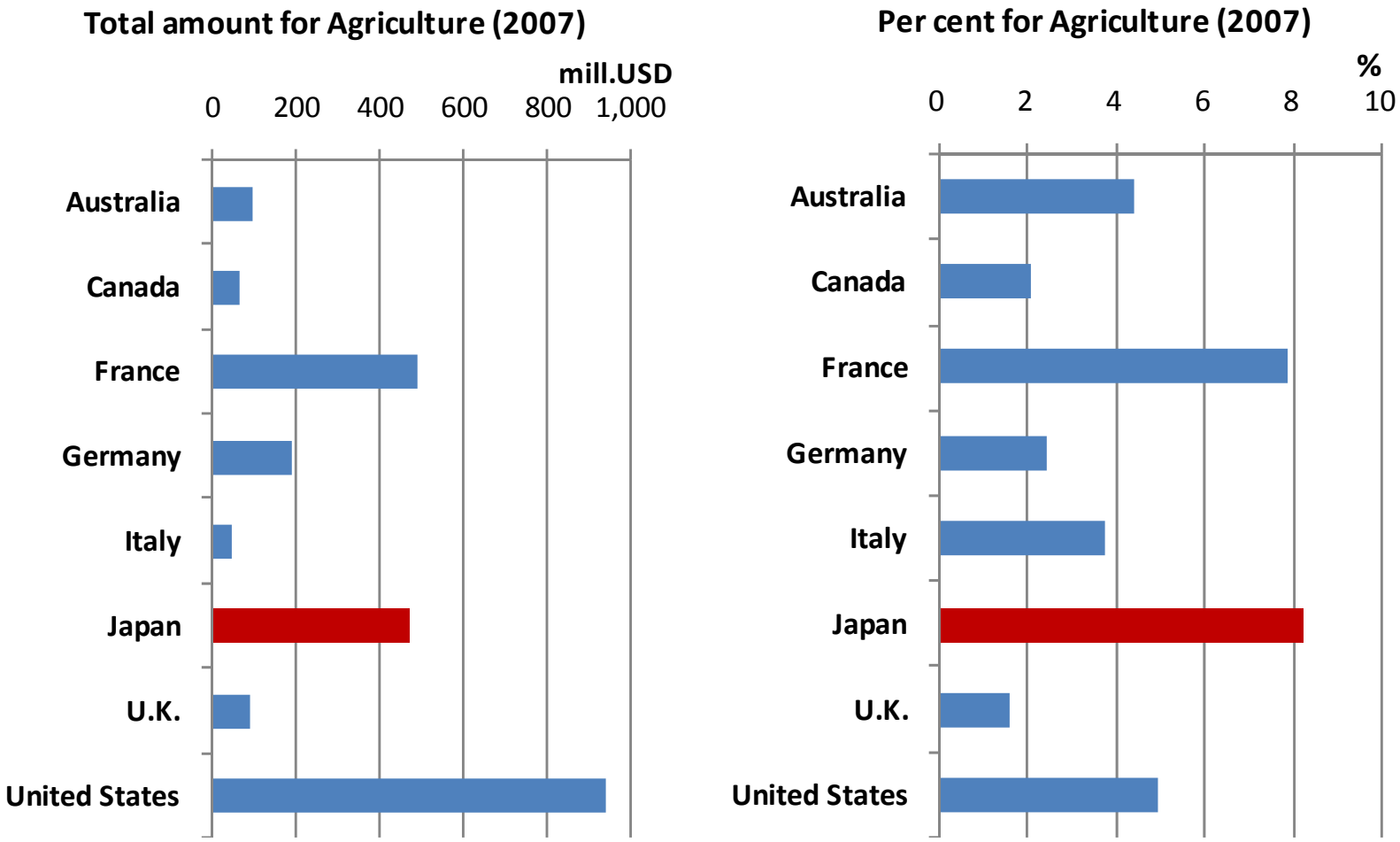
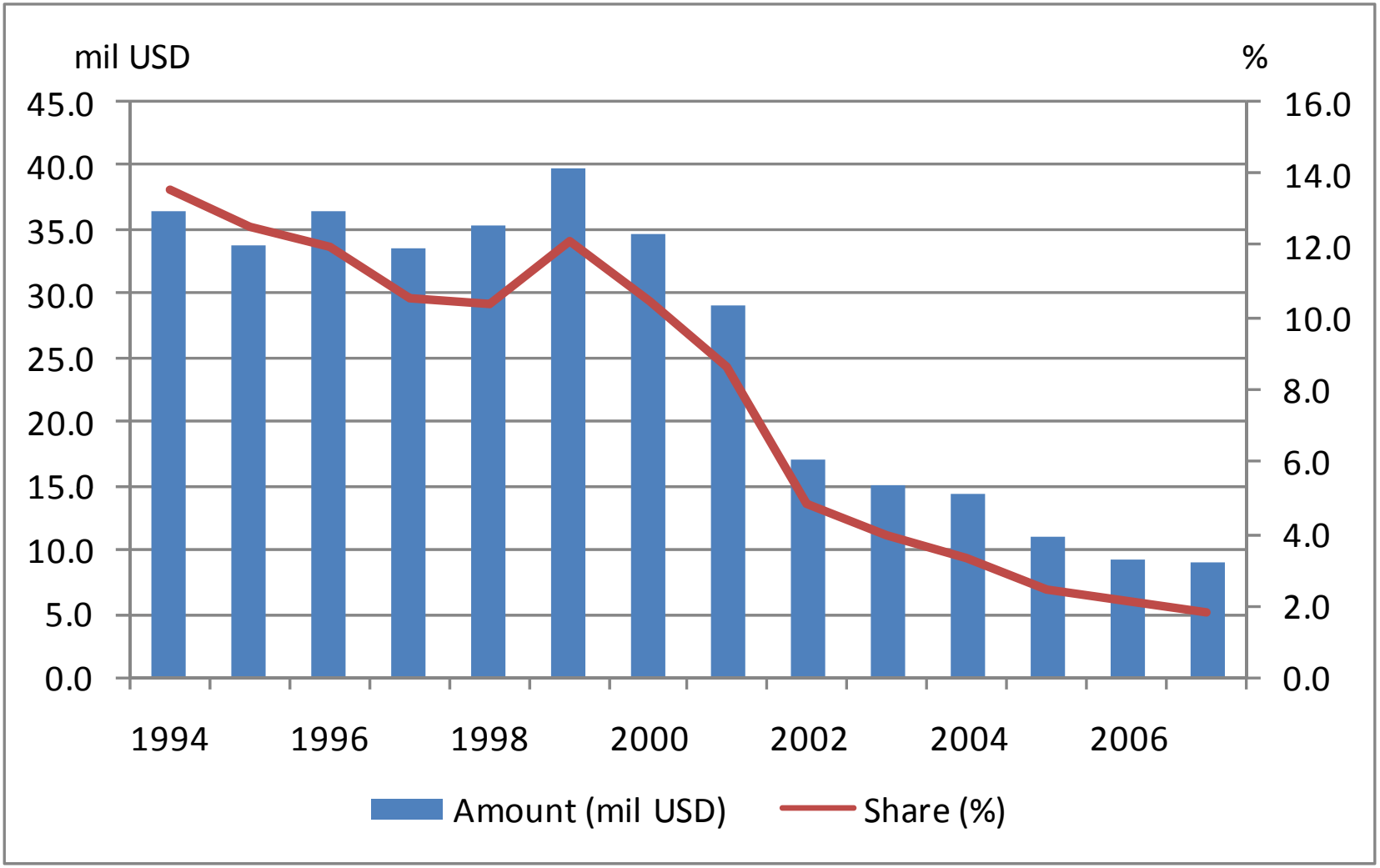
Bilateral Official Development Assistance for agriculture

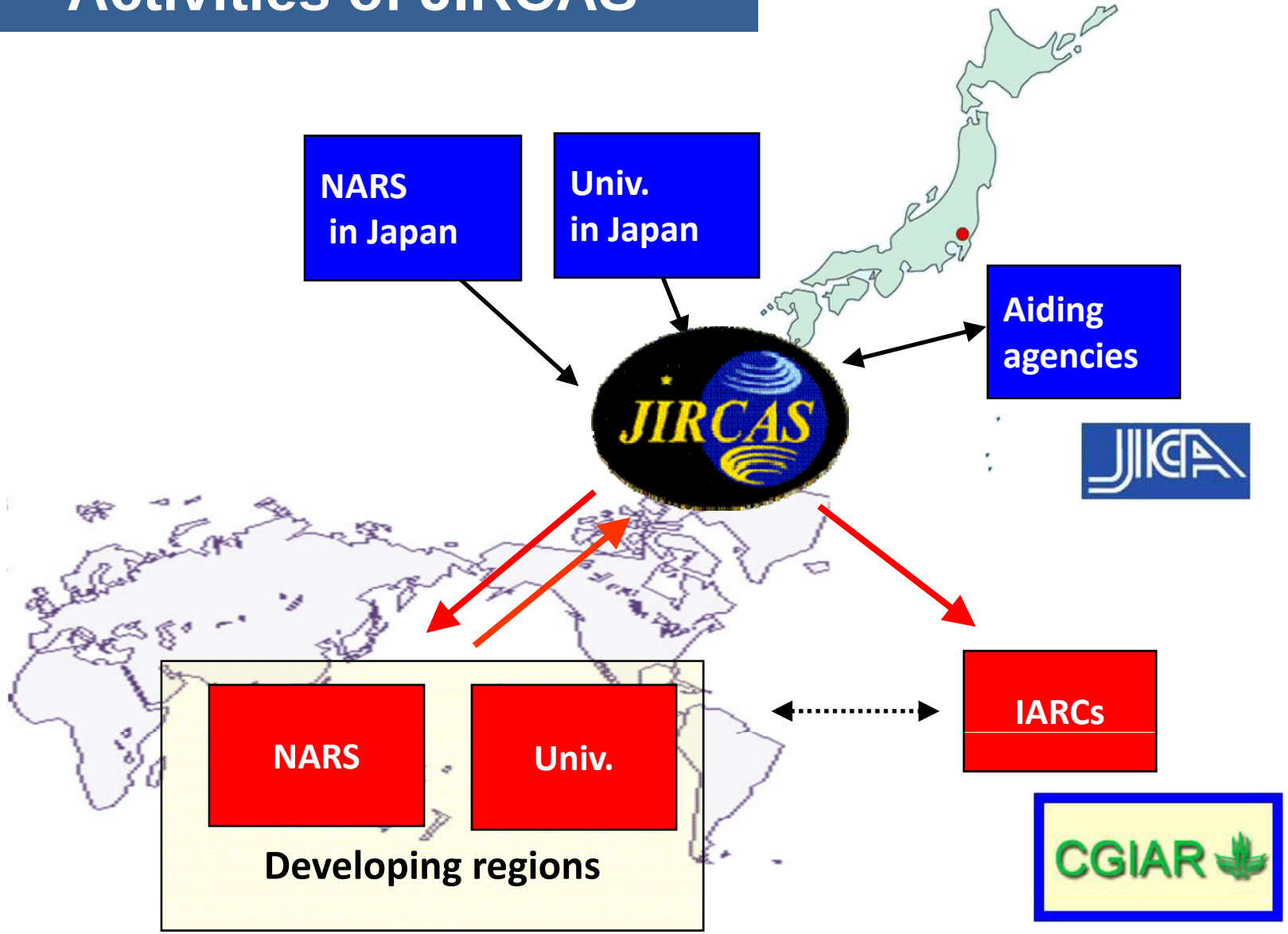


Source: OECD,DAC

Japan's Contribution to the CGIAR Research Agenda



Activities of JIRCAS



Conclusions

1. Provision of **global public goods** is indispensable for creating a well balanced globalized society.
2. **Agricultural research** is one of the most effective ways to enhance food availability as well as food accessibility.
3. **Japan**, the largest net food importer, must play a key role in providing global public goods in agriculture.