



# Changing Times: The Role of New Players in Global Governance

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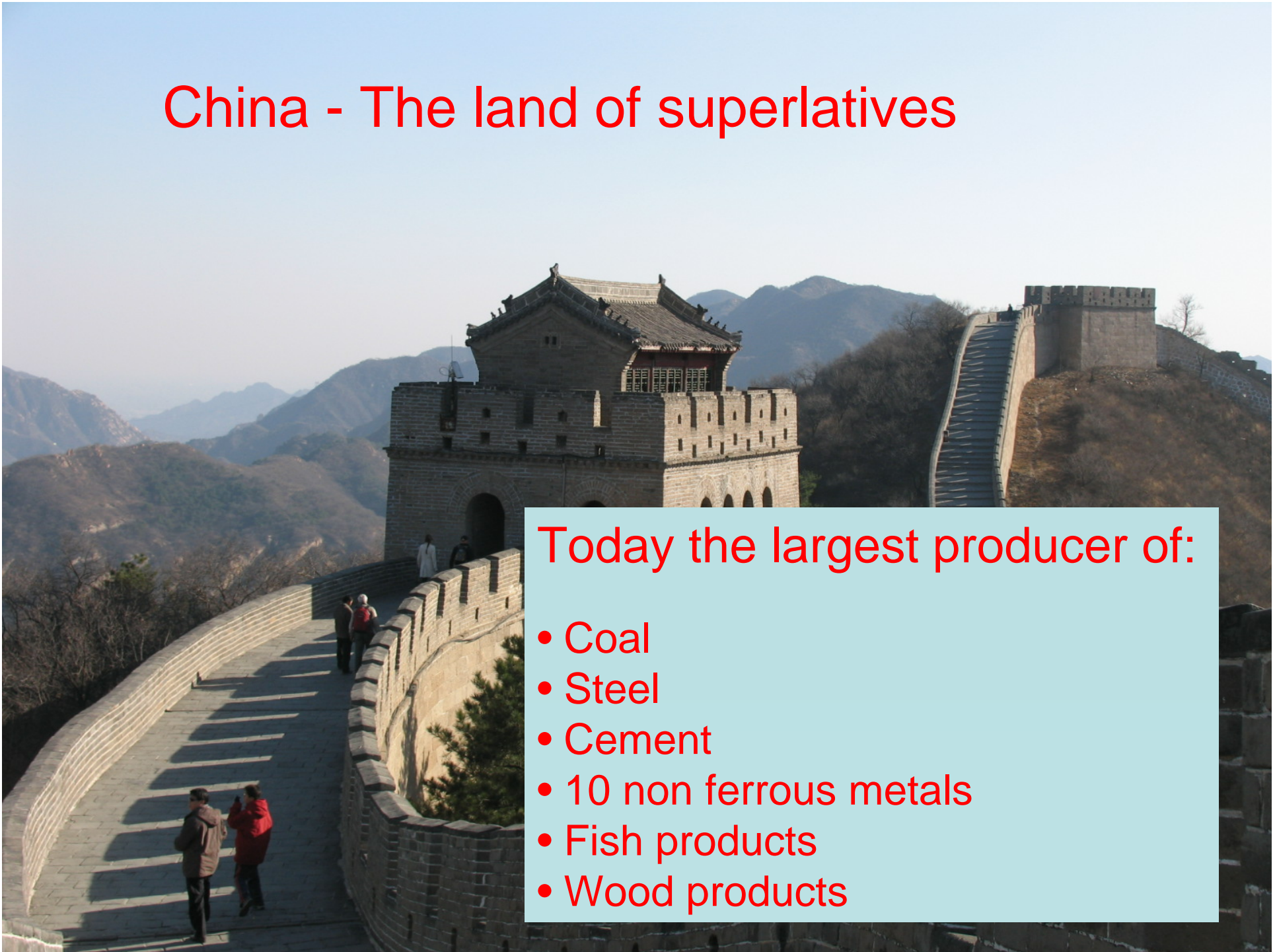
# China's Growth

- Since 1990 China's economy grew over 9% on average
- China's contribution to global GDP since 2000 twice that of Russia, India and Brazil combined
- China produces:
  - 30 % of all television sets
  - 50 % of all cameras
  - 70 % of all photocopiers

# China - The land of superlatives

Today the largest producer of:

- Coal
- Steel
- Cement
- 10 non ferrous metals
- Fish products
- Wood products





**Southern Chinese port of Yantian**

From 1997 to 2005 China's timber imports grew 235 per cent

Cotton imports from the US grew 700 per cent

A night street scene in China, likely in a city like Guilin, with a prominent mountain in the background. The street is lined with buildings, some with traditional Chinese architecture, and is illuminated by streetlights and neon signs. People are walking on the street, and a bicycle is visible in the foreground.

# Rapidly rising energy demand

Now second largest energy consumer after US

CNPC invests in Iraq, Venezuela, Azerbaijan, Iran, Canada, Sudan, and soon others ...

Large numbers of coal-fired power plant being built

China could become the largest CO<sub>2</sub> emitter after the US

**President Bush on 31 May 2007: The US will gather the world's largest emitters, including China and India, to seek global greenhouse gas reductions...**



# China's per capita consumption of wood is modest!

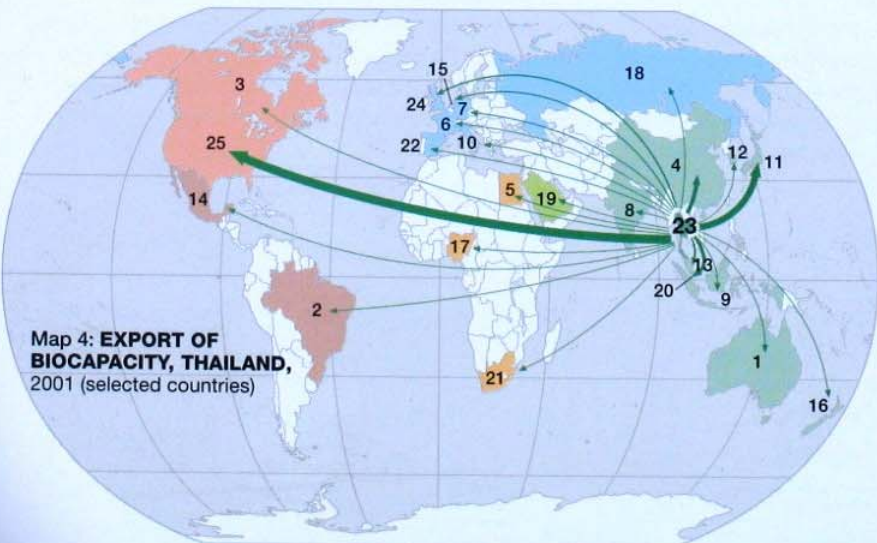
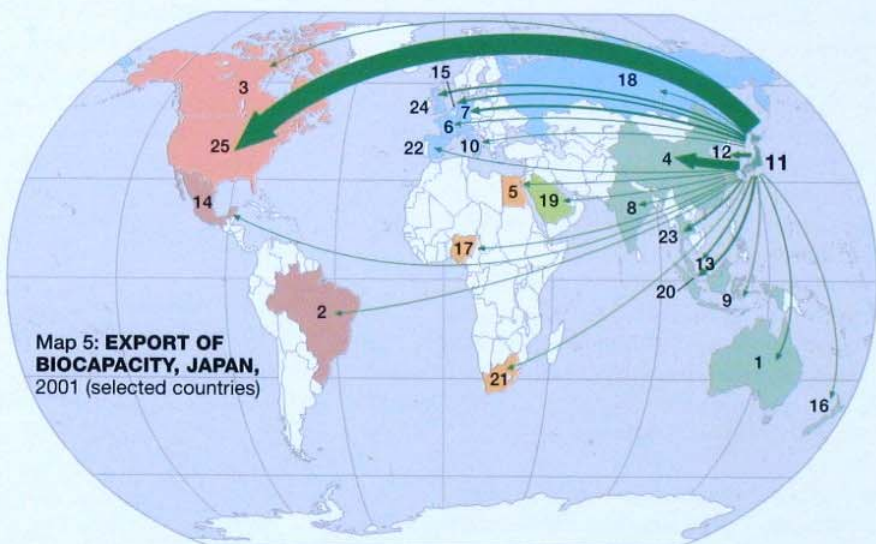
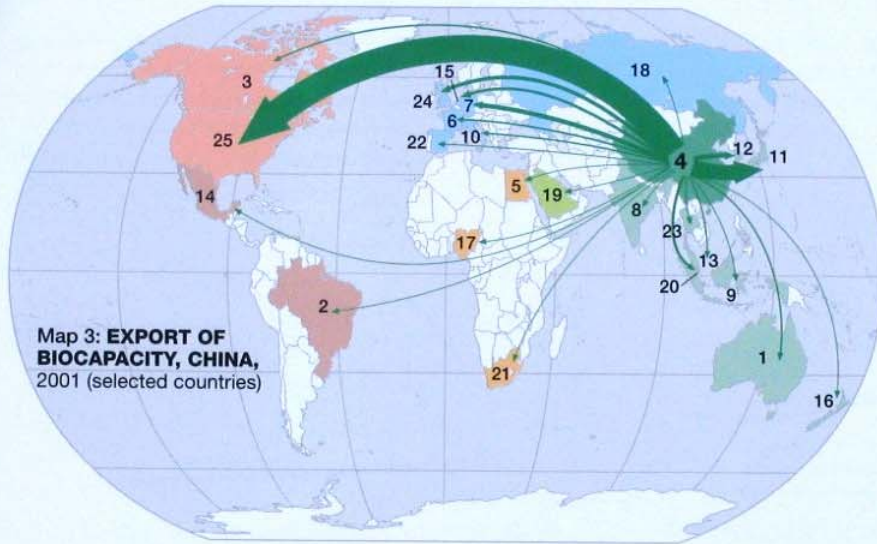
An American consumes 17x as much timber as a Chinese

The US increased import from China 1000% in 8 years

The US consumes 35% of all Chinese wood exports

China has become now the largest wood workshop in the world





**Table 1: EXPORT OF BIOCAPACITY FROM THREE ASIA-PACIFIC COUNTRIES**  
2001, million gha

The maps show flows in biocapacity particularly to the high income countries of Europe, Japan and North America. While some of this biocapacity comes directly from the exporting country, significant amounts originate in other countries, many in the developing world.

EXPORT				EXPORT			
From	China	Japan	Thailand	From	China	Japan	Thailand
To				To			
1 Australia	2.5	2.1	1.4	14 Mexico	1.3	1.1	0.5
2 Brazil	0.9	0.7	0.2	15 Netherlands	4.7	3.2	2.2
3 Canada	2.8	1.8	0.8	16 New Zealand	0.3	0.3	0.2
4 China	–	6.5	6.5	17 Nigeria	0.5	0.1	0.4
5 Egypt	0.5	0.2	0.2	18 Russian Fed.	1.3	0.2	0.1
6 France	3.0	1.7	0.9	19 Saudi Arabia	0.8	1.0	0.4
7 Germany	7.3	4.3	1.7	20 Singapore	4.3	4.0	5.6
8 India	1.4	0.5	0.5	21 South Africa	0.9	0.4	0.3
9 Indonesia	1.6	1.8	1.5	22 Spain	1.7	0.8	0.6
10 Italy	2.7	1.3	0.7	23 Thailand	1.9	3.3	–
11 Japan	25.1	–	10.6	24 UK	6.2	3.3	2.5
12 Korea, Rep.	7.1	6.9	1.3	25 USA	43.2	33.6	14.1
13 Malaysia	2.2	3.0	2.9				

*Numbers refer to map locations only.*





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# LIVING PLANET REPORT 2006

Fig. 1: LIVING PLANET INDEX, 1970-2003

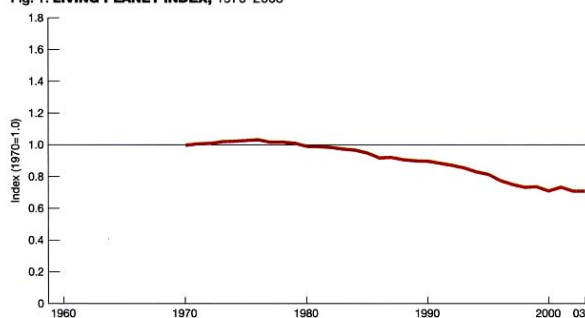
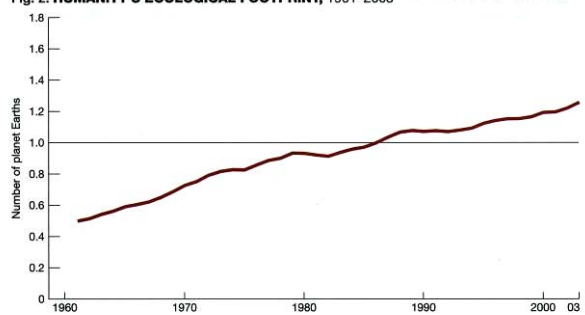


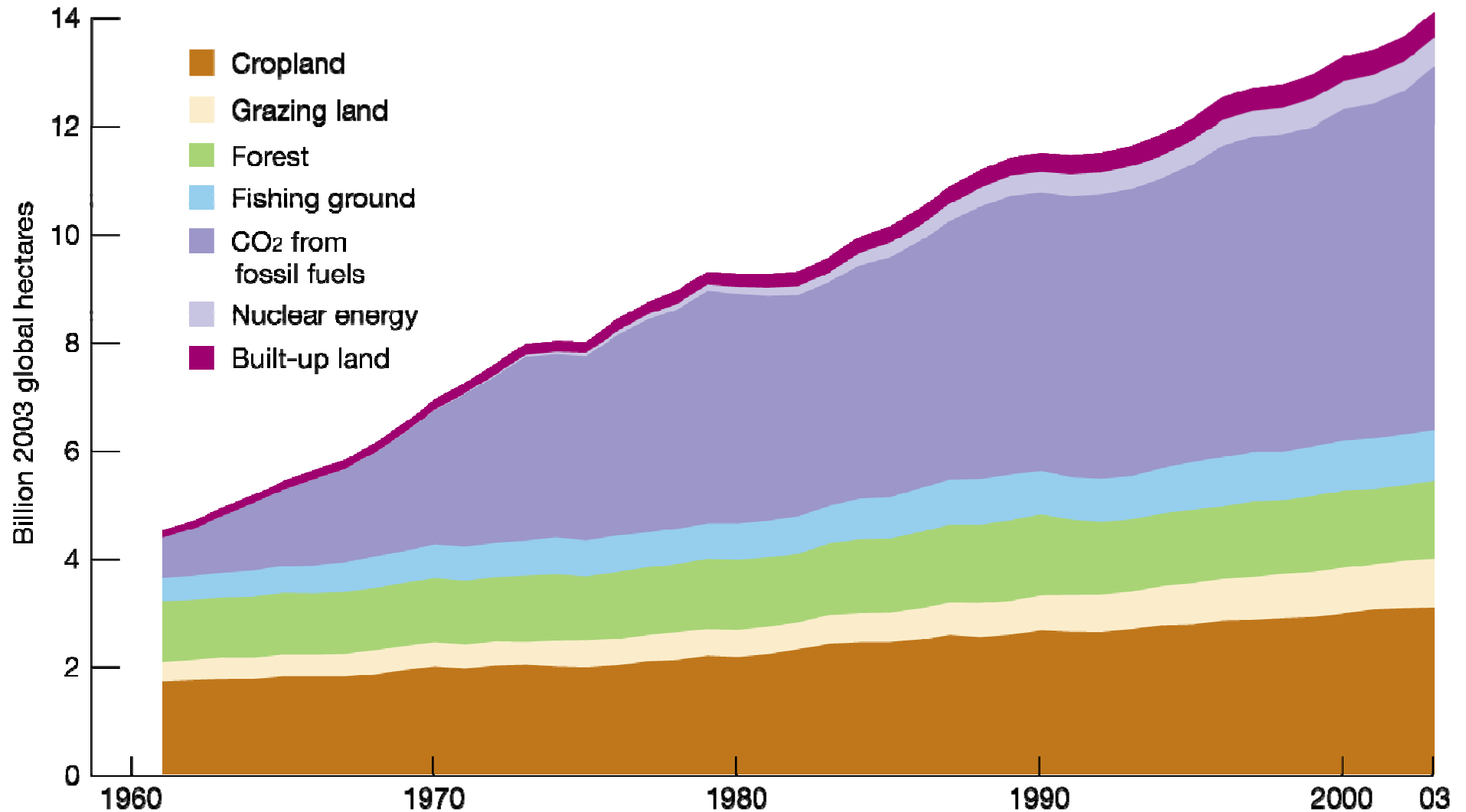
Fig. 2: HUMANITY'S ECOLOGICAL FOOTPRINT, 1961-2003



<http://panda.org>

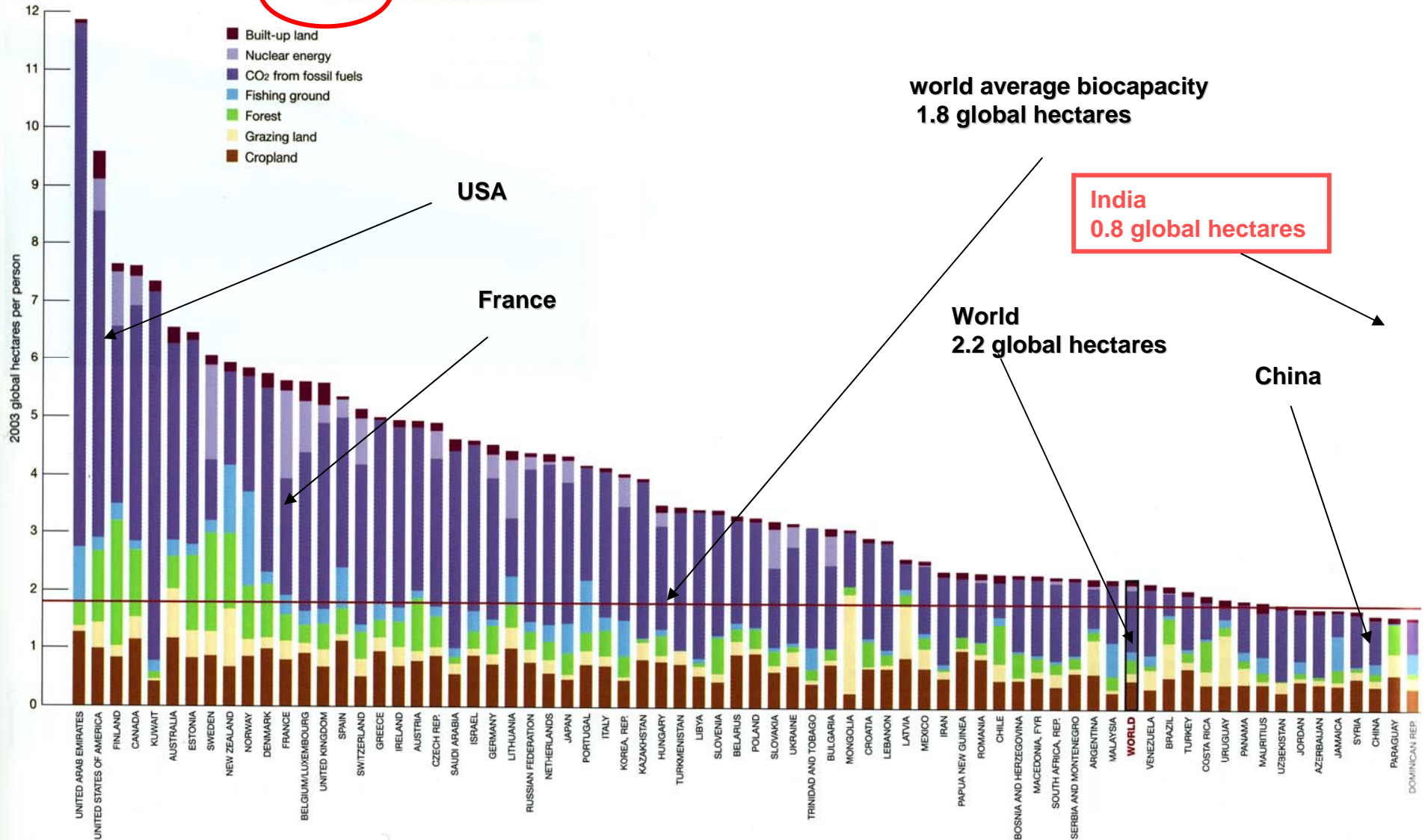
# World Ecological Footprint

**ECOLOGICAL FOOTPRINT BY COMPONENT, 1961–2003**



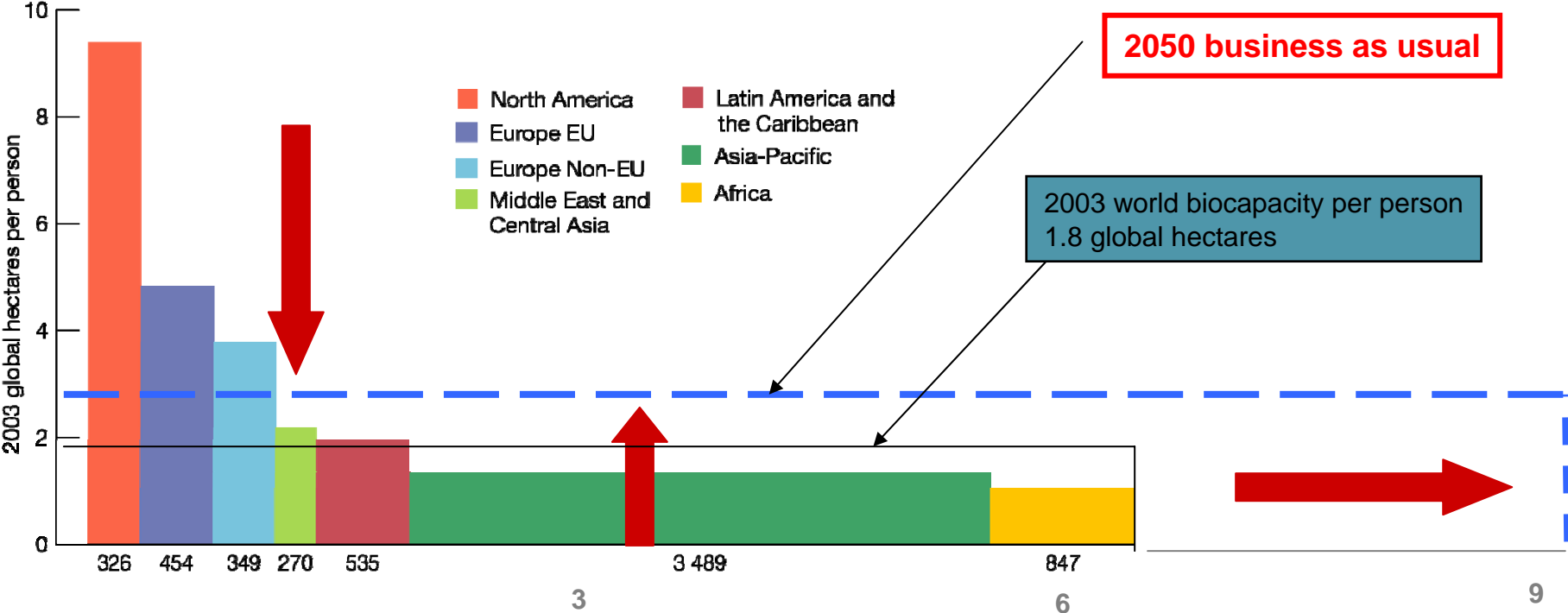
# ECOLOGICAL FOOTPRINT

Fig. 18: **ECOLOGICAL FOOTPRINT PER PERSON, BY COUNTRY, 2003**



# ECOLOGICAL FOOTPRINT, by region, 2003, and world, 2050

**ECOLOGICAL FOOTPRINT BY REGION, 2003**



# China's growth driven by rapid urbanisation

An aerial photograph of a densely populated Chinese city, likely Shanghai. The foreground is dominated by a vast expanse of old, multi-story residential buildings with dark tiled roofs and balconies. In the background, a modern skyline of skyscrapers and high-rise buildings rises against a hazy sky, illustrating the rapid urbanization and growth of the city.

Until 2020 a city the size of Stockholm (1.2 m inhabitants)  
...every month!

50 % of the world's new buildings will be constructed in China

# Most buildings energy and resource inefficient

- Low or not enforced building standards
- Lacking capacity
- Foreign investors do not pay attention or impose low standards

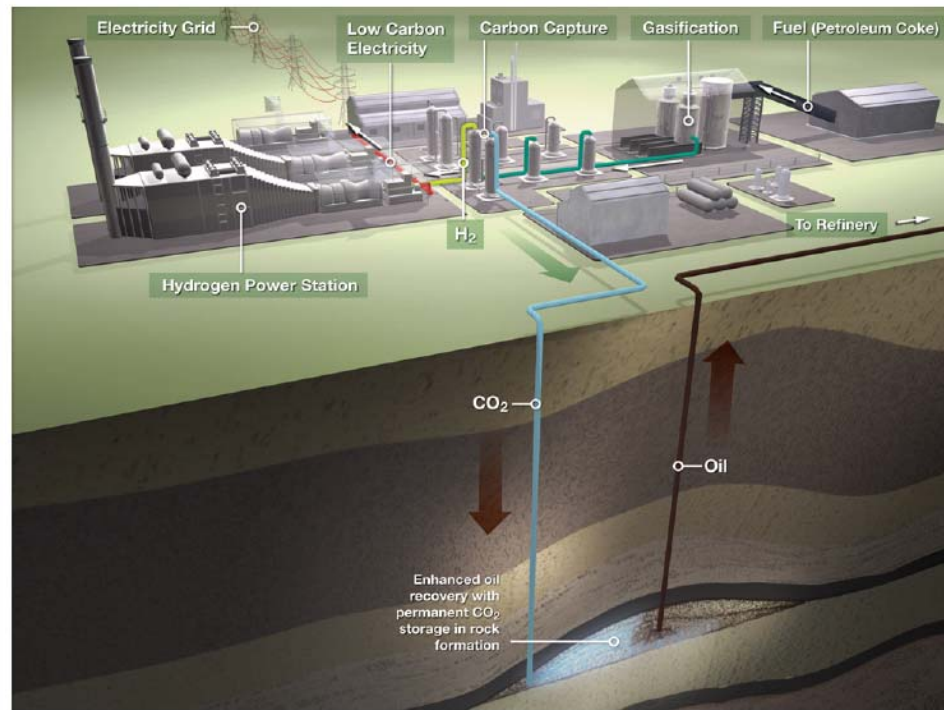


# Global concern over China's energy consumption

Energy cooperation crucial

Coal liquefaction technology of particular interest to Chinese

Carbon capture and storage necessary



**The Carson IGCC-CCS Project of BP**

A rural landscape with a person and a water buffalo in a field. The person is wearing a hat and a blue shirt, and the buffalo is dark-colored. The field is brown and appears to be recently plowed. There are trees and bamboo in the background. The text is overlaid on the top part of the image.

# Will China's agriculture cover the demand ?

Grain harvest declined by 9% since 1998

Rice, wheat and maize harvest may fall 37% by end century

Demand for meat, fish, vegetable oils rising fast





# China's most critical resource – water!

700 million Chinese lack access to safe water

300 of 640 major cities face water shortage

Water tables dropping on average 1 meter p.a.

Water use efficiency low in all sectors, particularly irrigation

Setting the Scene: Grounds for Green Reform

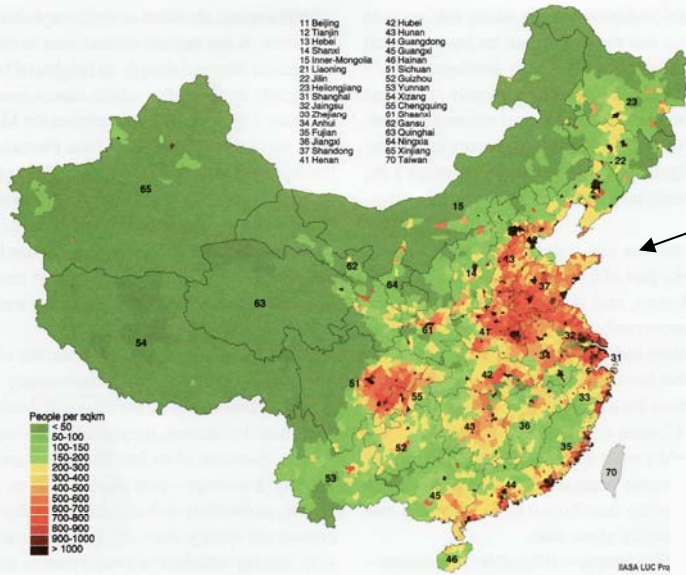


Figure 1.1 Population Density Map of China (Heilig, 1999)

750 m<sup>3</sup> water per capita availability p.a.

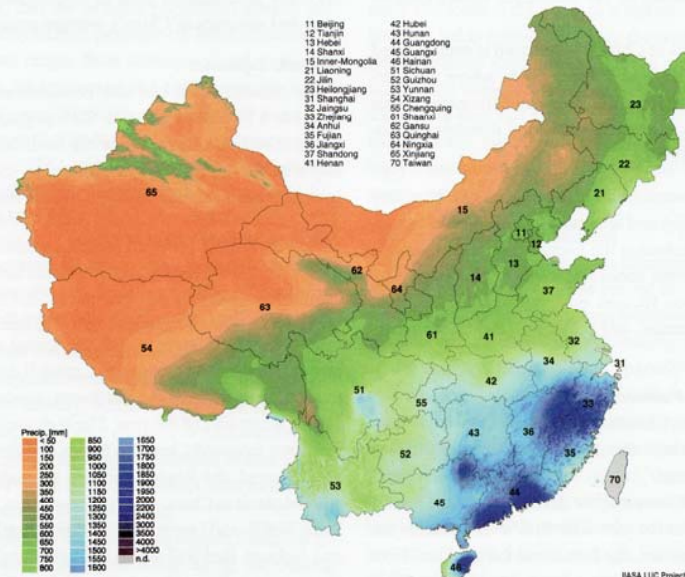
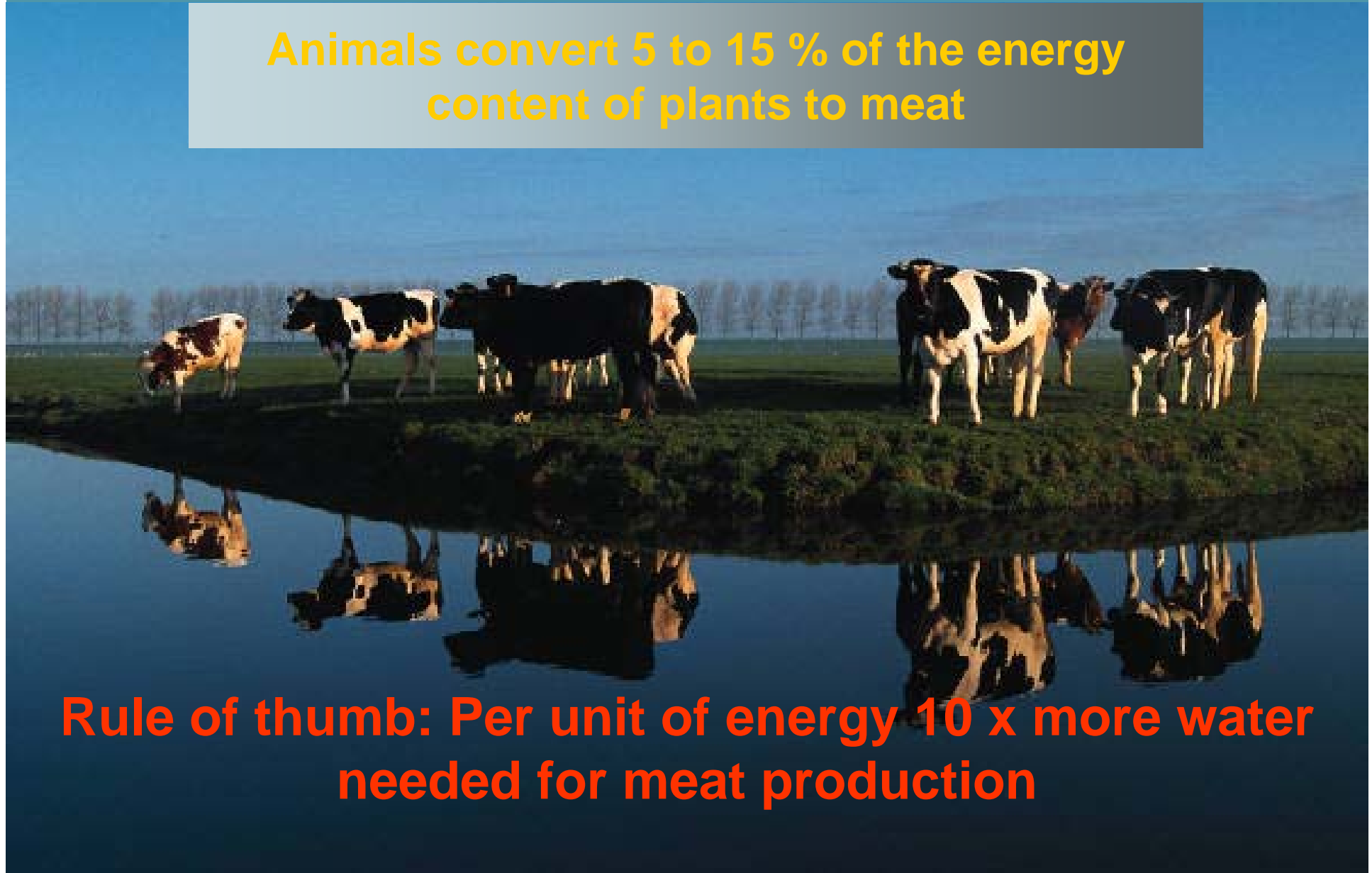


Figure 1.2 Precipitation Map of China (Heilig, 1999)



# Meat production

**Animals convert 5 to 15 % of the energy content of plants to meat**

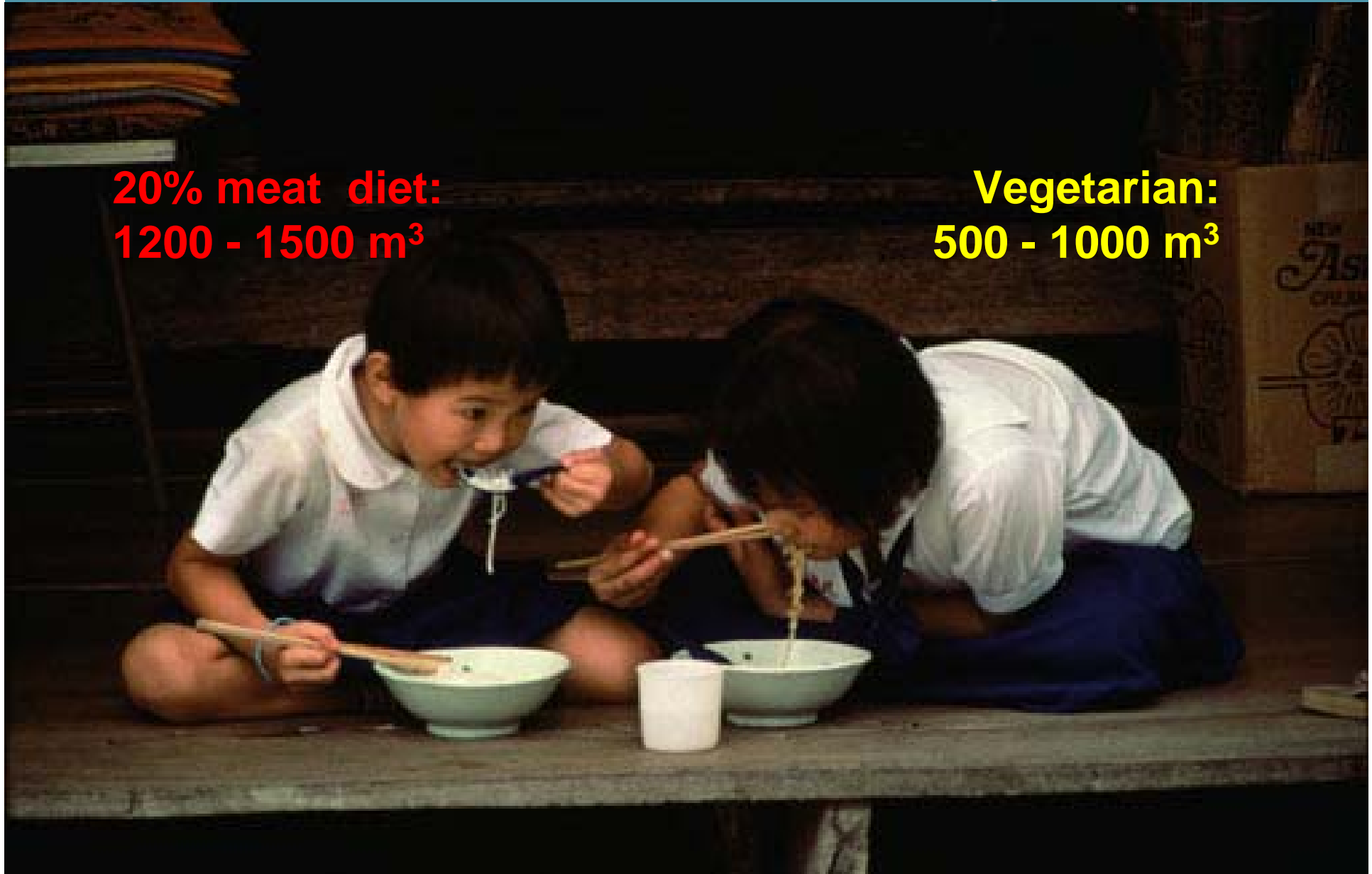


**Rule of thumb: Per unit of energy 10 x more water needed for meat production**

# Annual per capita water needs for food to cover 2500 kcal a day

**20% meat diet:  
1200 - 1500 m<sup>3</sup>**

**Vegetarian:  
500 - 1000 m<sup>3</sup>**





# Some Conclusions

**China's own consumption does not explain resource demand**

**Per capita footprint of China is still very modest**

**Rapid urbanization and changing lifestyles drive domestic consumption**

**Resource use in other part of the world is rising also – US, Europe!**

**OECD countries share a major responsibility to find solutions**

**Supply chain analysis and certification could make a difference**



## **Some Conclusions cont'd**

**Self-sufficiency, particularly in agriculture must be a priority**

**Effort of Chinese leadership to be responsible world citizens are noted**

**Resource and energy efficiency (buildings!) are in everybodys best interest**

**Close cooperation with multilaterals, NGO's and investors can increase confidence**

**The Chinese Leadership is very concerned about these issues**

**Thank you!**

