Outline of the presentation

1. Global Resource availability to address Food Security in an Urbanized World
2. Sustainability of Agriculture and Food Systems for Feeding the World now and in the future
3. Food and Nutrition Security for Megacities and Urbanized World
4. Enhanced Urban-Rural Linkage/Integration for Sustainable Food Systems
5. Innovative Tools for Crowed Sourcing to Acieve Sustainable Food Systems

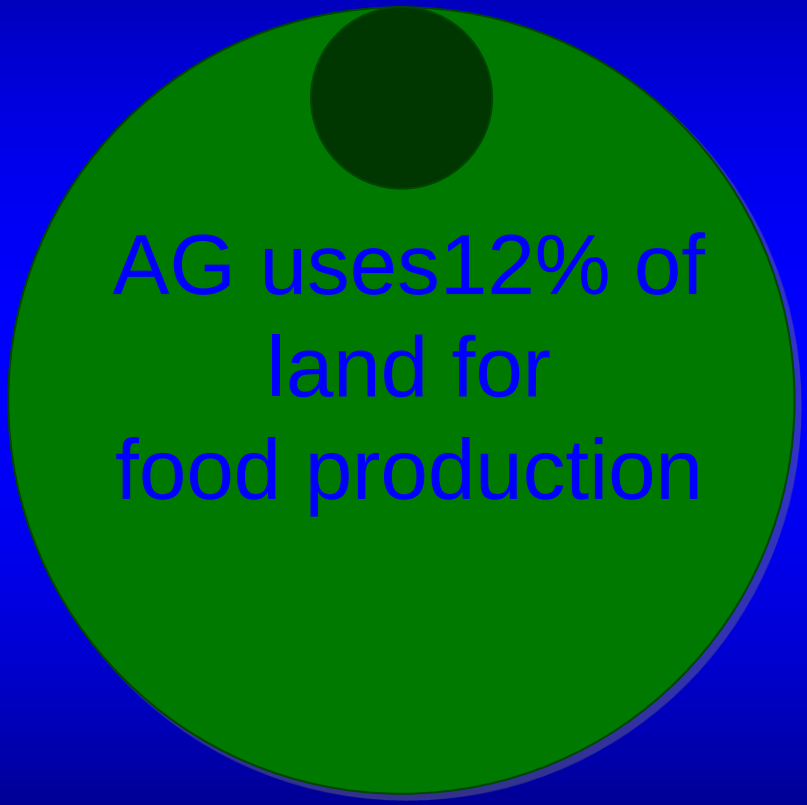
Land And Water Resources Availability

land and water Resources availability in **high income countries**

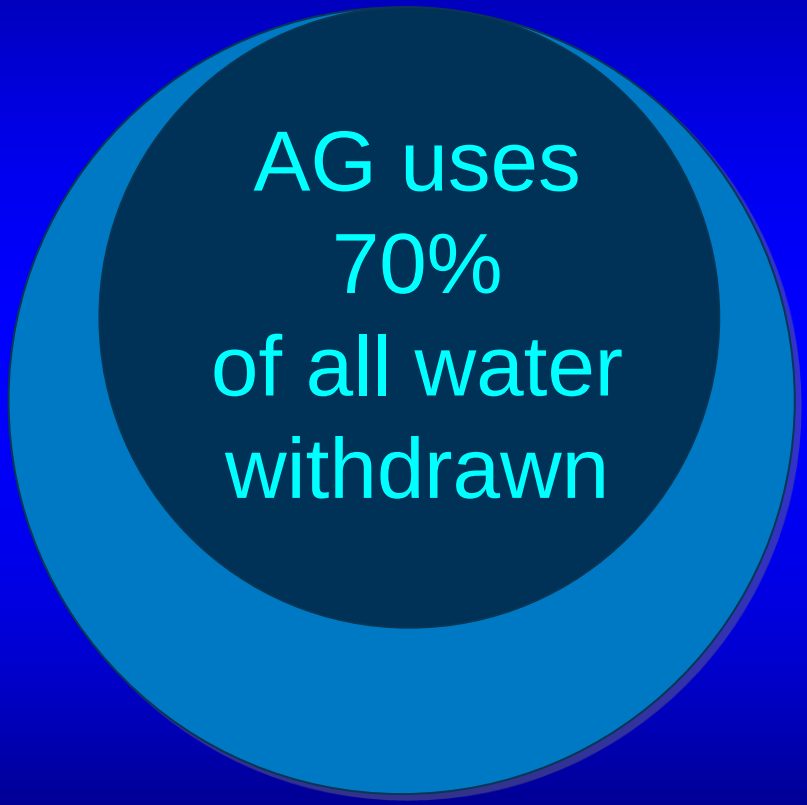
land and water availability in **low income countries**

Average per capita

The use of land and water resources by agriculture in 2022



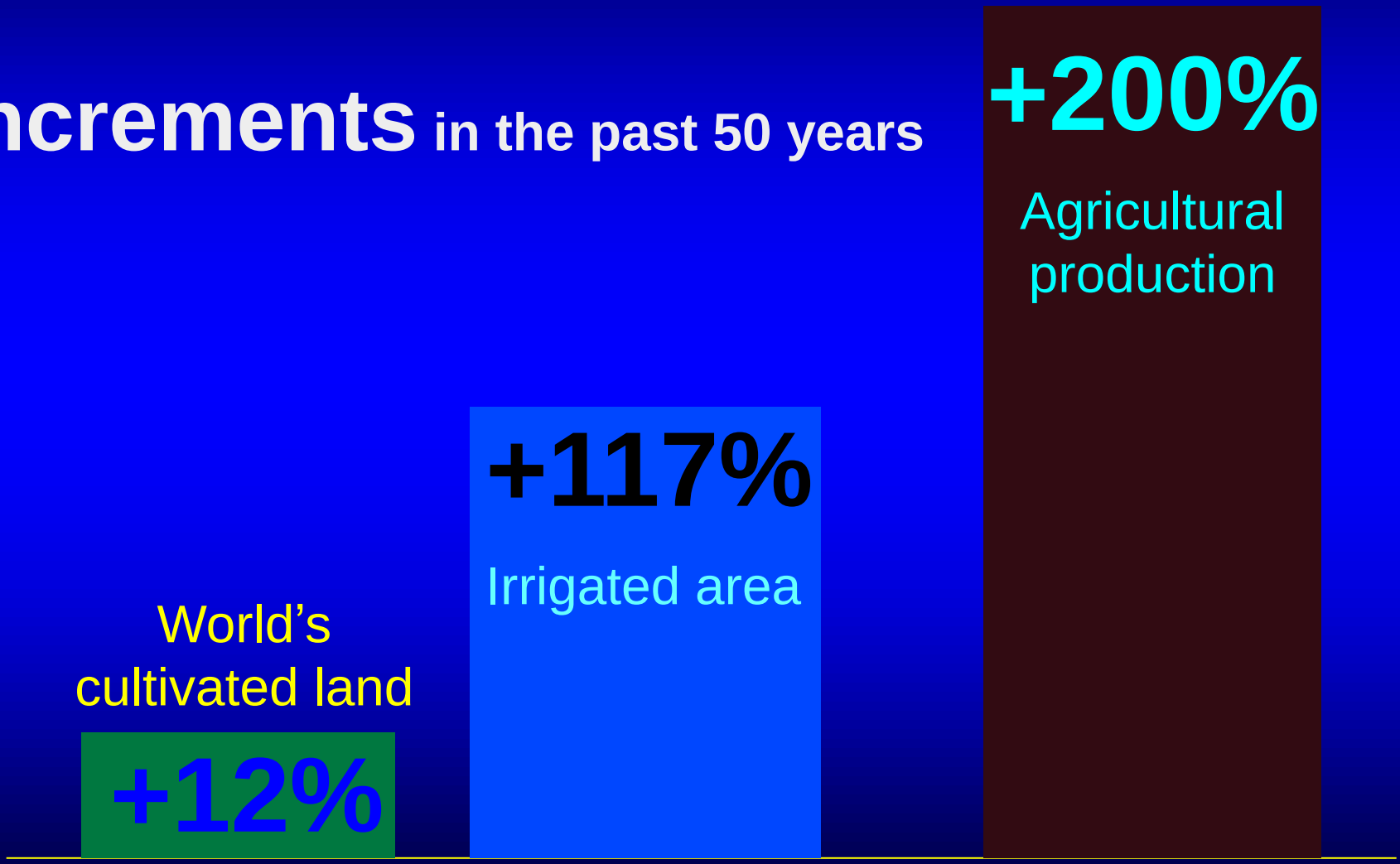
world’s land surface



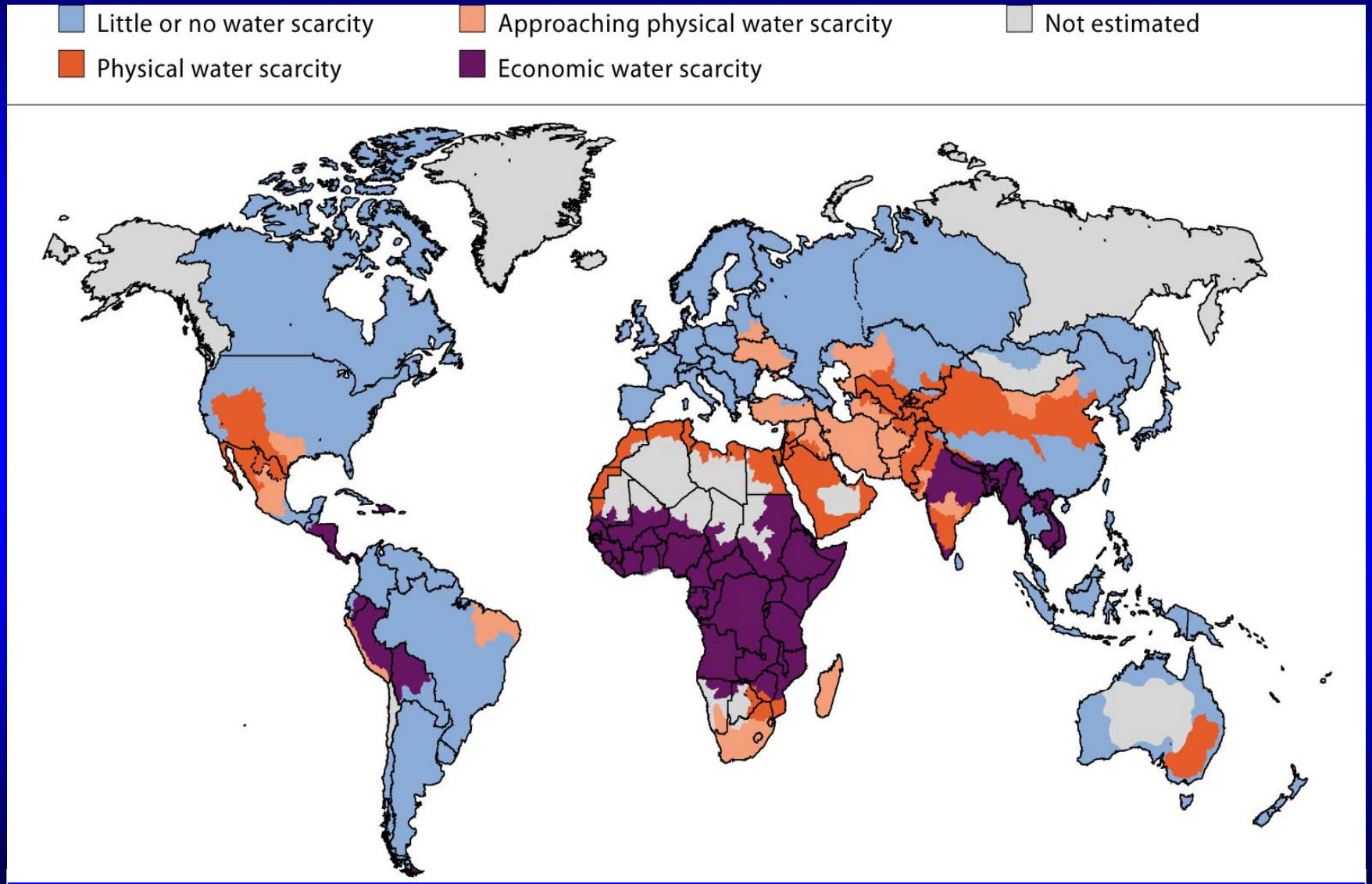
total world’s water uses

Agriculture In the past 50 years…

Increments in the past 50 years



Water Scarcity



1/3 of the world's population live under water scarcity

Cities and Climate Change

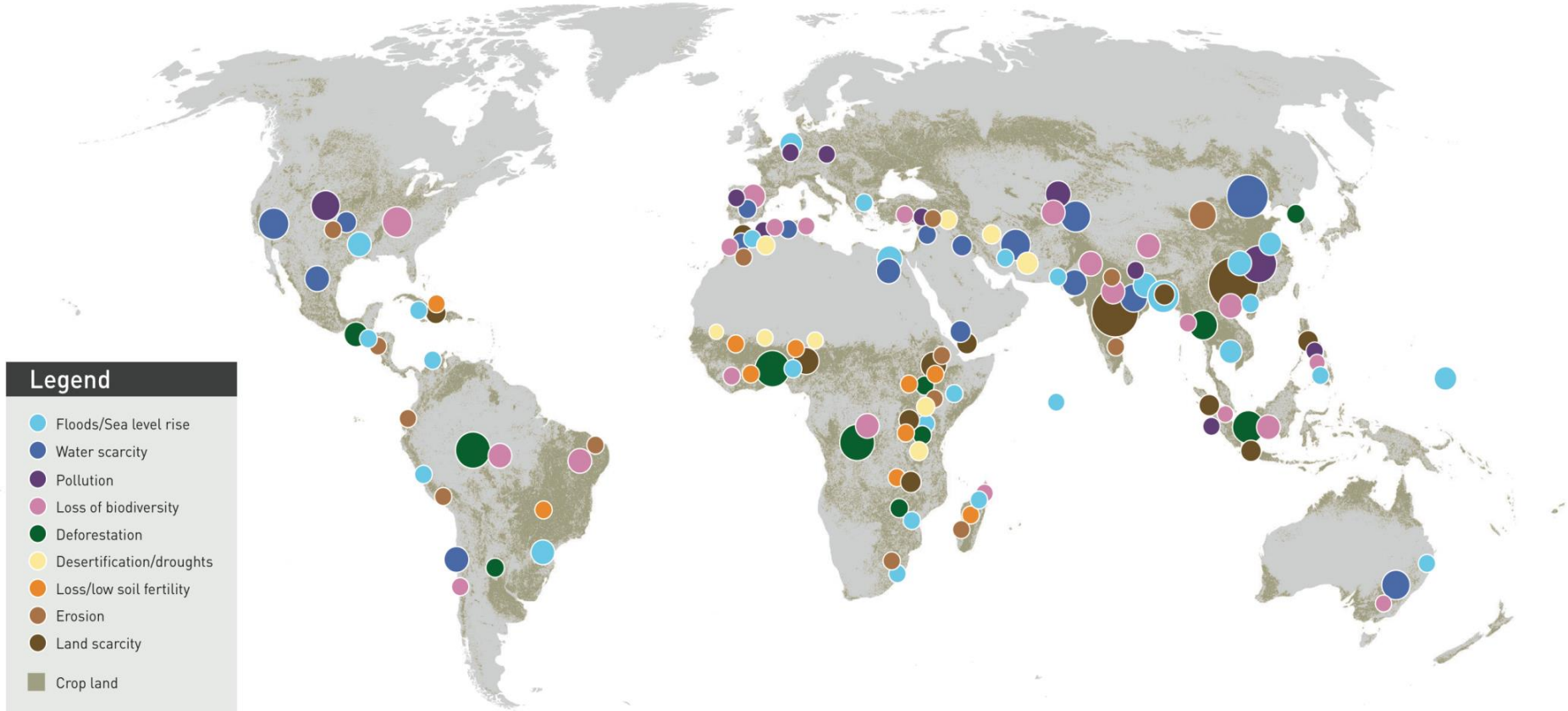
In urban and peri urban areas

- **75% of commercial energy is consumed**
- **80% of all waste is generated**
- **60% of Greenhouse Gas Emissions which cause global climate change is emanated from the cities**

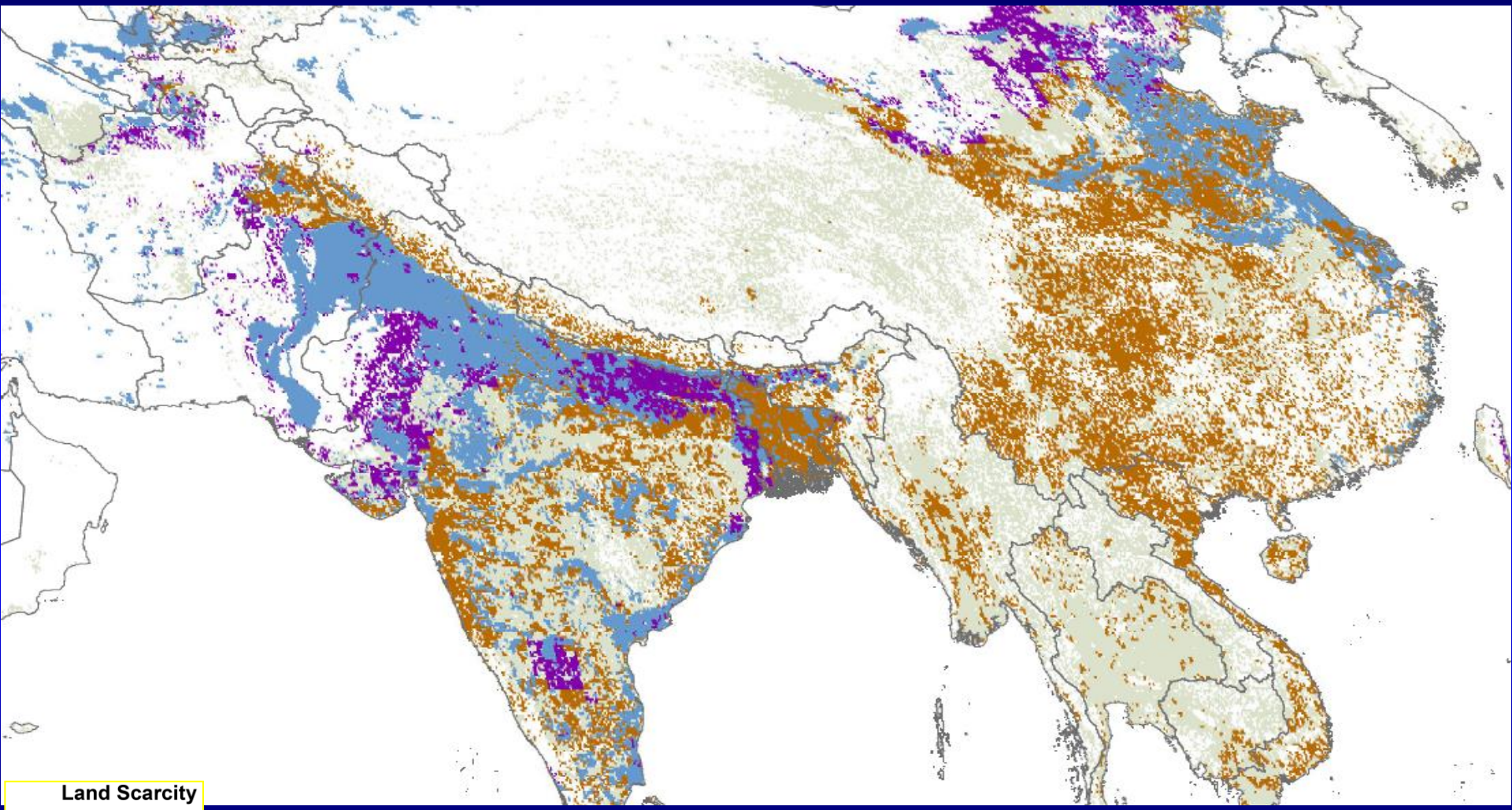
Sea level rise threatens the disappearance of small Island States

- **If sea levels rise by just one meter, many major coastal cities will be under threat:**
- Buenos Aires; Rio de Janeiro; Los Angeles; New York
- Lagos; Alexandria; Mumbai; Kolkata; Dhaka
- Shanghai; Osaka-Kobe; Tokyo

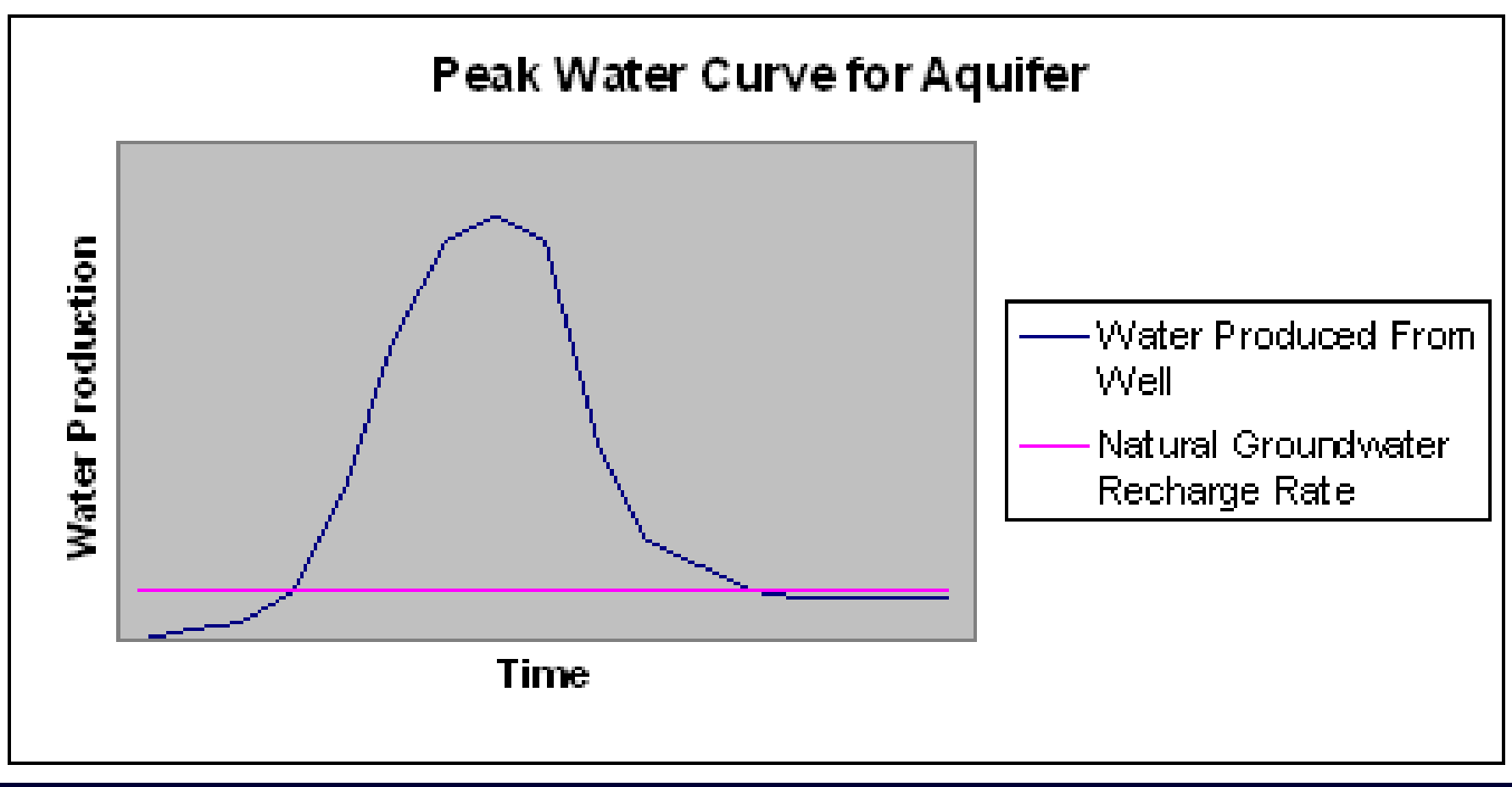
Systems At Risk



Land and water scarcity in Southern and Eastern Asia With High population density



Aquifer Systems that produces more than 40% of our food are vanishing

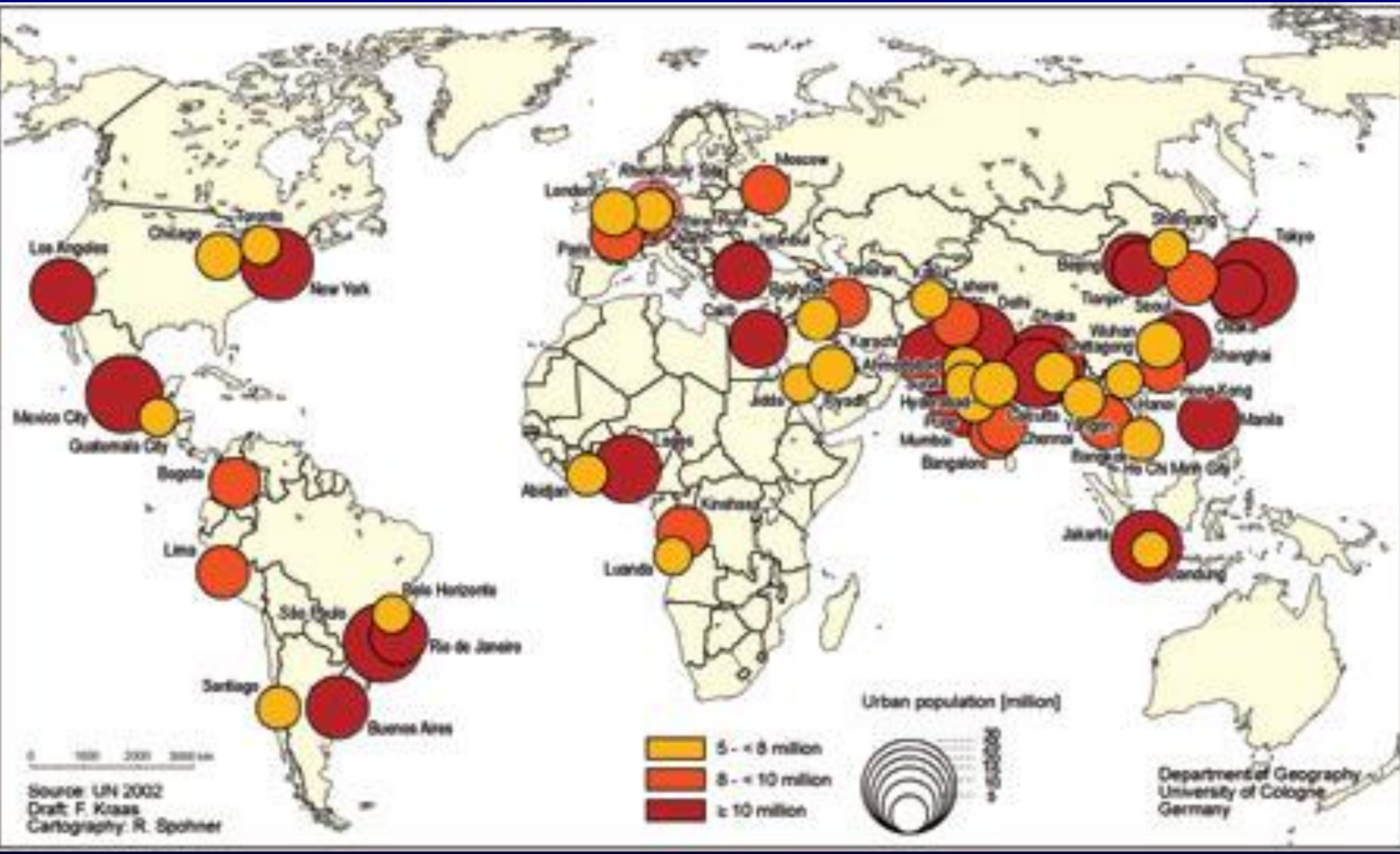


Unique Agricultural Heritage Systems are at risk

TOWARDS 2050.....

THE CHALLENGE AHEAD

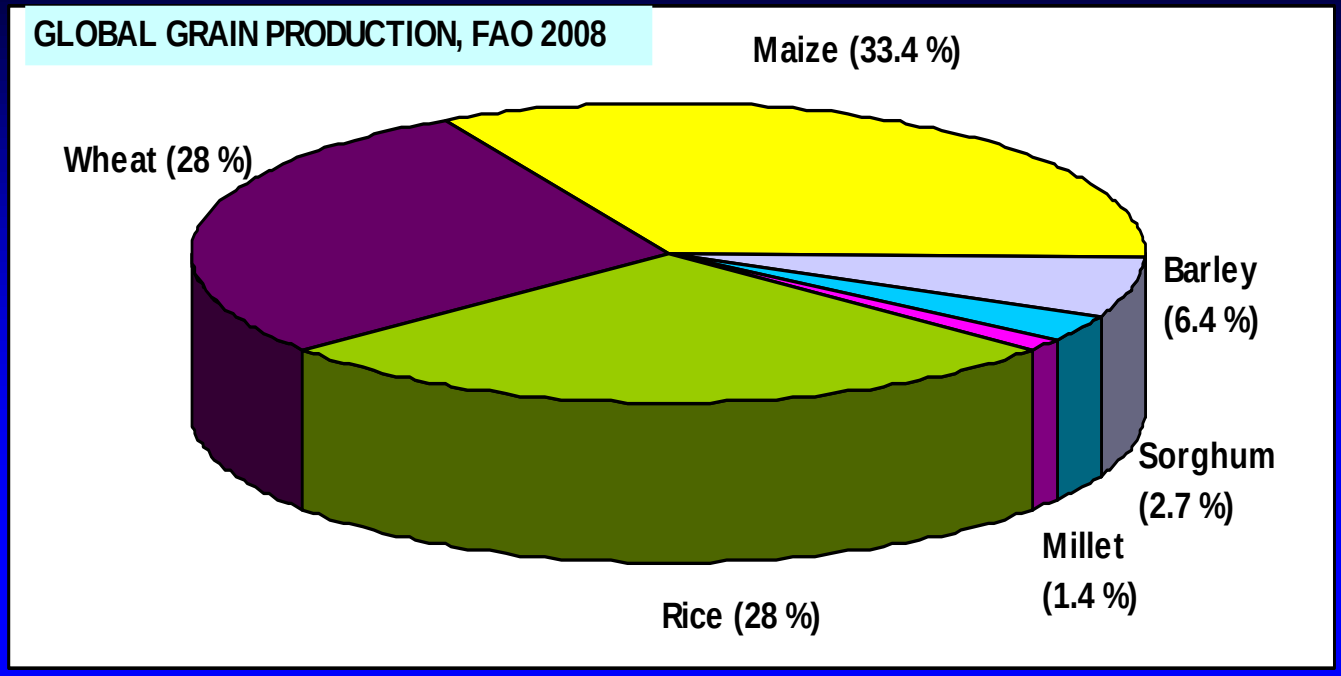
Development of the World Megacities



Towards 2050… food requirements

Change in diets and reduction in Food Diversity

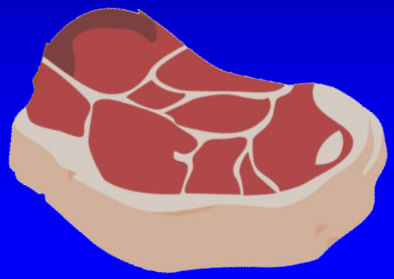
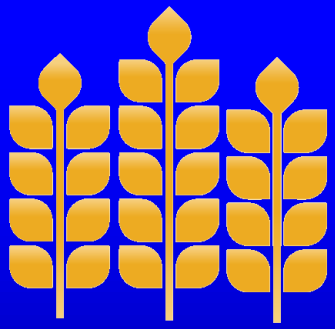
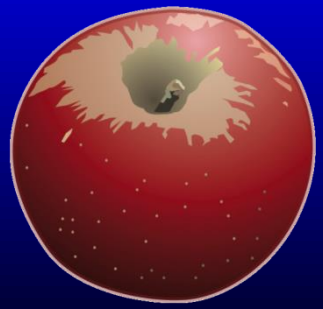
Rice + Wheat + Maize = 90.1 %



Reducing Biodiversity Health and Nutrition

- **Hidden hunger: missing micronutrients**
  - More than 2 billion people worldwide
  - Mostly women and children
- **Double burden: diseases of "affluence"**
  - Type 2 diabetes, obesity, heart disease, etc.

Water and changing diets

Product		liter/kg
beef		15 000
cereal		1 500
fruit		1 000

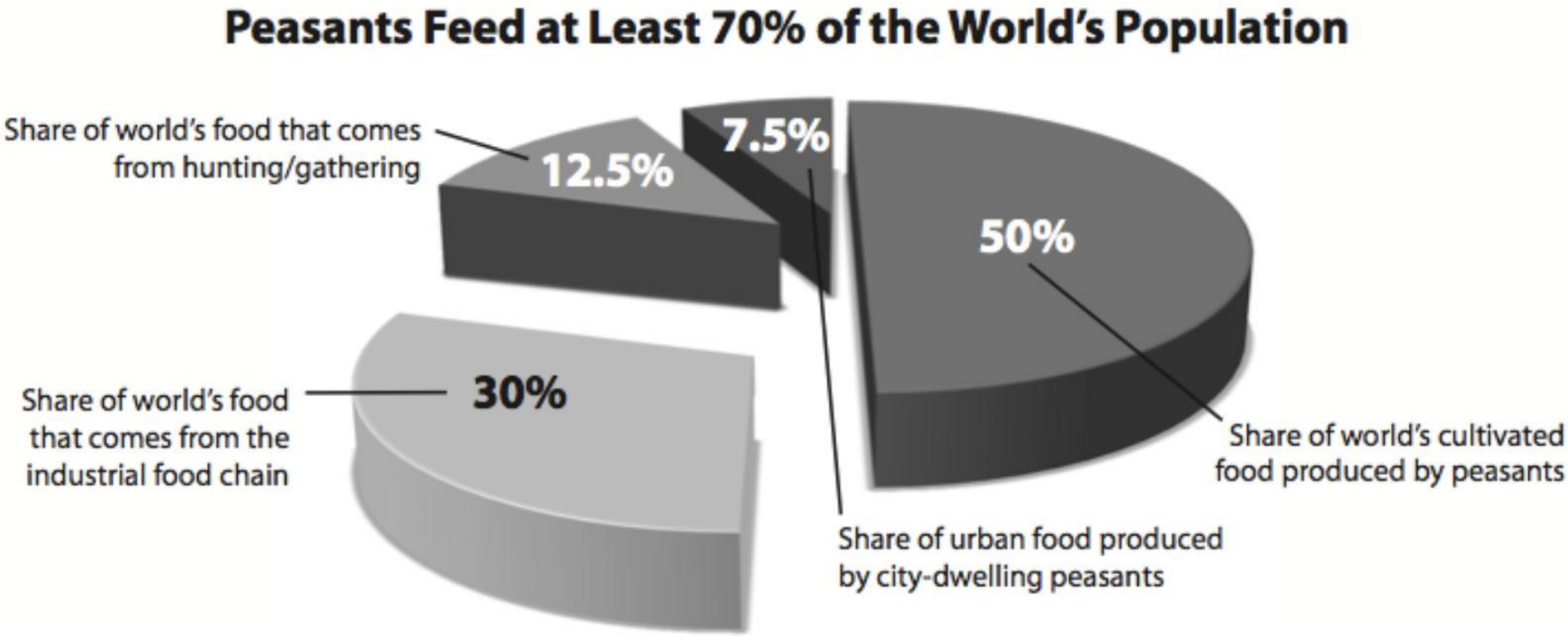
Deforestation in Sumatra for pulp and palm oil production

[Greenpeace, *The Guardian*]

A major opportunity: Small holders and Family Farming Including In Mountain Areas

- **Produce the bulk of the global food,**
- **Are the largest number of stewards for the environment and its services including biodiversity,**
- **Higher and sustainable productivity increase at their level will have a major impact on poverty reduction, economic growth and climate change mitigation and adaptation :Win Win Win Win…**

Who feeds us today???



Rebuilding Sustainable Food System Requires combination of

Knowledge:
Scientific
&
Traditional

Culture:
Identity, Social cohesion & Spiritual Values

Health:
Human
&
Ecosystem

Markets:
Accessability, Affordability & PES

Redesigning Eco-cities for People

- Brings urban and rural together through their Food cultures
- Use renewable energy resources with least pollution (solar, wind, electric, bioenergy)
- Recycle and purify water
- Prevent pollution and reduce waste
- Recycle, reuse and compost municipal waste
- Protect and support biodiversity through Food Diversity
- Promote Urban gardens and farmers markets
- Design Zoning and Recreational areas for Sustainable Production and Consumption

Thank you