A New Partnership to Support Socio-ecological Landscapes

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The International Partnership for the *Satoyama* Initiative


Partnership


INTERNATIONAL YEAR
OF FORESTS • 2011

Goal 1
Eradicate Extreme Hunger and Poverty

Goal 2
Achieve Universal Primary Education

Goal 3
Promote Gender Equality and Empower Women

Goal 4
Reduce Child Mortality

Goal 5
Improve Maternal Health

Goal 6
Combat HIV/AIDS, Malaria and other diseases

Goal 7
Ensure Environmental Sustainability

Goal 8
Develop a Global Partnership for Development

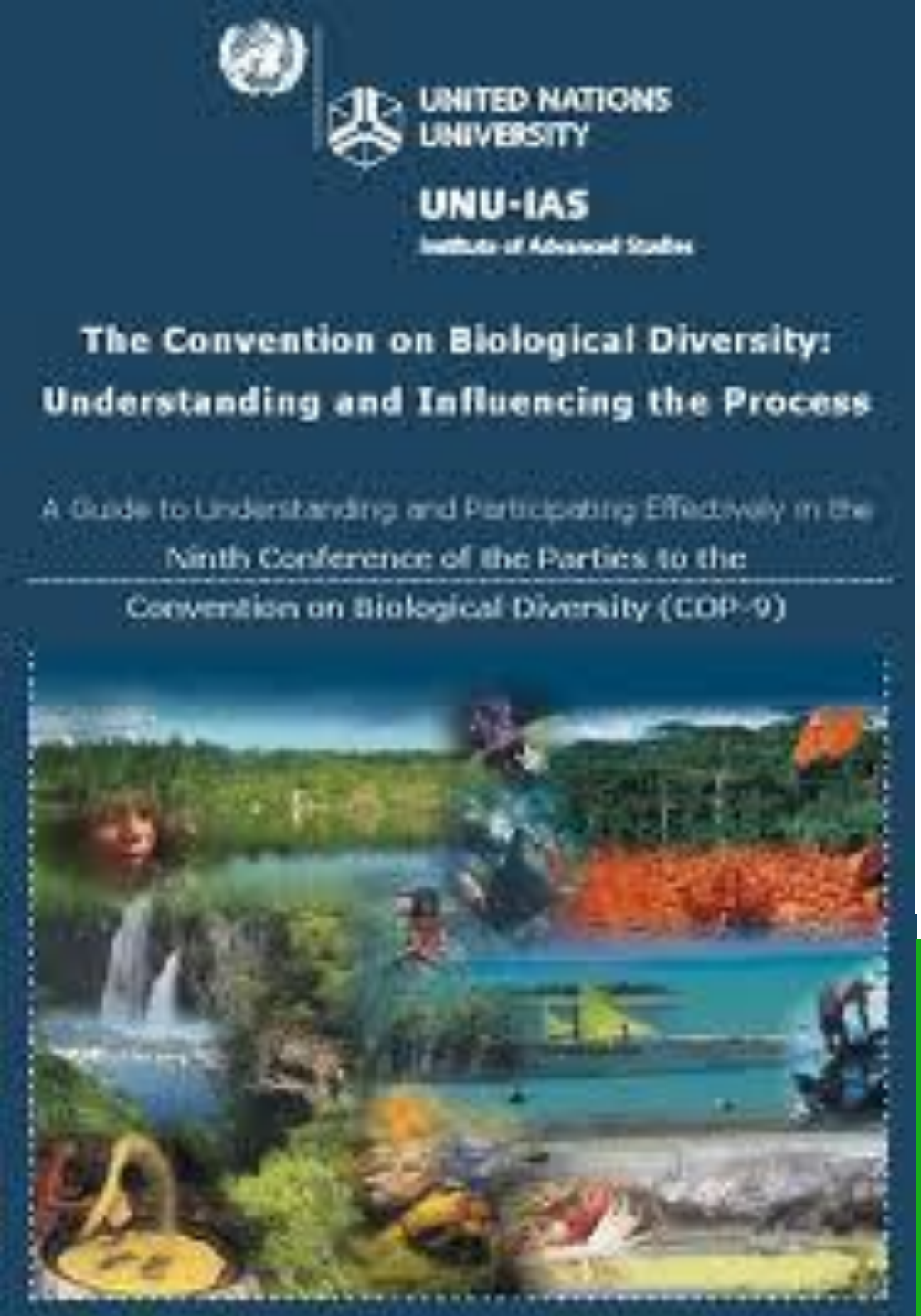
task force

Environmental Sustainability

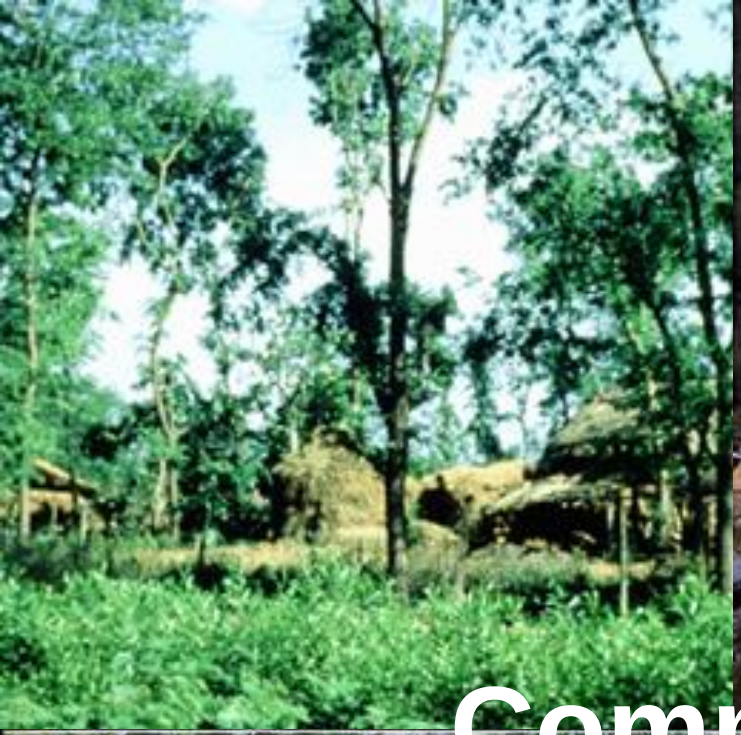
Environment and human well-being: a practical strategy

Achieving the Millennium Development Goals

Millennium Project



The Convention on Biological Diversity has many links to satoyama-type approaches



Community forestry

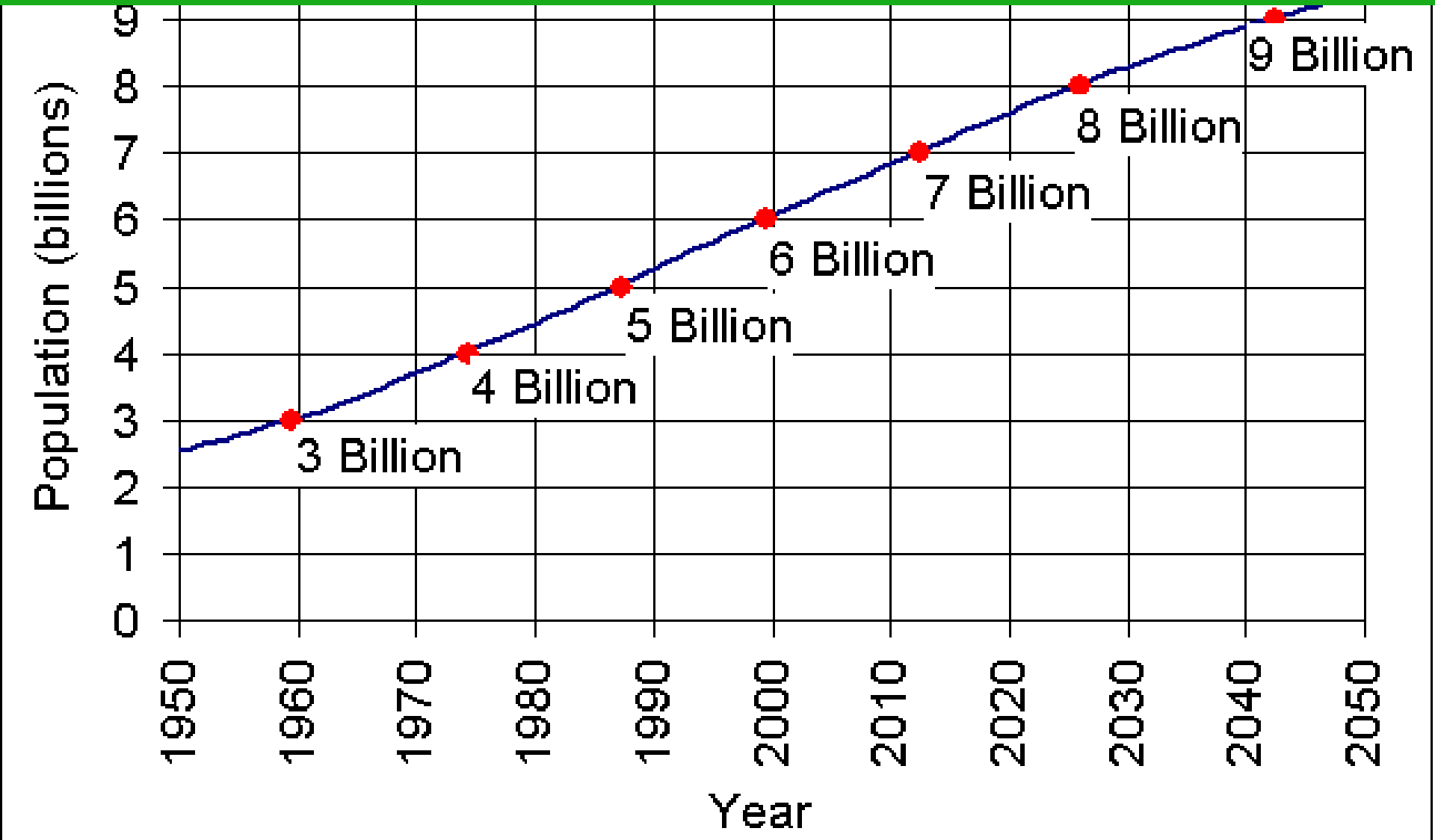
Partnerships help communications

"I'll call you back. I'm harvesting rice."

Partnerships mean cooperation instead of competition

Partnerships help address common threats

Common threats: Increasing demand for food



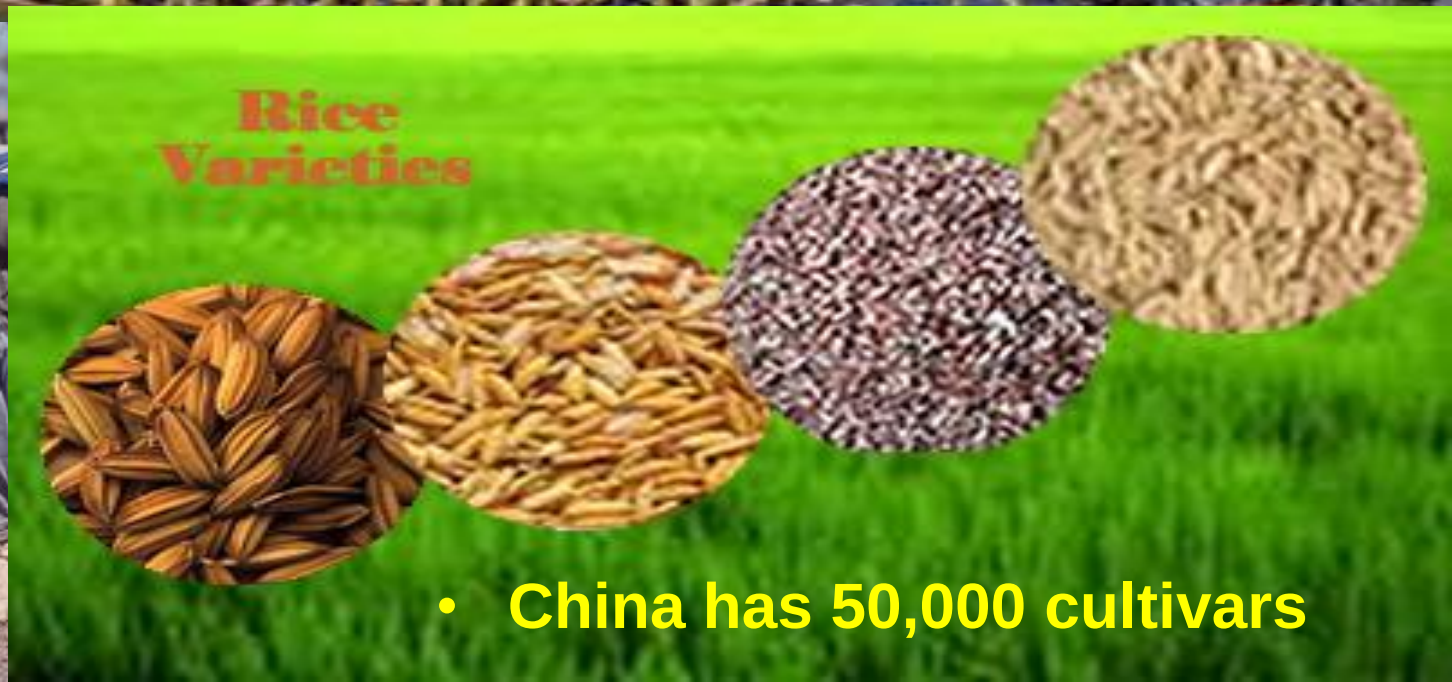
Source: U.S. Census Bureau, International Data Base, August 2006 version.

What are the ecological implications of 9 billion people?

- 30-40% more food required
- 1 billion ha of natural habitat converted to agriculture
- 2-3 times more nitrogen and phosphorus fertilizer required
- Twice as much water required
- 3 times more pesticide use

Common threats: Losing genetic diversity in crops and livestock

Biodiversity conservation means saving the genetic diversity provided by wild relatives of domestic plants and animals



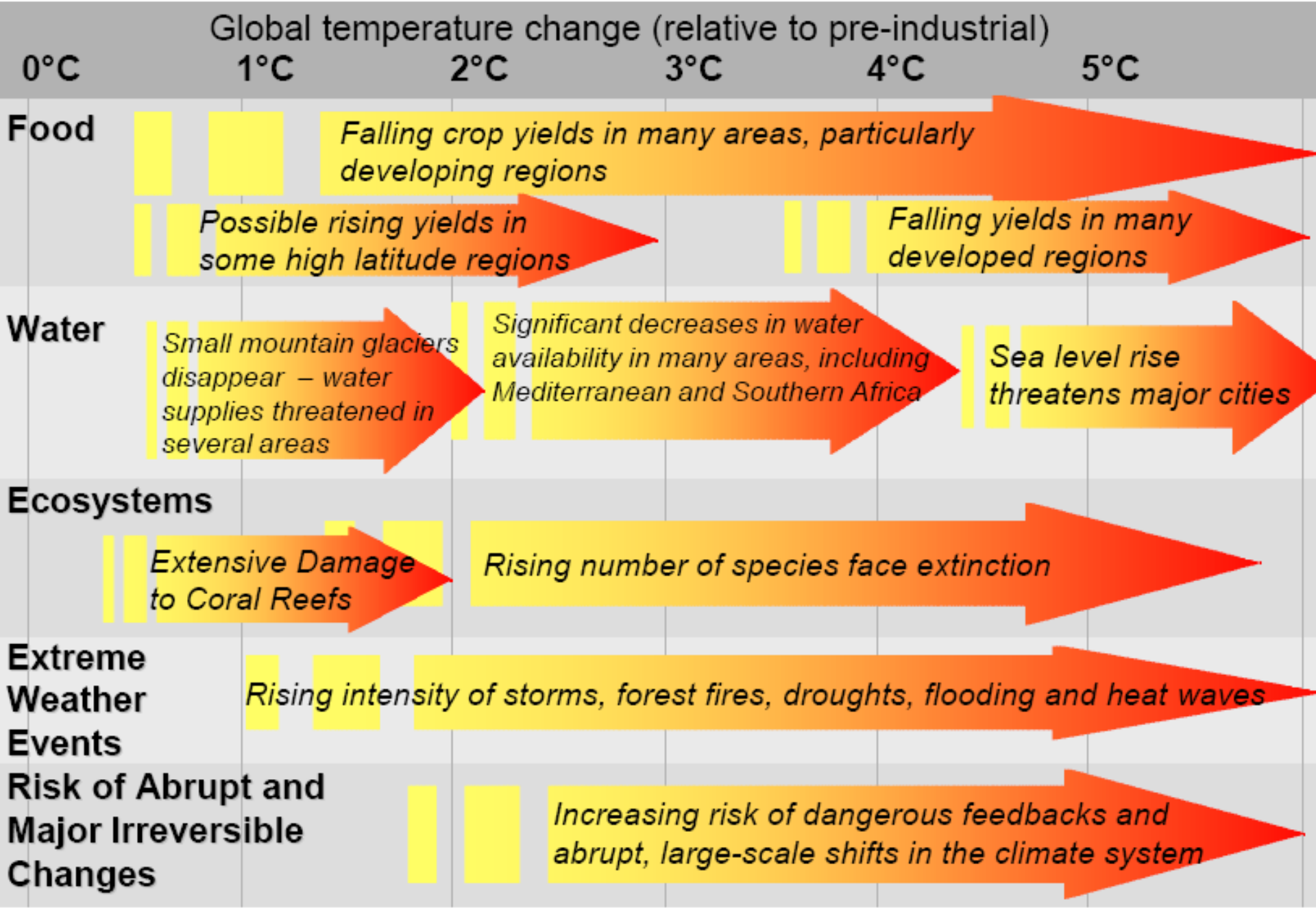
- **China has 50,000 cultivars**

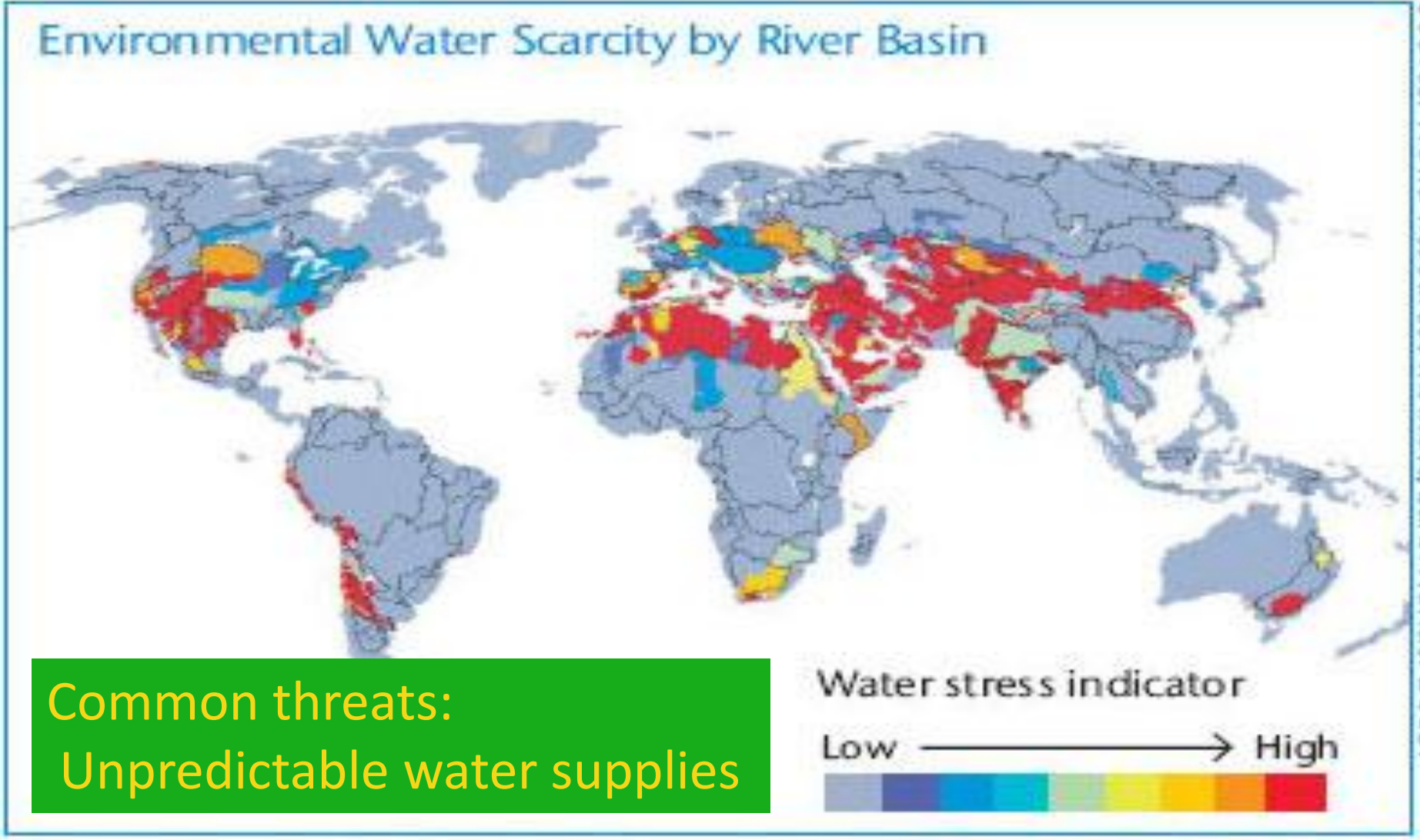
Common threats: Industrialized agriculture


Parque Nacional Pacaas Novos
Terra Indigena Rio Branco

Common threats: Climate change

Projected impacts of climate change





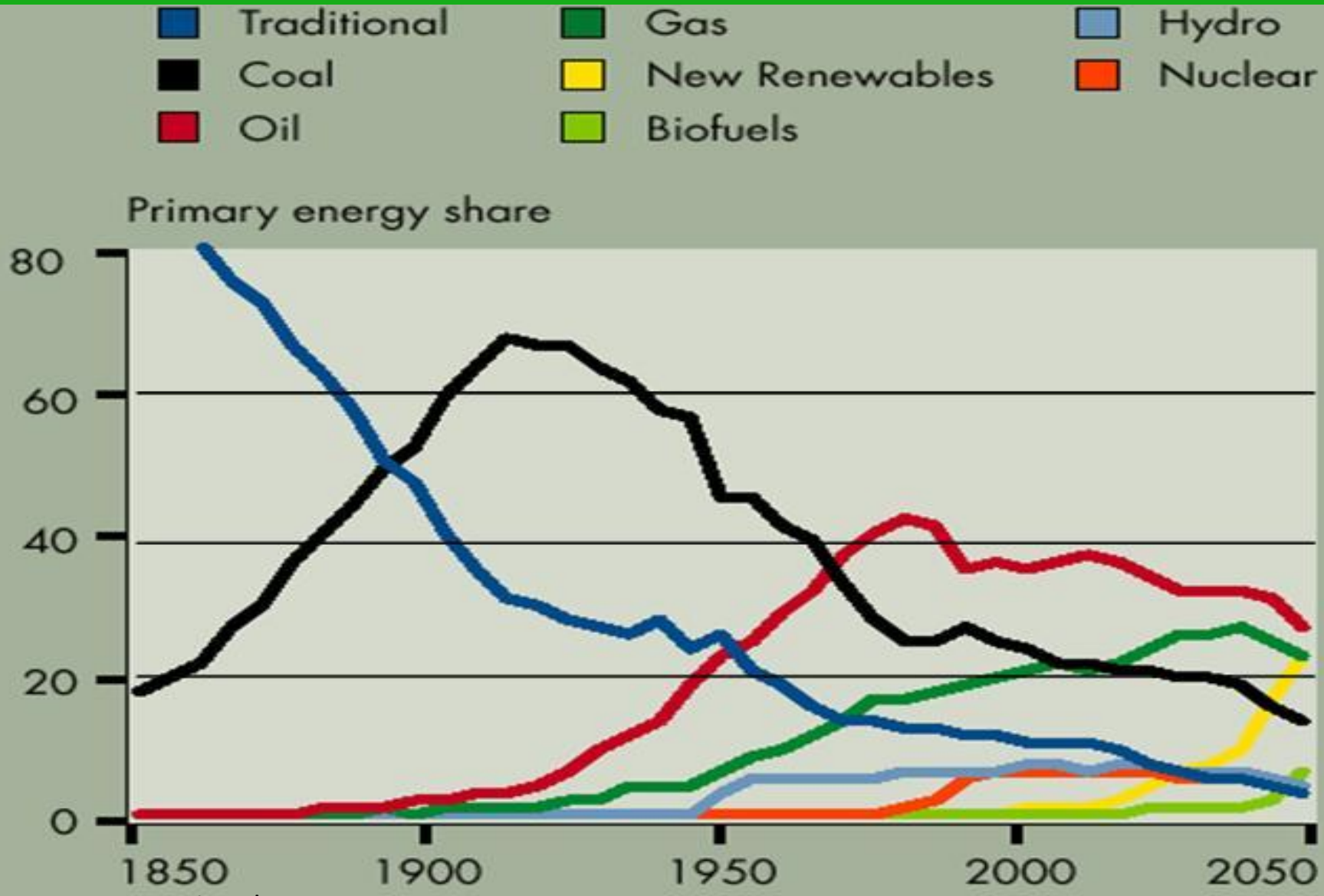
Common threats:
Unpredictable water supplies

The water stress indicator in this map measures the proportion of water withdrawal with respect to water available for human use. In higher risk areas, the amount of water removed from the system by human activities puts the ecosystem at risk by tapping into the water needed to sustain the integrity of the ecosystem.

New policies for linking water, climate change, and agriculture

- Build broader public support for agriculture, perhaps drawing on links to water and climate change.
- Enhance the body of science linking agriculture to water and climate change, including the economic dimensions.
- Make agriculture part of any agreements about climate change and water

Common threats: Changing energy supplies



Source: International Energy Agency

Nepal: 90% of energy comes from fuelwood

Domestic use of roundwood for fuel:

- 98% in Lebanon
- 66% in Jordan
- 44% in Turkey

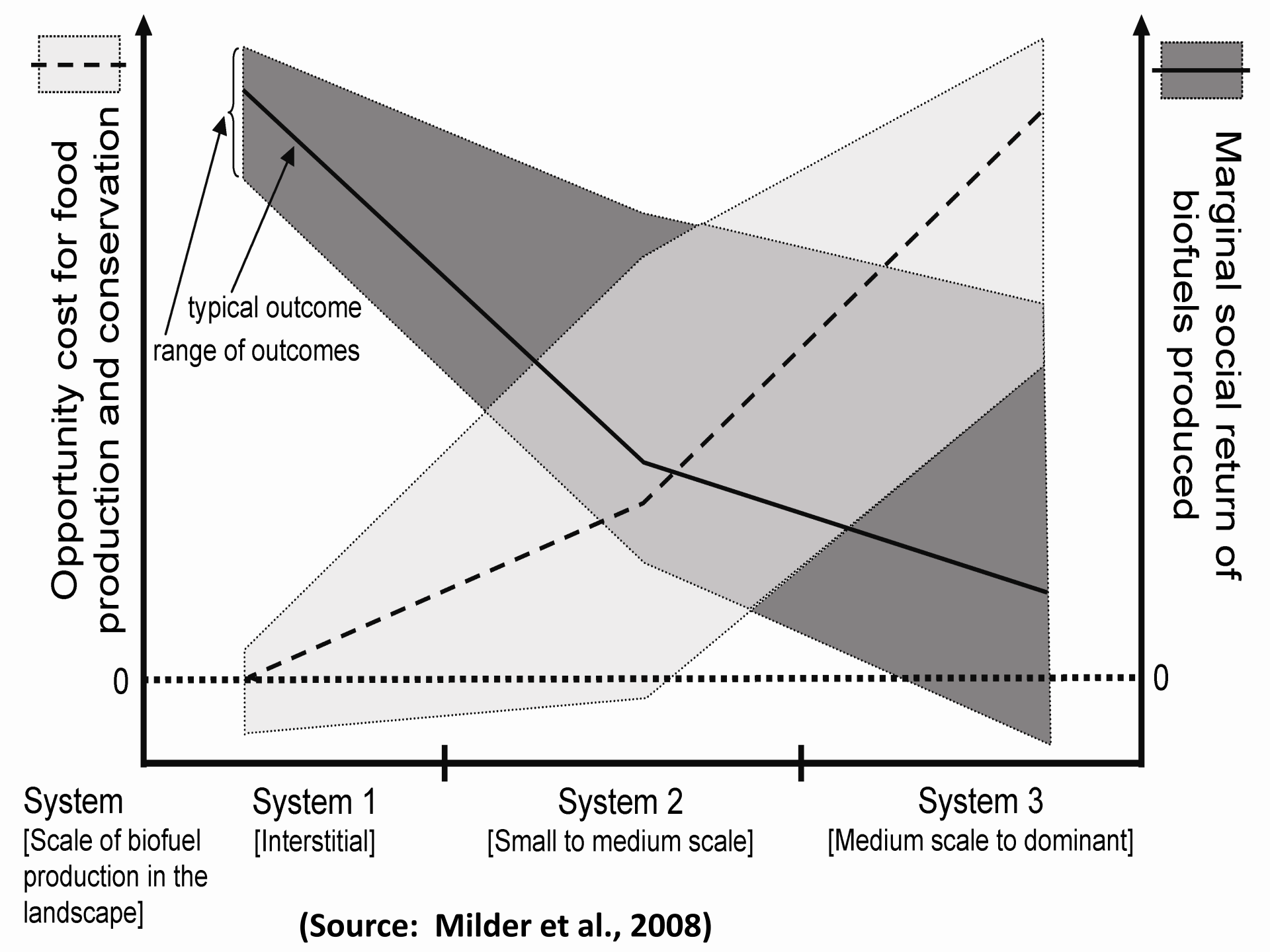
Globally, 2 billion people rely on traditional biomass fuels.

Three main systems of biomass production for energy

System 1. **Small-holder production for local use**

System 2. **Small-holder production with commerical processing**

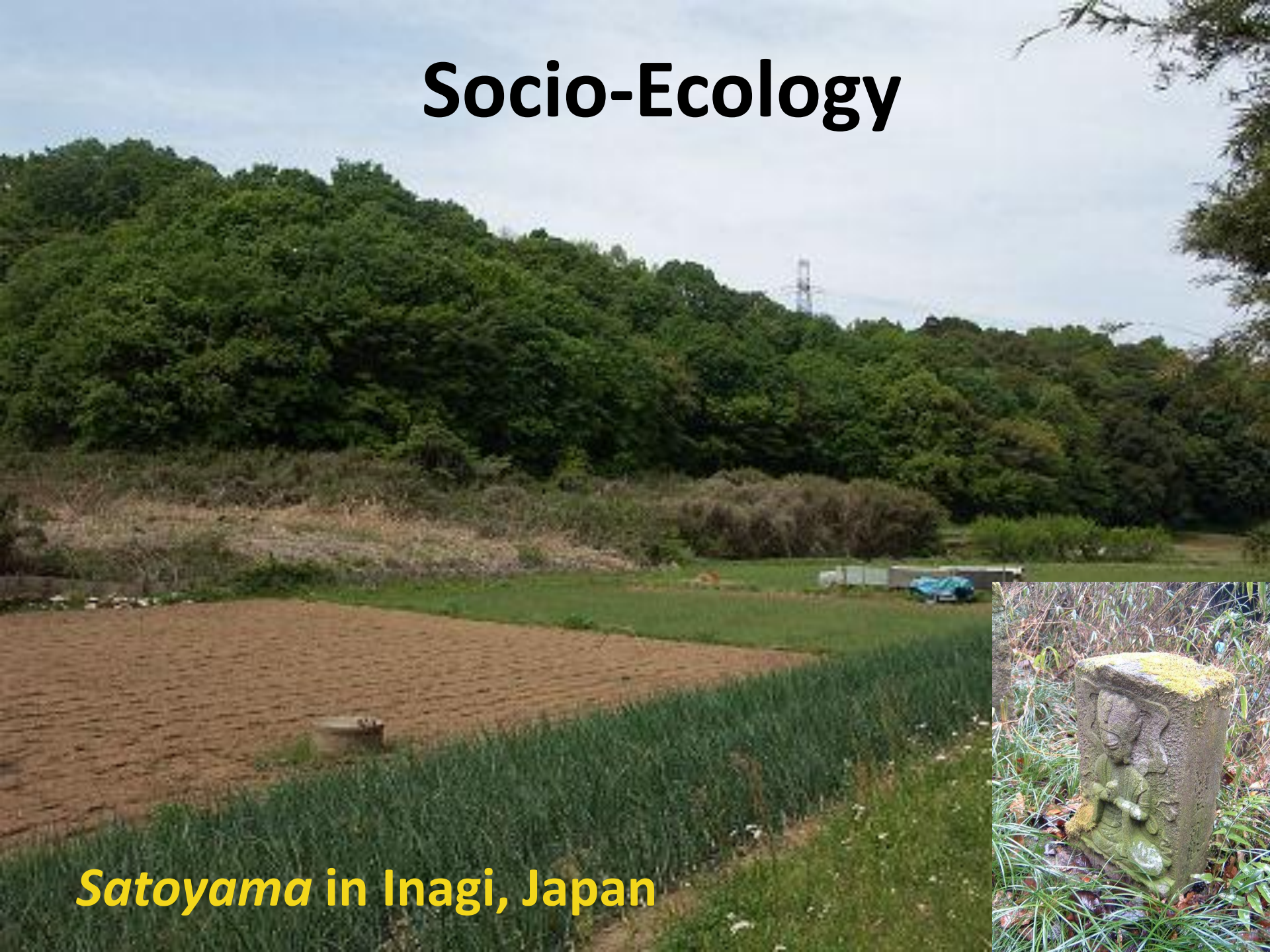
System 3. **Medium- and large-scale commercial production**



(Source: Milder et al., 2008)


Landscape Scale

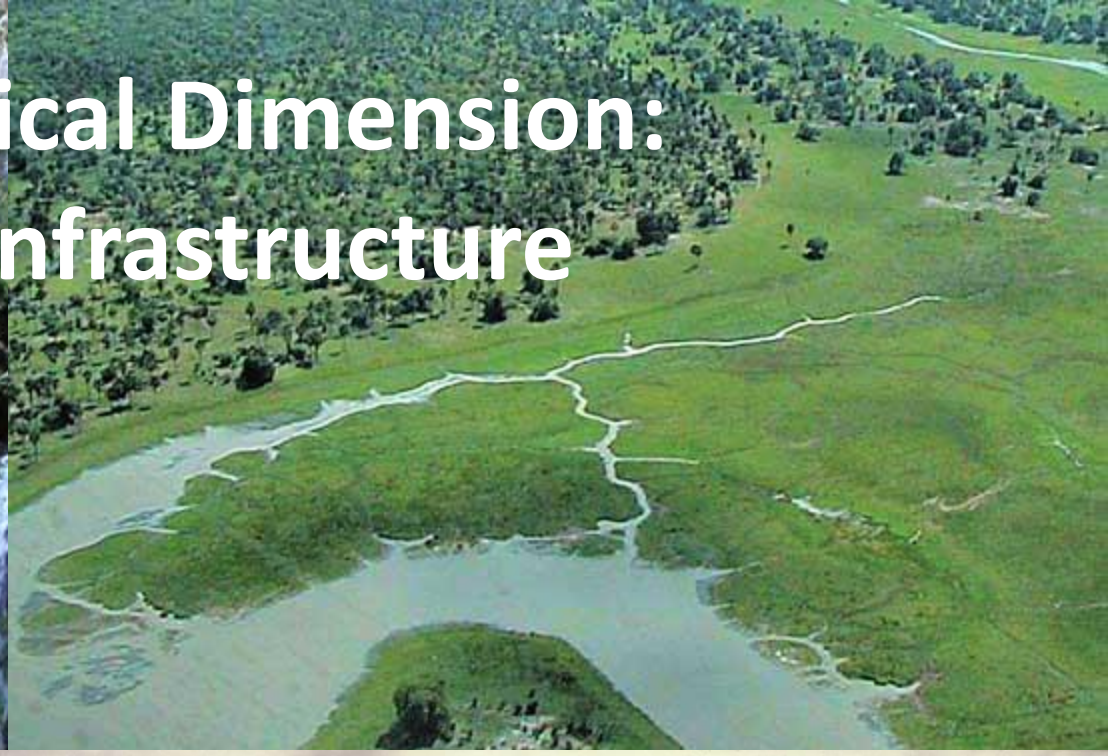
Socio-Ecology



Satoyama in Inagi, Japan

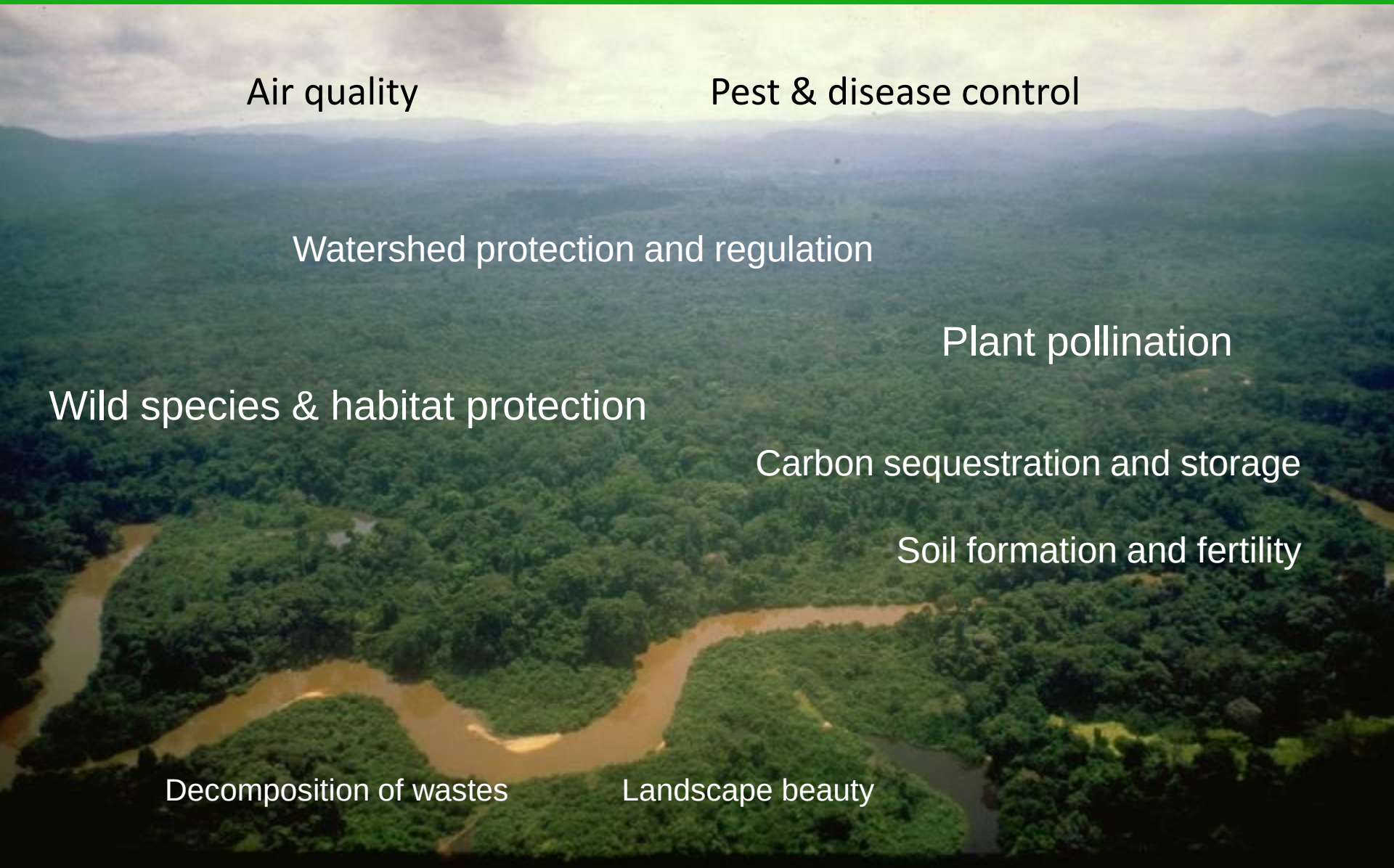
The Social Dimension: Human infrastructure

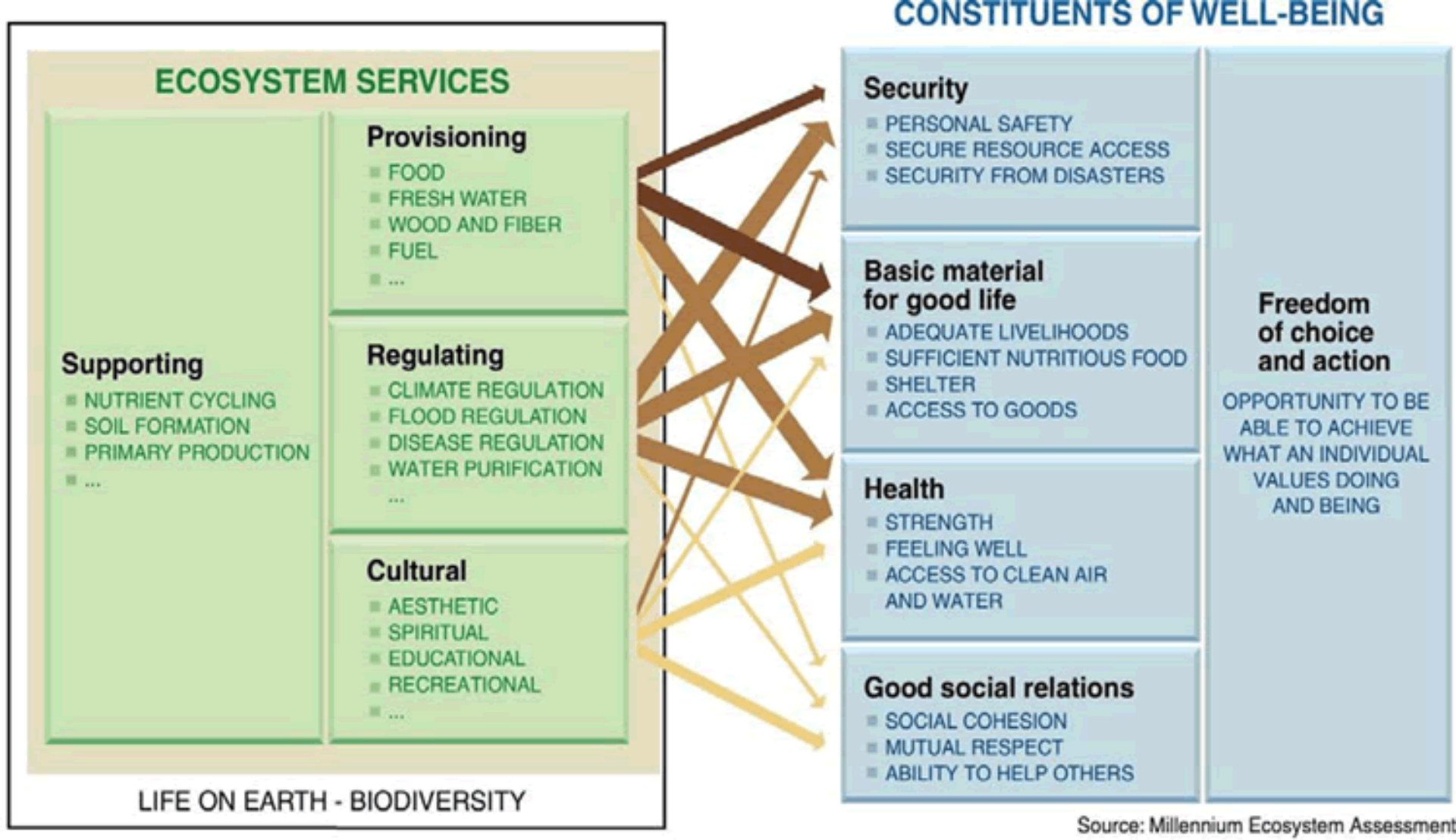
The Ecological Dimension: Nature's infrastructure




The *Satoyama* Initiative is seeking ways for these infrastructures to be mutually supportive

How forests help support the “natural infrastructure”





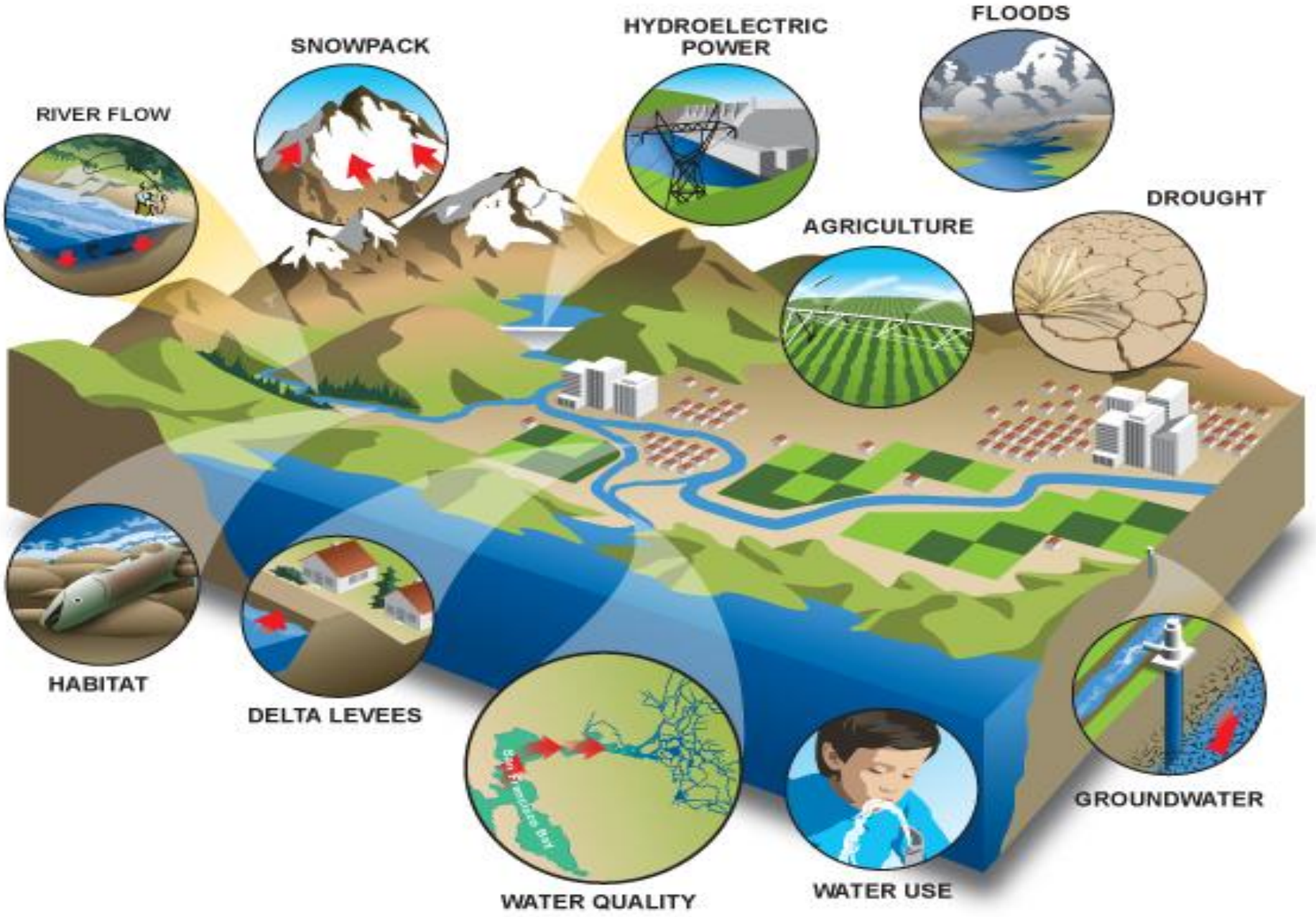
Source: Millennium Ecosystem Assessment

Ecosystems provide services to people

Water-related services:

- **Provision of fresh water for drinking, agriculture, electricity generating, etc.**
- **Regulation of floods and extreme weather events**
- **Purification of wastes**
- **Delivery of nutrient-rich sediments to flood plains**

These are worth US$7 trillion per year

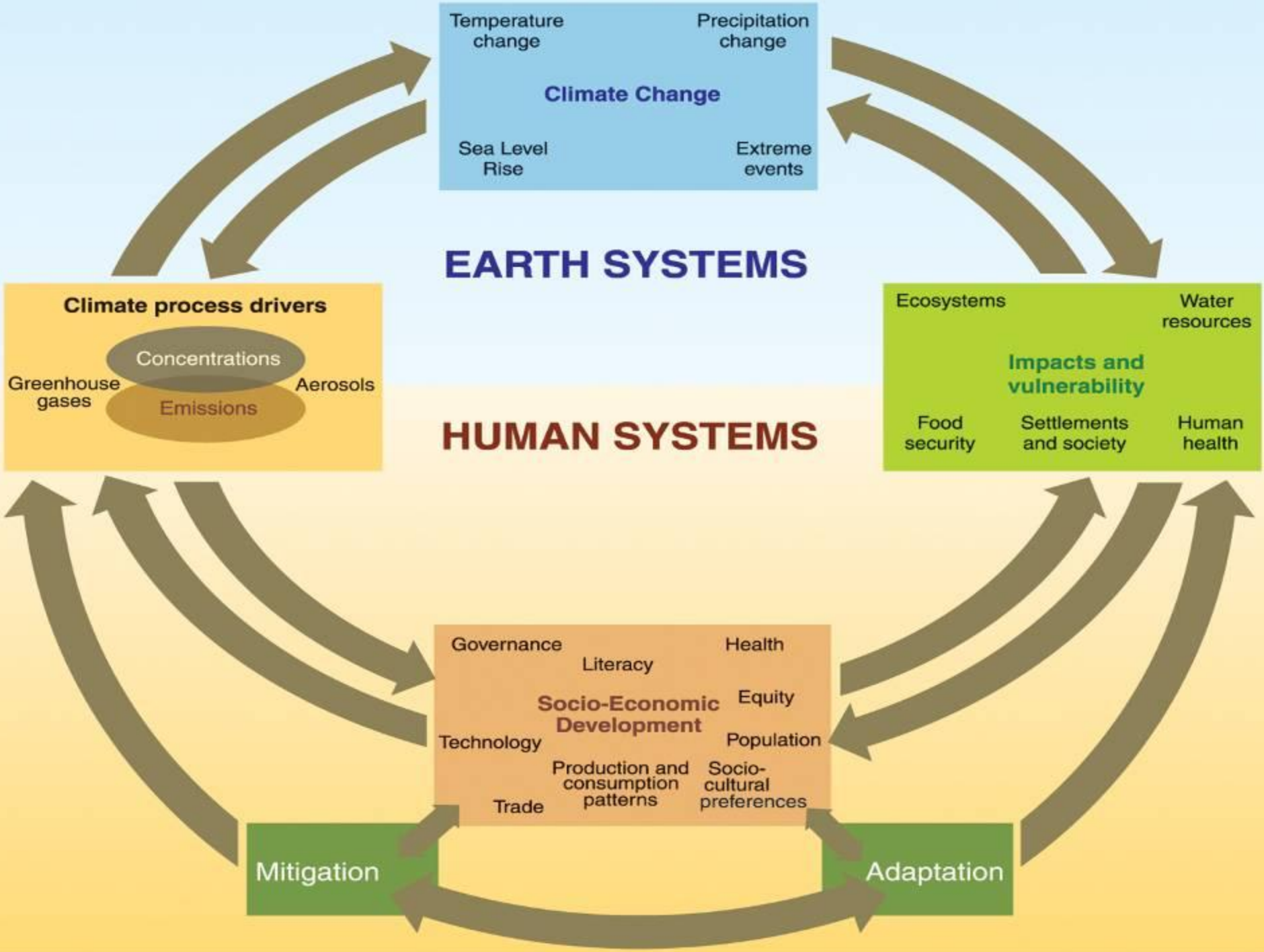

RIVER FLOW
SNOWPACK
HYDROELECTRIC POWER
FLOODS
AGRICULTURE
DROUGHT
HABITAT
DELTA LEVEES
WATER QUALITY
WATER USE
GROUNDWATER



Pollinators provide services worth $ 200 billion per year to agriculture



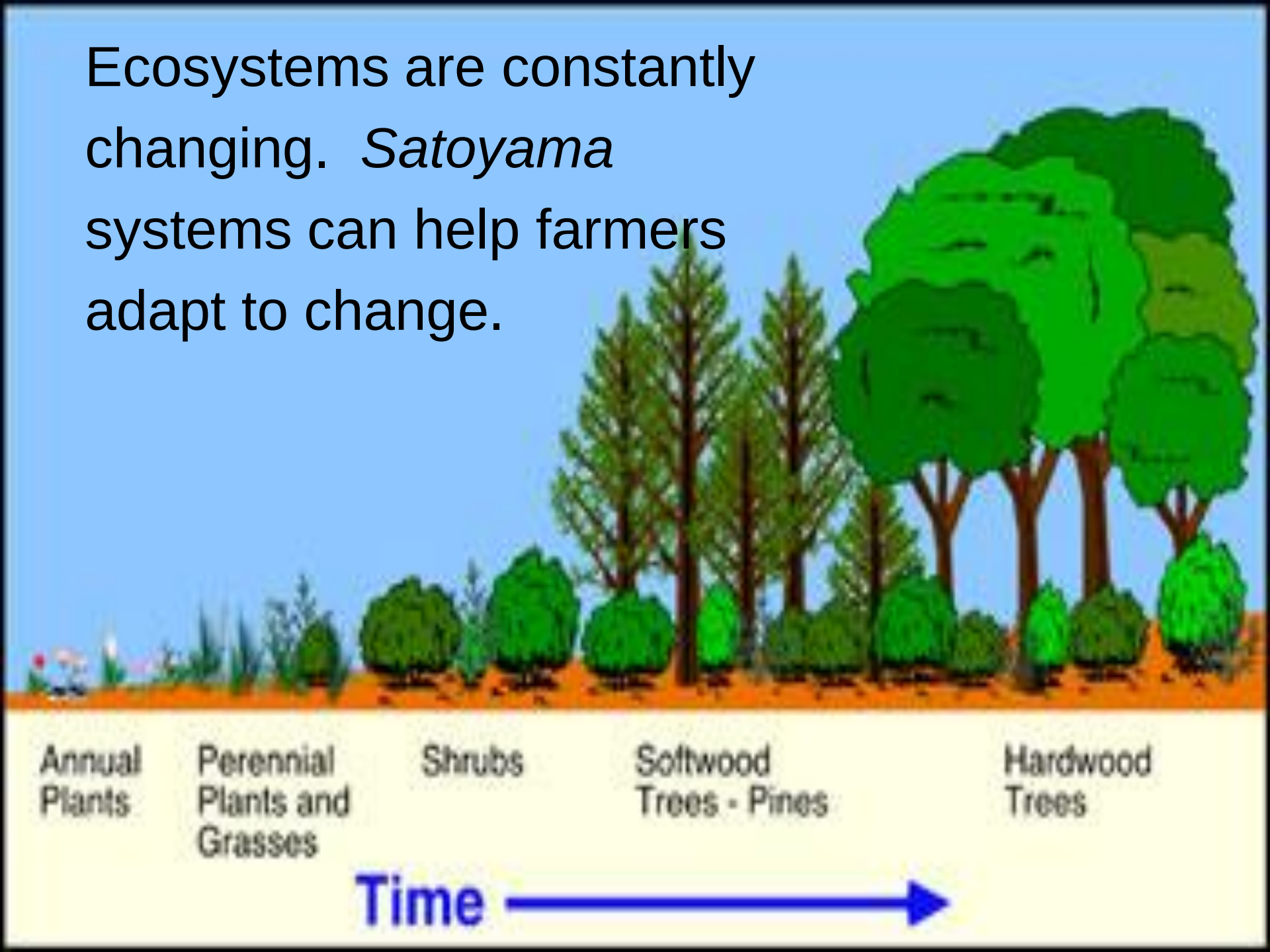
Many *satoyama*-type production systems are supported by spiritual links to the land


Temperature change
Precipitation change
Climate Change
Sea Level Rise
Extreme events
EARTH SYSTEMS
Climate process drivers
Concentrations
Greenhouse gases
Aerosols
Emissions
Ecosystems
Water resources
Impacts and vulnerability
Food security
Settlements and society
Human health
HUMAN SYSTEMS
Governance
Health
Literacy
Socio-Economic Development
Equity
Technology
Population
Production and consumption patterns
Socio-cultural preferences
Trade
Mitigation
Adaptation

Expectations


Satoyama approaches can help local people capture benefits from ecosystem services

Ecosystems are constantly changing. *Satoyama* systems can help farmers adapt to change.

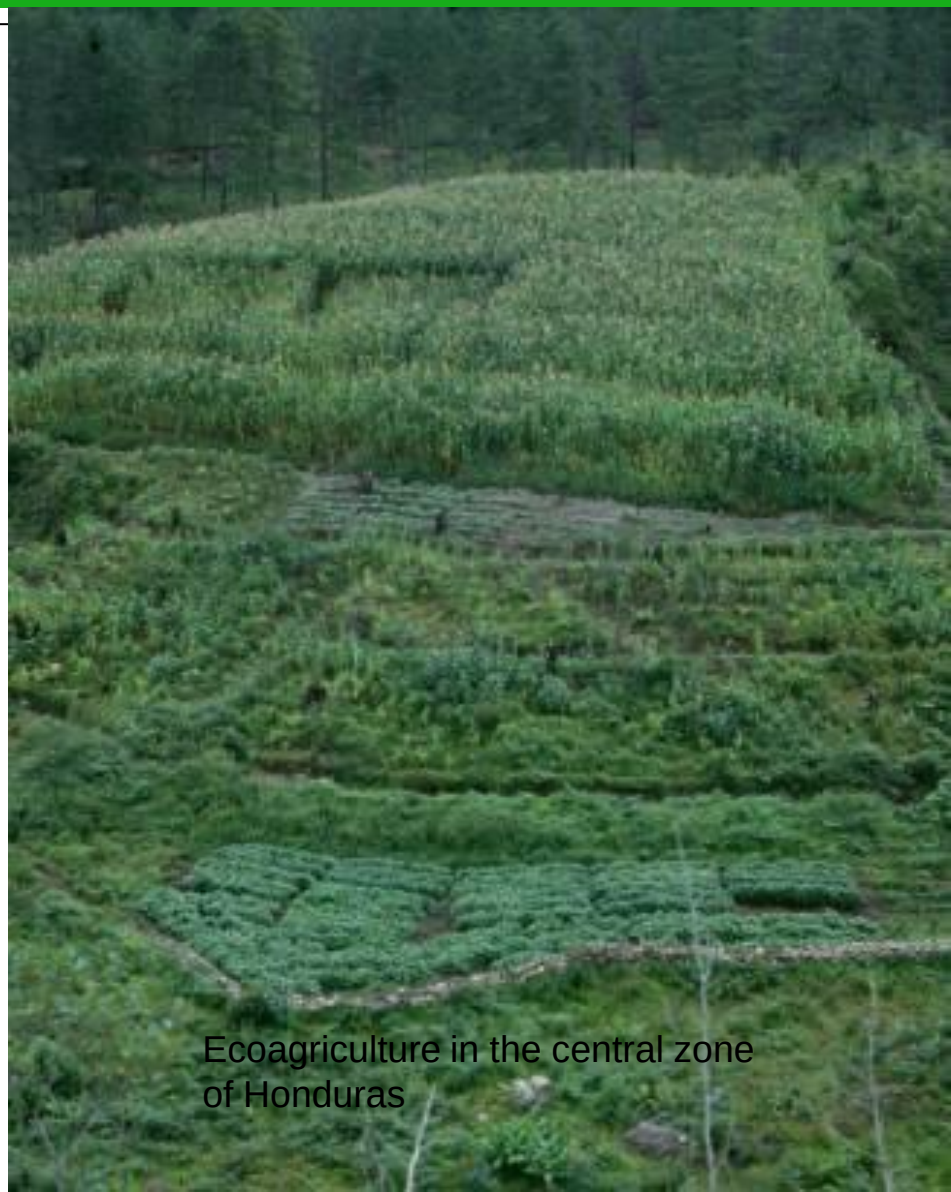


Satoyama can link agricultural development in the supply chain to ecosystem services

DESIGN PRINCIPLES FOR *SATOYAMA*

Developing agricultural systems compatible with nature

- Live fences, wind barriers
- Agroforestry
- Organic agriculture
- Shaded crops (cacao, coffee)
- Agroecological practices
- Multiple cropping
- Farming with the seasons



Ecoagriculture in the central zone of Honduras

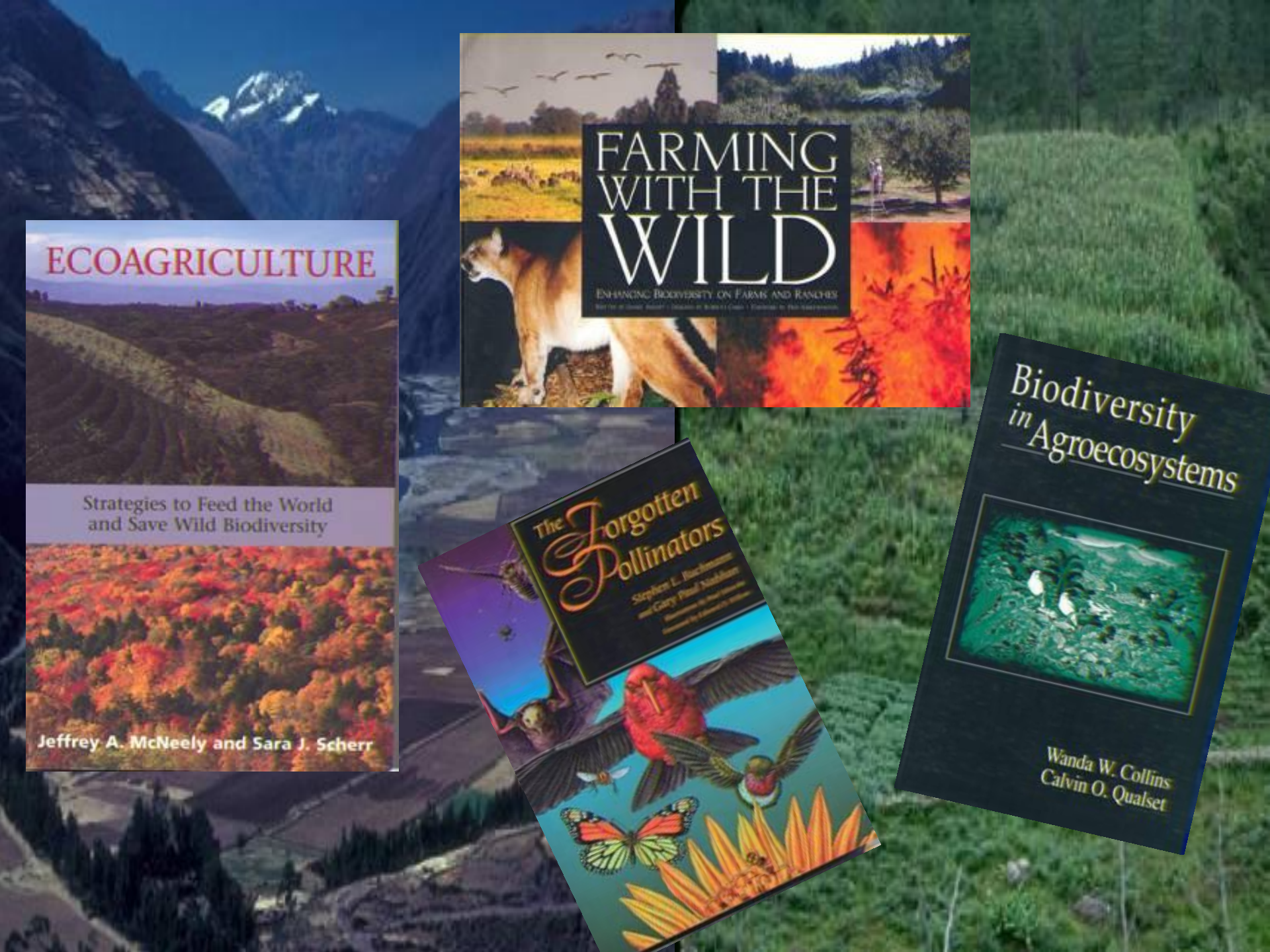
Developing farming systems compatible with nature

- Silvopastoral systems
- Cooperative corridors
- Adapted pastoralism
- Co-management of farms and wild species
- Permeable borders and forage banks
- Rotational cropping
- Perennial crop cultivation

Ecoagriculture in the Atlantic Forest of Brazil

Achieving positive synergies for agricultural production and ecosystems

- Increase input efficiency
- Enhance biological and ecological synergies
- Improve spatial organization of land use
- Manage wild species to benefit farming
- Economies of scale through collective action
- Substitute natural capital for financial capital
- Improve the flow of information


ECOAGRICULTURE
Strategies to Feed the World and Save Wild Biodiversity
Jeffrey A. McNeely and Sara J. Scherr
FARMING WITH THE WILD
Enhancing Biodiversity on Farms and Ranches
The Forgotten Pollinators
Biodiversity in Agroecosystems
Wanda W. Collins
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