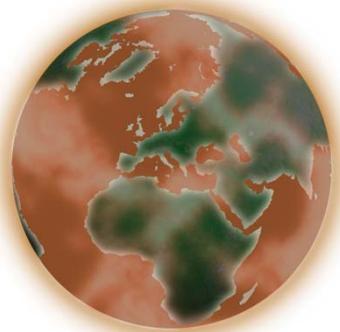


Integrated Earth-System Approach



Integrated Earth-System Approach



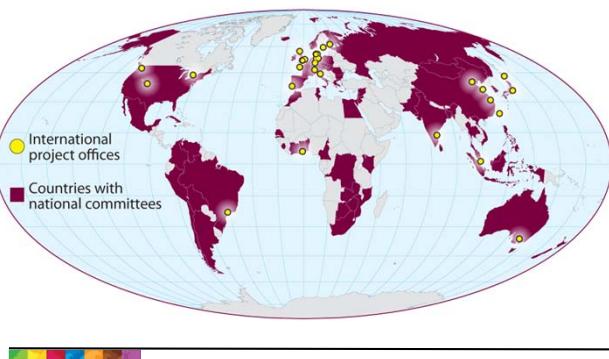
Integrated Earth-System Approach



Integrated Earth-System Approach



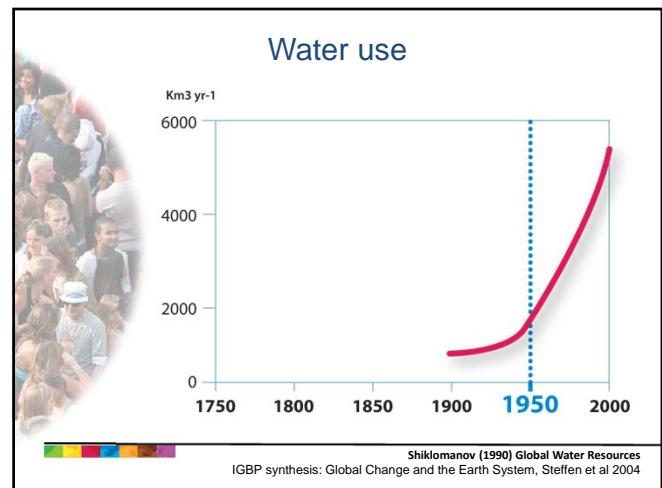
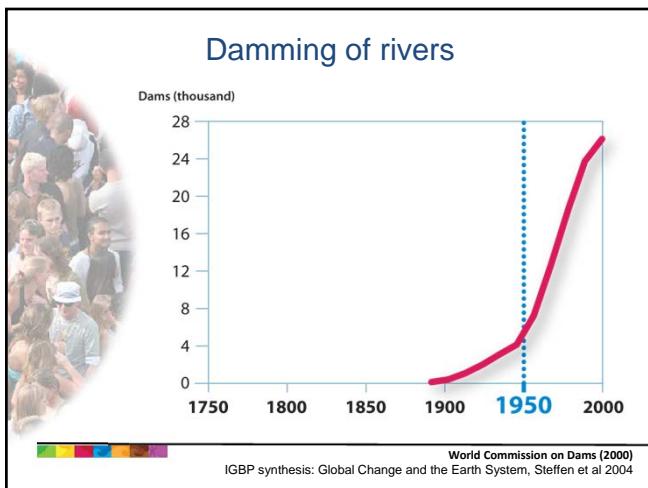
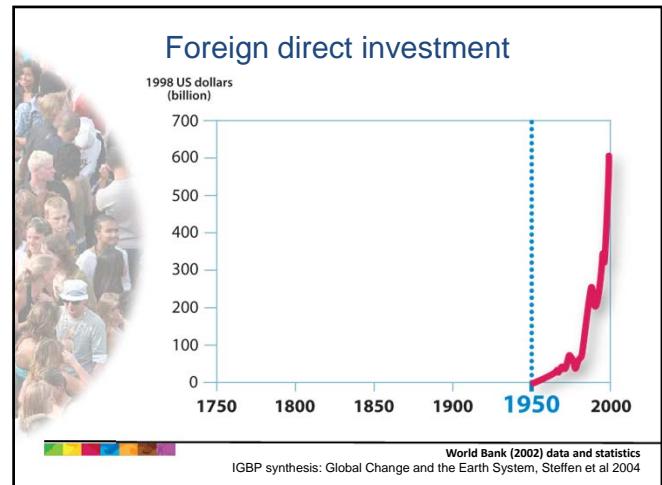
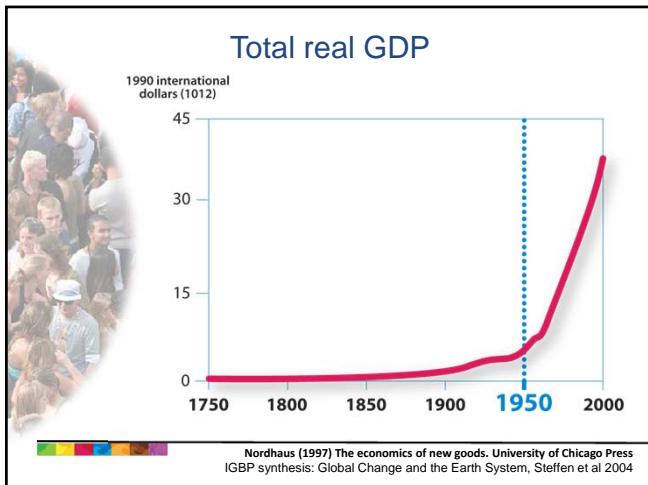
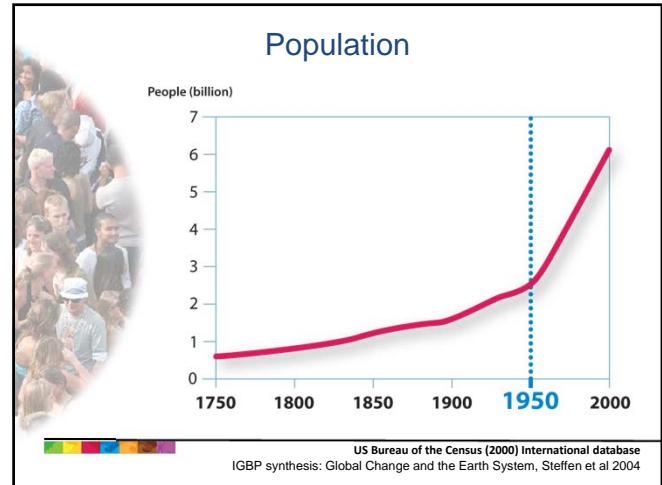
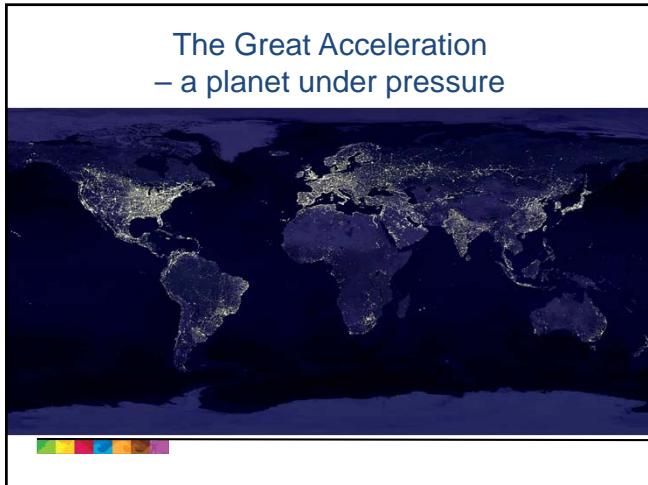
National Committees and IPOs

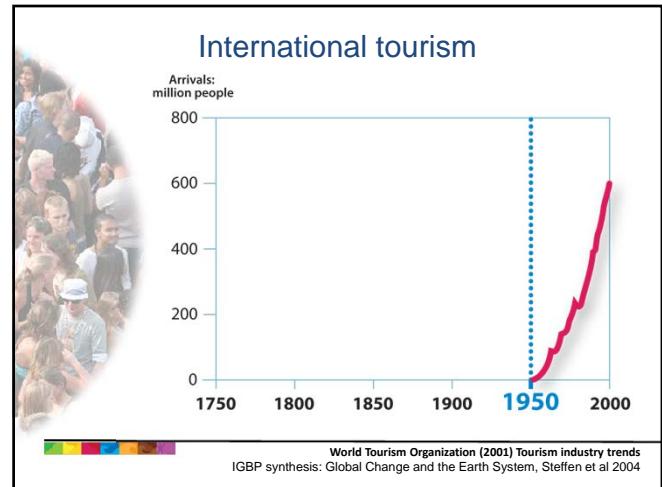
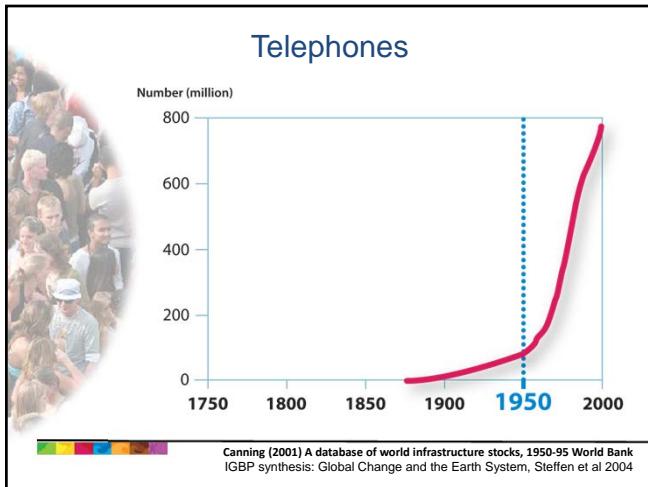
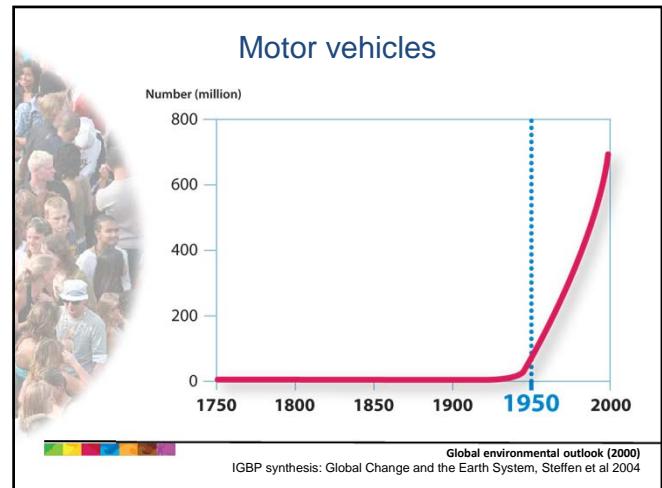
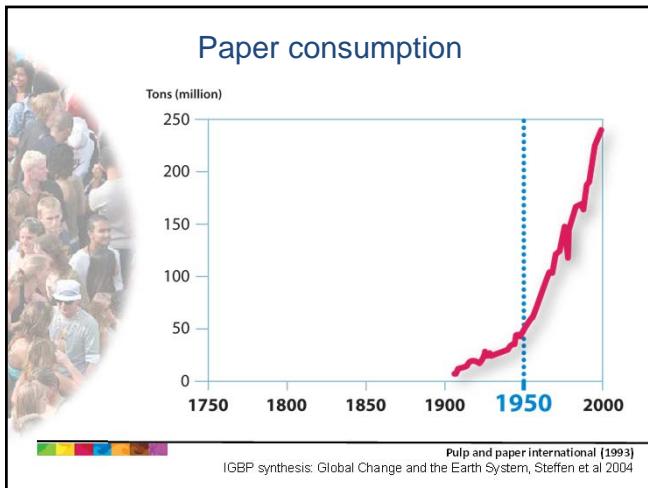
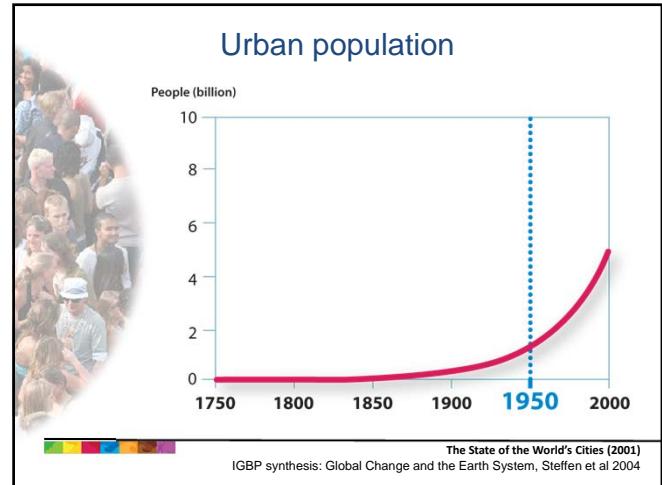
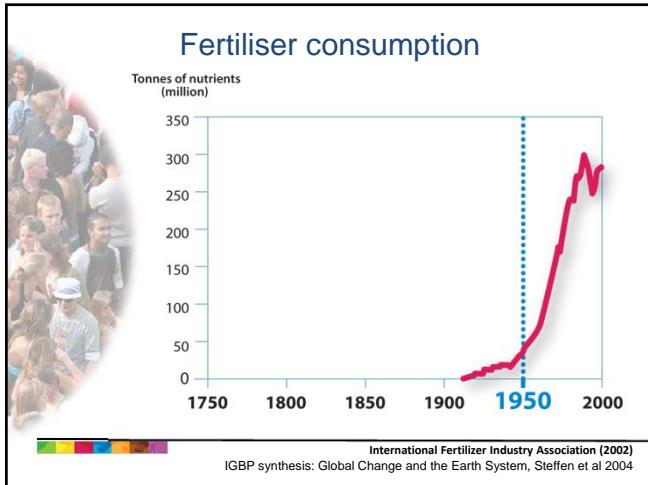


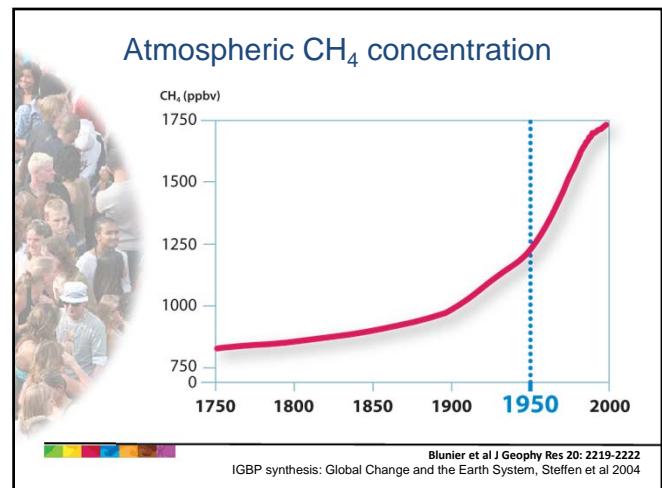
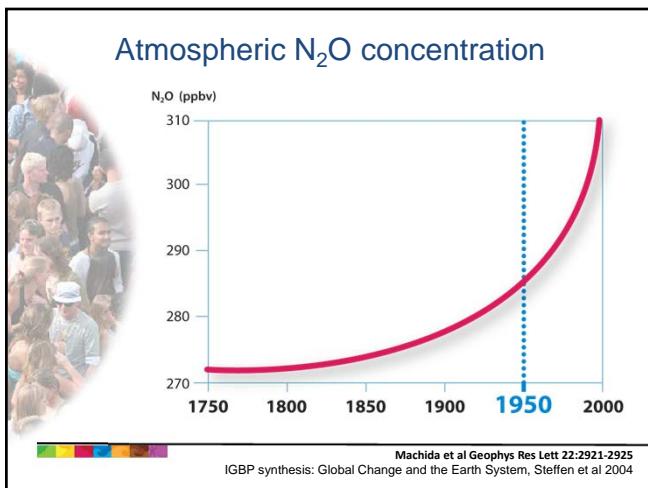
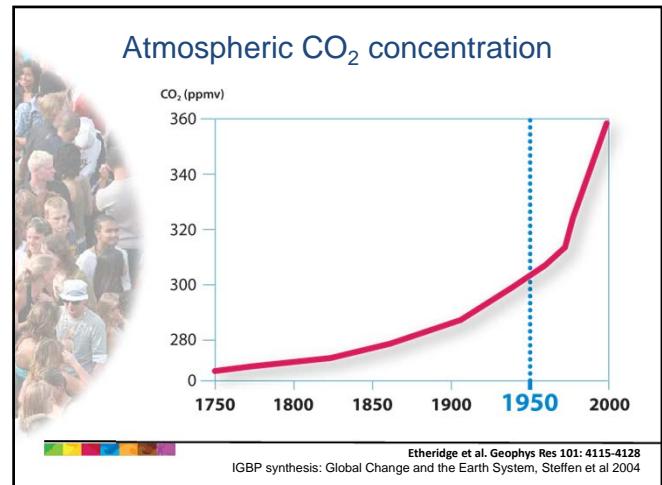
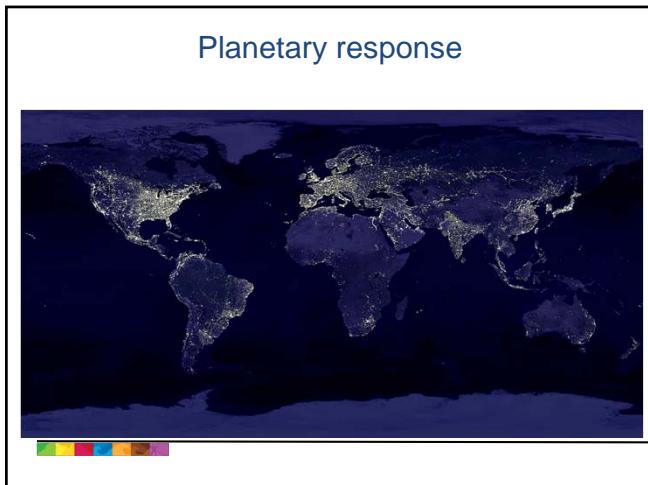
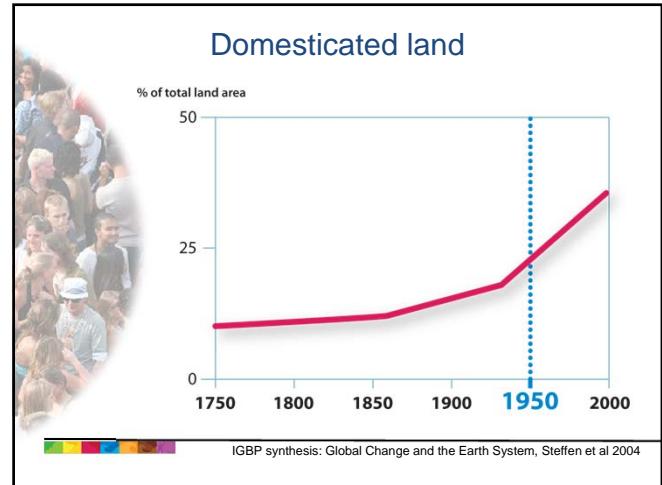
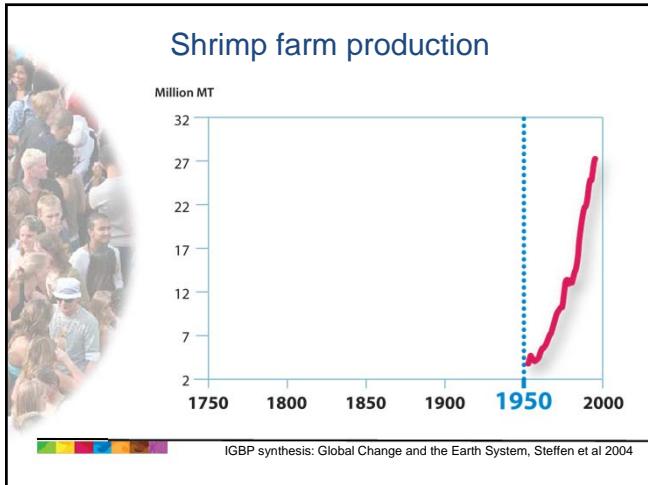
“Our foot is stuck on the accelerator and we are heading towards an abyss.”

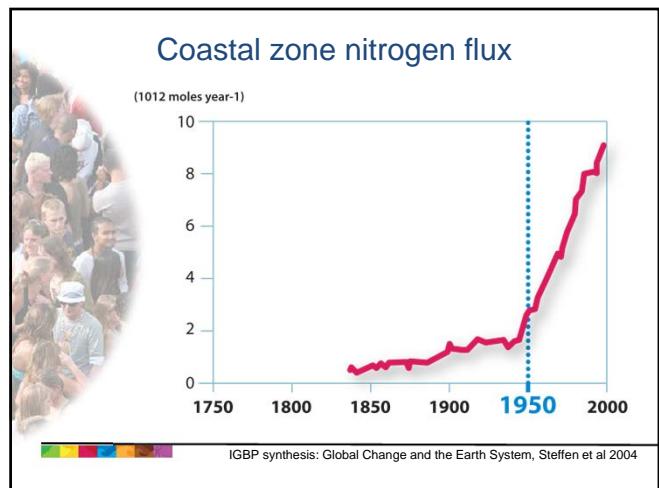
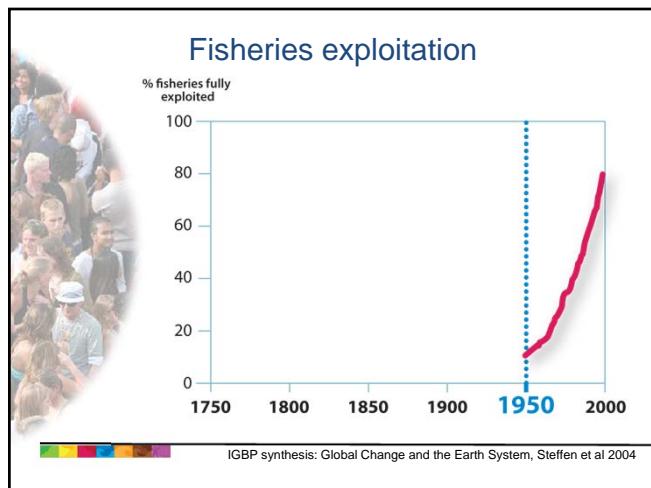
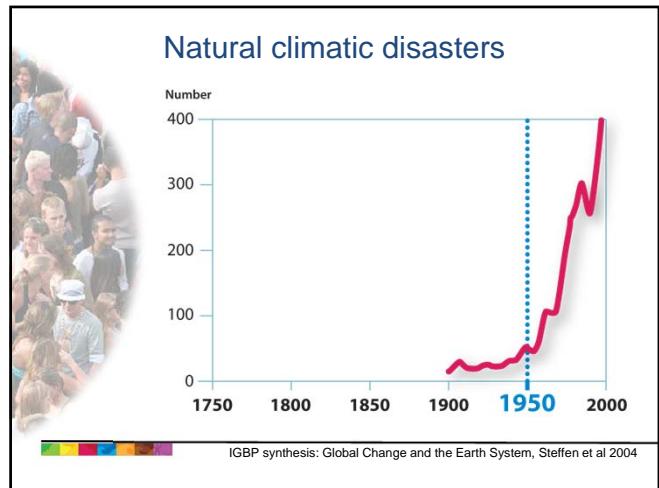
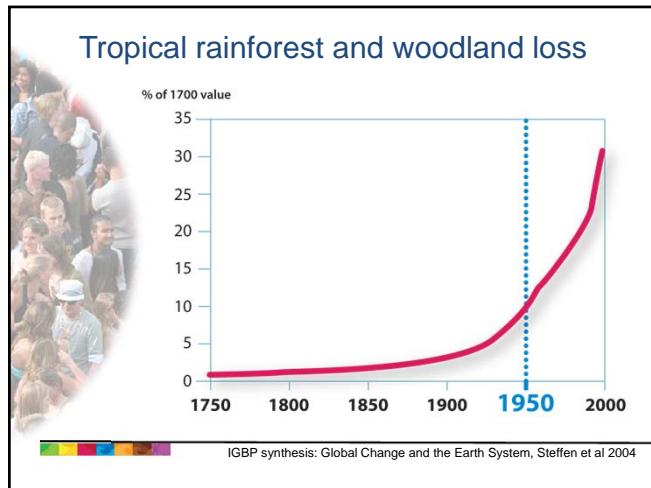
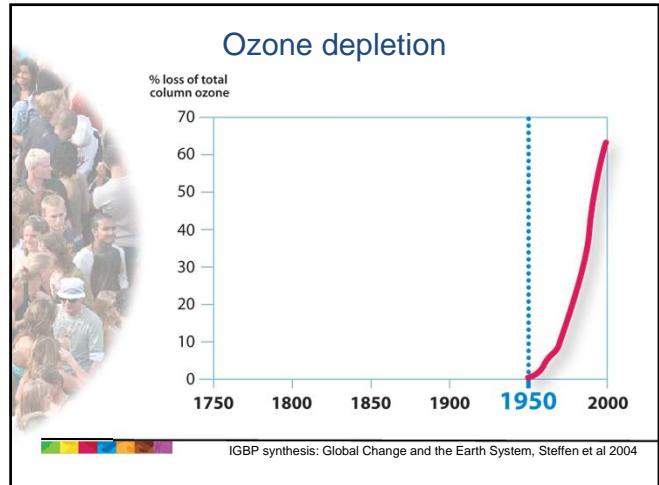
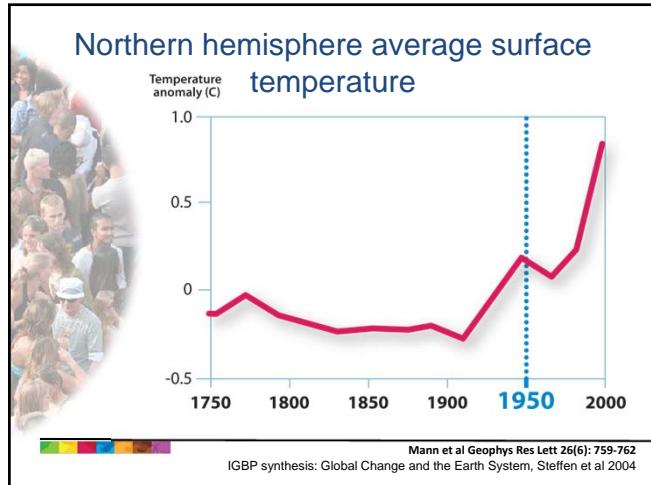
Ban Ki-Moon

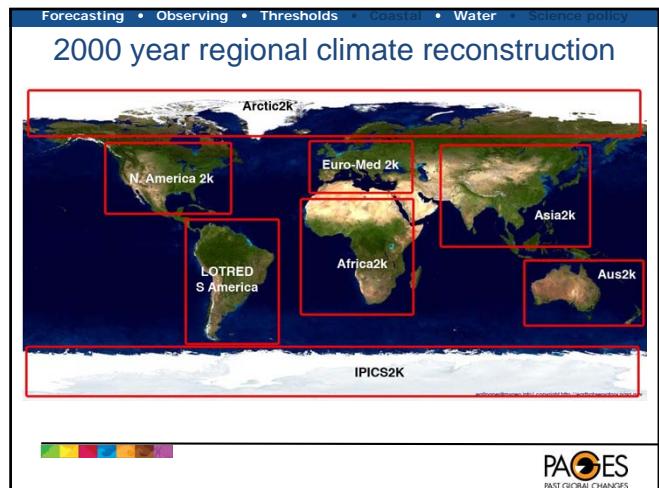
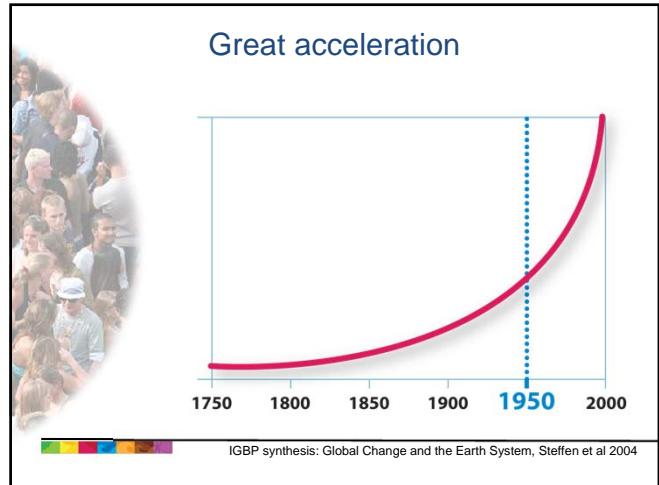
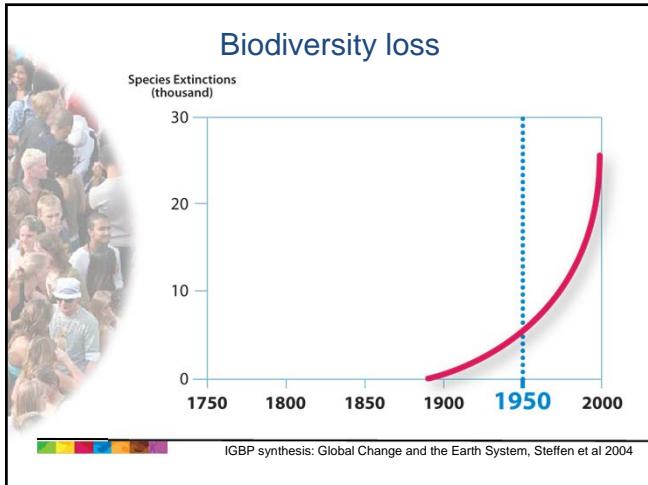


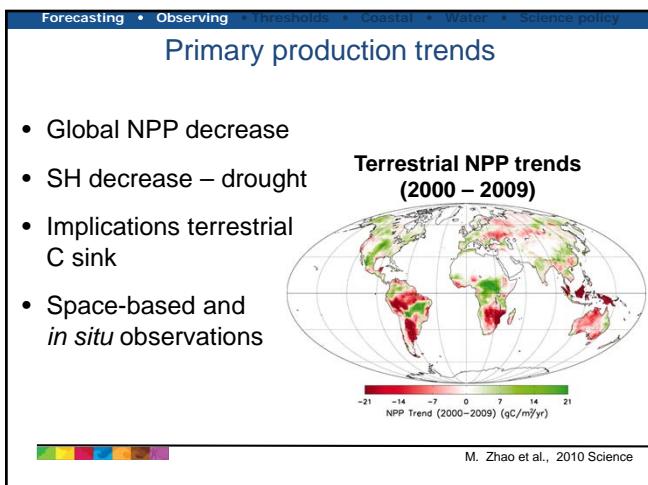
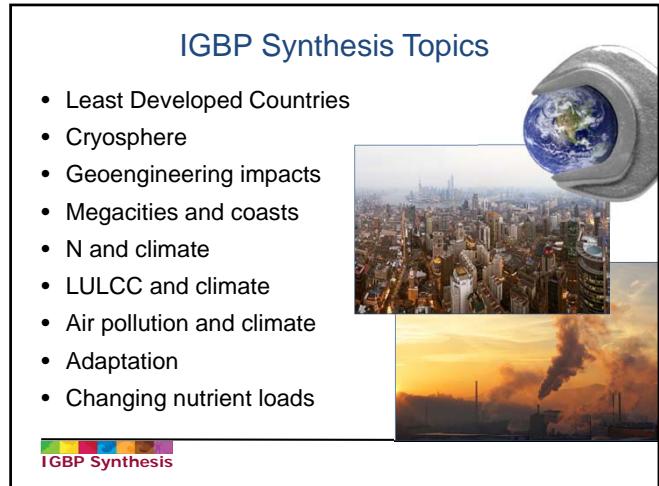
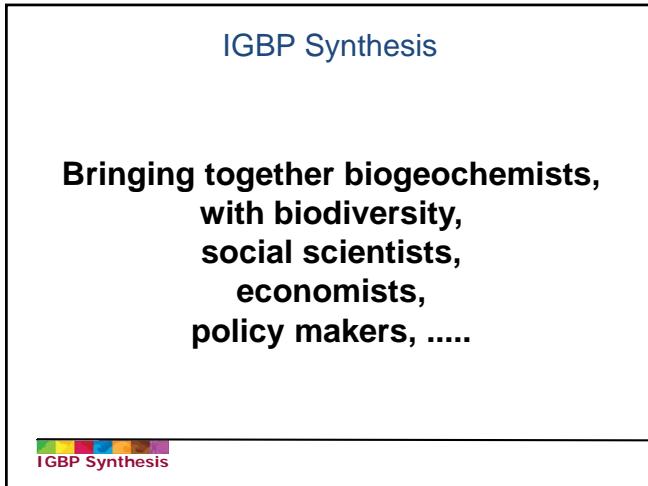
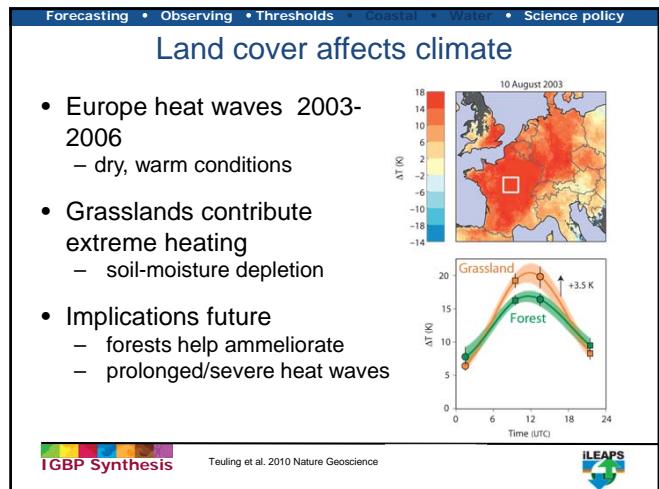
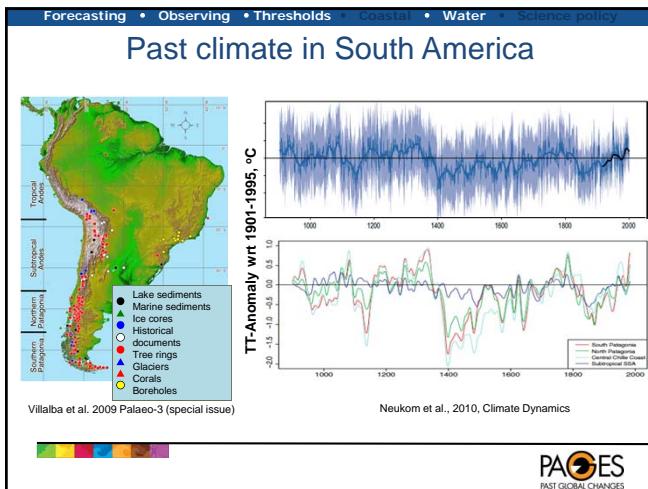












Forecasting • Observing • Thresholds • Coastal • Water • Science policy

Science-policy interaction

Land Grab in Africa

- Magnitude of land deals
- Throughout Africa
- Teleconnections and land-scarcity

GLP REPORT
THE GLOBAL LAND PROJECT INTERNATIONAL PROJECT OFFICE
GLP - A SOIYU RESEARCH ASSOCIATION OF CHINA & IAP

Land grab in Africa
Emerging land system drivers in a teleconnected world

Friis and Reenberg, 2010

Global LAND Project

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Sustainability in urbanizing planet

Urbanization and Built Environments

- If 3.2 billion additional people by 2100
- Mostly in cities of 1 million
- Require 3200 cities of 1 million over 89 years
- 89 years = 32485 days
- 3200 cities over 32485 days
- ~ 1 new city of 1 million every 10 days

Karen Seto 2011

Forecasting • Observing • Confining • Coastal • Water • Science policy

Report on Atmospheric Chemistry in Megacities: Asia Chapter

Population Density (persons/km²)

CO emissions ($\times 10^{-11}$ kg(CO) m⁻² s⁻¹)

NO_x emissions ($\times 10^{-11}$ kg(N) m⁻² s⁻¹)

SO₂ emissions ($\times 10^{-11}$ kg(SO₂) m⁻² s⁻¹)

IGBP Synthesis

IGAC

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Air Pollution & Climate:

Climate negotiators ↔ Air quality managers

Climate negotiators ↔ Climate scientists/moderators

Air quality managers ↔ Air pollution scientists/moderators

Climate scientists/moderators ↔ Air pollution scientists/moderators

BETTER

WORSE

IGBP Synthesis

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Air Pollution & Climate:

2nd Workshop
Air Pollution and Climate: A Science-Policy Dialogue
With a focus on Asia
7 – 10 November 2011
Taipei, Taiwan

Sponsored by the Taiwan Environmental Protection Agency

OBJECTIVES

Create a science-policy dialogue

Define the air pollution and climate change challenge in Asia

Develop a strategy for a multidisciplinary programme for Asia

IGBP Synthesis

For more information contact megan@igacproject.org

IGAC

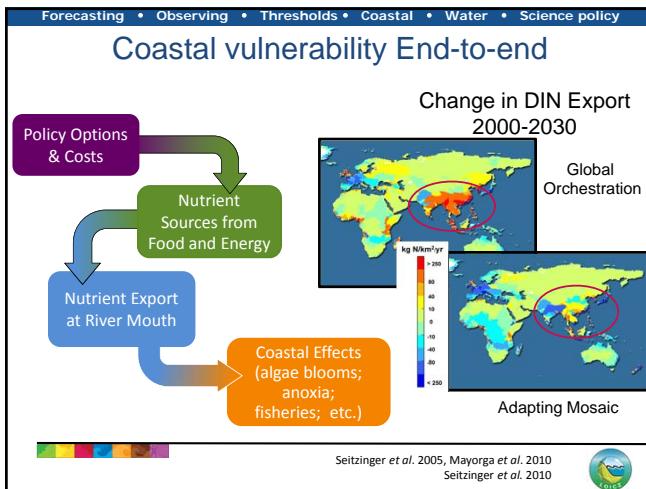
Forecasting • Observing • Thresholds • Coastal • Water • Science policy

Coastal vulnerability, Freshwater security

- 24 of 33 deltas sinking
- Multiple stresses
 - urbanization
 - water, mineral mining
 - land use/hydrology
 - sea level rise
- Future projections

Syvitski et al. 2009
Nature Geoscience

GWSP



GEC and sustainable development: needs of least developed countries

- Natural hazards and disasters – scenarios socio-economic consequences
- Ecosystems and water
- Indigenous knowledge – transferability – climate change

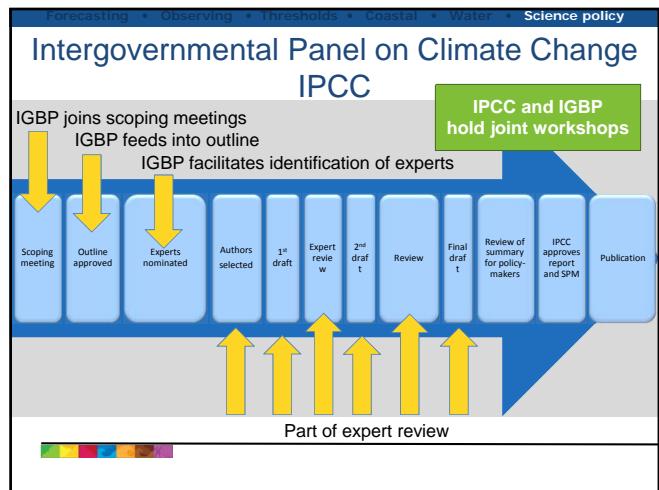
IGBP Synthesis Lead: Pauline Dube, Botswana

Freshwater security

Changes in the cryosphere of arid Central Asia

- Water availability, management
- Hazards
- Vulnerability, adaptation strategy
- Peer-reviewed publications
- Reports for policy-makers

IGBP Synthesis Qin Dahe, Lead



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Nitrogen and Climate

- IGBP co-sponsors workshops – with IPCC
- Latest scientific findings – emerging issues

Workshop on
Nitrogen and Climate
*Interactions of reactive nitrogen with climate change
and opportunities for integrated management strategies*

Amsterdam
31 October - 1 November, 2011

IGBP TAP IPCC

IGBP Synthesis

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Key scientific findings, priorities, uncertainties

Feeding into UNFCCC Subsidiary Body for Scientific and Technological Advice (SBSTA)

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UN High-Level Global Sustainability Panel

- Interconnected challenges: interconnected solutions
- Overcome inertia
- Foundation for beyond Millennium Development Goals

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IGBP

To provide essential scientific **leadership** and knowledge of the **Earth system** to help guide society onto a **sustainable** pathway during rapid global change

Sylvia.Seitzinger@IGBP.kva.se

Thank you!

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Arctic Coastal Change

- Physical, ecological, human dimensions, governance
- Socio-ecological approach to coastal change in the Arctic
- Monitoring, detecting, modeling, projecting Arctic coastal change
- Adaptation and governance
- >10 countries


IASC


Globe


Waves

State of the Arctic Coast 2010
Scientific Review and Outlook





