

An IPCC Special Report

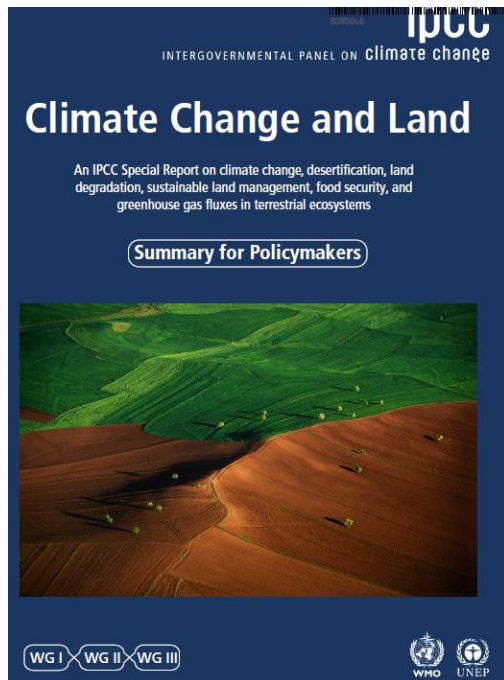
Climate Change and Land

Basics

- Land use expansion and intensification: 70% of the ice-free global land area in direct use
- Climate change. Temperature rises more over land more than in the global mean
- Agriculture (food), Forestry, Ecosystem services, Biodiversity, Livelihoods, Carbon cycle, ...
- Impacts already

The Report

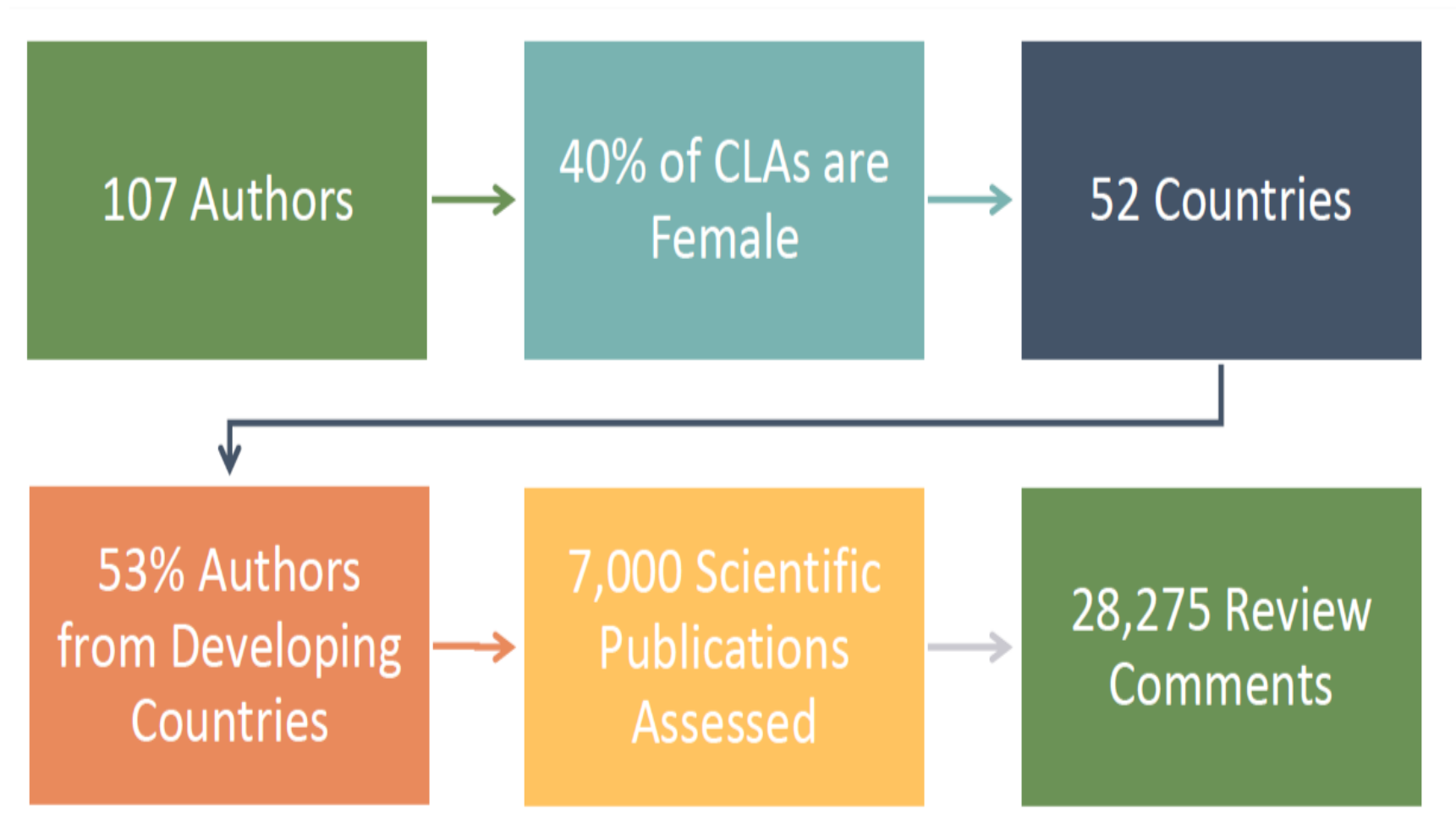
Summary for Policymakers



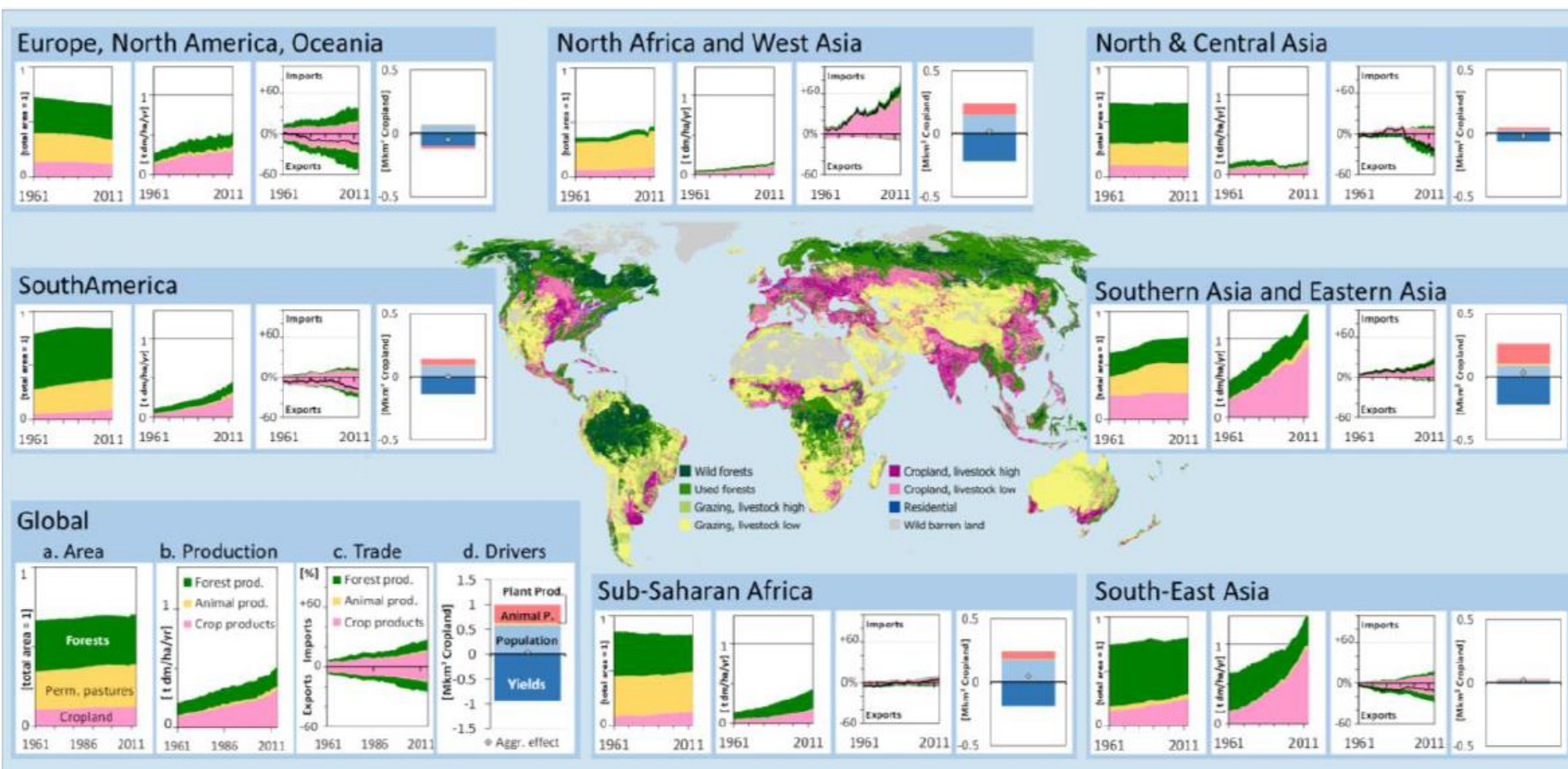
Full report

- Framing and Context
- Land-Climate Interactions
- Desertification
- Land Degradation
- Food Security
- Interlinkages between desertification, land degradation, food security and GHG fluxes: Synergies, trade-offs and Integrated Response Options
- Risk management and decision making in relation to sustainable development

The Report by numbers

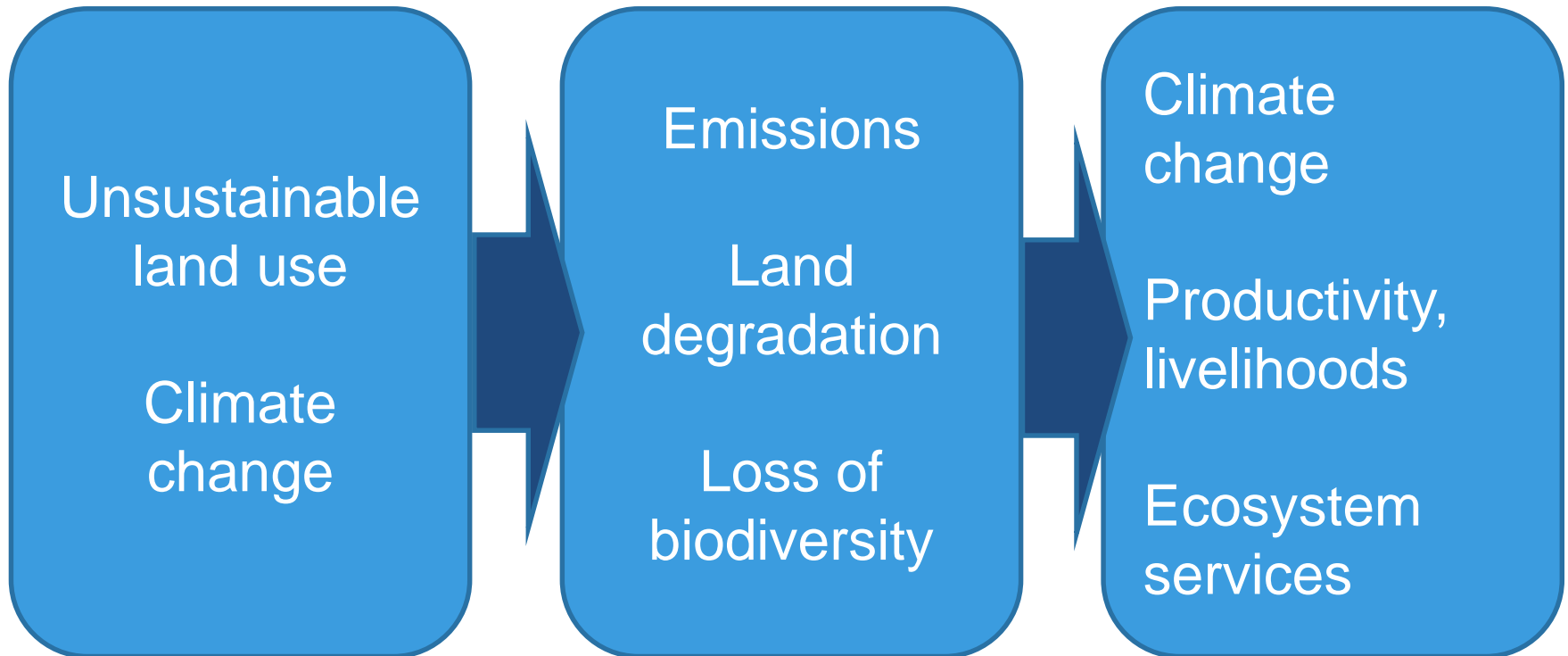


Global scope. Specifics depend on region, context and system



Figur 1.3

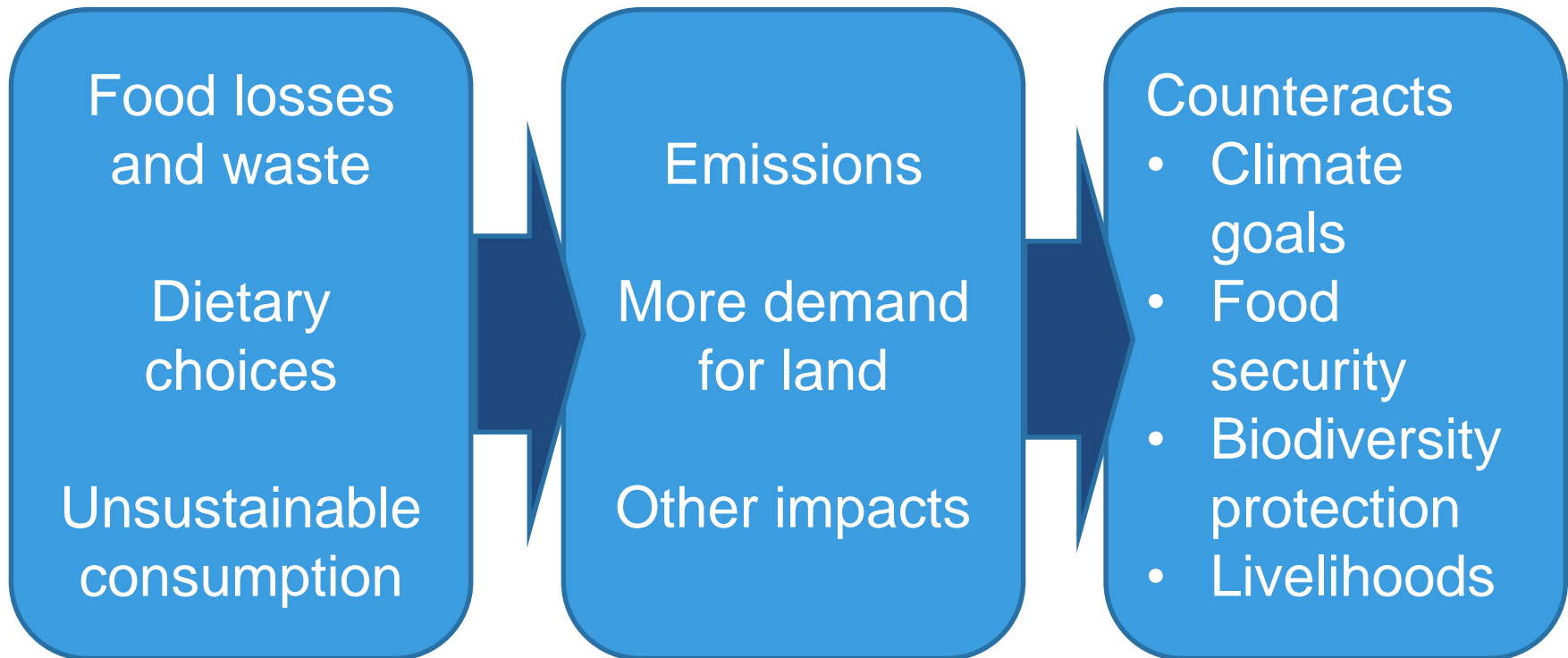
Impacts of climate change and unsustainable land use



Some numbers

- Land use (AFOLU) emissions
 - 23% of global GHG emissions (13% of CO₂)
- Land-based carbon uptake related to climate change
 - 29% of global CO₂ emissions
- Land use impacts on climate also due to changes in albedo, water cycle, ... (local-to-regional)
- Soil degradation: 25% of land area
- Impacts already on food security and ecosystems

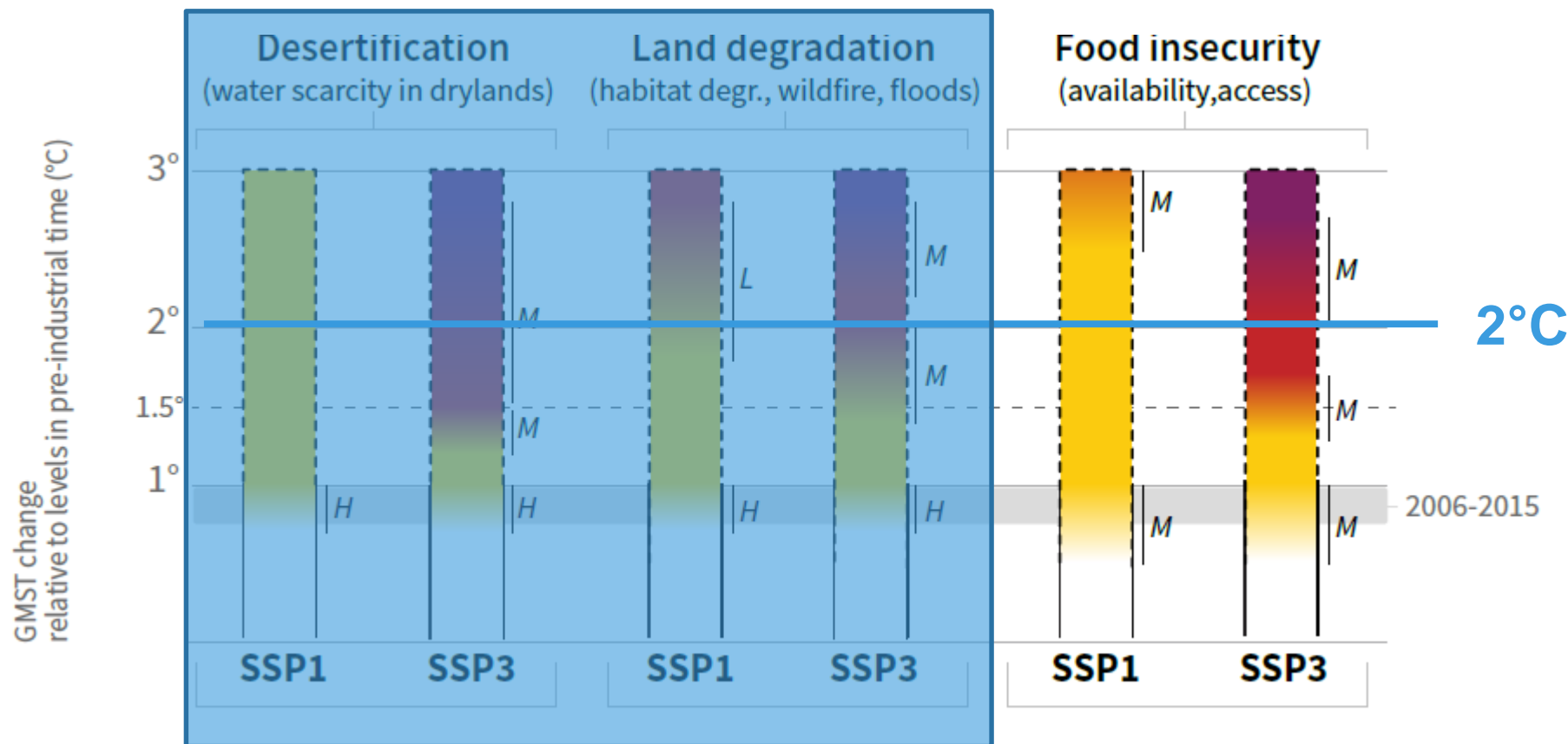
Global food system linkages



Some numbers

- Global food system: 21-37% of global GHG emissions
 - Emissions from: agricultural land use expansion + within farm gate + outside the farm gate
 - 25-30% of the food produced is lost or wasted
 - Plant-based vs. animal-sourced food
 - Differences across production systems
- Future:
 - Climate change and land degradation impact supply
 - Socio-economics affect demand

Socio-economic development affects risk levels (for any given level of warming)



SSP1: low population growth, high income and reduced inequalities, food produced in low GHG emission systems...

SSP3: opposite trends

Available measures both with and without additional demand for land use

- Sustainable agriculture and forestry
 - Sustainable consumption, balanced diets, less food loss and waste
 - Conservation of high-carbon ecosystems
 - Carbon uptake in soils, biomass, products
 - Substitution
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- Reforestation, afforestation
 - Restoration of high-carbon ecosystems
 - Agroforestry
 - Bioenergy with CCS ("negative emissions")

Sustainable forest management...

... applied at the landscape scale to existing unmanaged forests... The net impact on the atmosphere depends on the magnitude of the reduction in carbon stocks, the fate of the harvested biomass (i.e. use in short or long-lived products and for bioenergy, and therefore displacement of emissions associated with GHG-intensive building materials and fossil fuels), and the rate of regrowth...

Experience in countries at quite different levels of economic development (Brazil, Malawi and Sweden)... persistent efforts over several decades to combine improved technical standards and management approaches with strong governance and coherent policies, can facilitate long-term investment in more sustainable production and sourcing of liquid biofuels...

For woody biomass, combining effective governance with active forest management over long time periods can enhance substitution-sequestration co-benefits, such as in Sweden where bioenergy has tripled during the last 40 years (currently providing about 25% of total energy supply) while forest carbon stocks have continued to grow (Lundmark et al. 2014). A variety of approaches are available at landscape level and in national and regional policies to better reconcile food security, bioenergy and ecosystem services...