

Land, Environment and Climate: Contributing to the Global Public Good

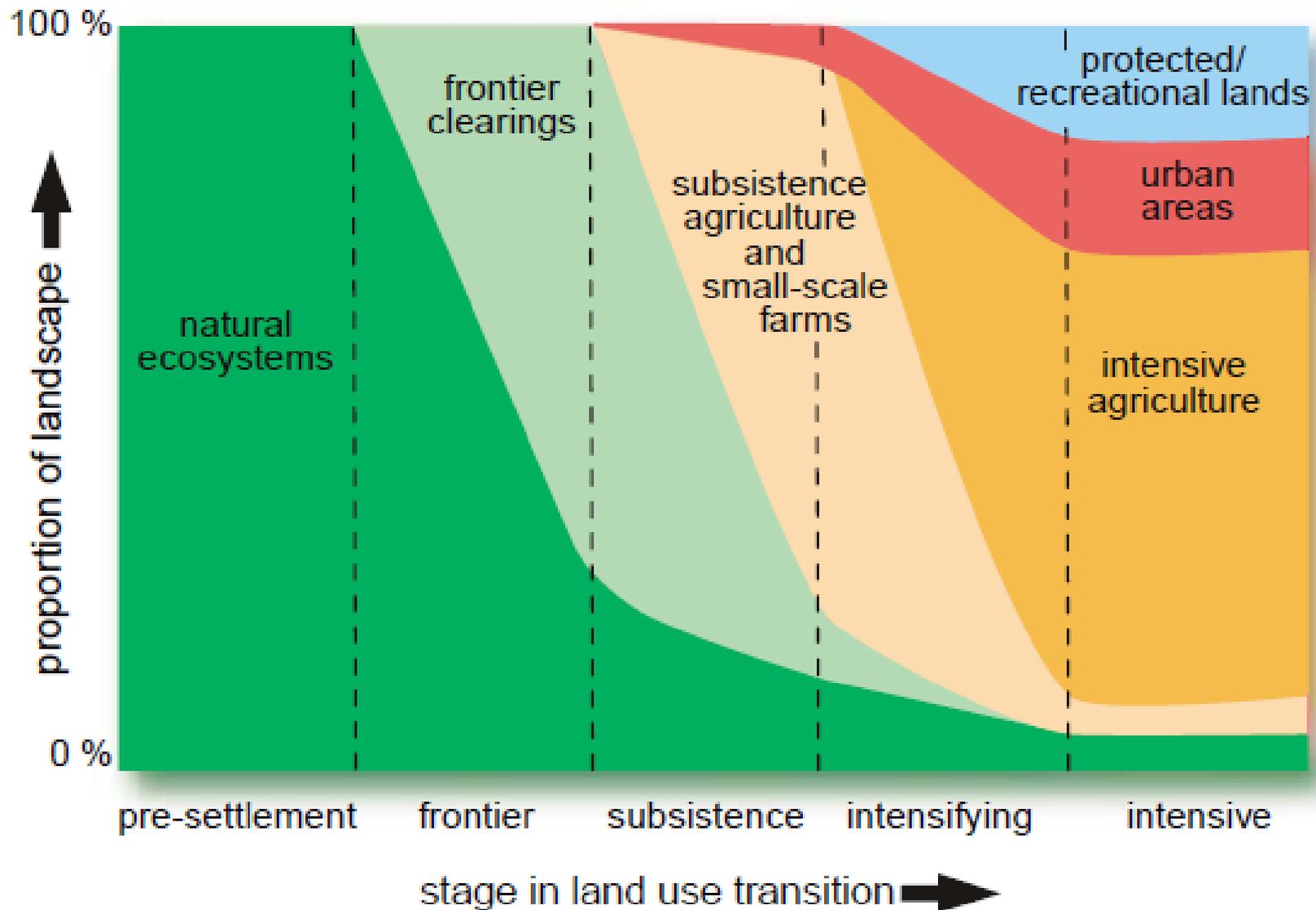
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Stockholm, Sweden, June 4, 2013*

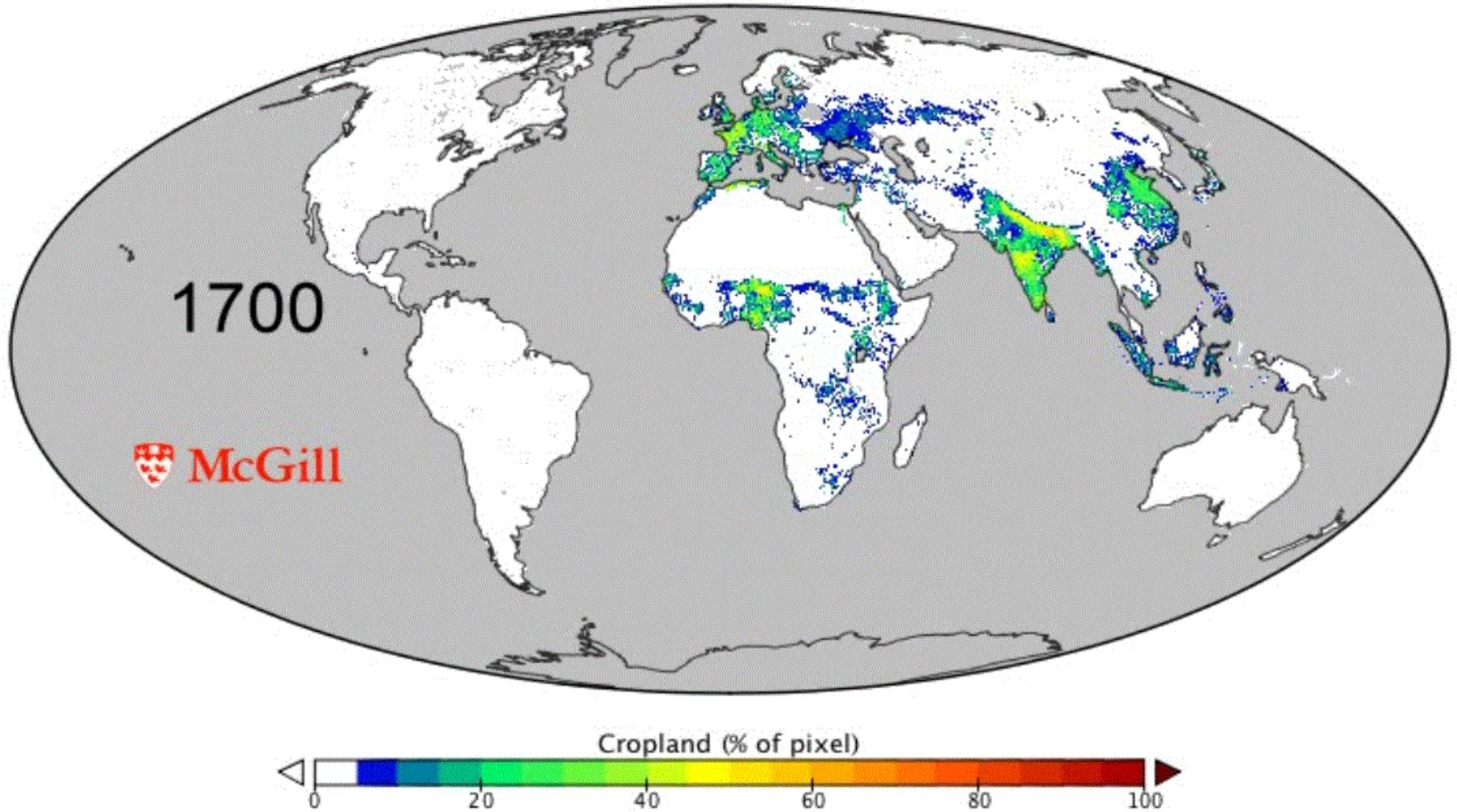
Overview

- Historical perspective on global land use: Are we running out of land?
- Prospective land use in the 21st century
- Global public goods associated with land use:
 - Environmental services
 - Climate change mitigation
 - Climate change adaptation
 - Information
- Implications for the foreign aid agenda

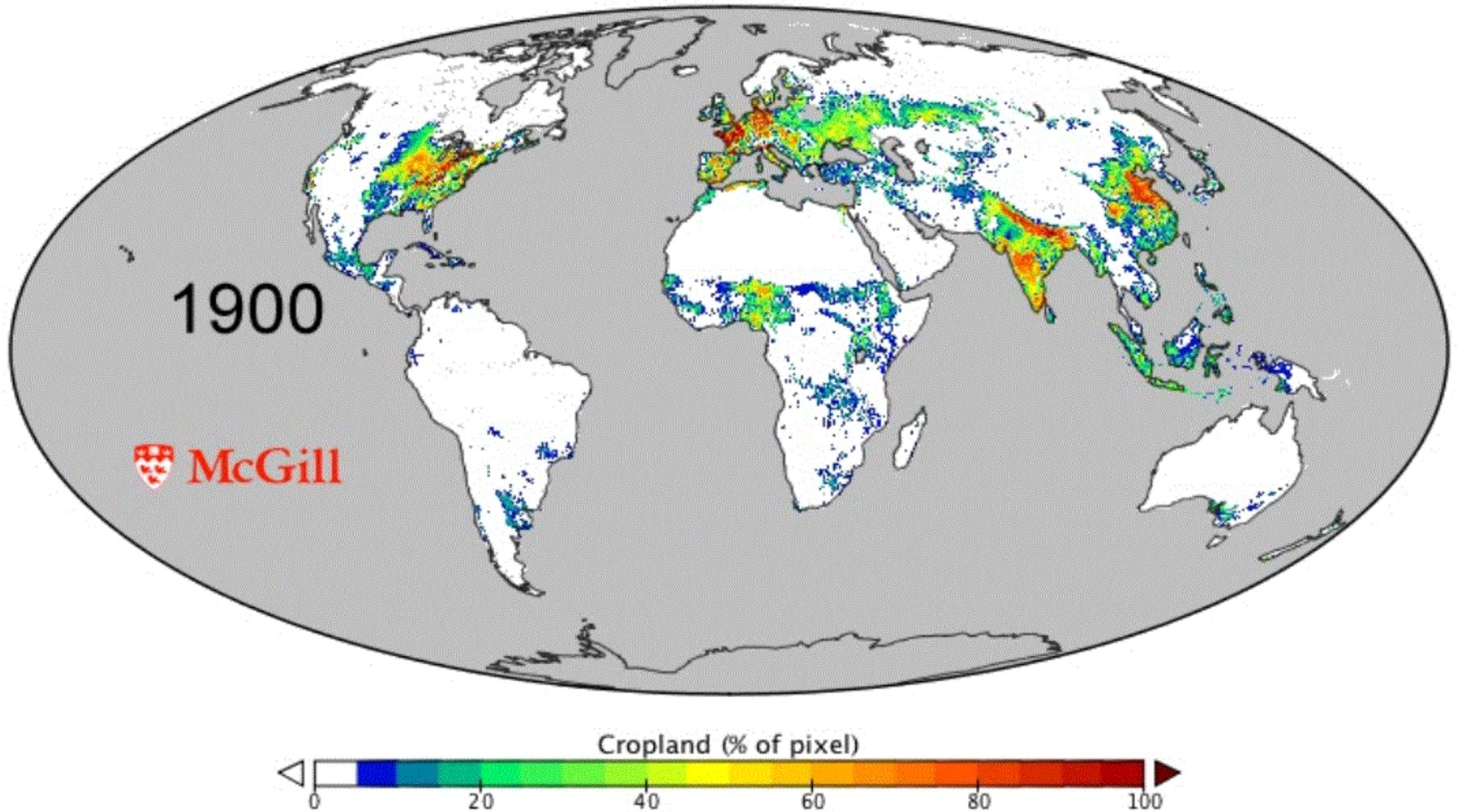
Historical Evolution of Land Use



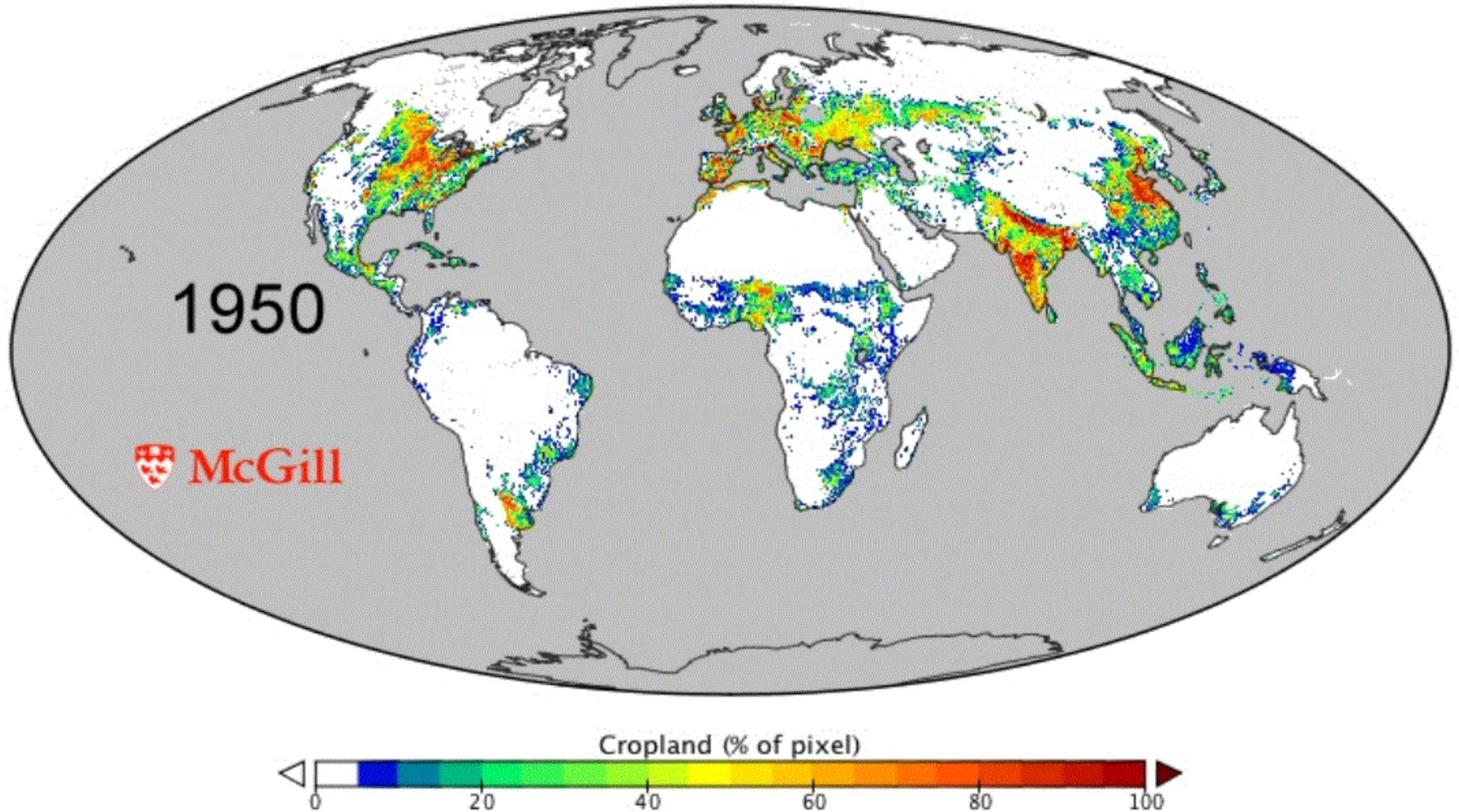
Cropland cover changes: 1700-1900



Cropland cover changes: 1900-1950



Cropland cover changes: 1950-2000



What does the future hold?

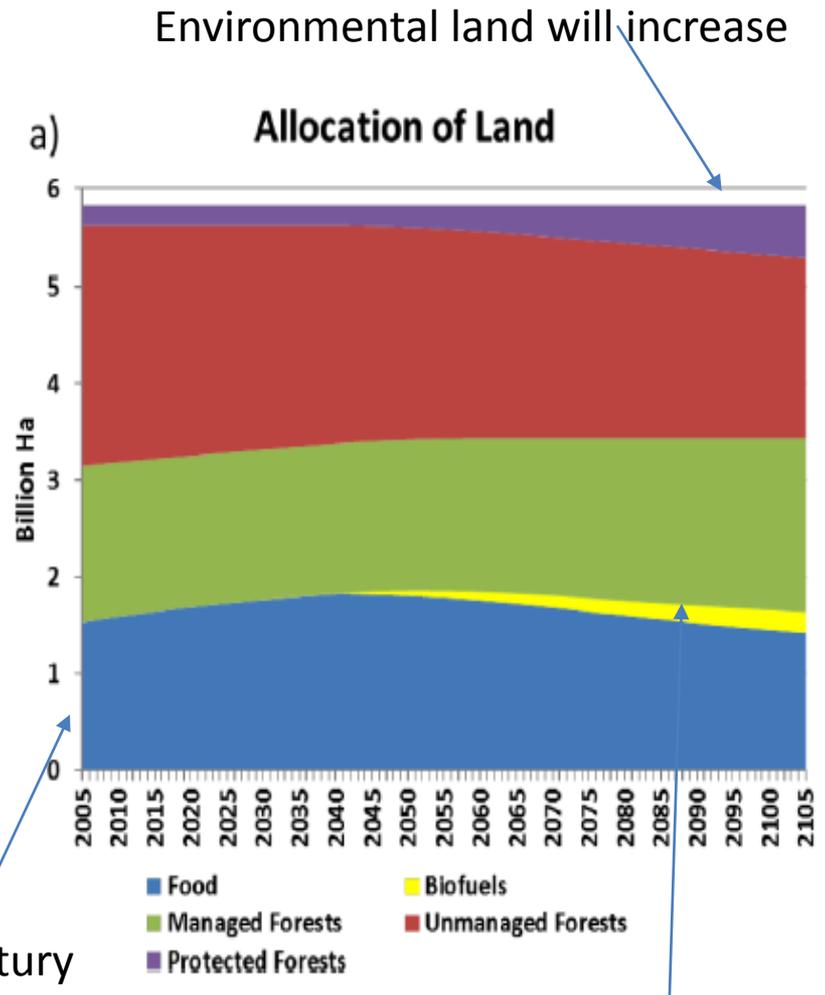
The Next 4 decades are critical

- Population growth is slowing and will begin to level off after 2050
- Income is growing rapidly in Africa and other low income regions; this translates into strong agr demand
- To slow GHG accumulations and global warming we must change land use sharply between now and 2050
- Depending on energy prices, biofuels could also place additional demands on land
- As middle income countries become wealthier, they too will set aside more land for environmental purposes

What does the future hold?

One view of global land use in 21st century

- Population growth is slowing
- Per capita income is growing rapidly in low-to-middle income regions
- To slow global warming land use must change
- Biofuels could place additional demands on land
- Middle income countries will set aside more land for environmental purposes



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 - Tools for **climate adaptation in low income countries**:
 - *Significant climate change is inevitable given momentum in atmospheric and economic systems*
 - *Scientists are likely understating the adverse impacts of climate change on agriculture in tropics*
 - *Many scientists are likely overstating the potential for adaptation in the low income tropical countries*

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 - Tools for climate adaptation in low income countries:
 - *New technologies*, including heat and drought tolerance crop varieties
 - *Improved Infrastructure and policies* aimed at facilitating the movement of agr commodities from surplus to deficit regions
 - *Information* to allow producers to make more informed planting decisions: *Climate change 'destroys' traditional information*

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What Role for Foreign Aid?

The value of information & analysis for land-based decisions in low income countries will increase

- Current gaps in information are costly to developing countries; and hinder provision of global public goods:
 - Without accurate history, farm-level decision making is difficult and weather forecasting is impossible.

What Role for Foreign Aid?

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- Current gaps in information are costly to developing countries; and to the provision of global public goods:
 - Without history, farm-level decision making is difficult
 - We don't know how much irrigated land there is in India! IWMI estimates 113 Mha vs. 66 Mha by FAO, but will determine impact of climate change on crops and water use

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 - Where should limited REDD+ funds be directed to have maximum impact on GHG emissions?

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 - Data on land tenure is weak throughout Africa, leading to (e.g.) accidental leasing of communal lands in Mozambique to foreign company

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 - Where should limited REDD+ funds be directed?
 - Data on land tenure is very weak throughout Africa
 - How much should Tanzania charge foreign investors for large scale irrigation project bringing in new technologies?

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 - Where should limited REDD+ funds be directed?
 - Data on land tenure is very weak throughout Africa
 - How much should Tanzania charge foreign investors?
- Reliable information and tools for land-based decision making in developing countries are public goods with global implications, worthy of foreign assistance