Land use perspectives on climate mitigation

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Population and GDP per Capita Strongly Influence Food Production and Cropland

- Wealthier people eat more meat, which requires more land than other food sources.
- Larger populations require more total food production, requiring more cropland.
Differences in Food Production have Implications for Land-Related Emissions

- Scenarios with more cropland have higher LUC CO₂ emissions.
- Scenarios with more meat have higher Agricultural CH₄ emissions.
Increases in Land-Related Emissions are not Easy to Mitigate, Forcing Mitigation to Other Sectors

- The HI Pop scenario has higher Ag CH$_4$ and LUC CO$_2$ emissions than other scenarios. More mitigation is required by the energy system to meet climate targets.
Socioeconomics and Land Use:

- Wealthier populations demand more meat and larger populations require more food production, both of which result in increased cropland extent.
- More meat results in higher agricultural CH4 emissions; more cropland results in higher LUC CO2 emissions.
- These increases in emissions force more mitigation onto the energy system.
Thank you!