

Future Directions for the LCLUC Program

Chris Justice

LCLUC Current NASA Context

- NASA Earth Science Division is identifying activities and efforts to meet the most pressing information needs of society now and in the coming years to inform development of an Earth Action Strategy and align it with budgets incorporating investments drawn from across the Division.
- Land Use research is inherently societally relevant and interdisciplinary (convergent)
- LCLUC combining remote sensing and social science is 'Unique to NASA'
- LCLUC Program (R&A) has laid the foundation for a number of 'applications'
- LCLUC is truly a global program of international engagement with a number of established international partners

LCLUC Current NASA Context

- The study of Land Use Change requires continued observations – need to continue to give emphasis to this requirement through ‘senior reviews and decadal surveys’
- With few Land-focused NASA Missions in the next few years, emphasis will be needed to include the new NASA sensors (e.g. NISAR, Landsat Next (3 day superspectral), SBG) plus international and commercial EO assets – *3+ cycles of MuSLI research has positioned us well for this*
- With increased ESD emphasis on ‘science impact’ and ‘societal relevance’ we need to show the relevance of LCLUC research – *3 cycles of LCLUC Hotspot funding has positioned us well for this*
 - *The two SARI Syntheses Projects will also contribute*

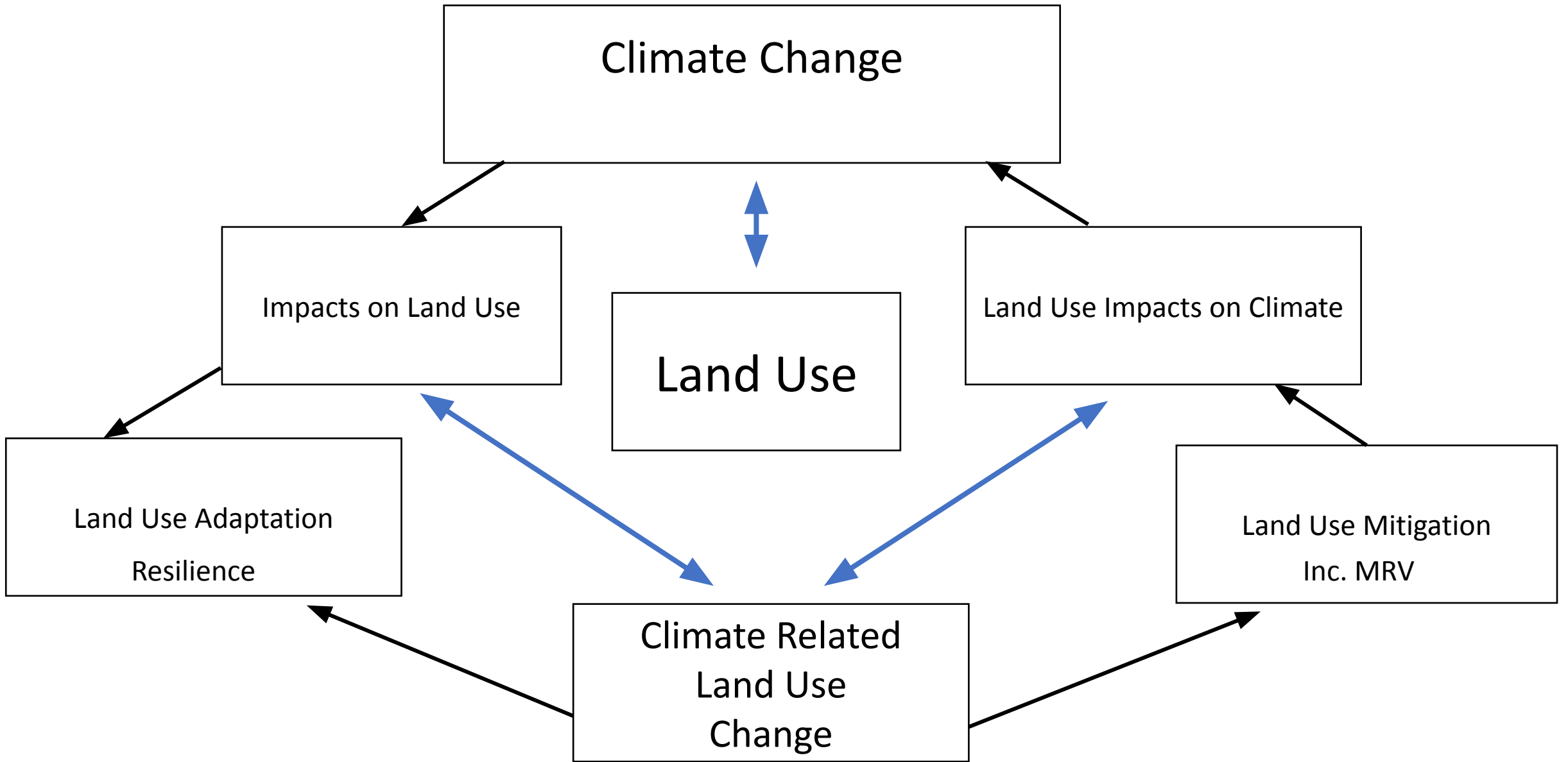
Strengthening NASA Program Partnerships

- R and A – a strong case for additional LCLUC funding for underpinning science research to strengthen growing applications programs in agriculture, fire, urban management
- Additional Funding Opportunities for LCLUC-related science – IDS, Measures, Access, etc
- LCLUC Applied Sciences connections ('Crosscuts') e.g. fire, agriculture, water resources, capacity building, air quality, health, etc
 - NASA'S new FIRESENSE Initiative?
 - Agriculture – HARVEST (international) and ACRES (Domestic)
 - CEOS/GEOGLAM – Garik and Brad Doorn (Ag) are co-funding a Joint CEOS LPV/GEOGLAM Workshop on Cropland/Crop Type Validation best practices – Sept. 2023 Beltsville, MD.
- Data and Computing Systems – prototyping next generation of societally relevant products (MuSLI Tier 2 !!!, SNWG, Essential Agricultural Variables etc.)
 - Continued role of CSDA
 - Navigating in the Clouds
 - However
- New NASA Modeling "Digital Twin" initiative – e.g. land cover > climate forecasting
- ESTO – LCLUC technology opportunities (sensor constellations, volume data processing)

Thinking Further Ahead

If NASA positions itself to better address Climate Change

- How we Use and Manage Land is central to our response to climate change.
- Whether managing the impacts of extreme weather on agriculture and heatwaves on urban communities, or mitigating emissions from Agriculture Forestry or Other Land Uses (AFOLU), or implementing Sustainable Water Management and Climate resilient agricultural practices, Land Use is a central theme.
- Future LCLUC research directions could inform how society could manage and respond to the land-use and management challenges and opportunities associated with climate change.



Thoughts on Future Program Directions ?