

# Workshop Deliberations PI Comments /Suggestions and Feedback to the Program

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# Topics

- LCLUC Science
- Strengthening Human Dimensions
- Data and observations
- LCLUC Projects
- ROSES
- Outreach

# 3 Aspects to the LCLUC Program

- **Integrative science**
- **LCLUC Data sets and initiatives**
- **International science cooperation\***

\* Int. Program support plus new initiative to leverage large international projects

Growing the program through leverage

- IDS
- Data
- Education

**Drivers/Forcing**

**Impacts/Consequences**

**Projections / Modeling / Feedback**

# Ongoing Projects and Research Announcements

## Sequencing

- **Water Cycle (Completed or No cost ext.)**
- **Carbon Cycle/LCLUC projects (mid-term)**
- **Impacts on Climate Change (mid-term)**
- **GLS LCLUC Products projects (final year of 2)**
- **LCLUC Projections (mid-term) – Next DC ST**
- ***EOS and MEASURES (mid-term) – Assigned to LCLUC***
- **Recent selections**
  - **Climate impact on land use, adaptation (9 projects)**
  - **Small contributions to non-NASA ongoing international projects under NEESPI and MAIRS programs (9 projects)**

# Environmental Impacts of LCLUC

- The program has demonstrated that in the past decades rapid and significant changes in the LCLU have occurred at local to regional scales with significant impacts on the physical environment and humans
- Examples Shown At This Meeting
  - Hydrological - Changes in the Mountain systems and Agricultural sector in Central Asia, impacts of mining on flooding, responses to fires depending on fire size, changes in C. Asia Atmospheric - Agricultural land use transformations with different burning patterns impacting aerosol emissions in southeast Asia
  - Urbanization in semiarid regions-Opposite impacts on the carbon cycle depending on the proportions of surrounding land cover types
  - Land Abandonment – impact on biodiversity +/-
- Land Use Modeling in LBA ( Projections – topic for Next ST )

# LCLUC Science

- Climate Change will remain front and center
  - Adaptation and Mitigation coming (is here)
  - REDD is the current buzz
- The absence of general rules from process case studies (emphasis on process rather than place)
  - Revisit Case Study Syntheses ?
- Have yet to address LCLUC impacts on Social Systems – too much of a reach at this time?
- Attention to role of Institutions in LCC – important in some LU Systems
- Policy Impacts on LCLUC – *How about a Case Study Synthesis Workshop and Special Edition / Book – conceptual framework – BUT .....*
- How the LCLUC community should address Vulnerability/Resilience/Sustainable LU/Land Architecture – needs fleshing out

# Regional Foci

- Some US Projects always included
- LCLUC Regional Emphases to date
  - Humid Tropics inc. the LBA Surge
  - Northern Eurasia - NEESPI Boreal - IPY
  - Northern Eurasia NEESPI drylands
  - Monsoon Asia – MAIRS

Being considered:

- South Asia
- South America – non Amazon ?
- Mountain Systems ?

Can we in future target hot spots of recent LCLUC or areas projected to change - a new global initiative

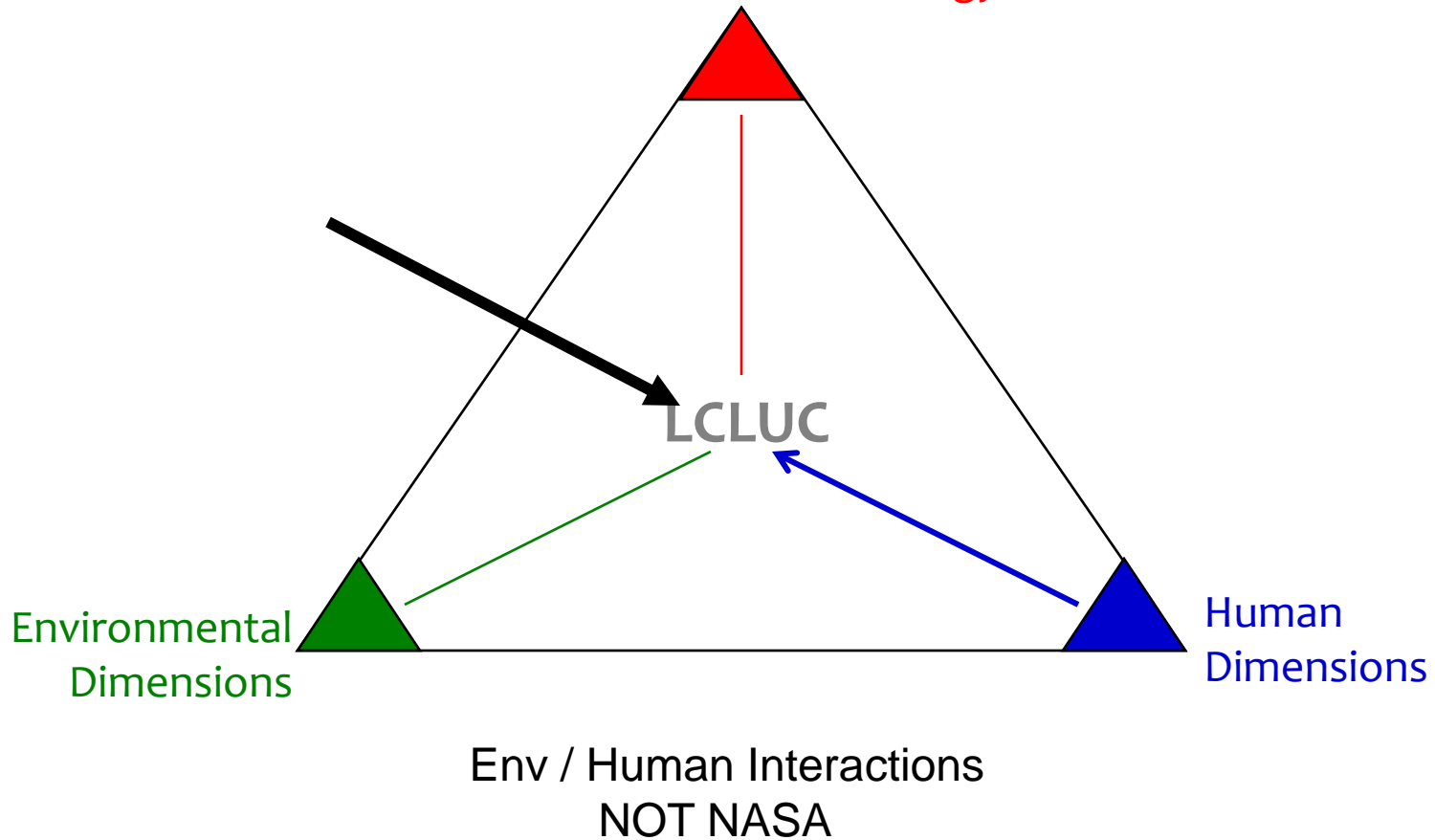
# The Human Dimensions

- Human dimension's role has been diminished in the LCLUC program and needs to be invigorated
- Partially due to 1) the difficulty of getting teams of physical and social scientists together, 2) difference in the communities (e.g., approaches used, terminology)
- The **HD aspect of the research question needs to be integral** (rather than an appendage “to be responsive we need to find a social scientist !” )
- We need to fund ‘excellent and very good’ proposals with a well defined problem, good scientific method, reasonable chance of achieving the stated objectives – review panels usually reach consensus
- Successful examples of projects with integration of the physical and human components have been achieved in LBA
  - HD scientists with regional expertise may not be easily transported

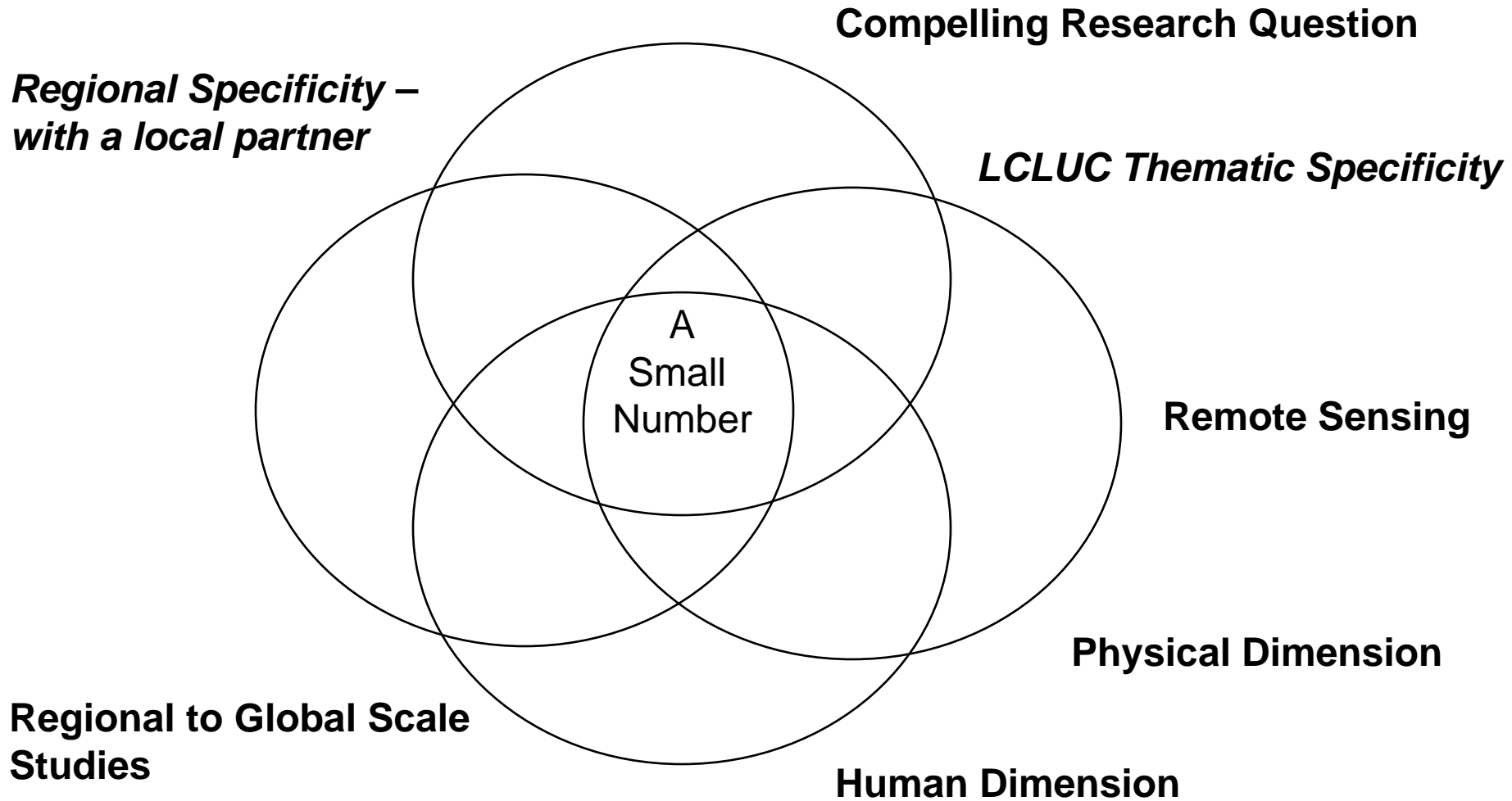


# LCLUC Intent

NASA  
satellite & data technology



# Calls are Perhaps Over Constrained?



All for under \$300k pa – to be completed in 3-4 years

# Strengthening Human Dimensions of LCLUC

- Highly desirable at this time for NASA – in step with US CCSP
  - Unique within the NASA program
- Including human dimensions makes scientific results more “tangible” to people as the societal relevance of the science is demonstrated
- Recognize that some studies better suited to address human systems
- Adding another layer of uncertainty
- Good if we could have social scientists looking for a good RS person – will take time
  - Issue of scale
  - THIS COULD BE A TARGET FOR TEAM BUILDING MONIES

# Improving Quantity and Quality of Human Dimensions of LCLUC

- Suggestions:
  - Help build the community capacity to respond
    - Outreach on LCLUC HD at major national meetings e.g. AAG Panel
  - Changing community perceptions (the program doesn't .....)
  - Careful attention to and calibration of the panel reviewers
  - A Quota System (% of the program)
  - 1 yr funding for proposal team development?
  - Increase # of HD Graduate Fellowships / NIPS – have some integrated (social science) reviewers

# Expanding HD Topical Themes

- **Climate change, LU & HD**
  - Link HD processes and LULUC as a driver of or mitigation strategy & adaptation to CC
  - Already an issue in ULTERs and international agendas (e.g., REDD)
  - Research questions (examples):
    - How does climate change, and its perception at the farm gate, affect property rights?
    - As cropping zones migrate poleward, how can flexible systems of land uses be designed to migrate with changing conditions?
    - What are the social and institutional dimensions that facilitate or impede such adjustments to climate change?
- **Global urbanization demands attention to urban problems-issues**
  - Emissions, pollution, disease-health, and population movement across the urban and peri-urban landscape
- **Global economy and protocols-accords (macro-structures) affect local-regional land systems, often with unknown time lags**
  - Global commodity prices, REDD, cap and trade, certification programs
- **Understanding *adaptation* of land systems to climate & environment change**
  - Institutions facilitating-inhibiting adaptations, environmental justice
  - Feedbacks between adaptations and environmental change

# LCLUC Observation Requirements and Priorities

- Assessment and prioritization of ECVs –work in progress-input required
- LPV playing an important role in setting international standards for ECV validation
- MODIS product continuity by VIIRS – what is needed by the community (Montana Workshop)
- Dynamic Land Water Mask needed
- High resolution optical data 1-3m and radar data are needed for LCLUC research -possibility of NASA data buy negotiations (Prism, Japan)

# LCLUC Observation Requirements and Priorities

- Proceeding with GLS 2010 w. USGS – international partners
- Does LSI have enough momentum?
- Continued to develop high impact - derived regional to global products from the GLS data
  - Forest cover
  - Urban expansion
  - Agricultural change
  - Others
- Can some high impact IPCC data sets be developed – forest cover change etc

# Landsat Class Continuity

- Landsat observations are critical for LCLUC climate studies
- Free availability of Landsat data has increased its utilization rapidly
- Need to prioritize which Landsat data we need from international receiving stations
- LDCM 2012 - USGS/NASA to build another OLI ASAP
- Need for sustained observations-NASA lacks an overarching strategy on how to deal with this need-emphasis on new technologies
- Continuity of observations can be “packaged” with the additional observation capabilities the community needs



# Data and Observations

- Data exchange, open sharing of data at the international level is problematic and needs to be negotiated by NASA at higher levels. ESA especially
- How will the Decadal Survey Missions serve the LCLUC Science
  - LCLUC Scientists need to position themselves for the decadal survey missions/funding

# ROSES LCLUC Dilemma

- We need a contented community – reasonable success rate (good proposals take time to write)
- Broad calls give large response 200+ proposals - unwieldy to review
- Specific calls – a smaller community can respond, more unresponsive proposals, problem with quality of proposals
- Step 1 (screening) > Step 2 Process Helps
- Letter reviews help cover the topic areas
  
- “Why not fund excellent proposals which are responsive to the LCLUC program objectives, regardless of the specific call?”

# Roses LCLUC

- Can the calls have better continuity ?
  - New topics each time, prevents refining proposals based on feedback - proposals re-submitted to other funding agencies
- Terminology is important
  - Review of wording of the NRA's (by those already funded)
- The community is not always ready to respond to new areas of research e.g. Adaptation – takes time to understand the 'agencies' perspectives and retool
- Can LCLUC be more centrally positioned in the IDS Calls – as it is already interdisciplinary?
  - For example have the coupled and integrated model development funded by IDS (involving good LCLUC PI's)

# LCLUC Projects

- Program Outreach Efforts – Web Site / Brochure
  - Copies of Brochure available on request
  - New Brochures will be developed with a 3 year cycle
  - Showcasing your research
- Demonstrating the societal relevance of the research
  - Possibility of 1 yr extension funding to work up the results in terms of societal relevance ? – Links to NASA Applications TBD
- Need for PI's to promote their data (broken record!)
  - Land Portal / links to PI Web Sites
- Some PI's are surprisingly non-responsive
  - Graduate students to the rescue
- **Need for more consistent reporting of achievements**
  - **fill in new data base ( the funding stick !)**
  - **one pagers**
  - **international 'leverage' projects will be included w. care**

# HQ Upper Level Management Perspective

- There is a need to communicate our science, rationale and significant impacts at a level comprehensive beyond the scientific community (public, administration)
- Demonstrating relevance of research to society

# One Suggestion

- LCLUC : where have we been and where are we going workshop – Summer of 2010
  - Venue
    - Airlie House (site of the first ST Meeting)
    - Aspen Institute
    - Other

## **ALSO NOTE UPCOMING MEETINGS**

- LCLUC and Carbon Cycle – May 26 2009 (Dan Brown)
- Global Vegn Monitoring – June 13-15 2009 (Steve Running)
- Others?

# Future Plans

- Enhance social science component in LCLUC projects, especially in extra-tropical regions
- Foster GOFC-GOLD regional activities and international global initiatives: Expand to S.Asia and S.America
- Promote integration of LCLUC processes in climate models and assimilation schemes
- Synthesis of global forest cover from Landsat
- Facilitate development of land-cover/change products from the available reprocessed historical GLS datasets
- Develop GLS-2010
- Prepare LCLUC call for ROSES-2010



# Additional Future Needs

- Promote International Data Agreements
- Closer cooperation with USGS on future Landsat class observations
  - LDCM, Landsat 9 and FLI
- Increase access to hyper-spatial data
- Help community prioritize ECVs for LCLUC – inc. Landsat class obs

