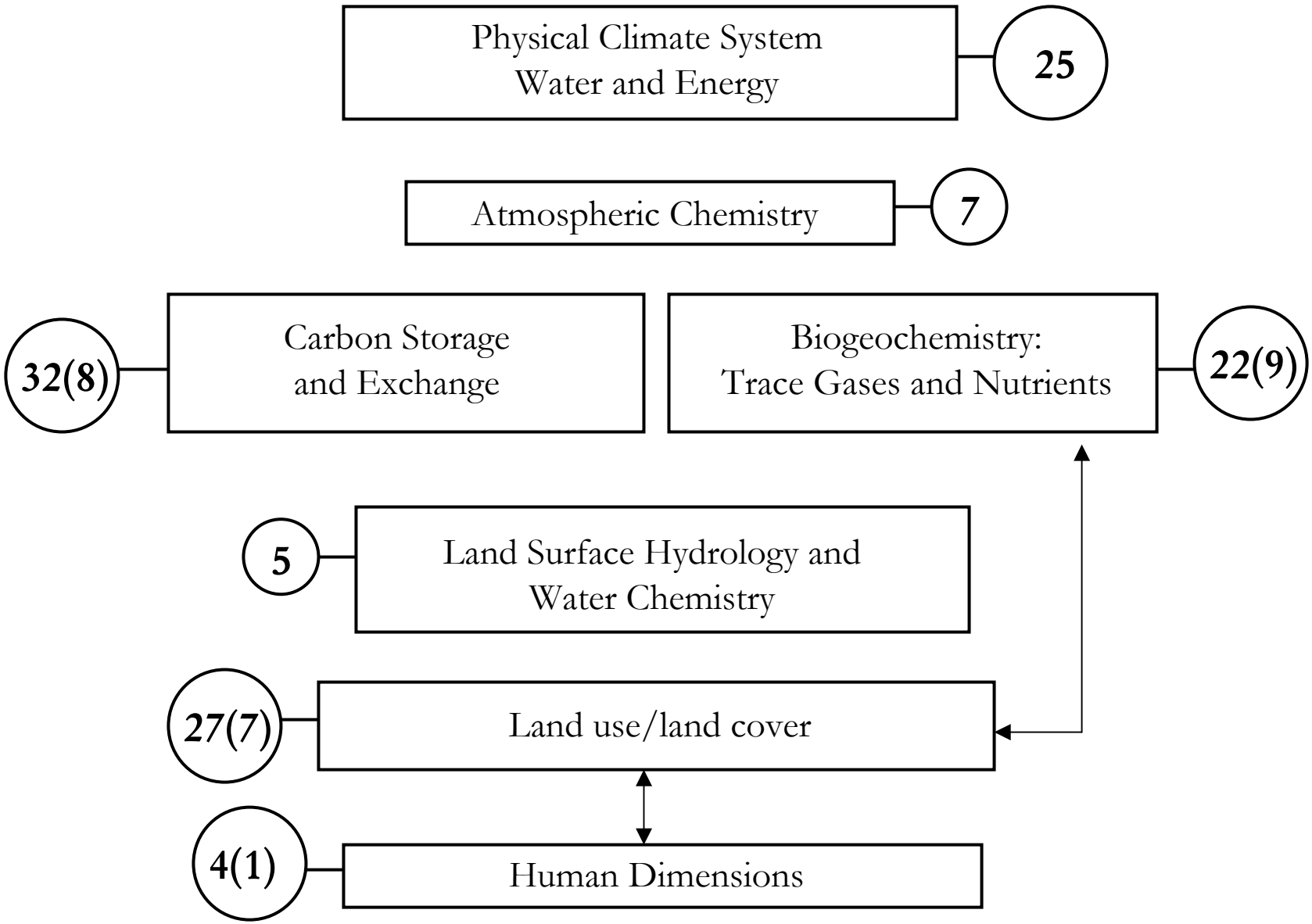
Physical Climate System
Water and Energy
25
Atmospheric Chemistry
7
32(8)
Carbon Storage
and Exchange
Biogeochemistry:
Trace Gases and Nutrients
22(9)
5
Land Surface Hydrology and
Water Chemistry
27(7)
Land use/land cover
4(1)
Human Dimensions

Research topics addressed during the LBA/HD Workshop

- Institutions and governance
- Institutions and policy making in S&T
- Institutions and social structure
- Logistics, regional development and urbanization
- Production systems
- The agrarian question
- Population mobility and urbanization
- Land Use and Cover Changes

LC/HD - Most pressing needs in terms of synthesis and modeling

Regional Patterns: Mesoscale Integration

Most Effective Processes: Quantitative Analyses

Land degradation and land use intensification analyses including remote sensing models

Plausible Scenarios: Including the Human System

LC/HD - Specific synthetic products for the benefit of LBA

- Regional LULC products based on multisensor approaches
- Integration of biophysical data with social demands: science for the stakeholders/decision makers
- Spatial distribution models for land use intensification, land/forest degradation, and vulnerability

Who is already involved (from our group: LC-09)

- Emilio Moran (IU)
- Mateus Batistella (EMBRAPA)
- Diogenes Alves (INPE)
- Eduardo S. Brondizio (IU)
- Dengsheng Lu (IU)
- Leah VanWey (IU)
- Flavio Luizao (INPA)
- Regina Luizao (INPA)
- Daniel Hogan (UNICAMP)
- Alvaro D'Antona (UNICAMP/IU)
- Larissa Chermont (UFPA)

Others already involved

- Bertha Becker (UFRJ)
- Eustaquio Reis (IPEA)
- Roberto Araújo (MPEG)
- Wanderley Costa (USP)
- Ademar Romeiro (UNICAMP)
- Paulo Egler (ABC)
- Francisco Costa (NAEA/ADA)
- Tatiana Schor (UFAM)

Expectations

- To promote two workshops in Belém and Manaus (training + discussion)
- To produce a synthetic publication (book or special issue on LC/HD related research)

Part III. Synthesis Leadership Area: Human Dimensions of LBA (one page length)

The Large Scale Biosphere-Atmosphere Experiment in Amazônia (LBA) is the largest science effort so far organized to study the climatological, ecological, biogeochemical, and hydrological functioning of the Amazon, the impact of land use change on these functions, and the interactions between Amazônia and the Earth system.

As LBA progressed, the key importance of understanding human factors behind LCLUC became more and more apparent, while it increased the need to differentiate and analyze such processes as deforestation, land abandonment, land degradation and land use intensification. LBA has already initiated to recognize a few categories and concepts upon which scientists with different backgrounds might collaboratively work, such as the debate on plausible scenarios of land cover/land use change.

The key importance of the integration with human sciences also became more and more apparent as the need to make LBA results available for decision-makers and stakeholders arose. After recognizing the challenges of integrating human and natural sciences, LBA sponsored two major efforts to assess the state of the art in these fields, and to identify major gaps of knowledge that would be relevant for the LBA science programme, for the formulation of scenarios, and for increasing the impact of the experimental results. Such efforts identified seven major research areas that might constitute common grounds for work of human and natural scientists within LBA and other related research.

First, two research areas were considered essential to foster the understanding of major processes behind large-scale changes in the Amazon: “Population mobility and urbanization” and “Logistics (infrastructure) and regional development”. Second, four areas were identified to address socio-economic and socio-environmental aspects of land cover/use change: “Agrarian and land tenure structures”, “Agricultural and economic systems”, “Environmental valuation” and “Land cover/use change”. Finally, some key political and sociological issues were recognized as critical leading to the development of the seventh research area: “Institutional framework and functioning”. Although these topics show some overlapping fields of research and may not address some important issues, they appear to have delineated some common grounds for work, while being sufficiently open to integrate other subjects should the need arise in the future.

We propose to extend our effort towards synthesis and integration on human dimensions of LCLUC through a series of activities: Two scholarly workshops in Brazil. One will be held in Belém (focusing on methods used in environmental valuation), and will be followed by a one day hands on course applying these methods for the benefit of the Amazon student and research community. It will be hosted by Larissa Chermont, economist at the Federal University of Pará in Belém, and a member of this project. The second workshop will be directed more at scholarly synthesis of theories and methods used in human dimensions research, and will be followed by a training course. The second one will be held in Manaus to reach that part of the Amazon community further west. It will be hosted by INPA in Manaus with the assistance of Flavio and Regina Luizão who are members of this project. We foresee a synthesis publication that can serve as a teaching tool in Brazil as the outcome of this second workshop, and the gathering should further assist the leading scholars in this area of research to further refine the research synthesis in this area. We will be inviting other principals in this area such as Bertha Becker, Paulo Artaxo, and Carlos Nobre to participate in thesesynthesis activities.

Land Use/Cover Changes

Gaps	Analytical gaps	Data Gaps	Policy making
Deforestation/ abandonment: regional patterns	•Multi-scalar analysis •Assessment expansion & concentration •Intra-ann. classification of crops and pastures •Capturing land parcels	•Defor data from 1970s •Intra-ann. remote-sensing data •Agric prod and cattle data •Land tenure data	•Land zoning and planning •Deforestation control
Agric production & deforestation (intensification, degradation…)			
New occupation fronts			