Searching for Regional Sustainability in an Interlinked World: Reflections from the Amazon

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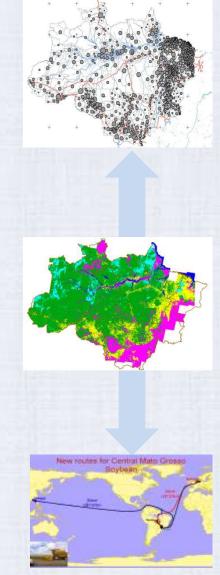
Anthropological Center for Training and Research on Global Environmental Change (ACT)

Science Council of Japan International Conference on Science and Technology for Sustainable Societies

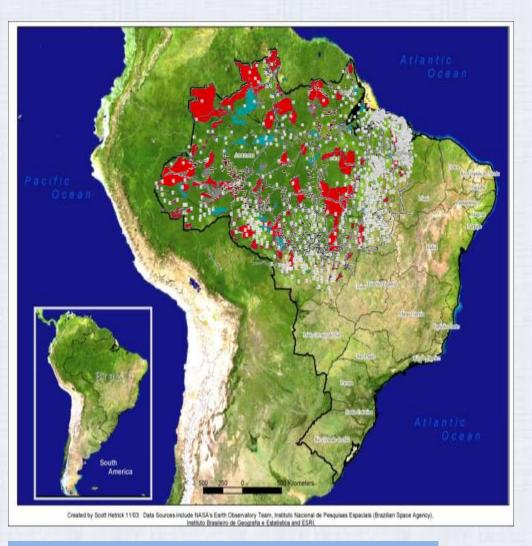
"Building from regional to global sustainability: Visions from Asia"

Presentation Outline

- 1. A case for parallels between the Amazon and Asian regions
 - 1.1 Underlying social and economic contexts
 - 1.2 Common analytical challenges
- 2. A region in transition: the last 40 years
 - 2.1 Urbanization
 - 2.2 LUCC & Deforestation
 - 2.3 Boom of conservation units/Indigenous areas
- 3. Understanding the underlying mechanisms of change
 - 3.1. Families, communities, and the rural-urban
 - 3.2 LUCC and level-dependent factors
 - 3.3 Commodity chains, tele-connections, recurrent under-development
- 4. Broader implications



A case for parallels between the Amazon and Asian regions: 1.1 Underlying conditions and trajectories



The Brazilian Amazon: A Transforming Socio-ecological Mosaic

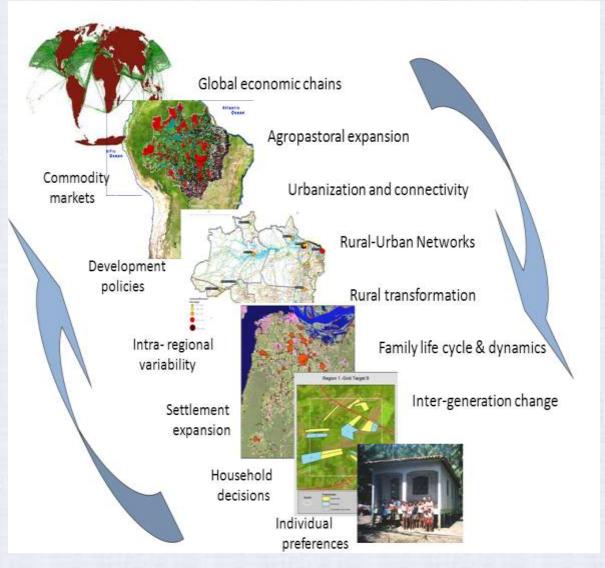
UNDERLYING CONDITIONS

- . Policies of economic development
 - . Structural adjustments
 - . Demographic transitions
 - . Social and cultural change

TRAJECTORIES OF CHANGE

- . Intensity of urbanization
- . Deforestation and reforestation
- .Intensification and extensification
- . Complex institutional landscapes
- . Connectivity of economic systems

A case for parallels between the Amazon and Asian regions: 1.2 Common analytical challenges



- Disciplinary traditions and level specific research
- > Structure vs. Agency
- Causality vs. teleconnections
- Historical conditions and intra-regional variability
- Complex systems and policy



Research sites

Longitudinal Cross-sectional Nested sampling

INTEGRATIVE METHODOLOGIES

Ethnography

Household and community survey

Historical/Archival

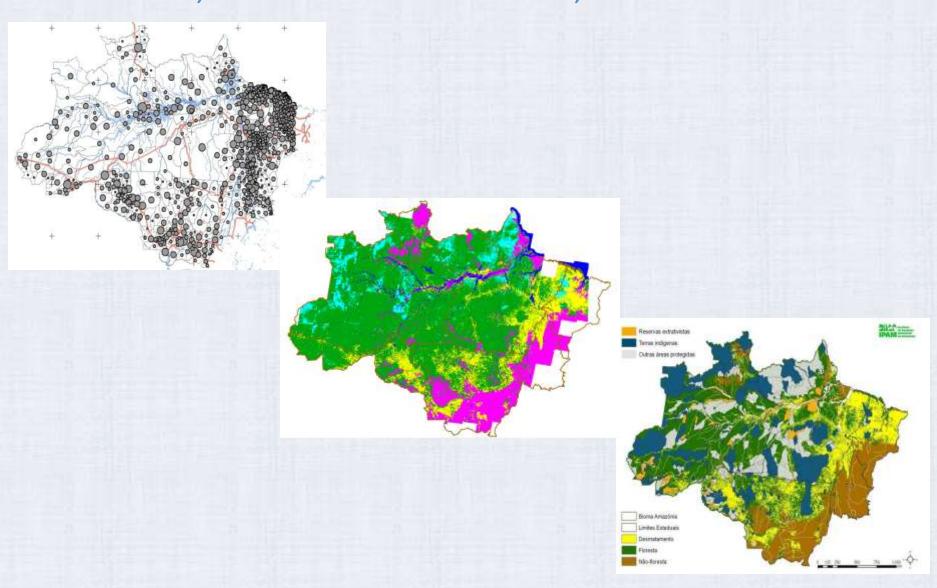
Remote sensing/Geospatial analysis

Social network

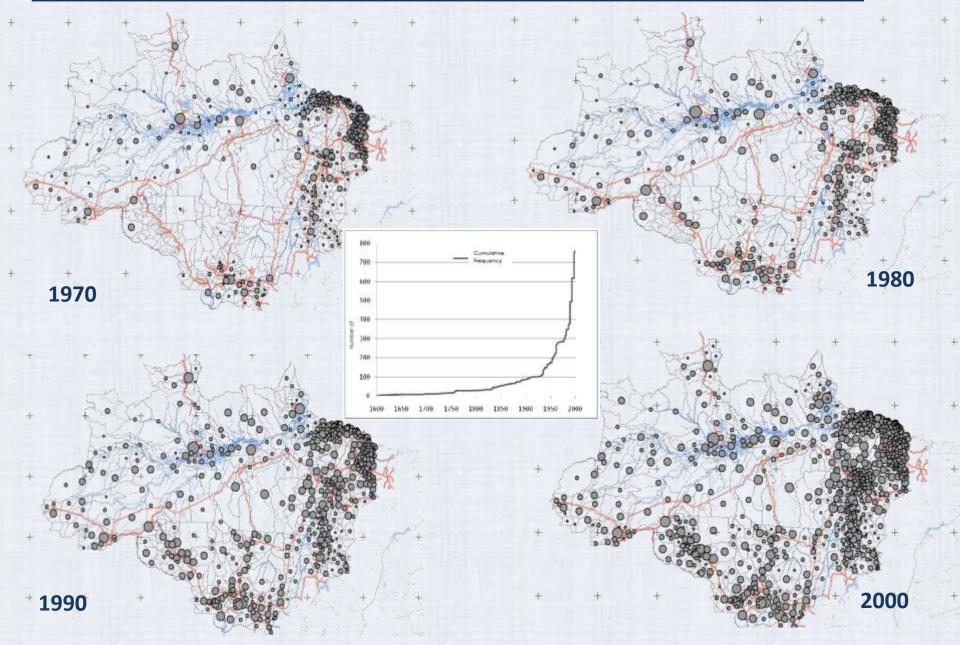
Ecological assessments

2. Regional trajectories: the last 40 years

Urbanization, LUCC and Deforestation, and Reserves



Brazilian Amazon: Formation of urban centers and population



Costa, S. M. and E. S. Brondizio. 2009 Inter-Urban Dependency among Amazonian Cities: Urban Growth, Infrastructure Deficiencies, and Socio-Demographic Networks. REDES (Brazil) 14(3): 211–234

Deforestation and land cover change

Km²

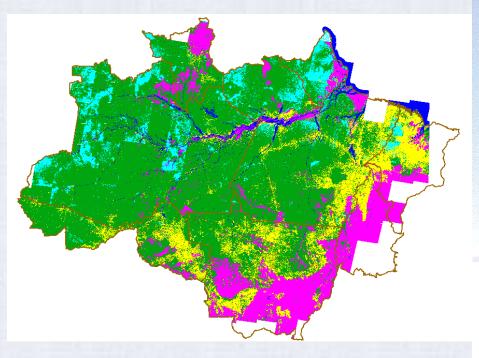
460 000

440 000

420 000

400 000

380 000



Nord-Trøndelag Hedmark Buskerud Vest-Agder Rogaland 360 000 1988 1989 1990 1991 1992 1993 1994 GRID (Annual 35000 deforestation (km²/year) 30000 25000 20000 15000 10000 5000

Deforestation in Amazonas

Lost of forest areas compared with similar size areas in Norway

Akershus og

Period

Østfold og

469 978 km²

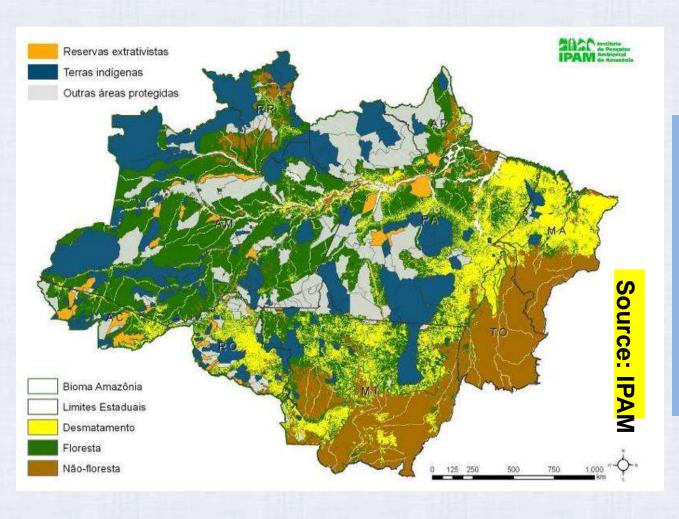
Geopolotical strategy

Road network

Agropastoral expansion

Regional trends, intra-regional variability

Conservation units, indigenous reserves, community management areas



- -Social movements-Environmentalist alliance
- -International-national pressure against deforestation
- -Co-existence with incentives for agropastoral expansion

A mosaic of institutional arrangements: 35% of the region designated as indigenous reserve, protected area, and different types of management reserve

What have we learned about the underlying processes and mechanisms of change?

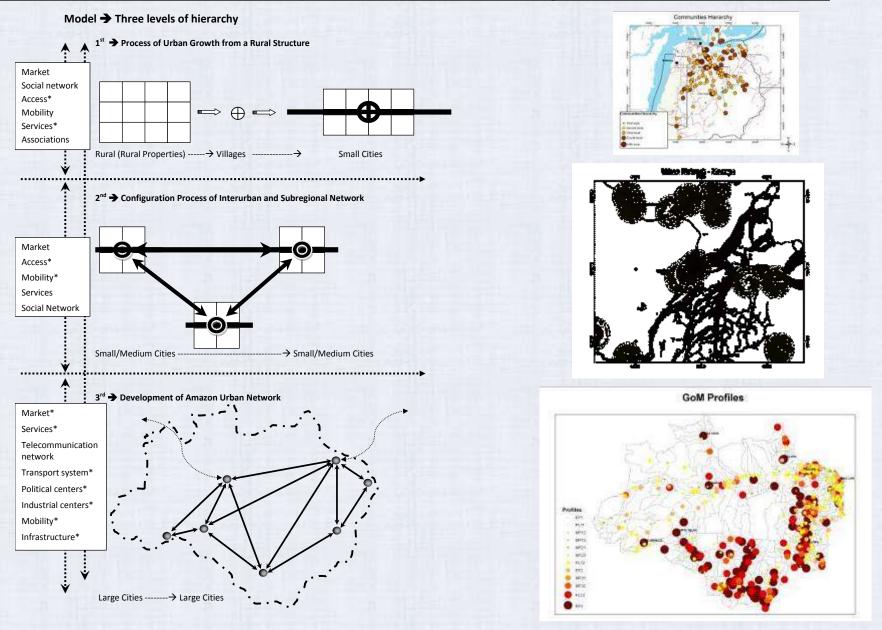
.Formation of rural settlements and urban areas

.Commodity chains and resource export

.Scale-dependent LUCC trajectories

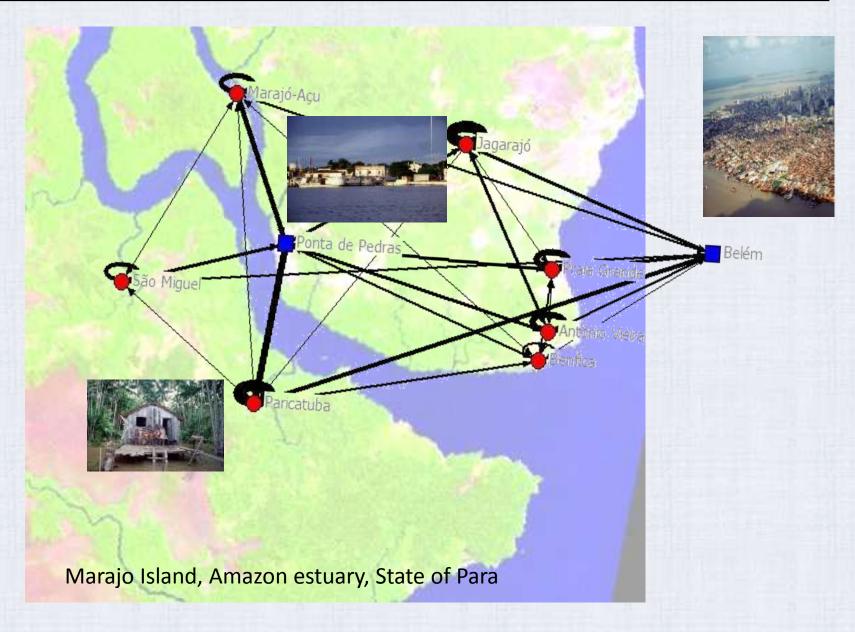
.Interdependent institutional arrangements

The Formation of Urban Systems and Inter-regional urban networks



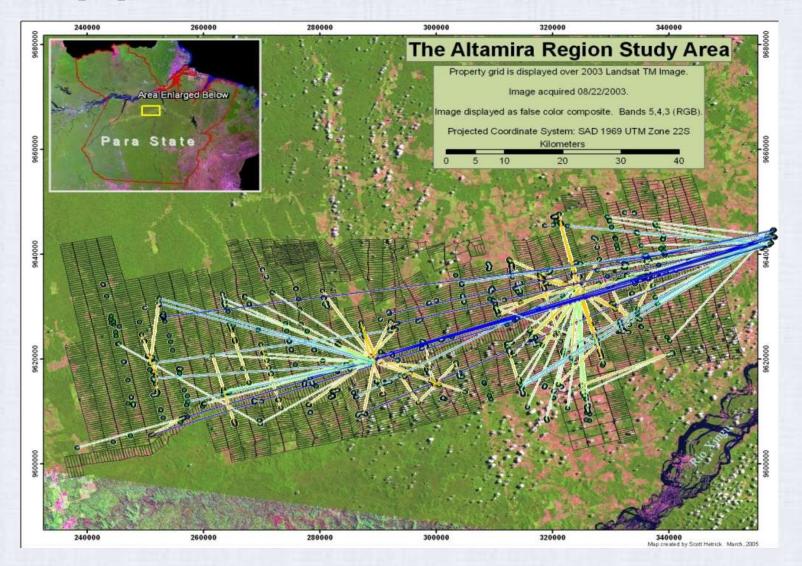
Guedes, G., S. M. Costa, and E. S. Brondizio. 2009. Revisiting the Hierarchy of Urban Areas in the Brazilian Amazon: a multilevel model using multivariate fuzzy cluster methodology. *Population and Environment* 30(4):159-170

The emergence of multi-sited households and rural-urban social networks



Brondizio, E. S. forthcoming. Forest Resources, City Services: Globalization, Household Networks, and Urbanization in the Amazon estuary. In K. Morrison, S. Hetch, and C. Padoch (eds). *The Social Life of Forests*. Chicago, IL: The University of Chicago Press.

Rural properties with Associated Urban Households in 2005



Unpublished A. Cak, dissertation research 2011