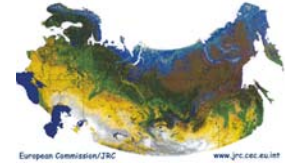




# IGBP NEESPI BRIEFING



## CHANGES IN EURASIAN LAND USE SYSTEMS

NEESPI LAND USE  
RESEARCH BRIEFING  
San Francisco, CA  
December 4, 2005

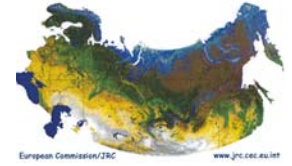


Dennis Ojima  
NREL  
Colorado State University





# Regional Eurasian Characteristics of Change: *"Social Shocks" & GEC*



- Political system changed
- Collectives Disbanded
- Economics: privatization, subsidies not provided, internal and external markets
- Infrastructure of social services unsupported (affecting health, education, welfare, etc)
- "Hot spot" of warming
- Biogeochemical feedbacks changing in uncertain ways



# LAND USE IN TRANSITIONAL ECONOMIES

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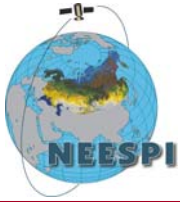
- **ECONOMIC LIBERALIZATION**
- **POLITICAL CHANGE**
- **DEMOGRAPHIC SHIFTS**
- **ENVIRONMENTAL POLICY**
- **CLIMATE CHANGE**



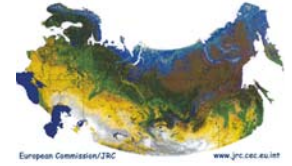
# MAIN ISSUES IN THE NORTHERN EURASIAN REGION



- INTERACTIONS OF LAND USE CLIMATE CHANGE
- WATER AND LAND RESOURCE MANAGEMENT
- INFRASTRUCTURE DEVELOPMENT
- INSTITUTIONAL AND POLICY CHANGE
- MARKET ACCESS



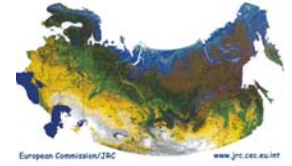
# RESEARCH STRATEGY



- Further evolve the Land science community that better integrates the social and physical communities
  - Land and water management data sets
  - Characterization of drivers and agents of changing land use dynamics
  - Identify and quantify ecosystem services
  - Characterize the vulnerabilities associated with provisioning of ecosystem services



# RESEARCH STRATEGY



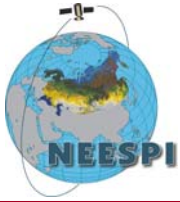
- Develop and apply integrated social-physical analytical framework with regional scientist input
  - Agent-based model linkages to ecosystem models
  - Dynamic vegetation coupled to soil-hydrological-biogeochemical dynamic models (DGVM-2)
- Ground and satellite based observations
  - Detection of land use change
  - Observational network of key drivers (social and physical)



# Funded Research Areas



- *Land Cover (14)*
- *Mountain Research (2)*
- *Forest Dynamics (5)*
- *Fire Research (3)*
- *Land-Water Interactions (4)*
- *Societal Impacts (2)*
- *Data Support (2)*



# LAND USE/COVER

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- Eastern Siberia
- Yamal Peninsula
- Black Sea and River Basins
- Steppe systems: Mongolia, China, Kazakhstan, Uzbekistan
- Croplands
- European Forests

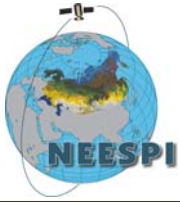


## MOUNTAIN AREAS

- Caucasus Mountains
- Central Asian Tien Shan

## FOREST SYSTEMS

- Boreal forest
  - Russia
  - Northeast China



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## FIRE RESEARCH

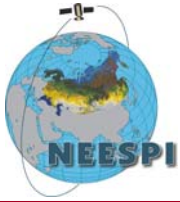
- Siberian

## LAND WATER INTERACTIONS

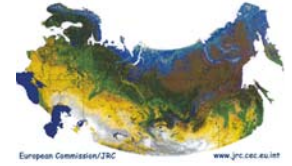
- Pan Arctic
- Lakes
- Wetlands

## SOCIAL IMPACTS

- Reindeer Study
- Drivers of Change



## *NEESPI Focus Research Center* *for Land Use Studies*



- **Venue:** Natural Resource Ecology Laboratory, Colorado State University, Fort Collins, Colorado, USA
- **Objectives:** conduct, promote, and facilitate research aimed at integrative study of coupled human-environment interactions of land use change in Northern Eurasia
- **Links to International Projects:** GLP, IGBP-IHDP
- **Leaders:** Ojima
- **Current Science foci:**
  - Land use
  - Coupled Human-Environment System
  - Land use change and dust emissions

### **Other relevant activities:**

- ✓ The Focus Research Center will provide study institutes on vulnerability and sustainability issues for the NEESPI region