Appendix R

Donors' Perspectives: Earth System Science Partnership (DIVERSITAS)

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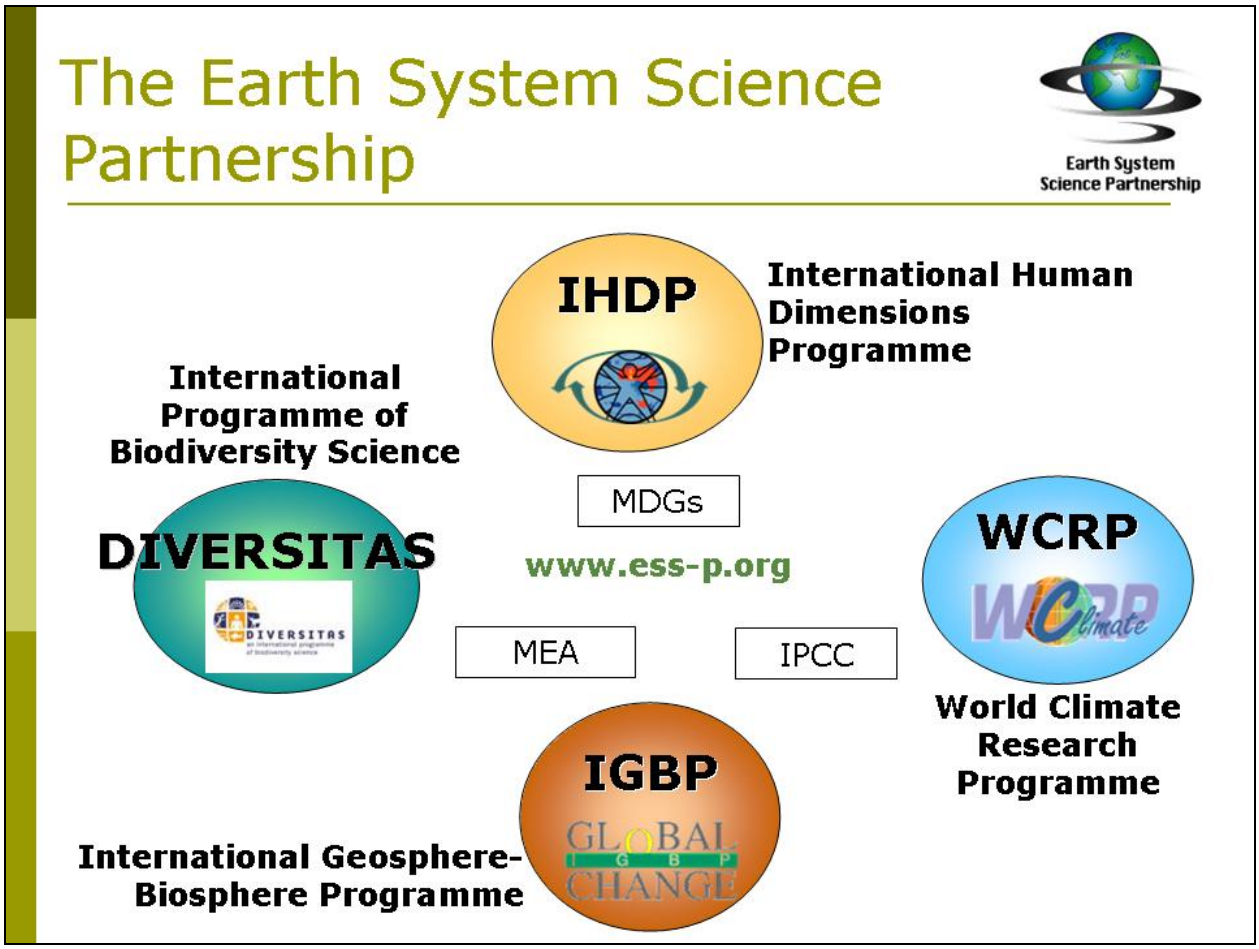
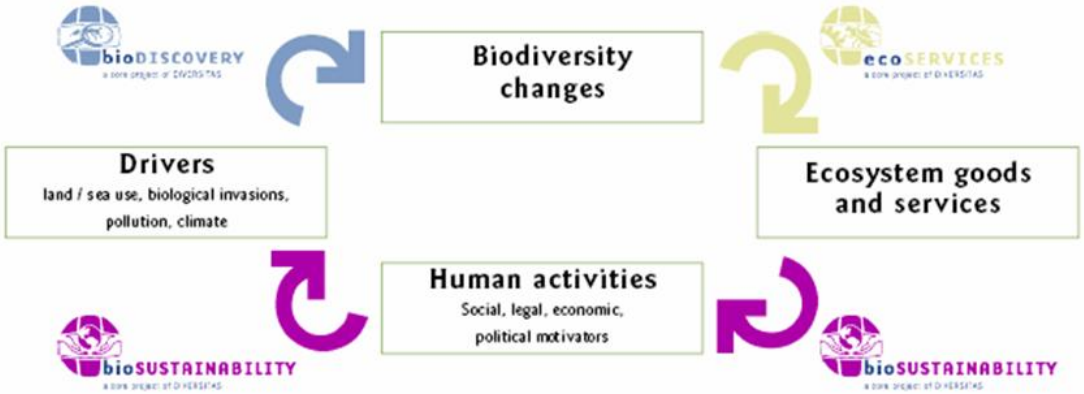


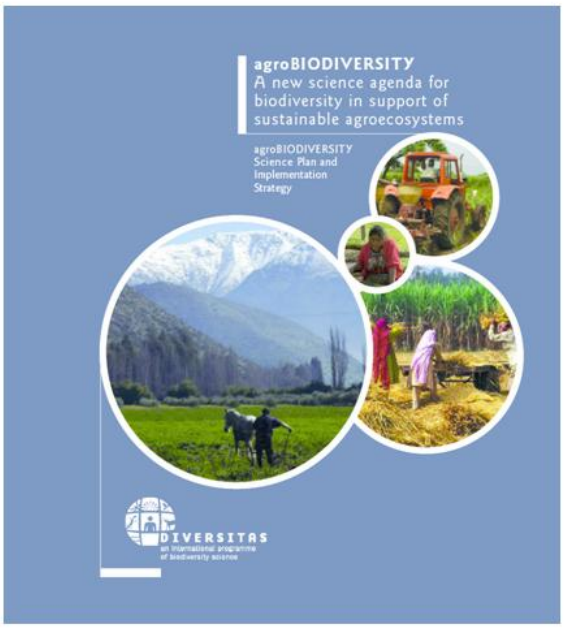
Realizing Challenges, Exploring Opportunities
Proceedings of the International Conference-Workshop on Biodiversity and Climate Change in Southeast Asia: Adaptation and Mitigation
19-20 February 2008 • Sofitel Philippine Plaza Hotel • CCP Complex, Pasay City, Philippines

DIVERSITAS goals

- Interactive biodiversity science, linking biological, ecological and social disciplines to produce socially relevant new knowledge
- to provide the scientific bases for the conservation and sustainable use of biodiversity



agroBIODIVERSITY Science Plan

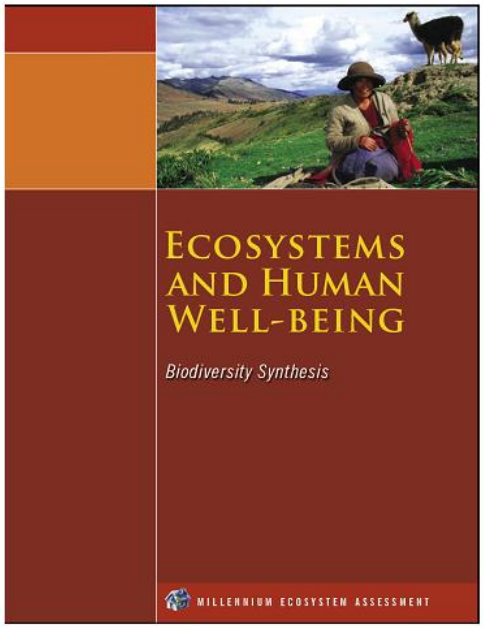


Three Foci:

- Determining the factors that increase biodiversity in agricultural landscapes and anticipating the impacts of social and environmental change (bioDISCOVERY)
- Using biodiversity in agricultural landscapes to enhance ecosystem goods and services (ecoSERVICES)
- Ensuring that society supports the use of biodiversity for sustainable agriculture and equitable sharing of the benefits of conservation of agrobiodiversity (bioSUSTAINABILITY)

Millennium Ecosystem Assessment

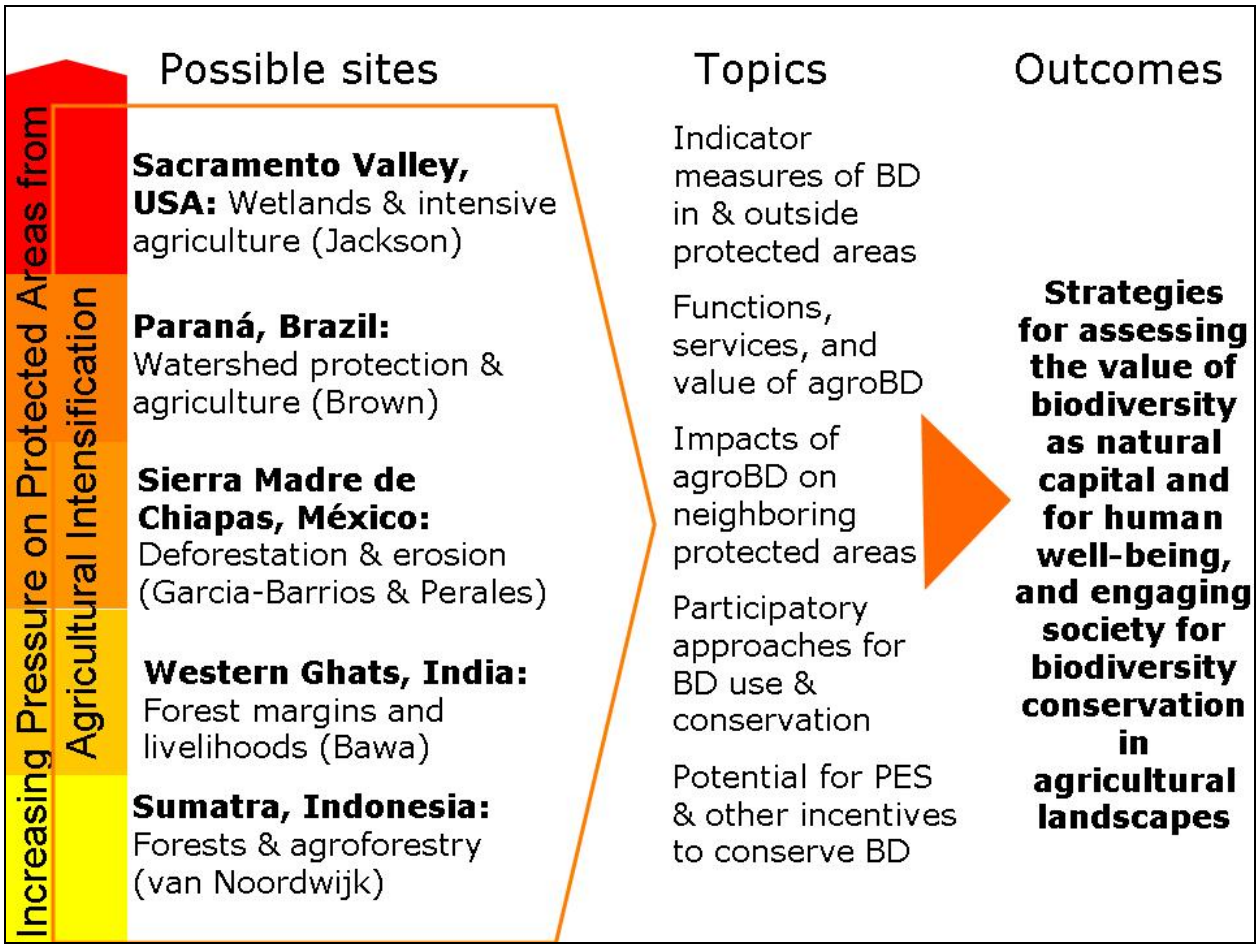
- Past 50 years: Rapid loss of biodiversity and its ecosystem services, especially in agricultural landscapes
- Strengthen response options for conservation
- Science: understanding functions, services and value of biodiversity
- Business: challenges as well as opportunities



Hypotheses

for developing agrobiodiversity science for human well-being in agricultural landscapes:

- Modern high-input intensification of agriculture builds pressure on biodiversity and environmental quality
- Biodiversity-based practices can reduce this pressure by providing ecosystem services:
  - traditional management practices
  - adoption of new uses of biodiversity
- Reducing the pressure from agricultural intensification will:
  - extend habitats of wild species
  - enhance ecosystem services at the landscape level
  - provide resilience and risk mitigation
- Rewards, recognition, and PES will build social capital and public support for conservation of biodiversity


Possible sites
Topics
Outcomes
Increasing Pressure on Protected Areas from Agricultural Intensification
Sacramento Valley, USA: Wetlands & intensive agriculture (Jackson)
Paraná, Brazil: Watershed protection & agriculture (Brown)
Sierra Madre de Chiapas, México: Deforestation & erosion (Garcia-Barrios & Perales)
Western Ghats, India: Forest margins and livelihoods (Bawa)
Sumatra, Indonesia: Forests & agroforestry (van Noordwijk)
Indicator measures of BD in & outside protected areas
Functions, services, and value of agroBD
Impacts of agroBD on neighboring protected areas
Participatory approaches for BD use & conservation
Potential for PES & other incentives to conserve BD
Strategies for assessing the value of biodiversity as natural capital and for human well-being, and engaging society for biodiversity conservation in agricultural landscapes

Biodiversity and functioning of ecosystems

- Higher plant diversity increases productivity of grasslands (Tilman et al. 2002, Loreau et al. 2004)
  - **Functional complementarity**: different species function in different ways
  - **Spatial heterogeneity**: favors coexistence of different species
  - **Redundancy**: number of species is less important for ecosystem services than the presence of functional groups
- Resilience: persisting and adapting to change
  - **Adaptive capacity**: options for ecosystem reorganization following disturbance that reduce vulnerability to ecological or economic problems
  - **Insurance value**: risk mitigation especially at the landscape scale