The Three Functions of Biosphere Reserves

- Conservation of biodiversity (ecosystems, species, genes)
- Development for a sustainable future
- Research and monitoring in a world network
Evolution of the level and nature of integration

Lanzarote Biosphere Reserve, Spain
A REDE BRASILEIRA DE RESERVAS DA BIOSFERA

Reserva da Biosfera da União Atlântica
Reserva da Biosfera de Canterbury
Reserva da Biosfera de Amezonía Central
Reserva da Biosfera do Pantanal
Reserva da Biosfera do Cerrado
Reserva da Biosfera do Cinturão Verde da Cidade de São Paulo (Sistema RBMA)

BRASIL

Projeção geográfica Datum: WGS 84

FONTES:
- COBRAMAB, adaptado por Reserva da Biosfera do Cinturão Verde da Cidade de São Paulo.
Environmental Evaluation and Biodiversity

- **Environmental Impact Assessment** – project and time specific – large dams, population resettlement schemes – opening of pristine territories - creation of new parks and protected areas

- **Environmental Impact Assessment** – infrastructure, mining and other projects etc; e.g. Huascaran (Peru); Mt. Nimba (Guinea)

- **Offsets** – biodiversity, carbon etc. Biodiversity Offsets – creation of Al Reem by Qatar Ministry of Environment, UNESCO, Qatar and Shell, Qatar

- **Resource extraction and protected areas in many countries** – Yasuni BR in Equador; same issue is other BR – e.g. Queen Elizabeth in Uganda
Vietnam biosphere reserve will be treated as a "laboratory" for testing sustainable development initiatives with varying mixes of environmental, social and economic sector components then be shared with all other parts of Vietnam for appropriate adaptation and application.

Experimentation with projects and activities ranging from conservation of biodiversity in legally protected core areas to economic sector activities that are socially and environmentally beneficial in large and extensive buffer and transition zones.
VIETNAM’S PILOT PROGRAM

Biosphere reserves are demonstration sites for sustainable development

THE PROGRAM
Phase 1: 2006-2007: Articulating and consulting with partners
Phase 2: 2008: First generation of programs launched
Phase 3: 2009-2013: Implementation of first set of programs; design, development and launch of second and third generation programs based on evaluation and lessons learned from first generation programs
Phase 4: 2014-2015: Programme evaluation and decisions and recommendations for follow-up

Vietnam’s Strategy for SD (Vietnam Agenda 21) and 5-year National Plan for Socio-economic Development 2006-2010

Clean Development of energy efficiency and zero emission activities – Using bio-energy sources

MDGs, CBD-2010 and “One UN”

DE3D in Vietnam: universities, schools, vocation centers, CLCs, A9Fnet and local communities

Commitment to CBD, long-term monitoring, indigenous cultures etc

Education activities on climate change, biodiversity and sustainable development interactions

Conservation for Development

Development for Conservation

The Vietnam MAB National Committee (MAB Vietnam) Secretariat
108 Xuan Thuy, Hanoi, Vietnam
Tel: +84 4 755 7802, Webpage: http://geo.chuho.edu.vn
CERB@hanoi.vn and/or angtr61@opt.vn
Focus: Ecosystem Services

The benefits people obtain from ecosystems

ECOSYSTEM SERVICES

Provisioning
- Food
- Freshwater
- Wood and fiber
- Fuel
- ...

Supporting
- Nutrient cycling
- Soil formation
- Primary production
- ...

Regulating
- Climate regulation
- Flood regulation
- Disease regulation
- Water purification
- ...

Cultural
- Aesthetic
- Spiritual
- Educational
- Recreational
- ...
The Millennium Ecosystem Assessment assessed the consequences of ecosystem change for human well-being. From 2001 to 2005, the MA involved the work of more than 1,360 experts worldwide. Their findings provide a state-of-the-art scientific appraisal of the condition and trends in the world’s ecosystems and the services they provide, as well as the scientific basis for action to conserve and use them sustainably.
Finding Hope in the Millenium Ecosystem Assessment (Norgaard, R.B. 2007; Conservation Biology 22(4) 862-869)

The concept of natural capital, ecosystem services and sustainability as a matter of sustaining the stock all derive from stock-flow models of systems. Much ecological understanding, however, like that derived from evolutionary ecology, comes from models in which sustainability, even prediction, has little meaning.
Norgaard (2007) continued

- **MA demonstrated the potential of a deliberative democratic approach to grappling with complex problems**

- **MA was a social process entailing judgement**

- **Shift away from thinking of democracy as weighing interests or vote counting toward thinking of it as a shared learning process through deliberation**
Much practical lessons have been learned by the common observation of unschooled men; and the teachings of simple experience, on topics where natural philosophy has scarcely spoken, are not to be despised (George Perkins Marsh, 1864)
LEARNING TO DEVELOP A SHARED UNDERSTANDING OF THE SYSTEM

Interactions

Points of view

social dynamics

ecological dynamics

social dynamics

Points of view

MAN AND BIOSPHERE PROGRAMME
Learning Laboratories: Co-constructing shared questions – MAB France & UNESCO-MAB

A = Actors
(stakeholders)

R = Resources

D = Dynamics
(processes)

I = Interactions
Veracel Before
**A Farm of the Future**

Ecosystem services previously taken for free could generate perhaps half the income of a farm, if markets for various kinds of environmental credits take off as hoped. Farmlands in the future may have a diverse portfolio of ecosystem services to offer to a wide range of customers.

**Biodiversity Credits**

Conservation organizations are leasing development rights from the owners of undisturbed forests and other habitats that host threatened endemic species and fast-vanishing ecosystems.

**CO₂ Offset Credits**

When landowners plant new forests and promise never to cut or burn the trees, they can receive carbon dioxide offset credits that industries will buy to help them comply with restrictions on greenhouse gas emissions.

**Renewable Electricity**

Wind farms generate nonpolluting electricity that commands premium prices in deregulated power markets. The turbines can also garner tax credits that subsidize their capital and operating costs.

**Certified Sustainable Timber**

Sustainably harvested timber is now one of numerous "eco-labeled" products that are certified as ecologically sound and sold at a premium in specialty markets.

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**Water Credits**

Careful management of water and wetlands is economically valuable for many reasons. Urban water authorities purchase water filtration credits to protect the quality of their watersheds; wetland owners can also receive compensation from government agencies for flood-control services, from conservation organizations for the preservation of migratory waterfowl breeding areas, and from agricultural cooperatives for the prevention of soil salinity increases caused by overdrawn groundwater aquifers.

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**Commodity** | **Percent of Farm’s Income** | **Customer**
--- | --- | ---
Biodiversity credits | 5 | Conservation trust
CO₂ offset credits | 10 | Steelmaker
Renewable electricity | 15 | Power market
Certified sustainable timber | 20 | Specialty market
Water credits | 20 | Urban water market
Wheat | 15 | World market
Wool | 15 | World market
## Sierra Gorda Biosphere Reserve
### Sales of GHG Emission Reductions

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<tr>
<th>Donante</th>
<th>No. de toneladas</th>
<th>Precio en dólares</th>
<th>Fecha de transacción</th>
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<td>International Institution of Facilitation and Change</td>
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<tr>
<td>Social Venture Technology</td>
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<tr>
<td>Total</td>
<td>28030</td>
<td>$ 389,974</td>
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Biosphere reserves as learning laboratories for sustainable development

**Sciences for Sustainability: Schalsee Lake BR**

- Core 1,194 ha
- Buffer 5,142 ha
- Transition 23,291 ha

- German National criteria: e.g. core must be at least 3%

- Core – strict protection

- Buffer – villages (communities of 1000 or more people) experimenting with solar, biomass and geothermal

- Transition – agricultural areas; tourism facilities

- Climate Change scenarios for the region – BR as convenor/facilitator

- 2009 - German National Year of BRs
MERCI

Thank You