



Le programme **MAB**
Vivre dans la biosphère et la protéger



Biosphere Reserves: A World Network for Sustainability Learning

Natarajan ISHWARAN

BIODIVERSITÉ

CONSERVATION

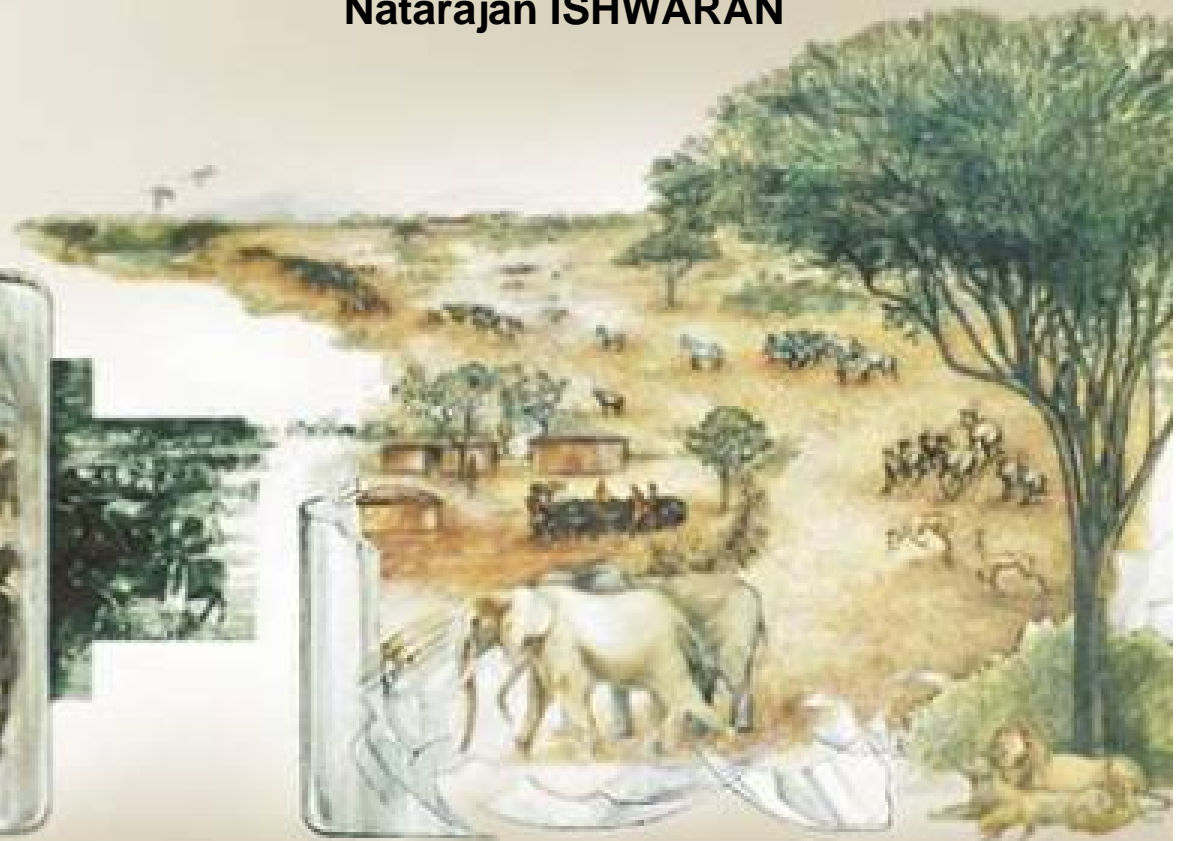
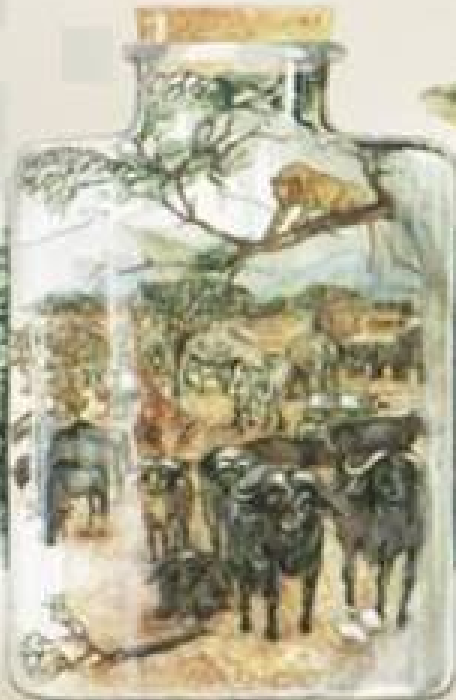
RECHERCHE

SURVEILLANCE
CONTINUE

ÉDUCATION

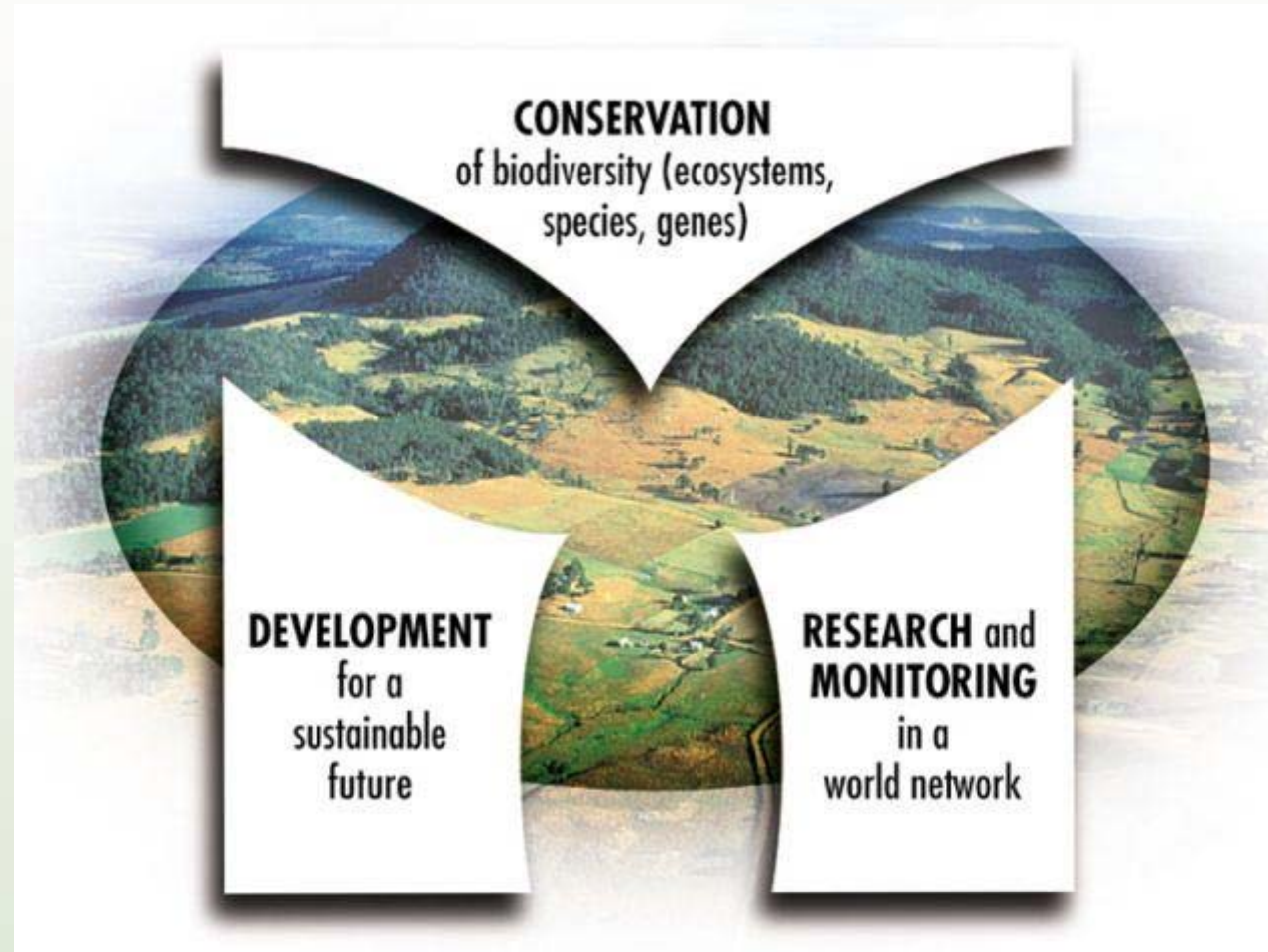
FORMATION

DÉVELOPPEMENT
DURABLE





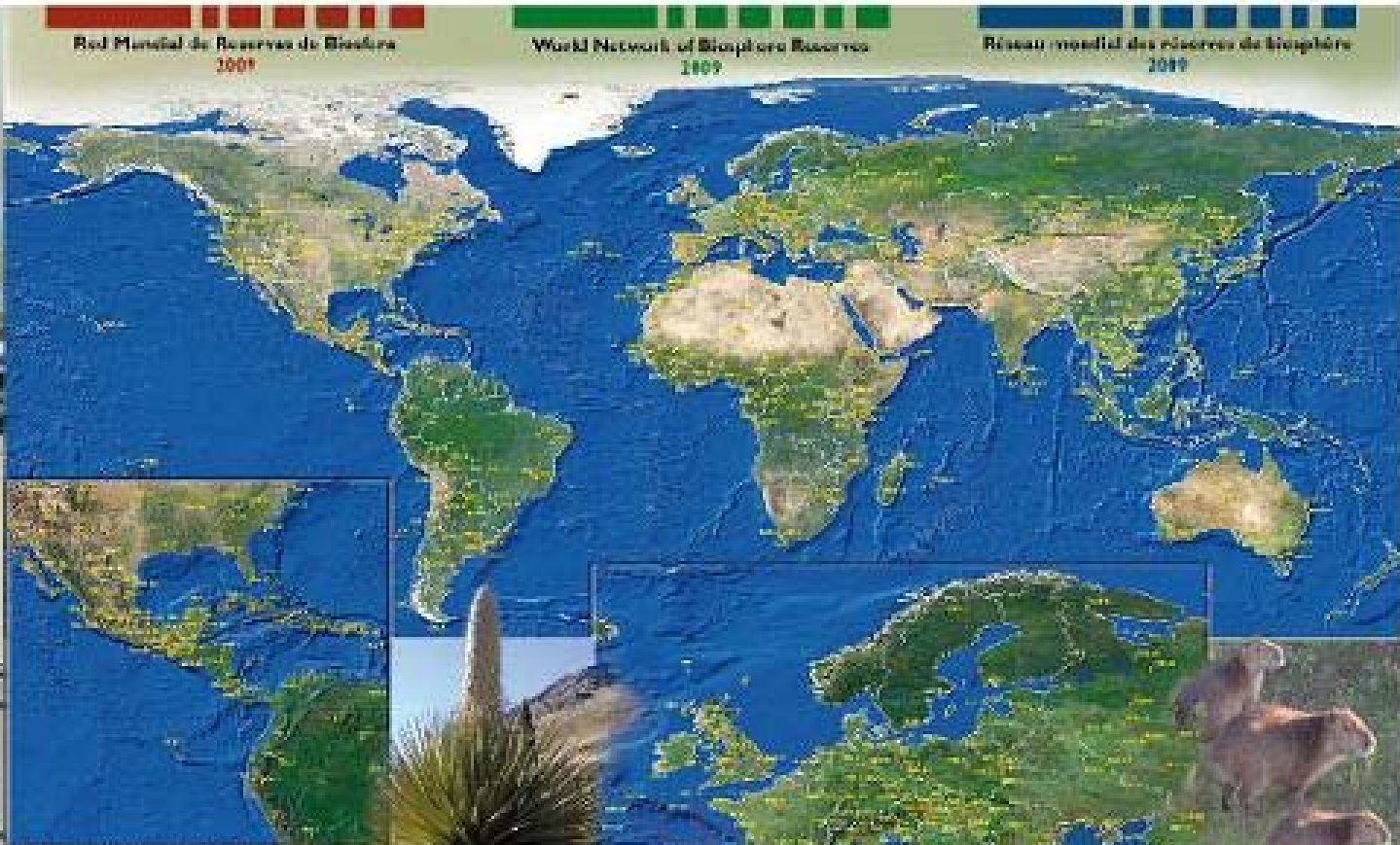
The Three Functions of Biosphere Reserves



Red Mundial de Reservas de Biosfera 2009

World Network of Biosphere Reserves 2009

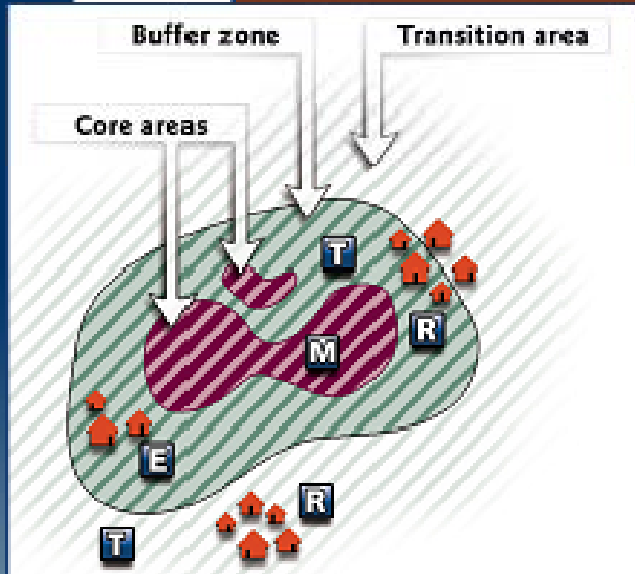
Réseau mondial des réserves de biosphère 2009



Continent	Nombre de Reservas	Países
América del Norte	10	Estados Unidos, Canadá
América del Sur	15	Brasil, Argentina, Chile, Colombia, Ecuador, Venezuela, Perú, Uruguay, Paraguay, Guayana Francesa
Europa	25	Reino Unido, Irlanda, Islandia, Dinamarca, Suecia, Noruega, Alemania, Francia, España, Portugal, Italia, Grecia, Turquía, Polonia, Hungría, República Checa, Eslovaquia, Austria, Suiza, Eslovenia, Croacia, Serbia, Montenegro, Albania, Macedonia del Norte, Bulgaria, Rumanía, Ucrania, Bielorrusia, Rusia
África	12	Egipto, Libia, Mauritania, Argelia, Túnez, Mauritania, Senegal, Gambia, Guinea, Sierra Leona, Liberia, Ivory Coast, Ghana, Nigeria, Camerún, Gabón, Guinea Ecuatorial, Congo, República Democrática del Congo, Angola, Namibia, Sudafrica
Asia	18	India, China, Corea del Sur, Corea del Norte, Vietnam, Laos, Tailandia, Camboya, Indonesia, Filipinas, Malasia, Singapur, Brunei, Australia, Nueva Zelanda
Océano Índico	5	India, Maldivas, Seychelles, Madagascar, Reunión
Océano Pacífico	10	Estados Unidos, Canadá, México, Chile, Argentina, Uruguay, Paraguay, Guayana Francesa, Nueva Zelanda, Australia, Indonesia, Filipinas, Malasia, Singapur, Brunei, Vietnam, Laos, Tailandia, Camboya, Indonesia, Filipinas, Malasia, Singapur, Brunei, Vietnam, Laos, Tailandia, Camboya, Indonesia, Filipinas, Malasia, Singapur, Brunei
Antártida	0	-
Total	80	115

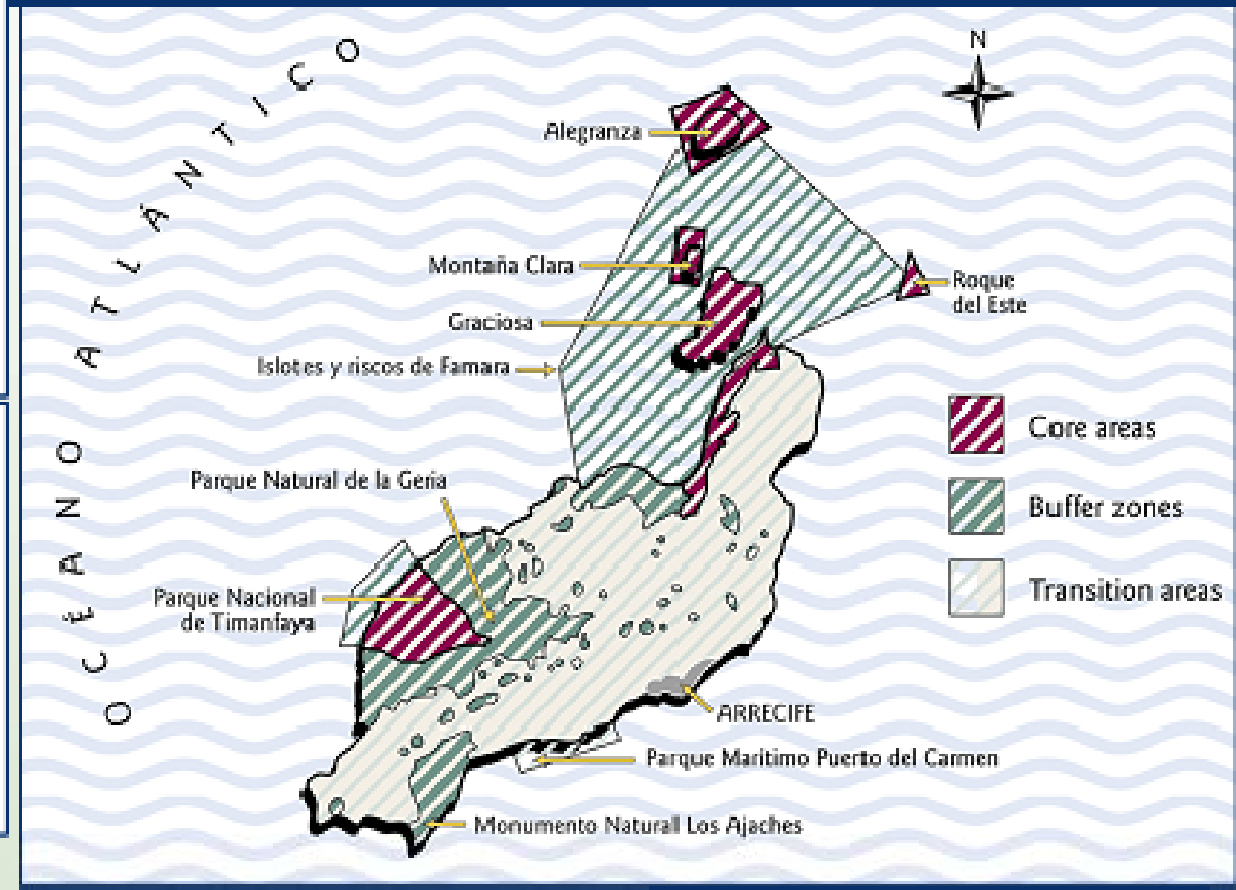


UNESCO Biosphere Reserves



- Human settlements
- Monitoring and research
- Education and training
- Research station or experimental research site
- Tourism and recreation

Evolution of the level and nature of integration



Lanzarote Biosphere Reserve, Spain

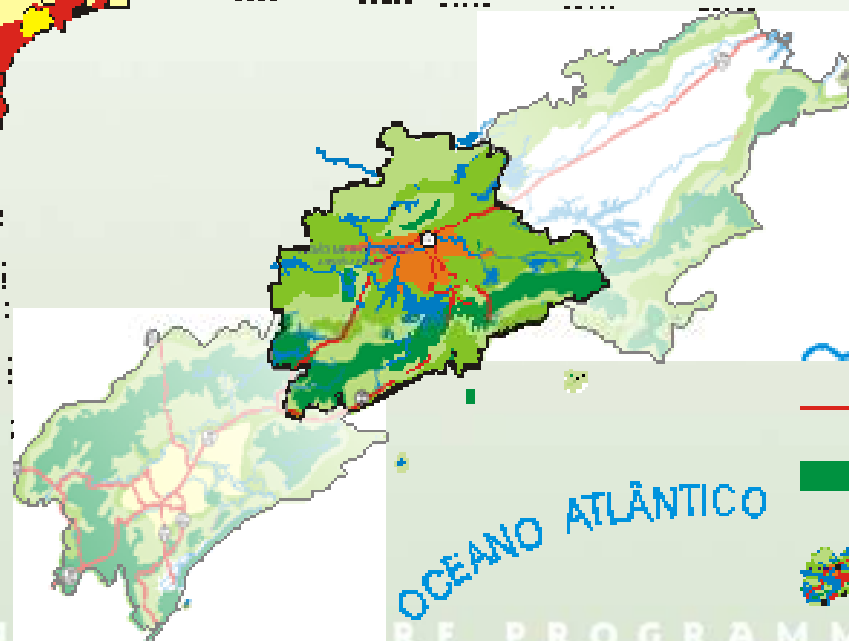




A REDE BRASILEIRA DE RESERVAS DA BIOSFERA



- Reserva da Biosfera da Mata Atlântica
- Reserva da Biosfera da Caatinga
- Reserva da Biosfera do Cinturão Verde da Cidade de São Paulo (Sistema RBMA)
- Reserva da Biosfera da Amazônia Central
- Reserva da Biosfera do Cerrado
- Reserva da Biosfera do Pantanal



- Rios
- Estradas
- Zonas Núcleo Unidades de Conservação
- Reserva da Biosfera do Cinturão Verde da Cidade de São Paulo (Sistema RBMA)

Projeção geográfica Datum: WGS84

Fonte: COM LUMMA, adaptado por Reserva da Biosfera do Cinturão Verde da Cidade de São Paulo.





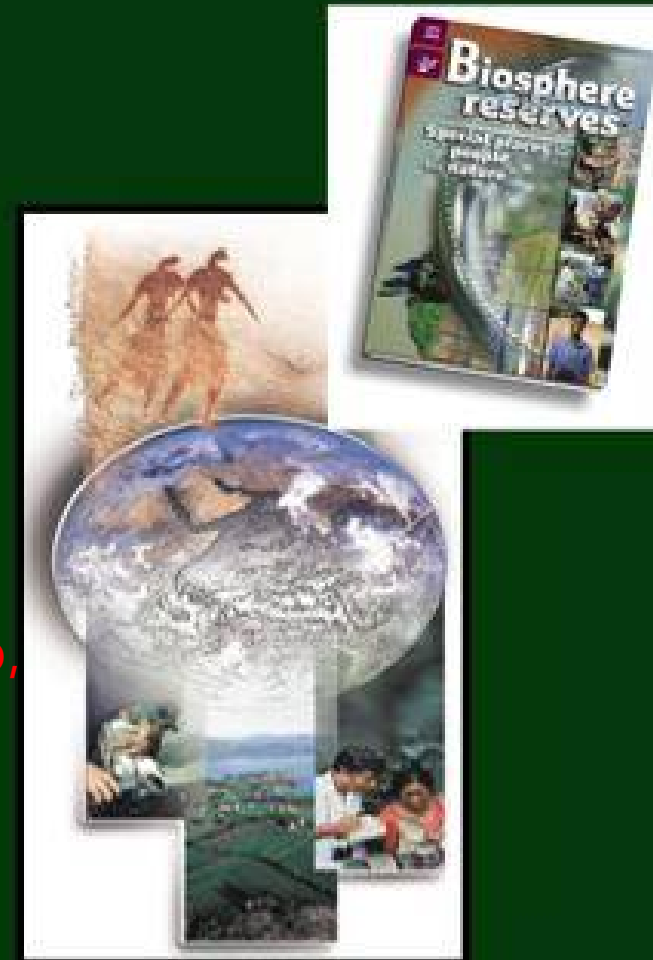
United Nations Educational,
Scientific and Cultural Organization

NATURAL SCIENCES SECTOR

Biosphere Reserves

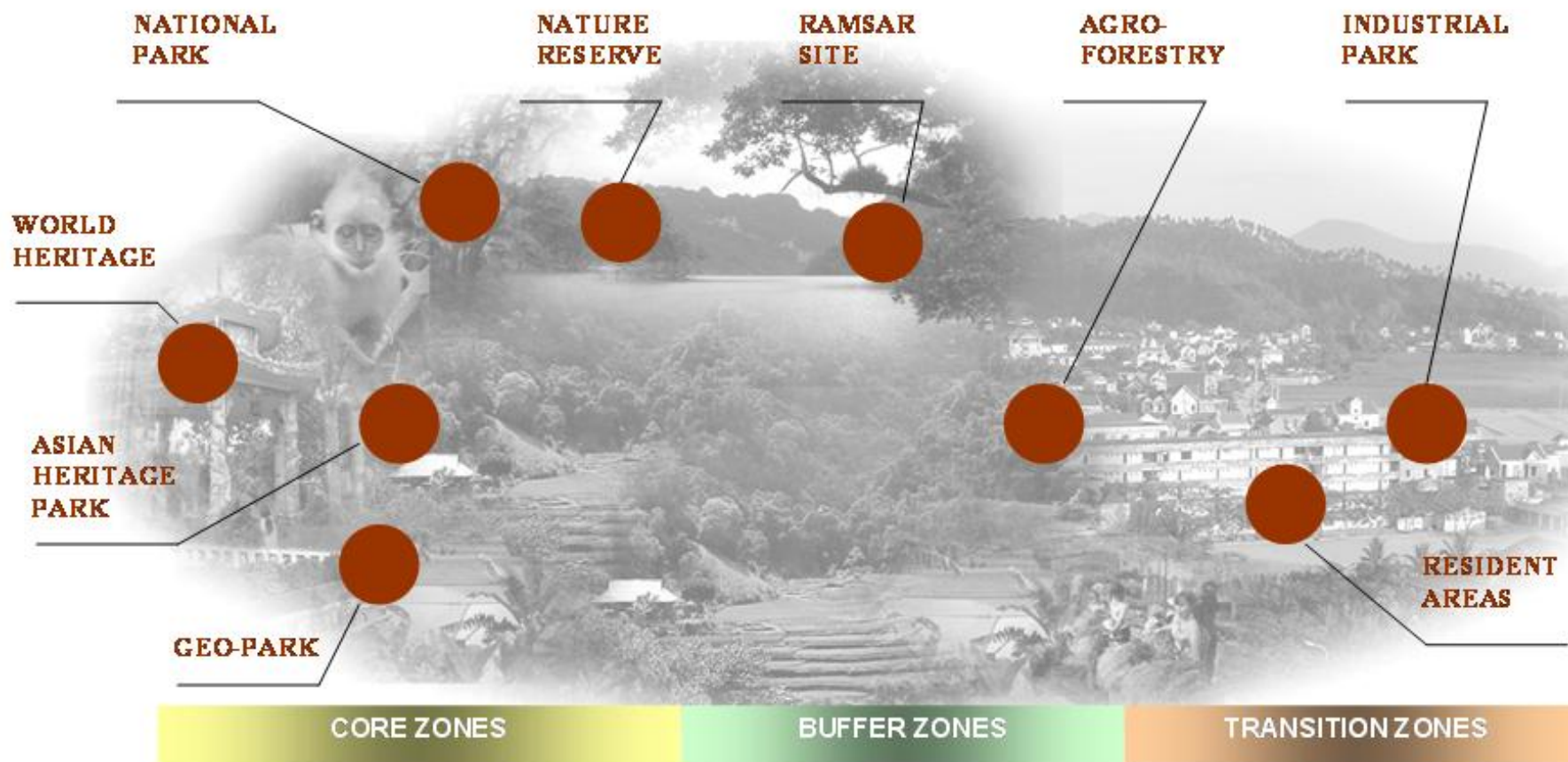
Environmental Evaluation and Biodiversity

- 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. Huascarán (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 Ecuador; same issue is other BR – e.g. Queen Elizabeth in Uganda



BIOSPHERE RESERVES AS LEARNING LABORATORIES FOR SUSTAINABLE DEVELOPMENT

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.



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VIETNAM'S PILOT PROGRAM

Biosphere reserves are demonstration sites for sustainable development



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

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

MDGs, CBD-2010 and 'One UN'

DESD in Vietnam: universities, schools, vocation centers, CLCs, ASPnet 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

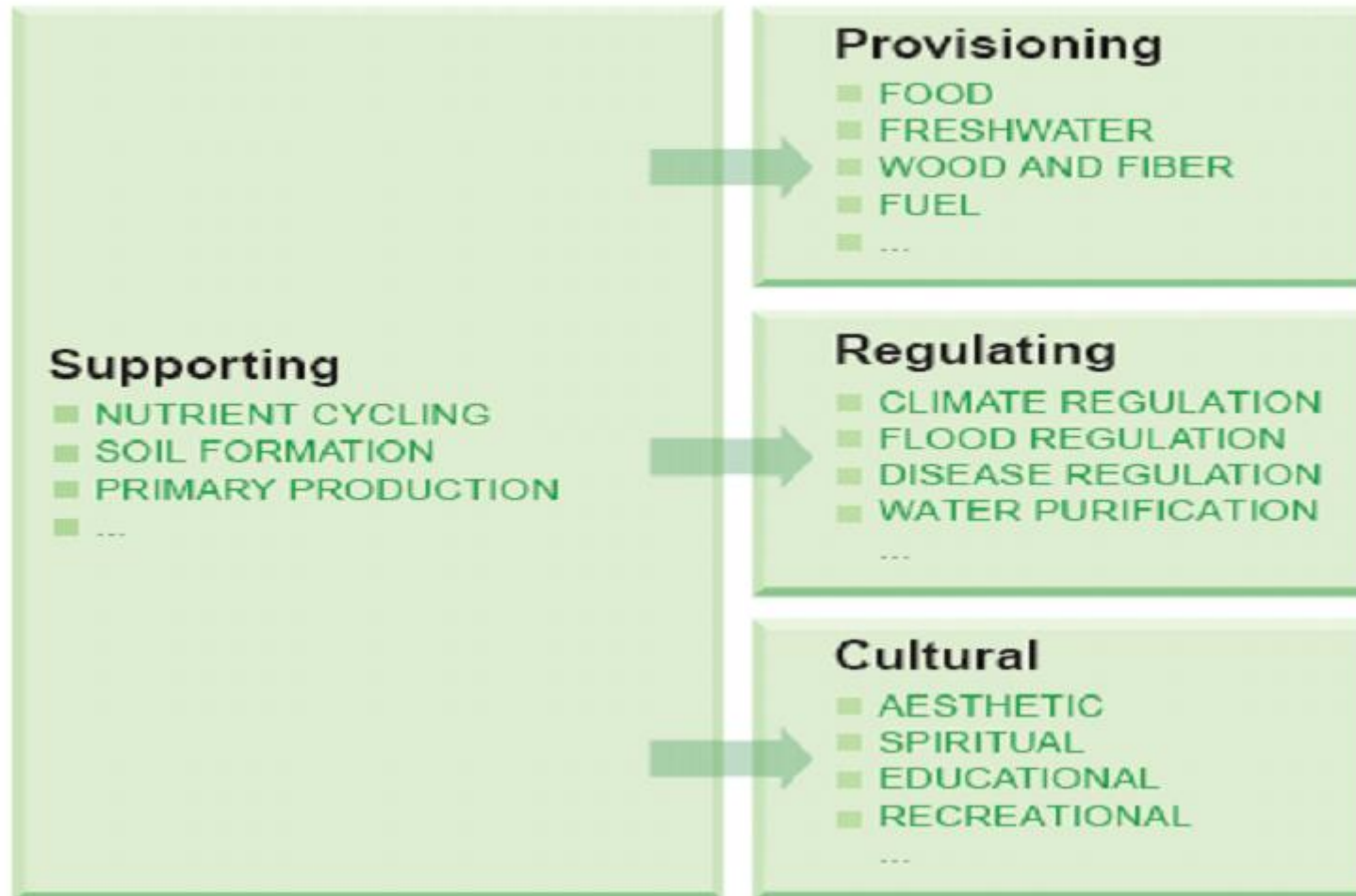
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Focus: Ecosystem Services

The benefits people obtain from ecosystems

ECOSYSTEM SERVICES



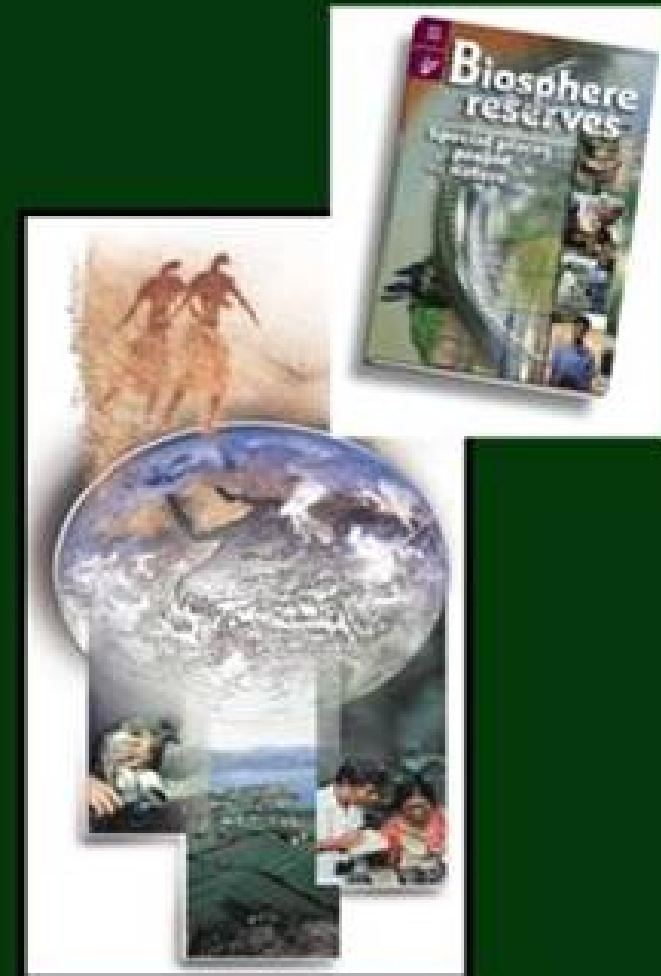


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NATURAL SCIENCES SECTOR

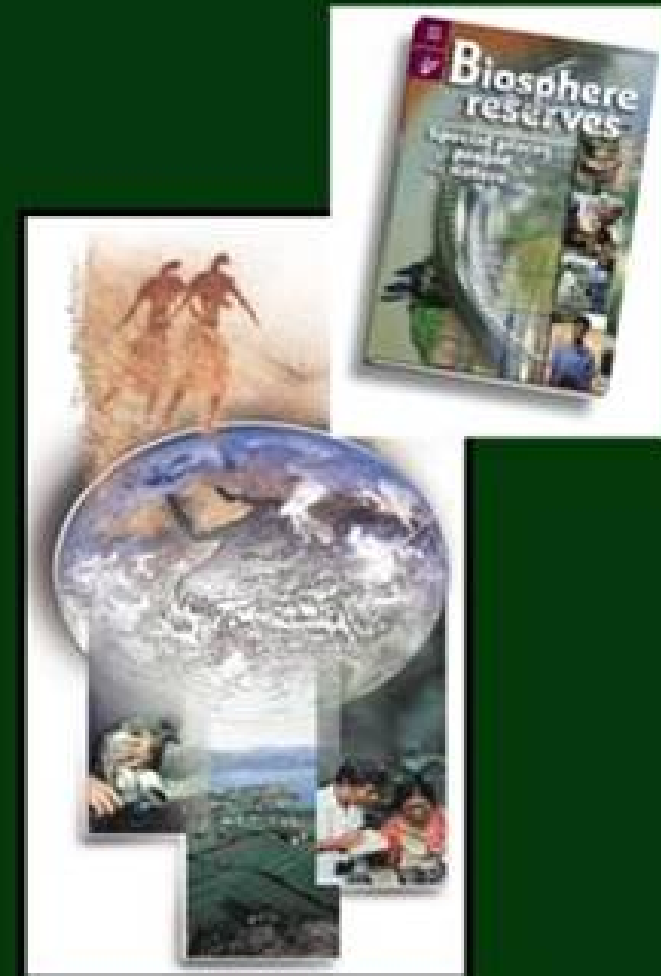
Biosphere Reserves

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



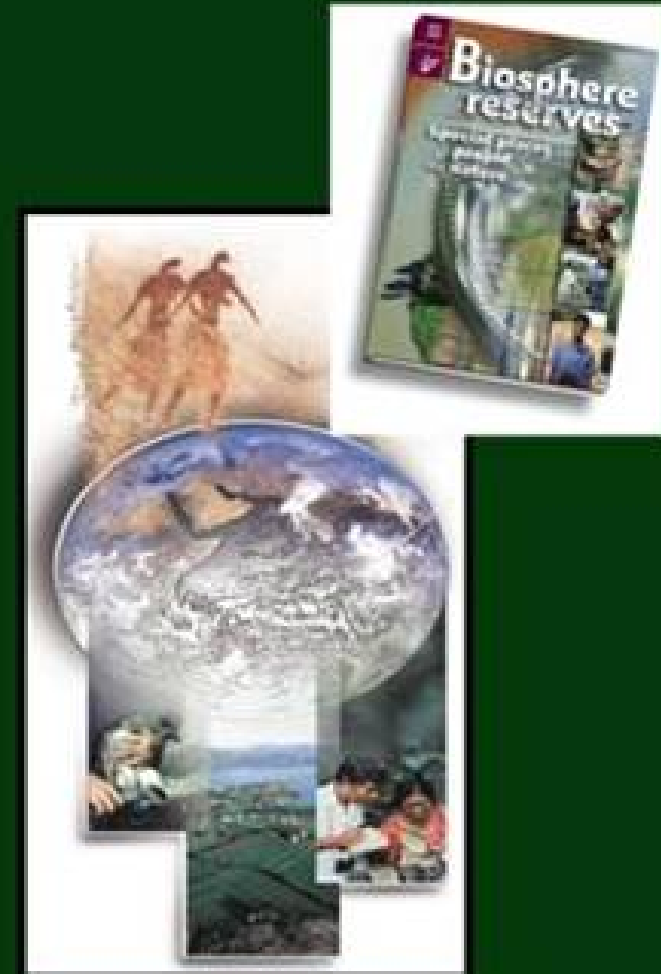
Finding Hope in the Millenium
Ecosystem Assessment (Norgaard,
R.B. 2007; Conservation Biology
22(4) 862-869)

*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*

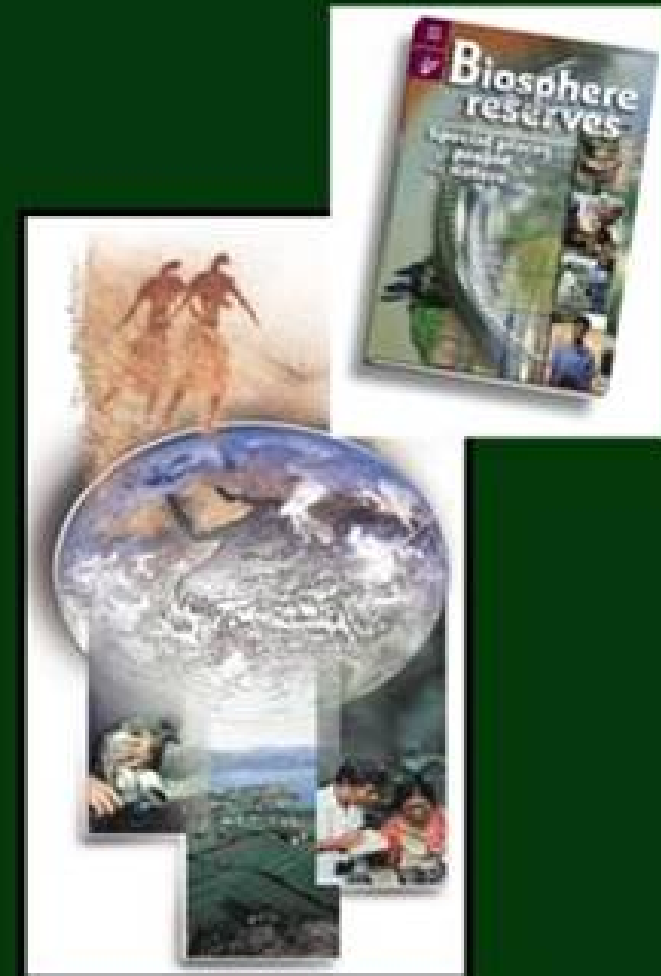


Norgaard (2007) continued

- *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*

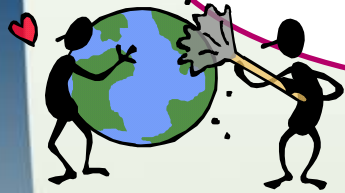
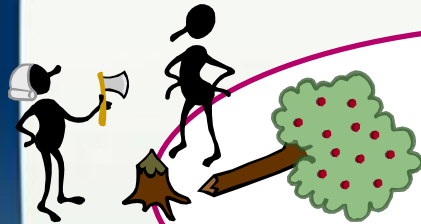


*Much practical lessons
have been learned by the
common observation of
unschooled men; and the
teachings of simple
experience, on topics
where natural philosophy
has scarcely spoken, are
not to be despised
(George Perkins Marsh,
1864)*



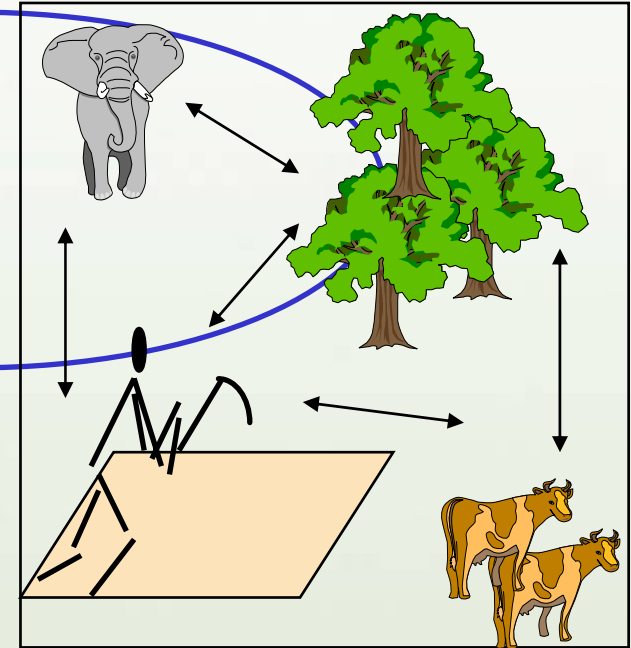


LEARNING TO DEVELOP A SHARED UNDERSTANDING OF THE SYSTEM



social dynamics

ecological dynamics



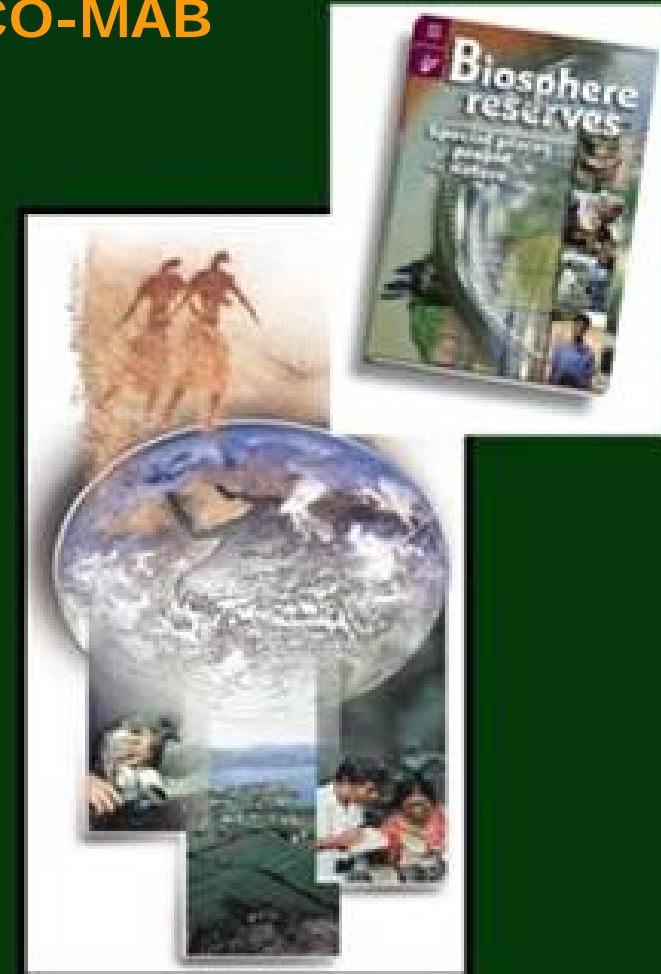
Interactions

Points of view



Learning Laboratories : Co-constructing shared questions – MAB France & UNESCO-MAB

- A** = Actors
(stakeholders)
- R** = Resources
- D** = Dynamics
(processes)
- I** = Interactions





Veracel Before

STORAENSO 



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MAN AND BIOSPHERE PROGRAMME



Veracel Now



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MAN AND BIOSPHERE PROGRAMME

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.



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.



COMMODITY	PERCENT OF FARM'S INCOME	CUSTOMER
Biodiversity credits	5	Conservation trust
CO ₂ 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

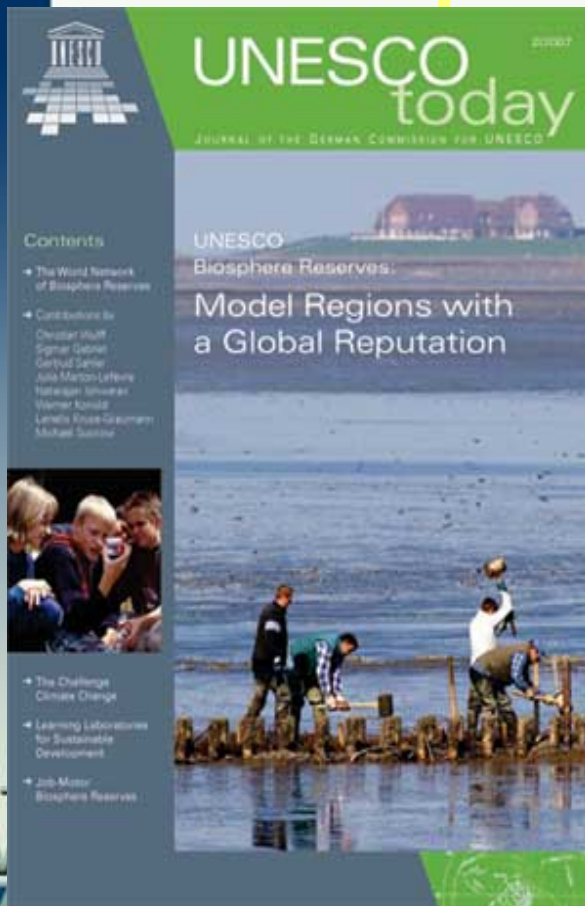


Sierra Gorda Biosphere Reserve Sales of GHG Emission Reductions

Donante	No. de toneladas	Precio en dólares	Fecha de transacción
United Nations Foundation	5230	\$ 52,300	2006
United Nations Foundation	88	\$ 880	2007
Utah State University	203	\$ 3,045	Noviembre 2007
TBLI	298	\$ 4,470	Diciembre 2007
Schwab Foundation	102	\$ 1,530	Febrero 2008
Live Climate	200	\$ 3,000	Abril 2008
World Land Trust	3253	\$ 48,795	Abril 2008
LGT Venture Philanthropy	350	\$ 5,250	Agosto 2008
Fundación Ecología y Desarrollo	8306	\$ 124,590	Octubre 2008
AccióNatura	10000	\$ 146,114	Octubre 2008
International Institution of Facilitation and Change	Organizaciones en línea o pendientes		
Social Venture Technology			
Total	28030	\$ 389,974	



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 convener/facilitator
- 2009 - German National Year of BRs



MERCI

Thank You

