

**MANAGEMENT OF MAB VIETNAM'S NETWORK OF
BIOSPHERE RESERVES THROUGH THE APPROACH OF SYSTEM THINKING,
LAND/SEASCAPE PLANNING, INTER-SECTORAL COORDINATION
AND QUALITY ECONOMY (SLIQ)**

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ABSTRACT

This paper presents the current SLIQ approach for designating and managing Vietnam's network of biosphere reserves in Vietnam, with a case study of the Cat Ba Archipelago. The SLIQ approach is first introduced by MAB Vietnam, which stands for "Systems Thinking" (S), "Land/seascape and Spatial Planning" (L), "Intersectoral Coordination with Involvement of Stakeholders" (I), and "Quality Economy" (Q).

The SLIQ approach has been piloted and implemented in the Cat Ba Archipelago Biosphere Reserve since 2004 with several remarkable outcomes. Those include the application of both "soft" and "hard" systems thinking methodology in the motto of "conservation for development and development for conservation" and the intensive research and development of the Cat Ba Biosphere Reserve World's First Learning Laboratory for Sustainable Development; effective zoning plan for harmonious conservation and development, a pioneering management board of provincial mandate; the Biosphere Reserve Certification Label for adding values to local products and services, and the first of its kind Sustainable Development Fund for Cat Ba Biosphere Reserve.

It is emphasized that Biosphere Reserve is not a Protected Area per se, though biosphere reserves integrate conservation as one of the core management objectives. Biosphere Reserve fulfills three main interrelating and mutually-sustaining functions, such as conservation, development and logistics support. In this sense, Biosphere Reserve should be viewed as a practical model for sustainable development. We recommend that SLIQ continue to be a unique identity-defining feature and operational framework for biosphere reserve performance in the coming decades.

Keywords: Biosphere Reserve management, SLIQ, systems thinking, sustainable development

INTRODUCTION

Biosphere reserves are sites established and managed by countries and recognized under UNESCO's Man and the Biosphere (MAB) Program to promote sustainable development. Biosphere reserves seek to reconcile conservation of biodiversity, cultural values, and economic and social development through partnerships between people and nature from local

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to international scales. The concept of biosphere reserve traced back to 1970s in the starting era of searching for innovative approach to sustainable development. Today, there are 621 biosphere reserves across 117 countries (UNESCO 2013).

Vietnam joined the World Network of Biosphere Reserve in 2000, with the first designation of the Can Gio Biosphere Reserve. Since then, there have been 7 other biosphere reserves recognized for Vietnam. All of the biosphere reserves in Vietnam adopt the modern “third generation” zoning scheme, i.e composing of three functional zones such as core zone, buffer zone and transition area. This inclusive spatial zoning scheme allows for integration of conservation and development as a whole in the management of any particular issue within the biosphere reserve with a overall goal for sustainability.

This paper presents the current SLIQ approach for designating and managing Vietnam's network of biosphere reserves in Vietnam, with a case study of the Cat Ba Archipelago. SLIQ approach is first introduced by MAB Vietnam, which stands for “Systems Thinking” (S), “Land/seascape and Spatial Planning” (L), “Intersectoral Coordination with Involvement of Stakeholders” (I), and “Quality Economy” (Q).

Cat Ba Archipelago Biosphere Reserve

Cat Ba Archipelago Biosphere Reserve (Figure 1) was designated by UNESCO in December 02, 2004 due to its important biodiversity, landscape, cultural and socio-economic values. It has a total area of 26,241 ha (17,041 ha of land and 9,200 ha of marine ecosystems), with 3,885 recorded fauna and flora species. It lies within most of Cat Hai District of Hai Phong City, Vietnam and comprises 90% of Cat Ba Island including its surrounding waters and 366 karst limestone islets. Cat Ba marine is part of a National and International Significant Marine Protected Area. Cat Ba Archipelago is now in the process of nomination as a World Natural Heritage (CBBR 2013).

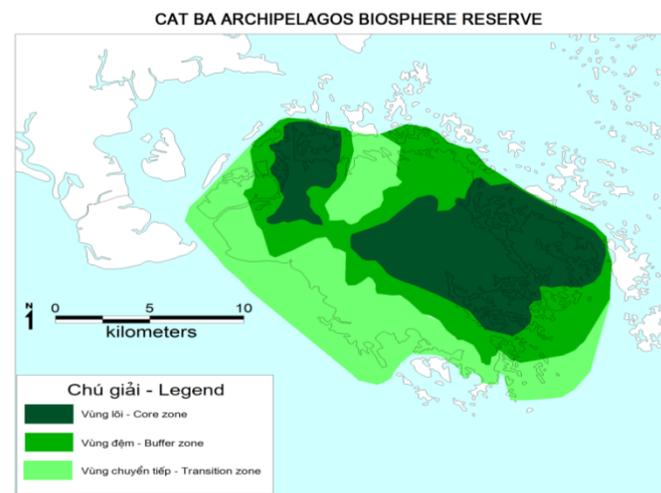


Figure 1: Zonation map of the Cat Ba Archipelago Biosphere Reserve

SLIQ – THE METHODOLOGY

Management of Biosphere Reserve is basically the coordination among existing stakeholders to reach the common goals for the Biosphere Reserve (Hoang Tri, 2011). This process in managing the Vietnam Network of Biosphere Reserves is facilitated by the research and application systems thinking, landscape planning, intersectoral coordination and development of Quality economy programs.

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Systems Thinking

Systems Thinking is interpreted and applied both academically and practically. Ever since its inauguration in Vietnam, biosphere reserves have been recognized for distinctive role for harmonizing conservation and development. It is a motto and operational framework by MAB Vietnam for guiding the management of biosphere reserve that biosphere reserve is used dually-mutual “conservation for development and development for conservation” (Hoang Tri, 2011). In this sense, biosphere reserve should be viewed as a system in its self, which comprises of various natural, cultural and socio-economic components; in turn, it is part of the bigger systems of the wider tenure, e.g. national, regional, thematic, global network systems of biosphere reserves. Biosphere reserve serves three mutually reinforcing functions of conservation, development and logistics support, through the wise interaction among the existing stakeholders within a ecological-human interface. Biosphere reserve is open and self-sustaining systems, which also receives and creates dynamics from its intra- and external network systems. The soft systems thinking approach to sustainable development requires consideration of conservation and environmental impacts in every aspect of development actions and the vice versa across the three zones of the biosphere reserve (Figure 2).

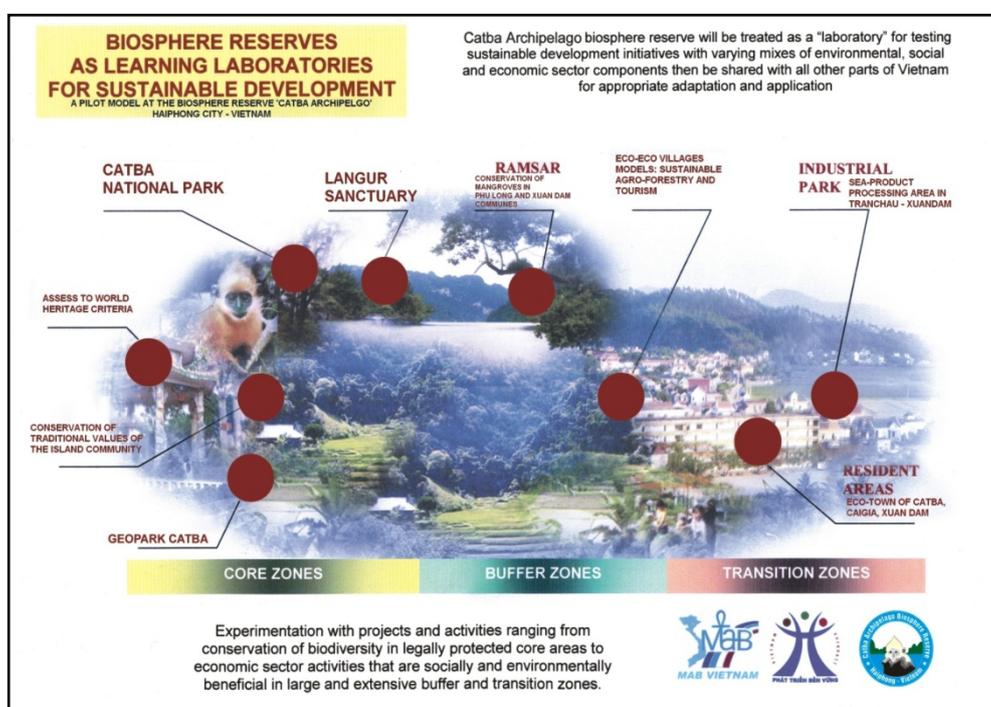


Figure 2: A “rich picture” of Cat Ba Biosphere Reserve

Underlying questions when applying systems thinking in biosphere reserve management include: how to understand the BR system?, how to identify relationships among and between the main factors? And how to apply the adaptive management?

Cat Ba Biosphere Reserve has been established as a Learning Laboratory for Sustainable Development (Bosch & Tri 2009). This approach integrates academic, management and indigenous knowledge is to visualize the complicated interrelationships among the management issues of conservation and development. It helps facilitate a common understanding of the big-picture of biosphere reserve management issues, which in practice often viewed and addressed linearly by reductionist view and individual sectors.

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Landscape planning

Landscape Planning principle have received an international statutory framework through the UNESCO/MAB biosphere reserve designation with compulsory three zoning scheme. In Vietnam's network of biosphere reserve, the National Man and Biosphere Reserve Committee has facilitated and promoted this principle in a wide variety of landscape/seascape with different political-ecological-cultural tenures. There are appropriate schemes for harmonious conservation and suitable development zoning in all of the eight biosphere reserves. Six biosphere reserves are with integrated terrestrial-coastal/wetland/marine components and buffer/corridors. Three biosphere reserves encompass almost the whole province. Two biosphere reserves link world and national cultural heritage sites, while all other biosphere reserves integrate cares for local indigenous cultural values.

Biosphere reserves are zoned by landscape ecology-based planning or landscape planning to use the patch-corridor-matrix model for a patch on land surrounded by diverse habitats for biological conservation. This involves basic landscape ecology, inter-connectedness (village nature, fishing, boating area etc), zonation of vegetation, regional land-use planning, nature and cultural landscape integration (see Figure 3). There are underlying considerations for applying landscape planning in establishing and management of biosphere reserves, such as: how to zone/arrange landscapes to various users?, how to use the patch-corridor-matrix model (Connection) for biodiversity conservation?, how to use bio-cultural landscape for Socio-ecological adaptive system?

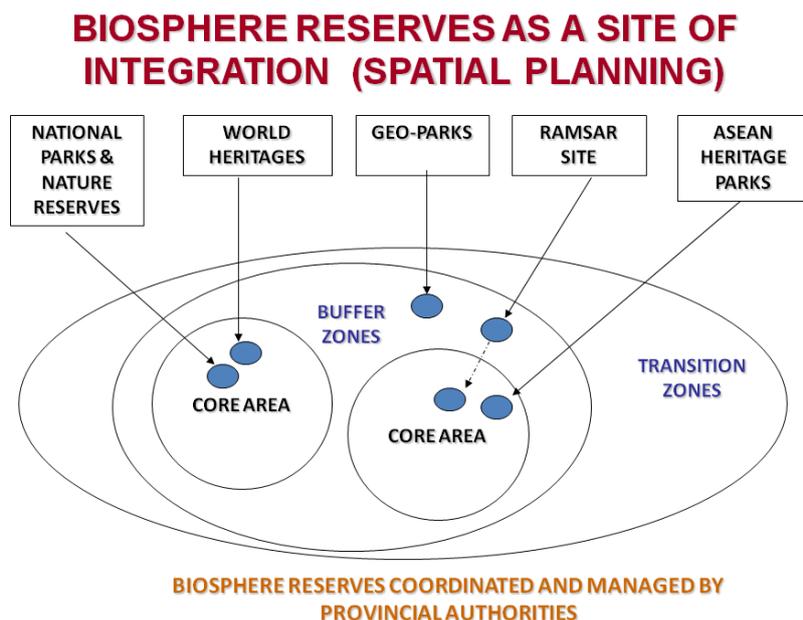


Figure 3: Landscape planning of a model SLIQ biosphere reserve in Vietnam (Hoang Tri,2011)

Cat Ba Archipelago Biosphere Reserve applies three zoning scheme (two core zones, 8,500 ha; two surrounding and corridor buffer zones, 7,741 ha; and two transition zone of 10,000 ha). It is noted that the core zone of the Cat Ba biosphere reserve encompasses most of the Cat Ba National Park for strengthened conservation. A biosphere reserve management regulation of provincial mandate has been ratified since 2005 to provide legal framework for arranging conservation and development activities within suitable space and scope compatible

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for each of the zones. Monitoring and enforcement of the planning scheme for land and marine areas are supported by governmental agencies, communities and private sectors (see Figure 4).

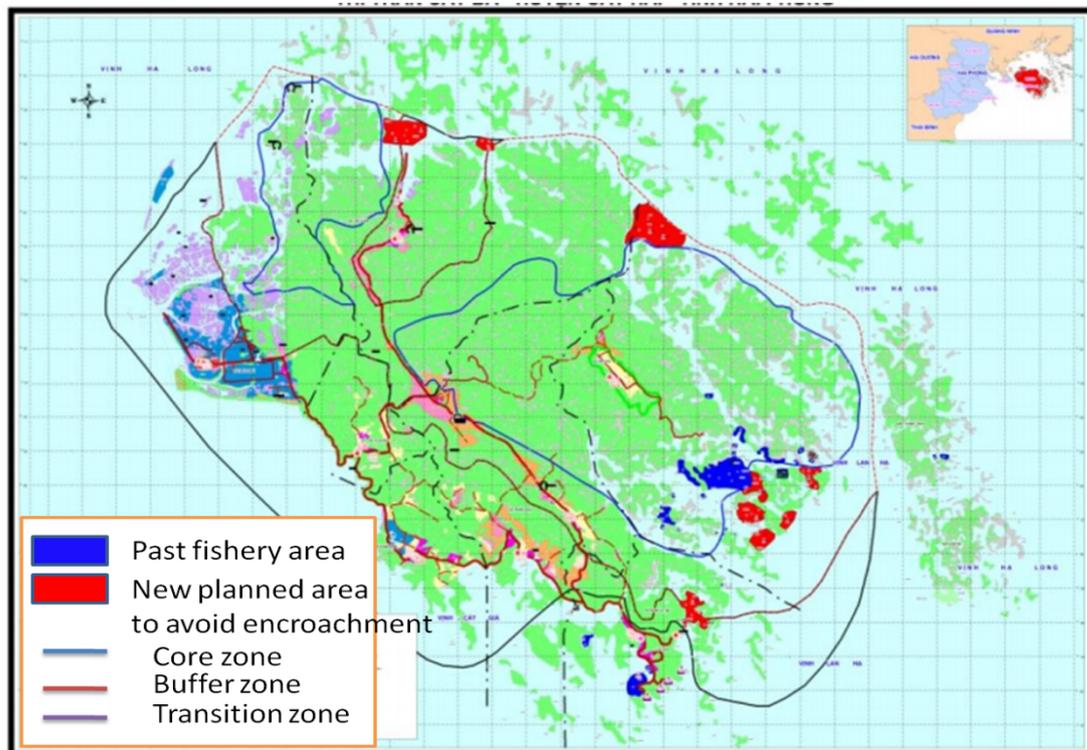


Figure 4: Adjust Aquaculture Plan to fit zoning of the biosphere reserve and climate change

Intersectoral Coordination

Intersectoral Cooperation is ensured by both top-down and bottom-up approaches. It requires bringing actors from the state, market and civil society sectors together to achieve mutual understanding on an issue and negotiate and implement mutually agreeable plans for tackling the issue once it is identified (see Figure 5). This process involves developing partnerships and stakeholder involvement, combining the top-down and bottom – up approaches and promotion of community participation. In cases of transboundary biosphere reserve, such as the Red River Delta Biosphere Reserve, coordination implies the co-working between the three different provincial bodies and their subordinate agencies in order for effective biosphere reserve functioning (Hoa & Tri 2013).

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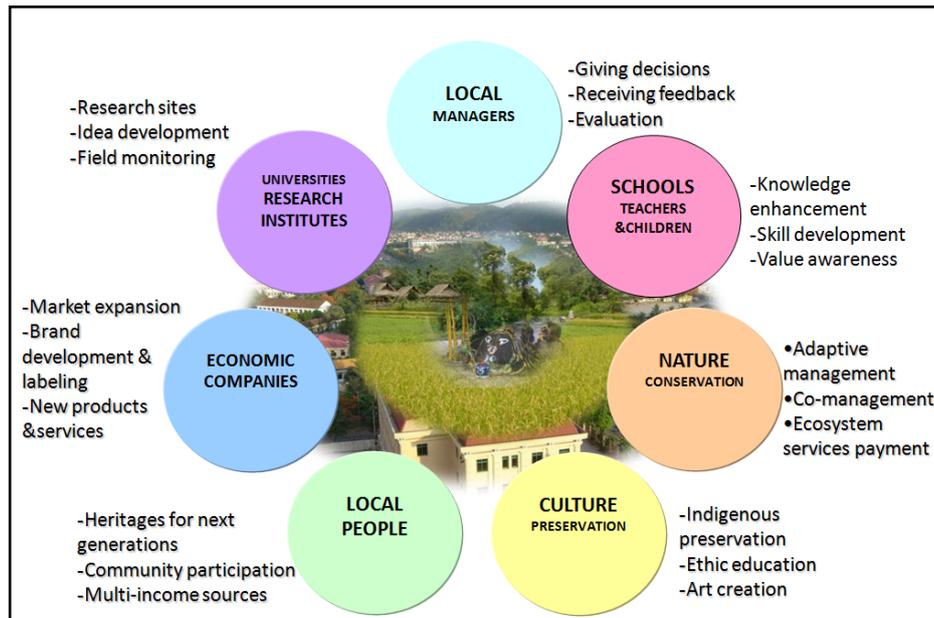


Figure 5: Coordination of stakeholders in Biosphere Reserve (Hoang Tri 2012)

For the Cat Ba Archipelago Biosphere Reserve, a Management Board with provincial power has been established in 2005, which is led by a provincial vice chairman as a director, three vice directors being leaders of the key departments relating to the biosphere reserve (department of agriculture and rural development, Cat Hai district, and the department of tourism, sports and culture) and eight other members of the board being representative leaders from relating municipal authorities. This is the first management board of its kind being established, which has been replicated in other biosphere reserves in Vietnam. The wide presentation of governmental departments in management of the biosphere reserve ensures a coordinating role by the local/provincial government in concentrating support from different governmental, private sector and international aid for conservation and development of the biosphere reserve.

Along with coordination across governmental bodies, there are strong involvement of communities in the Cat Ba Biosphere Reserve, particularly through community-based forest and wild-life conservation projects initiated by both governmental policies and NGOs. There is a remarkable increase in attitude of local people towards nature conservation and environmental protection. Almost all of the hunters now stop hunting and some even become wildlife protectors and conservation mentors.

Quality Economy Program

Duality is “the totality of features and characteristics of a product or service that bears on its ability to satisfy stated or implied needs” (ISO 8402: 1986). Labeling of goods and services from biosphere reserves could help promote the development of quality economies in biosphere reserves and therefore contributing to sustainable development. Quality in the context of economic development in Biosphere Reserves implies a conservation-based economy, value creation and increased economic benefits for local people, consumption and production in line with sustainable development, fair distribution, solidarity, awareness of conservation of nature and culture, and networking among Biosphere Reserves. Underlying principles for quality economy include: How to develop the conservation-based economy?, how to manage the quality economy?, and how to promote private sector/NGOs to involve?

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Quality Economy program has been implemented in the Cat Ba biosphere reserve since 2005, with aims to add value to local special products and services through using the biosphere reserve logo as label with the international designated reputation. Quality economy, though launched earlier in biosphere reserve, is remarkably compatible with the current movement of Green Economy and Green Growth derived from the post Rio+20 Summit on Sustainable Development.



The Cat Ba Biosphere Reserve

Quality Economy program in the Cat Ba Biosphere Reserve has two noticeable achievements, including a green/eco-labeling scheme “the Cat Ba Biosphere Reserve certification label” (UN in Vietnam, 2011), and the Cat Ba Biosphere Reserve Sustainable Development Fund.

The Cat Ba Biosphere Reserve Certification Label is launched since 2007, which makes use of the Cat Ba Biosphere Reserve Logo to register as a value added label for local products and services. This label applies for five groups of products and services, such as fish sauce, bee honey, tourist boat services, recreational parks, hotel, guest house and restaurants. A Cat Ba Biosphere Reserve Label Business Club has been voluntarily established by the business owners to promote the use of biosphere reserve well-known brand and green practices. Other products and services aimed at by Quality Economy program in the Cat Ba Biosphere Reserve include sustainable ecotourism, biogas, organic vegetable and flower planting, responsible fishery farming, marketing of local chicken, goat and orange varieties etc.

Meanwhile, the Cat Ba Biosphere Reserve Sustainable Development Fund, which is another initiative of MAB Vietnam and the Cat Ba Biosphere Reserve Management Board launched in 2009, currently engages 12 private businesses and donors to raise the seed fund of more than VND 1,5 billion. The fund is aimed at financing initiatives for conservation and sustainable development in the Cat Ba biosphere reserve.

With the above mentioned outcomes through SLIQ approach, Cat Ba Biosphere Reserve was showcased as a Vietnam's national good practice in combining conservation and development for sustainable development at the UN Conference on SD, Rio+20, June 2012.

SLIQ – THE STATUS AND OUTLOOK

Approaches of SLIQ for biosphere reserves are complex and the concept have developed over time, creating challenges for managers. There is still some confusion in viewing biosphere reserves as protected areas, while other may lack understanding on structure and function of BRs, especially buffer and transition zones.

At a national network level, there is a need to further institutionalize biosphere reserve concept and working approach by the central government. Biosphere reserve can be used as a regional model for sustainable development within context of national strategy framework for Agenda 21 of every province where they are located.

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CONCLUSION AND RECOMMENDATIONS

Biosphere Reserve is not a Protected Area per se, though it integrates conservation as a core management objective. Biosphere Reserve fulfills three main interrelating and mutually-sustaining function of conservation, development and logistics supports, which can be a practical tool for sustainable development planning and management using the SLIQ approach.

The following recommendations are made for the development of strategies for national and regional networks in the coming periods: (i) Continue research and application of SLIQ approach, including production of a national guideline, to make this mainstreamed and defining features of biosphere reserve; (ii) Capacity building for biosphere reserve staff in project management skills, GIS and related management technologies; (iii) Assessment of biosphere reserve and network performance (with climate change considerations); (iv) Green network of Biosphere Reserve – World Heritage with linkage to urban area (whole province as a BR in VN); (v) Conservation of heritage values (biodiversity, geopark, cultural); and (vi) Education for all, particularly youth on roles and values of biosphere reserves.

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