Establishing the Cat Ba Biosphere, Vietnam as a Learning Laboratory for Sustainable development

Professor Ockie Bosch[1] & Assoc. Professor Hoang Tri[2]

1 School of Integrative Systems, The University of Queensland, Australia & Chair International Committee for Systems Education
2. Hanoi National University of Education & Secretary MAB Vietnam

Partnerships

The University of Queensland (School of Integrative Systems); Hanoi National University of Education; Hai Phong Peoples Committee.

The Cat Ba Biosphere Reserve, Vietnam

Cat Ba is a large island in a chain of islands in the Tonkin Gulf. It is the largest of more than 360 small islands which make up the Cat Ba Archipelago located in north-eastern Vietnam. It is identified as one of the areas of highest biodiversity importance in the country and is recognized as having a high priority for global conservation

Objectives of the Partnership

Sustainable development now occupies centre-stage in global efforts to understand and guide processes of societal change at local, national and international levels. Biosphere Reserves can be platforms for policies and practices that facilitate:

- conservation and sustainable use of biodiversity;
- economic growth of local communities; and
- the emergence of knowledge-based management arrangements at local, provincial and national levels.

In this regard, Biosphere Reserves could serve as **learning laboratories** for sustainable development agendas. The UN Decade of Education for Sustainable Development (UNDESD; 2005-2014) presents a clear opportunity to position the World Network of Biosphere Reserves within such a worldwide niche for the benefit of sustainable development learning and practice of present and future generations.

Stronger linkages between research and **capacity building** with policy professionals and stakeholder communities are required in addressing sustainability issues and problems, and there need to be a greater awareness of the **role knowledge-based institutional arrangements** (such

as the research, learning and adaptive management approaches in Biosphere Reserves) are playing in sustainable development.

The main objective of the partnerships is therefore to support the Vietnam MAB National Committee to develop an approach and model to establish Biosphere Reserves as Learning Laboratories for Sustainability that can be implemented in Vietnam and serve as a framework for extending the model to other parts of the world. Several other secondary objectives include issues such as:

- Assist with developing funding applications for demonstration projects and systemic interventions)
- Developing mechanisms to be involved in the training of Vietnam students at Masters and Ph.D. levels working on sustainable development problems and issues in Vietnam's Biosphere Reserves
- Discussing specific programs targeted to providing short-term training to policy and decision makers at local, provincial and national governments
- Finding mechanisms to ensure regular exchange and establishment of active collaboration between Vietnam MAB-HNUE, UQ (School of IS), HPPC, Vietnam BRs, Government Departments and the provincial administrations responsible for BRs

Sharing/networking process

A **Cat Ba Learning Laboratory Office** has been established to:

- develop robust M&E standards or reporting mechanisms to capture lessons and pass up the policy chain. These need to be standardised across all pilot initiatives;
- obtain comprehensive baseline date from the outset. In the case of Cat Ba BR much of this remains to be collected and studied.
- identify local and national priorities for SD to be tested within the "laboratory", but also be responsive to proposals from the private sector who might need a solid testing ground for new techniques etc;
- be the "facilitator" for capturing the lessons and passing them up and down the policy development and delivery chain;
- be made of up staff that have some research background. Staff need to be able to respond quickly to proposals and collate and collect baseline information relevant to the proposal, formulate an M&E plan, direct the NGO or proposing organisation to the relevant local partner/s, disseminate "tenders" for priority pilot projects to donors and implementing agencies for support;
- formulate a rapid appraisal and approval process for each pilot initiative. This then becomes the incentive for private sector and international investment/interest in the LL;
- have up to date baseline data readily available for each project, and if it doesn't exist, then it needs to able to rapidly research and get the data needed;

Partnerships have been formed to first of all, as mentioned, help establish Biosphere Reserves as "Learning Laboratories for Sustainability". The concept further includes forming partnerships with major stakeholders, involving them in the development of a comprehensive model of the system under consideration (see Figures 1, 2 and 3 below), and using the model to identify possible systemic interventions and leverage points in the system that could help to achieve a sustainable system.

The identified leverage points and systemic interventions directly determine the nature of the capacity building and research projects that will need to be carried out in managing the Cat Ba BR (and later extended to other areas globally). While researchers in the School of Integrative Systems are currently actively involved in capacity building in systems-based approaches, integration of existing research data and information, the development of decision support systems and the evaluation of management strategies being applied in the Learning Laboratory (currently through a postdoctoral appointment, four PhD student projects, and direct involvement of staff), there **will be a high demand for expertise** from areas outside the School of Integrative Systems and the HNUE's areas of expertise and interests (e.g. health, social issues, planning and engineering). The program will be actively promoted in other relevant Faculties of the University and other Universities in Vietnam. Involvement has been initiated through the creation of **opportunities to advise Masters**

and PhD students from Vietnam in relevant Schools across The University of Queensland and through co-advising of students by Universities in Vietnam.

Results

Initial identification of main leverage point - Lack of Integrated planning

The Cat Ba Island is currently experiencing strong growth in tourism (and revenue), while environmental degradation continues and high levels of poverty in several of the communes persist. A systems approach (Causal Loop Modeling) has been used to explain the sources of complexity that has given rise to Cat Ba's predicament. From the CLD it can be seen that the relationships between the key variables are far from simple or linear. The CLD further demonstrates the influence of qualitative variables such as "Government Policy" and its chain effects on other key outcomes. An inspection of this CLD reveals that the current undesirable outcomes (poverty, environmental degradation and unsustainable tourism) can be traced back to the lack of integrated planning leading to fragmented government policies. An unintended consequence of this is that the international aid agencies operate in isolation, each trying to "fix" a different problem separately (treating the symptoms).

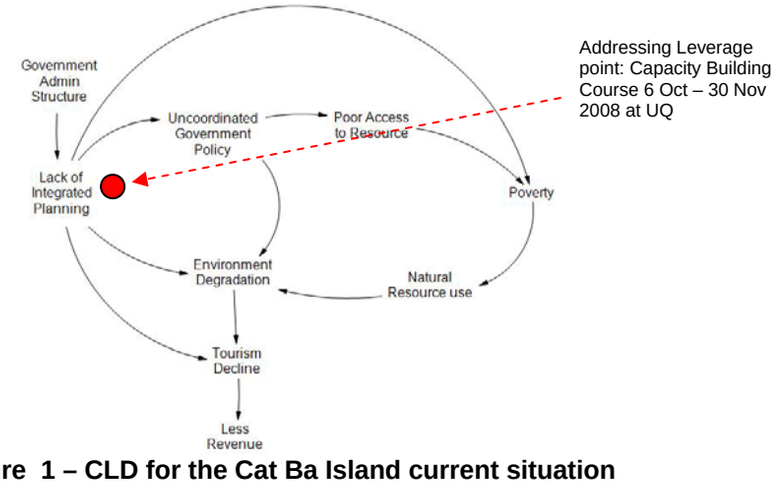


Figure 1 – CLD for the Cat Ba Island current situation

Having identified the root causes of complex problems, the appropriate intervention strategy has been identified as improving integrated planning and coordinated government policies. The effects that this intervention could have are shown in the following CLD (Figure 2). As can be seen, these strategies create two positive reinforcing "loops" (shown by 'R'). These loops represent the reciprocal and beneficial effects of integrated planning and international co-operations (aid agencies) and the chain impact of these on sustainability and livelihood of the communes (the link from tourism revenues to livelihood of the communes).

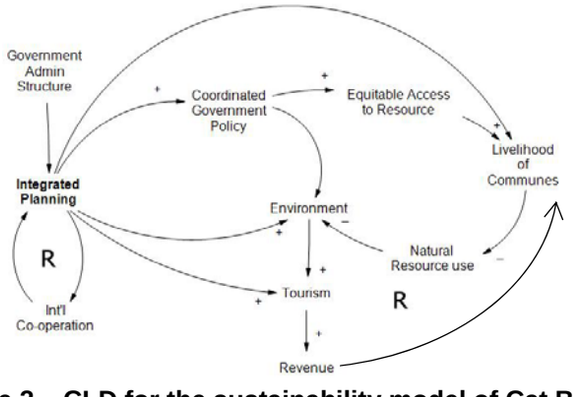


Figure 2 – CLD for the sustainability model of Cat Ba Island

Strong interdependency has been identified between factors affecting the system. In summary, the CLD process reveals systemic structures underlying a complex system. It shows that the factors affecting a system are not isolated and independent but are dynamically linked and cause growth or decline in each other as well as in other key areas of the system. One of the strategic insights of the

CLD process is that trying to improve the parts in isolation is counterproductive and can hurt the overall system and its performance.

Addressing the first leverage point - Capacity Building

A workshop was held in October 2007 at Hanoi National University of Education (HNUE) (facilitated by Prof Ockie Bosch) to unravel the issues around the main leverage point in the system ("lack of integrated planning") in order to determine the nature of the systemic intervention that will be required to address this leverage point. Capacity building to overcome stumbling blocks for information flow, different levels of governance understanding each other's mental models and how these could improve integrated planning processes was identified as the major systemic intervention. Outcomes of group work and discussions led to identifying capacity building in:

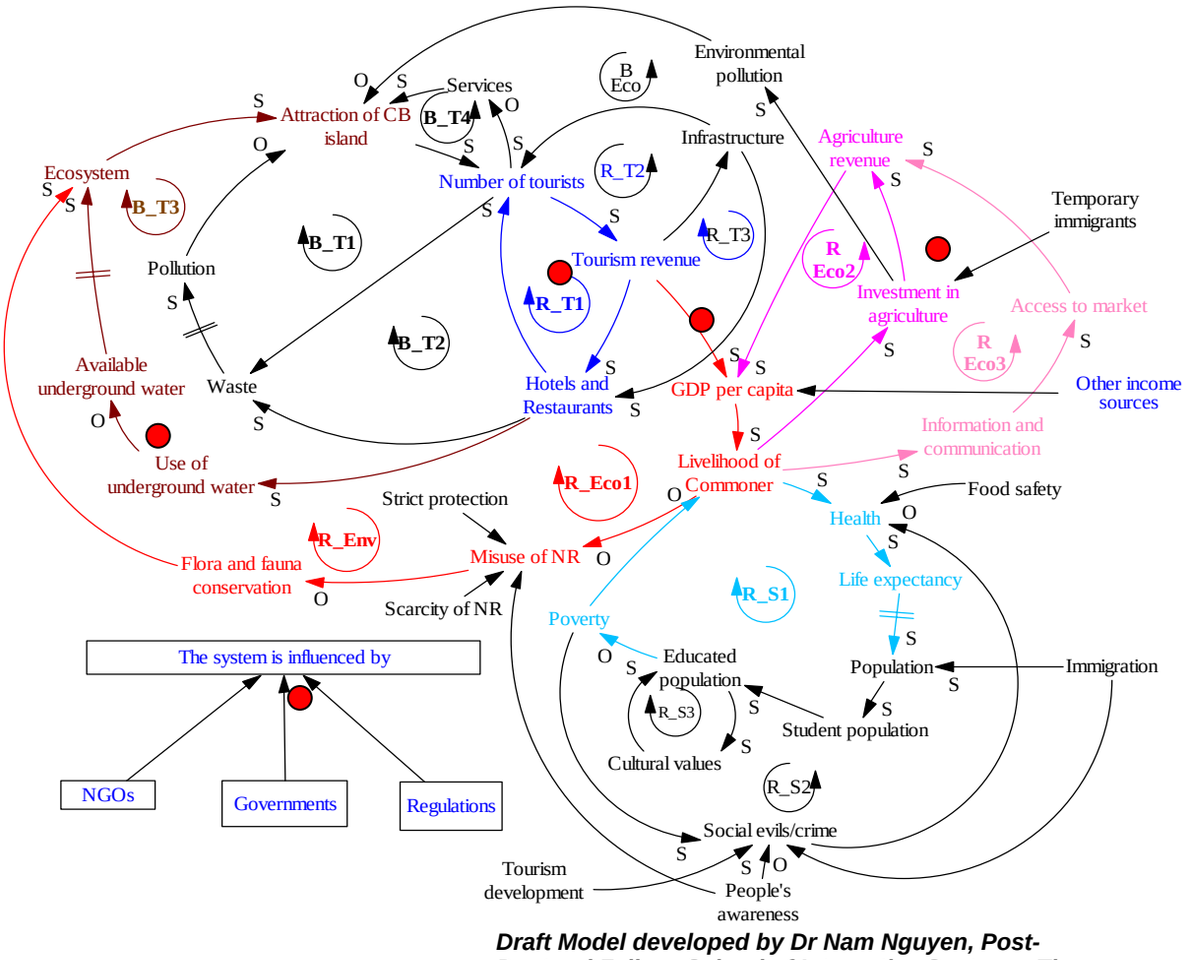
- Project management
- Leading and facilitating groups
- Systems thinking and practice
- Evaluation of projects and programs
- Communication and information flows
- Adult learning for sustainable management
- Models and strategies for change
- Rural community development
- Monitoring and evaluation techniques
- Knowledge management

The University of Queensland (School of Integrative Systems) provided a series of short courses during a two month training program in Australia for officials from different levels of governance, funded by AusAid, Australia.

Comprehensive Systems Model – Platform for identification of leverage points and systemic interventions

The University of Queensland (through the School of integrative Systems) appointed a postdoctoral research fellow from Vietnam for a period of three years to work on the Cat Ba project under supervision of Professor Ockie Bosch. A more in depth analysis of the Cat Ba Biosphere reserve is currently being developed. In May 2009 this model will serve as a platform for identifying leverage points and systemic interventions (Figure 3). Projects for demonstration purposes that address sustainability issues will be identified and funding will be sought for these activities through applications to be prepared by the Vietnam partners (with assistance from the UQ School of Integrative Systems)

- *Examples of some preliminary identified points for Systemic Intervention*



Draft Model developed by Dr Nam Nguyen, Post-Doctoral Fellow, School of Integrative Systems, The University of Queensland. Australia.

Collaboration

The nature of the capacity building and research projects that will be carried out in managing the Cat Ba BR (and later extended to other areas and globally) will require inputs from various disciplines. While the School of Integrative Systems would be actively involved in capacity building in systems-based approaches, integration of research data and information, development of decision support systems and the evaluation of management strategies being applied in the LL for S (through student projects, and direct involvement of staff), there will be a high demand for expertise from areas outside the School's areas of expertise and interests. Once the funding becomes available and the first steps to establish the Cat Ba pilot study are underway, the program will actively be promoted in other relevant Faculties of the University of Queensland and international partners. Involvement will be initiated through the creation of opportunities to advise Masters and PhD students from Vietnam in relevant Schools across The University of Queensland and interested Universities in other parts of the world.

The Learning Laboratory will also serve as a valuable study site for under- and postgraduate students. The nature of projects that are defined through the comprehensive systems analysis and identification of leverage points in the system being carried out by the UQ postdoctoral fellow (see Figure below), will determine the level (U/G, Hons., Masters or PhD) of project opportunities to students.

Identified research projects have already attracted four PhD students from Vietnam who are currently conducting research on different sustainability issues of sub-systems (sustainable tourism development; conservation (misuse of NR), livelihood, and policies, water management and policies agricultural and rural development) within the Cat Ba system.

Lessons learnt for UNDESD

- Sustainability is a **complex** issue that requires a multi-disciplinary approach and integration

- S**ystems Thinking** and **integration** form the basis of understanding complex multi-stakeholder sustainability issues
- Sustainability education needs **inter-faculty/school/university collaboration** in teaching and project supervision as no one institution would have all the knowledge required for an integrative approach
- graduates need to be equipped with **team work ethics** and **systems based knowledge**, **attitudes** and **tools** to unravel and deal with complexity in their day to day work
- Learning Laboratories for Sustainability could serve as valuable **study sites** for under- and postgraduate students.
- the program and courses need to be **designed to attract professionals and graduates from diverse backgrounds** and disciplines with a view to train develop future generations of "sustainability professionals"

An example of such a program that is underpinned by the above lessons learned through involvement of the UQ School of Integrative Systems in sustainability research and training, is illustrated in Figure 4

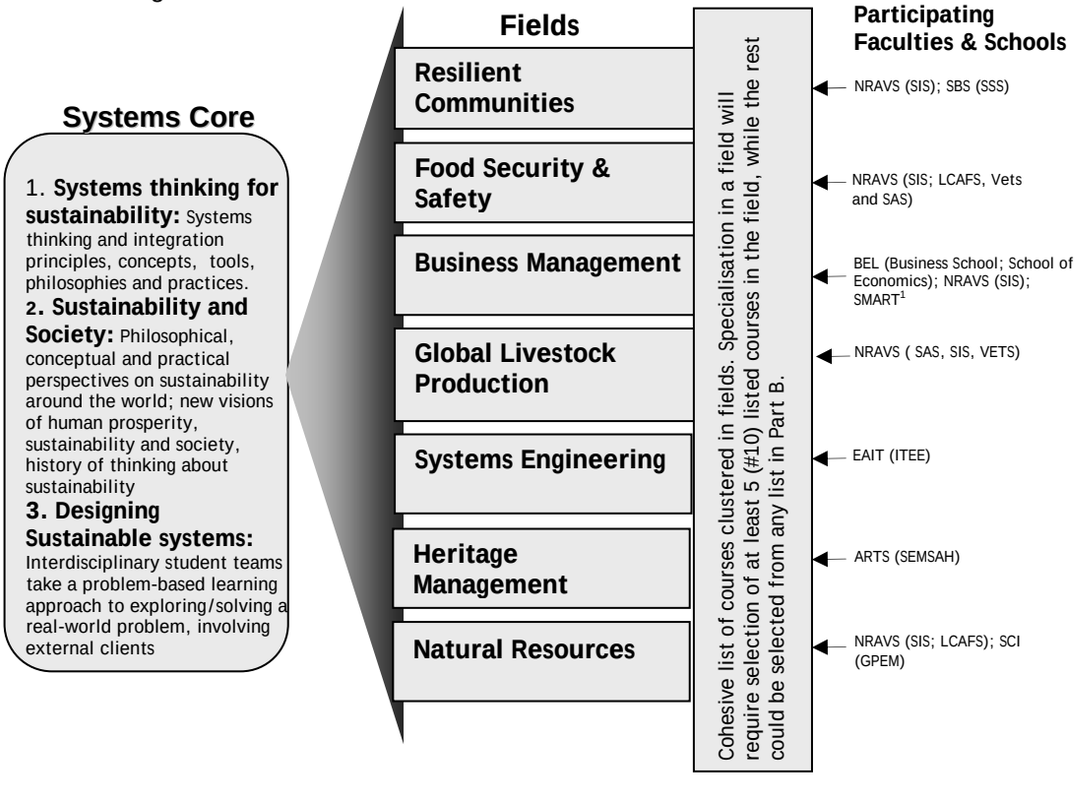


Figure 4 Structure for Masters of Sustainable Systems - Creating an educational platform for integrating concepts related to sustainable systems across different disciplinary fields