ICIMOD

Workshop on resilience marker methodology

25–28 August 2020 | Platform: Microsoft Teams

SECTION 1

Background and objectives

ICIMOD's Resilient Mountain Solutions (RMS) Initiative is generating knowledge for assessing the resilience of socio-ecological systems by conducting mountain-specific case studies across the Hindu Kush Himalaya. It uses a resilience marker methodology that relies on systems thinking to understand the complex interactions and feedbacks of socio-ecological systems. The systems thinking approach helps to unpack complex causalities and identify non-linear processes to capture key feedbacks and understand the system's resilience behaviour in a given state and ensure adaptability in case of external shocks and stresses.

The RMS Initiative has partnered with the College of Natural Resources (CNR) in Bhutan, the BAIF Development Research Foundation in India, and the Southasia Institute of Advanced Studies (SIAS) in Nepal to use the resilience marker methodology for selected case studies. The primary aim of the

workshop was to develop the partner's capacity for applying the resilience marker methodology. The specific objectives were as follows:

- Improve understanding of the resilience marker methodology
- Introduce the VENSIM model (a free software) for socio-ecological system modelling
- Conduct a preliminary assessment of individual case studies led by the partners

SECTION 2

Remarks

Welcome remarks

Nand Kishore Agrawal, RMS Programme Coordinator, ICIMOD

Agrawal welcomed all the participants from the partner organizations (CNR in Bhutan, BAIF in India, and SIAS in Nepal), the National University of Singapore, and the ICIMOD team to the four-day

workshop on the resilience marker methodology. He said that the term 'resilience' is now used not only by people working on issues related to climate change but also by politicians, bureaucrats, and practitioners. Assessing or measuring the resilience of individuals or systems is challenging but experts and academics are trying to generate new knowledge and experiences to meet this challenge. He stressed the importance of quantifying our work in the mountains and determining whether or not it is helping build the resilience of the society and ecosystems. He indicated that the resilience marker methodology is an innovative approach that would contribute to the global discourse on assessing resilience and help in planning and designing resilience building programmes.

Arabinda Mishra, Theme Leader, Livelihoods, ICIMOD

Mishra welcomed all participants and mentioned that the workshop aimed to build a common understanding of the resilience marker methodology and familiarize the participants with different steps and tools for using the methodology. He elaborated the objectives of the workshop and said that the event would provide the participants a platform to learn from each other and brainstorm ways to strengthen the methodology with country-specific case studies from Bhutan, India, and Nepal. He stated that the workshop would provide a basic understanding of key concepts and cover initial steps – from problem definition to conceptual modelling and dynamic modelling with Stock-Flow models using the VENSIM tool. He said that the final steps of the methodology – simulation and scenario building for policy and planning purposes – would be elaborated separately in the coming days, once the details about the case studies and data required for simulations and scenario building become available.

Navarun Verma, Assistant Professor, National University of Singapore

Verma mentioned that the workshop was very fruitful as it allowed the partners to reflect on their own case studies, and more importantly, to graphically illustrate the complex relationships and multiple dependencies. He said the graphical illustrations would be impactful as they can be communicated clearly with policy makers. Simulated graphs with drivers of change and interventions for addressing those drivers would further help policy makers make decisions. He said that the participants had achieved almost a University semester's course – from conceptual

modelling to simulation – in only four days. However, there is a knowledge gap about resilience in South Asia; there are no studies connecting system dynamics, resilience, and socio-ecological systems. He stressed the need to fill this gap and suggested to come up with book chapters and papers based on the findings of the case studies.

Closing remarks

Eklabya Sharma, Deputy Director General, ICIMOD

Sharma highlighted the importance of the resilience marker methodology to assess the resilience of social and ecological systems across the Hindu Kush Himalaya. He mentioned that resilience is a complex thing, and building resilience in the mountains is more challenging due to mountain specificities such as high altitude, inaccessibility, and fragile ecosystems. To achieve mountain resilience, the resilience marker study should therefore consider: a) mountain specificity, b) integration of different sectors (social, cultural, economic, and environmental), and c) an interdisciplinary and trans-disciplinary approach that also includes the traditional knowledge and culture of local people and stakeholders. Further, he said that as all HKH countries are committed to Sustainable Development Goals, we need to be able to ultimately measure the resilience of socio-ecological systems using the resilience marker methodology. In this way we can convince others of the value of this comprehensive methodology that has already been tested and used on the ground to generate enough evidence on resilience building.

Workshop outcomes

Day 1

The morning session covered basic concepts and provided an overview of the resilience marker methodology, highlighting the need to understand the historical behaviour of socio-ecological systems with a case study from ICIMOD. Partners from Bhutan, India, and Nepal also briefly presented their case studies. The case study from the CNR, Bhutan was related to sustainable harvesting of yartsa gunbu (*Ophiocordyceps sinensis*) in the high mountains of Bhutan. The case study from the BAIF, India was on climate-smart actions for sustainable livelihoods of agriculture- and forest-dependent hill

communities in Champawat, Uttarakhand, while SIAS, Nepal focused on diversified livelihood options and food security of mountain communities in Gatlang, Rasuwa.

The afternoon session started with a discussion on setting a reference mode or baseline for the case studies. This was followed by a presentation on identifying causal effects in socio-ecological systems and making causal loop diagrams with examples from ICIMOD and SIAS.

Day 2

The day began with an introduction to the VENSIM model and its user interface. The three partner organizations then co-developed a basic conceptual model for each case study with support from the ICIMOD team. There was a presentation on stock and flow model, with an example from the ICIMOD case study. The VENSIM features of the stock and flow model were also demonstrated with examples that familiarized the participants with its use and application.

Day 3

The day was dedicated to country-specific group work to refine the draft conceptual model and translate it to a preliminary stock and flow model.

Each country group worked on their specific case study. The ICIMOD team helped them use the VENSIM model to design the conceptual and stock flow model. As the partners began their case studies only recently and most of them could not visit the field to acquire data, there were some data gaps, so for model inputs they used some dummy datasets to get acquainted with the model. By the end of the day, all partners had made some progress on the stock-flow model and even simulated the preliminary results (Figure 1).

Day 4

The day started with presentations from CNR, BAIF, and SIAS. Each group presented the preliminary conceptual and stock-flow model they had developed as part of their group work. They discussed data issues and how to overcome them, the relevance of model validation, and the iterative process required to capture the reference mode or baseline scenario. Navarun Verma briefly explained simulations and scenario development, linking its relevance to monitoring and evaluation, including policy decision making.

The day ended with closing remarks by Eklabya Sharma of ICIMOD. E-certificates of participation were distributed to all participants from the three partner organizations.

| FIGURE 1	PRELIMINARY STOCK FLOW MODEL DEVELOPED BY SIAS, NEPAL

Participants
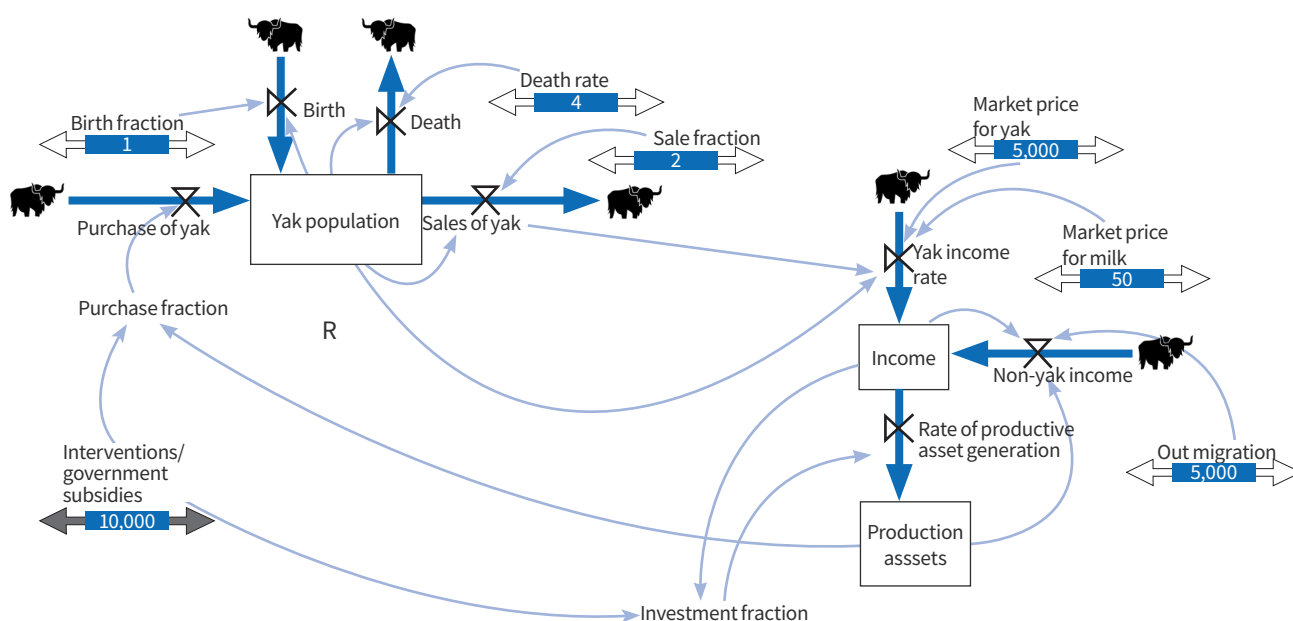
NUMBER OF WORKSHOP PARTICIPANTS FROM THE THREE COUNTRIES

The resilience marker research team from CNR in Bhutan, BAIF in India, and SIAS in Nepal actively participated in the four-day workshop. One day was fully dedicated to country-specific group exercises led by the country teams. Altogether there were 13 participants (6 women and 7 men) from the three countries (see Figure 2).

Workshop participants
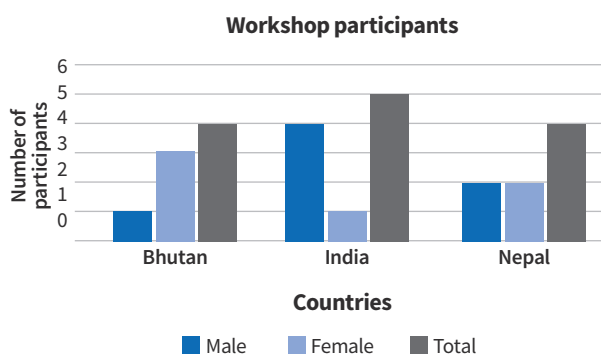
File links:

Concept note

Additional event information and materials are available at:

https://www.icimod.org/event/workshop-on-resilience-marker-methodology/

Workshop resource persons
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