

Research Strategy on Global Change in Mountain Biosphere Reserves

19 Nov 2008, ICIMOD Headquarters, Kathmandu, Nepal

This one-day workshop discussed the research strategy developed by the Global Change in Mountain Regions (GLOCHAMORE) Project to guide scientists and managers of mountain biosphere reserves in the planning and implementation of global change research. Protected area managers and scientists were invited to attend the workshop to discuss how the strategy could be implemented at various sites around the world. The discussion also encompassed how these sites could be used to test, monitor and assess the impacts of global (and climate) change on the biophysical environment and the livelihoods of mountain people. The following themes were discussed: biodiversity in mountain protected areas; how water systems affect mountain protected areas; and the livelihoods of people living in mountain biosphere reserves or in the vicinity of protected areas.

Report prepared by Dr Thomas Schaaf and Dr Michael Kollmair

Introduction

The International Workshop on Global Change in Mountain Biosphere Reserves, which was jointly organised by UNESCO-MAB and ICIMOD, took place in Kathmandu on the 19th of November 2008 as a post-conference workshop following the International Mountain Biodiversity Conference. The workshop was divided into two sessions. The morning session was devoted to presentations from experts on global change and mountain biosphere reserves and the afternoon session focused on discussions about general and specific themes, sites, research, monitoring, data management, dissemination, and collaboration. Some 45 participants attended the workshop.

Aims and Objectives

The one-day workshop aimed at discussing how the GLOCHAMORE research strategy for mountain biosphere reserves and other mountain protected areas could be implemented. Protected area managers and scientists alike were invited to attend the workshop to discuss how the GLOCHAMORE Research Strategy could be implemented at various sites around the world, with the intention that these sites could also serve as testing and monitoring sites to assess the impacts of global (and climate) change on the biophysical environment and the livelihoods of mountain people. There was a special focus on the following themes: (a) biodiversity in and around mountain protected areas; (b) water systems deriving from and affecting mountain protected areas; and (c) livelihoods of mountain people living in and around mountain biosphere reserves or other protected areas.

Morning Session

The first part of the workshop consisted of several presentations: these are listed below. Key points have been covered in this workshop report, but the full presentations are available in pdf format on request for those who wish to go through them in detail. The presentations were given in the following order.

- GLOCHAMORE – Results from the Workshops and Open Science Conference: presented by Martin Price, Centre for Mountain Studies, University of the Highlands and Islands (currently UHI Millennium Institute) -Perth College, UK

- Implementing the GLOCHAMORE Research Strategy in Mountain Biosphere Reserves: presented by Thomas Schaaf, Man and the Biosphere (MAB) Programme, United Nations Educational, Science, and Cultural Organisation (UNESCO).
- (Global Change in Mountain Regions (GLOCHAMORE) and Global Observation Research Initiative in Alpine Regions (GLORIA) Synergies: presented by Harald Pauli, University of Vienna (Austria).
- Success Factors of Mountain Biosphere Reserve Management under Global Change: presented by Susanne Stoll-Kleemann, Greifswald University (Germany).
- Katunsky Biosphere Reserve as a GLOCHAMORE and GLORIA Site: presented by Tatjana Yashina, Katunsky Biosphere Reserve (Russian Federation).
- Global Change Research in Russian Mountain Biosphere Reserves: presented by Yuri Badenkov, Russian MAB Committee and Russian Academy of Sciences (Russian Federation).
- Nanda Devi Biosphere Reserve in India: presented by P.S. Ramakrishnan, Jawaharlal Nehru University, India and R. K. Maikuri, GB Pant Institute of Himalayan Environment and Development (GBPIHED), (India).

Key points raised by the presentations and discussions

The key points that emerged from these presentations and intervening discussions were as follows.

- Future activities within the context of GLOCHAMORE should include long-term monitoring as well as shorter-term research projects.
- Future GLOCHAMORE research should focus on a limited number of themes; a minimum set could be themes 4 (water), 6 (biodiversity), and economies (9): it was also suggested that land use (theme 2) was a key linkage between these.
- Through GLOCHAMORE, mountain biosphere reserves (BRs) could be places to integrate knowledge from monitoring and research into sustainable development on a regional scale.
- Links should be developed (if not already existing) between BRs and universities: research for MSc and PhD dissertations.
- UNESCO can provide limited funding to support activities, preferably to stimulate national funding.
- UNESCO will develop a proposal for resources to support work in 20 sites over five years: \$2million, including funding for meetings, limited hardware supplies, and so forth.
- UNESCO would be willing to support the nomination of new BRs in Himalayan countries. These proposals must come from governments, but should originate at local level (e.g., Bhutan, Myanmar, and Pakistan).
- BRs with GLORIA sites already exist in Australia, Canada, Chile, Colombia, Germany, Peru, Russia, Spain, Sweden, Switzerland, and the USA, and there are other relevant projects in the Andes and Austria (not only in BRs).
- Projects based on the GLOCHAMORE Research Strategy, or on very comparable themes, are already being implemented in Australia, India, Russia, and Switzerland. With the exception of GLORIA work, however, these were all developed individually and do not use standard or harmonised methodologies and protocols.

Afternoon Session

The session started with a general discussion about the following points.

Themes: general

- To fulfil the GLOCHAMORE Research Strategy on one site, significant resources would be required. Already, some BRs are trying to cover many of the themes. So how realistic is it to try to implement the entire strategy? How many people and disciplines are required? Should some themes be left out?
- It is unlikely that the entire strategy could be implemented anywhere. The first action is to establish research partnerships and identify key themes for the BR.
- The central issue is to create a platform for information sharing. Land use influences biodiversity. Climate change includes both increasing temperature and changes in precipitation and the availability of water – which may be more critical in the short term. Impacts depend on climatic area; e.g., dry, humid, so the approach must be adapted to specific situations.
- A key objective should be to use BRs to understand trends, based on analysis at specific sites.

Themes: specific

- Support for the proposal regarding the three themes was expressed. Work on biodiversity must consider ecosystems, not just species. Water – or more generally ecosystem services, which is linked also to biodiversity – should also be included.
- There was support for biodiversity as a priority theme, but it was suggested that any data resulting from research should be geo-referenced and its use agreed upon and data quality should be standardised for use in monitoring and conservation planning. GMBA had proposed a training workshop on standards for the HKH – this could also be done for BRs in general.
- In the context of flora, abundance of and amount of cover of species are needed. Species' lists alone do not give very useful information.
- Monitoring of climatic data is essential to provide the context for changes in other systems.
- Linkages between livelihoods and biodiversity are important. In the Tibetan area, human and animal health (theme 8) would be a good theme.

Research and monitoring

- It is critical to define what is needed: monitoring (biodiversity and climate) = extractive research; the results provide a longer-term context 2) and problem-solving research on management and livelihood-related problems related to global change (climate change and other aspects of global change, e.g., population dynamics).
- The concept of three levels of implementation, as developed in the GLOCHAMORE workshops, is important, but this was not included in the research strategy.
- A hierarchy of monitoring and research themes should be determined, with common protocols.

Data management

- Greater clarity about the reporting framework at global level is needed. For protected area managers, a real-time continuous flow of data (as well as compilation at the end of a research project) is needed to assist day-to-day decision making.
- Some key issues to resolve: 1) the data management strategy: one (comprehensive) or more databases 2) the data-sharing policy outside GLOCHAMORE; lessons can be learned from GLORIA and GMBA.

GLOCHAMORE sites

- Individual BRs must express interest in participating. Starting with the original 26 sites, other sites can join if they are suitable and have an existing research structure. To the extent possible, GLOCHAMORE sites should also be GLORIA sites.
- Appropriate sites for GLOCHAMORE activities exist in the Karakoram, but they are not BRs. With regard to farming communities and livelihoods, land tenure (small holdings) is a key issue. The influx of alien species, high-yielding crops, and climate change are jointly influencing populations of some species.

Collaboration

- Many scientists, from different disciplines, should be involved in a research consortium; leadership is crucial for coordinating this.
- A participatory approach is needed for both science and development.
- Cross-cutting research is needed to link changes in the physical environment to social and economic changes. This implies that interdisciplinary (natural and social science) research is needed.
- Collaborations, both international and national, are essential for both research and training.
- The possibility of involving students from the Global Biodiversity (GoBi) project (Greifswald University) in GLOCHAMORE activities could be considered.

Dissemination

- BR managers should disseminate monitoring and research outputs locally. UNESCO could assist with dissemination beyond the local level.
- Mountain Forum could provide targeted information and communication services to facilitate GLOCHAMORE: reports, e-conferences and dialogues, advertising research possibilities, and others.
- With regard to communication and sharing information and data, the Food and Agriculture Organization (FAO) could provide specific expertise on crops and forest fires. Mountain Partnership could assist with lessons learned from BRs in general – how to find ways to address conservation and livelihoods in a comprehensive way: i.e., scaling up and replication not only for BRs.

Conclusions

The participants came to the following conclusions after an afternoon of deliberations.

- Although individual mountain BRs should be free to work on as many of the GLOCHAMORE themes as they wish, the priority themes for future implementation should be: changes in land use (theme 2), water availability (theme 4a), 6 (biodiversity, including the GLORIA approach), and mountain economies (theme 9).
- To provide relevant data on trends, climatic variables should also be monitored.
- Where possible (data and other resources permitting), climate scenarios should be sought or developed.
- Standard protocols for monitoring and research should be developed, building on the concept of 'essential' (maximum priority), 'improved', and 'optimum' variables developed at the GLOCHAMORE workshops.
- Clear policies for data management and sharing are needed.
- Initially, the main sites for implementing the GLOCHAMORE Research Strategy should be mountain BRs where GLORIA sites are implemented. A general principle should be that sites implementing the strategy should be those with a tradition of research (existing data sets and active research institutes and/or collaboration) that can be built on.
- UNESCO will be able to provide limited support for ongoing development and implementation of activities in these sites, and will also develop proposals for funding together with M. Price, T. Yashina, and T. Scheurer (to be confirmed), Mountain Research Initiative (MRI) (to be confirmed), and a nominee from ICIMOD. Such proposals should mention the work based on the GLOCHAMORE Research Strategy (and GLORIA) that is already being carried out at a number of sites.

Summary of closing comments from Dr Andreas Schild, Director-General, ICIMOD

In his closing comments the Director General of ICIMOD stated that he thought the focus on three to four themes was good. The themes match ICIMOD's strategic objectives, and ICIMOD would like to play a role. He said that ICIMOD has a regional agenda, and is concerned to see what is happening on the ground. The Trans-Himalayan transects are a key concept with which to link global programmes, to ensure comparability within and between regions. There are only a few BRs in the region and they are not all easily accessible: BRs situated close to transects would be useful. The Director General thought that consideration should be given to the designation of BRs within the transects for future inclusion in GLOCHAMORE. Local institutions should be involved in this process.

ICIMOD's level of commitment depends on the potential for a regional approach and involvement of regional institutions. In concluding, the Director General affirmed that ICIMOD is willing to host future events.

The workshop was closed.

Annex 1 Programme

19th November 2008 (WEDNESDAY) ICIMOD Conference Hall

10:00-16:30	POST-CONFERENCE WORKSHOP "Research Strategy on Global Change in Mountain Biosphere Reserves"
10:00-11:30	<u>Moderators:</u> Michael Kollmair and Thomas Schaaf <u>Introduction:</u> GLOCHAMORE – Results from the Workshops and Open Science Conference <u>Martin Price</u> (10 minutes) Implementing the GLOCHAMORE Research Strategy in mountain biosphere reserves <u>Thomas Schaaf</u> (10 minutes) GLOCHAMORE and GLORIA Synergies <u>Harald Pauli</u> (10 minutes) Katunsky Biosphere Reserve as a GLOCHAMORE and GLORIA site <u>Tatjana Yashina</u> (10 minutes) Discussion
11:30-12:00	TEA/COFFEE BREAK
12:00-13:00	Kavkazskiy and Sikhote-Alinskiy biosphere reserves in the Russian Federation <u>Yuri Badenkoy</u> (10 minutes) Nanda Devi Biosphere Reserve <u>P.S. Ramakrishnan</u> (10 minutes) Discussion
13:00-14:00	LUNCH BREAK
14:00-16:30	Discussion on implementation modalities of GLOCHAMORE Research Strategy and future steps: <u>Bruno Messerli</u> and <u>Thomas Schaaf</u>

Annex 2 List of Participants

Rod Atkins, Australian Alps national parks Co-operative Management Program, Australia
 Yuri Badenkoy, Russia
 Muhammad Bashir Butt, MINFAL-AJK, Pakistan
 Karma Jigme, Ministry of Agriculture, Bhutan
 Colin Kaiser, UNESCO
 Sudibya Kanti Khisha, CHTRDP, Bangladesh
 Ruijun Long, International Centre for Tibetan Plateau Ecosystem Management, P.R.China
 RK Maikhuri, G.B. Pant Institute of Himalayan Environment and Development, India
 Bruno Messerli, University of Bern, Switzerland
 LMS Palni, G B Pant Institute of Himalayan Environment and Development (GBPIHED), India
 Harald Pauli, GLORIA, University of Vienna, Austria
 Martin Francis Price, Centre for Mountain Studies, UK
 RK Rai, Ministry of Environment & Forests, India
 Palayanoor S. Ramakrishnan, Jawaharlal Nehru University, India
 GS Rawat, Wildlife Institute of India, India
 SV Reddy, Ministry of Environment and Forest, India
 Thomas Schaaf, UNESCO's MAB Programme, France
 Eva Spehn, University of Basel, Switzerland
 Susanne Stoll-Kleemann, University of Greifswald, Germany
 Zahoor A. Swati, Institute of Biotechnology & Genetic Engineering (IBGE) NWFP, Pakistan
 Naw May Lay Thant, Ministry of Forestry, Myanmar
 Win Naing Thaw, Ministry of Forestry, Myanmar
 Tatjana Yashina, Katunsky Biosphere Reserve, Altai Republic, Russian Federation
 Zhang Yuanming, Chinese Academy of Sciences, P.R.China

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