



Research for Development and Policy Support

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The Centre for Development and Environment (CDE), University of Bern



The Centre for Development and Environment (CDE) is a university-based institution that conducts resource- and people-centered research activities for development and policy advice in Switzerland and abroad, guided by a sustainable development approach. Many of the Centre's programs and mandates include a mountain or highland-lowland component; they are presented below. CDE is part of the Institute of Geography at the University of Bern, Switzerland and is the lead institution for the Swiss National Centre of Competence in Research (NCCR) North-South.

CDE's mountain focus

Activities in mountain regions for research and development have a long tradition at CDE and in the Institute of Geography at the University of Bern. Mountain-related issues are included in our programs and mandates in countries of the North, South, and East. For example, in the Swiss Alps, our engagement dates back to the Man and Biosphere Programmes of the 1980s and has continued to the present day within the framework of the Jungfrau-Aletsch World Heritage Site. Kenya, Tanzania, Ethiopia, Eritrea, Nepal, Kyrgyzstan, Tajikistan, and Bolivia are other countries where CDE has focused on mountain issues for many years. Our programs and mandates have a long-term perspective and combine research and knowledge generation with outreach and application in a broad range of activities. They adopt disciplinary, interdisciplinary, and transdisciplinary approaches.

Research

Research in mountain contexts is a key focus of over 50 PhD studies being

carried out by the Swiss National Centre of Competence in Research (NCCR) North-South, a program of 7 Swiss research institutions and their partners worldwide involving more than 250 researchers on 4 continents, with CDE acting as the lead institution. Relating to mountain development, for example, *People, Protected Areas and Global Change*, published in 2008, a global overview study in which mountain regions feature prominently (5 of 13 case studies), shows that economic benefits of protected areas are generally much lower than planned and that institutional practices have not adhered to the participatory principles they were designed to follow.

Outreach

CDE has outreach programs that are implemented with local partners. In Central Asia, local development, pasture management, and energy efficiency are the main activities, alongside a major Global Environmental Facility (GEF)-funded transboundary program for land management in the Pamir-Alai Mountains. In Africa, the Eastern and Southern Africa Partnership Programme (ESAPP) deals with, among other things, management of scarce mountain water at the foot of Mount Kenya and Mount Kilimanjaro (Figure 1). The focus of our activities in Eritrea and Ethiopia is on soil and water conservation. In Bolivia and Peru, CDE is engaged in the BioAndes program, which aims to reconcile biodiversity conservation with local development. Biodiversity conservation and knowledge management are the key activities in our new engagement in mainland Southeast Asia (Lao PDR [People's Democratic Republic]). In the Swiss

Alps, CDE developed a long-term research and monitoring concept for the management center of the Jungfrau-Aletsch Natural World Heritage Site.

In addition to these larger programs, CDE has been entrusted with smaller projects relating to disaster prevention in the mountains of Central Asia, land management in Mongolia, environmental impact assessment and local development in the Caucasus and in Central Asia, involving collaborative and integrated approaches as well as use of geographic information systems and remote sensing.

Policy

Networks are central to CDE's policy support activities in mountain development. Thanks to these networks, CDE was closely involved in the preparation of the International Year of Mountains 2002, the Bishkek Declaration 2002, the International Mountain Days 2006 and 2007 on behalf of the Food and Agriculture Organization of the United Nations, and the first Swiss mountain research conference in 2008, to mention but a few. CDE hosts the International Mountain Society (IMS) and maintains close ties with Mountain Forum and is a member of the Mountain Partnership.

CDE also hosts the editorial office of *Mountain Research and Development* (MRD), our longest-term mountain-related activity in the policy sector. The journal has continually striven to present peer-reviewed, cutting-edge contributions on key mountain issues. The topics featured in the 2007–2008 period include migration and vulnerability, policy and institutions for mountain development, and mountain rural

FIGURE 1 An unusually snowy view of Mount Kilimanjaro. Freshly fallen snow covers the shrinking glacier surface. (Photo by Urs Wiesmann, 2 May 2007)



development in the face of globalization. Following a general trend, the journal decided to move to an online and open access mode of production in 2009. Users' responses have been very positive, as downloads have increased fourfold since early 2009, indicating that the new format meets the needs of the global community interested in mountain research and development.

In addition to its new open access and online submission facilities at

www.mrd-journal.org, MRD offers another innovative feature that takes full advantage of new Internet technologies: the MRD Article Mapper, which was specially developed for MRD based on Google Map (Figure 2). The Article Mapper allows readers and researchers a spatial overview of the location and spatial scope of MRD research papers. It thus provides valuable information on where, at what scale, and on what subjects research has been carried out and makes possible

not only compiling knowledge but also identifying research niches and gaps. MRD also envisages the mapping of all development articles.

CDE also hosts the secretariat of WOCAT (World Overview of Conservation Approaches and Technologies; www.wocat.net), a global network that aims to ensure that local sustainable land management knowledge and experience are evaluated, shared, and used. Since the publication of its global overview of sustainable land

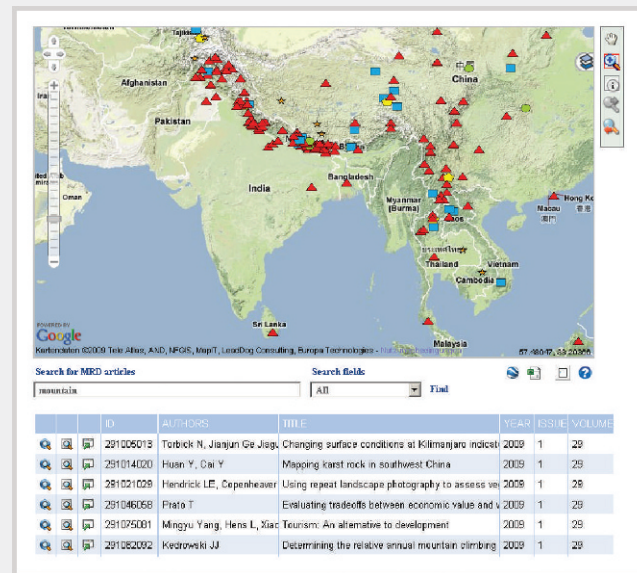
management, entitled *Where the Land Is Greener* (2007), WOCAT has made major efforts in mountain regions such as the Himalaya–Hindu Kush, where an inventory with fact sheets on natural resource management approaches and technologies has been initiated in collaboration with the International Centre for Integrated Mountain Development (ICIMOD). Additional initiatives have also been started in mountain regions in Central Asia and China based on WOCAT methodology and documentation.

Education and capacity development

CDE has been involved in teaching mountain-specific courses and in supervising MSc and PhD theses at a number of institutions of higher learning. These include the University of Bern—our home institution—and universities in Switzerland and abroad, including Central Asia, eastern Africa, and the Andes. In most cases, CDE has also been involved in curricula development and in helping set up research activities. The University of Central Asia (UCA) is one of the few institutions worldwide that is dedicated specifically to mountain research and development. In 2007, UCA and CDE signed a memorandum of understanding that covers capacity building for faculty, as well as joint research initiatives, including a program for long-term monitoring in the mountains of Central Asia. Capacity development is no less important in the civil society sector.

The Central Asia Mountain Partnership (CAMP; www.camp.kg), initiated with Swiss support in 2001, developed into an independent nongovernmental organization—CAMP Alatau—in late 2008. CAMP, which had made a name for itself by creating the Alliance of Central Asian Mountain Villages (AGOCA), was the principal initiator of a regional Dare-to-Share Fair on mountain development held in Dushanbe, Tajikistan, in June 2008.

FIGURE 2 Screenshot of MRD's new Article Mapper feature (www.mrd-journal.org). The scale of research presented in individual papers is indicated by different color symbols. (Feature programmed by Christoph Hoesli)



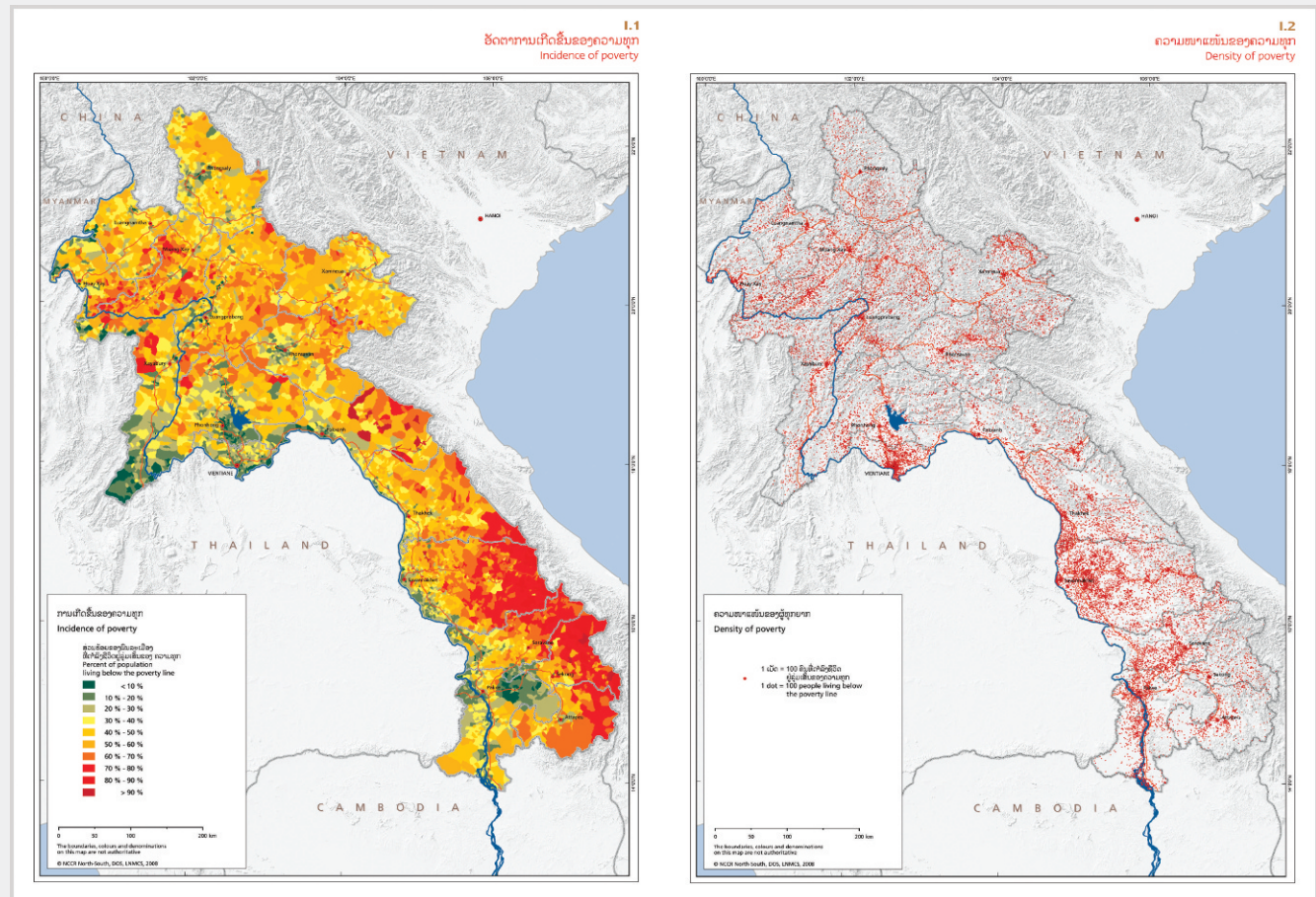
Recent highlights

Poverty in mountains—poverty in lowlands: The *Socio-economic Atlas of the Lao PDR* (2008), based on census data for all 10,500 villages in the country, offers for the first time reliable spatial information on socioeconomic indicators and poverty in the Lao PDR. It shows that poverty rates in mountain areas are much higher than in lowland areas. It also shows that the absolute number of poor people is far higher in lowland areas and that almost 50% of the poor population in Laos is not directly addressed in current national poverty reduction strategies, as they live in districts that were previously not classified as poor (Figure 3). Other maps deal with ethnicity, sources of water, village electricity supply, access to school, and child mortality. Map combinations reveal additional interesting information. For example, access to a school in less than 30 minutes is ensured for 80% of all villages, including those in mountains. The high rate of illiteracy in these regions is therefore not a question of lacking educational

infrastructure, as previously assumed. The *Atlas* is an outcome of a joint Lao-Swiss project funded by the Swiss Agency for Development and Cooperation (SDC) and implemented by the Department of Statistics, the Lao National Mekong Committee, and NCCR North-South at CDE. The *Atlas* is available in print and on compact disc and is accompanied by a publication entitled *The Geography of Poverty and Inequality in the Lao PDR* (www.laoatlas.net).

Glacier wastage and water availability in Central Asia: Central Asia is among the regions of the world that have experienced the greatest glacial retreat in recent decades. Research conducted by the NCCR North-South found that glaciers in the northern Tien Shan (Kyrgyzstan) lost 28% of their surface area between 1963 and 2000. Projections show that the glaciers will shrink to half of their current size by 2050. As glaciers typically provide between 40 and 70% of runoff, glacier wastage will soon pose a serious threat to freshwater supplies to this dry region, with far-reaching

FIGURE 3 LEFT: Incidence of poverty defined as the percentage of the population living below the poverty line. The darker the red on the map, the higher is the poverty rate, and the darker the green, the smaller is the percentage of the population living below the poverty line. RIGHT: Density, defined as the number of poor people living in a given area. Each dot on the map represents 100 people living below the poverty line. (Messerli et al 2008; maps courtesy of NCCR North-South, Department of Statistics, Lao National Mekong Committee Secretariat, 2008)



implications for economic development and food security, which depend heavily on irrigation.

Mountain waters in East Africa: The waters of Mount Kenya, a water tower for over 7 million people, have come under increasing pressure in recent decades. A study completed in 2007 by CDE and local partners northwest of Mount Kenya predicts that by 2050, river runoff will result in extreme floods with up to 20 times the present flow, while low flow is projected to be only one-tenth of its present value, a crisis scenario that will put the

development of the whole region in jeopardy. The study shows that in the future, it is urgent to factor climate change into planning and decision-making.

Climate change and coffee production in Ethiopia: A study prepared in 2008 at CDE looking at climate change and temperature concludes that in Ethiopia, over 60% of today's high-potential coffee-growing area will become unsuitable, or less suitable than it is today, for coffee production. The study also shows that high-potential coffee-growing areas will shift hundreds of

kilometers eastward and will be significantly smaller and more fragmented than they are today.

Outlook

In addition to ongoing mountain-related activities in the above programs, CDE is currently involved in:

- Coordinating a baseline on mountains and climate change, to be presented at the United Nations Climate Change conference (COP 15) in Copenhagen (December 2009), an activity based on a man-

date from the Swiss Agency for Development and Environment;

- Organizing an international workshop on food security in mountains jointly with the Mountain Research Initiative (MRI) and partners, scheduled to take place in 2010;
- Organizing a session at the open conference in Perth in 2010; and
- Setting up an outline for a synthesis report on the mountain research activities of the NCCR North-South, scheduled for publication in 2012.

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