

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

Author: Kohler, Thomas

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



The Centre for Development and Environment (CDE) is the University of Bern's center for sustainable development research. Founded in 1988 as a part of the Institute of Geography, CDE became an interdisciplinary university center in 2009. Its current overall aim is to foster sustainable development-oriented research across various institutes and departments of the University of Bern. In view of this new mandate, CDE devised a new strategy focusing on 6 strategic themes. These are explored and advanced by groups of researchers organized in thematic clusters. Three of the 6 clusters address sustainable development from a comprehensive perspective: global change impacts, innovations for sustainable development, and education for sustainable development. These clusters are complemented by 3 clusters that investigate sustainable development with a specialized perspective: natural resources and ecosystem services, multidimensional disparities, and governance of land and natural resources.

CDE's mountain focus

Activities in mountain regions have a long tradition at the Centre for Development and Environment (CDE). For example, in the Swiss Alps, our engagement dates back to the Man and Biosphere Programme of the 1970s and 1980s and has continued to the present day within the framework of the Swiss Alps Jungfrau-Aletsch world heritage site. In its other regions of operation, CDE has dealt with mountain issues, upstream-downstream linkages, and large-scale highland-lowland interactions for many years. In our eyes, mountains have a key role to play in global sustainable development, especially relating to the provision of freshwater, food security, green energy, and

biodiversity. Moreover, in many mountain areas, poverty is widespread, infrastructure and services are minimal or lacking, and exposure to natural hazards is a constant threat. Our programs and mandates have a long-term perspective and combine research and knowledge generation with outreach and application; the research is conducted using disciplinary, interdisciplinary, and transdisciplinary approaches. Such long-term and comprehensive approaches, linking and thereby cross-fertilizing global initiatives with on-the-ground application-oriented research activities, have become even more important for sustainable mountain development in the face of dynamic global change.

Global engagements

Mountain Agenda

The Mountain Agenda of CDE is based on a global network of organizations active in mountain research and development, including the Mountain Partnership and its secretariat in Rome, and key donors, such as the Swiss Agency for Development and Cooperation (SDC) and many others in all major mountain regions. Recent activities have focused on the upcoming Rio+20 Summit. CDE was involved in the preparation of regional and global reports on the status and challenges of mountain development to be presented at Rio, in providing language for the zero draft of the Rio outcome document, and participating in the core group that organized the World Mountain Conference in Lucerne in October 2011, which was instrumental in again putting mountains on the agenda for Rio 2012. These activities were successful, because mountains are explicitly mentioned in the zero draft, but greater efforts are needed

BOX 1: CDE in a nutshell

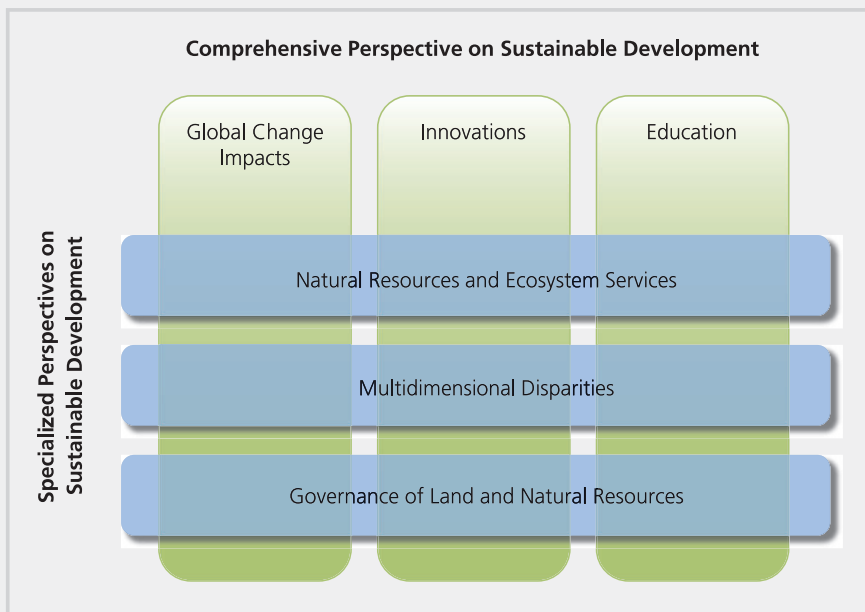
CDE's mission is to produce and share knowledge for sustainable development with our partners in the North, South, and East. With a staff of 72, CDE currently runs 60 smaller and larger programs, projects, and mandates in more than 30 countries, focused in 6 thematic and regional clusters (Figure 1). Together with its partners in the North and South, CDE coordinates the National Centre of Competence in Research (NCCR) North-South and the International Graduate School (IGS) North-South; these are collaborative programs in which the universities of Bern, Basel, and Zurich participate. Program funds come from various ministries of the Swiss Confederation, the Swiss National Science Foundation, the University of Bern, the European Union, the World Bank, and United Nations agencies such as the FAO and increasingly from partner countries through our local partners in the global South and East.

to do justice to their key role in global sustainable and green development.

International journal: *Mountain Research and Development (MRD)*

Online and open access since 2009, *Mountain Research and Development (MRD)* publishes peer-reviewed, cutting-edge articles on key topics—in 2011, for example, on the global energy crisis and the opportunities and challenges it creates for mountain areas. The journal has a worldwide readership in more than 120 countries, with more than 10,000 full-text downloads per month. The institutional home of *MRD* is the International Mountain Society (IMS), the members of which include renowned institutions dealing with mountain research and development,

FIGURE 1 CDE's thematic clusters.



such as the International Centre for Integrated Mountain Development (ICIMOD), the Food and Agriculture Organization (FAO), SDC, and the Mountain Research Initiative (MRI). MRD is available through www.mrd-journal.org and www.bioone.org/loi/mred.

World Overview of Conservation Approaches and Technologies (WOCAT)

The World Overview of Conservation Approaches and Technologies (WOCAT) is a global network for sharing knowledge on sustainable land management (SLM). Since its launch in 1992, WOCAT has developed standardized methods and tools for SLM, which have been tested and applied in many countries around the world, often with a focus on mountain areas. Various books incorporating WOCAT knowledge present SLM practices in an attractive format and demonstrate their benefits for food security, livelihoods, climate change, and water availability. They attest to the utility of a sound knowledge management system in promoting and up-scaling SLM. WOCAT

operates through regional and national initiatives coordinated by CDE, FAO, and International Soil Reference and Information Centre (ISRIC). To find out more about WOCAT activities, visit www.wocat.net.

Regional engagements

Horn of Africa and East Africa

In the Horn of Africa, our activities concentrate on the highlands of Ethiopia, where soil and water conservation and SLM have constituted the core of our engagement since the 1970s. In 2011, CDE, together with its partners, became involved in a water diplomacy initiative relating to the Upper Nile Basin, again with a focus on the highlands of Ethiopia (see www2.cde.unibe.ch/Pages/Project/6/43/The-Water-and-Land-Resource-Centre-Project.aspx). In East Africa, activities began in the 1980s on Mount Kenya and were expanded to Kilimanjaro and the Usambara Mountains after 2001. Based on regional databases and local partnerships, CDE is involved in policy advice, planning, and capacity

development relating to sustainable regional development, including rural livelihoods, vulnerability, and regional water management (establishment of local water user associations). In Madagascar, CDE is currently engaged in the uplands, with a focus on monitoring rural afforestation over the last 30 years.

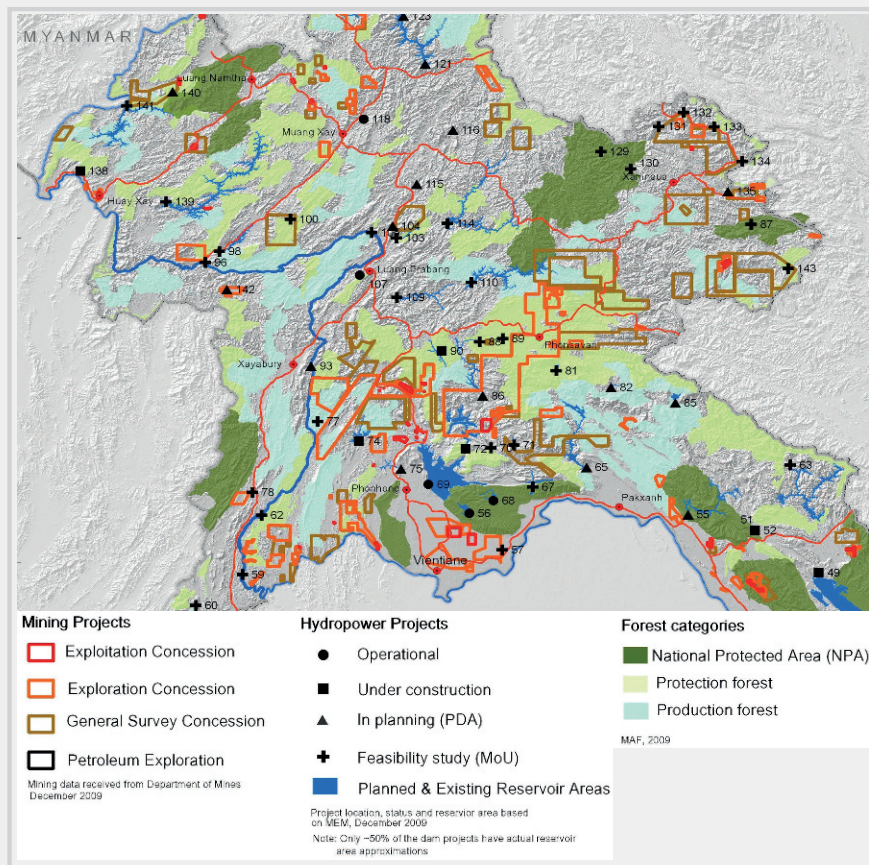
Central Asia and Mongolia

Recent work in Central Asia and Mongolia includes the Pamir-Alai SLM project funded by the Global Environment Facility (2007–2010). CDE's current focus is on land management and soil degradation, involving innovative technology such as soil spectroscopy. In 2011, CDE received a mandate from the Pilot Programme for Climate Resilience, a World Bank program in Tajikistan. We documented 70 proven technologies and approaches for moving from "climate vulnerable" to "resilient," and formulated policy recommendations. CDE also has close ties with the University of Central Asia; one CDE staff member holds the position of senior research fellow; her tasks include curriculum development, coordination of research activities, and capacity development. In western Mongolia, we are involved in the rehabilitation of community irrigation in a piedmont area.

Southeast Asia

CDE's involvement in Southeast Asia dates back to the mid-1990s, when we received a mandate from the Mekong River Commission to develop a database and maps for regional planning. Currently, mountain-relevant activities concentrate on the Lao People's Democratic Republic (PDR), where hydropower development, mining, and rubber plantations are advancing at galloping speed. A first-ever overview of these issues, published by CDE and the World Bank in 2010, identified more than 100 hydropower projects (Figure 2). This work benefited from a high-resolution spatial database developed for the *Socio-economic Atlas of*

FIGURE 2 Extract from a map showing the extent of mining and hydropower projects in Laos, prepared by CDE researchers for the *Lao PDR Development Report 2010* of the World Bank, CDE, the European Union, and the Australian government. (http://siteresources.worldbank.org/LAOPRDEXTN/Resources/293683-1301084874098/LDR2010_Full_Report.pdf)



Lao PDR, which was published by CDE and the Lao authorities in 2008. The database has been further refined within the Lao DECIDE-Info Programme, which provides a user-friendly platform for spatial data for regional planning and development (www.decide.la). Again in *Lao PDR*, CDE is developing a knowledge and information sharing system within the Swiss-funded Agrobiodiversity Initiative (TABI; www.tabi.la). TABI works in the northern mountains with the aim of improving farmers' livelihoods. Finally, a team of researchers has devised a novel pixel-based approach that puts shifting cultivation on the map for the first time.

South America

In South America, CDE works mainly in Bolivia and Peru, concentrating on biocultural diversity, agrarian reform, and transformation of

agrarian systems, with the aim of identifying and strengthening endogenous development potentials. We also do research on the tradeoffs of the United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation and other mechanisms of payments for ecosystem services and climate adaptation. We are engaged in a national development initiative in Bolivia, "BioCultura," which seeks to enhance rural livelihoods and biological diversity by strengthening cultural and institutional diversity. The program covers 50 municipalities.

Swiss Alps, Europe, and the Caucasus

In the Swiss Alps, CDE supports the Swiss Alps Jungfrau–Aletsch World Heritage Site in strategic monitoring to detect changes relating to the universal values listed by the United Nations Educational, Scientific and

Cultural Organization and to identify threats and the need for action. A first monitoring report was published in 2010. CDE contributes to MontanAqua, an initiative for sustainable management of water resources under climate change in the canton of Valais. Applying a transdisciplinary approach involving researchers and local stakeholders, it aims to reconcile future water demand with water availability under climate change. Alpine pasture management, the topic of a project funded by the Swiss National Science Foundation, investigates how pasture governance, originally designed to prevent overuse of land, is adapted to current trends of underuse and their undesired side effects, such as shrub encroachment or reforestation of pastures. In Eastern Europe, CDE is engaged in park and buffer zone management in the hill region of Slovakia. CDE has also minor programs in the Caucasus, which promote local transboundary collaboration between communities in Georgia and Azerbaijan.

Selected recent mountain publications

CDE contributed to the following recent publications that focus on mountains:

- **Kohler T, Maselli D, editors.** 2009. *Mountains and Climate Change—From Understanding to Action*. Bern, Switzerland: Geographica Bernensia and Swiss Agency for Development and Cooperation. http://www.cde.unibe.ch/userfiles/file/Fullversion_low_Mountains_and%20Climate_Change.pdf.
- **Price MF, Gratzer G, Alemayehu Duguma L, Kohler T, Maselli D, Romeo R, editors.** 2011. *Mountain Forests in a Changing World: Realizing Values, Addressing Challenges*. Rome, Italy: Food and Agriculture Organization of the United Nations, Mountain Partnership Secretariat, and Swiss Agency for Development and Cooperation. <http://>

www.mountainpartnership.org/common/files/pdf/web_TKohler.pdf.

- **Berrahmouni N, Romeo R, McGuire D, Zelaya S, Maselli D, Kohler T, editors.** 2011. *Highlands and Drylands Mountains: A Source of Resilience in Arid Regions*. Rome, Italy: Food and Agriculture Organization of the United Nations, United Nations

Convention on Combating Desertification, Mountain Partnership Secretariat, Swiss Agency for Development and Cooperation, and Centre for Development and Environment. <http://www.fao.org/docrep/014/i2248e/i2248e00.pdf>.

- **Björnsen Gurung A, Wymann von Dach S, Price MF, Aspinall R,**

Balsiger J, Baron JS, Sharma E, Greenwood G, Kohler T. 2012. Global change and the world's mountains: Research needs and emerging themes for sustainable development. *Mountain Research and Development* 32(S1):S47–S54. <http://dx.doi.org/10.1659/MRD-JOURNAL-D-11-00084.S1>.

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AUTHOR

Thomas Kohler
thomas.kohler@cde.unibe.ch
Centre for Development and Environment,
University of Bern, Hallerstrasse 10, 3012
Bern, Switzerland

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