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CDE
CENTRE FOR DEVELOPMENT
AND ENVIRONMENT

Centre for Development and Environment

SPOTLIGHT ON TRANSFORMATIONS TOWARDS SUSTAINABILITY

ANNUAL REPORT 2017

A word from the President of CDE's Board

Heinzpeter Znoj
President of CDE Board

What kind of science should CDE produce in its capacity as a strategic centre of the University of Bern? Should it focus on basic research at the cutting edge of its constituent disciplines? Or should it aim at generating new knowledge enabled by interdisciplinary dialogue? Or should it produce knowledge with the aim of transforming the world?

In point of fact, many of the questions we investigate at CDE can only be answered by integrating basic, interdisciplinary, and applied research: We conduct basic research at the cutting edge of our constituent disciplines in order *to enable generation of new knowledge in an interdisciplinary dialogue* in order *to produce transformative knowledge.*

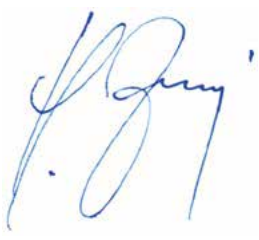
In this way, CDE research often starts by examining the opportunities and risks presented by global development, asking questions such as: How can we understand what is happening to ecosystems subject to industrial agriculture and resource extraction occurring at increasingly networked, global scales? What is happening to societies whose livelihoods are based on these changing ecosystems? How can value chains, land tenure systems, and production-related environmental impacts be made more equitable and just, enabling present and future generations to lead culturally, economically, and socially meaningful and satisfying lives in ecologically sound environments?

The data required to address these issues is initially generated using a wide array of natural and social scientific methodologies, is further integrated into complex models of ecological and social change, and is finally broken down and translated into transformative knowledge conducive to political action. Beyond application of cutting-edge basic and interdisciplinary research, generation of transformative knowledge requires scientists to engage with local knowledge produced and shared by farmers, entrepreneurs, government and community leaders, and other members of civil society in the global North and South. The value we attach to transdisciplinary, local knowledge is rooted in the regular interaction and dialogue of CDE researchers with people in the field – everyday people who are the single best experts in their own lifeworlds.

The task CDE has set for itself is that of producing knowledge that contributes to sustainable development, for example, as formulated in the United Nations Sustainable Development Goals. This kind of knowledge is highly sought after, as evidenced by various applied research mandates given to CDE.

CDE recently negotiated a new performance mandate for 2018–2021 with the University of Bern's rectorate. One successful outcome was a substantial increase in funding for CDE's bachelor's and master's programmes in sustainable development. It demonstrates the commitment of the university leaders to CDE's strategic goal of producing transformative knowledge that enables present and future generations to pursue ecologically sustainable lives in fair societies here and elsewhere.

I wish you pleasant reading.



Heinzpeter Znoj, President, CDE Board

CDE in a nutshell

The Centre for Development and Environment (CDE) was founded as an interdisciplinary research centre of the University of Bern in 2009. CDE's commitment is to advance innovative approaches in research and education that are appropriate for transforming highly complex sustainability problems into widely supported sustainable development pathways. For this purpose, CDE engages in social learning and co-production of knowledge in several world regions, invests in long-term partnerships, and connects local realities to global debates. CDE's origins date back to the Group for Development and Environment founded in 1988 at the Institute of Geography. Today, CDE has the mandate to promote research, teaching, and implementation in the field of sustainable development and global change, working together with the University of Bern's Executive Board, selected research groups, as well as national and international partners. CDE employs around 100 people from 17 disciplines, has activities in five regions of the global South as well as in Switzerland and Europe, and is currently implementing over 80 projects with an annual turnover of almost CHF 18 million. An important part of CDE's tasks are education and training. CDE offers courses in sustainable development and global change at bachelor's, master's, doctoral, and postgraduate levels, with currently over 400 students.

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Thomas Breu, Peter Messerli

Thomas Breu

Peter Messerli

"Our nation, our interests, our borders, our citizens": In 2017, language like this appeared to signal that some countries were embracing the principle of self-interest. Clearly, such a stance is fundamentally at odds with the vision of sustainable development, which can only be achieved through shared responsibility and active partnership within the international community. Fortunately, this apparent political shift was not reflected in Swiss or global sustainable development initiatives. Instead, 2017 saw business, government administrations, and civil society increase their commitment to the concept of sustainability in response to the UN 2030 Agenda for Sustainable Development. CDE thus sees itself strengthened in its role as a centre for sustainable development: We are ideally positioned to make a substantial, scientifically well-founded contribution to corresponding national and global efforts.

Expanding role in policy dialogue

In 2017, our strengthened position was particularly evident regarding policy dialogue on sustainable development. At the international level, CDE's most prominent contribution was our ongoing involvement in the group of scientific experts tasked with drafting the UN Global Sustainable Development Report, slated for release in 2019. At the national level, CDE played a major role at the interface of science, politics, and civil society. For example, CDE contributed a scientific representative to the Swiss federal government's official advisory group on implementing the 2030 Agenda in Switzerland. And in spring 2017, together with the Swiss NGO Biovision, we established the Swiss branch of the United Nations Sustainable Development Solutions Network (SDSN). This is a broad alliance of representatives from science, think tanks, business, politics, administration, and civil-society organizations, whose aim is to help shape the political dialogue on sustainable development and to develop transformative solutions to challenges of particular concern to Switzerland.

One example of our involvement in discussions between science and society was an anniversary conference held at the University of Bern in August 2017. It marked Switzerland's 25-year membership in the World Bank Group, and was organized by CDE in cooperation with the State Secretariat for Economic Affairs (SECO) and the Swiss Agency for Development and Cooperation (SDC). Attended by World Bank Vice President Axel van Trotsenburg, the conference included discussions of new ways for the Bank to help achieve the UN Sustainable Development Goals and reduce global poverty.

Milestones in institutional development

The year was also very encouraging at the institutional level. CDE's self-evaluation – commissioned by the University of Bern – represented a milestone and provided the basis for renewal of our mandate with the University for 2018–2021. In addition, there were major personnel changes to CDE's Board: The new President of the Board is Heinzpeter Znoj, Director of the Institute of Social Anthropology of the University of Bern and member of the Board since 2009. He succeeds Urs Wiesmann, co-founder of CDE and long-term president of the Board, who has retired. Chinwe Ifejika Speranza of the Institute of Geography has joined the Board, filling the vacancy left by Urs Wiesmann.

Our research likewise made advancements in 2017. This was reflected in our significant growth in project turnover and, relatedly, a ten per cent increase in staff – now comprising 105 employees. The over 80 written scientific publications produced by CDE in 2017 demonstrate our steady, high-quality research output.

Research partnerships for transformations

Of particular importance to our goal of engaged and transformative science is the development and implementation of programmes in our partner regions. Global sustainable development will only be possible if we succeed in productively linking the knowledge systems of the North with those of the South, generating benefits for everyone involved.

Platforms for exchange of data and information are one good example of how investments in knowledge can drive sustainable development. Such platforms enable the provision of highly contextualized knowledge to inform dialogues on the implementation of the 2030 Agenda, from national to global scales. With this in mind, in 2017 we worked with our regional partners to appraise our knowledge platforms in Laos, Myanmar, Kenya, and Ethiopia, but also those of our global programmes such as WOCAT and the Land Matrix. In the future, their respective strengths will flow into a modular "CDE toolbox" that will enable nearly real-time monitoring, particularly of land use and of social and economic development indicators. This will make it possible to steer transformations towards sustainable development in a highly evidence-based, effective manner.

Linking the knowledge systems of the North with those of the South: A secondary school teacher and smallholder coffee farmer is being interviewed by a scientist in Laos. Photo: Reto Steffen

Programme highlights

International Conference on Research for Development held in Bern

Photo: Manu Friedrich

The 4th International Conference on Research for Development (ICRD) was held in Bern, 5–8 September 2017. Titled "Evidence. Engagement. Policies", the ICRD brought together 300 participants from around the world to discuss opportunities and challenges of global sustainable development. The complex task of implementing the 2030 Agenda requires new ways of working and thinking – and science can help. According to Thomas Breu, ICRD Chair and Director of CDE, "Investing in long-term research partnerships with developing countries is the best way of making available relevant knowledge for negotiation, learning, and decision-making processes." The conference co-organizers – the Swiss Agency for Development and Cooperation and the Swiss National Science Foundation – actively promote boundary- and discipline-spanning partnerships, in particular through the Swiss Programme for Research on Global Issues for Development (r4d programme).

Integrating sustainable development into all study programmes

Illustration: Karl Herweg, CDE

The University of Bern wants to integrate the topic of sustainable development into the curricula of all of its study programmes. For this purpose, members of CDE's Education for Sustainable Development Cluster discussed integration with lecturers in theatre studies, literature studies, law, earth science, particle physics, and space and habitability. They successfully identified links to sustainable development in each discipline, whether in terms of content, methodology, or the effects of corresponding research results on the environment, society, and the economy. To promote development of courses incorporating the topic of sustainable development, the Vice-Rector for Quality has launched a call for proposals with support from CDE's Education for Sustainable Development Cluster. Lecturers can submit a proposal and, if successful, will be granted time to prepare and carry out a course in their subject that integrates sustainability according to clear criteria.

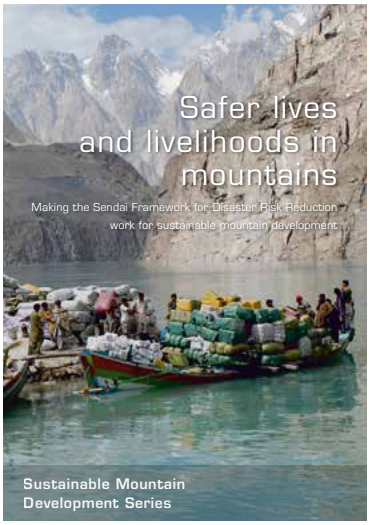
Land use in drylands: best-practice guidelines

Photo: Nina Lauterburg, CDE

What can we do to prevent the degradation of ecosystems in drylands? As part of the European Union's CASCADE project, completed in 2017, CDE researchers studied various types of land use and land management in southern Europe, including the role they play in degradation prevention. The researchers investigated what causes undesirable and irreversible changes in drylands, especially changes that come with a loss of biodiversity and a reduction in ecosystem services. The scientists also developed best-practice guidelines for adapted land use, addressing three specific situations: forest fires, land abandonment, and overgrazing. The guidelines are now available in English, Spanish, Greek, Italian, and Portuguese.

Publication: *Safer Lives and Livelihoods in Mountains*

Today's growing competition for safe land often pushes economically weaker people to the fringes of safe zones. Natural hazards in mountain regions threaten the lives and livelihoods of people in these regions' rural settlements and growing urban centres, and they also affect people in the lowlands. The publication *Safer Lives and Livelihoods in Mountains* presents 15 case studies from mountain regions around the world, illustrating the efforts and experiences of public and private actors aiming to implement the four priorities for action of the United Nations Sendai Framework for Disaster Risk Reduction. Messages for policymakers emphasize the need for mountain-specific disaster risk reduction policies – ideally, integrated with development activities and climate change adaptation measures – to make livelihoods in mountains and beyond safer. The publication was produced by CDE together with several partners.



The University of Lausanne joins the IGS North-South

The International Graduate School (IGS) North-South is going from strength to strength. Founded in 2010, the IGS North-South has offered a PhD programme through the three universities of Basel, Bern, and Zurich, including their specialized institutes, centres, and partners. A fourth Swiss university – the University of Lausanne (UNIL) – has now joined the group, strengthening both the teaching team and the research network for sustainable development in Switzerland. UniL's Institute of Geography and Sustainability joins the founding partners CDE, the Swiss Tropical and Public Health Institute (Swiss TPH), the Swiss Peace Foundation (swisspeace), and the Development Study Group Zurich. The IGS North-South brings together students from Europe, Africa, Asia, and Latin America.

Photo: Fabrice Ducrest © UNIL

Cornerstone laid for the Sustainable Development Solutions Network Switzerland

In 2017, the UN Sustainable Development Solutions Network (SDSN) prepared to open its 25th national network – this time in Switzerland. It appointed CDE and the Biovision Foundation as co-hosts of the new branch, which was officially launched in early 2018. SDSN Switzerland aims to bring together Swiss researchers and scientists, responsible and innovative businesses, and impact-oriented civil-society organizations to co-create and implement solutions and transformations on behalf of sustainability. Such solutions – including social innovations – will be channelled into decision-making processes in politics, business, and society. As a first step, SDSN Switzerland presented a discussion paper titled "Switzerland and the 2030 Agenda". It provides decision-makers from politics, business, and society with concrete recommendations for sustainability-oriented policy and action. SDSN Switzerland is co-chaired by Urs Wiesmann, Professor Emeritus and former President of CDE's Board, and Océane Dayer, founder and Vice President of Swiss Youth for Climate.

Photo: Peter Lüthi, Biovision

New research project on illicit financial flows from resource-rich developing countries

Photo: shutterstock, panuwat phimpha

Achieving the United Nations Sustainable Development Goals by 2030 requires developing countries to mobilize greater domestic resources to fund their efforts. One promising way of strengthening their tax base, and thus funding their development, is to reduce illicit financial flows (IFFs) in the raw materials sector. A CDE project within the Swiss Programme for Research on Global Issues for Development (r4d programme) aims to improve knowledge about commodity-trade-related IFFs as well as to design and promote effective ways of addressing them from a scientific and policy perspective. It combines economic, legal, and political science viewpoints, with a particular focus on trade and transfer mispricing. The project is headed by the Graduate Institute Geneva, with the legal component carried out by CDE. CDE's component seeks to identify and address the specific policy incentives and regulatory dynamics that influence commodity-trade-related IFFs.

First jointly organized Sustainability Day

Photo: Corina Lardelli, CDE

Three institutions of higher education in Bern – the University of Bern, PHBern, and the Bern University of Applied Sciences – held their first jointly organized Sustainability Day on 6 April 2017. CDE and the University of Bern's Vice-Rectorate Quality played a significant role in arranging the event, which highlighted current topics in the field of sustainability in teaching, research, and operations at the three institutions. The diverse programme attracted significant interest within the organizing institutions and externally: More than 300 people attended the event, which included talks, a panel discussion, 24 interactive stands, and 18 different workshops. Overall, the Sustainability Day emphasized dialogue and helped identify potential for synergy and possibilities for cooperation.

CDE attracts European Research Council grant

Photo: Elena Zepharovich, CDE

In 2017, CDE became the home institution of a European Research Council grant project investigating the problem of deforestation in the dry Chaco area in Argentina's Province of Salta. The area is part of the Gran Chaco, South America's second-largest tropical forest after the Amazon. The dry Chaco in Salta represents an important agricultural frontier and hosts significant ethnic and cultural diversity. It is also experiencing one of the highest deforestation rates in the world. The project is led by Graziano Ceddia, Assistant Professor at CDE, with funding from the European Research Council Consolidator Grant Scheme.

Making the task of balancing the Sustainable Development Goals physically tangible: CDE's stall at the University of Bern's 2017 "Researchers' Night". Photo: Manu Friedrich

Spotlight on transformations towards sustainability

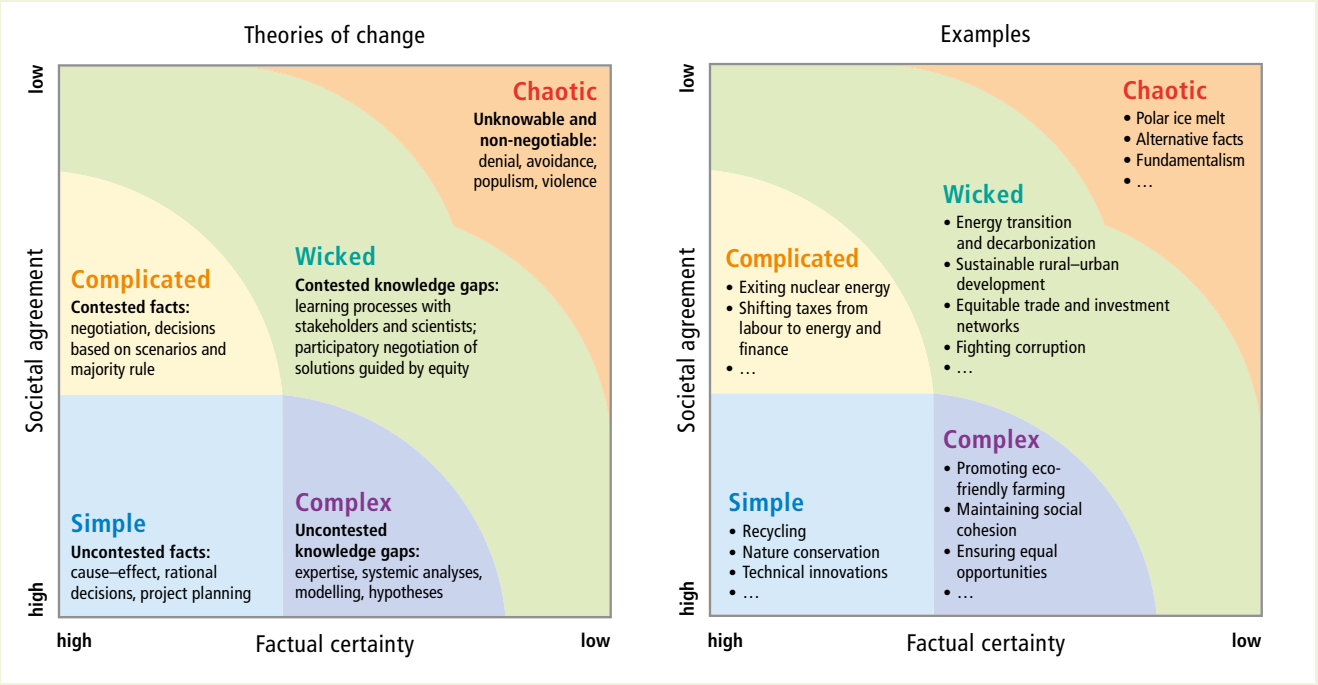
Bridging the gap between political feasibility and practical urgency

Peter Messerli, Sabin Bieri

With the 2030 Agenda, 192 countries have adopted a sweeping vision for sustainable development. It presents a singular opportunity to make national and global development more sustainable and just. But given the intertwined challenges we face – like growing inequality, climate change, and lack of water, energy, and food security – nothing less than rapid, far-reaching transformations are urgently needed. Thus, the question increasingly arises: What sorts of processes have the power to break through persistent patterns of behaviour, ossified structures, and political stalemates in order to reveal creative solutions for sustainable development? For all too often research findings point to a yawning gap between what is considered politically feasible and what is necessary to enable sustainable development.

Wicked problems characterize our age

Closer analysis of this gap shows that political scope for action depends on the interplay of factual certainty and societal agreement. The diagram below illustrates important dynamics: We have proven approaches for use in addressing simple problems. We can also generally manage difficult and complex problems. But our present reality is particularly shaped by wicked problems. They are characterized by limited factual certainty *and* lack of societal agreement, making them appear insurmountable.



The interplay between factual certainty and societal agreement influences how we approach problems and what scope we see for political action. Source: Adapted from Messerli P, Bieri S. Accepted. *Können wir die Zukunft gestalten? – Die Agenda 2030 als Impuls für die Handlungsfähigkeit der Schweiz.* Contribution to a book project of the Federal Council bearing the working title *Die Schweiz 2030* [Switzerland in 2030]; inspired by Stacey RD. 1996. *Strategic Management and Organisational Dynamics.* 2nd edition [1993[1]]. London, UK: Pitman, p 47.

Few of us appear willing to radically adapt our approaches to these wicked problems that lack ready-made, societally accepted solutions. Instead, we retreat into the cramped space of a political reality demanding certainty and consensus. We persist in a comfort zone that may give rise to individual initiatives and short-term results, but diverts our attention away from wise solutions in terms of sustainability.

Engaged and transformative science

This insight is also very important for us as scientists. To expand the scope for action on wicked problems, we must forge new connections between knowledge about complex interactions and genuine democratic debate. CDE has accepted this challenge in its Strategy 2016–2021: We are committed to research that is "engaged" and "transformative".

To uphold this strategy in all areas of our organization, we adopted three institutional goals in 2017 that apply to all of our units. The goals lay out our agenda of conceptualizing, capitalizing on, and concretizing the theme of transformation in all our work:

Conceptualizing transformation. We seek to further develop our understanding of transformation, link it to existing theories, and participate in ongoing discussion with actors from science and practice.

Capitalizing on transformation knowledge. We seek to generate knowledge about successful and failed transformation processes, systematize it, and make it available to the broader public.

Concretizing transformative research. We seek to examine and reflect on the transformative power of our own research and teaching, with the aim of improving it and structuring it more effectively in individual projects.

The activities spotlighted on the following pages illustrate how we are implementing these goals in our projects – and how our work contributes to bridging the gap between political feasibility and the urgent need for a course change towards sustainable development.

A course change towards sustainable development is urgently needed: Recycling cardboard to conserve trees is one positive example (left). Photo: shutterstock, lightspring

Land, a nexus for sustainability transformations

Ariane de Bremond

Land systems embody the relationship between human activities on land, socio-economic conditions, the natural environment – and the governance of their interactions. Changes in land systems not only affect the local environment and human well-being: They are also pervasive factors of global environmental change. Land systems are increasingly at the heart of competing development claims by differing social groups needing access to resources such as soil, biodiversity, and water. This inevitably leads to trade-offs at various spatial and temporal scales. But with such challenges come opportunities, and land systems can also constitute sites of identification and understanding of multiple goals and needs, as well as spaces for negotiation and mediation of trade-offs for human development. Land systems can thus be a nexus for sustainability transformations.

Moving from research *about* sustainable development of human–environmental systems to research that *enables* such development: Harvest in Northern Laos. Photo: Cecilie Friis

Co-designing knowledge for sustainable development: The Global Land Programme

Achieving such sustainability transformations in land systems requires new forms of interaction, collaboration, and knowledge creation between researchers, policymakers, and development practitioners. For the Global Land Programme (GLP), a global research project of the Future Earth research platform, land system science has evolved from research *about* development of human–environmental systems to research *for* sustainable development of human–environmental systems. In other words, land system science has moved from observing change and understanding its drivers to also using this understanding to design sustainable transformations through stakeholder engagement and support of land governance.

Unlocking the potential of land systems to contribute to the 2030 Agenda

The GLP is accompanying the first years of the 2030 Agenda through a science–policy initiative supported by the Swiss Agency for Development and Cooperation and implemented by the International Programme Office (IPO) hosted at CDE. Working with the GLP community of scientists as well as policymakers from the land governance community, the IPO initiative aims to produce knowledge for sustainability transformations by identifying key land-related interactions within the Sustainable Development Goals (SDGs) according to the priorities of each community. Results revealed differing as well as overlapping priorities with respect to key SDGs for advancing land-related sustainable development. For example, policy and development experts gave significantly higher priority to poverty, climate change, and partnership for the SDGs than land scientists did. The latter, in turn, ranked food security and production, sustainable cities, and responsible production and consumption more prominently than the policy and development actors did.

Translating transformation into concrete practice of land system science

Such processes by both communities of finding "questions that need answers" and exploring "questions that need to be asked" are attempts to build bridges of understanding between actors. This will enable leverage points to be identified for transformative action. In a next step, the IPO is compiling a knowledge database of GLP research in line with SDG "grammar", for use by decision-makers in concrete contexts. Examples include decisions surrounding navigation of trade-offs around bioenergy and agricultural production, or land use intensification and biodiversity conservation. The IPO is thus deepening and advancing its capacity to generate *useable* knowledge in concrete contexts for informed policy action. In the coming year, the GLP will collaborate with the International Land Coalition to support capacity building and knowledge enhancement of multi-stakeholder initiatives that support sustainable governance of land and natural resources.

Education for sufficient lifestyles

Anne Zimmermann, Marion Leng, Kirstin Schild

Transformations towards sustainable development don't *just happen*. Few of us are intrinsically motivated or have the innate ability to act as change agents for a more sustainable future. But can we afford to wait until everyone understands the need for change and knows how to act? The answer, clearly, is "No". There is no time to spare. Universities have a key role to play in helping to build capacity for change among our students – our future leaders. But this is not simply a matter of producing knowledge and transferring it to students. New forms of teaching and learning are needed, as well as a change in our understanding of the relationship between science and society. This perspective guides the work of the Education for Sustainable Development cluster in the fields of teaching, training of trainers, networking, and research. One example of our research is the newly launched project "Education for a Sufficient Lifestyle".

Societal transformation through education

Increasing consumption of natural resources and associated environmental and social problems demand a societal transformation towards greater sustainability. In addition to implementing concrete policy measures, change is needed regarding the resource intensity of lifestyles in the global North. One possible path is that of sufficiency or contentedness. Pursuing a sufficient lifestyle does not mean sacrificing comfort. Instead, the sufficiency concept assumes that reducing one's resource use can actually increase life satisfaction.

Education has an extremely important role to play in initiating this sort of overall transformation of society. The project "Education for a Sufficient Lifestyle" shows how a sufficient lifestyle can be promoted through education. Emphasis is placed on contemplating ideas of a "good life" that are compatible with a sufficient lifestyle.

Living better with less?

The research project seeks to demonstrate how appropriate educational work – from conceptualization to implementation – can support a broader societal shift in values towards sufficient living. To this end, the researchers are developing a teaching concept including implementation methods and corresponding instructional materials for Swiss upper secondary education. In this way, young people aged 16–25 who are attending an upper secondary school or university will learn that striving for wealth in terms of time, our environment, and human relationships – that is, states of *being* rather than of *having* – often contributes far more to life satisfaction than resource-intensive consumption of goods and services. This has been confirmed, for example, by results from empirical research on happiness.

The project aims to provide students with corresponding experiences. It also helps them develop skills with which they can independently reflect on their "good life" and become aware of how their life affects others – both in the here and now and regarding future generations. Of course, students' autonomy and personal responsibility are respected: They are empowered with knowledge about present challenges and possibilities for change, and encouraged to develop skills as change agents. But they must ultimately decide for themselves how to respond.

Contemplating ideas of a "good life" and sufficient lifestyles: For example, urban gardening in the global North. Photo: shutterstock, Joshua Resnick

Local entrepreneurs are key to transforming the cooking energy sector in Tanzania

Susanne Wymann von Dach, Albrecht Ehrensperger

Worldwide, a fundamental change in the energy sector is needed – that much is clear. Switching to clean, sustainable energy technologies is necessary not only because of climate change and increasing resource scarcity, but also because of acute risks to human health. In countries of the global South and East, widespread use of inefficient cooking stoves pollutes the air of people's homes with fine particulate matter. The World Health Organization estimates that every year 4.3 million people worldwide die from household air pollution. That is more annual deaths than from malaria, tuberculosis, and HIV/AIDS combined. The problem has been recognized for decades, yet numerous national and international initiatives have failed to significantly improve the situation.

Strong charcoal sector

In East Africa, studies by CDE and others have identified hindrances to the necessary energy transformation. For one thing, proposed technical solutions were not sufficiently attuned to the possibilities, demands, and practices of households. Also, it was often not possible to build up robust local value chains of alternative energies that could hold their ground against the persistent use of firewood and the dominant charcoal sector. In Tanzania and Kenya, the charcoal sector employs several hundred thousand people in jobs ranging from production to trade and sales.

Investigating the prospects of biomass energy

Nonetheless, several innovative local companies are developing alternative cooking systems (e.g. based on briquettes from farm residues) for the local market. However, they face hurdles in establishing themselves in the regional economy, and this hinders their ability to offer clean, efficient solutions to the broader population – especially the poor. This is evidenced by the results of the research project "Prospects of Pro-Poor Biomass Energy Value Chains", in which CDE researchers and local partners investigated biomass production conditions and capabilities in northern Tanzania. The project is part of the Swiss Programme for Research on Global Issues for Development (r4d programme).

Achieving a sustainable transformation

The r4d project demonstrates how local alternative biomass energies and technologies can support a sustainable transformation in East Africa's energy sector. This requires not only new policies that set clear health and environmental standards, but also a system that encourages innovation by linking the processes involved in promoting and establishing commercial start-ups. These include setting up a network for technological development and knowledge exchange, capacity building and marketing, and advising potential investors on the new technologies. In short, governments need to create incentives for innovative small businesses to thrive economically – while ensuring that alternative cooking technologies and fuels are produced not in competition, but rather in collaboration with the charcoal sector.

Encouraging local entrepreneurs to support these new technologies would enable clean solutions that are adapted to local needs – whether in terms of processes, efficient use of alternative energy sources, or services requiring spare parts and repairs.

Enabling solutions that are adapted to local needs: Charcoal briquettes produced from pyrolysed farm residues in the suburbs of Dar es Salaam, Tanzania. Photo: Albrecht Ehrensperger, CDE

The power of participation: bottom-up institution building in natural resource governance

Stephan Rist

Many a "participatory development" initiative has been implemented in a bid to ensure the sustainable use of common natural resources such as forests, fisheries, or pastures. But the results of these initiatives often fall short of expectations. This is frequently because participation is prescribed in a top-down manner and then used to justify solutions developed by powerful interest groups and elites, leaving affected local populations feeling that their interests have been neglected. In a series of case studies, researchers from the University of Bern's CDE, Institute of Social Anthropology, and Institute of Geography investigated how to avoid this "participation trap". Their research shows that viable regulations that ensure sustainable use of natural resources can be created in participatory, bottom-up processes. But success depends on specific conditions that the researchers refer to collectively as "constitutionality".

Villagers, state authorities, and advisers: Assessing progress in the construction of El Zapotillo dam in Jalisco, Mexico. Photo: Heliodoro Ochoa-García

The concept of "constitutionality" is fairly new and still in the making. It is based on ensuring greater – and earlier – involvement of people who are otherwise typically relegated to the margins of the political process. Involving these actors from the beginning in identifying problems – not just subsequent solutions – enables them to develop their own strategies in setting up new rules for the use of natural resources. They can draw upon their own, often culturally anchored values, revitalize these, and adapt them to the current situation. This results in self-created institutions, which, ideally, are then recognized by the state. "Institutions" is meant in the sociological sense of the term, referring not to organizations, but to norms, regulations, and generally "the rules of the game".

Seven case studies

To find out how such processes can contribute to sustainable development, the researchers investigated seven successful cases of bottom-up institutional development from Switzerland, the USA, Mexico, Bolivia, Zambia, Senegal, and Israel. In the Mexican state of Jalisco, for example, a team of CDE researchers examined four water use conflicts. The conflicts occurred because the state had attempted to solve a worsening water shortage by implementing large-scale hydraulic projects, but had not involved the affected population. The projects resulted in severe water pollution, human rights violations, and damage to the environment as well as to the local economy. Various social movements emerged, developing and implementing alternative solutions. The researchers examined these processes from a constitutionality perspective: Local people's resistance movements *against* top-down water policies were analysed – and linked to emerging processes of institutional innovation *on behalf* of more sustainable water governance. The Mexican government eventually recognized these bottom-up institutions, leading to establishment of a nationwide right for affected populations to create their own governance rules guided by water justice.

Promising pathways to sustainable resource governance

The researchers used the case study results to further develop the constitutionality concept. They identified the following factors as basic prerequisites for achieving broadly accepted rules on use of natural resources: (1) a socioculturally anchored awareness among local people of the need to develop new rules; (2) capacity to engage in participatory processes that balance, rather than ignore, power asymmetries; (3) revitalization of local knowledge to guarantee that new institutions are adapted to local views; (4) integration of new and existing (often traditional) institutions for collective action; (5) external catalysing agents (e.g. non-governmental organizations, researchers); and (6) high-level state recognition and support. The case studies thus provide important principles for investigating and designing pathways to democratic and truly sustainable resource governance.

Transformative science in specific regional contexts worldwide

Andreas Heinimann

A key element of CDE's strategy towards engaged and transformative science for sustainable development is our long-term cooperation with partners from science, policy, civil society, and the private sector in different regions worldwide. CDE partner regions are more than just joint case study areas: In pluralistic partnerships with multiple actors, we work together to develop and empower knowledge societies, and to trigger and support transformative changes towards more sustainable development in specific sociopolitical contexts or regions.

East Africa

CDE's activities in East Africa are coordinated by the Centre for Training and Integrated Research in ASAL Development (CETRAD) in Nanyuki, in the Mount Kenya region. Institutionally, CETRAD is based on a bilateral agreement between the governments of Kenya and Switzerland. CETRAD focuses on generating and managing knowledge in two broad areas: management and governance of water and land resources, and agrarian transformation along ecological and socio-economic gradients. In these areas, CETRAD supports and promotes sustainability transformations through various approaches. These range from promoting multilevel institutional change and strengthening institutions rooted in society to analysing complex social and political transformation processes in pastoral and agro-pastoral communities. In recent years, we have focused on the design of a decision-support tool to foster evidence-based and inclusive decision-making. Being in part a Kenyan governmental agency offers CETRAD unique opportunities to facilitate the dissemination of scientific knowledge and gain insights into policy processes. For example, CETRAD was able to support the establishment of local Water Resource User Associations (WRUAs) in the highland–lowland system of Mount Kenya over the past decades. Today, it provides these WRUAs with real-time water level data via an online information platform that serves as a water-scarcity early-warning system. Further, it runs a national online platform that complements local information systems by providing access to socio-economic data at different aggregation levels.

Contact: Boniface Kiteme, b.kiteme@africaonline.co.ke
www.cetrad.org

A major challenge in Ethiopia: Land degradation that affects the livelihoods of millions (top). Photo: Lama Abdul Samad

Nyeri Hill Farm in Kenya: Plantation workers spread coffee beans to dry (bottom). Photo: Markus Giger, CDE

Horn of Africa

The Horn of Africa is a highly volatile region, both politically and environmentally. One of the greatest challenges is land degradation, which affects millions of livelihoods and is exacerbated by climate change. Land degradation is a particular problem in Ethiopia, the largest country in the region, where 85 per cent of the 100-million-strong population depends on subsistence agriculture. The Water and Land Resource Centre (WLRC), established in 2011, is working to generate much-needed knowledge on land degradation as well as on land management interventions. The WLRC is associated with Addis Ababa University (AAU) and CDE, University of Bern, based on the bilateral framework agreement on science and technology between the governments of Ethiopia and Switzerland. Worthy of particular mention are its six learning watersheds in different agroecological zones of the country, where researchers and farmers jointly generate and exchange knowledge about how integrated watershed management can reduce land degradation while improving local livelihoods. The success of the land management practices developed and tested in these six watersheds has attracted huge interest among decision-makers and planners – as well as farmers in neighbouring areas, who have independently adopted certain practices. Work is underway to scale out various approaches and nature-based solutions to other regions.

Contact: Gete Zeleke, gete.z@wlrc-eth.org
www.wlrc-eth.org

Latin America

To date, CDE's work in Latin America has focused on the Bolivian and Peruvian Andes, but it is currently expanding to include activities in Chile, Argentina, Colombia, and Nicaragua. CDE runs a regional office in La Paz, Bolivia, hosted by IPDRS, an NGO working on land rights in South America. For more than 20 years, CDE has been collaborating with AGRUCO, the Centre for Agroecology at the University of Cochabamba, Bolivia, on topics such as biocultural diversity, living well (Vivir Bien), and ancestral knowledge about adaptation to climate variability. Another important partner is the Universidad Mayor San Andrés (UMSA). CDE and its local partners were recently awarded a new project in Chile aimed at establishing the country's first protected area that is 100 per cent self-sustaining in terms of energy. The project promotes the construction of low-energy homes to alleviate pressure on the vegetation of Coyhaique National Reserve, in which people collect firewood to heat their homes. A highlight of transformative research in 2017 was a traditional food festival in a village of the Guaraní people in Bolivia, linking agrobiodiversity to dietary diversity and the preservation of local traditional knowledge.

Contact: Johanna Jacobi, johanna.jacobi@cde.unibe.ch

Southeast Asia

CDE has established permanent country offices in Laos and Myanmar, where we work in pluralistic partnerships at the regional and country levels. In addition, we run activities in other countries of mainland Southeast Asia, such as Cambodia. In this economically very dynamic and highly connected region, investments in land and natural resources are helping to fuel a spectacular growth rate – but all too often, this is accompanied by unsustainable use of resources and rising social inequality. CDE's focus in Southeast Asia is on cross-border engagement and collaborations towards regional solutions for sustainable natural resource use.

Laos

Rich in land, forests, water, and other natural resources, Laos has become a magnet for foreign direct investment. In stark contrast to this natural wealth, pockets of deep poverty persist, inequalities are on the rise, and the capacity of human assets remains at a comparatively low level. The latter is also reflected in the relatively low capacity within government offices for adequate governance of the country's abundant natural resources. CDE has therefore actively engaged in endeavours with the Government of Laos to improve sustainability governance through systematic information integration, building of adequate research capacity, and development of targeted knowledge products that inform planning and decision-making processes towards a smooth graduation from the country's status as a so-called least-developed country. To this end, CDE works with planners and key decision-makers from a wide range of sectors, including agriculture, rural development, forestry, private investment, hydropower, mineral exploitation, and the environment.

Contact: Michael Epprecht, michael.epprecht@cde.unibe.ch

Myanmar

After sixty years of military rule, Myanmar is in the midst of a profound transition. Key strategic decisions are needed to steer the country towards a sustainable future. As 70 per cent of the population lives in rural areas, securing access to land for small-scale agriculture is at the core of the national sustainable development equation, which should ideally enable economic growth while preserving the rights of ethnic minorities and fulfilling the needs of smallholder farmers. By engaging in innovative research and development activities with a wide array of stakeholders, CDE promotes transparent, democratic, and well-informed decision-making on land governance and supports integrated development planning. Through the OneMap Myanmar initiative, we provide technical assistance to 26 central and local-level government agencies as well as to civil-society groups, ethnic parties, and the private sector. OneMap Myanmar aims to democratize access to land-related data and information, and to open up spaces for multi-stakeholder dialogues to help resolve some of the most critical development trade-offs the country is facing.

Contact: Joan Bastide, joan.bastide@cde.unibe.ch

Central Asia and Caucasus

CDE's research in Central Asia and the Caucasus focuses on practices of equitable and sustainable land use and integrated water management. Further, we are helping to develop systems for monitoring natural resources, as well as adapted decision-support tools and planning instruments. In the Caucasus, we additionally carry out research in spatial planning and sustainable regional development, landscape governance, participatory management of protected areas, biodiversity, transhumance, and pasture management. Finally, we work with local partners in university education for sustainable development.

Contact: Heino Meessen, heino.meessen@cde.unibe.ch
Christian Hergarten, christian.hergarten@cde.unibe.ch

Switzerland and Europe

Pathways to sustainable development in the global North may differ from those in the global South and East, but it is equally important to explore them. The move from the Millennium Development Goals to the Sustainable Development Goals (SDGs) underlines the importance of a universal development agenda including all countries. Accordingly, CDE is also strongly engaged in research, education, and policy advice in Switzerland and Europe. For example, based on the insight that the SDGs can only be achieved if international, national, and local policies are well-aligned with each other, CDE is investigating ways of increasing policy coherence for sustainable development. This means ensuring that environmental policies address the need for equitable distribution of resources, and that economic and trade policies are designed to reduce poverty and protect environmental goods across levels and countries. Sustainable development in mountains is another topic that we address in both the North and the South. CDE collaborates closely with global networks concerned with research and development in mountain regions. Together with CETRAD, we hold the UNESCO Chair on Natural and Cultural Heritage for Sustainable Mountain Development.

Contact: CDE, Bern, info@cde.unibe.ch

One strategy to generate income: A small shop in Layshi Township, Northern Myanmar (top). Photo: Lin Bo Jian

Conserving and enhancing cultural and natural landscapes of the UNESCO World Heritage Swiss Alps Jungfrau-Aletsch: Students at the Thun Gymnasium perform landscape maintenance on a mountain pasture in Grindelwald, Switzerland (bottom). Photo: Janosch Hugi

Programme overview

CDE maintains a worldwide network of national and international research partnerships. Our cooperation activities, many of them with countries from the global South and East, enable us to better understand the impacts of global change and to develop appropriate strategies that are adapted to local, regional, and global contexts. We also support Swiss and international academic networks that coordinate sustainability research. We act as intermediaries between research and education, and are committed to innovative science policy.

CDE's key partner regions
CDE runs activities with a regional or national focus in 53 countries worldwide. Key regions are East Africa, the Horn of Africa, mainland Southeast Asia (especially Laos and Myanmar), the central Andes, as well as Central Asia and the Caucasus (see green areas on the map). Many of these projects and programmes represent a long-term engagement.

Major project activities
CDE and its regional partners have several long-term application-oriented mandates from various funding partners. For example, we recently set up a data and transparency initiative on land issues, OneMap Myanmar, together with Myanmar's government and civil society. In Laos, the Lao Decide Info information hub is successfully supporting policy development and decision-making. The same is true of the national Water and Land Resource Centres in Kenya and Ethiopia, which focus on integrated land and water management approaches in training, research, and policy.

Academic networks in Switzerland
In Switzerland, CDE plays an active, policy-shaping role in various bodies of the Swiss Academies of Arts and Sciences – for example in ProClim (the Forum for Climate and Global Change), KFPE (the Commission for Research Partnerships with Developing Countries), td-net (the Network for Transdisciplinary Research), and saguf (the Swiss Academic Society for Environmental Research and Ecology). We are also actively involved in other research, educational, and development organizations.

Global networks for sustainable development
Our portfolio comprises global networks that CDE has built and strengthened together with international partners over many years. Examples include the WOCAT (World Overview of Conservation Approaches and Technologies) network, which promotes sustainable land management practices around the world, and the Land Matrix, a global initiative to increase transparency in transnational land deals. CDE hosts the International Project Office of the Global Land Programme (GLP), one of Future Earth's core projects and the largest research network in land system science. Further, CDE is engaged in international initiatives to support implementation of the 2030 Agenda. It co-hosts the Sustainable Development Solutions Network (SDSN) Switzerland, and CDE Director Peter Messerli co-chairs the group of scientists tasked with drafting the upcoming United Nations Global Sustainable Development Report (GSDR).

CDE's project activities worldwide in 2017

CDE's key partner regions

Other countries with project activities

For more details about projects and mandates, see table on pp. 28–30

Programmes and mandates in 2017

Programmes and mandates by cluster[1]	Budget size in 2017[2]	Main donors in 2017[3]	Countries/regions
Natural Resources			
The Water and Land Resource Centre Project: Decision-Making on Water and Land Management and Governance (Phase III)	large	SDC	Ethiopia, Kenya
WOCAT – World Overview of Conservation Approaches and Technologies	large	SDC, various partners	Global
Managing Telecoupled Landscapes for the Sustainable Provision of Ecosystem Services and Poverty Alleviation	large	SNSF, SDC (r4d Programme)	Laos, Madagascar, Myanmar
Scaling Up Sustainable Land Management With Smallholder Farmers	large	IFAD	Cambodia, Laos, Uganda
Mekong State of Land Assessment and Report	medium	SDC	Cambodia, Laos, Myanmar, Thailand, Vietnam
Global Land Programme Science–Policy Interface	medium	SDC, CDE	Switzerland
TABI – The Agrobiodiversity Initiative (Phases II and III)	medium	SDC, NIRAS	Laos
Disaster Risk Reduction in WOCAT: Where the World Is Safer	medium	CARITAS	Global
Global Land Programme International Programme Office	medium	CDE	Global
RECARE – Preventing and Remediating Degradation of Soils in Europe through Land Care	medium	EU-FP7	Switzerland
iSQAPER – Interactive Soil Quality Assessment in Europe and China for Agricultural Productivity and Environmental Resilience	medium	EU-Horizon 2020, SERI	Europe, China
SOILCARE – Soil Care for Profitable and Sustainable Crop Production in Europe	medium	EU-Horizon 2020, SERI	Switzerland
Sustainable Land Management and Climate Change Mitigation Co-Benefits	medium	GEF	Global
Decision Support for Mainstreaming and Scaling Out Sustainable Land Management	medium	GEF, FAO	15 countries worldwide
Integrated Watershed Management in Morocco	small	SDC	Morocco
Erosion Risk Monitoring in Switzerland	small	Changins – School of Viticulture and Enology	Switzerland
CASCADE – Catastrophic Shifts in Drylands	small	EU-FP7	Cyprus, Greece, Italy, Portugal, Spain
Developing a C Factor Tool to Complement the Erosion Risk Map of Switzerland	small	FOAG	Switzerland
Upgrading and Optimizing the Erosion Risk Map of Switzerland	small	FOAG	Switzerland
Climate Smart Agriculture	small	GIZ	Kenya, Benin, Burkina Faso, Ethiopia, India
Support to WOCAT International Secretariat and WOCAT Database	small	GIZ	Global
Strengthening State Strategies for Climate Actions in India	small	HELVETAS Swiss Intercooperation	India
Learning From Knowledge Co-Design and Co-Production for Sustainable Urban Development in Africa	small	ICSU (LIRA 2030 Africa)	Africa
Enhancing Transformative Research for Sustainable Development: Mutual Learning Within Research Networks	small	Mercator Foundation	Switzerland
Guidelines on Selected Best Sustainable Rangeland Management Practices in Sub-Saharan Africa	small	The World Bank	Sub-Saharan Africa
Socio-Economic Transitions			
Lao Decide Info (Phase III)	large	SDC	Laos
OneMap Myanmar (Phases I and II)	large	SDC	Myanmar
Support to United Nations Global Sustainable Development Report	large	SDC	Global
ICRD – International Conference on Research for Development	large	SNSF, SDC (r4d Programme)	Global
FATE – Feminization, Agricultural Transition, and Rural Employment (Phases I and II)[4]	large	SNSF, SDC (r4d Programme)	Bolivia, Laos, Nepal, Rwanda

Programmes and mandates by cluster[1]	Budget size in 2017[2]	Main donors in 2017[3]	Countries/regions
Socio-Economic Transitions (continued)			
Quality of Life in the Context of Sustainable Development: Stakeholders' Perspectives and the Contribution of Parks of National Importance	medium	SNSF	Switzerland
Woody Invasive Alien Species in East Africa	medium	SNSF, SDC (r4d Programme)	Ethiopia, Kenya, Tanzania
Mapping Land Degradation in Mountains	medium	FAO	Switzerland
Climate Change Adaptation Mandates	medium	GIZ	India
Sufficiency Exhibit "Let's Go DanaLand"	medium	Mercator Foundation	Switzerland
Time is Wealth: Part-Time Work as a Means to Foster Sustainable Lifestyles?	medium	Mercator Foundation	Switzerland
Learning About Global Inequalities	small	SDC	Switzerland
Analysing Sustainable Social Innovations and Grassroots Movements Related to Sufficient Behaviour	small	City of Zurich	Switzerland
Programming PlaNet Tool for Participatory Project Management	small	EAWAG	Switzerland
SIMRA – Social Innovation in Marginalised Rural Areas	small	EU-Horizon 2020	Switzerland
Impact Study of HELVETAS Organic Cotton Programme in Burkina Faso	small	HELVETAS Swiss Intercooperation	Burkina Faso
Knowledge and Database for Impact Assessments of Kandaji Dam, Niger	small	The World Bank	Niger
Sustainability Governance			
Towards Food Sustainability: Reshaping the Coexistence of Different Food Systems in South America and Africa (Phase II)	large	SNSF, SDC (r4d Programme)	Bolivia, Kenya
Knowledge Management for Sustainable Development in Mountain Areas	large	ADA	Global
"Mountain Research and Development" International Scientific Journal	large	IMS, CDE, SDC, ICIMOD, ADA, others	Global
The Role of the Solidarity Economy in Organic Farming in Switzerland and Surrounding Countries	large	Mercator Foundation	Austria, France, Germany, Italy, Switzerland
SMD4GC – Sustainable Mountain Development for Global Change	medium	SDC	Global
ATLAS – Archetypes of Transnational Land Acquisitions[5]	medium	SNSF	Global
Churches as Agents in Sustainable Development Projects: The Case of Indonesia[6]	medium	SNSF	Indonesia
Large-Scale Land Acquisitions and Gender in Africa[7]	medium	SNSF	Ghana, Morocco, Tanzania, Zambia
AFGROLAND – African Food, Agriculture, Land and Natural Resource Dynamics in the Context of Global Change	medium	SNSF, Belmont Forum	Kenya, Madagascar, Mozambique
INCLUDE – Indigenous Communities, Land Use and Tropical Deforestation	medium	ERC (Consolidator Grant), University of Bern	Argentina
Land Matrix Initiative (Phase II)	medium	European Commission, SDC, ILC	Global
Sustainability Research and Monitoring of the UNESCO World Heritage Swiss Alps Jungfrau-Aletsch	medium	UNESCO World Heritage SAJA	Switzerland
EthioGIS Map Server	small	SDC	Ethiopia
Human Rights and Environmental Impact Analyses of Trade Agreements	small	SDC	Switzerland
Land Matrix Geospatial Support	small	SDC	Global
PCSD – Policy Coherence for Sustainable Development	small	SDC	Switzerland
United Nations Convention to Combat Desertification Backstopping	small	SDC	Switzerland
Participatory Management of Large Protected Areas and Biosphere Reserves	small	SDC, Swiss EU Enlargement Contribution	Slovakia
Participatory Curricula Development for Sustainable Mountain Development and Natural Resource Governance	small	SNSF (SCOPES)	Armenia, Georgia
SCALES – Sustainable Commons Adaptations to Landscape Ecosystems in Switzerland[7]	small	SNSF	Switzerland

Programmes and mandates by cluster[1]	Budget size in 2017[2]	Main donors in 2017[3]	Countries/regions
Sustainability Governance (continued)			
Curbing Illicit Financial Flows From Resource-Rich Developing Countries	small	SNSF, SDC (r4d Programme)	Ghana, Laos, Switzerland
Programme for Applied Climate Change Research at Bolivian Universities	small	AGRUCO	Bolivia
Transboundary Water and Pasture Management in the South Caucasus Region	small	FDFA	Armenia, Azerbaijan, Georgia
First 100% Energy Self-Sustaining Protected Area in Chile	small	SECO, SDC, FOEN, SFOE (REPIC Platform)	Chile
Improving Rural Livelihoods by Promoting High-Quality Coffee and Coffee Cherry Products in Their Countries of Origin	small	SNIS	Bolivia, Colombia
Education for Sustainable Development at the World Nature Forum	small	World Nature Forum	Switzerland
UNESCO Chair on Cultural and Natural Heritage and Sustainable Mountain Development[5]	small	World Nature Forum	Switzerland
Action Research for Green Energy Options: Best Practices Contest and Participatory Videos	small	WSL	Ukraine
Education for Sustainable Development			
Bachelor Minor in Sustainable Development	large	University of Bern	Switzerland
Master Minor in Sustainable Development	large	University of Bern	Switzerland
International Graduate School North-South	medium	University of Bern	Switzerland
Education for a Sufficient Lifestyle	medium	Mercator Foundation	Switzerland
Certificate of Advanced Studies in Sustainable Development	medium	Self-financing	Switzerland
Education for Sustainable Development	small	University of Bern	Switzerland
Integration of Sustainable Development Into Curricula and Other University Areas of Activity	small	University of Bern	Switzerland
Sustainable University Day	small	University of Bern	Switzerland
Language Compass on Landscape and Environment: How Language Shapes Our Perception of Landscape and Nature	small	Bristol Stiftung, 5i Förderorganisation	Switzerland
Bernese Award for Environmental Research	small	EWB, CSL Behring	Switzerland
Learning Sustainable Development: Competency-Oriented Learning Platform	small	PHBern	Switzerland

[1] PhD projects are not included in this list
[2] Budget share managed by CDE: small = up to CHF 75,000; medium = CHF 75,001 to 150,000; large = CHF 150,001 and more
[3] Specific funding programmes are mentioned in brackets where relevant
[4] Project implemented jointly with the Interdisciplinary Centre for Gender Studies
[5] Project implemented jointly with the Institute of Geography
[6] Project implemented by the Institute of Social Anthropology and the Institute of History that is of strategic importance to CDE
[7] Project implemented by the Institute of Social Anthropology that is of strategic importance to CDE

Acronyms and abbreviations: ADA = Austrian Development Agency; AGRUCO = Centre for Agroecology, University of Cochabamba, Bolivia; CDE = Centre for Development and Environment, University of Bern; EAWAG = Swiss Federal Institute of Aquatic Science and Technology; ERC = European Research Council; EU = European Union; EU-FP7 = European Union Seventh Framework Programme; EU-Horizon 2020 = European Union Horizon 2020 Programme; EWB = Energie Wasser Bern; FAO = Food and Agriculture Organization of the United Nations; FDFA = Swiss Federal Department of Foreign Affairs; FOAG = Swiss Federal Office for Agriculture; FOEN = Swiss Federal Office for the Environment; GEF = Global Environment Facility; GIZ = Deutsche Gesellschaft für Internationale Zusammenarbeit; ICIMOD = International Centre for Integrated Mountain Development; ICSU = International Council for Science; IFAD = International Fund for Agricultural Development; ILC = International Land Coalition; IMS = International Mountain Society; LIRA 2030 Africa = Leading Integrated Research for Agenda 2030 in Africa; PHBern = Pädagogische Hochschule Bern; r4d Programme = Swiss Programme for Research on Global Issues for Development; REPIC = Renewable Energy, Energy and Resource Efficiency Promotion in International Cooperation; SAJA = Swiss Alps Jungfrau-Aletsch; SCOPES = Scientific Co-operation between Eastern Europe and Switzerland; SDC = Swiss Agency for Development and Cooperation; SECO = State Secretariat for Economic Affairs; SERI = State Secretariat for Education, Research and Innovation; SFOE = Swiss Federal Office of Energy; SNIS = Swiss Network for International Studies; SNSF = Swiss National Science Foundation; UNESCO = United Nations Educational, Scientific and Cultural Organization; WSL = Swiss Federal Institute for Forest, Snow and Landscape Research; note that some names of organizations may look like acronyms but are not acronyms, or have no spelled-out version (e.g. CARITAS, ETH, NIRAS).

An ancient culture: Buddhist monastery in Zanskar valley, India. Photo: Christoph Oberlack, CDE

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A smallholder fishery in Layshi Township, Northern Myanmar: Villagers are constructing a fishing fence. Photo: Lin Bo Jian

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Organization chart*

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- ICT and Web Data
- GIS / Remote Sensing

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Heads of Cluster			
Last name	**First name**	**Position**	**Academic title**
Schneider	Flurina	Head of Cluster, Land Resources	PD Dr.
Schwilch	Gudrun	Head of Cluster, Land Resources	Dr.
Giger	Markus	Head of Cluster, Sustainability Governance	
Rist	Stephan	Head of Cluster, Sustainability Governance	Prof. Dr.
Bieri	Sabin	Head of Cluster, Socio-Economic Transitions	Dr.
Ehrensperger	Albrecht	Head of Cluster, Socio-Economic Transitions	Dr.
Herweg	Karl	Head of Cluster, Education for Sustainable Development	Dr.
Zimmermann	Anne	Head of Cluster, Education for Sustainable Development	Dr.
Programme Staff			
Last name	**First name**	**Position**	**Academic title**
Alaoui	Abdallah	Senior Research Scientist	PD Dr.
Augstburger	Horacio	PhD Candidate	
Bachmann	Felicitas	Senior Research Scientist	
Bader	Christoph	Senior Research Scientist	Dr.
Bär	Roger	PhD Candidate	
Bastide	Joan	Senior Research Scientist	Dr.
Baumgartner	Urs	PhD Candidate	
Berger	Sibylle	Research Associate	
Bircher	Pascal	PhD Candidate	
Bürgi Bonanomi	Elisabeth	Senior Research Scientist	Dr., Attorney at Law
Buser	Tobias	PhD Candidate	
Ceddia	Michele Graziano	Senior Research Scientist	Prof. Dr.
de Bremond	Ariane	Senior Research Scientist	Dr.
Ebneter	Laura	Research Associate	
Eckert	Sandra	Senior Research Scientist	Dr.
Epprecht	Michael	Senior Research Scientist	Dr.
Fleiner	Renate	Senior Research Scientist	
Fries	Matthias	Research Scientist	
Gämperli Krauer	Ursula	Senior Research Scientist	
Gavilano	Alexandra	Research Associate	
Gerber	Kurt	Senior Research Scientist	
Gurtner	Mathias	Research Scientist	
Häderli	Stefan	Intern	
Hammer	Thomas	Senior Research Scientist	Prof. Dr.
Hanbury	Hugo	Research Associate	
Harari	Nicole	Research Scientist	

Last name	First name	Position	Academic title
Heinimann	Andreas	Senior Research Scientist	PD Dr.
Hett	Cornelia	Senior Research Scientist	Dr.
Höggel	Udo	Senior Research Scientist	
Hurni	Kaspar	Senior Research Scientist	Dr.
Illien	Patrick	PhD Candidate	
Ingalls	Micah	Senior Research Scientist	Dr.
Jacobi	Johanna	Senior Research Scientist	Dr.
Jakob	Mascha	Research Scientist	
Jaquet	Stéphanie	Senior Research Scientist	Dr.
Jud	Aurelia	Research Associate	
Krauer	Jürg	Senior Research Scientist	
Lemann	Tatenda	Senior Research Scientist	Dr.
Leng	Marion	Senior Research Scientist	Dr.
Liechti	Karina	Senior Research Scientist	Dr.
Liniger	Hanspeter	Senior Research Scientist	Dr.
Llopis	Jorge Claudio	PhD Candidate	
Lundsgaard-Hansen	Lara	PhD Candidate	
Mathez-Stiefel	Sarah-Lan	Senior Research Scientist	Dr.
Meessen	Heino	Senior Research Scientist	Dr.
Mekdaschi Studer	Rima	Senior Research Scientist	Dr.
Moser	Stephanie	Senior Research Scientist	Dr.
Musselli	Irene	Senior Research Scientist	Dr.
Niggli	Deborah	Research Assistant	
Oberlack	Christoph	Senior Research Scientist	Dr.
Ott	Cordula	Senior Research Scientist	Dr.
Perlik	Manfred	Senior Research Scientist	Prof. Dr.
Providoli	Isabelle	Senior Research Scientist	Dr.
Roth	Vincent	Senior Research Scientist	Dr.
Rueff	Henri	Senior Research Scientist	Dr.
Scharrer	Bettina	Research Scientist	
Schild Gräub	Kirstin	Research Scientist	
Schmid	Leonie	Research Assistant	
Schmidt	Stephan	Research Associate	
Staub	Claudia	Research Associate	
Steinböck	Camilla	Research Assistant	
Suter	Manuel	Research Assistant	
Trechsel	Lilian	Research Scientist	
Tribaldos	Theresa	Senior Research Scientist	Dr.
Truffert	Myriam	Intern	
Tschopp	Maurice	PhD Candidate	
Vonlanthen	Lukas	Research Scientist	
Wiesli	Thea Xenia	PhD Candidate	
Würsch	Lukas	Intern	
Wymann von Dach	Susanne	Senior Research Scientist	
Zähringer	Julie	Senior Research Scientist	Dr.
Zepharovich	Elena	PhD Candidate	

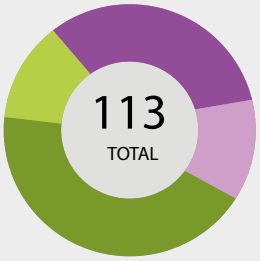
Services Unit Staff			
Last name	**First name**	**Field of activity**	
Allheilig	Gaby	Communications	
Balsiger	Nicole	Accounting and financial administration	
Da Silva-Trolliet	Tamara Rebecca	Event management and IGS North-South secretariat	
Fedail	Ahmed	Web project management	
Heierle	Emmanuel	ICT management	
Hirschbuehl	Tina	Editing and translation	
Jöhr	Franziska	Secretariat	
Kummer	Simone	Graphic design	
Lannen	Anu	Editing and translation	
Manger	Sebastian	Application development	
Nussbaumer	Melchior	Secretariat	
Thibault	Marlène	Editing and translation	
Tresch	Jeannine	Secretariat and ICT management	
Willi	Barbara	Human resources	

Staff departures during the year				
Last name	**First name**	**Date of departure**	**Position/Field of activity**	**Academic title**
Hofmann	Heidi	31 March 2017	Senior Research Scientist	
Abebe	Manuel	30 June 2017	Research Assistant	
Willemin	Rémi	30 June 2017	Technical Research Assistant	
Weber	Anne-Kathrin	31 July 2017	Senior Research Scientist	Dr.
Oechslin	Lukas	31 August 2017	Research Assistant	
Kläy	Andreas	31 October 2017	Senior Research Scientist	
Portner	Brigitte	31 October 2017	Senior Research Scientist	Dr.
Kupferschmied	Patrick	31 December 2017	Research Assistant	
Lardelli	Corina	31 December 2017	Head of Communications	
Lauterburg	Nina	31 December 2017	Research Associate	

The International Graduate School North-South: Summer School in Bolivia

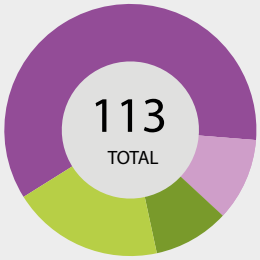
FEMALE 49
- 33 SWISS
- 16 INTERNATIONAL

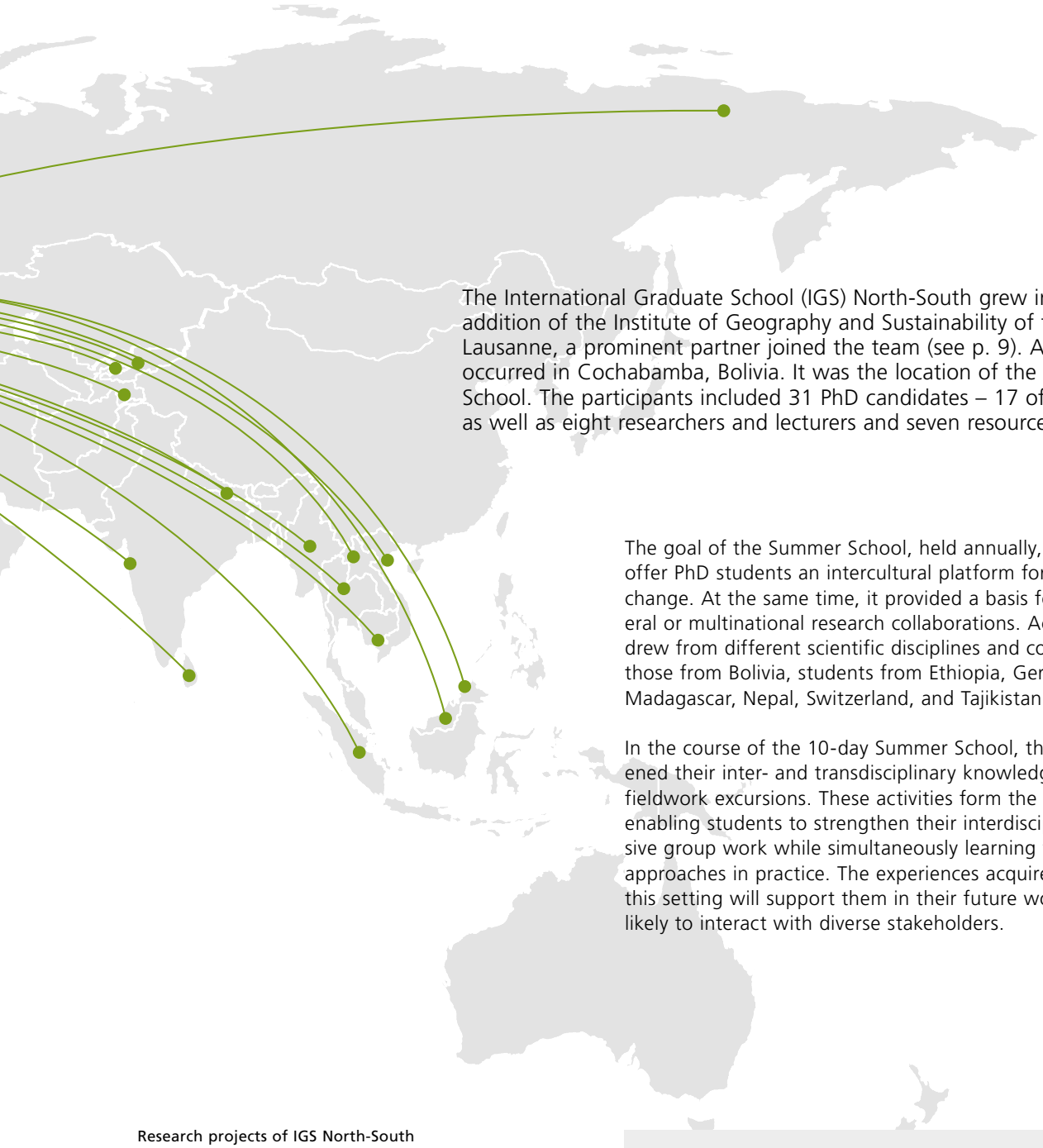
MALE 64
- 47 SWISS
- 17 INTERNATIONAL



FULL MEMBERSHIP 80
- 68 ENROLLED IN SWITZERLAND
- 12 ENROLLED ELSEWHERE

ASSOCIATE MEMBERSHIP 33
- 11 ENROLLED IN SWITZERLAND
- 22 ENROLLED ELSEWHERE





Research projects of IGS North-South PhD candidates in 2017.

The International Graduate School (IGS) North-South grew in 2017: With the addition of the Institute of Geography and Sustainability of the University of Lausanne, a prominent partner joined the team (see p. 9). Another highlight occurred in Cochabamba, Bolivia. It was the location of the sixth IGS Summer School. The participants included 31 PhD candidates – 17 of them Bolivian – as well as eight researchers and lecturers and seven resource persons.

The goal of the Summer School, held annually, was once again to offer PhD students an intercultural platform for learning and exchange. At the same time, it provided a basis for building future bilateral or multinational research collaborations. Accordingly, participants drew from different scientific disciplines and countries: In addition to those from Bolivia, students from Ethiopia, Germany, Ghana, Laos, Madagascar, Nepal, Switzerland, and Tajikistan were present.

In the course of the 10-day Summer School, the PhD students deepened their inter- and transdisciplinary knowledge in seminars and fieldwork excursions. These activities form the heart of the course, enabling students to strengthen their interdisciplinary skills in intensive group work while simultaneously learning to apply transformative approaches in practice. The experiences acquired by the students in this setting will support them in their future work, in which they are likely to interact with diverse stakeholders.

IGS North-South and CDE

The IGS North-South is a graduate school of the Universities of Basel, Bern, Lausanne, and Zurich in Switzerland. It is dedicated to establishing a leading international research network that analyses the impacts of global change, with a view to advancing sustainable development worldwide. Currently, the IGS North-South is training over 100 students from all over the world.

CDE coordinates the IGS North-South, provides teaching, and contributes to the supervision of students enrolled at the University of Bern.

Finances

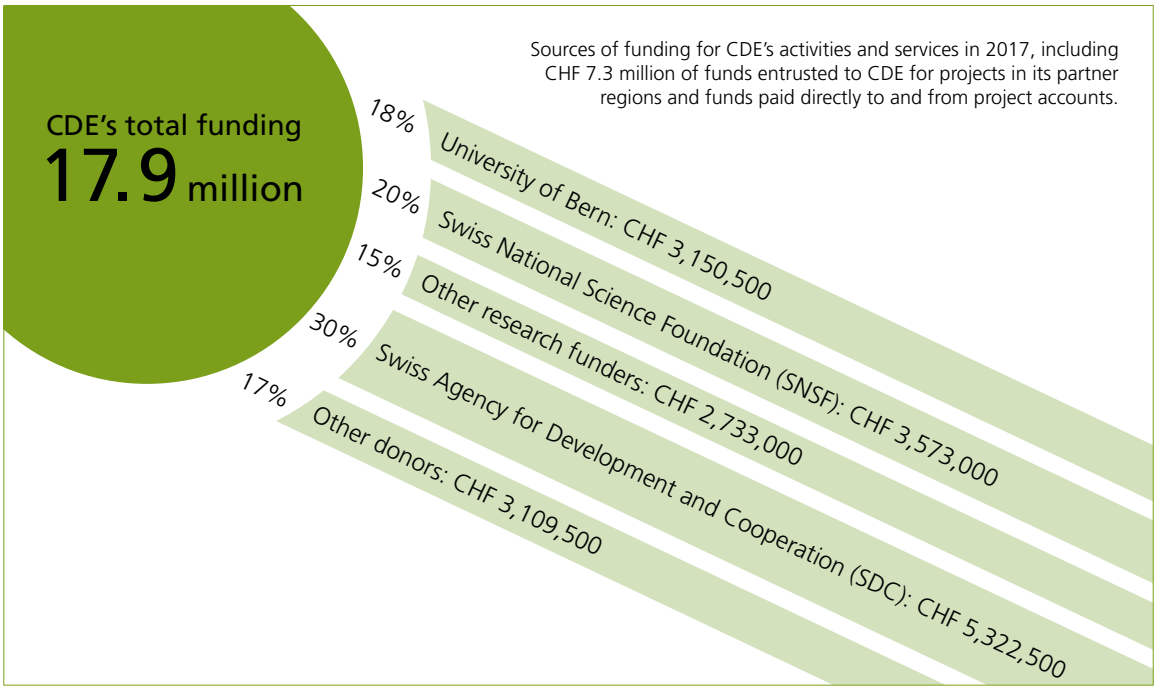
Financial account for 2017[1] (in CHF, rounded)

INCOME		
External funds		
Programme income	4,243,500	
Other income (services)	180,800	
Total external funds	*4,424,300*	
University funds		
Contribution to office rent[2]	100,000	
Contribution to personnel expenditure	2,527,900	
Contribution to operating expenses	522,700	
Total university funds	*3,150,600*	
Total income	**7,574,900**	
EXPENDITURE		
Personnel		
Salaries		5,833,500
Social benefits		1,205,100
Total personnel		*7,038,600*
Other expenditure		
Office rent		120,000
Office operating expenses		370,600
Travel		60,500
Miscellaneous		114,800
Total other expenditure		*665,900*
Accruals		–129,600
Total expenditure		**7,574,900**

The financial account and balance sheet for 2017 were audited externally and internally and were approved.

[1] Does not include funds entrusted to CDE for projects in its partner regions and funds paid directly to and from project accounts

[2] Paid directly by the university administration



Balance sheet as at 31 December 2017 (in CHF, rounded)

ASSETS	
Current assets	
Liquid funds, CDE	35,400
Accounts receivable	1,799,800
Total current assets	*1,835,200*
Prepaid expenses	**169,200**
Total assets	**2,004,400**
LIABILITIES	
Current liabilities	
Accounts payable	55,000
Project funds	553,100
Prepaid income	0
Tied reserves[1]	300,000
Total current liabilities	*908,100*
Equity capital	
Capital[2]	699,300
General reserves[3]	397,000
Total equity capital	*1,096,300*
Total liabilities	**2,004,400**

[1] Reserved for severance payments and special research
[2] Equity capital at date of establishment of CDE as an interdisciplinary research centre in mid-2009
[3] Accumulated gains and losses from previous years

Publisher: Centre for Development and Environment (CDE)

Citation: Centre for Development and Environment. 2018. *Spotlight on Transformations Towards Sustainability: Annual Report 2017.* Bern, Switzerland: Centre for Development and Environment.

Editing and translation: Gaby Allheilig, Tina Hirschbuehl, Anu Lannen, Marlène Thibault (CDE)
Proofreading: Stefan Zach (z.a.ch GmbH)

Layout: Simone Kummer (CDE)
Infographics: Christoph Bader (CDE)

Printing: Druckerei Varicolor AG, Münchenbuchsee

Cover photo: shutterstock, estherpoon

University of Bern
Centre for Development and Environment (CDE)
Mittelstrasse 43
CH-3012 Bern
Switzerland
Phone: +41 31 631 88 22
info@cde.unibe.ch
www.cde.unibe.ch

University of Bern
Centre for Development and Environment (CDE)
Mittelstrasse 43
CH-3012 Bern
Switzerland
www.cde.unibe.ch