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Centre for Development and Environment

SPOTLIGHT ON ENGAGED AND TRANSFORMATIVE SCIENCE

ANNUAL REPORT 2016

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Cover photo: A collaborator of the OneMap Myanmar project maps oil palm plantations in Yebyu Township, Myanmar, with the help of a drone. Photo: Patrick Oswald, OneMap Myanmar

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A word from the President of CDE's Board

Urs Wiesmann
President of CDE Board

Dear Reader,

I am pleased that this annual report places the spotlight on engaged and transformative science. It is an expression of CDE's new strategy and underlying commitment, which emphasize the societal responsibility of an institution engaged in knowledge production for more sustainable development. This implies that provision of systems knowledge must remain an important basis of sustainability research, enabling understanding of processes and dynamics at the interface of the environment and society. However, it also implies strong, proactive engagement of science in societal processes and negotiations on behalf of target knowledge, and in finding solutions and innovative pathways to more sustainable development via societally anchored transformation knowledge. The present report shows how CDE and its partners are operationalizing the call for engaged and transformative science, highlighting how this differs from "mainstream" science and contributes to sustainable development solutions.

The importance of engaged and transformative science has grown as sustainable development has become more complex and challenging in recent decades. Simplified views of a global North–South dichotomy no longer hold. Further, issues of exploitation, inequality, and injustice permeate all three dimensions of sustainability and increasingly cut across every scale and context worldwide, rendering solutions more complex and challenging for societies, policymakers, and knowledge generators.

Indeed, the call for engaged and transformative science is very timely, coming as adoption of the 17 Sustainable Development Goals in the 2030 Agenda marks a significant milestone in efforts towards sustainable development. Discourses too often kept separate – for example, about climate change and environmental degradation, poverty and food security, gender and inequality, land and economic growth – have finally been brought together and synthesized into concrete targets through a broad-based participatory negotiation process. At the same time, recognition of sustainable development as a truly global concern, calling for contextualized approaches and solutions, will only have significant meaning insofar as concrete action and beneficial changes are realized.

Engaged and transformative science can play an important role in triggering necessary action. With this annual report, I am excited to see how CDE is exercising a pioneering role in this process. I hope you, too, will share my enthusiasm.

Urs Wiesmann, 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 2010. 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 50 projects with an annual turnover of over CHF 15 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

The year 2016 was the first implementation year of the 2030 Agenda for Sustainable Development. Realizing the first universal agenda for sustainable development will require enormous effort on the part of the global community and each individual nation. Successful implementation will stand or fall on collaboration between governments and non-governmental actors from civil society, science, and business. Compared with the preceding development agenda – the Millennium Development Goals – the 2030 Agenda affords science a much more pivotal role: It is not only tasked with measuring progress towards the goals and targets, but must also provide knowledge capable of guiding negotiations and shaping transformations towards sustainable development. CDE's Strategy 2016–2021 reflects these new demands on science and charts a clear course for gearing our activities to foster transformation towards sustainable development.

Continuity and innovation

We refreshed our previous strategy with a view to the new challenges facing the dynamic field of sustainable development. An external evaluation of CDE and its institutional environment showed clearly that our topics and our partnerships with actors from research, civil society, and practice remain timely and forward-looking. Based on this encouraging assessment, we formulated 12 theses detailing our understanding of development, sustainable development, and transformation, as well as related demands on science. The 12 theses underpin our overall aim of working together with our partners and members to provide engaged, high-quality science that contributes tangibly to transformations towards sustainable development. In addition, CDE will intensify its efforts to shape national and international science policy. Our long-standing research partnerships with institutions in Africa, Asia, and Latin America are crucial in this endeavour.

CDE's Strategy 2016–2021 focuses on creating linkages and interactions between science, transformations, and contexts. Yarn on a loom in Laos. Photo: Sabin Bieri, CDE

Sharpened research foci

In order to sharpen our research foci and strengthen the links between research and implementation, we have clustered the competences of our 100 staff members and our seven affiliated research groups at other departments of the University of Bern into four key thematic areas. These are: (1) *land resources*, including questions of their sustainable use and safeguarding ecosystem services; (2) *socio-economic transitions*, emphasizing overcoming multidimensional inequalities and increasing the well-being of all; (3) *sustainability governance* in the use of resources, accounting for all actors and focusing on institutional change; and, as an integrative component, (4) *education for sustainable development*, emphasizing teaching and innovative educational and training support for students and CDE's partners in the theory and practice of sustainable development.

Taking stock and looking ahead

In accordance with its new strategy, CDE will focus on three overarching goals over the next five years. The goals are presented below together with examples of concrete activities contributing to their achievement.

"We aim to lead the advancement and contribute to the growing recognition of engaged and transformative science for sustainable development, by means of academic agenda setting, high-quality research and education, conceptual innovations, and outstanding methodological competence."

Science

Based on its steadily growing scientific output, CDE remains a prominent player in the field of sustainable development, both nationally and internationally. Our strong position is reflected, for example, by our facilitation of two major scientific conferences in 2016. First, the CDE-hosted Global Land Programme, one of Future Earth's core projects, convened its biennial Open Science Meeting in Beijing; the event brought together around 700 international participants to discuss social-ecological interactions around land use. Second, together with the International Association for the Study of the Commons and the University of Bern's Institute of Social Anthropology, CDE co-organized an international conference on "Commons in a 'glocal' world" in Bern. It, too, attracted a great deal of attention. Additional conferences are planned, including the fourth International Conference on Research for Development in September 2017 and the Global Land Programme's next Open Science Meeting in spring 2019. In an effort to shape science policy, CDE will bring to bear its diverse, prominent positions in Swiss and international academic bodies to achieve greater recognition of research for sustainable development and will promote improved funding schemes.

> “We aim to put our knowledge and tools in the service of transformative initiatives and be reflexive and respectful change agents for sustainable development in and between different development contexts.”

Transformations

Our priority remains that of putting research findings to use in the service of concrete progress towards sustainable development. We are proud to see how our long history of knowledge contributions to science, society, and policy dialogue is gaining in national and international recognition. At the national level, we will continue to bring to the table knowledge about sustainability issues like food security, desertification, international investments in land, the commodities trade, and social disparities. Together with the Biovision foundation and other leading organizations, we have recently founded the Swiss node of the United Nations Sustainable Development Solutions Network (SDSN). SDSN Switzerland aims to pool knowledge, experience, and capacity to foster sustainable development and support implementation of the 2030 Agenda in Switzerland. Internationally, CDE will gather development-relevant insights from our work in our various research regions and feed them into international policy dialogue. Work on the United Nations Global Sustainable Development Report, which is being co-coordinated by CDE, offers a unique opportunity in this context.

> “We aim to engage with partners from science, policy, civil society, and the private sector in at least six regions worldwide in order to develop and empower knowledge societies based on long-term research partnerships.”

Contexts

One very special feature of our 30-year history is our long-standing partnership with actors from science, policy, and civil society in Africa, Asia, and Latin America. We aim to further strengthen these ongoing collaborations and resulting outcomes for research, education, and implementation, placing them in the service of global dialogue on sustainability. We will step up our investments towards this important goal. Building on ongoing projects – for example in Laos, Myanmar, Ethiopia, Kenya, and Bolivia – we aim to further improve our knowledge base and toolbox for negotiating fair decisions. Our increased investments will be aimed not only at social and technical innovations to improve the quality and timely availability of knowledge, but also at education and training, with a view to furthering the universal goal of building knowledge societies.

Researchers are playing an interactive game with villagers in Mahalevona, Madagascar, to find out more about how they manage their land. Photo: Julie Zähringer, CDE

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.

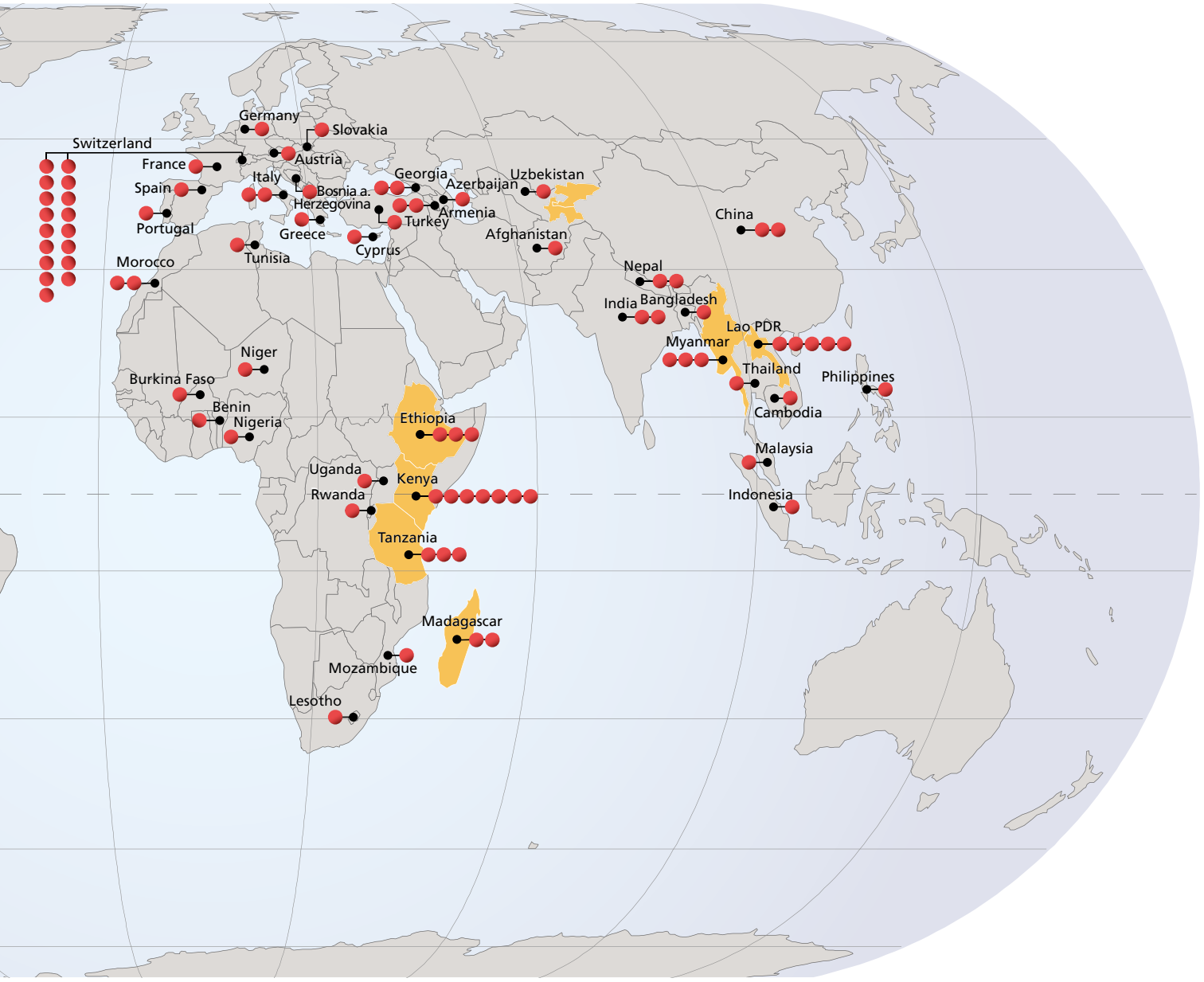
CDE's key partner regions
In 2016, CDE ran activities with a regional or national focus in 46 countries worldwide. Key regions were East Africa, the Horn of Africa, mainland Southeast Asia (especially Laos and Myanmar), the central Andes, and Central Asia (see orange areas on the map). Many of these projects and programmes represent a long-term engagement.

Long-term application-oriented mandates
CDE and its regional partners have several long-term application-oriented mandates from various funding partners. In this context, we established the Water and Land Resource Centres in Kenya and Ethiopia, and an information hub to support policy development and decision-making in Laos. In Myanmar we have commenced work on an open-access spatial database that pools land-related information for the government and civil society.

Academic networks and research 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), and td-net (the Network for Transdisciplinary Research) – as well as in other research, educational, and development organizations. CDE's research in Switzerland focuses on analysis of sustainability concepts and implementation of sustainable development. This includes research on policy coherence, consumption patterns, land and water management, and regional development in and around protected areas such as the Swiss Alps Jungfrau-Aletsch UNESCO World Heritage Site.

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. In 2016, we increased our investments in global sustainability initiatives, most notably the Future Earth research platform for global sustainability and its knowledge–action networks that are currently being established. As of January 2016, CDE hosts the International Project Office of the Global Land Programme, 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 the implementation of the 2030 Agenda.

Knowledge for sustainable development in mountains
Many of CDE's and its partners' projects are located in mountain areas or in highland–lowland contexts. In close collaboration with a global network of organizations, CDE works to produce and share knowledge that can help promote sustainable development, alleviate poverty, and conserve ecosystems in mountain regions and their surrounding lowlands. An important tool is the international peer-reviewed journal *Mountain Research and Development*, which is edited at CDE. Key partners include the International Centre for Integrated Mountain Development, the Mountain Partnership, the Mountain Research Initiative, and donors such as the Swiss Agency for Development and Cooperation and the Austrian Development Agency.



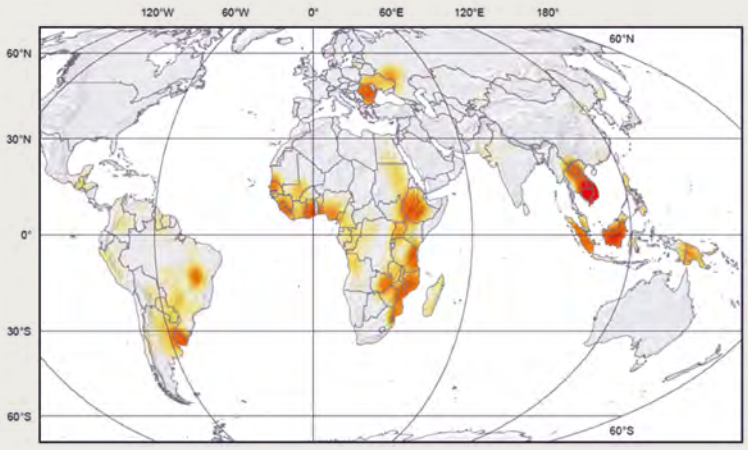
Programme highlights

Land systems: a sustainability solution?

Photo: Global Land Programme (GLP)

At the Global Land Programme's (GLP) Open Science Meeting in Beijing, close to 700 participants brought together evidence that land uses such as food production, forestry, and pasture face fierce competition from land claims originating from newly emerging sectors, higher levels, and distant places. Examples include climate change mitigation, industrial food production spurred by rapidly changing diets, and ecosystem services demanded by urban centres. A major insight from the meeting is that research into opportunities for co-design of sustainable land systems can play a key role in alleviating competition over land, and can thereby support progress towards the Sustainable Development Goals. As a core project of the Future Earth global research initiative, GLP is intensifying its competences in knowledge co-production and establishing science–policy interfaces on land at national and international levels. As of January 2016, the GLP International Project Office is hosted by CDE.

Land Matrix Initiative takes stock of foreign investment in land



Source: Land Matrix, 2016

A new report by the Land Matrix Initiative states that 26.7 million hectares of agricultural land worldwide have been transferred to foreign investors through 1,004 large-scale land deals concluded since 2000. The continent most affected by land acquisition is Africa, says CDE researcher and report co-author Markus Giger: Here, 422 deals currently cover a total area of 10 million hectares. The deals primarily target areas previously used for agriculture, creating increased competition for land and potential for conflict with the local population. Western Europe is the most prominent investor region, with 315 land deals worldwide originating at least partly from there. The Land Matrix Initiative is a network of international research institutions and organizations. Its goal is to promote transparency in decisions on land and investment.

Integrating sustainable development into teaching

The University of Bern has issued guidelines on how to integrate sustainable development into higher education, containing fundamentals, examples, explanatory videos, and teaching materials. The guidelines are aimed at teaching staff of the University of Bern as well as others interested in integrating the cross-cutting topic of sustainable development into university courses. The guidelines were developed jointly by CDE, the respective Vice-Rectorates for Quality and Teaching, the Centre for University Continuing Education (ZUW), and the Support Center for ICT-Aided Teaching and Research (iLUB). The guidelines and related materials for practical application are available in German and partly also in English and French at www.bne.unibe.ch. This website contains an overview of all activities, products, and services in the field of education for sustainable development at the University of Bern.

Photo: Corina Lardelli, CDE

CAS in Sustainable Development: from science to professional practice

Sustainability is difficult – but doable. Exactly how is shown by graduates of the Certificate of Advanced Studies (CAS) in Sustainable Development, in their daily work. As sustainability experts able to put into practice the knowledge they have acquired, they are well-equipped to deal with the challenges of the future. The continuing education course combines inter- and transdisciplinary approaches to provide knowledge on the different manifestations of the guiding principle of sustainable development. It also introduces various fields of action and accompanies implementation into practice. The wealth of knowledge transferred from science to practice becomes visible in the students' written assignments. In 2016, the topics covered ranged widely, from the importance accorded to sustainable development in the government's ICT strategy and questions of sustainability in the finance sector to education for sustainable development as a cross-cutting issue at Bern's university of teacher education, PHBern.

Photo: © SilvanBachmann/Shutterstock.com

Good intentions, big footprints: facing household energy use in rich countries

Emission of CO_2 by burning fossil fuels is altering our climate. The risks of maintaining this carbon-burning trajectory make it imperative to change course. Households account for a large share of CO_2 emissions. But which households consume the most energy, and how could their carbon footprints be reduced? In wealthy countries such as Germany, the richest population segments – including people who value the environment – appear to be the biggest emitters. Based on this finding, researchers of CDE and the Germany-based ECOLOG Institute for Social-Ecological Research and Education recommend the following: Policies to shrink people's carbon footprints must be income-sensitive, target both technology and behaviour change, and address people's tendencies to underestimate or ignore their CO_2 emissions in high-impact areas such as home heating and personal mobility. The study results have been summarized in No. 9 of the CDE Policy Brief series.

Photo: Stephanie Moser, CDE

Revamped global open-access database on sustainable land management

Source: www.wocat.net

Documenting and retrieving information on sustainable land management has never been easier. The WOCAT (World Overview of Conservation Approaches and Technologies) network, whose secretariat is hosted by CDE, launched its revamped global open-access online database on sustainable land management in August 2016. All information documented with the standardized WOCAT tools is made available in this database, which contains a wealth of sustainable land management technologies and approaches and land management maps from all over the world. The information is used to disseminate knowledge and improve decision-making for spreading sustainable land management. The WOCAT database is advocated by the United Nations Convention to Combat Desertification (UNCCD) as the primary recommended database for documenting best practices in sustainable land management. In the first two weeks after the relaunch, the global WOCAT database was visited by users in 81 countries.

Mobile and interactive exhibit: Let's go DanaLand

Source: "Let's go DanaLand" exhibit

Can we use fewer resources and still lead a good life? The mobile exhibit "Let's go DanaLand", created by CDE with the support of the Mercator Foundation, aims to sensitize visitors to the concept of a sufficient lifestyle. The focus of the exhibition is on resource-saving behaviour and how this can contribute to a good life. The exhibition centres around an interactive game: Using an app, visitors can answer questions on what they eat, what means of transport and technical devices they use, and what goods and services they consume. The answers are then evaluated, giving visitors an assessment of their resource consumption behaviour. The exhibition was held at the "Umwelt Arena" in Spreitenbach in autumn 2016, and is now moving between various schools and municipalities in the German-speaking part of Switzerland.

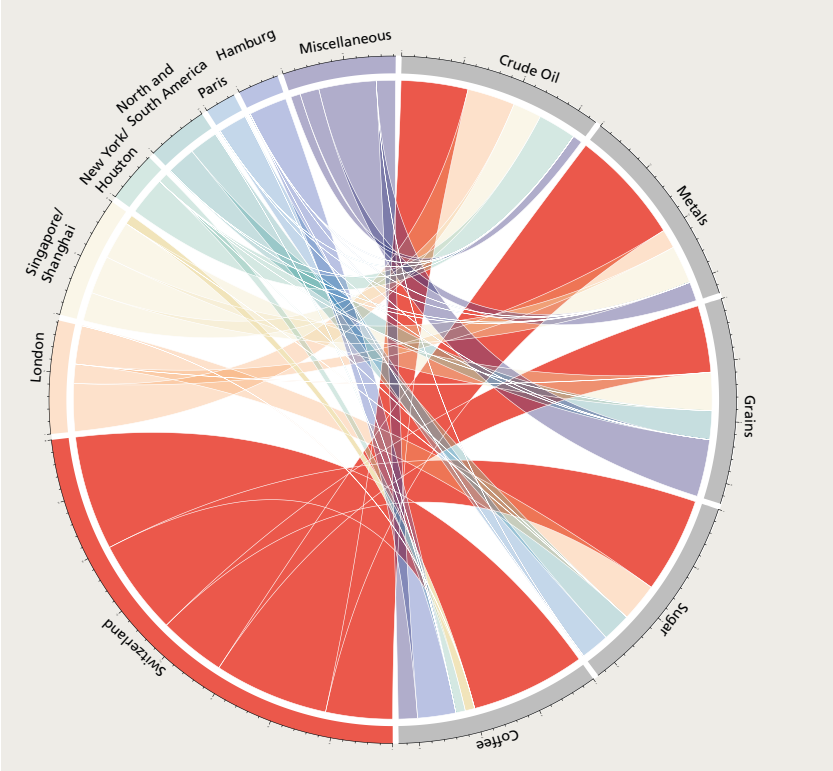
Peter Messerli named co-chair of UN Global Sustainable Development Report

CDE Director Peter Messerli has been selected as co-chair to lead the group of scientific experts tasked with drafting the upcoming UN Global Sustainable Development Report. Before leaving office at the end of 2016, UN Secretary-General Ban Ki-moon appointed the group of 15 eminent scientists and experts. The group will provide scientifically founded guidelines for implementation of the recently adopted the 2030 Agenda for Sustainable Development, comprising economic, social, and environmental aspects. The first report is slated for release in 2019, with subsequent reports to be published at four-year intervals. The report is intended to strengthen the science–policy interface and provide an evidence-based tool to assist policymakers in combatting poverty and promoting sustainable development. Science plays a central role in the exploration of interactions between sustainability goals. Potential conflicts and synergies must be brought to light to identify possible development pathways.

Photo: © IISD/Kiara Worth
(enb.iisd.org/hlpf/2016/12jul.html)

Key challenges linked to Switzerland's role as a leading commodity hub

Switzerland has emerged as one of the world's most important hubs in the global commodities trade. This is aptly illustrated by the chord diagram, which shows the market shares of the world's main trading hubs (coloured) according to commodities (grey). Over half of all coffee and sugar, for example, is traded through Swiss-based firms. But Switzerland's rise in this field has been accompanied by concerns over transparency, appropriate regulation, and risks to resource-exporting developing countries. What is the extent of Switzerland's responsibility? Could policy changes in Switzerland make the commodity sector more sustainable and its impact more mutually beneficial? Two factsheets of the Swiss Academies of Arts and Sciences examine challenges and pressing knowledge gaps associated with the Swiss commodity hub. The factsheets, which triggered numerous media features, were produced jointly by CDE, the World Trade Institute of the University of Bern, and the Institute for Business Ethics of the University of St. Gallen. CDE's new datablog (datablog.cde.unibe.ch) also took up the topic, creating interactive graphs to visually depict some of the available facts about the commodity sector.



Source: datablog.cde.unibe.ch

Interview

Social geographer and historian Sabin Bieri conducts research at CDE on globalization, social inequalities, and sustainable development. She scrutinizes the causes and consequences of disparities between regions, in social groups, and within families with the aim of detecting pathways to greater social justice. Sabin Bieri co-heads the new thematic cluster "Socio-Economic Transitions", and in June 2016 she was appointed to represent the heads of CDE's thematic clusters in the Executive Committee.

Interview by Corina Lardelli

"It's the inequalities *within* countries that really give us cause for thought"

Sabin Bieri, you are currently investigating the transition from self-sufficiency to production for export in Bolivia. The global demand for quinoa has caused prices for this pseudo-cereal to skyrocket. What are the opportunities and risks for small-scale farmers?

The rise in price is staggering. We are talking about a sevenfold increase in just under a decade. The farming families are buying television screens, sending their children to urban schools, investing in tractors, and expanding the range of foods they eat – with quinoa the first item to be replaced. Quinoa is considered a "poor people's food" in Bolivia and is dropped from the menu as soon as you can afford to do so. In an area strongly affected by outmigration, those who return demand their share of land and quickly make money with quinoa. Branches of production such as livestock farming, essential for the regeneration of soils, are abandoned. The traditional system of communal land use is being completely eradicated by the pressure to commercialize. It's hard to overlook the paradox of this development: Socialist reforms in the 1950s, strengthened by a land use law under the current President, end up spearheading unscrupulous individual gain. The fathers (yes, on public record it was only men) of the Bolivian Revolution must be turning in their graves!

In what specific ways can research contribute to creating longer-term prospects for the rural population in Bolivia?

The situation is especially precarious for poorer farming families who have put all their cards on quinoa. If the price falls – as is happening at the moment – they could lose everything. For me, research for sustainable development is essentially about improving the negotiating position of groups who tend to get overlooked. We need approaches off the beaten path of the currently celebrated solutions, which are often technology- and capital-intensive. One feature of our research is that we don't "make do" with secondary data that insufficiently captures the situation of the rural population. First-hand data and a mixed-methods approach take much more effort to collect and follow, but they strengthen our credibility. The key is to conduct research *with* the affected people, rather than *about* them. Our transdisciplinary research is theoretically embedded, scientifically stringent, and localized, providing the necessary support to our policy proposals. The research team translates the concerns of the affected population to the level of decision-makers.

Social geographer and historian Sabin Bieri conducts research on globalization, social inequalities, and sustainable development.
Photo: Lía Ghadamian

Sabin Bieri works with partners to investigate the shift from subsistence farming to production for export that is currently taking place in Bolivia. Photo: Bladimir Chura Pastor

In 2015, the United Nations General Assembly in New York adopted 17 Sustainable Development Goals (SDGs). One goal is to "reduce inequality within and among countries". How do you propose this goal can be reached?

It is the inequalities *within* countries that really give us cause for thought. These have increased almost everywhere in the last 40 years. I'd like to mention two areas that require change here in Switzerland. One is education. Women's education has improved markedly over the past decades, which is great. But our universities still hardly include students from families whose parents have a low level of education. As much as 64 per cent of students have parents who hold an academic degree. This is irritating in a country which regards equal opportunities as one of its basic principles. The second issue is the distribution of finances in Switzerland. While differences in income are stable, inequality in financial wealth has been growing at an alarming rate. In his book "Inequality – What Can Be Done?", the eminent economist Anthony Atkinson, who passed away in 2017, put forth 15 well-grounded, yet slightly radical proposals, a transformative initiative for economic and fiscal practices. They range from a minimum wage with a code of practice to pay above the minimum, to a general inheritance paid to all at adulthood. Proposal 15 recommends that rich countries raise their target for official development assistance to one per cent of gross national income. It's an illuminating book, also for non-economists, that encourages us: Yes, we can do something.

As a new member of CDE's Executive Committee, you played a key role in the development of our Strategy 2016–2021. What are the main features of the strategy?

The strategy strives for a science that will make a change. In a team that thinks globally, is internationally anchored, and assumes responsibility for the change it is seeking. We aim to achieve this goal, on the one hand, by traditional scientific means: theoretically well-founded discussion, methodological precision and innovation, and empirical consolidation. But we also want to push the boundaries of scientific ways of working: We speak of "engaged" and "transformative" science. Even if we are still working on concrete definitions of these terms, we are committed to making a tangible contribution to transformation. In our understanding of sustainable development, this requires that we position ourselves – not just *allowing* a discussion about our personal and scientific values but actually *driving* this discussion forward – with the aim of setting the research agenda for sustainable development together with our partner regions. This work is guided by the principles of social justice and the setting of planetary boundaries.

Has cardamom production changed the perspectives of farming families in the highlands of Eastern Nepal? A stakeholder workshop at a local school addressed this question. Photo: Stéphanie Jaquet, CDE

To what extent does CDE's strategy contribute to implementing the SDGs?

As a university centre, we are in a privileged position but also have a responsibility to fulfil. I would like to mention two examples of how we trigger transformative processes in line with our strategy: (1) The path towards sustainable development is paved with trade-offs. We are in a position to make the power of knowledge – based on scientific evidence – work for us and for our partners. Stakeholders are empowered to represent their interests in the face of these conflicts, and thus express their own vision of sustainability. (2) One of CDE's core tasks is teaching. We teach bearing in mind that sustainable development is a creative process. Our task goes beyond the transfer of knowledge. Other disciplines will claim the same goal: Essentially it's a fundamental educational ideal of the Enlightenment. Our students are potential "change agents". That is what we are preparing them for.

How do you think the world should look in 2030, to be able to say that the SDGs were successfully implemented?

At which point do we confirm "success"? When 75 per cent of the goals are reached? Are some goals more important than others? The answer depends on what and how we measure things. Only measurable changes are included in the calculation. Basic quality-of-life factors – or, to use Amartya Sen's term, capabilities – are not taken into account. At CDE we are testing various measuring instruments and striving to expand our repertoire of indicators. Certain conditions of poverty, exploitation, inequality, and resource degradation – but also the pressure to consume and levels of waste – are normally eclipsed. We take these into consideration, not least for Switzerland, which faces many challenges in terms of the SDGs.

As a new member of CDE's Executive Committee, have you made resolutions?

CDE offers fantastic opportunities, enabling the staff's core knowledge, exciting ideas, initiative, and the engagement to unfold. As a staff member, I benefited enormously from this freedom to create and develop. As a member of the Executive Committee, I hope to contribute to supporting such framework conditions and – again, to quote Sen – to enable the capabilities of CDE staff members to flourish.

Spotlight on engaged and transformative science

Children in Nagaland, Myanmar.
Photo: © Lin Bo Jian

Peter Messerli

CDE's approach to sustainable development emphasizes the negotiation of claims and sustainability visions among diverse actors from the local to the global level. We regard justice as a key normative compass in this endeavour, and systemic understandings of social-ecological processes as its foundation. Recently, political processes concerned with development negotiations have become more inclusive and more democratic in many places, expanding the scope for integration of scientific evidence. But the knowledge sought for the negotiation of purposeful and fair decisions comprises more than descriptions, predictions, and scenarios of systemic processes. Increasingly, many actors are also looking for answers to questions of how a desired change might be achieved, what kinds of changes might have the power to spark broader transformations towards sustainable development, and what added effects – intended or unintended – a change might have. Current global-level efforts to implement the 2030 Agenda for Sustainable Development confront precisely these questions.

In its new six-year strategy, CDE has defined transformations towards sustainable development as processes that go beyond incremental adaptation of existing systemic conditions or mitigation of growing threats. We view transformations towards sustainability as creative, innovative processes that simultaneously change the social-ecological system and its underlying values, structures, and behavioural patterns. But what kinds of knowledge are needed to support such processes? Firstly, it certainly requires top-notch disciplinary, interdisciplinary, and technical knowledge to enable assessment of possible courses of action. Secondly, however – since transformations are not only complex but also fraught with conflicting interests – it requires working together with concerned actors, using transdisciplinary methods to jointly define desired changes and develop shared solutions.

In the following pages, our annual report spotlights how CDE is generating the kinds of knowledge needed for sustainable development. The first text, on the role of biofuels, illustrates how we work with scenarios to reveal possible trade-offs and co-benefits for comparison. The second piece explains our recently developed archetypes method, which reveals recurring patterns hidden in the complexity of numerous individual large-scale land deals and related impacts. It provides a basis for designing national-level policies, which naturally cannot address each case individually. The third contribution shows that there is often no need to reinvent transformation approaches. Taking the example of a project on climate-smart agriculture, we show how we collect and systematize existing and frequently traditional solutions, critically evaluate their sustainability potential, and support their wider dissemination. The final piece about the OneMap Myanmar project underlines that knowledge is more than a prerequisite for reducing power imbalances and making national-level land governance fairer and more sustainable. Rather, the very process of knowledge generation – in this case collaborative development of a database together with diverse stakeholders – becomes an important dialogue about and for sustainable development.

The future of biomass energy in East Africa

Albrecht Ehrensperger

Most households in developing countries depend on solid biomass such as wood for energy. Biomass dependence is associated with challenges like deforestation and air pollution. Assuming biomass will remain important for energy, strategies to overcome these challenges may focus on enhancing technological efficiency and promoting alternative biomass fuels. For these strategies to work, however, better knowledge is needed about future ecosystem potentials and adoption of improved energy technologies. The Prospect of Biomass Energy in East Africa (ProBE) project calculated different scenarios for the year 2030 for two case study areas in Kenya and Tanzania. The scenarios show that the potential for biomass energy can be increased substantially, provided the best available technologies are used and innovative solutions are properly incentivized. The project also showed that improved firewood and wood-briquette value chains are more eco-efficient than common charcoal value chains.

Donkeys carrying firewood in northern Tanzania, near the border with Kenya. Photo: Susanne Wymann von Dach, CDE

Age-old energy sources still important

Access to affordable energy is a key development driver. Energy is needed to cook, power small businesses, and enable youths to do homework after dark. In many low-income countries, cheap and readily available biomass is the main source of cooking energy for most households, and will remain so for two to three more decades.

Biomass dependence can have serious consequences: degradation of ecosystems (mainly forests and woodlands), activities that fuel climate change, and health hazards from indoor air pollution. Aside from switching energy sources (e.g. to fossil fuels), two strategies are usually pursued to tackle these problems: improving the efficiency of biomass cooking stoves, and promoting alternative biomass fuels. For these strategies to work and be sustainable, we must know more about

A charcoal market in eastern Kenya.
Photo: Beryl Zah

three key aspects: first, the future capacity of ecosystems to provide different biomass fuels; second, the likely environmental impacts and costs of different biomass energy value chains; and third, the odds of improved technologies or alternative fuels being widely adopted.

Imagining future scenarios

ProBE is an interdisciplinary research project intended to help decision-makers identify economically viable, environmentally sustainable biomass energy strategies. To this end, Swiss and African researchers developed three biomass energy scenarios for the year 2030 for two case study sites: Kitui (Kenya) and Moshi (Tanzania). The scenarios were developed based on socio-economic and political trends identified jointly with local stakeholders. Scenario one assumes that policy and development will not favour biomass energy. Scenario two assumes active promotion of improved biomass energy. Scenario three builds on number two, assuming a shift away from charcoal and towards wood and wood-based briquettes.

Better biomass energy

The scenarios show that the potential of biomass fuels could be greatly improved in the study sites if sustainable forest-management policies were enforced and the best technologies were used in production (kilns) and consumption (stoves). Diversification of biomass fuels – especially partial substitution of charcoal with firewood and briquettes – would make it possible to sustainably cover cooking energy demands in 2030, despite population growth. Notably, of all the possible value chains examined, the improved *firewood* and *briquette* value chains displayed the best eco-efficiency. This means they have the lowest global warming potential and costs.

Project collaborators map different ecosystems according to their use and potential for biomass energy. Photo: Albrecht Ehrensperger, CDE

Still, firewood and briquettes have drawbacks. Burning wood releases lots of fine particles that can cause respiratory illness. And the briquette sector has struggled to grow beyond its niche market, despite having existed in Moshi for 30 years. Two key project findings suggest ways forward: (1) certain improved wood stoves emit five times fewer fine particles than traditional ones; and (2) local communities exhibit high demand and willingness to switch to alternative fuels. Most households already pursue a multi-fuel strategy, so proper incentives could encourage them to use briquettes.

Exploring policy options

The project shows that policies can trigger innovation in the cooking energy sector. It suggests there is room for policymakers and practitioners to steer the biomass energy sector towards sustainability, particularly with production and consumption incentives. Further, it encourages reconsideration of firewood as a viable, sustainable energy option, as long as resource management, fuel production, and the safety and efficiency of stoves are improved substantially. Finally, the project shows that calculating future scenarios based on trends represents a valuable approach – not necessarily as a blueprint for immediate action, but as a means to explore options for policy formulation and implementation. The ProBE project offers insights into the transformative potential of innovation towards affordable and clean energy, and thereby contributes to the 2030 Agenda for Sustainable Development.

Maintaining sustainable livelihoods amid the global land rush

Christoph Oberlack

Corporate investors are transforming large tracts of mainly agricultural land in various places around the world – often to the detriment of small-scale farmers and other local actors. Large-scale land acquisition is having enormous effects on people's livelihoods. However, assessing its precise impacts is difficult, as these differ across cases, contexts, and actors. Using the "archetypes approach" of sustainability science, a new CDE study reveals informative patterns. These patterns shed light on why some local actors are particularly vulnerable to the effects of large-scale land acquisition, while others are able to tap into potentials for safeguarding or enhancing the sustainability of their livelihoods in the global land rush.

Foreign investors are engaged in large-scale production of maize, soy, and geranium on the Ihorombe Plateau in Madagascar. Photo: Julie Zähringer, CDE

The global land rush

Around the world, more than 26.7 million hectares of agricultural land have been transferred to transnational investors since the year 2000. These investors thus possess about 2 per cent of all arable land worldwide (roughly the size of the United Kingdom and Slovenia combined). Africa has been most heavily affected, followed by Eastern Europe and Southeast Asia. The agreements primarily target areas previously used for agriculture, creating increased competition for land and a potential for conflicts with the local population.

Why do large-scale land acquisitions increase the vulnerability of livelihoods?

Assessing the local impacts of land deals is particularly complex because of the diversity of local contexts involved. To create a broader picture, assessments need to build on an understanding of recurrent patterns of how large-scale land acquisitions affect their target regions in different socio-economic, institutional, and ecological contexts. To recognize patterns, or "archetypes", of livelihood vulnerability, CDE researchers systematically analysed 66 cases in 21 countries in Africa, Latin America, Southeast Asia, and Eastern Europe. The results show that four main processes generate vulnerability: (1) Privatization of nat-

A smallholder farmer working in his rice field in Northern Shan State, Myanmar. Photo: Christoph Oberlack, CDE

ural capital such as soil, water, and land. This prevents essential access to resources for the local population. (2) Processes of "elite capture". Elite capture enables a few individuals of superior status to use their power for individual gain, while the rest of the population loses out. (3) Marginalization of people already living in difficult conditions – women, for example, who have worked in the fields for years and are not offered a job with the new landowners. (4) Development discourses for and against land investments. These discourses often divide local communities into multiple camps, undermining social cohesion and increasing tensions in the region. The study identifies a range of specific factors that make such processes more likely.

Sustainability potentials

The researchers also identified a set of potentials for safeguarding or enhancing sustainable livelihoods at multiple levels of decision-making in the affected regions. New jobs, for example, offer those employed a chance to lead an independent life and break out of entrenched power structures. Local land users may develop new strategies and discover market niches that allow them to make a living. At the community level, high social capital enables collective action and can lead to effective resistance movements against large-scale claims on land. At the state level, the legal protection of local land use rights is a key factor in facilitating sustainable land use.

Conclusion

The global rush for land has many different outcomes, depending on the context. This study describes patterns of livelihood vulnerability and sustainability potentials that recur across contexts, including the processes involved and the factors driving these processes. The results are intended to support decision-makers and the concerned public in debates on the global land rush, food systems, and trade. In particular, the results provide inputs for assessing how existing governance strategies and regulations affect factors and processes of vulnerability and sustainability; and they can guide the search for more effective ways of addressing negative outcomes of the global land rush and supporting sustainable livelihoods.

Spreading sustainable land management practices among smallholder farmers

Nicole Harari

Sustainable land management (SLM) includes farming practices that consider the land, water, biodiversity, and other environmental resources we need in an integrative way, while ensuring the long-term sustainability of ecosystem services. Many good SLM practices already exist in farming systems around the world. However, this SLM knowledge frequently does not get documented and evaluated in a standardized way. For this reason, the World Overview of Conservation Approaches and Technologies (WOCAT) is documenting and evaluating country-specific SLM knowledge together with smallholder farmers in Laos, Cambodia, and Uganda in a new project supported and financed by the International Fund for Agricultural Development (IFAD). The project aims to promote SLM practices among smallholder farmers, agricultural advisory services, ministries of agriculture, and other line ministries.

Participatory mapping exercise on land degradation and SLM with farmers and researchers from the Royal University of Agriculture, Cambodia. Photo: Royal University of Agriculture, Cambodia

Land degradation concerns everyone

Experts estimate that 52 per cent of agricultural land is moderately or severely degraded, affecting around 1.5 billion people worldwide. SLM is crucial to fight this degradation, to rehabilitate degraded areas, and to ensure the optimal use of land resources and the provision of ecosystem services for present and future generations. Many farmers around the world already employ SLM practices. However, their knowledge on SLM frequently does not get documented in a standardized and harmonized way, in particular with regard to short- and long-term impacts and benefits. Doing so would facilitate comparative evaluation of the practices and would support land users and extension staff everywhere in choosing appropriate land management technologies.

Members of the Uganda Landcare Network project team consult with farmers in northern Uganda. Photo: Hanspeter Liniger, CDE

Collecting best practices on sustainable land management

WOCAT – a global SLM network hosted by CDE – seeks to collect SLM best practices and to unite efforts in knowledge management and decision support among stakeholders at every level, local to global, including national governmental and non-governmental institutions. WOCAT's methods and tools enable the systematic documentation, evaluation, and comparison of SLM practices. In 2014, WOCAT was officially recognized by the United Nations Convention to Combat Desertification (UNCCD) as the primary recommended database for reporting SLM best practices.

Scaling up sustainable land management among smallholder farmers

In a three-year project, WOCAT has teamed up with the Uganda Landcare Network, the National Agriculture and Forestry Research Institute in Laos, and the Royal University of Agriculture in Cambodia to support agricultural advisers in identifying and assessing SLM practices for broader dissemination among smallholder farmers. Financed by IFAD, the project trains agricultural advisers to document and evaluate specific SLM practices that have been developed by smallholder farmers to adapt to climate change and extremes – so-called climate-smart SLM practices. Afterwards, the agricultural advisers record all the data on SLM practices in a national SLM database established within the project. This database, in turn, is linked to the Global WOCAT Database on Sustainable Land Management and UNCCD SLM Best Practices reporting.

Using data and knowledge from the global and national SLM database, agricultural advisers evaluate the different climate-smart practices together with smallholder farmers. In a joint decision-making process, they negotiate and select various practices for testing. These practices are then implemented in demonstration plots. Smallholder farmers visit the demonstration plots and learn even more about climate-smart SLM practices by means of farmer-to-farmer exchange. Finally, individual smallholder farmers receive targeted project support to implement selected climate-smart practices on their own farms. In addition to these activities, the project encourages national institutions to allocate funds for investment in SLM. This is done through a series of policy-relevant activities such as national SLM forums that bring together key actors who make decisions on SLM.

Supporting change in the agricultural advisory system

The project works with both state and non-state actors involved in agricultural advisory services in unique settings in three countries. Its overall goal is to support changes in the agricultural advisory system that enable systematic management of SLM knowledge, evidence-based decision-making, and broad awareness at every level about the impacts and benefits of good land management. Ultimately, this should lead to wide adoption of climate-smart SLM practices among smallholder farmers.

Participants of the Training of Trainers on WOCAT tools and methods display their certificates following successful completion at the Royal University of Agriculture, Cambodia. Photo: Royal University of Agriculture, Cambodia

OneMap Myanmar: Spatial data for empowerment

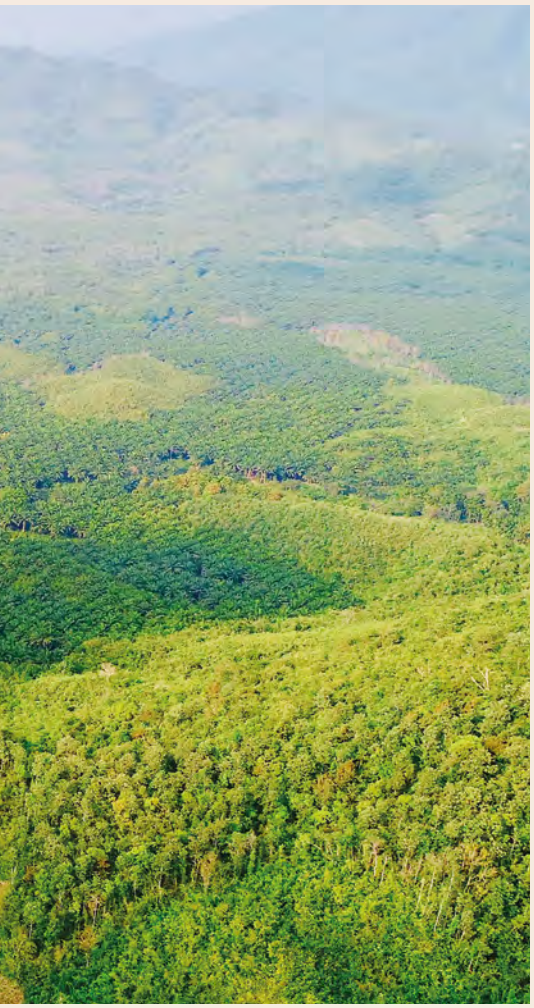
Joan Bastide and Andreas Heinimann

Myanmar is in the midst of rapid economic and social changes, with dramatic consequences for land resources. To strengthen capacity for land governance among government, civil society, and ethnic communities, the Swiss Agency for Development and Cooperation (SDC) started the OneMap Myanmar project. The project is implemented by CDE and the Land Core Group, and aims at contributing to more transparent and accountable development planning and governance of land resources. It does so by democratizing access to high-quality geospatial data and facilitating multi-stakeholder platforms and dialogues to resolve complex land issues.

Oil palm plantations photographed by means of a drone in Yebyu Township, Myanmar. Photo: OneMap Myanmar

Economic change and land tenure in Myanmar

After decades of direct military rule, Myanmar started a democratization process in April 2011. With the country opening up to foreign investment, and ceasefire agreements in the country's ethnic states, large-scale land acquisitions for agribusiness, mining projects, and other land- and water-based investments have emerged as key drivers of dispossession affecting poor smallholders, ethnic minorities, and women. Major land policy and law reforms are currently underway that will determine how land will be formally used, by whom, and for what purposes. During this time of rapid change and intensive law formulation and policymaking, there is a high demand for accurate, up-to-date, and accessible data, information, and knowledge.



Spatial data for more transparent governance of land

OneMap Myanmar was begun in 2015 as a long-term commitment of SDC, implemented by CDE in partnership with the Land Core Group, a Myanmar-based civil-society organization working on land issues. The eight-year project aims at democratizing access to high-quality spatial data on land, thus contributing to more transparent and accountable development planning and governance of land and other natural resources. To achieve this goal, CDE is partnering with over 25 government agencies, civil-society organizations, and ethnic groups and communities, to jointly produce, enhance, verify, and share data, information, and knowledge on key land issues. Through this engagement at national and local levels, OneMap Myanmar provides new spaces for multi-stakeholder dialogue and negotiations for the resolution of land conflicts and the sustainable development of the country.

Participatory mapping and crowdsourcing

The online, open-access spatial data platform developed under the project compiles and makes available land data from various sources, both governmental and non-governmental. It brings together government authoritative data on land use, cover, and tenure, with participatory maps developed by local communities and public contributions through crowdsourcing approaches. By supporting these parallel work streams and data sources, OneMap Myanmar highlights in a spatially explicit manner the multiple – and sometimes contradictory – claims on land that governance mechanisms must address to shift towards a more sustainable use of land resources.

A multi-stakeholder platform to resolve land issues in the palm oil sector

In the mid-90s, under the national policy to achieve self-sufficiency in edible oil, the military regime granted palm oil companies large areas of forest and agricultural land in the southern region of Tanintharyi. While the objective of self-sufficiency was never achieved, the industry caused serious problems for local communities and their natural environment, and led to deforestation, dispossession of land, and migration. In October 2016, the regional government requested technical assistance from OneMap to help resolve some of the land issues caused by the palm oil industry. A multi-stakeholder technical working group comprised of regional ministers, representatives of civil-society organizations, ethnic parties, and palm oil companies was established to launch a regional land use assessment of the palm oil sector. The aim is to examine how much land has been granted for palm oil concessions, how much of that is currently being used for actual production, and how some of this land could be reclaimed and returned to local communities. OneMap supports this assessment by facilitating the following activities and processes: (1) establishment and training of a regional multi-stakeholder technical task force to be deployed for data collection and analysis; (2) collection of concession contracts, including mapping of the location and extent of the areas granted; (3) use of very-high-resolution images (from satellites and drones) to identify current land use in and around the concessions; (4) facilitation of problem-solving-oriented multi-stakeholder dialogues based on facts and evidence produced through the assessment; and, at a later stage, (5) participatory land use planning.

A multi-stakeholder technical task force maps a palm oil concession in Yebyu Township, Myanmar. Photo: Patrick Oswald, OneMap Myanmar

Co-production of knowledge to foster dialogue

OneMap Myanmar represents a concrete example of how CDE's Strategy 2016–2021 can be put into practice. OneMap engages in genuine and mutually beneficial partnerships with a range of actors, from high-level national and regional government agencies to local civil-society organizations, and from private companies to ethnic minority groups. OneMap is implemented based on a context- and conflict-sensitive multi-stakeholder approach that aims to help resolve some very sensitive land-related issues. Through the co-production of knowledge involving a wide array of partners, OneMap leverages the power of data and information to foster fact-based dialogue in key decision-making processes, and reinforces the research and policy nexus.

Researchers on the way to Mahalevona, Madagascar. Photo: Julie Zähringer, CDE

“The transformation towards sustainability will not happen unless we consider different actors’ views on what sustainable development is for them”

Andreas Heinimann is Senior Research Scientist and Head of Regional Cooperation at CDE. His research focus is on land systems in the context of sustainable regional development, and his work centres on the interface between knowledge production, development interventions, and policy.

Boniface Kiteme is Director of the Centre for Training and Integrated Research in Arid and Semi-Arid Lands Development (CETRAD) and CDE’s regional representative in East Africa. His research focuses on water resource management and governance, food systems, food security and rural livelihoods, and biomass energy.

CDE maintains a worldwide network of long-term research partnerships. Key regions are East Africa, Horn of Africa, mainland Southeast Asia (especially Laos and Myanmar), the central Andes, and Central Asia. Conducting research in partnership across the global North and South makes it possible to develop and empower knowledge societies, and to share values on transformative science for sustainable development. What specific challenges are best handled in partnership, and what constitutes a typical success story? CDE’s Andreas Heinimann, Head of Regional Cooperation, and Boniface Kiteme, Director of the Centre for Training and Integrated Research in Arid and Semi-Arid Lands Development (CETRAD) and CDE’s regional representative in East Africa, share past experiences and visions for the future.

Interview by Corina Lardelli

Livestock market in Ambalavao, Madagascar. Photo: Julie Zähringer, CDE

You both have many years of experience with North–South research partnerships. Are there specific sustainability challenges that are best handled through partnerships?

AH: Any sustainable-development-oriented research needs to be contextualized, and hence requires pluralistic local partnerships. Without considering different actors' views on what sustainable development is for them, an actual transformation towards sustainability will not occur. For this reason, I would say that we cannot single out specific sustainability challenges or potentials, but that partnerships are needed for sustainable development as a whole.

BK: Almost all sustainability challenges have global dimensions and impacts even if they first manifest themselves locally – this is why they are best handled through multidimensional collaboration and partnerships. The most critical areas requiring very close partnerships are development of practical-oriented human capacities; creation of databases; and design of context-specific tools, technologies, and approaches for handling such challenges.

Is there a particular success story in the long-term cooperation between CDE and the East Africa region?

AH: The fact that we have had a partnership with Kenya and CETRAD for over 30 years, with a continuous stream of joint activities from various funding sources, is a big success *per se* – and this partnership is still going strong. More specifically, the establishment of the UNESCO Chair on Natural and Cultural Heritage for Sustainable Mountain Development with two CDE co-chairs, one in Switzerland (Stephan Rist) and Boniface Kiteme in Kenya, is for me a strong sign of the great international recognition of our long-term partnerships. In terms of jointly produced products, publication of the "Socio-Economic Atlas of Kenya" was a milestone. The creation of this highly useful atlas highlights how mutual trust and collaboration can lead to knowledge products which then feed into development and policy dialogues.

BK: Success stories in East Africa are many – please see also the recently published "Eastern and Southern Africa Partnership Programme: Highlights from 15 Years of Joint Action for Sustainable Development"[1]. For this interview, I would like to highlight the success we have achieved in efforts to enhance evidence-based participation in water resource management and governance. We did this by developing a credible socio-hydrological database and information, and by supporting the formation and capacity building of water resource users associations (WRUAs) in the Ewaso Ng'iro North river basin. These WRUAs were later adopted by the government, entrenched in law and policy, and applied in other parts of Kenya. The database is now interfaced at different user levels, and an early warning system is in place designed to help the WRUAs enforce appropriate user schedules during drought periods at the height of water scarcity, when tensions are high and violent conflict looms. Another success story concerns academic and technical training, which has benefited around 200 PhD and master's students as well as over 700 technical staff from state and non-state agencies. All of this has been possible through the long-term cooperation between CDE and CETRAD.

Andreas Heinimann, you are the new Head of Regional Cooperation. This position was created under CDE's Strategy 2016–2021. What do you plan to emphasize in your role?

AH: Our goal is to consolidate and secure our partnerships in at least five regions globally. As the 2030 Agenda for Sustainable Development is concretized, we aim to further demonstrate the incredible value of our long-term partnerships in these regions. We will continue to nurture global debates with local realities, and leverage this towards secure long-term funding for our North–South partnerships.

Furthermore, I aim to intensify our efforts to systematically evaluate and document our rich experiences in various approaches, and our resulting successes and failures in supporting or initiating sustainability transformations in various regions around the world. This is an important basis for enhanced joint learning – not only internally at CDE, but more importantly with key local and global actors related to the 2030 Agenda.

Lastly, I believe that while we live in times of big data – with their great potential, for example, for monitoring the Sustainable Development Goals and respective trade-offs and providing timely information to policy- and decision-makers – this potential is not yet being exploited in and for the global South. We envisage setting up systems in selected regions to put this data to use for monitoring global change and transformations in a contextualized manner, thus feeding, initiating, and facilitating regional science–policy platforms around the 2030 Agenda.

Boniface Kiteme, CDE's annual planning in December 2016 laid the roadmap for activities in the regions for the following year. What important developments can we expect in the East Africa region in 2017?

BK: The East Africa region is quite busy with new research initiatives under the Swiss-funded r4d programme. With these, the expected release of CDE's regional strategy, and the general provisions of CDE's Strategy 2016–2021, we anticipate an elevated level of activity and robust interaction between different players in the region as well as in the North and South. The rather low-key interaction witnessed since the end of the 12-year NCCR North-South programme[2] and ESAPP[3] is certainly expected to rise, also considering the potential provided by new initiatives such as SUDAC[4] and the UNESCO Chair on Natural and Cultural Heritage for Sustainable Mountain Development, co-chaired by Stephan Rist (CDE) and myself.

Researchers of CETRAD, CDE, and the Institute of Geography of the University of Bern have installed instruments along the Ewaso Ng'iro River to measure its flow during the dry and rainy seasons and to determine the shares of water coming from Mount Kenya, the semi-arid plains, and springs along the lower reaches of the river. Photo: Hanspeter Liniger, CDE

Transdisciplinary approaches are indispensable for producing knowledge that contributes to change towards sustainable development. What is your strategy to involve non-academic actors like policymakers, civil-society organizations, and private-sector actors in research activities?

AH: All CDE regions already have a pluralistic partner setup that includes established partnerships with local universities, government departments, local and international civil-society organizations, local communities, as well as high-level policymakers and development actors at various levels. These actors are, in varying compositions and at different stages, involved in our activities within co-design and co-production of knowledge processes. To facilitate the involvement of multiple stakeholders, we frequently synergistically link research funding with more development-oriented activities and funding. This allows us to significantly enhance our close collaboration, for example with high-level decision- and policymakers

CETRAD and CDE representatives sit with senior government officials representing the Water Resources Management Authority and the Ministry of Water and Irrigation to agree on modalities for joint implementation of the Water and Land Resources Centre project. Photo: CETRAD

(e.g. through formal development partnerships with government ministries). Having development funding also enables us to scale up our work: Rather than studying only a handful of communities for a research case study, we can work with several hundred.

BK: Our strategy for non-academic actors is to involve them directly or indirectly early on. This can be during the pre-proposal stage, through their participation in stakeholders' consultative workshops in which their views are discussed and incorporated in the final project proposals. Or it can be through direct consultations during elaboration of objectives and research questions of individual research subprojects (master, PhD, or postdoc studies) once the respective overall research projects have been approved and implementation has commenced. Furthermore, the non-academic actors remain continuously linked to the core research team as consultations take place in stakeholder feedback workshops throughout the entire project period. These workshops culminate in a final event of results feedback and validation among the different stakeholder groups in the study region.

What are the main challenges to maintaining research partnerships in the long term?

AH: A number of challenges are related to how the funding landscape has developed. Many funding opportunities today have a fairly short duration (typically around three years), making it more difficult to build and maintain long-term partnerships. We approach this by sequencing different projects, which of course means that more time and effort has to be spent on project bids. Also, there are currently only a small number of funding vehicles that allow salaries of researchers to be funded in the South as well as the North. For largely third-party-funded institutions such as CDE and a number of our regional partners, this represents a challenge. The r4d programme of the Swiss National Science Foundation and SDC as well as the Belmont Forum are great exceptions and very valuable in this regard.

BK: In general terms, long-term research cooperation performs optimally if based on long-term research projects with guaranteed long-term funding. Unfortunately, most research projects last only three years. This is not enough to establish and nurture true research cooperation that can deliver meaningful outputs and create visible impacts. Related to this challenge is the level of funding for such projects. Most research projects have limited budgets that do not cater adequately for all the requirements for a successful cooperation, including funding for piloting innovations resulting from the research process, to ensure immediate impacts.

Specifically, research cooperation is also challenged by factors such as the ever-growing divides and lopsided sharing of benefits between North and South research institutions and scientists, which leave the latter group at a comparative disadvantage. Such divides are experienced in research support infrastructure and information technology, as well as in competitive platforms, such as journals, to publish and disseminate research results.

Let's assume that all your plans are implemented. What do you hope observers will say about CDE's North–South research partnerships in five years?

AH: I do believe that we are still ahead of our time with our North–South partnership-based research, which ultimately aims at supporting sustainability transformation in specific contexts but also at linking local realities to global debates and vice versa. I am very enthusiastic that, with the establishment of Future Earth in combination with the 2030 Agenda, there is strong recognition that research has to be more societally relevant in view of current sustainability challenges. I see this as a confirmation and recognition of our approaches and values. Specifically, I hope that by demonstrating the transformative nature of our research while still being top-notch scientifically, we will continue to help widen the currently dominant one-dimensional and very narrow science evaluation schemes (such as the H-index). My hope is that partnership-based research producing actual transformations towards a more sustainable future, along with the related societal impacts, will eventually be recognized and taken up in schemes for evaluating science and researchers from the global South and North.

BK: First of all, let me say that CDE's place as a pace setter in terms of North–South research cooperation is already well established in the world of sustainability research, based on previous activities. This position will continue to be entrenched under CDE's new regional strategy, which is currently being formulated. Once this regional strategy is implemented, CDE will have redefined the approach to long-term research cooperation.

Journalists document the launch of the first "Socio-Economic Atlas of Kenya" at a press conference in Nairobi. Produced by a Kenyan–Swiss team of specialists from research organizations and state agencies in 2015, the atlas provides an ideal tool for partnership-based development efforts bringing together government, the private sector, and research institutions. Photo: Urs Wiesmann, CDE

[1] Ehrensperger A, Ott C, Wiesmann U, editors. 2015. *Eastern and Southern Africa Partnership Programme: Highlights from 15 Years of Joint Action for Sustainable Development.* Bern, Switzerland: Centre for Development and Environment (CDE) and Bern Open Publishing (BOP). 134 pp. ISBN 978-3-906813-04-2.

[2] The National Centre of Competence in Research (NCCR) North-South was a 12-year, Swiss-funded research partnership programme that ended in 2013. The programme encompassed a network of over 350 researchers in more than 40 countries, and was dedicated to finding sustainable, practicable solutions to specific challenges of global change.

[3] The Eastern and Southern Africa Partnership Programme (ESAPP) was a 15-year research implementation programme that sought to advance sustainable development through joint action and co-production of knowledge in the context of local and regional initiatives.

[4] SUDAC is the recently launched "swissuniversities Development and Cooperation Network".

Market in Luang Namtha, Laos. Photo: Julie Zahringer, CDE

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Breu T, Giger M. 2016. Bewältigung des Klimawandels als Teil der Entwicklungspolitik. *Klimafreundlich Schweiz – Das Jahrbuch für Nachhaltigkeit, Ökologie und Lifestyle* 2016:14–15.

Bürgi Bonanomi E, Hänggi M. 2016. Wenn man etwas nicht wissen will, erhebt man keine Daten. *Horizonte* 110:29.

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Herweg K. 2016. *Nachhaltige Entwicklung in die Hochschullehre integrieren – Ein Leitfaden mit Vertiefungen für die Universität Bern. Vertiefung 4: Unterrichtsmaterialien 3, Folienset zu Nachhaltige Entwicklung.* Slides. Bern, Switzerland: University of Bern, Vice-Rectorate Quality, Vice-Rectorate Teaching, Centre for Development and Environment (CDE), Bereich Hochschuldidaktik & Lehrentwicklung, and Bern Open Publishing (BOP).

Herweg K. 2016. *Nachhaltige Entwicklung in die Hochschullehre integrieren – Ein Leitfaden mit Vertiefungen für die Universität Bern. Vertiefung 4: Unterrichtsmaterialien 4, Folienset zu Bildung für Nachhaltige Entwicklung.* Slides. Bern, Switzerland: University of Bern, Vice-Rectorate Quality, Vice-Rectorate Teaching, Centre for Development and Environment (CDE), Bereich Hochschuldidaktik & Lehrentwicklung, and Bern Open Publishing (BOP).

Herweg K, Graf D, Tribelhorn T, Rufer L, Zimmermann A. 2016. *Nachhaltige Entwicklung in die Hochschullehre integrieren – Ein Leitfaden mit Vertiefungen für die Universität Bern. Vertiefung 4: Unterrichtsmaterialien 1, Erklärvideo zu Nachhaltige Entwicklung.* Video. Bern, Switzerland: University of Bern, Vice-Rectorate Quality, Vice-Rectorate Teaching, Centre for Development and Environment (CDE), Bereich Hochschuldidaktik & Lehrentwicklung, and Bern Open Publishing (BOP).

Herweg K, Graf D, Tribelhorn T, Rufer L, Zimmermann A. 2016. *Nachhaltige Entwicklung in die Hochschullehre integrieren – Ein Leitfaden mit Vertiefungen für die Universität Bern. Vertiefung 4: Unterrichtsmaterialien 2, Erklärvideo zu Bildung für Nachhaltige Entwicklung.* Video. Bern, Switzerland: University of Bern, Vice-Rectorate Quality, Vice-Rectorate Teaching, Centre for Development and Environment (CDE), Bereich Hochschuldidaktik & Lehrentwicklung, and Bern Open Publishing (BOP).

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Blasiak R, Rist S, Bürgi E, Lannen A. 2016. *Den Rohstoffsektor in Entwicklungsländern nachhaltig gestalten: Lokale Auswirkungen, globale Verbindungen und Wissenslücken.* Swiss Academies Factsheets, Vol. 11, No. 2. Bern, Switzerland: Swiss Academies of Arts and Sciences. 8 pp.

Blasiak R, Rist S, Bürgi E, Lannen A. 2016. *Des matières premières profitables aux pays en développement: impacts locaux, connexions globales et lacunes de connaissances.* Swiss Academies Factsheets, Vol. 11, No. 2. Bern, Switzerland: Swiss Academies of Arts and Sciences. 8 pp.

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Boone C, Dyzenhaus A, Ouma S, Owino JK, Gateri C, Gargule A, Klopp J, Manji A. 2016. *Land Politics under Kenya's New Constitution: Counties, Devolution, and the National Land Commission.* International Development Working Paper No. 178. London, UK: London School of Economics and Political Science. 66 pp.

Bürgi Bonanomi E. 2016. *Nachhaltige Agrarimporte in die Schweiz? Studie im Auftrag der Agrarallianz und weiterer agrar-, umwelt- und entwicklungspolitischer Organisationen der Schweiz.* Chur, Bern, and Zurich, Switzerland: Agrarallianz, Centre for Development and Environment (CDE), WWF. 17 pp.

Coulombe H, Epprecht M, Pimhidzai O, Sisoulath V. 2016. *Where Are the Poor? Lao PDR 2015 Census-Based Poverty Map: Province and District Level Results.* Washington, D.C., USA: World Bank Group. 117 pp.

Danielzyk R, Dittrich-Wesbuer A, Duchêne-Lacroix C, Fischer T, Hilti N, Perlik MR, Petzold K, Ritzinger A, Scheiner J, Sturm G, Tippel C, Weiske C. 2016. *Multilokale Lebensführung und räumliche Entwicklungen.* Positionspapier aus der ARL 104. Hanover, Germany: Akademie für Raumforschung und Landesplanung. iii + 24 pp.

Delaney A, Evans T, McGreevy J, Blekking J, Schlachter T, Korhonen-Kurki K, Tamás PA, Crane TA, Eakin H, Förch W, Jones L, Nelson DR, Oberlack C, Purdon M. 2016. *Strengthening the Food Systems Governance Evidence Base: Supporting Commensurability of Research Through a Systematic Review of Methods.* Working Paper No. 167. Frederiksberg, Denmark: CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS). 52 pp.

Hörler M, Liechti K. 2016. *Mehr als eine karge Landschaft – Wertvolle Lebensräume im Hochgebirge des Welterbes.* einblicke|ausblicke. Naters, Switzerland: UNESCO-Welterbe Schweizer Alpen Jungfrau-Aletsch. 4 pp.

Hörler M, Liechti K. 2016. *Von der Westlichen Smaragdeidechse zum Rudolph-Trompetenmoos – Artenvielfalt in der Welterbe-Region.* einblicke|ausblicke. Naters, Switzerland: UNESCO-Welterbe Schweizer Alpen Jungfrau-Aletsch. 4 pp.

Kleinhückelkotten S, Neitzke H-P, Moser S. 2016. *Repräsentative Erhebung von Pro-Kopf-Verbräuchen natürlicher Ressourcen in Deutschland (nach Bevölkerungsgruppen).* Dessau-Rosslau, Germany: Umweltbundesamt. 140 pp.

Lannen A, Bürgi E, Rist S, Wehrli J. 2016. *Die Schweiz und der Rohstoffhandel: Was wissen wir? Bilanz und Ausblick.* Swiss Academies Factsheets, Vol. 11, No. 1. Bern, Switzerland: Swiss Academies of Arts and Sciences. 8 pp.

Lannen A, Bürgi E, Rist S, Wehrli J. 2016. *La Suisse et le négoce des matières premières: état des lieux et perspectives.* Swiss Academies Factsheets, Vol. 11, No. 1. Bern, Switzerland: Swiss Academies of Arts and Sciences. 8 pp.

Lannen A, Bürgi E, Rist S, Wehrli J. 2016. *Switzerland and the Commodities Trade: Taking Stock and Looking Ahead.* Swiss Academies Factsheets, Vol. 11, No. 1. Bern, Switzerland: Swiss Academies of Arts and Sciences. 8 pp.

Rist S, Cottier T, Mann S. 2016. *Sustainable Soil Governance and Large-Scale Land Acquisitions Originating in Switzerland: Summary for Stakeholders.* Bern, Switzerland: Swiss National Science Foundation, National Research Programme 68. 8 pp.

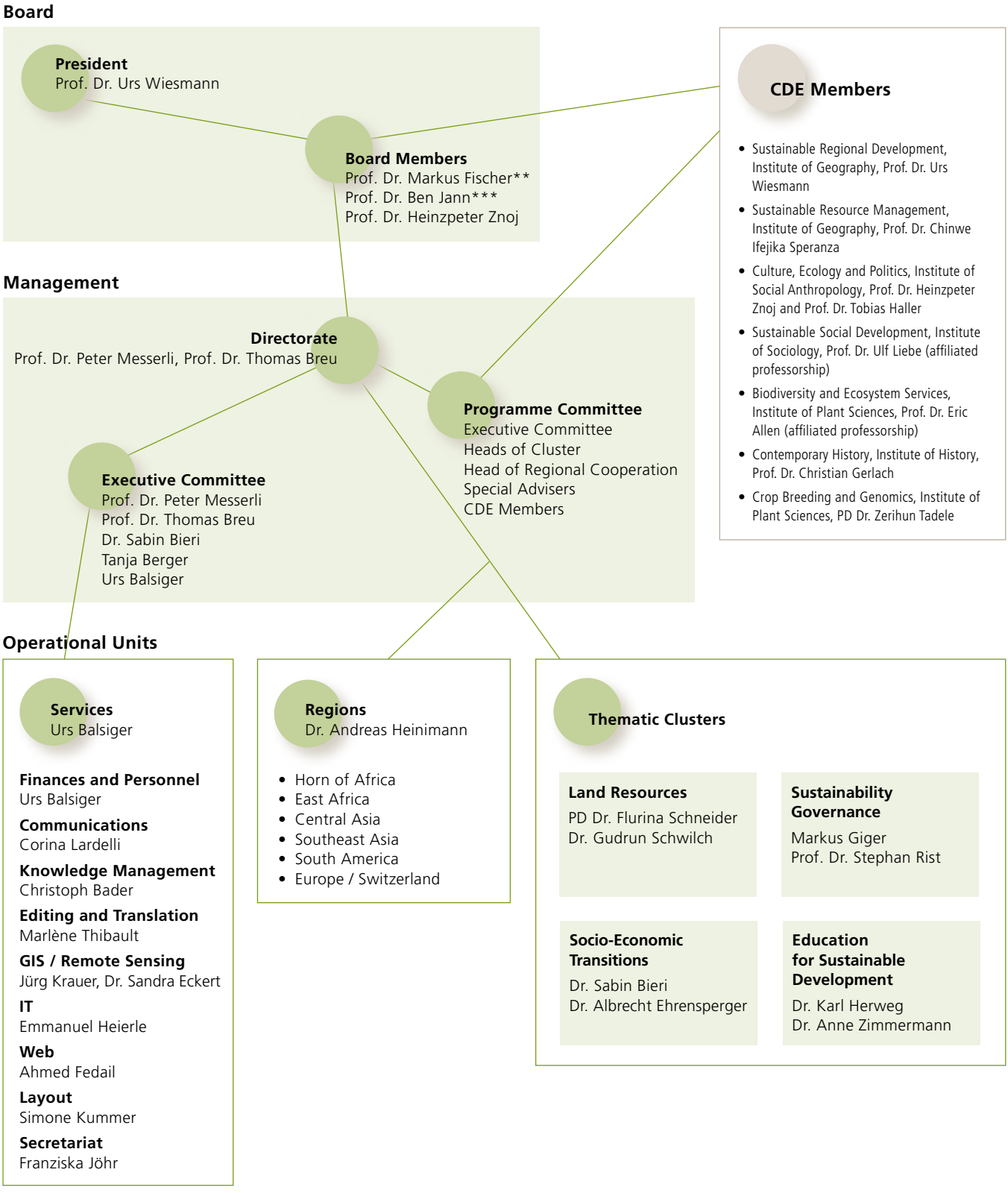
Rist S, Golay C, Bürgi Bonanomi E, Delgado Burgoa FM, Kiteme BP, Haller T, Ifejika Speranza C. 2016. *Towards Food Sustainability: Reshaping the Coexistence of Different Food Systems in South America and Africa – Project Description.* Towards Food Sustainability Working Paper No. 1. Bern, Switzerland: Centre for Development and Environment (CDE), University of Bern. 40 pp.

Rist S, Jacobi J. 2016. *Contents and Indicators of the Food Sustainability Assessment Framework (Food-SAF).* Towards Food Sustainability Working Paper No. 3. Bern, Switzerland: Centre for Development and Environment (CDE), University of Bern. 10 pp.

Rist S, Jacobi J. 2016. *Selection of Food Systems in Bolivia and Kenya and Methods of Analysis.* Towards Food Sustainability Working Paper No. 2. Bern, Switzerland: Centre for Development and Environment (CDE), University of Bern. 24 pp.

Rainbow over the Ihorombe Plateau, Madagascar. Photo: Julie Zähringer, CDE

Organization chart*



* This chart reflects the new organizational structure in effect as of 1 January 2017, which we began to implement in August 2016
** Institute of Plant Sciences
*** Institute of Sociology

Nomadic herders in the mountains near Son Kul, Kyrgyzstan. Photo: Hanspeter Liniger, CDE

Personnel*

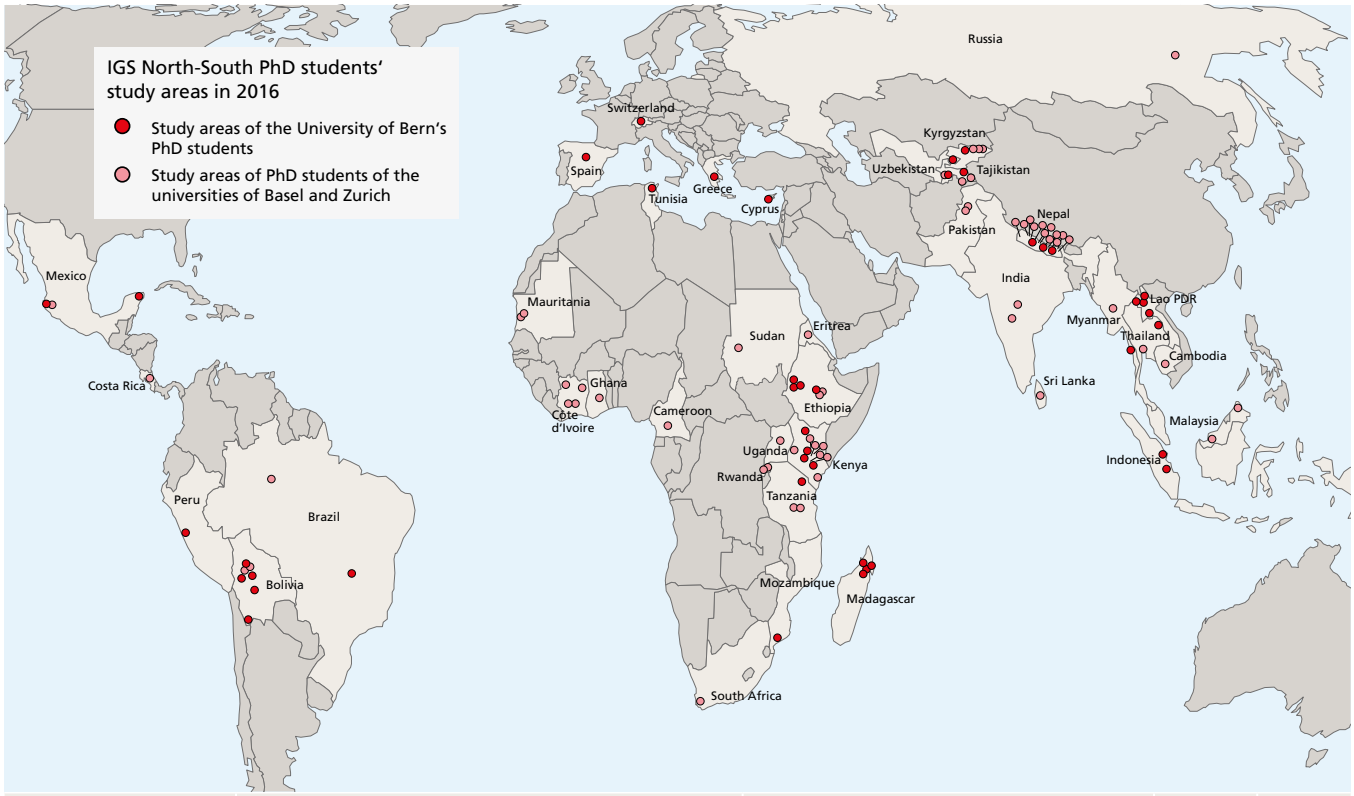
Directors, CDE	
Name	**Professional background**
Messerli, Peter	Prof., geography (100%)
Breu, Thomas	Prof., geography (100%)
Executive Committee	
Name	**Professional background**
Balsiger, Urs	MBA, economics (90%)
Berger, Tanja	MA, social anthropology (80%)
Bieri, Sabin	PhD, geography (80%)
plus CDE Directors (see above)	
Heads of Cluster	
Name	**Professional background**
Bieri, Sabin	PhD, geography (80%)
Ehrensperger, Albrecht	PhD, geography (90%)
Giger, Markus	MSc, agricultural economics (90%)
Herweg, Karl	PhD, geography (100%)
Rist, Stephan	Prof., agronomy (100%)
Schwilch, Gudrun	PhD, geography (80%)
Programme Staff	
Name	**Professional background**
Abebe, Manuel	BSc student, geography (25%)
Alaoui, Abdallah	PD, geology (50%)
Augstburger, Horacio	MSc, environmental sciences (50%)
Bachmann, Felicitas	MA, social anthropology (50%)
Bader, Christoph	PhD, geography and sustainable development (50%)
Bastide, Joan	MSc, geography and environment; MSc, Asian studies (100%)
Berger, Sibylle	MSc, geography and agricultural economics (100%)
Bircher, Pascal	MSc, geosciences (50%)
Bürgi Bonanomi, Elisabeth	PhD, law; Attorney at Law (80%)
Ebneter, Laura	BSc, geography (40%)
Eckert, Sandra	PhD, geography (80%)
Epprecht, Michael	PhD, geography (100%)
Fries, Matthias	MSc, geography (90%)
Gämperli Krauer, Ursula	MSc, geography (55%)
Gavilano, Alexandra	MSc, environmental sciences (80%)
Gerber, Kurt	MSc, geography (80%)
Gurtner, Mats	MSc, geography (25%)
Häderli, Stefan	BSc, geography (25%)
Hammer, Thomas	Prof., geography (90%)
Harari, Nicole	MSc, geography (80%)
Heinimann, Andreas	PhD, environmental sciences (50%)
Hergarten, Christian	MSc, geography (20%)
Hett, Cornelia	PhD, geography (80%)
Hodel, Elias	MSc, geography (80%)
Höggel, Udo	MSc, tropical animal production; MSc, environmental economics (100%)

*As at 31 December 2016

Programme Staff	
Name	**Professional background**
Hofmann, Heidi	MA, English literature; MSc, environmental sciences (40%)
Jacobi, Johanna	PhD, geography (80%)
Jaquet, Stéphanie	PhD, geography and sustainable development (50%)
Kläy, Andreas	MSc, forest science (80%)
Krauer, Jürg	MSc, geography (100%)
Kupferschmied, Patrick	BSc, geography (25%)
Lauterburg, Nina	MSc, geography (80%)
Lemann, Tatenda	MSc, geography (75%)
Leng, Marion	PhD, forest science (75%)
Liechti, Karina	PhD, geography (50%)
Liniger, Hanspeter	PhD, geography (100%)
Llopis, Jorge Claudio	MA, African studies (50%)
Lundsgaard-Hansen, Lara	MSc, geography (50%)
Mathez-Stiefel, Sarah-Lan	PhD, ethnobotany (30%)
Meessen, Heino	PhD, landscape ecology (70%)
Mekdaschi Studer, Rima	PhD, agronomy (65%)
Moser, Stephanie	PhD, psychology (50%)
Niggli, Deborah	BSc, geography (25%)
Nydegger, Katharina	BSc, geography (25%)
Oberlack, Christoph	PhD, economics (50%)
Oechslin, Lukas	BA, history (50%)
Ott, Cordula	PhD, geography (60%)
Perlik, Manfred	Prof., geography (50%)
Portner, Brigitte	PhD, geography and sustainable development (50%)
Providoli, Isabelle	PhD, geography (90%)
Roth, Vincent	MSc, geography (80%)
Scharrer, Bettina	MA, history (75%)
Schmidt, Stephan	MA, political science (75%)
Schneider, Flurina	PhD, geography (80%)
Steinböck, Camilla	BSc student, geography (25%)
Trechsel, Lilian	MSc, geography (70%)
Tribaldos, Theresa	PhD, geography (50%)
Tschopp, Maurice	MSc, development studies (50%)
Vonlanthen, Lukas	MSc, geography (75%)
Weber, Anne-Kathrin	PhD, cartography and geoinformation (40%)
Winiger, Andrea	BSc, international relations (25%)
Wymann von Dach, Susanne	MSc, geography (60%)
Zähringer, Julie	PhD, geography and sustainable development (75%)
Zimmermann, Anne	PhD, English languages and literatures (100%)

Services Unit Staff	
Name	**Fields of activity**
Balsiger, Nicole	Accounting and financial administration (40%)
Da Silva-Trolliet, Tamara Rebecca	Event management and IGS North-South secretariat (60%)
Fedail, Ahmed	Web project management (60%)
Heierle, Emmanuel	ICT management (80%)
Hirschbuehl, Tina	Editing and translation (40%)
Jöhr, Franziska	Secretariat (80%)
Kummer, Simone	Graphic design (70%)
Lannen, Anu	Editing and translation (50%)
Lardelli, Corina	Communications (80%)
Manger, Sebastian	Application development (80%)
Nussbaumer, Melchior	Secretariat (70%)
Thibault, Marlène	Editing and translation (100%)
Tresch, Jeannine	Secretariat and ICT management (60%)
Weger, Barbara	Communications (10%)
Willemin, Rémi	Multimedia support (30%)
Willi, Barbara	Human resources (60%)

The University of Bern's students at the International Graduate School (IGS) North-South in 2016*



Name	Working title of thesis	Funded by	Start of PhD	End of PhD
Aeberli, Annina Rahel[1]	Contesting the dominant understanding of forest in Sarwak, Malaysia	Self-funding; Institute of Social Anthropology, University of Bern	2015	2019
Anarbekov, Oyture[2]	Analysing the sustainability of water commons governance through water user associations (WUAs) in semi-arid Ferghana Valley	Swiss Agency for Development and Cooperation; International Water Management Institute; CDE; United Nations Economic Commission for Europe	2012	2017
Andriamihaja, Ravaka[2]	Analysing land use decision-making under telecoupling in north-eastern Madagascar	Swiss Government Excellence Scholarships for Foreign Scholars	2015	2018
Augstburger, Horacio[2]	Environmental impact assessment and the influence on socioecological resilience of three food systems in Bolivia and Kenya	Swiss National Science Foundation; Swiss Agency for Development and Cooperation	2013	2017
Bachrioktora, Yudi[1]	The development of the palm oil industry and its ecological, socio-economic and cultural impacts on communities around the palm oil plantations in Jambi Province, Indonesia	Gerda Henkel Stiftung	2016	2019
Bader, Christoph[2]	Economic growth – increasing disparities? A multidimensional poverty analysis of the Lao PDR	CDE	2013	2016
Bär, Roger[2]	The potential of sustainable biomass cooking fuel for supplying rural to urban areas of East Africa: Case study assessments of Moshi and Kitui	Swiss National Science Foundation; Swiss Agency for Development and Cooperation	2013	2017
Barrueto, Andrea[2]	Towards climate-resilient development: The potential of cash crop trees towards sustainable livelihoods, women's empowerment, agricultural resilience, and economic development in Nepal	Helvetas Swiss Intercooperation; CDE	2014	2017
Bigler, Christine[2]	Rural employment in export-led agricultural industries and its impacts on asset building and well-being in smallholder households: A comparative gender analysis	Swiss National Science Foundation; Swiss Agency for Development and Cooperation	2014	2017

Name	Working title of thesis	Funded by	Start of PhD	End of PhD
Bircher, Pascal[2]	Upgrading and optimizing the Erosion Risk Map (ERM2) of Switzerland	Swiss Federal Office for Agriculture	2014	2017
Frey, Sara[2]	Analysis of negotiation processes around "vivir bien/buen vivir" linking state-based and grassroots development initiatives	Swiss National Science Foundation; self-funding	2013	2017
Fürst, Christiane[3]	Economic legal regimes from a policy coherence perspective	Swiss National Science Foundation	2015	2017
Gambon, Helen[2]	Constitutionality processes and social-ecological outcomes in the Pilón Lajas Indigenous Territory and Biosphere Reserve, Bolivia	Swiss National Science Foundation	2012	2017
Gargule, Andrew Achiba[2]	Better marginalized than incorporated: The origins of chronic vulnerabilities and poverty among pastoralist societies in northern Kenya	Swiss Government Excellence Scholarships for Foreign Scholars	2014	2017
Garrard, Rodney[2]	Climate change and tourism in mountain protected areas: Impacts and implications in a developing country context (Sagarmatha, Mount Everest National Park, Khumbu, Nepal)	Commission for Research Partnerships with Developing Countries; CDE; European Outdoor Conservation Association; self-funding	2009	2017
Hergarten, Christian[2]	Integrated assessment of land use systems' ecosystem services at the regional scale	Swiss National Science Foundation; Swiss Agency for Development and Cooperation; CDE	2009	2017
Janker, Judith[2]	Critical reflections on social sustainability in agriculture	Agroscope	2016	2019
Jaquet, Stéphanie[2]	Impacts of outmigration on land management in the mountain areas of Bolivia and Nepal	Swiss Network for International Studies; CDE	2012	2016
Jendoubi, Donia[2]	Decision-support tool for assessing land degradation and realizing sustainable land management in the Watershed of Oued Madjerda, Tunisia	Swiss Government Excellence Scholarships for Foreign Scholars; Islamic Development Bank	2014	2017
Jucker, Matteo[2]	The role of land management in preventing catastrophic shifts of dryland ecosystems	European Union Seventh Framework Programme	2012	2017
Käser, Fabian[1]	Towards food sustainability: Ethnography of a local food system in the Mount Kenya Region, Kenya	Swiss National Science Foundation	2015	2017
Kassawmar, Tibebu[2]	Landscape transformation in Ethiopia: Spatio-temporal dynamics and implications for transboundary runoff and sediment yield in the Blue Nile Basin, Ethiopia	Swiss National Science Foundation; Swiss Agency for Development and Cooperation; CDE; self-funding	2012	2017
Kongthong, Orasa[2]	Interconnectedness between agrarian transformation and the water–energy–food security nexus in north-eastern Thailand: Case studies in Wieng Kao District, Khon Kaen Province, and Bueng Khong Long area, Bueng Kan Province	Swiss Government Excellence Scholarships for Foreign Scholars; self-funding	2013	2017
Latthachack, Phokham[2]	Changes in land use, ecosystem service supply and human wellbeing in Luangnamtha Province in north-western Laos	Swiss National Science Foundation; Swiss Agency for Development and Cooperation	2016	2019
Lemann, Tatenda[2]	Blue and green water modelling in the upper Blue Nile basin: Towards improved decision-making and transboundary negotiations regarding blue and green water uses	Swiss National Science Foundation; Swiss Agency for Development and Cooperation; CDE; Department of Integrative Geography, University of Bern	2012	2017
Linde, Lothar[2]	The role of spatial decision support tools in advancing transparency and accountability of land management in the Greater Mekong Subregion	Self-funding; CDE	2014	2017

Name	Working title of thesis	Funded by	Start of PhD	End of PhD
Llopis, Jorge Claudio[2]	Linking land use with ecosystem services supply and demand: A participatory approach to assessing the implications for human well-being in north-eastern Madagascar	Swiss National Science Foundation; Swiss Agency for Development and Cooperation	2016	2019
Lundsgaard-Hansen, Lara[2]	Land use decision-making, actor networks, and potentials of social learning for land governance transformation in Tanintharyi, Myanmar	Swiss National Science Foundation; Swiss Agency for Development and Cooperation	2016	2019
Nazarmavloev, Farrukh[2]	Soil organic carbon management in agricultural land of Tajikistan	Swiss Government Excellence Scholarships for Foreign Scholars	2012	2017
Ochoa-García, Heliodoro[2]	Geography of water, environmental conflicts, and social alternatives: The Santiago River watershed, Mexico	Jesuit University of Guadalajara, Mexico	2013	2017
Primasari, Nova[2]	Dynamics of land use and stakes in Indonesia's peat lands and their impact on environmental services and local livelihoods: The case of Riau Province, Indonesia	Self-funding; CDE	2011	2017
Roth, Vincent[2]	Discharge and erosion modelling in the upper Blue Nile basin: Towards improved decision-making and transboundary negotiations	Swiss National Science Foundation; Swiss Agency for Development and Cooperation; CDE; Department of Integrative Geography, University of Bern	2012	2017
Samoei, Paul[2]	Child nutrition in Kenya: A high-resolution analysis of its spatial distribution and geographic determinants	Centre for Training and Integrated Research in ASAL Development	2015	2017
Schneider, Lysann[1]	Why reforestation fails: Institutional change and migration in Colonia Yucatán, Mexico	Self-funding; Institute of Social Anthropology, University of Bern; CDE	2013	2017
Shabdolov, Alisher[2]	Analysis of potentials and constraints of common-pool resource management for sustainable water governance in a mountain irrigation system in the Tajik Pamirs	Swiss Government Excellence Scholarships for Foreign Scholars; University of Central Asia, Mountain Societies Research Institute	2012	2017
Siziba, Clarence[3]	The regulation of trade in goods from conflict zones	Swiss State Secretariat for Economic Affairs	2014	2017
Subhatu, Alemtsehay[2]	Long-term effects of soil and water conservation and potential impacts of integrated watershed management on ecosystem services in the Abbay (Blue Nile) basin of Ethiopia	Swiss Government Excellence Scholarships for Foreign Scholars	2014	2018
Tejada, Laura[2]	Large-scale land acquisitions in Peru: Effects on households in rural communities concerning gender relations, decision-making, and food security	Swiss Network for International Studies; CDE	2013	2017
Thongphan, Daovorn[2]	Analysing land use decision-making under telecoupling in Viengphoukha and Sing Districts, Luangnamtha Province, Northern Lao PDR	Part of R4D Telecoupling project	2016	2019
Tschopp, Maurice[2]	Quinoa production in the Lipez Region, Bolivia: Accumulation of assets and struggle for natural resources	Swiss National Science Foundation; Swiss Agency for Development and Cooperation	2014	2017
Zähringer, Julie[2]	Cross-scale landscape service trade-offs in a conservation–development nexus along the north-eastern escarpment of Madagascar	CDE	2012	2016
Zanella, Matheus Alves[2]	Brazil–Mozambique development cooperation on food security and natural resource governance	Swiss Government Excellence Scholarships for Foreign Scholars	2014	2017

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

[1] IGS North-South student enrolled at the Institute of Social Anthropology of the University of Bern in 2016

[2] IGS North-South student enrolled at the Institute of Geography of the University of Bern and/or engaged in preparatory work for their PhD at CDE in 2016

[3] IGS North-South student enrolled at the World Trade Institute of the University of Bern in 2016

Programmes and mandates in 2016

Programmes and mandates by cluster[1]	Budget size in 2016[2]	Main donors in 2016[3]	Countries/regions
Natural Resources and Ecosystem Services			
The Water and Land Resource Centre Project: Decision-Making on Water and Land Management and Governance (Phase III)	large	SDC	Ethiopia, Kenya
Global Land Programme Science–Policy Interface	large	SDC, CDE	Global
TABI – The Agrobiodiversity Initiative (Phase II)	large	SDC, NIRAS	Laos
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
Decision Support for Mainstreaming and Scaling Out Sustainable Land Management	large	GEF, FAO	Argentina, Bangladesh, Bosnia and Herzegovina, China, Colombia, Ecuador, Lesotho, Morocco, Nigeria, Panama, Philippines, Thailand, Tunisia, Turkey, Uzbekistan
Support to WOCAT International Secretariat and WOCAT Database	large	GIZ	Global
Strengthening the Capacity of Rural Extension Services Using WOCAT – Scaling Up Sustainable Land Management	large	IFAD	Laos, Cambodia, Uganda
Guidelines on Selected Best Sustainable Rangeland Management Practices in Sub-Saharan Africa	large	The World Bank	Sub-Saharan Africa
Integrated Watershed Management in Morocco	medium	SDC	Morocco
GLUES – Sustainable Land Management, Climate Change and Ecosystem Services	medium	BMZ	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
Natural Resource Management in Rustaq, Afghanistan	small	SDC	Afghanistan
Disaster Risk Reduction in WOCAT: Where the World is Safer	small	CARITAS	Global
Erosion Risk Monitoring in Switzerland	small	Changins – School of Viticulture and Enology	Switzerland
Arid Lands Restoration and Combat of Desertification: Setting Up a Drylands and Desert Restoration Hub	small	COST	Europe
CASCADE – Catastrophic Shifts in Drylands	small	EU-FP7	Cyprus, Greece, Italy, Portugal, Spain
Upgrading and Optimizing the Erosion Risk Map of Switzerland	small	FOAG	Switzerland
Sustainable Land Management and Climate Change Mitigation Co-Benefits	small	GEF	Global
Climate Smart Agriculture	small	GIZ	Benin, Burkina Faso, Ethiopia, India, Kenya
Multidimensional Disparities			
Lao Decide Info (Phase III)	large	SDC	Laos
OneMap Myanmar (Inception and Phase I)	large	SDC	Myanmar
ICRD – International Conference on Research for Development	large	SNSF	Global
FATE – Feminization, Agricultural Transition, and Rural Employment[4]	large	SNSF, SDC (r4d Programme)	Laos, Nepal, Rwanda, Bolivia
Climate Change Adaptation Mandates	medium	GIZ	India
Resilient Agriculture-Based Livelihoods and Resilient Agricultural Landscapes? Adaptation to Climate Change in African Agriculture	small	SNSF (Ambizione)	Tanzania, Kenya
SIMRA – Social Innovation in Marginalised Rural Areas[5]	small	EU-Horizon 2020	Switzerland

Programmes and mandates by cluster[1]	Budget size in 2016[2]	Main donors in 2016[3]	Countries/regions
Governance of Land and Natural Resources			
Towards Food Sustainability: Reshaping the Coexistence of Different Food Systems in South America and Africa	large	SNSF, SDC (r4d Programme)	Bolivia, Kenya
The Role of the Solidarity Economy in Organic Farming in Switzerland and Surrounding Countries	large	Mercator Foundation	Austria, France, Germany, Italy, Switzerland
ATLAS – Archetypes of Transnational Land Acquisitions[6]	medium	SNSF	Global
Churches as Agents in Sustainable Development Projects: The Case of Indonesia[7]	medium	SNSF	Indonesia
Commodity Trading in Switzerland and Related Research Needs	medium	KFPE	Switzerland
Sustainability Research and Monitoring of the Swiss Alps Jungfrau-Aletsch UNESCO World Heritage Site	medium	SAJA UNESCO World Heritage	Switzerland
Programme for Applied Climate Change Research at Bolivian Universities	small	AGRUCO	Bolivia
Participatory Planning in Urban and Rural Energy Transitions in Chile	small	FDFA	Switzerland, Chile
Towards Climate Resilient Development: The Potential of Cash Crop Trees	small	Helvetas Swiss Inter-cooperation, CDE	Nepal
The Importance of Sufficient Lifestyles for a Good Life	small	Mercator Foundation	Switzerland
Large-Scale Land Acquisitions: Effects on Households in Rural Communities Concerning Gender Relations, Decision-Making, and Food Security	small	SNIS, CDE	Peru
UNESCO Chair on Cultural and Natural Heritage and Sustainable Mountain Development[6]	small	World Nature Forum	Switzerland
Global Change Impacts			
AFGROLAND – African Food, Agriculture, Land and Natural Resource Dynamics in the Context of Global Change	large	SNSF, Belmont Forum	Kenya, Madagascar, Mozambique
Knowledge Management for Sustainable Development in Mountain Areas	large	ADA	Global
"Mountain Research and Development" International Scientific Journal	large	CDE, SDC, ICIMOD, ADA, IMS, others	Global
Backstopping Mandate on Environment and Development	small	SDC	Global
Delineation of Global Mountain Biodiversity Assessment and Kapos Mountain Datasets	small	SDC	Switzerland
Land Matrix Geospatial Support	small	SDC	Global
PCSD – Policy Coherence for Sustainable Development	small	SDC	Switzerland
SMD4GC – Sustainable Mountain Development for Global Change	small	SDC	Global
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
Land Matrix Initiative (Phase II)	small	BMZ, European Commission	Global
Integrated Water Resources Management Study	small	Ernst Basler & Partner	Global
Geo-Informatics Mandate in Support of the FDFA Geodata Service Unit	small	FDFA	Global
Transboundary Water and Pasture Management in the South Caucasus Region	small	FDFA	Armenia, Azerbaijan, Georgia

Programmes and mandates by cluster[1]	Budget size in 2016[2]	Main donors in 2016[3]	Countries/regions
Innovations for Sustainable Development			
Woody Invasive Alien Species in East Africa	large	SNSF, SDC (r4d Programme)	Ethiopia, Kenya, Tanzania
ProBE – The Prospects of Pro-Poor Biomass Energy Value Chains in Rural–Urban Contexts in East Africa	medium	SNSF	Kenya, Tanzania
Sufficiency Exhibit "Let's Go DanaLand"	medium	Mercator Foundation	Switzerland
Digital Technology for Participatory Processes in the Palm Oil Industry	small	ETH Grants	Malaysia
Nudging Approaches and Their Effectiveness[8]	small	FOEN	Switzerland
Voluntary Sustainability Standards	small	SECO	Switzerland
Knowledge and Database for Impact Assessments of Kandaji Dam, Niger	small	The World Bank	Niger
Education for Sustainable Development			
Bachelor Minor in Sustainable Development	large	University of Bern	Switzerland
Master Minor in Sustainable Development	large	University of Bern	Switzerland
Certificate of Advanced Studies in Sustainable Development	medium	University of Bern	Switzerland
Integration of Sustainable Development Into Curricula and Other University Areas of Activity	medium	University of Bern	Switzerland
International Graduate School North-South	medium	University of Bern	Switzerland
Developing Multiplying Factor Education for Sustainable Development Support for Faculty Staff	medium	swissuniversities, University of Bern	Switzerland
Education for Sustainable Development	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 Prize for Environmental Research	small	EWB, CSL Behring	Switzerland
Swiss Sustainability Research Platform	small	swissuniversities, University of Bern	Switzerland
Systematizing Integration of "Sustainable Development" in Tertiary Education	small	swissuniversities, University of Bern	Switzerland

[1] This list does not include IGS North-South PhD projects, which are listed separately on pp 52–54

[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 by the Department of Integrative Geography that is of strategic importance to CDE

[6] Project implemented jointly with the Institute of Geography

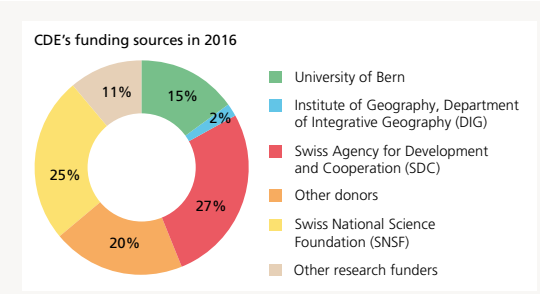
[7] Project implemented by the Institute of Social Anthropology and the Institute of History that is of strategic importance to CDE

[8] Project implemented jointly with the Institute of Sociology

Acronyms and abbreviations: ADA = Austrian Development Agency; AGRUCO = Centre for Agroecology, University of Cochabamba, Bolivia; BMZ = German Federal Ministry for Economic Cooperation and Development; CDE = Centre for Development and Environment, University of Bern; COST Action = European Cooperation in Science and Technology Action Programme; ETH Grants = ETH Zurich Research Grants; 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; IFAD = International Fund for Agricultural Development; IMS = International Mountain Society; KFPE = Swiss Commission for Research Partnerships with Developing Countries; r4d Programme = Swiss Programme for Research on Global Issues for Development; SAJA UNESCO World Heritage = Swiss Alps Jungfrau-Aletsch UNESCO World Heritage Site; 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; SNIS = Swiss Network for International Studies; SNSF = Swiss National Science Foundation; 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).

Zanskar Valley, India. Photo: Christoph Oberlack, CDE

Finances



Shares of funding sources for CDE's activities and services in 2016.

Funding source	Amount (in CHF)
University of Bern	2,274,000
Institute of Geography, Department of Integrative Geography (DIG)	330,000
Swiss Agency for Development and Cooperation (SDC)	4,123,000
Other donors	2,996,000
Swiss National Science Foundation (SNSF)	3,831,900
Other research funders	1,575,100
Total	**15,130,000**

Sources of funding for CDE's activities and services in 2016, including CHF 5 million of funds entrusted to CDE for projects in its partner regions.

Financial account for 2016 (in CHF, rounded)

INCOME		
External funds		
Programme income	4,267,900	
Other income (services)	185,000	
Total external funds	*4,452,900*	
University funds		
Contribution to office rent[1]	100,000	
Contribution to personnel expenditure	2,202,000	
Contribution to operating expenses	561,100	
Total university funds	*2,863,100*	
Total income	**7,316,000**	
EXPENDITURE		
Personnel		
Salaries		5,703,700
Social benefits		1,190,200
Total personnel		*6,893,900*
Other expenditure		
Office rent		120,000
Office operating expenses		300,800
Travel		68,800
Miscellaneous		228,700
Total other expenditure		*718,300*
Strategic investment in GLP[2]		-150,000
Accruals		-146,200
Total expenditure		**7,316,000**

All accounts were audited externally and internally and were approved.

[1] Paid directly by the university administration

[2] Hosting of the Global Land Programme's International Programme Office

Balance sheet as at 31 December 2016 (in CHF, rounded)

ASSETS	
Current assets	
Liquid funds, CDE	90,100
Accounts receivable	1,682,300
Total current assets	*1,772,400*
Prepaid expenses	**217,700**
Total assets	**1,990,100**
LIABILITIES	
Current liabilities	
Accounts payable	73,500
Project funds	316,400
Prepaid income	74,300
Tied reserves[1]	300,000
Total current liabilities	*764,200*
Equity capital	
Capital[2]	699,300
General reserves[3]	526,600
Total equity capital	*1,225,900*
Total liabilities	**1,990,100**

[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

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