



Annual Report 2015

Centre for International Environmental Studies

Contents

1	Summary overview of major accomplishments and developments	2
2	Staffing of the Centre	5
3	Active, ongoing research projects	6
3.1.	Public Economics and the Environment Research Programme	6
3.2.	Resources and Development Research Programme	8
3.3.	Environmental Governance Research Programme	9
3.4.	Innovation, Sustainable Growth and Technological Change Research Programme	13
4	Other active, ongoing projects	15
5	Proposals submitted during 2015	17
6	Publications	19
6.1	Books, Edited Volumes and contributed chapters	20
6.2	Articles published in scientifically refereed journals	20
6.3	Research Papers, Policy Papers and other Publications	21
6.4	Papers presented at conferences by CIES researchers	23
7	Events	27
7.1	The Geneva Dialogues on Global Environmental Problems	27
7.2	Academic Conferences, Symposiums and Workshops	28
7.3	Policy and public events	29
7.4	Seminars in Environmental and Resource Economics	32
7.5	CIES Lunch Seminars	33
7.6	Other events	34
8	Professional Training	35
9	Public impact	35
10	Relationship with International Geneva	36

1 Summary overview of major accomplishments and developments

Established in 2010, the Centre for International Environmental Studies (CIES) is the Graduate Institute's focal point for research on environmental issues. The centre is dedicated to the better understanding of the social, legal, economic and political facets of global problems related to the environment, with an emphasis on the international dimension and the North-South relations. The centre addresses complex problems such as climate change, biodiversity, food security, energy, natural resources and development.

CIES's mission is to conduct high-level academic research to improve the quality of decision-making in public and private spheres. This goal is achieved by creating a platform for researchers to conduct interdisciplinary research on the environment, by providing training to PhD students in specialised areas of research and by disseminating research results through outreach activities targeted to academic experts and policymakers. In 2015, CIES published its first 5-year Evaluation Report 2011-2015, which served to initiate a discussion on how to strengthen our research centre through a combination of self-reflection and external assessment. The report is publicly available on the CIES website.

Overview of research output

In 2015, CIES made progress on its ongoing 16 research projects. Major projects under the *Innovation, Sustainable Growth and Technological change* programme, were the projects on "Innovation, Diffusion and Green Growth" (Sinergia-SNF), "Access to clean energy for the green economy in developing countries" (SNIS), "The costs to adopting technology restrictions in South Africa" (Costassess-SNF), and "Innovation on sectoral energy intensity in Switzerland" (SFOE). All these projects are ongoing and most of them are about to reach their mid-term review. The project on "The role of multinationals firms for the diffusion of clean technologies" (Greenspill, EU-Marie Curie) came to an end in April 2015.

Several key events regarding this research programme are worth being highlighted:

- As part of the Sinergia project, CIES co-organized in September 2015 together with the London School of Economics an international academic conference on "Innovation, Diffusion, Growth and the Environment" bringing together a group of about 100 economic researchers working on the topic. Keynote speakers included Philippe Aghion (Harvard), David Popp (Syracuse University) and Sjak Smulders (Tilburg University). The event also featured a policy panel with Lord Nicholas Stern (LSE). Several papers presented at the conference will be published as part of a special issue in the journal *Environmental and Resource Economics* to appear in 2016.
- The interdisciplinary team of researchers from economics and political sciences involved in the SNIS project on "Access to clean energy for the green economy in developing countries" had several occasions to present its work in 2015: 1)

during a SNIS academic workshop organized in June and 2) during a side-event co-organized with UNEP in December 2015 at the OECD Global Forum for Green Growth and Sustainable Development. This side-event took the form of a special session on green growth in developing countries, attended by more than 100 policymakers and researchers.

The CIES research programme on *Public Economics and the Environment* is moving ahead on the project “A Sustainable Human Niche? Managing Global Land Use” financed by the MAVA Foundation. In addition, a new research project on “Environmental regulation and economic competitiveness” has been awarded by SNF and commenced in July 2015. This project is the result of collaboration between Prof. Tim Swanson and Prof. Richard Baldwin from the Centre for Trade and Economic Integration at the Graduate Institute.

Within the *Environmental Governance Research Programme*, a new project on “Transnational private governance for the environment in China” was awarded by SNF (Doc.CH program) under the supervision of Prof. Liliana Andonova, while the project on “Transcultural Governance of the Environment in Latin America” (TransGELA) from Marc Hufty ended in October 2015.

CIES researchers contributed to 10 books (monographs and book chapters) and published 6 articles in academic journals. Additionally, 8 working papers (among which 6 in the CIES Research Paper series) and 5 PhD theses were authored or co-authored by CIES staff. Over the course of the year, CIES researchers presented their work at 47 conferences in Switzerland and abroad, mainly by Research Assistants (PhD candidates).

The 2015 SNIS International Geneva Committee has selected Prof. Liliana Andonova’s paper “Boomerangs to Partnerships? Explaining State Participation in Transnational Partnerships for Sustainability” among the three winning papers, out of a total of 18 high-level articles submitted for the award.

Interdisciplinary work

CIES aims to provide an interdisciplinary perspective on global environmental problems. The SNIS-interdisciplinary project involving research assistants in both economics and political sciences is an example of such a fruitful dialogue across disciplines. PhD students from different disciplines are interacting in this project in particular with respect to data collection and exchange of ideas. Thanks to the side-event co-organized with UNEP at the OECD, the PhD students could see the relevance and complementarity of their work for policymakers.

In 2015, CIES welcomed three new Associated Faculty members: Anne Saab (International Law), Shaila Seshia Gavin (ANSO) and James Hollway (IR/Political Science). Their expertise will help to broaden the research interests of CIES and to

enrich the mix of disciplines involved in CIES research. These 3 new faculty have all contributed to CIES interdisciplinary lunch seminars in the Fall 2015.

CIES organized in November 2015 a policy briefing event targeted at policymakers and students on “Thinking ahead of COP21: the legal and policy perspective” featuring Prof. Liliana Andonova and Prof. Anne Saab. This event provided a dialogue between academic researchers from two diverse academic disciplines (International Law and Political Science) on what to expect from the Paris negotiations on climate change.

Placement of PhD students

In 2015, 5 PhD theses of our team of Research Assistants have been published. Our efforts in training the next generation of students for their future careers have been successful as some of our first PhD students have graduated in 2015 and found their way to the job market. Dr. Chiara Ravetti who just graduated this year has been offered a postdoctoral position at the University of Oxford in the Oxford Centre for the Analysis of Resource Rich Economies (OxCarre). Dr. Ankai Xu now holds a position at the World Trade Organisation in Geneva. Dr. Jules Wurlod has started working at Nera Consulting in Paris. Dr. Hameedullah Jamali is now a research analyst and a consultant for UNEP.

In addition, Kathryn Cheminsky PhD candidate in IR/Political Science, has received a competitive Doctoral Research Fellowship to join the Sustainability Science Program at Harvard Kennedy School in the 2015–2016 academic year. Manoela Assayag continued her Doctoral Research Fellowship at the Sustainability Science Programme at Harvard Kennedy School awarded during the 2014-2015 academic year.

Policy and public impact

In 2015, the collaboration with the Green Growth Knowledge Platform (GGKP), initiated a few years ago, resulted in concrete collaborations on joint-events. The events will take place once per semester and will aim to promote a dialogue between academic researchers and policymakers. In 2015, CIES and GGKP organized together the Geneva Dialogue Lecture with Laura Diaz Anadon (Harvard University).

As several research projects have started to generate policy recommendations, CIES has been increasingly active in publishing policy-oriented articles and blog posts: 9 policy-oriented publications have been published in 2015.

Finally, the year 2015 was marked on the international scene by the successful agreement on climate change negotiations signed at the COP21 in Paris. Along the year, CIES researchers made a series of contributions (see Section 9) which resulted in scientific work, public events and media appearances targeted at a wide range of actors, from experts, to students, policymakers and the broader public.

2 Staffing of the Centre

The centre is headed by an interdisciplinary team of Directors comprised of Professor Tim Swanson (Economics) and Professor Liliana Andonova (IR / Political Science). Other faculty members also collaborate with CIES on a project-by-project basis. Professor Marc Hufty works on environmental governance and on resources and development programmes. Professor Jorge Vinuales is the Harold Samuel Professor of Law and Environmental Policy at the University of Cambridge and the Director of the Cambridge Centre for Environment, Energy and Natural Resource Governance (C-EENRG) and stills collaborates with CIES. Dr Bruno Lanz leads our programme on public economics and the environment.

As of September 1st, three new Assistant Professors working on environmental topics have joined the institute and the CIES:

- Anne Saab (International Law),
- James Hollway (IR/Political Science)
- Shaila Seshia Galvin (Anthropology and Sociology of Development).

Anne Saab holds a PhD in International Law from the London School of Economics (LSE), and an LL.M. in Public International Law from King's College London. Her areas of expertise include public international law, climate change and agriculture.

James Hollway holds a DPhil from the University of Oxford and was postdoctoral research fellow at ETH Zürich and USI Lugano. His research focuses on the governance of complex fields of social activity, such as the environment or trade.

Shaila Seshia Galvin holds a PhD in Anthropology and Forestry and Environmental Studies from Yale University, and was a Postdoctoral Fellow at the Center for Environmental Studies, and Department of Anthropology and Sociology at Williams College, USA, from 2013 to 2015. Her research concentrates on agrarian change in particular.

We are happy to welcome them as Associated Faculty within CIES and we look forward to benefit from their field of expertise.

The administration of the Centre was reorganised in 2015. Day-to-day management of the Centre is now undertaken by a team of two main staff members, Joëlle Noailly (Head of Research and Lecturer in Economics) and Nathalie Fauvarque (administrative coordinator). In 2015, a project assistant, Lys Kulamadayil, PhD candidate in International Law, also provided some valuable administrative help. As of April 2015, the previous position of Executive Director (held by Derek Eaton over 2011-2015) has been replaced by the function of Head of Research, whose role combines both the overseeing of administrative tasks and of coordinating lines of research.

CIES employed 15 research assistants in 2015. Nine of these RAs were working on the maximum authorized half-time basis on research projects.

Five students defended their PhD thesis in 2015. Chiara Ravetti is a research fellow at the Oxford Centre for the Analysis of Resource Rich Economies (OxCarre), in the Department of Economics, University of Oxford. Hameedullah Jamali is now a research analyst and a consultant for UNEP. Ankai Xu now holds a position at the World Trade Organisation in Geneva. Jules Wurlod has started working at Nera Consulting in Paris. Morgan Scoville Simmonds is currently finalizing publications that came out of his PhD thesis.

Yanming Kan, Helena Ting, Ioana Tuta and Yixian Sun started as new Research Assistants within CIES. Two of them have been awarded a Doc.CH grant from the Swiss National Science Foundation. Ioana Tuta will work on the project “Socialising markets: business and human rights”. Yixian Sun will work on the project “Transnational private governance for the environment in China”, both of them being under the supervision of Prof. Liliana Andonova.

CIES had four visiting fellows in 2015:

- Xuan Huang, PhD candidate in economics from Beijing University. Xuan was awarded a research grant by the China Scholarship Council to work with Bruno Lanz on environmental policy in China.
- Lina Díaz Castro, PhD candidate in public health at the National Institute of Public Health, Mexico.
- Lucia Zizzari, Master student in international relations at the University of Roma.
- Emily Meierding, International relations and energy analyst, former Assistant Professor in International Relations / Political Science at the Graduate Institute.

3 Active, ongoing research projects

In 2015, CIES had four research programmes comprised of 16 projects. Funding for these projects came from diverse sources, including European (EC FP7) and Swiss public research funding organizations (SNF and SNIS), and private foundations. For these projects, CIES partnered with a range of national and international academic institutions in Switzerland, elsewhere in Europe, and also other parts of the world, and also enjoyed the support of stakeholder organizations. The Centre’s research serves both the academic and policy communities.

3.1. Public Economics and the Environment Research Programme

Environmental degradation as byproduct of human activities implies that preserving or improving environmental quality can only be achieved by giving up other opportunities. The aim of the research programme in Public Economics and

Environment is to use the tools of economics to inform the design of environmental policy, striking a balance between public and private interests in the provision of environmental quality.

- **A Sustainable Human Niche? Managing Global Land Use**

This project analyses the sustainability of the continued expansion of the human niche due to the continued conversion of lands to food production. Global land use determines several outcomes jointly: aggregate food production; feasible human population; stability of the food production system; and availability of genetic resources. Together these outcomes determine the sustainability of the entire food production system, and consequently the capacity for the human niche to be supported. This project enables the examination of various pathways for land use – and demonstrates the joint outcomes along each pathway that result (food production, population, stability, genetic resources availability). In this way the issue of global land use is assessed within a framework very similar to that applied elsewhere by Stern (2006) in the analysis of climate change and growth pathways. We also simulate how aggregate outcomes vary across different assumptions concerning discounting, hazard rates, and technological change. In this way it is possible to examine the sustainability of various alternative global land use pathways – given the impact of land use on growth, systemic stability and resultant human welfare.

Timothy Swanson, Prof. IHEID

Bruno Lanz, PhD, Research Associate

Ozgun Haznedar, PhD Candidate, Economics and Research Assistant

Lys Kulamadayil, PhD Candidate, International law and Research Assistant

Elise Grieg, Master, Economics and Research Assistant

Pedro Guimaraes Naso, PhD Candidate, Economics and Research Assistant

Funded by the MAVA Foundation, CHF 1 Million

Start: September 2012; End: December 2016

- **Environmental regulation and economic competitiveness**

During the UN conference on climate change held in Durban in 2011, the European Union and some other developed countries, including Switzerland, have pledged to reduce their greenhouse gas emissions between 20% and 30% below the level of 1990. The economic cost linked to emission reductions could penalize countries planning a strong reduction and thus cause a rebalancing of international economic competitiveness. These economic impacts present a major obstacle to achieving a global agreement on climate.

Through this project, we aim to better understand the impact of environmental policies on economic competitiveness, by analyzing the case of two countries of major importance for the future of emissions of greenhouse gases: China and the USA. In the case of China, we plan to study the links between the geographic distribution of pollution, economic growth and exports, as well as environmental policies introduced by regional governments. In the case of the USA, we will focus on

the adoption of new technologies in the policy of tradable emissions quotas limiting SO₂ emissions.

The results of this project will provide new empirical perspectives on the economic implications of environmental policies, and they will allow us to make recommendations for effective public policies both at the environmental and the economic levels.

Timothy Swanson, Prof. IHEID (co-applicant)

Richard Baldwin, Prof. IHEID (co-applicant)

Bruno Lanz, PhD, Research Associate

Funded by the SNF, CHF 395 619

Start: July 2015; End: June 2018

Competitive process

3.2. Resources and Development Research Programme

Developing countries are crucial to the resolution of global problems, especially their choices regarding development. CIES undertakes research considering how environmental regulation and growth combine to define development paths. Environmental degradation and competition over access to environmental resources can endanger human, state, and international security. CIES conducts research on themes of land use, food security and biodiversity in order to contribute to problem solving in developing countries.

- **FoodSecure – An Interdisciplinary Research Project to Explore the Future of Global Food and Nutrition Security**

In 2011 CIES participated in an EU FP7 joint proposal with the International Food Policy Research Institute which considers the role of biodiversity in the issue of Global Food Security, and examines how institutions may be reformed to address matters of food security. The project started in March 2012. One of the biggest challenges facing society today is the widespread prevalence of hunger and food insecurity. Expanding consumption as well as volatility in global food prices over the past years has fuelled concerns about global food and nutrition security (FNS). Given that the development of societal and technological solutions requires time, long-term visions on global food and nutrition security and knowledge-based policies are required. The FoodSecure project aims to design effective and sustainable strategies for assessing and addressing the short- and long-term challenges of food and nutrition security. The project will provide a variety of analytical tools to experiment, analyse, and coordinate short- and medium-term policies. In doing so, the research will inform decision-making by a range of stakeholders in the EU and developing countries on consistent, coherent, long-term strategies to improve global FNS. CIES researchers will work specifically in the following areas: The role of innovation, research and development; institutional change policies in food and nutrition security; institutions that support innovation in the food system; and genetically modified crops as instruments to improve food and nutrition security.

Timothy Swanson, Professor IHEID (co-applicant)
Jeffrey Dickinson, PhD Candidate, Research Assistant
Martina Bozzola, post-doc, Research Assistant
Helena Ting, PhD Candidate, Research Assistant
Funded by the European Commission (FP7), 400,000 CHF
Start: March 2012; End: February 2017
Competitive Process

3.3. Environmental Governance Research Programme

The research programme on Environmental Governance looks at the legal tools that can be used or generated to fulfill the challenge of implementation facing international environmental law. The programme adopts an interdisciplinary perspective on the design, dynamics and impact of different institutional mechanisms. It explores legal foundations of, and models for, international energy governance.

- **The Domestic Politics of Transnational Climate Governance**

Prof. Andonova is working on this project in collaboration with Thomas Hale (Oxford) and Charles Roger (University of British Columbia). A joint paper titled “How do Domestic Politics Condition Participation in Transnational Climate Governance?” has been presented at multiple venues. Both authors are now working on final revisions before submission.

Started May 2013, ongoing
Liliana Andonova, Prof. IHEID
Non-competitive process

- **Socializing markets: business and human rights**

The project “Socializing markets: business and human rights” is investigating the mechanisms through which companies in the extractive sector commit to and implement human rights policies, with a particular focus on the extractive companies with operations in Peru. The adoption of the Guiding Principles on Business and Human Rights by the UN Human Rights Council in 2011 has triggered a learning process whereby a significant number of “enlightened” multinational companies have committed to integrate human rights in their managerial processes and corporate culture. Thus, the thesis attempts to trace how human rights norms travel from the international to the local levels – from the headquarters of companies to their subsidiaries operating in distinct national and local contexts - and across organizational realms – from the legal and political domain to the managerial and corporate environment.

Liliana Andonova, Prof. IHEID
PhD Candidate : Ioana Tuta, PhD Candidate, Research Assistant (main applicant)
Financed by SNF, Doc.CH, CHF 126,146

Start: September 2014 to August 2016

Competitive Process

- **Transnational private governance for the environment in China**

Originating from advanced economies, many private governance programs are gradually introduced to developing countries where global production increasingly consolidates. However, very little research attempts to uncover whether transnational private governance is able to “trade up” environmental standards in these countries. This dissertation seeks to bridge this gap by examining factors which determine variation in China’s uptake of transnational private governance for different environmental issues. Theoretically, China is a critical case because of its political institutions, thus the project also investigates whether the authoritarian regime only leaves very limited space for private governance in China as is often assumed. The project will develop a dataset on the private governance programs having been introduced in China, and test hypotheses on driving forces for Chinese firms’ participation through statistical analyses and paired case studies. By exploring the causes of the success or failure of private environmental governance in China, along with dynamic public-private interactions between private governance and state regulation there, the project will contribute to the scholarship on environmental governance and private authority, on the one hand, and on international relations and Chinese politics, on the other.

Liliana Andonova, Prof. IHEID

PhD Candidate : Yixian Sun, PhD Candidate, Research Assistant (main applicant)

Financed by SNF, Doc.CH, CHF 203 544

Start: September 2015 to August 2018

Competitive Process

- **Governance Entrepreneurs: International Organizations and Public-Private Partnerships**

This is a book-length project that seeks to document and explain the rise of global public-private partnerships in the multilateral system and their impact on global governance objectives. Previous studies emphasize primarily exogenous factors such as globalization and the influence of transnational actors to account for public-private collaboration. Yet, this is only part of the story. The project highlights the critical role of international organizations (IOs) as entrepreneurs rather than just takers of institutional change. The theoretical framework elaborates the Principal-Agent model of IOs to take into account the political relations between IOs, states, and non-state actors and to better specify the incentives, opportunities, and constraints that IOs face in facilitating partnerships. The implications of the model are assessed across multiple governance domains and IOs, characterized with variable organizational structure and partnership activity, e.g. issues of children’s health, sustainable development, trade, and the partnership activities of the United Nations Secretariat. The project contributes to the study of international organizations and change in global governance. It does so by providing an encompassing and theoretically-informed analysis of global public-private

partnerships and the interplay between intergovernmental institutions and transnational governance networks. The database of global partnerships, to be constructed as part of the project, will furthermore provide a basis for additional research and social scientific inquiry on the governance dynamics and effects of public-private collaboration. The project received support by the Swiss National Science Foundation, which will enable its completion and construction of a database of public private partnerships across several international organizations: the World Bank, UNEP, the WHO, UNICEF, the WTO, and the UN Secretariat.

Liliana Andonova, Prof. IHEID (main applicant)

Manoela Assayag, PhD Candidate, International Relations, Research Assistant

Defne Gonenc, PhD Candidate, International Relations, Research Assistant

Funded by SNF, 173,200 CHF

Start: April 2013; End: March 2015

Competitive Process

- **Dynamics of Transcultural Management and Governance in Latin America**

This project aims to put Latin America on the academic map in Switzerland and provide a coherent network to help young researchers establish themselves in the field. Thematically, the project links the concepts of management and governance. In a nutshell, while governance is about the processes that lead to decision-making, management takes decisions to implement policies or strategies effectively. In both cases, cross-cultural approaches are a requisite in the multi-ethnic Latin American contexts.

The evident interest among junior scholars reflects the vibrancy of Latin America in domains such as environmental policies. The region's increasing importance in the global order makes it all the more indispensable to explore and understand it. Our ProDoc initiative aims to complement the academic programmes in St. Gallen, Bern and Geneva, which provide funds for research (4 IHEID students have benefited so far), general methodological guidance and encourage broad, comparative perspectives for graduate students. This training module bundles academic competencies in Switzerland, promotes excellence, and fosters the contacts with experts outside the country.

Marc Hufty, Prof. IHEID

Partners: Yvette Sánchez, Prof. University of St. Gallen (main applicant), Aline. Helg, Prof. UNIGE, and Corinne A Pernet, Prof. University of St. Gallen

Financed by SNF, ProDoc, CHF 451'000

Start: November 2013; End: October 2016

Competitive Process

- **Transcultural Governance of the Environment in Latin America (TransGELA)**

This research addresses the following key questions: What are the links between cultural identities and environmental governance? Have the changes in public participation and citizenship, especially in the case of indigenous groups and rural people, changed the way the environment is being governed? Has it improved

livelihoods and resilience to global change? How can the recent theoretical developments and empirical observation of governance, transculturality, citizenship and environmental changes account for these situations? These questions are being answered by Prof. Marc Hufty's research, aided by case studies in Bolivia, Brazil, and Peru, in different contexts, mainly by comparative qualitative research, and grounded theory. The theoretical framework proposed here is political ecology, a perspective that focuses on the idea that politics, social institutions, history, spaces, and biogeophysical scales count when trying to explain the interactions between individuals, societies and their environment. It is interdisciplinary, interweaving the approaches of geography, political science and history (the applicants' disciplines) with the insights of anthropology, sociology legal studies and economics. Associated with St. Gallen's PhD school on Latin America this project is managed by IHEID and realized in collaboration with the University of Bern and local partners.

Marc Hufty, Prof. IHEID (main applicant)
Partners: St. Gallen University, University of Bern
Start: November 2011; End: October 2015
Financed by SNF, ProDoc, CHF 375'035
Competitive Process

- **Cultural Negotiations: Asymmetries in the TransArea**

The project aspires to shed light on contact situations, which always entail negotiating cultural affiliations of the self and of others. While the process of transculturation allows for preserving a good portion of one's cultural autonomy it does not take place in a power vacuum. Considering Latina America as a TransArea, the theses go beyond the nation-states but not without ignoring the importance of the notion of citizenship.

The associated researchers will concentrate on the phenomena of diaspora, the transnational organization, and cultural exchanges within the plurinational states to flesh out the asymmetries in these settings. The phenomena considered include the interactions of indigenous and rural communities with state as well as non-state actors in environmental conflicts, in interpretations of new legal norms, and in transnational mobilizations, as well as the formation of new communities in urban and diasporic locales.

Marc Hufty, Prof. IHEID (co-applicant), prof. Y. Sánchez, UniSG (main applicant)
Partners: Corinne Pernet, UniSG; Aline Helg, History, UniGE; Stephan Rist, Geography, UniBE.
Start: February 2013 – October 2016
Financed by SNF, ProDoc, CHF 535'548
Competitive Process

3.4. Innovation, Sustainable Growth and Technological Change Research Programme

Addressing climate change will require the large scale deployment of low-carbon technologies in key sectors such as power generation, transport and energy use. A range of these technologies - such as wind and solar energy or hybrid and electric cars – are already available but most still have higher costs than existing fossil-fuel based options. Other technologies have yet to be developed. In 2015, CIES had five research projects under the Innovation, Sustainable Growth and Technological Change programme. The funding for these projects came from the SNF, SNIS, the European Commission and the Swiss Federal Office for Energy. Project partners were the EPFL, ETH Zürich, and the London School of Economics.

- **EU Marie Curie Fellowship Programme - Greenspill: The role of multinational firms in the diffusion of green technologies to developing countries**

This project aims to study the role of multinational firms in the diffusion of green technologies to developing countries. This project has three main objectives: 1) to study the extent and motives of multinational firms to conduct green R&D activities in developing countries 2) to explore the impact of green technology transfers by multinationals on the environmental performance of developing countries 3) to draw policy implications on the role of multinationals. The economic literature has long recognized the role of multinationals for the transfer of technologies to developing countries. Yet, the motivation for this project stems from the fact that the role of multinationals has not been much studied within the context of green technologies transfers, despite the immediate relevance of this topic on the international policy agenda. This research project aims thus to provide novel empirical evidence on the role of multinationals in green technology transfers and to build bridges between well-established methodologies from the field of international trade to the field of environmental economics. The research project will make a number of important contributions for the economic literature and for the design of European climate and innovation policies. First, by considering the number of foreign green patents invented (and not only filed) in developing countries, the research project proposes a novel indicator of technology transfers, thereby improving on the existing literature. The analysis will also examine how much and why multinational firms conduct green R&D outside their home country. Second, the analysis will use the newest methods from international economics to estimate the impact of green technology transfers by multinationals on the energy productivity of the receiving countries. Finally, the project will conclude by drawing policy implications on the role of multinational firms in the international diffusion of green technologies.

Joëlle Noailly, PhD, Lecturer IHEID (main applicant)
Funded by European Commission (FP7), 230,000 EUR
Start: April 2013; End: March 2015
Competitive Process

- **Innovation, Diffusion and Green Growth (Sinergia)**

This project aims to explore theoretical, empirical and policy issues related to innovation, diffusion and green growth. The overarching objective of the project is to build a Swiss Network on the Economics of Green Growth, as a contribution to the Green Growth Knowledge Platform (GGKP). Each research team will focus on one specific topic: 1) economic modeling of growth and diffusion (ETH); 2) analysis of growth and diffusion, with a focus on developed countries and innovation (LSE); 3) analysis of growth and diffusion, with a focus on transfers of technology to developing countries (IHEID); 4) policies for green growth (EPFL). CIES has organized two workshops this year with all project members: a kick-off meeting in January, and a follow-up meeting in September.

Timothy Swanson, Prof. IHEID (main applicant)

Joëlle Noailly, PhD, Lecturer IHEID

Giulia Valacchi, PhD Candidate, International Economics, Research Assistant

Partners: EPFL, ETH and LSE

Funded by SNF Sinergia Programme, CHF 1.5 Million

Start: January 2014; End December 2016

Competitive Process

- **COSTASSESS: The costs to adopting technology restrictions in South Africa**

This project assesses the costs for South Africa of restricting the use of low-cost and abundant coal technologies. In this context, a better understanding of the cost structure of the coal industry will help to clarify how state intervention can enable the diffusion of alternative clean technologies, and thereby move South Africa towards a green economy pathway.

The primary research objective is to determine the cost of restricting a particular technology and resource when the country imposing this restriction has heavily invested in the technology in question and is rich in the particular resource. South Africa represents an interesting and important context within which to pursue this question. South Africa is heavily-endowed with low-cost coal, and it has relied entirely upon this endowment for both its own rapidly growing energy requirements and as a major source of export earnings. While a restriction on the use of coal may be substantially mitigated by means of diffusion of alternative technologies, the availability and scalability of these technologies in the South-African context will need to be assessed. In addition, there are residual costs to a country such as South Africa that is well-endowed with the resource subject to the restricted technology.

In this first year, CIES has had one full-time research assistant working on the project, and a research trip to South Africa has already taken place.

Timothy Swanson, Prof. IHEID (main applicant)

Chiara Ravetti, PhD Candidate, International Economics, Research Assistant

Pedro Guimaraes Naso, PhD Candidate, International Economics, Research assistant

Funded by SNF, Swiss South African Joint Research Programme, CHF 229,320

Start: January 2014; End: December 2016.

Competitive Process

- **Access to Energy for the Green Economy in Developing Countries**

This project aims to provide an in-depth investigation of the barriers to diffusion of low-cost clean energy technologies to developing countries as well as to the governance mechanisms that can help to unlock diffusion and improve clean energy access. Anchored in the Graduate Institute's Centre for International Environmental Studies (CIES) and funded by the Swiss Network for International Studies (SNIS), this project involves interdisciplinary partners across academia, including the University of Bern, ETH Zurich, University of Geneva, Harvard University, as well as UNEP, which represents the prominent international organizational partner. The research project is co-coordinated by Liliana Andonova and Joëlle Noailly, Research Associate. The aim of this research is to both identify the obstacles that hinder the access to clean technologies in developing countries, but also to assess which procedures at the governance level may be applied in order to facilitate their diffusion. At the same time, the research also involves practical aspirations, which are to find best practices in order to reinforce the institutional capacity of developing countries to adopt clean technologies.

Liliana Andonova, Prof. IHEID (co-applicant)

Joëlle Noailly, PhD, Lecturer IHEID (co-applicant)

Suchita Srinivasan, PhD Candidate, International Economics, Research Assistant

Kathryn Chelminski, PhD Candidate, International Relations, Research Assistant

Funded by SNIS, CHF 259,525

Start February 2014; July 2016

Competitive Process

- **The Impact of Innovation on Sectoral Energy Intensity in Switzerland**

This project aims to investigate how green innovation can contribute to improve the energy intensity of various sectors in Switzerland and other OECD countries. The analysis links data on green patent stocks to energy intensity estimates per sector by applying a newly developed concordance table matching patents to their sectors of use. The model estimates a Translog cost function to measure the impact of green innovation next to other factors such as input substitution or structural changes.

Joëlle Noailly, PhD, Lecturer IHEID (main applicant)

Jules Wurlod, PhD Candidate, International Economics, Research Assistant

Funded by the Swiss Federal Office of Energy, CHF 90,600

Start: September 2014; End: May 2016.

Competitive Process

4 Other active, ongoing projects

In 2015, CIES researchers were also involved in additional projects and also benefited from additional grants and awards:

- Liliana Andonova, Professor of International Relations/Political Science and Co-Director of the Center for International Environmental Studies, has received the prestigious Fernand Braudel Senior Fellowship 2015–2016. This high distinction provides a framework for established academics with an international reputation to pursue their research at the European University Institute (EUI) in Florence. The concrete interest of Professor Andonova while at the EUI will be to develop interdisciplinary work on the topic of “Democratising International Law? Non-State Actor Access, Accountability and Implementation of International Rules”. Professor Andonova plans to stay in Florence from January to mid-February and from June to July 2016.
- Kathryn Chelminski, PhD candidate in International Relations/Political Science and CIES Research Assistant, was admitted to the Harvard University Kennedy School of Government’s Sustainability Science Program (SSP) as a Doctoral Research Fellow for 2015-2016. She was also awarded a SNF Doc.Mobility Fellowship for 2016, she will spend six months with the Energy Policy Research Group at the University of Cambridge (SNF, Doc.Mobility, CHF 50,000, Competitive process)
- Manoela Assayag (Research Assistant) has received a competitive Doctoral Research Fellowship to join the Sustainability Science Programme at Harvard Kennedy School during the 2014-2015 academic year.
- Chiara Ravetti, PhD candidate in International Economics, was awarded a SNF Early Postdoc Mobility Fellowship by the SNSF Research Commission to continue her career as a postdoctoral researcher at the University of Oxford.
- Liliana Andonova received a grant funded under the COST Actions of the European Union to organize an academic workshop within the INOGOV (Innovations in Climate Governance) network (COST, 15,000 EUR, competitive process).
- Joëlle Noailly is currently involved in a project on “The impact of the health of firms’ balance sheet on directed technical change in the energy sector” conducted for the European Investment Bank together with Roger Smeets, Assistant Professor in International Business at the Rutgers Business School, USA. The objective of this study is to examine the role of firms’ financing constraints on the direction of technical change in the electricity generation sector. Using data on patents and on firms’ balance sheet health for a set of 2,000 European firms over the 1995-2009 period, the study aims to investigate whether firms specialized in renewable innovation are more likely to face financing frictions than firms specialized in fossil-fuel innovation.

5 Proposals submitted during 2015

Along the year 2015, CIES researchers submitted 7 proposals among which 3 were accepted, 2 are still pending and 2 were rejected.

Local growth, global resources: The political economy of China's environmental regulation and its economic consequences

China's economic growth in the past two decades is associated with an enormous increase in natural resource consumption. On the one hand, the surge in consumption of natural resource has induced large capacity shortages and price increases on global commodity markets, which has affected economies worldwide. On the other hand, extensive use of non-traded commodities such as clean air and absorptive capacity of the atmosphere are associated with environmental problems both locally and globally. Given China's projected economic growth in the coming years, it is perhaps the most important single country with whom to seek cooperation for global environmental matters.

This project studies a major challenge from the perspective of countries seeking cooperation from China, which stems from its peculiar political structure: A single party national government relying on local bureaucrats responsible for regional implementation. For environmental policy, the degree of regulatory enforcement is effectively the responsibility of prefectural-level Municipal Bureau of Environmental Protection (MBEP). While MBEPs are accountable to the federal government agencies (such as the State Environmental Protection Agency, SEPA), they receive funding from local prefectures, which induces a divergence in objectives. Indeed, prefecture officials mainly care about promotion opportunities, local economic growth and growth in local land prices (a key source of revenues for prefectures), which typically run opposite from improvements to environmental quality. In turn, national-level objectives, as determined in global environmental agreements for example, face significant challenges for local implementation and enforcement.

Tim Swanson, Prof IHEID (co-applicant)

Huang Yi, Prof. IHEID (co-applicant)

Bruno Lanz, PhD, Research Associate (main applicant)

Funder: SNF Project

Funding requested: CHF 518,944

Project duration: 36 months.

Competitive Process

Status: Pending

Governing Lithium: Political ecology in the value chain (LITHIUM)

The main goal of LITHIUM is to understand how governance processes at different levels influence the global product chain of lithium, from local production to consumption and recycling. To do that, we follow the commodity chain with a Global Production Network approach, and a set of variables brought by political ecology and the Governance Analytical Framework. Helped by existing data and research, we look at the local conditions of production around the salaries of Argentina, Bolivia and Chile (geo-physical, territorial, social and industrial), at the national situations

(law, politics, economic factors and development strategies) and at the international level (the global market, geostrategic factors, international norms). Two additional cases are considered with the help of research partners, China, both a producer and consumer country, and Switzerland, a sophisticated end-market.

Marc Hufty, Prof. IHEID and Gilles Carbonnier, Prof. IHEID (main applicants)

Funder: SNF Project

Funding requested: CHF 446 025

Project duration: 36 months

Competitive process

Status: Pending

Lithium - Governing Lithium: A Global Production Network Analysis

Marc Hufty, Prof. IHEID (main applicant)

Funder: SNIS

Funding requested: CHF 300,000

Project duration: 24 months

Status: Passed in first round, rejected in second.

Improving Knowledge-Based Biodiversity Conservation in view of efficient Governance and Steady livelihoods: The Case of Tanzania's Forest Reserves

Yves Hausser, HES, (main applicant), Marc Hufty (co-applicant)

Funder: SNF – R4D

Status: Rejected.

Kathryn Chelminski - Doc.Mobility

Over the next year, Kathryn Chelminski, current RA at CIES, will spend six months at Harvard's Kennedy School of Government in the Energy Technology Innovation Policy Group at the Belfer Center and six months with the Energy Policy Research Group at the University of Cambridge. The SNF fellowship provides support for these visiting fellowships as Kathryn completes her PhD dissertation and develops research on the impacts of international development cooperation on renewable energy technology development in Southeast Asia. During her visiting fellowship, she will continue working on the CIES project "Access to Clean Energy for the Green Economy in Developing Countries".

Funder: SNF – Doc.Mobility

Funding requested: CHF 50 000

Project duration: 12 months

Competitive process

Status: Approved

Transnational private governance for the environment in China

Originating from advanced economies, many private governance programs are gradually introduced to developing countries where global production increasingly consolidates. However, very little research attempts to uncover whether transnational private governance is able to “trade up” environmental standards in

these countries. This dissertation seeks to bridge this gap by examining factors which determine variation in China's uptake of transnational private governance for different environmental issues. Theoretically, China is a critical case because of its political institutions, thus the project also investigates whether the authoritarian regime only leaves very limited space for private governance in China as is often assumed. The project will develop a dataset on the private governance programs having been introduced in China, and test hypotheses on driving forces for Chinese firms' participation through statistical analyses and paired case studies. By exploring the causes of the success or failure of private environmental governance in China, along with dynamic public-private interactions between private governance and state regulation there, the project will contribute to the scholarship on environmental governance and private authority, on the one hand, and on international relations and Chinese politics, on the other.

Liliana Andonova, Prof. IHEID
PhD Candidate : Yixian Sun (main applicant)
Financed by SNF, Doc.CH, CHF 203 544
Start: September 2015 to August 2018
Competitive Process
Status: Approved.

Proposal for fully funded workshop on “Climate Policy Innovation and the Access to Clean Energy Technology in Developing Countries”

This workshop aims to provide an in-depth investigation of the barriers to the diffusion of clean energy technologies to developing countries, as well as the governance mechanisms (policies and international cooperation) that can help to unlock diffusion and improve clean energy access. This fully funded workshop will bring together 20-25 scholars under the flag of the COST Action INOGOV (Innovations in Climate Governance) to discuss climate policy innovation and access to clean energy technology in particular in developing countries.

Liliana Andonova, Prof. IHEID (main applicant)
Financed by EU-COST/INOGOV, EUR 15,000
Date: May 2016
Competitive Process
Status: Approved.

6 Publications

CIES researchers contributed to 10 books (monographs and book chapters) and published 6 articles in academic journals. Additionally, 8 working papers (among which 6 in the CIES Research Paper series), 9 policy-oriented publications and 5 PhD theses were authored or co-authored by CIES staff. Over the course of the year, CIES researchers presented their work at 47 conferences in Switzerland and abroad.

6.1 Books, Edited Volumes and contributed chapters

Books and edited volumes:

J. E. Viñuales, *Foreign investment and the environment in international law*, Paperback ed. Cambridge: Cambridge University Press, 2015.

L. Andonova, *Governance Entrepreneurs. International Organizations and Global Partnerships*. Monograph manuscript under contract with Cambridge University Press. 2015.

P.-M. Dupuy and J. E. Viñuales, *International environmental law*. Cambridge, United Kingdom: Cambridge University Press, 2015.

P.-M. Dupuy and J. E. Viñuales, *Introduction au droit international de l'environnement*. 2015.

S. Seshia Galvin, *State of nature: Becoming organic in the Indian Himalaya*, under contract with Yale University Press. 2015.

J. E. Viñuales, Ed., *The Rio Declaration on Environment and Development: a commentary*, First edition. Oxford, United Kingdom: Oxford University Press, 2015.

Book chapters :

M. Hufty “Indigenous and local people,” in: *Essential concepts of global environmental governance*, J.-F. Morin and A. Orsini, Eds., in, London ; New York, NY: Routledge, 2015, pp. 95–98.

L. Andonova, M. Assayag, “Partnerships”, in *Essential concepts of global environmental governance*, J.-F. Morin and A. Orsini, Eds., in, London ; New York, NY: Routledge, 2015, pp. 146–150.

J. E. Viñuales, “L’Etat face à la protection internationale de l’entreprise: Regards sur le droit international des investissements contemporain” in *L’entreprise dans un monde sans frontières: perspectives économiques et juridiques*, vol. Chapter 6, A. Supiot, Ed. Paris: Dalloz, 2015.

J. Hollway and J. Koskinen, “Multilevel embeddedness: The case of the global fisheries governance complex” in *Multilevel Network Analysis for the Social Sciences – Theory, Methods and Applications*, E. Lazega and T. Snijers, Eds. Berlin: Springer, 2015.

6.2 Articles published in scientifically refereed journals

A. Bommier, B. Lanz, and S. Zuber, "Models-as-usual for unusual risks? On the value of catastrophic climate change," *Journal of Environmental Economics and Management*, vol. 74, pp. 1–22, Nov. 2015.

A. Saab, "Climate-Ready Seeds and Patent Rights: A Question of Climate (in) Justice?," *Global Jurist*, vol. 15, no. 2, pp. 219–235, 2015.

B. Lanz and A. Provins, "Using discrete choice experiments to regulate the provision of water services: do status quo choices reflect preferences?," *Journal of Regulatory Economics*, vol. 47, no. 3, pp. 300–324, Mar. 2015.

J. Noailly and D. Ryfisch, "Multinational firms and the internationalization of green R&D: A review of the evidence and policy implications," *Energy Policy*, vol. 83, pp. 218–228, Aug. 2015.

J. Noailly and R. Smeets, "Directing technical change from fossil-fuel to renewable energy innovation: An application using firm-level patent data," *Journal of Environmental Economics and Management*, vol. 72, pp. 15–37, Jul. 2015.

X. Liu, M. Sarr, and T. Swanson, "Resistance to the Regulation of Common Water Resources in Rural Tunisia," *Land Economics*, vol. 91, no. 3, pp. 435–459, 2015.

6.3 Research Papers, Policy Papers and other Publications

The economics related CIES Research Papers are published on the CIES website as well as on RePec, the largest repository of research papers in economics online.

Research papers

Sarr M., Ravetti C, Swanson T., "Why give aid to resource-rich autocrats?," CIES Research Paper no.39, 2015.

X. Huang and B. Lanz, "The value of air quality in Chinese cities: Evidence from labor and property market outcomes," CIES Research Paper no.38, 2015.

Wurlod J.-D., Eaton D., "Chasing after the frontier in agricultural productivity", CIES Research Paper no.37, 2015.

B. Lanz, "Avertive expenditures, endogenous quality perception, and the demand for non-market goods: An instrumental variable approach," CIES Research Paper no.36, 2015.

Lanz B., Provins A., "Using Discrete Choice Experiments to Regulate the Provision of Water Services: Do Status Quo Choices Reflect Preferences?," CIES Research paper no. 35, 2015.

Lanz B., Rausch S., “Emissions trading in the presence of price-regulated polluting firms: how costly are free allowances?”, CIES Research paper no.34, 2015.

B. Lanz, S. Dietz, and T. Swanson, “Global population growth, technology, and Malthusian constraints: A quantitative growth theoretic perspective,” MIT Research Paper no. 283, 2015.

L. Andonova with Charles Roger and Thomas Hale, “How do domestic politics shape participation in transnational climate governance?”, Blavatnik school working paper 001, 2015.

Policy-oriented publications

Y. Jin, M. Quan, C. Ravetti, Z. Shiqiu, and T. Swanson, “China, information and air pollution,” *Vox CEPR’s Policy Portal*, 02–12-2015. [Online]. Available: <http://www.voxeu.org/article/beijing-pollution-and-hazy-data>.

J. Noailly, “Why General Motors is developing new electric vehicles in China,” *GGKP Insights Blog*, 22–04-2015. [Online]. Available: <http://www.greengrowthknowledge.org/blog/why-general-motors-developing-new-electric-vehicles-china>.

J. Noailly, “Small firms, big impact,” *GGKP Insights Blog*, 27–11-2015. [Online]. Available: <http://www.greengrowthknowledge.org/blog/small-firms-big-impact>.

CIES and GGKP, “Q&A with Laura Diaz Anadon on how tech innovation helps achieve sustainable development,” *GGKP Insight Blog*, 02-Nov-2015. [Online]. Available: <http://www.greengrowthknowledge.org/news/qa-laura-diaz-anadon-how-tech-innovation-helps-achieve-sustainable-development>.

J. Allan, Y. Sun, and M. Ashton, “Summary of the Eleventh Meeting of the Rotterdam Convention’s Chemical Review Committee: 26-28 October 2015.,” *International Institute for Sustainable Development*, vol. 15, no. 238.

J. Allan, Y. Sun, and J. Templeton, “Summary of the Eleventh Meeting of the Stockholm Convention’s Persistent Organic Pollutants Review Committee 19-23 October 2015,” *International Institute for Sustainable Development*, vol. 15, no. 237.

D. Hestad, K. Louw, K. Ripley, L. Russo, and Y. Sun, “Fourth Session of the International Conference on Chemicals Management: 28 September - 2 October 2015,” *International Institute for Sustainable Development*, vol. 15, no. 236.

Wurlod, J-D, D. Eaton and T. Swanson (2015) The distribution and diffusion of productivity gains in global agriculture: What is the problem? A policy brief. Policy Brief, Foodsecure Project.

J. Pauwelijn and L. Andonova (2015) A “Legally Binding Treaty” or Not? The Wrong Question for Paris Climate Summit. Article on EJLINK: talk website. Blog of the European Journal of International Law. <http://www.ejiltalk.org/a-legally-binding-treaty-or-not-the-wrong-question-for-paris-climate-summit/>

PhD Thesis

C. Ravetti, *Essays in natural resources, development and trade*, 2015.

H. Jamali, *Framing climate change adaptation: from international discourse to local realities. A case study from Pakistan*, 2015.

M. Scoville-Simonds, *Adaptation-as-development : "socializing" and "depoliticizing" climate change adaptation, from the international to the local level*, 2015

A. Xu, *Three essays on Trade and Environment*, 2015.

J. Wurlod, *Essays in Environmental Economics -- Innovation, diffusion and consumer choices*, 2015.

Other publications:

L. Andonova, K. Chelminski, “United Nations”, Encyclopedia of Global Environmental Governance and Politics, Edited by Philipp H. Pattberg, Professor, VU University Amsterdam, the Netherlands and Fariborz Zelli, Associate Professor, Lund University, Sweden, 2015.

6.4 Papers presented at conferences by CIES researchers

J. Wurlod, “The Impact of Green Innovation on Energy Intensity: An Empirical Analysis for 14 Industrial Sectors in OECD Countries,” presented at the Sinergia Research Meeting 2015, Zurich, Switzerland, January 2015.

G. Valacchi, “Directed Technical Change: the Tragedy of the Locals,” presented at the Synergia Conference, Zurich, Switzerland, January 2015.

S. Srinivasan, “The light at the end of the tunnel: the impact of policy on the global diffusion of fluorescent lamps,” presented at the Third Annual Green Growth Knowledge Platform (GGKP) Conference 2015, Venice, Italy, January 2015.

J. Wurlod, “The Impact of Green Innovation on Energy Intensity: An Empirical Analysis for 14 Industrial Sectors in OECD Countries,” presented at the Young Swiss Economists Meeting (YSEM) 2015, Zurich, Switzerland, February 2015.

L. Andonova, NAZCA Platform Consultation Workshop, co-organised by CIES, Oxford Blavatnik School of Government and Stanley Foundation in parallel to official COP21 negotiations under the UNFCCC, Geneva, February 2015.

C. Ravetti, “A dragon eating its own tail,” presented at the Young Swiss Economists Meeting (YSEM) 2015, Zurich, Switzerland, February 2015.

M. Hufty, “Le langage de la gouvernance climatique”, 6ème congrès international des associations francophones de science politique, CoSPoF 2015, Lausanne, February 2015.

K. Chelminski, “The clean energy regime complex and Indonesia’s geothermal energy regulatory evolution,” presented at the International Studies Association Conference (ISA) 2015, New Orleans, USA, February 2015.

M. Hufty, “Are pilot projects part of the solution or the problem?”, DDR expert forum, Antalya, Turkey, February 2015.

J. Wurlod, “Clean substitutes, consumer choice and regulatory incentives: Evidence from an experiment in the field,” presented at the 143 EAAE / AAEA Joint Seminar: Consumer Behaviour in a Changing World: Food, Culture and Society, Naples, Italy, March 2015.

E. Meierding, “America’s oil wars: facts and fictions”, for Karthika Sasikumar’s “US Foreign Policy” course, San Jose State University, March 2015.

M. Hufty, “La place de la Suisse comme petit Etat dans les négociations internationales sur la biodiversité”, Séminaire de recherche, Groupe « Politique, Environnement et Territoires » (POLET-UNIGE), Charmey, March 2015.

M. Bozzola, M. Smale, and S. D. Falco, “Climatic Shocks and Climate Change: Crop Choice as an Adaptation Strategy among Smallholder Farmers in Kenya,” presented at the Centre for the Study of African Economies (CSAE) Conference 2015, Oxford, United Kingdom, March 2015.

C. Ravetti, “Directed technical change, natural resources and trade: the tragedy of the locals,” presented at the Oxford-UiE workshop, Oslo, Norway, March 2015.

J. Wurlod, “The Impact of Green Innovation on Energy Intensity: An Empirical Analysis for 14 Industrial Sectors in OECD Countries,” presented at the 38th IAEE International Conference 2015, Antalya, Turkey, May 2015.

S. Srinivasan, “The light at the end of the tunnel: the impact of policy on the global diffusion of fluorescent lamps,” presented at the 38th Annual International Association for energy Economics (IAEE) Conference 2015, Antalya, Turkey, May 2015.

G. Valacchi, "Directed Technical Change: the Tragedy of the Locals," presented at the The International Association of Energy Economics (IAEE), Antalya, Turkey, May 2015.

L. Andonova, International Conference "Climate Change, Agriculture and Food Security", Conference sponsored by FEEM, in collaboration with Embassy of France in connection to COP21, May 2015.

M. Hufty, "Biodiversité en Suisse et dans le monde: pourquoi n'arrivons-nous pas à freiner l'érosion?", séminaire interfacultaire en environnement, UNIL, May 2015.

S. Srinivasan, "The light at the end of the tunnel: the impact of policy on the global diffusion of fluorescent lamps," presented at the Swiss Network for International Studies Project Workshop 2015, Geneva, Switzerland, June 2015.

L. Andonova, keynote speech on policy innovation for climate change, presentation of SNIS project on clean energy technology diffusion, Innogov Annual Conference, Prague, June 2015.

S. Srinivasan, "The light at the end of the tunnel: the impact of policy on the global diffusion of fluorescent lamps," presented at the 21st Annual European Association of Environmental and Resource Economists (EAERE) Conference 2015, Helsinki, Finland, June 2015.

X. Huang and B. Lanz, "The value of air quality in Chinese cities: Evidence from wages and housing prices differentials," presented at the EAERE 21st Annual Conference 2015, Helsinki, Finland, June 2015.

J. Wurlod, "The Impact of Green Innovation on Energy Intensity: An Empirical Analysis for 14 Industrial Sectors in OECD Countries," presented at the 21st Annual EAERE Conference 2015, Helsinki, Finland, June 2015.

G. Valacchi, "Directed Technical Change: the Tragedy of the Locals," presented at the The European Association of Environmental and Resource Economists (EAERE), Helsinki, Finland, June 2015.

B. Lanz, "Global population growth, technology, and Malthusian constraints: A quantitative growth theoretic perspective," presented at the 21st Annual Conference of Environmental and Resource Economists, Helsinki, Finland, June 2015.

C. Ravetti, "Invisible handshakes: an experiment with coal mine workers in South Africa," presented at the New approaches to political economy: positive political theories, empirical evidence and experiments in laboratory Summer School, Canazei, Italy, June 2015.

J. Noailly, "Multinational firms, green innovation and environmental policy," presented at the Our Common Future Conference, Paris, France, July 2015.

Y. Sun, "Why Participating in Transnational Private Governance of Climate Change? A Cross-national Analysis," presented at the Chinese Community of Political Science and International Studies (CCPSIS) Annual Conference, Beijing, China, July 2015.

G. Valacchi, "Multinational Firms and the International Diffusion of Technologies," presented at the 17th ZEW Summer Workshop for Young Economists, Mannheim, Germany, July 2015.

B. Lanz, "Economic growth, population dynamics, and global land use: An integrated assessment," presented at the MIT EPPA seminar, Cambridge (MA) USA, July 2015.

B. Lanz, "Global population growth, technology, and Malthusian constraints: A quantitative growth theoretic perspective," presented at the EcoMod2015, International Conference on Economic Modeling, Boston (MA) USA, July 2015.

Y. Sun, "Transnational Public-Private Partnerships as Learning Facilitators: The Case of Global Governance on Mercury," presented at the European Consortium for Political Research (ECPR) General Conference, Montreal, Canada, August 2015.

M. Hufty, "Una ecología política global del litio. Apuntes sobre los modelos de desarrollo en América Latina », Coloquio Gobernanza local, pueblos indígenas e industrias extractivas en América Latina: transformaciones y continuidades, Lima, August 2015.

S. Srinivasan, "The light at the end of the tunnel: the impact of policy on the global diffusion of fluorescent lamps," presented at the Sinergia Conference on the Economics of Innovation, Diffusion, Growth and the Environment, London, UK, September 2015.

J. Noailly, "Environmental policy, multinational firms and green innovation," presented at the Conference on "Economics of Innovation, Diffusion, Growth and the Environment" organized by the Sinergia network, London, UK, 18 September 2015.

G. Valacchi, "Energy, Trade and Innovation: the Tragedy of the Locals," presented at the Economics of Innovation, Diffusion and the Environment (LSE), London, UK, Sep-2015.

S. Srinivasan, "The light at the end of the tunnel: the impact of policy on the global diffusion of fluorescent lamps," presented at the Conference on Taxes, Subsidies and Regulations in Dynamic Models, Brescia, Italy, Oct-2015.

G. Valacchi, "Energy, Trade and Innovation: the Tragedy of the Locals," presented at the Four International Workshop on Natural Resources, Environment and Economic Growth, St. Petersburg, Russia, Oct-2015.

A. Saab, “COP21 and Climate Change,” presented at the Policy Briefing at Center for International Environmental Studies, Geneva, Switzerland, Nov-2015.

A. Saab, “Arab Environment 2015: Sustainable Consumption,” presented at the Annual Conference, Arab Forum for Environment and Development, Beirut, Lebanon, Nov-2015.

A. Saab, “Peasants’ Right to Seeds and Intellectual Property Rights,” presented at the Expert Seminar, Geneva Academy of International Humanitarian Law and Human Rights, Geneva, Switzerland, Nov-2015.

A. Saab, “From Colonialism to Biocolonialism: Locke’s Labour Theory of Property and Seed Patents,” presented at the Law Faculty Seminar at the Graduate Institute, Geneva, Switzerland, Nov-2015.

L. Andonova, “New climate regime, new research agenda”, workshop, Oxford, November 2015.

S. Srinivasan, “The light at the end of the tunnel: the impact of policy on the global diffusion of fluorescent lamps,” presented at the OECD Green Growth and Sustainable Development Forum, Paris, France, Dec-2015.

M. Hufty, “Latin American perspectives on climate change issues. Workshop Climate change: impacts on Latin America and the role of Latin American Actors in International Negotiations”, University of Bern, December 2015.

7 Events

7.1 *The Geneva Dialogues on Global Environmental Problems*

The Geneva Dialogues lectures are a series of keynote speeches by leading academics bridging research and policy on a given theme. Attendees are made up in equal number from the Institute’s faculty and student body and from international organizations, including international NGOs. The purpose of inviting these lecturers, in addition to presenting an interesting subject with insight from their specialty, has been also to forge connections with CIES members in their field of expertise.

- Prof. J. Knox, UN independent expert on Human rights and the Environment, “The Human Right to a Healthy Environment: Has Its Time Finally Come?”, 10.03.2015. (about 120 attendees). Co-organized in partnership with the students’ Environmental Committee.
- Prof. C. Gollier, Toulouse School of Economics, “Is the Public Sector Short-Termist towards Sustainability issues?”, 13.05.2015. (about 30 attendees)

- Prof. L. D. Anadon, “Energy technology innovation and the role of domestic and international actors”, 24.11.2015. (about 60 attendees). Co-organized in partnership with the Green Growth Knowledge Platform. Outcomes: publication of a blog post on the GGKP Blog Insight website and production of two videos (Interview with Laura Diaz Anadon and Recording of event) published on CIES website.

7.2 Academic Conferences, Symposiums and Workshops

Academic conferences and Workshops organized by CIES

- “NAZCA Workshop” In February 2015, CIES co-organized a workshop on Non State Actor Zone for Climate Action bringing together participants from climate initiatives, data platforms, supportive governments, the UNFCCC Secretariat, and observers and advocates of “bottom up” climate action. The workshop produced a concrete set of refined recommendations to guide the development of the NAZCA platform to Paris and beyond.
Prof. Liliana Andonova (main organizer)
- “SNIS workshop”, 2 June 2015, Graduate Institute, Geneva. Organization of an academic workshop bringing together the team of researchers involved in the SNIS project on “Access to Clean Energy for the Green Economy” to report on work progress.
Prof. Liliana Andonova (main organizer)
Attendees: 15 participants.
Outcome: funding proposal to organize a COST/INOGOV workshop in May 2016, agreement on publication of a special issue in an interdisciplinary journal.
- “Conference on the Economics of Innovation, Diffusion, Growth and the Environment”, 15-18 September 2015, Royal Society, London. This conference was organized by the Scientific Partners of the Sinergia Network. In the surroundings of the Royal Society of the Arts, London, UK, the conference on Economics of Innovation, Diffusion, Growth and the Environment covered a wide range of topics in the area of the economics of growth, development and technological change, including but not limited to: innovation in clean technologies (including fiscal and regulatory incentives for clean technology development), technology diffusion (including the role of intellectual property rights), growth and environmental policy, technology agreements and global environmental policy. The conference was of interest to both researchers and policy makers working on issues related to the areas of the economics of innovation, growth and the environment. Keynote

Speakers: Prof. Philippe Aghion, Harvard University, Prof. David Popp, Syracuse University and Prof. Sjak Smulders, Tilburg University. About 100 researchers in economics joined the conference. The conference also included a policy Session, featuring Nicholas Stern and other policy experts, to debate on “Climate Technology and the Road to Paris”.

Prof. Tim Swanson and Dr. Joelle Noailly (co-organizers with LSE)

Attendees: 100 participants

Outcome: organization of the publication a special issue in the journal *Environmental and Resource Economics* to appear in 2016.

Academic conferences co-sponsored by CIES

- BIO-ECON conference on Experimental and Behavioural Economics and the Conservation of Biodiversity and Ecosystem Services, University of Cambridge, 15-18 September 2015.

The conference is of interest to both researchers and policy makers working on issues in the area of biodiversity, ecosystem services, and sustainable development, in both developed and developing countries. In particular, we wish to explore the role of experimental evidence and behavioural economics in informing economic instruments and conservation policy, both in developed and developing countries. About 80 academic researchers attended the 2015 BIO-ECON conference co-sponsored by CIES.

7.3 Policy and public events

Policy and public events organized by CIES

- Panel Discussion on “Geneva Energy Conversations: Fossil Fuels in Sustainable Energy Systems,” Graduate Institute, 17.11.2015, Graduate Institute Geneva. This panel discussion organized by the CIES, in collaboration with UNECE and the Executive Education department at the Graduate Institute addressed questions such as: Are fossil fuels really needed in the future energy system? Can fossil fuels be “sustainable”? Why is progress so slow (if any)? Adrian Dellecker, Head, Policy and Research, WWF Barry K. Worthington, Executive Director, United States Energy Association (U.S. Member Committee of the World Energy Council) Maria Mendiluce, Director Climate and Energy, WBCSD Mats Fredriksson, Director, International Gas Union Joëlle Noailly, Head of Research, Centre for International Environmental Studies, Graduate Institute.

Dr. Joelle Noailly (co-organizer with UNECE and Executive Education)

Attendees: 5 panelists, 170 participants

Outcome: production of a video recording the event.

- L. Andonova and A. Saab, “Climate change and COP21 - A look ahead”, 24.11.2015. Policy Briefing. (about 100 attendees)

From November 30, 2015 to December 11, 2015 the state parties to the United Nations Framework Convention on Climate Change met in Paris to negotiate a new climate agreement. While there is no doubt that the common goal is to keep global warming below 2°C, it is not yet clear how it will be achieved. This policy briefing introduced the COP 21 by discussing: What are the crucial and decisive issues? What possible designs could a new climate agreement take and what role will non-stake actors play?

- OECD Side-Event on “Technology Innovation for a Green Economy in Developing Countries”, OECD, Paris, 15 December 2015. This side event “Technology Innovation for a Green Economy in Developing Countries” was organized jointly by the United Nations Environment Programme (UNEP) and the Centre for International Environmental Studies (CIES) of the Graduate Institute of International and Development Studies in Geneva, Switzerland. The event presented innovation policy for a green economy in several developing countries. In particular, it provided country case studies to examine the issue of accessing clean energy technology and how to contribute to the evolution of eco-innovation for small and medium-sized enterprises (SMEs) in developing countries.

Prof. Liliana Andonova and Dr. Joelle Noailly (co-organizers with UNEP)

Attendees: 8 panelists, 100 participants (policymakers, researchers and private sector)

Outcome: News Item on UNEP website, agreement on the production of joint research papers with UNEP.

Policy and public events co-sponsored by CIES and with the participation of CIES researchers

- “Geneva as a Global Environmental Hub,” Geneva, Switzerland, Feb-2015.

Global environmental governance remains highly decentralised, with major organisational hubs in different cities and regions of the world. Within the global map of environmental governance, Geneva stands out as a key location, with

numerous international organisations and multinational corporations as well as its role in the governance of related - yet crucial - areas such as trade, investment, intellectual property and health. Indeed, global environmental governance cannot be understood without adopting a 360-degree view of the numerous interconnections it raises. Introductory Lecture by Professor Jorge Viñuales (University of Cambridge and Visiting Professor, Graduate Institute, Geneva). followed by a panel discussion with: Jan Dusík (Director of the UNEP Regional Office Europe), Sofie H. Flensburg (Manager, Strategic Partnerships, ICTSD), Scott Foster (Director of the Sustainable Energy Division, UNECE) and Bertrand Gacon (President, Sustainable Finance Geneva).

- “Climate Change – IPCC Fifth Assessment Report”, 02.06.2015

The Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report provides a clear view of the current state of scientific knowledge relevant to climate change. Written by over 800 scientists from 80 countries, and assessing over 30,000 scientific papers, the Report tells policymakers what the scientific community knows about the scientific basis of climate change, its impacts and future risks, and options for adaptation and mitigation. Welcome and introduction : Liliana Andonova, Professor, Graduate Institute, and Jan Dusik, Director and Regional representative, UNEP. Panel: Hoesung Lee (IPCC Vice-Chair), Jean-Pascal Van Ypersele (IPCC Vice-Chair), Youba Sokona (IPCC Working Group III Co-Chair), Gian-Kasper Plattner (Head of IPCC Working Group I Technical Support Unit). Moderator : Carlos Martin-Novella, IPCC Secretariat.

- “A Swiss Perspective on the New Climate Economy Report”, 28.08.2015

The UN climate conference in Paris in December 2015 must reach a new, globally binding climate agreement. One of the most burning questions in the run-up to this conference is whether it is possible to combine economic growth and climate protection. A new report by the Global Commission on the Economy and Climate of The New Climate Economy was published on July 7, 2015. One of its central conclusions is that there is no dilemma between economic growth and climate action. To introduce the report Paul Polman, CEO of Unilever, Chairman of the World Business Council for Sustainable Development, and Member of the Global Commission will deliver a keynote speech. This will be followed by a discussion panel including Simona Scarpaleggia, CEO of IKEA Switzerland, Prof Liliana Andonova, Matthias Bölke, CEO Schneider Electric Switzerland and Ipec Gencsu, Project Manager New Climate Economy Report 2015 contributing their perspective on the subject.

- Agenda 2030 pour le développement durable: les perspectives de l’OMM, 17.12.2015.

Following the COP21 in Paris, Michel Jarraud, General Secretary of the World Meteorology Organisation presented the challenges to be faced by the Agenda 2030

regarding climate issues. This event was co-organised with the Club Diplomatique de Genève. Prof. Liliana Andonova introduced the discussion.

7.4 Seminars in Environmental and Resource Economics

The seminar series in Environmental and Resource Economics aim is to bring top scholars in Europe to CIES to give guest lectures on their recent research or research in progress. There were 10 lectures this year with approximately 15 attendees per lecture.

C. Withagen, Prof. of Environmental Economics, VU University Amsterdam, “International Capital Markets, Oil Producers and the Green Paradox”, CIES Econ seminar, 26.02.2015.

C. Hepburn, Prof. of Environmental Economics, University of Oxford, “The Economics of the Low-Carbon Transition: More fun than you might expect”, CIES Econ seminar, 05.03.2015.

T. Goeschl, Prof. of Environmental Economics, University of Heidelberg, “Learning by Negligence: Environmental Torts, Experimentation and the Value of Information”, CIES Econ seminar, 12.03.2015.

P. Seabright, Prof. of Economics, Toulouse School of Economics, “Religious belief as a costly signal of trustworthiness: theory and evidence from Haiti”, CIES Econ seminar, 19.03.2015.

S. Smulders, Prof. of Economics, Tilburg University, “Dynamic Resource Management under Weak Property Rights: A Tale of Thieves and Trespassers”, CIES Econ seminar, 26.03.2015.

S. Taylor, Prof. of Economics, University of Calgary, “Food, Fuel and the Spatial Economy”, CIES Econ seminar, 22.04.2015.

D. Rohner, University of Lausanne, “This mine is mine! How minerals fuel conflicts in Africa”, CIES Econ seminar, 01.10.2015.

K. Michaelowa, Professor at the Institute for Political Science, Zürich University, “Transnational Climate initiatives: Is there an alternative way to climate change mitigation?”, CIES Econ seminar, 08.10.2015.

H. Andersson, Associate Professor at Université Toulouse 1 Capitole and a member of LERNA at Toulouse School of Economics, “Willingness to pay to reduce health risks related to air quality: Evidence from a choice experiment survey in Beijing”, CIES Econ seminar, 15.10.2015.

B. Groom, Associate Professor of Environment and Development Economics, London School of Economics, “Discounting Disentangled: A survey of experts on the long run social discount rate”, CIES Econ seminar, 22.10.2015.

7.5 CIES Lunch Seminars

The CIES lunch seminars series is a means for CIES researchers and external researchers to present and share research in progress. The series has also served as a way for CIES to promote itself within the Graduate Institute community. In 2015, 16 seminars were held, which were attended on average by 10-20 students and faculty.

R. Stefanski, Chief of the Agricultural Meteorology Division, World Meteorological Organization, “Weather, Climate and Agriculture: The importance of weather and climate information for farmers and policy makers”, presented at the CIES Lunch Seminar, 24.03.2015.

M. Sarr, Senior Lecturer in the School of Economics at the University of Cape Town, member of the Environmental-Economics Policy Research Unit (EPRU), “Dictators Walking the Mogadishu Line: How Men Become Monsters and Monsters Become Men”, presented at the CIES Lunch Seminar, 26.03.2015.

D. Silva, PhD Candidate in Anthropology and Sociology, “Biosafety: Reconciling Economic, Environmental, and Technological Anxieties”, presented at the CIES Lunch Seminar, 15.04.2015.

T. Moerenhout, PhD Candidate in Political Science, “Energy Pricing Reform and the Green Economy in the Gulf Region”, presented at the CIES Lunch Seminar, 22.04.2015.

C. Ravetti, PhD Candidate in International Economics, “The Invisible Handshake in the Coal Labour Market: Cooperation or Competition?”, presented at the CIES Lunch Seminar, 29.04.2015.

F. Cottier, PhD Candidate in Political Science and International Relations, “Environmental Migration, Political Marginalization and Violence”, presented at the CIES Lunch Seminar, 13.05.2015.

B. Lode, Project Leader ‘Environmental Law and Institutions for Air, Climate, and Sustainability’ at Institute for Advanced Sustainability Studies e.V., “The Legal Design of the 2015 Climate Agreement – Linking Domestic and International Law”, presented at the CIES Lunch Seminar, 21.05.2015.

X. Huang, Junior visiting fellow, “The value of air quality in Chinese cities: Evidence from wages and rents differentials”, presented at the CIES Lunch Seminar, 27.05.2015.

O. Kovarzina, PhD Candidate in Political Science, “Non-State Actors and Compliance with EU Law: the Case of the EIA Directive”, presented at the CIES Lunch Seminar, 24.09.2015.

M. Elsig, Associate Professor of International Relations, “Who is really serious about the green economy? An empirical assessment of green goods liberalization”, presented at the CIES Lunch Seminar, 05.11.2015.

A. Marhold, Junior Visiting Fellow at the Centre for Trade and Economic Integration, PhD Candidate in Law “Restrictive practices in Energy Trade and Consistency with WTO Law: the Case of the OPEC Cartel”, presented at the CIES Lunch Seminar, 12.11.2015.

A. Saab, Assistant Professor in the Law Department, “A legal inquiry into hunger and climate change,” presented at the CIES Lunch Seminar, 19.11.2015.

L. Andonova, Prof. in International Relations and Political Science, “National Policy and Transnational Climate Governance. What Lessons for the UNFCCC COP21 in Paris?”, presented at the CIES Lunch Seminar, 26.11.2015.

G. Movsisyan, PhD Candidate in International Law “The legal interpretation in the era of interdisciplinarity” presented at the CIES Lunch Seminar, 03.12.2015.

S. Seshia Galvin, Assistant Professor in Anthropology and Sociology of Development, “Becoming Organic in the Indian Himalaya”, presented at the CIES Lunch Seminar, 10.12.2015.

J. Hollway, Assistant professor in International Relations and Political Science, “Modelling International Fisheries Institutions”, presented at the CIES Lunch Seminar, 17.12.2015.

7.6 Other events

GREEN DAY – On November 24, CIES co-organized together with the Graduate Institute Students’ Environmental Committee a Green Day. The day started with a vegan breakfast offered to all students of the Graduate Institute and was followed by a series of policy (policy briefing on “Climate change and COP21”) and academic events (Geneva Dialogue with Laura Diaz Anadon). The day was the occasion for CIES to promote its work and research activities to a broader community of students within the Institute.

8 Professional Training

Prof. Jorge Vinuales is a member of the Steering Committee of Executive Education at the Graduate Institute, which provides the Executive Certificate in Environmental Governance. In 2015, CIES members contributed about 30h of teaching at Executive Education distributed as follows: Derek Eaton (6h), Jorge Vinuales (11h), March Hufty (2h) and Anne Saab (10h).

9 Public impact

In December 2015, The United Nations Climate Change Conference (COP21) was held in Paris, France. Over the year 2015, CIES organised and participated in a number of events and contributions to prepare this series of upcoming climate change negotiations:

- In February 2015, 30 experts met together in Geneva for a workshop co-organized by CIES, Oxford University and the Stanley Foundation on the UNFCCC Nazca platform in parallel to the UNFCCC negotiations in Geneva. The workshop brought together participants from climate initiatives, data platforms, supportive governments, the UNFCCC Secretariat and observers and advocates of “bottom up” climate actions.
- CIES organized a brown-bag seminar on the “Legal design of the 2015 climate agreement” held by Dr. Birgit Lode in May 2015.
- Professor Andonova opened the event presenting the IPCC 5th Assessment report the public at the Graduate Institute on June 2, 2015.
- Joelle Noailly presented some of her recent research at the scientific conference “Our Common Future”, held in Paris in July 2015. The conference is the largest forum for the scientific community to come together ahead of the COP 21 negotiations.
- In September 2015, CIES co-organised a Policy Session, featuring Nicholas Stern and other policy experts, to debate on “Climate Technology and the Road to Paris” during the conference on “The economics of growth, innovation, diffusion and the environment” held in London.
- Professor Laura Diaz Anadon, Kennedy School of Government, Harvard University, gave a public lecture on “Energy technology innovations” in the run-up to the COP 21 in November 2015 as part of the Geneva Dialogue Series.
- Professors Liliana Andonova and Anne Saab held a panel discussion on “Climate Change and the COP 21 – A look ahead” in November 2015, during a Policy Briefing at the Maison de la Paix.
- Professor Andonova contributed together with Prof. Joost Pauwelijn to an article on “A Legally Binding Treaty? The Wrong Question for Paris Climate Summit” published on the blog of the European Journal of International Law.

- Prof. Marc Hufty did a media appearance on *RTS* on November 26 entitled “Grand débat sur les enjeux climatiques de la COP 21”.
- Dr. Joëlle Noailly contributed to a press article published in *Le Temps* on December 14, 2015 (“Un accord, et maintenant?”) summarizing the achievements of Paris and the way ahead.

Besides the COP21, CIES continued to contribute to policy circles by its close collaboration with the Green Growth Knowledge Platform and with UNEP. Joelle Noailly is a member of the GGKP’s Research Committee on Innovation. Many researchers from CIES contributed to the GGKP 2015 Conference held in Venice in January 2015 and to the side-event organized together with UNEP at the OECD.

CIES was in addition mentioned in the press at several additional occasions: Marc Hufty’s expertise on “Mitigation and adaptation, two sides of the same coin” (16.04.2015) was cited in *Multilateral Accent* and his work on “La déforestation évitée” also appeared in *EHESS*. Jorge Vinuales’s work in water was cited in *La Tribune de Genève* on 21.04.2015 (article “Nestlé Waters est accusé d’assécher la Californie”).

10 Relationship with International Geneva

Aside from the GGKP, which is an important part of the way CIES interacts with international Geneva, CIES has collaborated with organizations in International Geneva to promote dialogue and exchange. In 2015, CIES worked together with UNEP and UNECE to co-organize public and policy events. The list of events organized for the community of International Geneva can be found in Section 7 (Public and Policy events).

In addition, CIES actively supports the placement of students as interns in UNEP’s Green Economy Initiative team at the International Environment House as well as at the World International Property Rights organization.