

STOCKHOLM ENVIRONMENT INSTITUTE U.S.

ANNUAL REPORT
2015

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1 Introduction

The Stockholm Environment Institute is an international not-for-profit research organization that has been engaged in environment and development issues at local, national, regional and global policy levels for more than 20 years. Our goal is to bring about change for sustainable development by bridging science and policy. We do this by conducting integrated analysis that supports decision-makers.

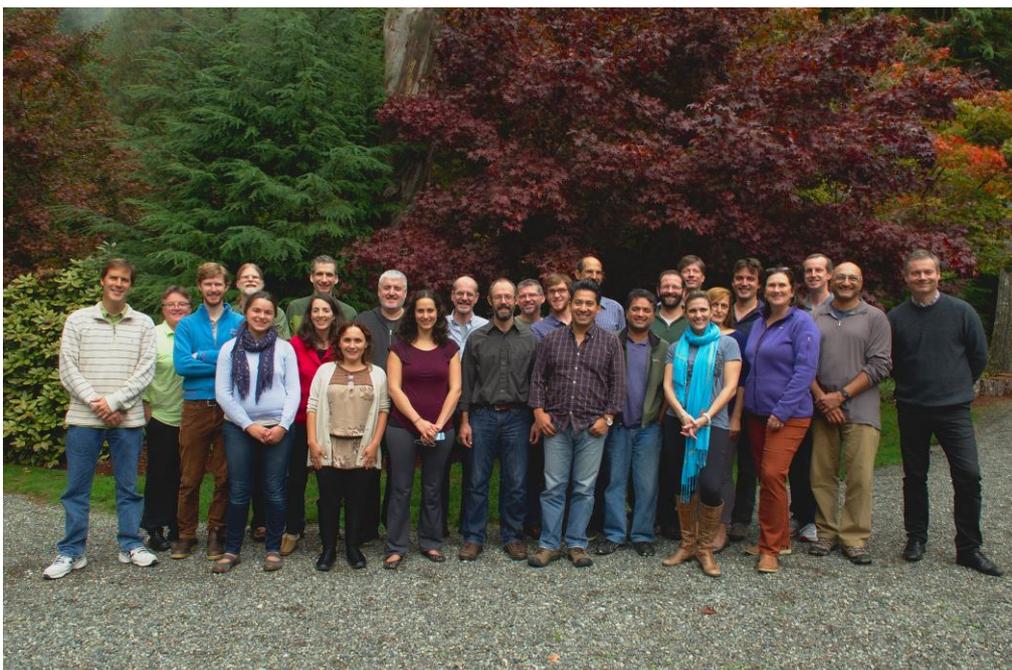
SEI's work is interdisciplinary in nature, drawing upon engineering, economics, ecology, ethics, operations research, international relations and software design. We work all around the world building capacity for integrated sustainability planning through training and collaboration on projects.

SEI is headquartered in Stockholm, Sweden, and has six additional centers around the world. SEI's U.S. Center (SEI-US), an independent 501c-(3) nonprofit corporation, is a research affiliate of Tufts University in Massachusetts and also has offices in Davis, California, and Seattle, Washington.

2 2015 Overview

2015 was a productive and eventful year for the US Center. Among other developments, we had a smooth Center leadership transition; acquired new skills, connections, and insights from an engaging 2-day all staff retreat; conducted separate retreats by the Water Group and Energy and Climate programs; and added new staff and created a new program in Sustainable Bioenergy and Development. Our existing programs in Water, Energy Modelling, Climate Policy, and Climate Equity continued to deepen engagement and influence in policy circles, to build and develop capacity for sustainable energy and water planning across the globe, and to publish high profile, widely read, and influential research. Section 2 describes the numerous highlights of this work in 2015.

Figure 1. SEI US All Staff Retreat, November, 2015



In September, the Management Committee formally approved the U.S. Center's Equity, Diversity and Inclusion Policy Statement, developed over the course of a year by a staff committee led by Laura Forni. Accompanying that Policy Statement is an Action Plan intended to guide the Center in reflecting in its activities the diversity commitments incorporated within the Policy Statement. At present this Action Plan focuses specifically on (1) recruitment of staff, (2) internal interactions, and (3) external communications with clients, stakeholders, and the broader world.

2.1 Organization

SEI-US is established as Massachusetts not-for-profit, 501(c)(3) tax exempt corporation formed under Chapter 180 of the Massachusetts General Laws. SEI-US is an independent research affiliate of Tufts University in Massachusetts and also has offices in Davis, California, and Seattle, Washington.

To varying extents, each SEI-US office has a research topic focus. The Davis office consists entirely of staff involved in water resources planning and management. The Seattle office focuses on climate change (mitigation) policy, from carbon markets, to the role of cities, to research on fossil fuel supply and lock-in. The Somerville office is home to the energy modeling/LEAP group, our climate equity work, and some water group staff, as well as communications and administrative staff. Despite these differences, we work well together as teams across offices. We are heavy users of Skype and GoToMeeting, and have invested in high-quality teleconferencing equipment. We also occasionally travel to and work from other offices. In many projects, we work seamlessly across the American continent and up and down the West Coast. The SEI initiatives are good examples of such activities, as they span the energy-water resource continuum (nexus) and connect energy modeling and capacity-building with climate policy research (fossil fuels).

Until this past year, the CD, DD, and FD were co-located in the Somerville office. With this year's leadership transition, the CD now operates from the Seattle office. Experience this year suggests this distance has not been a constraint. In fact, it has provided the impetus for the creation of the admin or "A team", and forced greater discipline in identifying and tracking progress on various tasks.

Another feature of SEI-US life is the monthly all-staff meeting, held the first Monday of each month (lunchtime on the West Coast, 3pm in Boston). It provides an opportunity to update all staff on Center and SEI wide developments, and a venue for building team spirit and camaraderie. This year we transitioned to a slightly different format for the all-staff meeting, with dedicated topics. All-staff meetings this year covered, among other topics:

- Planning and preparation for the SEI-US staff retreat
- Water group retreat planning and outcomes
- The arc of SEI-US and its organizational structure
- Hiring processes
- SEI Digital Redesign
- Gender and Diversity policy

- Communications services
- Participation robust decision support
- Updates from the ED

2015 saw the departure of two staff and the arrival of two new staff, to maintain our staffing at 24 people. Derik Broekhoff joined the Climate Policy (Seattle) group as a Senior Scientist, working on carbon pricing and markets. Rob Bailis also joined as a Senior Scientist, creating a new program on Sustainable Bioenergy and Development. The two departing science-level staff will be replaced in early 2016.

The Water Group remains the largest research area in SEI-US with 13 people, and operates as a relatively tightly organized and integrated unit. Another 9 staff work on energy and climate, spread across a number of thematic focus areas, from equity to modelling to policy.

2.2 SEI-US Finances in 2015

SEI-US ended the fiscal year with \$5,134,301 in revenue, approximately 5% greater than for fiscal 2014, and with a positive net change in assets of \$322,375 (\$35,177 unrestricted). The ratio of available cash reserves to monthly expenses remained at a satisfactory value of approximately 5.5 during 2015, where it has been since the third quarter of 2009, indicating the continuation of a stable cash flow situation for the organization.

Breakdown of revenue (excluding that obtained from SEI-International) by source of funding and geographic regions are provided graphically below. SEI-US researchers continued to procure substantial (42%) contract and grant awards through government funding mechanisms, with U.S. federal and state sources comprising \$1.4 million and \$ 0.2 million derived from international governments. Foundations, Development Banks (World Bank) and Research Institutions/Private Entities each contributed 17% to 20% of revenue. US-based projects provided the largest fraction of revenue, at 25%. Projects with a Latin American and African focus continued to contribute substantially to the SEI-US portfolio in 2015, although at slightly lower fractions of revenue than in 2014, at 18% each. Work in Asia almost tripled to 14% compared with 2014.

Figure 2. SEI-US Source of Revenue in 2015

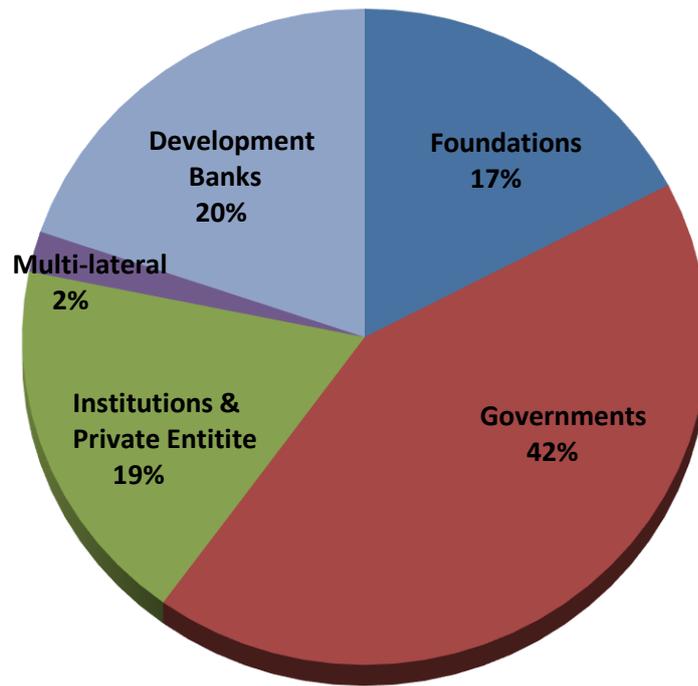
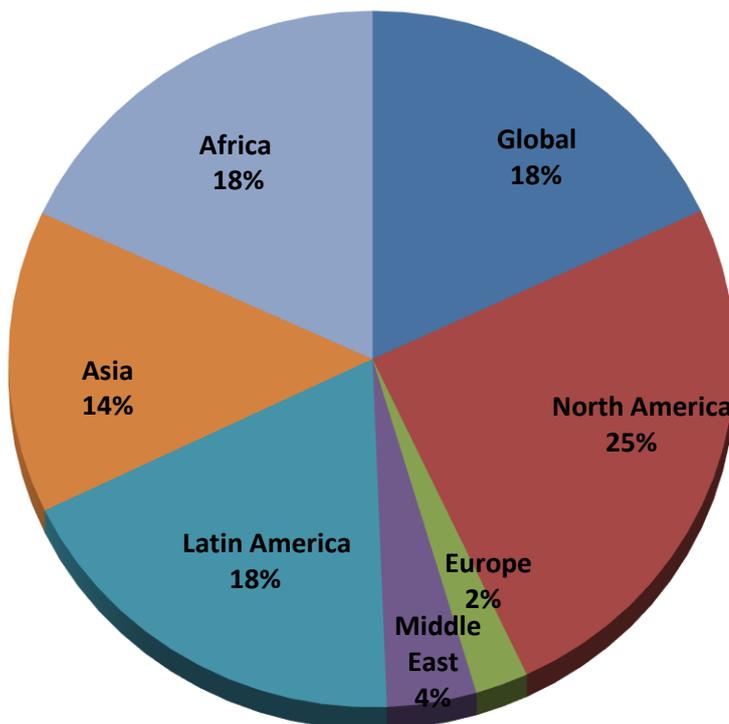


Figure 3. Geographic focus of SEI-US work in 2015 (by amount billed)



3 Project work

At SEI-US, we have a decentralized organizational structure in which each program designs, develops, and funds its own work. Below we review the highlights of 2015 project work by SEI-US program.

3.1 Water Group

Two themes dominated the Water Group's activity in 2015: consolidation of recent work focused on decision support within the water management arena and the expansion of this approach into new geographic regions. The consolidation efforts were supported by a New Idea grant funded by US Center reserves which allowed for the development of training materials, a SEI Discussion Brief, and a peer-reviewed journal article. Within the broad focus on decision support, we worked directly in thematic areas related to river basin planning, the Water-Energy-Food Security Nexus, and city scale resources management. Water Group researchers also began to build a cluster of spatial analysis capability within the group, which has been traditionally dominated by systems analysis.

Robust Decision Support

After three years of work the area of decision support, during which we tested and refined an approach to integrate water modelling and analysis within actual multi-stakeholder water management negotiations, 2015 witnessed expanded activity in new geographic locations and an effort to consolidate what we have learned in preparation for further expansion. Highlights of these efforts include the following:

- **Successful deployment of the RDS process within a local Integrated Regional Water Management Planning effort in California.** The result of a 2-year collaboration with the California Water Foundation, our work was extremely well received, resulting in a much referenced Op-Ed piece in a leading California daily, The Sacramento Bee. The attention given this work has created opportunities to expand the effort into new water management decision making arenas, in particular the recently enacted Sustainable Groundwater Management Act. Under funding from NASA, the water group has worked in collaboration with the local water managers to begin the effort to design more sustainable surface water and groundwater management efforts, and in 2015 received support from the USDA to more directly focus this work on efforts to comply with regulations associated with the new act. In addition to its work with local water managers, the Water Group continues to support the State Water Resources Control Board in its effort to develop modelling tools that will allow for the definition of a new generation of in-stream flow requirements within the complex, and often contentious, California water management system.
- **Thriving program activity in the Andean region,** with the support of USAID and IDRC. We completed a 3-year USAID engagement in Colombia, in which the RDS approach was continuously refined in three separate river basins. Based on this experience, we organized a very high level symposium on the topic of water management adaptation to climate change in Colombian watersheds. This work has spurred wider interest in the approach in Colombia, where we are now working in support of similar efforts in four new watersheds. Regional engagement is also increasing through support of river basin planning efforts in Peru (3 basins),

Argentina (2 basins) and Chile (1 basin). Collectively these efforts have attracted the attention of USAID Headquarters, which has invited SEI to join a panel supporting the development of a new Agency strategy on Water Security and the CAF, which would like to apply the RDS approach to the development of new water sector investments in Bolivia.

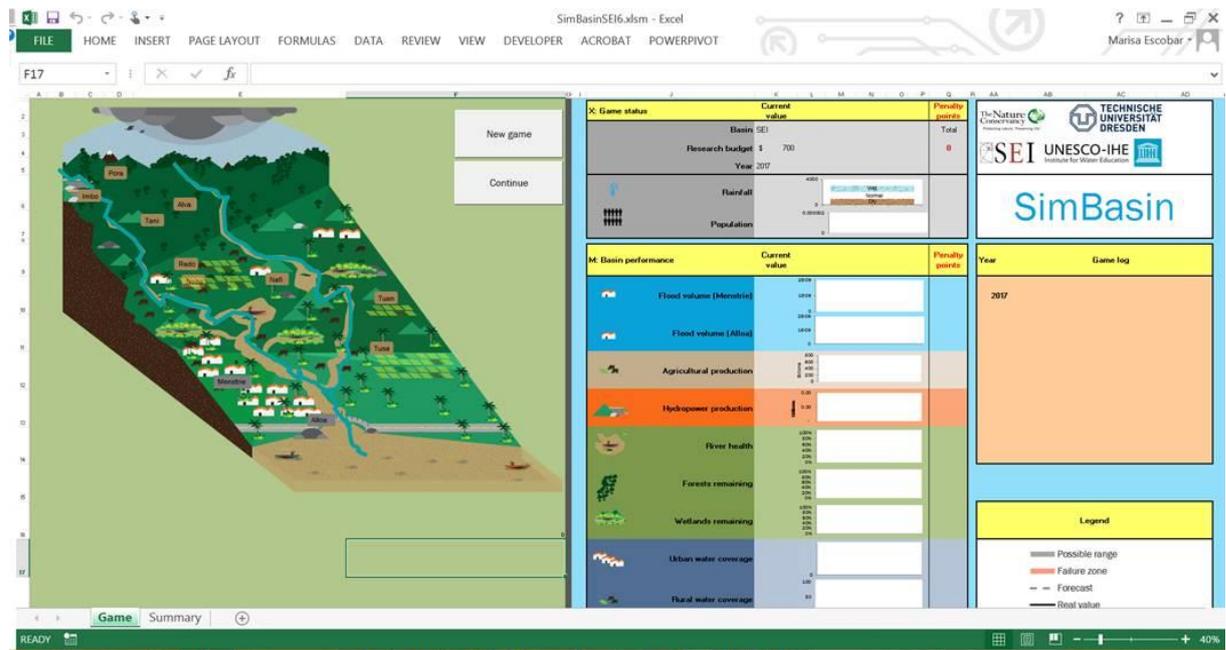
- **Growing engagement with multiple actors across Africa.** The Water Group has parlayed its participation in a high-level World Bank study of water and energy trade-offs under a changing climate across the African continent into a growing body of work within specific river basins, in partnership with local World Bank offices. The most advanced of these efforts is in the Orange River Basin, with a specific focus on the Lesotho Highlands Project. Using the RDS approach, SEI has supported multiple actors within Lesotho to explore the implications, both in terms of water availability and in terms of royalty flows, of different expansion plans for the Lesotho Highlands Project that also provides water to South Africa. By the end of the year, water managers from South Africa and Botswana were brought into the planning effort. World Bank counterparts are now working to enable SEI to expand these system level engagements into the Zambezi and Senegal River Basins. Africa has also been the focus of early efforts to apply these techniques to the challenges of the Water-Energy-Food Security Nexus, with early activity in Zambia and Rwanda having been initiated.

Figure 4. Annette Huber-Lee and Brian Joyce at Mohale Dam, a field trip as part of the first systematic look at the vulnerabilities and adaptation strategies of Lesotho's water management system



- Stage set for new collaborations in Asia.** The Water Group has worked in 2015 to transfer its RDS knowledge to colleagues within SEI's Asia Center. We have organized training materials and workshops on the topic as part of the Asia Center's efforts to conduct a watershed scale climate assessment in a single system in each of five Southeast Asian countries. This support has created new interest in and enthusiasm for RDS, which will be consolidated through continued collaboration between the water group and the Asia Center in 2016.

Figure 5. SimBasin game, featured at SUMERNET workshop, where US water group worked with colleagues at Asia Center



Urban Metabolism

Based on a prior 2-year funding commitment from SEI-Stockholm, during which the principles of urban metabolism were developed in case studies in Bangalore, India and Bangkok, Thailand, the Water Group secured funding from the Cities Alliance in 2015 to expand the application of this approach to other Indian cities. This work, utilizing the integration of web-based GIS tools that drive a scenario analysis tool accessed via the cloud, has attracted the attention of major Indian periodicals as a way to account for the transformation of water inputs to a city into the creation of economic (metabolic) activity and the generation of waste products. The goal for 2016 is to expand the framework beyond water to energy and material inputs to the urban setting.

Spatial Analysis Cluster

The main approach taken by the Water Group has long been systems analysis, primarily through the development of the Water Evaluation and Planning (WEAP) platform. In 2015, the Group took major steps towards strengthening its spatial analysis capabilities. These steps included the use of new GIS and remote sensing tools to offer a regional perspective on issues related to water management, ecosystem conservation and international trade. Specific examples include the development of tools that can place future water and energy

investments in special context, tracing the temporal and spatial evolution of freshwater and brackish wetlands and relating those to hydrologic and water management factors, and, in collaboration with colleagues in the Stockholm Center, tracking the connection between coffee and soy production in South America and consumers around the world.

3.2 Energy Modeling (LEAP)

This past year the Energy Modeling Group continued to develop LEAP and related tools while responding to significant new demands for support from countries preparing their Intended Nationally Determined Contributions (INDCs) for the Paris UNFCCC conference (COP21). The Group increasingly engaged in important international initiatives such as the Low Emissions Development Global Partnership (LEDS-GP), the Climate and Clean Air Coalition (CCAC) on short lived climate pollutants (SLCPs) and ECRAN, the Environment and Climate Regional Accession Network of the European Union.

Program highlights for 2015 include:

- **Award of the first annual LEDS-GP Prize for “Leading LEDS Design”** to Charlie Heaps (<http://bit.ly/1Lp7EZW>). In late 2015, the work of the program was recognized at the LEDS-GP annual international conference in the Dominican Republic, as one of three “champions from around the world who demonstrate outstanding vision and action to achieve low-emission, sustainable development.... Their efforts show that climate-smart economic development can benefit people, communities, and the environment.”
- **Widespread use of LEAP in formulating INDCs.** A post-COP21 analysis reveals that at least 30 countries made direct use of LEAP in formulating their INDCs: Albania, Antigua & Barbuda, Bahamas, Bangladesh, Botswana, Cambodia, Ecuador, Federated States of Micronesia, Ghana, Haiti, Iraq, Israel, Jamaica, Lebanon, Liberia, Mauritania, Mongolia, Morocco, Mozambique, Niger, Nigeria, Palau, Philippines, Serbia, Uganda, Yemen, Zambia, and Zimbabwe. It is also likely that LEAP was used but not publicly credited in other countries.
- **Capacity Building:** In 2015, we continued to support capacity-building initiatives worldwide aimed at helping countries prepare Low Emission Development Strategies (LEDS) and INDCs for COP21 in Paris. This work included individual national-scale trainings in Albania, India, Israel, Italy, Mexico and Morocco as well as a series of regional workshops in Macedonia, Turkey and Croatia organized in cooperation with regional initiatives such as ECRAN, UNEP, UNDP, ClimaEast/ClimaSouth and CPET, the Swedish Collaboration Programme on the Euphrates and Tigris.
- **Support for national and subnational climate and energy planning in the Philippines,** through the USAID-funded Building Low Emission Alternatives to Develop Economic Resilience and Sustainability (B-LEADERS) programme. Extensive research and modelling helped develop both baseline and climate mitigation scenarios for the Philippines and to perform a comprehensive cost-benefit analysis of mitigation options in the energy sector. We also conducted a series of regional workshops intended to bolster capacity and provide technical oversight for regional energy planning in the Philippines. Our work has been very well-received; indeed, on her own initiative, the project’s Chief of Party took the exceptional step of

informing the funder (USAID) that of many project contractors, she considers SEI-US to be the best.

- **Release of a major new version of LEAP.** The new version features significant improvements in ease of use, modelling capabilities and new approaches for visualizing energy and climate mitigation results to better support the many hundreds of organizations all around the world who are using LEAP to plan climate actions at scales ranging from cities to states to countries. For example, by providing the ability to calculate both direct and indirect GHG emissions allocated to energy demand sectors, users get much better insights into the climate abatement potential of energy efficiency measures. LEAP's database of pollutants now includes 258 compounds, and lets users conduct sensitivity analyses showing how different IPCC assumptions affect the global warming potential of scenarios. Details [here](#).
- **New Integrated Benefits Calculator Tool.** 2015 saw completion of the first version of the new LEAP Integrated Benefits Calculator (LEAP-IBC). This tool is initially being developed for the Climate and Clean Air Coalition (CCAC) to help countries plan actions on short-lived climate pollutants (SLCPs). The development work is being conducted in collaboration with SEI's York Center. LEAP-IBC links LEAP's scenario-based emissions planning system to a new Impacts Benefits calculator being developed at York. The resulting tool allows users to estimate benefits of climate action in terms of avoided deaths, avoided crop losses and avoided regional temperature changes.
- **Economics of Climate Change in Central and West Asia.** 2015 also saw the successful completion of a major project work in Central and West Asia, a project focusing on Azerbaijan, Kazakhstan and Uzbekistan and funded by the Asian Development Bank (ADB). This work involved model development, the economic analysis of mitigation scenarios, and model transfer and capacity building in the three study countries. The resulting models have been influential in mitigation planning in those countries, including in the INDC of Azerbaijan. The project results were very well received and the funder, the Asian Development Bank (ADB), has informed us that it will publish our final report as an official Bank report in 2016.

Figure 6. Taylor Binnington at interim project workshop of the ADB Economics of Climate Change in West and Central Asia where SEI-US helped to conduct a cost-benefit analysis of mitigation options in three CIS countries



- State-Scale Climate Planning in the United States.** We made a concerted effort in 2015 to engage in climate analyses at the U.S. state level. We have been part of a team working on a second phase of climate planning in the Commonwealth of Massachusetts, aimed at helping Massachusetts achieve its goal of reducing GHG emissions by 80% in 2050. We also began work on a major new project that will assist the state of Rhode Island with its GHG planning activities: work that will continue into 2016.

3.3 Climate Policy (Seattle group)

In 2015, the Climate Policy (Seattle) Group focussed on two areas of great current interest and promise – supply-side climate policy as part of the SEI Fossil Fuel Initiative and cities – as well as continuing our long-standing and strategic engagements in the worlds of carbon pricing and carbon markets.

Fossil fuels, supply-side climate policy, and carbon lock-in

2015 marked the launch of the SEI Initiative on Fossil Fuel Supply and Climate Change Mitigation, which involves staff at multiple centers, but led through the U.S. center (co-led by Michael Lazarus and Harro van Asselt at SEI Oxford). Progress has exceeded expectations in numerous ways, with working papers and high-profile journal articles and letters (ERL, Nature) on carbon lock-in and supply-side policy garnering considerable attention, including by media and thought leaders (David Roberts on [Vox](#)). We co-led

sessions and presented at key conferences (Our Common Future / Paris, Stranded Assets / Oxford) and organized two major events at Paris/COP21. We closed out 2015 by landing a major new philanthropic grant from the KR Foundation (2 million DKK/300k USD) for a new effort to examine fossil fuel producer subsidies as part of the Fossil Fuel initiative. Together these and other activities have enabled us to build new partnerships ranging from the Australia National University and Oil Change International to the Smith School of Enterprise and the Environment, University of Oxford.

Highlights included:

- **Growing researcher, media, and civil society interest and momentum in the Fossil Fuels Initiative and our work on supply-side climate policies.** The release of SEI working paper, [Supply-side climate policy: the road less taken](#), in October, 2015, led to a dedicated post by one of the most widely followed columnists on energy and environment in the US (David Roberts, Vox): [Is there any point in trying to restrict fossil fuel supplies? A new paper says yes](#). Several leading researchers have expressed interest in joining us now to prepare a co-authored “review article” on supply-side climate policy for submission to *Science* or *Nature*.
- **Advances and recognition for our work on carbon lock-in.** As culmination of a GIZ funded project, we published three pieces on innovative methods to characterize and measure the extent of “carbon lock-in” associated with investments in long-lived energy consuming equipment ([Assessing carbon lock-in](#) in *Environmental Research Letters*) and [Carbon lock-in from fossil fuel supply infrastructure](#) (SEI Discussion Brief), along with an SEI policy brief on [Leaving room for ‘green growth’: identifying near-term actions to avoid long-term carbon lock-in](#).
- **Convening and presenting at high-profile events.** We organized two well-attended side-events at COP21 (see [Exploring the case for supply-side climate policies](#), Marion Davis, 17 December 2015), co-convened (with IIASA and PIK) the session [Transitioning from fossil fuels and avoiding lock-ins](#) at *Our Common Future under Climate Change*, Paris, 9 July 2015, and presented and moderated at the 1st Global Conference on Stranded Assets and the Environment, on the “Risks of investment in new fossil fuel infrastructure: stranded assets or carbon lock-in?”.

Figure 7. Pete Erickson presents at COP21 event on fossil fuel subsidies



- **New funding sources and partnerships.** We were able to generate interest and support from two new funders for a total of over 350,000 USD (3 MSEK) in 2015, including the KR foundation and Friends of the Earth. We have established or are developing new partnerships with, among others, Australia National University, The Australia Institute, Earth Track, Oil Change International, and Smith School at Oxford University (Stranded Assets Programme).
- **Expanding presence on social media, op-ed pages, and blogs.** In addition to active engagement on Twitter, we authored the following op-eds and blogs: [Fossil fuel supply 'a crucial omission' from Paris climate deal](#) (Climate Home), [Today's oil drilling fuels tomorrow's political and economic problems](#) (The Guardian), [Limits on oil supply will raise prices but aid climate goals](#) (Seattle Times), and [How should we calculate the CO2 impact of the Keystone pipeline proposal?](#) (The Conversation).

Figure 8. Lisa Friedman, editor of ClimateWire, moderates SEI's COP21 event



Cities and Climate Change

The work on city-scale GHG abatement by SEI-US continued to grow in 2015. With continued support from Bloomberg Philanthropies, we engaged with partners to extend a prior analysis of global urban abatement potential, examining opportunities in specific countries including China, Brazil, Canada, and South Africa. We also undertook a global assessment of opportunities for improved multi-level governance aimed at urban mitigation. All of these analyses have laid a foundation for further research exploring policy approaches for achieving urban-scale GHG reductions, incorporating urban mitigation opportunities in national commitments, and informing city-level policymaking and advocacy efforts. In 2016, we plan to continue these lines of research, focusing on how city-level initiatives can inform more "vertically integrated" policy development. Part of this effort may include development of a GHG emissions scenario planning tool related to cities, based on LEAP.

Highlights included:

- **Continuing partnership with UN Special Envoy for Cities and Climate Change** (Michael Bloomberg) on “vertical integration” of climate governance, advancing influential [SEI research](#) on the best role for cities in a deep low-carbon transition and multi-level governance approaches to achieve that potential.
- **Major international networks of cities continue to rely on SEI research to inform priorities**, including C40, ICLEI, and Compact of Mayors. C40 Cities, a group of several dozen of the world’s leading cities, announced SEI’s study of urban carbon lock-in alongside a cities and climate change event at the White House. (The study was covered by a full-page article in the Washington Post, among others.) The new Compact of Mayors relied on SEI research on urban GHG abatement potential to make the case for urban action at the Paris COP. Further, ICLEI sought SEI partnership on informing its GHG abatement tools (ClearPath) and protocols.
- **Expanding and strengthening partnerships with urban-focused researchers around the world.** In 2016, SEI partnered with researchers in Brazil (UFRJ), South Africa (SEA), Canada (Torrie-Smith Associates), and China (U.S.-based LBNL) to conduct and publish [studies](#) of urban GHG emissions and abatement potential in each of these four countries. One of the studies was released at the [U.S.-China Climate Leader's Summit](#) in Los Angeles. We hope to build upon these relationships to conduct follow-up research in 2016.
- **Developing potential funders for 2016.** SEI was invited to advise a network of philanthropies, led by CIFF and ClimateWorks Foundation, on the role of cities in global climate change mitigation. Meetings of this group in London in September and Paris in December (that SEI staff attended) suggest that new partnerships may emerge in 2016.

Carbon pricing, carbon markets, and climate action planning

With the addition of Derik Broekhoff in mid-2015, we increased our carbon pricing and markets capacity substantially. While the level of activity in this area was well below that of the other two Climate Policy program areas, we engaged in a couple of projects with key strategic value. In fact, since our work is typically in direct collaboration with policymakers in this program area, our ability to directly impact policy has likely been greatest here.

Highlights included:

- **Advising the Washington State Governor’s Office and civil society organizations on the design of Washington State’s new draft Clean Air Rule** that could lead to a new carbon market in the U.S. Pacific Northwest. We interacted directly with policymakers and analysts and were able to have a recognized and tangible impact on several aspects of the draft rule (avoiding double counting of emission reductions, integrity of emission units, and point of regulation).
- **Working with the International Carbon Action Partnership to develop and present [Options and Issues for Restricted Linking of Emissions Trading Systems](#)**, to support jurisdictions to find new ways to signal enhanced cooperation and influence,

limit competitiveness concerns, and adopt more ambitious targets. We also presented this work to a joint Harvard/World Bank event, and it has influenced the outlook of the World Bank (based on discussions with staff) with respect to its Networked Carbon Markets initiative.

- **Presenting to the International Civil Aviation Organization on its carbon policies**, and potential use of tradable units to meet its climate goals, which has led to new advisory roles for 2016.

3.4 Climate Equity

The primary objective for 2015 was to provide analytical and intellectual input to a broad range of activities among Parties and civil society organizations focused on the negotiations in the run-up to the Paris COP.

Most specifically, the program:

- **Contributed to an effective science and equity-based review of the INDCs** (Intended Nationally Determined Contributions, or pledges) tabled by nearly all UNFCCC Parties as inputs to the Paris COP. The strategy underlying this objective has been that – with the largely bottom-up regime inherited from Copenhagen – any effective process to ratchet up national-level ambition will require some means of reviewing the pledges, comparing them with the demands of a 2°C pathway – based on current climate science – and with each other – based on notions of equity. With the Lima decision pre-empting any official assessment of individual pledges, it was incumbent upon research organisations such as SEI-US and civil society partners to assess the pledges.
- **Providing the conceptual guidance and core technical support to the [Civil Society Equity Review](#) initiative**, an unprecedented coalition of more than one hundred global civil society organizations, including a large number of major groups including Oxfam, WWF, Christian Aid, Friends of the Earth, ActionAid, Care, 350.org, and others. We helped guide the groups toward a consensus position on “climate equity”, and then built on that consensus to evaluate each of the individual national pledges that form the basis of the Paris Agreement. Shortly before the Paris COP, the coalition issued a widely-cited INDC assessment report that overcame the limitations of the major assessments by UNEP and UNFCCC, which examined neither the ambition nor the equity of individual national pledges. It gained wide attention, being referenced by delegates, cited in the news, and widely promoted by NGOs.
- **Further developing the Climate Equity Reference Calculator** – our flexible and powerful analytical tool that serves as an impartial common platform for the analytically rigorous assessment of the national efforts. Considerable work was done in 2015 to update and enhance the usefulness of the tool, and to embed in it key information that became available with the IPCC 5th Assessment Report.

Figure 9. Sivan Kartha discusses the Civil Society Equity Review at COP21 event



An important part of this overall effort has been public presentations, ranging from academic venues (Tufts, Columbia, and Berkeley Universities), to several well-attended presentations on panels with delegates in Bonn and Paris.

A related effort was the drafting (soon to be finalized as an SEI working paper and submitted for publication) of an analysis of the role of negative emissions in the context of ambitious global pathways, such as 1.5°C or 2°C. (See “The risks of relying on tomorrow’s “negative emissions” to guide today’s mitigation ambition”, Katha and Dooley)

3.5 Sustainable bioenergy and development

The Sustainable Bioenergy and Development program represents a new program for SEI-US, started during the last half of 2015 when Rob Bailis joined SEI-US, bringing his expertise, network, and set of ongoing research programs. The overall goal of the program is to better understand the implications of current energy use in the developing world and to explore pathways that result in reduced impacts and more sustainable outcomes. Specifically, there are three main objectives for near-term: to achieve a smooth transition into SEI-US, to establish links with existing SEI programs in the US and internationally, and to create a foundation on which to build a robust program going forward.

Integration into activities across SEI began quickly in late 2015 with joint development of a proposal to the Climate and Clean Air Coalition (CCAC) with staff from SEI centers in York, Nairobi, and Stockholm.

Much of Rob Bailis' existing sponsored research projects transferred over to SEI-US from Yale University. This includes a \$500,000 grant from the Global Alliance for Clean Cookstoves (GACC) to partner with researchers from UNAM and Italy to quantify the sustainability of traditional woodfuels in common use throughout the developing world

(field work in Central America, Africa and South Asia.) The program is actively seeking additional funding and applications for the tools and techniques developed. In late 2015, we submitted a proposal to the NSF to work in Malawi and were awarded funding from the Overlook Foundation to extend work in Honduras.

The second major project (\$1.5 million EPA-STAR grant, supplemented by an additional \$90,000 from the GACC) involves a collaboration with five North American universities and two Indian NGOs to test different approaches to improved cookstove dissemination, examine intra- and inter-household relationships affecting stove use, measure pollution, and incorporate the results into a model to quantify the climate impacts of regional household energy transitions. This project is funded through August 2018.

4 Delivering Results

4.1 Scientific research

4.1.1 Contributing to increasing the quality and impact of SEI's scientific publications

As described in Section 2 above, the US Center continues to publish widely in the peer-reviewed literature, including *Nature* and *Environmental Research Letters*, among many others. In 2015, SEI-US staff authored or co-authored more than 35 publications in 2015, including more than a dozen SEI-branded briefs, four SEI working papers, and an SEI project report, along with peer-reviewed articles and book chapters.

Further in 2015, we established and continued:

- Support for technical writing through professional development funding (external courses and internal workshops)
- Improved quality assurance/quality control procedures, including alignment with the SEI-wide peer review policy as applicable
- Directed special attention to setting publication goals in annual performance reviews and tracking their achievement
- Set aside a Center-wide pool of funding to support paper writing
- Continued Center matching fund support for drafting journal submissions
- Outlined desire to include funding for journal articles in contracts wherever possible
- Provided support for staff less experienced in journal submissions

4.1.2 Contributing to SEI's ambition to become a global knowledge leader through the SEI Initiatives

The US Center houses the Nexus and Fossil Fuel Initiatives, providing initiative leadership (Annette Huber-Lee and Michael Lazarus, co-leads, respectively) and management to those efforts. Charlie Heaps co-leads the LEDS/SLCP Initiative. Pete Erickson and Derik Broekhoff are currently working on the design of a new Urban/Cities initiative. Various staff also contribute to other initiatives (e.g. Bart Wickel worked on P2CS). Marion Davis serves as communications lead as well for several initiatives (including Nexus and Fossil Fuel).

4.1.3 Developing and deepening partnership agreements with universities and research centers

In 2015, we continued our close relationships with nearby universities (University of California–Davis, University of Washington, and Tufts University). Our closest connection

remains with Tufts, which provides us with our office space in Somerville, as well as a number of other key services (e.g., library access). We actively engage with all three universities in a regular fashion. Annette Huber-Lee, Charlie Heaps, Sivan Kartha and other Somerville staff frequently lecture at Tufts. Michael Lazarus is adjunct faculty at the Evans School of Public Administration at the University of Washington, and will teach Energy and Climate Policy in spring 2016. Davis staff also occasionally lecture at UC Davis.

4.2 Policy engagement

4.2.1 Contributing to the development of SEI's approaches to policy engagement and influence

In 2015, the Center contributed to policy engagement and impact through a range of conduits:

- Across various projects, as highlighted in Section 2, we engaged directly with policy makers, from advising the Governor's staff on the design and features of Washington's draft State Clean Air Rule to supporting innovative, integrated approaches to water and energy planning with national officials in Southern Africa.
- We actively participated in a variety of policy forums from the UNFCCC/COP process (see links to SEI events above), local and regional planning processes (e.g.; California water planning), the Partnership for Market Readiness, the International Carbon Action Partnership, the Climate and Clean Air Coalition, Low Emissions Development Strategies meetings, the Global Alliance for Clean Cookstoves, and civil society initiatives (such as the Civil Society Equity Review). Descriptions and links can be found throughout Section 2 above.
- Michael Lazarus also engaged in conversations with the SEI-International Policy Director regarding approaches to assessing policy impact, and presented insights to an SEI-wide gathering on lessons learned from past policy influence evaluations.

4.2.2 Increasing the capacity of SEI staff to work at the interface between science and decision-making

During 2015, we increased the capacity of staff to work at the interface between science and decision-making through investments in professional development, media training, communications training, including on how to formulate key messages for policy-makers, technical writing support, and support for publications.

4.3 Capacity development

Capacity development is a core element embedded in much of SEI-US's work. New initiatives and goals for this aspect of work are described in detail in Section 2 above.

As the developer of the WEAP modeling platform, the Water Group has long been engaged in capacity development around the use of the tool. These efforts have tended to focus on the organization of formal, in-person, multi-day training events and the development of the materials required to support these kinds of events. In recent years, the Water Group has been experimenting with on-line training techniques and has begun to develop some insights related to the best technologies and pedagogical techniques associated with these sort of capacity building programs. In addition, after a couple of years of experimentation, the Water Group has begun to consolidate around a set of specific steps related to implementing

the WEAP-based RDS practice, including model ensemble automation and results visualization.

Capacity building is also a core focus of the LEAP energy modelling program at SEI-US, and our COMMEND web site has now been used for over 15 years as a key platform in supporting developing country experts working on sustainable energy policy analysis. By late 2015, COMMEND had over 27,000 members in 190 countries. In 2016 we are expecting to embark on a major redevelopment of the COMMEND web site, with the aim of increasing the social networking capabilities of the site, making the site an open repository for shared energy data, and greatly improving its training materials including video-based training materials.

5 Enabling Results

5.1 Communications

SEI-US has in many ways been a leader in communications at SEI, publishing extensively, posting stories and Q&As regularly to the SEI-International website, and increasingly producing blogs and op-eds. Yet those activities are not evenly distributed across the Center: some researchers are very prolific, while others have little or no public visibility.

This year we sought to change that, actively seeking to engage staff all across SEI in communications. Although it was a year of transition for us, and much remains to be done, we achieved tangible results, thanks in part to increased support from SEI-Stockholm.

5.1.1 Supporting and enabling staff to be better communicators, and mobilize the authentic and diverse voices within Center

Our new monthly staff meetings provided a natural mechanism for learning about work taking place across the Center, seizing opportunities to promote work of public interest, and inviting further interaction. At one of these meetings, we provided an overview of communications across SEI – including not just the Center node, but all SEI communications colleagues and resources – and encouraged staff to ask questions, make suggestions, and seek one-on-one support anytime. This helped us to engage staff who were not actively communicating before, leading to new publications and web content.

Overall, we produced 14 news articles and Q&As on the SEI-International website, covering a wide range of topics: from fossil fuel lock-in, to climate equity, to energy capacity-building, to hydropower and participatory water governance in Colombia, to water insecurity in Palestinian households.

The Seattle Group alone produced four external blogposts (two on Climate Home, plus one each on The Conversation and the Guardian Sustainable Business blog) and an op-ed (*Seattle Times*). The Water Group also worked closely with a consultant to formulate messages based on their work in California, and produced a web story and an op-ed that was published in the *Sacramento Bee*: <http://www.sacbee.com/opinion/op-ed/soapbox/article41900592.html>.

We hosted two communications workshops in the fall, on SEI-branded publications and on online communications. Thanks in part to the latter, several SEI-US staff have joined Twitter this year and are actively tweeting: @SEI_Erickson, @mlaz_sei, @weap21, @dpurkey1. A task

for 2016 is to support others who have joined but are not yet active, and to ensure that all SEI-US staff who are interested in Twitter can use it effectively.

Further group training sessions will be offered throughout 2016. In addition, we expect to provide small-group and one-on-one training to the extent possible, giving priority to staff who are not yet confident in their writing and other communications skills.

5.1.2 Investing in more structured and pro-active planning for communications and policy engagement

Although Center-funded communications support for proposal-writing was available in 2015, it was only used once, and this is an area where considerably more effort will be needed. Our goal is to actively involve communications not only in writing discrete communications sections in proposals, but also in improving proposals overall, so they reflect a clear sense of their target audience, its needs, and the best ways to reach that audience. This may require additional skills development on the communications side.

More broadly, through the relationship-building discussed above, we are now having more informal conversations that result in a greater integration of communications staff in project activities.

5.1.3 Developing more targeted content and formats that better meet the needs of users

As noted above, SEI-US was quite actively involved in SEI's online communications in 2015, regularly contributing to the website, publishing externally, and participating in social media (along with Twitter, we should note that Charlie Heaps' LEAP group on Facebook is quite active and has been well received: <https://www.facebook.com/groups/LEAPSoftware/>). These efforts have allowed us to connect with broader audiences and to make our work more accessible to non-experts.

SEI-US staff authored or co-authored more than 35 publications in 2015, including more than a dozen SEI-branded briefs, four SEI working papers, and an SEI project report, along with peer-reviewed articles and book chapters. One thing we had hoped was to publish more in Spanish, given that a large share of our projects (and key audiences) are in Latin America. We did produce three SEI/USAID-branded briefs in Spanish, all for a major project in Colombia, and we will have another brief in Spanish in the first days of January, a translation of an English text. (In addition, we published one Q&A in Spanish, on hydropower planning in Colombia, <http://www.sei-international.org/news-and-media/3234>, paired with a story in English.)

As anticipated at the beginning of the year, COP21 proved to be an excellent venue for communicating SEI-US work. The SEI Initiative on Fossil Fuels and Climate Change, co-led by Michael Lazarus, hosted two very successful side-events, and Michael and Pete Erickson participated in several other events as well. The SEI booth also featured quite a bit of material from SEI-US.

Finally, we should note that 2015 was a strong year for SEI-US in terms of media outreach. Not only did we place several blogs and two op-eds, but also got good coverage for some of our work, including an in-depth analysis in the U.S. policy news site Vox, and a huge volume of coverage of our Joint Implementation paper in August.

5.1.4 Deploying peer-reviewed output more effectively in order to further develop the credibility of SEI's communications

We succeeded this year in producing more website stories and Q&As based on peer-reviewed research, but we could do much better. We have also identified potential for further promotion and repurposing of work produced for clients. We expect to make further progress in 2016.

5.2 Tools, knowledge/capacity platforms and ICT

5.2.1 Advancing efforts to develop and integrate SEI's analytical tools

In addition to advancements made within SEI's analytical tools (see Section 2), progress has been made in their integration. Highlights include:

- Improved and used the WEAP-LEAP linkage for Nexus studies.
- Finalized the WEAP-DO3SE linkage, to model the impact of air pollution, including ozone (DO3SE), on crops within a water management framework (WEAP).

5.2.2 Making SEI's tools more accessible to policy-makers and stakeholders

Highlights in 2015 included:

- Redesigned WEAP and COMMEND websites to improve their accessibility, including further foreign language translation.
- Disseminated information about our tools via campaigns on social media (Facebook and Twitter).
- Improved visualization of results, especially those involving very large datasets.
- Continued development of our Robust Decision Support (RDS) methodology and practice using WEAP, and disseminated information about this approach through SEI-branded and peer-reviewed publications (see Section 2).
- Conducted several online interactive WEAP trainings for capacity-building in English, Spanish and French.

5.3 Organisation and Finance

At the US Center, nearly all fundraising activity occurs at the program level. This approach makes sense given that most programs work in distinct areas (e.g. energy or water) with limited overlap among funders. That said, there are important overlaps on occasion (e.g. Nexus work), and thus some coordination is needed, and occurs through informal conversations across program staff.

One of the priorities for further funder diversification has been increased foundation support. To that end, 2015 has seen a significant increase in new commitments (e.g. KR Foundation, Bloomberg Philanthropies), and in 2016, we may undertake renewed efforts to upgrade our grant writing and development capabilities.

5.4 Monitoring and institutional learning

5.4.1 Embedding further the P MEC system within SEI's workflows

In 2015, the US Center reviewed the use of Planning, Monitoring Evaluation and Communication System (PMEC) across the Center, and is undertaking efforts to improve staff use of the tool.

5.4.2 Monitoring, evaluating and learning from key project outcomes

Much of the monitoring, evaluation, and learning occurs at the program levels, where staff meet regularly to plan as well as to review project activities. On occasion, especially where problems are encountered, "post mortem" meetings may be held. We also use brown bag lunch presentations to share lessons more widely across the Center.

5.4.3 Developing and implementing relevant feedback processes between project activity and higher management

In 2015, the US Center implemented a new risk management policy to ensure that the Management Committee is aware of any project risks, and can work together to mitigate them in advance. For projects over a certain size, project managers must complete a risk assessment form, which in turn the MC must review and approve.

6 Publications

Peer-reviewed journal articles

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