

2018 SEI US Center Annual Report

1 Introduction

1.1 Summary

2018 was an eventful year at the US Center. We welcomed a new Water program leader (Marisa Escobar), who — in collaboration with colleagues — successfully negotiated many challenges and ended the year with our largest program growing in staff, profile, and portfolio. We initiated our first-ever Organizational Review Process, which promises important changes at the Center, such as: revised position structures, enhanced line management and career support, and strengthened finance and administrative capabilities, among others. And our two-day, off-site, all-staff retreat in October provided a timely opportunity to inform the organizational review, share good times, and build stronger relationships.

The implications of failing to tackle change also became ever more apparent for us over the past year. Our Seattle and Davis offices were downwind from raging forest fires in the summer and fall, exposing many of us to the worst pollution levels on the planet, keeping us indoors and casting a disturbing pall on the world around us. Those dark days served as a stark reminder of what far too many experience on a regular basis around the world, of the urgency in addressing environmental and social harms and supporting vulnerable communities, and of why we do the work we do.

Political challenges persist. The year ended with a shutdown of the US federal government, furloughing hundreds of thousands of employees; as of this writing, it is the longest shutdown ever, with no end in sight. We continue to watch closely, as about a third of our work in 2018 was funded through federal government agencies.

These and other challenges are also sources of motivation. Recognizing the current obstacles to progress at the national level in the US, we made significant advances in our local and state level work (see the impact story below, and exciting Water Program work in California). We made new inroads to increase our foundation fundraising and broaden our expertise, particularly in the social sciences. We are on our way to major upgrades in our administrative, HR, and finance systems. In addition, as we will touch on in the sections below, we are now in growth mode once again, recently hiring two employees and in the process of adding up to three more.

1.2 Center goals for the year - how did we do?

In our 2018 Center Workplan, we set six goals for the year. The following table describes how we did.

2018 goals	Status
1. Ensure smooth management transition and continued success of Water Group.	<ul style="list-style-type: none">• Goal achieved, exceeding expectations.• New leadership rapidly established and functioning well, with strong funding and the recent addition of two new staff.
2. Implement foundation fundraising strategy and achieve 2018 targets.	<ul style="list-style-type: none">• Total foundation income continues to increase but concentrated in two programs.• Foundation inquiries and LOIs increased significantly in number.• Development Committee matured into regular forum for managers to motivate, coordinate, and test ideas for foundation outreach.

	<ul style="list-style-type: none"> • Specific targets not viewed as helpful and thus not used.
3. Enhance and streamline finance and administrative systems.	<ul style="list-style-type: none"> • Progress on hold in 2018 pending Organizational Review Process. • Plans now underway to add a new finance and admin assistant.
4. Review and improve systems and practices in staff support, management, and performance review, including position descriptions, criteria for advancement, and mentoring.	<ul style="list-style-type: none"> • Progress on hold in 2018 pending Organizational Review Process. • Plans now underway to enhance line management and career support and to revise position structures.
5. Expand communications activities, publications and reach, with focus on engaging with US media and increasing the number and impact of scientific publications.	<ul style="list-style-type: none"> • Over 30 publications, many in high-profile journals. • Increasing media coverage for US staff and activities as described in Section 4.1.
6. Deliver a successful 2018 retreat that builds center camaraderie and culture and advances the goals articulated.	<ul style="list-style-type: none"> • Goal achieved. See Section 1.4.

Our 2018 Center Workplan also included the following five longer-term goals.

- *Continue to advance equity, diversity, and inclusion (EDI) goals.* As discussed in Section 1.4, the Women's Group examined a suite of issues and brought them to the attention of all staff. EDI was also a focus in the Organizational Review, which has set us up well for major progress in 2019.
- *Expand diversity of program areas and capabilities at the Center.* Though progress was limited in 2018, this remains a powerful way to advance the EDI goals that will be in greater focus in 2019.
- *Support staff satisfaction, productivity, and work-life balance.* The Organizational Review, SEI-wide survey, and staff retreat were among several 2018 efforts that represented movement towards this ongoing goal.
- *Invest in professional development and leadership skills.* No major changes in 2018.
- *Invest in greater long-term financial planning and consider a strategic planning exercise.* We opted for an Organizational Review rather than a strategic planning exercise, given our needs and SEI-wide plans for developing the 2020-2024 Strategy.

1.3 Finances, HR and Communications

Project-based revenue (\$5.5 million) remained at a similar level to 2017, with approximately \$1.5 million derived from projects administered by other SEI Centers. We retained a small net surplus of approximately \$25,000, which was lower than the 2017 surplus (\$135,000) due to internal resource allocation to fund the organizational review process and facilitate a leadership transition within the Water Program, as well as to counter movement in currency values during the year.

The types and sources of US Center’s external funding (i.e., not administered by other SEI centers) have remained relatively constant over the last five years, with typically 50% or more (57% in 2018; Figure 1) obtained from government entities. The majority of that government funding comes from US federal and state agencies. Foundations, NGOs, consulting companies, and other private institutions typically comprise another 30% (11% for foundations and 19% for other in 2018), with increasing success observed with Foundations over the last five years as programs have more intentionally looked to this category of funders to diversify their funding portfolios.

The geographic foci of our work have also remained consistent over the last several years, with approximately a third (34% in 2018) of our projects having a North American emphasis. Another quarter (24% in 2018) of our work is typically global in nature, and work in Asia, Africa, and Latin America also each comprise approximately 10% or more of our project work.

Figure 1. SEI US distribution of revenue source types in 2018 (not including project funding obtained from other SEI centers)

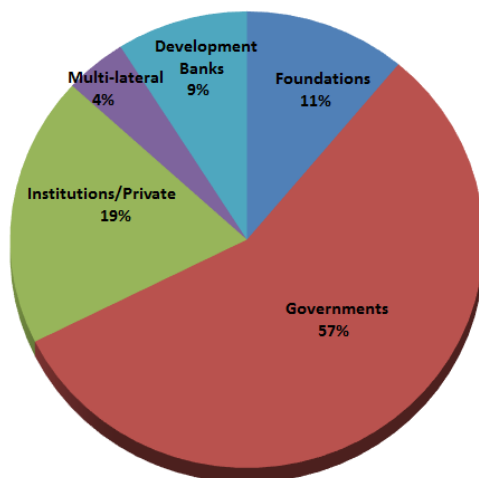
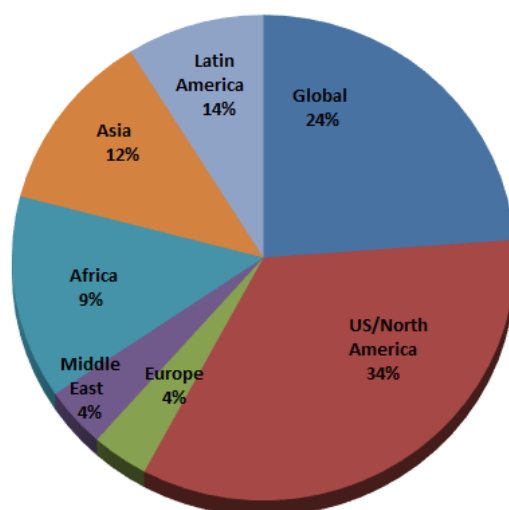


Figure 2. Geographic focus of SEI US work in 2018 (by revenue generated)



1.4 Centre Learning

This past year was very significant for the US Center’s learning processes. In addition to our regular activities (such as performance reviews and monthly all-staff meetings), we initiated a first-ever Organizational Review Process, which featured our sixth all-staff retreat since our founding as a center in 2006.

Organizational Review Process

Recognizing that the systems we adopted at our founding in 2006 may be in need of a major tune-up or repair, we undertook an Organizational Review Process. Starting in spring, we composed a committee, hired a consulting team, conducted surveys and conversations, and incorporated input from our all-staff retreat. In December, consultants submitted their report, and we are now translating the findings and recommendations into specific actions to upgrade our administrative, financial, and human resource systems; provide greater clarity and new opportunities for staff development and career paths; improve our program and center governance structures; and better align with our equity, diversity and inclusion goals.

All-Staff Retreat

For two days in late October, we held an all-staff retreat at a facility 40 km north of San Francisco. The focus of the retreat was two-fold: to reflect and provide input on the organizational review, and to develop new tools and vocabulary that could also help generate recommendations for the review. The facilitators introduced two models: one of polarity management and another of decision-making styles. Both models promise to provide lasting benefits for the center.

The facilitators were savvy and dynamic, but ultimately it was the camaraderie, commitment, and common values of staff that made the retreat such a success. We left the venue a stronger center, with a clearer sense of priorities for organizational review and change, a host of great ideas to act on, and new tools and energy to make them happen.



During a break at the retreat

SEI US Board

It was the most productive year yet for the US Board, with three meetings, one of them an all-day, in-person meeting at the Davis office, anchored by four inspiring presentations from program managers. The Board made important contributions by providing overall guidance on our organizational review – including on fundraising, management structures, and research foci – based on the members' extensive experience in these areas and with policy-related institutions in the US.

Monthly all-staff meetings

Regular US staff meetings are held via video conference (due to the three office locations) and provide an important venue to build a common center culture, share news and new developments, engage on SEI and Center-wide learning activities, and examine key topics of interest. Aside from the usual updates, specific topics in 2018 included:

- Planning and preparing for the Science Forum
- SEI Ethics document
- Introductory meeting with the incoming ED
- Making the most of the new website and new publications
- Tips and tricks for managing/streamlining expense reporting
- Brainstorming new research areas and other strategic opportunities
- Role Playing of Gender Issues
- SEI-wide mentorship program
- The new employee handbook
- The organizational review
- Planning for new publications and brainstorming story ideas
- Ideas for the new SEI Environmental Policy
- Reviewing and learning from the SEI-wide staff survey
- Retreat debrief and status of organizational review
- New SEI Initiatives and the call for concept notes
- Goal setting and performance review process
- Center workplan 2019

- Ideas for the SEI Strategy 2020-2024

Women's Group

The US Center Women's Group continues to meet monthly and provide a much-valued space for women and non-binaries to explore gender-related topics, as well as a valuable resource to the Center as whole. After each meeting, the group shares presentations and readings across the Center, and on occasion leads specific all-staff meetings. Topics in 2018 included:

- Storytelling
- Fear of power: How can we understand this and overcome it to be better leaders/more interested in being leaders at all?
- Addressing Sexism: How to address sexism (with "back pocket" responses and role play)
- Role Playing Gender Stereotypes in the Workplace (All-Staff Meeting)
- SEI Women & Non-Binary Meeting at Science Forum
- Debrief of SEI Women & Non-Binary Meeting at Science Forum
- Gender Equity in SEI's Employee Policies
- #metoo Movement and SEI Employee Policies
- Next Steps on SEI Employee Policies
- The Importance of Role Models
- Bringing gender awareness to our work
- How does Menstruation and Menopause affect us at work?
- Discussing Feminist Research at SEI
- Interpersonal Style and Influence/Planning meeting

2 Projects and impact stories

2.1 Overview of project work

SEI US has a decentralized organizational structure in which each program designs, develops and funds its own work. Below we review the highlights of 2018.

Our **Water program** is the largest in the US Center's portfolio. It gained new leadership in 2018 and began expanding staff to meet demand for its highly respected water resource planning, capacity building and decision support work. The program has also begun to engage more senior staff in fundraising efforts, with several new connections made and a 2019 goal of diversifying its funding base to include foundations. We continue to generate capacity in technical tools as part of our projects and to implement decision-support processes around the world.

In 2018, high-profile projects included:

- Continued engagement with the Ministry of Environment and Water through projects in Bolivia that contributed to the development of the WATCH SIDA funding.
- Building an the most sophisticated model of the Sacramento-San Joaquin Delta to date, enabling California policymakers to weigh difficult trade-offs between water users and ecosystems.
- Consolidation of the activities of the Sustainable Water Partnership USAID program in Kenya and Cambodia, working in collaboration with the Asia and Africa Centers staff.
- Working with the U.S. government, California agencies and the University of California to build a model of the water, energy and food systems of California.
- Piloting a framework to include equity considerations in water analysis and management



Robust decision support workshop in Cambodia as part of Sustainable Water Partnership

Our **Climate Policy program** spans carbon pricing, urban abatement planning and fossil fuels. In 2018, it added a second sociologist to expand its works on the social dimensions of climate policy, which we see as key and underexplored areas for understanding and removing barriers to progress.

Major projects in 2018 included:

- Developing a major new model to quantify urban-scale greenhouse gas abatement potential in U.S. cities, in partnership with NRDC. The model is being applied to help guide the American Cities Climate Challenge and will enable new insights, analysis and publications in 2019.
- Publishing a deep analysis of California's oil production and the opportunity to wind it down for climate reasons. The discussion brief in February led to several public presentations in California, helped inform a California Air Resources Board workshop in August, motivated a side event at the Global Climate Action Summit in September, and yielded a featured article in *Nature Climate Change* in December. (See Impact story, below)
- Ongoing engagement on fossil fuels in the UNFCCC's Talanoa Dialogue. We produced a policy brief on Aligning fossil fuel production with the Paris agreement in March, a journal article in *Climate Policy* in August, and participated in the Talanoa Dialogue and COP 24 Plenary in Poland in December.

Our **Energy Modeling program** continued to focus on the development and application of LEAP and related tools, strengthening its reputation as the *de facto* tool for energy modeling and climate change mitigation analysis in developing countries. In 2018, LEAP has also become a key tool for SEI's own research, and is now used in multiple centers including York, Tallinn and Africa.

Our work on the SEI LEDP initiative, our long-term collaboration with the Climate and Clean Air Coalition (CCAC), and our involvement in a new SEI Seed and Innovation Fund project led to the creation of new capabilities, including:

- NEMO: a new, super-fast optimization engine that will, for the first time, allow LEAP to be used for analyzing energy storage and transmission planning – vital for assessing the potential for the deep penetration of renewables in low-carbon transitions.
- Disaggregating the gender and age impacts of air pollution and the health impacts of indoor air pollution. This makes LEAP more useful for examining the development dimensions of energy transitions.
- EDB: A new cloud-based database on cost and emissions that will help improve the reliability, accuracy and credibility of studies done within LEAP and other energy models.
- Mapping emissions and impacts in LEAP at a finer scale and communicating these via map-based visualizations.

This new version of LEAP will be publically launched in spring 2019, at a side event of the U.N. Environment Assembly.

2018 also saw us involved in a range of projects aimed at building capacity for energy and climate mitigation planning. One notable project was our work with USAID on the Clean Power Asia Project, in which we developed the concept of Integrated Resource and Resilience Planning (IRRP) in Lao PDR. We worked closely with the Lao Ministry of Energy and Mines (MEM) and Électricité du Laos (EDL) to deliver a program that focused on devising low-regrets power development pathways, which can best satisfy a range of development objectives.

We also supported Morocco's Ministry of Energy, Mines and Sustainable Development to develop their energy and climate mitigation program. A core objective of this work has been the development of an energy system model that is owned and operated by the Ministry—freeing it from its past reliance on consultants. Through workshops and joint modeling exercises, we have now built a national energy system model that has been used to inform the energy-sector component of Morocco's NDC and the development of Morocco's national energy strategy.

Finally, we also collaborated with the Kuwait Institute for Scientific Research (KISR) and UNDP to support the development of the first Kuwait National Energy Outlook report (KNEO), one of the first efforts to develop an integrated strategy for energy savings and the promotion of low-carbon energy supplies in that country.



LEAP workshop in Fiji

Our **Equitable Transitions program** continued to build partnerships with civil society organizations and produce research with the aim of contributing to a successful sustainability transition by promoting solutions that are perceived as fair and equitable. 2018 marked the first year for this program, which was a merger of the former Climate Equity program and the Sustainable Consumption and Production program.

The goal was to combine policy engagement and analytical expertise to focus on the challenge that societies face in bringing about an equitable and sustainable transition.

To that end, projects in 2018 included:

- Releasing a report of the [Civil Society Equity Review](#), a product of the ongoing Climate Equity Reference Project (CERP). Over 200 groups endorsed the report – a number that has grown with each report – and it involved the close collaboration of some of the world’s largest environment and development groups, including WWF, Oxfam, 350, FOE, CAN-International, and the International Trade Union Confederation.
- Exploring the potential financial impacts and responses arising from a push for a low-carbon transition as part of the Mistra Financial Systems Project.
- Writing a teaching module on “Green Macroeconomics” for the Global Development and Environment Institute (GDAE) at Tufts University. Upon its release, the module will be available on the GDAE website, a go-to source for alternatives to mainstream economic analysis.
- Contributing to SEI Initiatives, including co-leadership of the Gender and Social Equality Programme, reports and papers for the Initiative on Global Finance, and models, papers, and conference presentations for Producer to Consumer Sustainability.

Finally, our **Sustainable Bioenergy and Development program** seeks to understand the implications of current energy use in the developing world and explore sustainable pathways. In 2018, the program continued to strengthen its reputation as a leading authority on traditional biomass energy and environmental change. To this end, it worked with outside research partners to combine fieldwork and modeling to advance the understanding of how demand for wood fuels affects land cover and land use.

In 2018, the program closed out a few projects and kicked off several new ones. Closing projects included the World Bank Energy Access Multi-tier Framework (MTF) Survey, TransRisk, and two evaluations of national biogas programs. Results from the MTF survey provide a definitive baseline for access to electricity and cooking options against which the Kenyan Government and donors will use to assess future progress toward SDG7. The biogas evaluations were part of a collection of household energy case studies funded by the US National Institutes of Health. The entire collection was published in a special issue of *Energy for Sustainable Development* in October 2018.

The program also invested considerable effort in 2018 into strengthening its collaboration with SEI's Africa Center. Three new projects started in collaboration with Nairobi: a national survey of clean cooking options in Kenya funded by SNV, a study of alternatives to charcoal in Zambia funded by the US National Academies of Science, and a pilot project promoting new biomass briquette stoves for institutions and restaurants in Kenya funded by the Nordic Climate Facility.

In addition to the new joint projects with colleagues in Kenya, one other new project is worth mentioning. This project, funded by Global Affairs Canada, will combine field work and modeling to evaluate the current and potential future impacts of woodfuel demand in Haiti. Modeling work for this project will be done in collaboration with the US Center's **Energy Modeling** program and will showcase LEAP's new land cover change module.

2.2 Center work with poverty, gender and social equality issues

An increasing proportion of our research and capacity building efforts explicitly integrate poverty, gender and social equality issues.

- The Water Program introduced new analytical tools into the WEAP modelling platform using the Multi-Dimensional Poverty Analysis framework, and also now accommodates more granular analysis that allows for a look at access disparities and consumption inequalities within populations. (This was supported in part by the GSE programme.) It applied this approach in Colombia's Campoalegre Watershed project. (See Impact Story below.)
- The Energy Modelling Program introduced new functionalities to make LEAP a more powerful tool at assessing poverty, gender and social equality issues. It added analysis and indicators for outcomes that are of particular importance from the GSE standpoint, and created explicit linkages with the SDGs. The Program is also developing training modules focused on these capacities. (This was supported in part by the GSE programme.)
- The Equitable Transitions program addressed poverty, and social equality in various projects. It has submitted a paper on equity and climate transitions to Nature, introduced a central analysis on inequality into this year's Civil Society Equity Review report, and continued with work on the equity implications of a fossil supply decline.
- The Climate Policy group prepared a policy brief on a just transition, assessing the justice and equity outcomes in transition policy and planning in US and Thailand.

2.3 Impact stories

Working toward equal access to water

SEI researchers took a first step toward water analysis that considers inequality, by developing poverty-related indicators in WEAP.

Analysis often lacks the tools and granular data to detect the disparities that underlie inequality. For example, a model might show that water supply is plentiful at the basin level – without revealing that remote, small farms within that basin struggle with scarcity. The result is a water management system that can fail to recognize, and thus fail to address, existing inequalities.

SEI researchers tackled this challenge, using an existing poverty framework to analyse the distribution of water resources in Colombia's Campoalegre Watershed. They used SEI's Water Evaluation And Planning (WEAP) tool and detailed their results in a working paper, *Examining poverty and equality in water resources planning*.

The effort showed how an integrated water resources management analysis can be adapted and applied to gain insights on multiple dimensions of poverty. Researchers developed poverty-related indicators within WEAP using the multidimensional poverty analysis (MDPA) framework developed by the Swedish International Development Cooperation Agency (Sida).

The working paper highlighted several inequalities in Campoalegre. For example, many families live on small farms that may not generate enough income to meet their basic needs. Numerous farms also are located in remote areas with limited water access; such farms could be disproportionately affected by watershed-wide water shortages predicted to begin within the next 10 years.

Colombia's 2016 peace agreement provides an opportunity to improve the conditions in this watershed, to reduce inequities and to create paths out of poverty. But in order to identify solutions, policy-makers first need to know where the disparities lie. This framework provided a path toward water analysis that provides the necessary data to tackle inequality and poverty, in Campoalegre and beyond.

Opening the door to limiting fossil fuel supply in California

California has positioned itself as a leader on climate change, with an ambitious cap-and-trade program, stringent vehicle fuel efficiency standards, and a commitment to have zero-carbon electricity by 2045.

But the issue of fossil fuel production has remained stubbornly on the sidelines in the policy-making sphere, despite the state's role as a top crude oil producer. That began to change in late 2017 and throughout 2018, partly thanks to research from SEI showing how limiting production could help California meet its climate goals.

SEI briefed the California governor's office on its initial results in November 2017. Less than a month later, the California Air Resources Board – the governmental body charged with reducing emissions of greenhouse gases – passed a resolution to study "supply side" climate policy. Shortly thereafter, the climate advisor to the California governor then cited SEI's work in a [blog](#)

Debate on the topic further gained momentum in March 2018, when SEI released its Discussion Brief, [How limiting oil production could help California meet its climate goals](#). The brief found that California had numerous options to limit oil production and that doing so would reduce global CO₂ emissions by an amount equivalent to many sector-specific strategies in the state's climate scoping plan. It also outlined how limiting supply could ease the pollution burdens felt disproportionately by disadvantaged communities located near oil wells.

Over the next few months, SEI's brief became the go-to reference for policy-makers, advocates and academics when debating the merits of limiting California's oil supply. Bill McKibben, a high-profile environmentalist and author who founded 350.org, pointed to SEI's research in a [widely read op-ed](#) in the LA Times.— closely followed by the then-governor, Jerry Brown, bringing it up in an interview at the National Press Club.

In August, SEI staff participated in a workshop on oil convened by the California Air Resources Board. A side event – hosted by SEI and partners – followed at the Global Climate Action Summit, and which featured Jo Tyndall, climate change ambassador of New Zealand, describing that country's [“comprehensive approach”](#) to phasing out oil extraction

The issue continues to gain traction. In 2019, the California Air Resources Board is planning to release a report – time will tell whether it will move further toward limiting fossil fuel production.



SEI hosted, with NextGen Climate, a side-event alongside the Global Climate Action Summit (GCAS) in San Francisco in September 2018. Titled “Can limiting oil production make good climate policy?”, the event featured panelists (L to R) Gregor Robertson (Mayor of Vancouver), Roger Lin (UC Berkeley Environmental Law Clinic), Jo Tyndall (New Zealand’s climate change ambassador), Hanna Beth Jackson (California State Senator) and Paul Koretz (Los Angeles City Councilmember).

3 Delivering Results

3.1 Scientific Research

3.1.1 How the centre has contributed to increase the quality and impact of SEI's scientific publications

U.S. Center staff continue to publish widely, both in the peer-reviewed literature, and through SEI's and others' publication series, as show in the Annex. In 2018, SEI US staff authored or co-authored more than 30 publications, including over 20 articles in peer-reviewed journals, 7 SEI -branded publications, and several reports published by other organizations such as the International Climate Action Partnership.

Michael Lazarus also joined Harro van Asselt (SEI Oxford) in guest editing a special issue in *Climatic Change* on Fossil Fuel Supply and Climate Policy, which included three articles from SEI researchers. A second special issue on the same topic is due out in 2019 in *Climate Policy*.

3.1.2 How the centre has contributed to SEI's ambition to become a global knowledge leader through the SEI Initiatives

The U.S. Center continues to house the SEI Initiative on Fossil Fuels and Climate Change, providing initiative leadership and financial management. Charlie Heaps co-leads the Low Emission Development Pathways (LED-P). Sivan Kartha co-leads the Gender and Social Equity Programme. Various staff also contribute to other initiatives.

3.1.3 How the centre developed and deepened partnership agreements with universities and research centres.

We continue 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. In 2018, Annette Huber-Lee and Eric Kemp-Benedict co-designed and co-taught a core course in the new Sustainable Water Management (SWM) Master's degree program, an initiative of the Tufts Institute for the Environment (TIE). Eric also serves on TIE's Internal Advisory Committee, while the TIE Director, Prof. Linda Abriola, serves on the SEI US board. Michael Lazarus is adjunct faculty at the Evans School of Public Administration at the University of Washington, where he teaches Climate and Energy Policy. We also continued our joint fellowship program with the Tufts Institute for the Environment, with two interns joining us in 2018, and two more expected in 2019.

3.2 Policy engagement

3.2.1 How the center has contributed to the development of SEI's approaches to policy engagement and influence

In 2018, the Center contributed to policy engagement and impact through a range of conduits:

- Across various projects, as highlighted in Section 2, we continue to engage directly with policy-makers. This includes, for example,
 - Participating in the UNFCCC's Talanoa Dialogue and plenary (one of the few research organizations invited).
 - Serving on an expert panel on oil supply and climate convened by the California Air Resources Board.
 - The recruitment of Sivan Kartha by the IPCC Bureau (rather than by the normal country government nomination) to join the AR6 as a Lead Author in the chapter on Development Pathways.
 - Working with the California State Water Resources Control Board to build tools to define new water allocation rules and with the Ministry of Environment and Water in

Bolivia to generate regional water plans derived from the National Water Balance built with WEAP.

- We actively participated in a variety of policy forums from the UNFCCC/COP process, local and regional planning processes (e.g. California water planning, City of Seattle climate policy), the American Cities Climate Challenge, the Coalition for Urban Transitions, the Carbon Neutral Cities Alliance, 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.
- As a member of the Science and Security Board of the Bulletin of the Atomic Scientists, Sivan has helped influence the discourse on existential risks facing society, with very high-profile exposure for SEI.

3.2.2 How the center has increased the capacity of SEI staff to work at the interface between science and decision-making

During 2018, 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.

3.3 Capacity development

Capacity development is a core element of SEI US's work, and is embedded in much of our 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. Over the past six years, the Water Group has been conducting online interactive training courses and has begun to develop some insights related to the best technologies and pedagogical techniques associated with these sort of capacity-building programs. While these so far have been for small groups (4-8 people per multi-day course), we are pursuing approaches to broaden their reach, including training videos, additional tutorial modules covering intermediate and advance usage, and eventually the creation of an entire self-paced online course, combining written materials, example datasets, training videos and quizzes.

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. This suggests that it would be a good time to begin to develop some specific capacity-building materials related the use of WEAP within this decision support framework. Here, the development of instructional videos could be a very promising approach.

Capacity-building is also a core focus of the LEAP energy modelling program at SEI US, and our LEAP website has now been used for over 15 years as a key platform in supporting developing country experts working on sustainable energy policy analysis.

4 Enabling results

4.1 Communications

SEI US continues to publish extensively, from journal articles to SEI publications to web stories and op-eds. The new SEI website has helped expand the reach of this work, with many US publications, features and perspectives reaching the top-read content in 2018. Researchers have produced op-eds and letters that have appeared in the New Yorker, the LA Times and the National Observer, as well as various blogs and websites.

We also engaged with media outlets, including print, radio and television. Researchers have done interviews with PRI's The World (BBC), the New York Times, Power and Politics (CBC), Climate Home, E&E News, Seattle Times and other outlets. As in past years, our peer-reviewed studies often offer the best avenue for media outreach, though journalists have begun to call us for expertise on the news of the day.

4.1.1 How the center supported and enabled staff to be better communicators, and mobilized the authentic and diverse voices within center

We stuck with a hands-on, personal approach to developing communications in 2018. Our US communications officer worked with everyone on staff at least once during the year; that one-on-one work, coupled with the US Center retreat in October, has resulted in researchers reaching out not only for advice and guidance but also with ideas for communications products.

The Water Program has gone a step further, funding time for the US communications officer to work with its researchers more deeply on writing and communicating. As a result, some researchers have branched out in their writing, producing blog posts and SEI publications.

Writing takes time, and trial and error. This often results in only the most confident writers producing content – especially when it comes to op-eds – and that can mean that some voices don't get heard. We made some progress in 2018 on expanding the pool of confident writers, and hope to see more in 2019.

4.1.2 How the center invested in more structured and pro-active planning for communications and policy engagement

SEI US provides every researcher with some “free” time to work with the US communications officer; this helps motivate every employee to be in contact with the officer. In turn, this means the officer is more aware of ongoing projects and upcoming work – and can plan accordingly. In 2018, the US communications officer was also part of the Development Committee, which provided another avenue to learning about researchers' activities.

The Water Program also invested resources into pro-active communications planning, setting aside time for the communications officer to discuss upcoming work in regular meetings with the Program Director and occasional meetings with the entire program. The end of 2018 included a program-wide meeting on stories for the upcoming few months.

4.1.3 How the center developed more targeted content and formats that better meet the needs of users

SEI US took advantage of numerous formats in 2018, depending on the intended audience. The new SEI website, paired with Twitter, proved useful for stories and perspectives tied to the current news; the climate policy team, for example, saw success in pieces related to a debate on California's oil production and to COP24. And SEI publications were key to informing policy debate; the Center produced several timely briefs.

LEAP and WEAP continue to foster a community of users on their websites, and LEAP's Facebook group continued to be active in 2018 (<https://www.facebook.com/groups/LEAPSoftware/>).

We also successfully used Twitter to further the reach of the 2nd Conference on Fossil Fuel Supply and Climate Policy. The conference's hashtag, #FFCC18, was used widely among participants to live-tweet presentations, circulate livestream links and promote related research. Engagement continued after the conference with quality videos on every presentation, featured on both the SEI YouTube page and embedded on the conference's website.

4.1.4 How the center will deploy peer-reviewed output more effectively in order to further develop the credibility of SEI's communications

We continued in 2018 to produce content related to peer-reviewed research, in order to provide a stepping stone for various audiences to reach the work. For some, this included press releases; for others, we produced web stories or perspective pieces. It proved important to link our work to ongoing policy debates, and in some cases, this resulted in SEI's work repeatedly referenced as credible research (such as in debates over California oil and a Washington methanol plant).

4.2 Tools, knowledge/capacity platforms and ICT

4.2.1 How the center has advanced its 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 the integration of WEAP and LEAP for Nexus studies.

During the November 2018 Capacity Development Workshop in Oxford, staff from the US Center hey shared lessons with developing and using LEAP, WEAP, the Climate Equity Reference Calculator, and other tools. The success from these tools –which was recognized during the workshop – stems from the fact that their niche is not to be cutting edge and modern tools; rather, they aim to tackle complicated problems in a way that is accessible to a wider audience. Charlie Heaps and Jack Sieber were able to articulate how the success of these tools has been based on the focus on usability, transparency and flexibility. There was discussion that the next step for the tools would be to make them web-based, depending on the users' needs.

4.2.2 How the center has made SEI's tools more accessible to policy-makers and stakeholders

Highlights in 2018 included:

- A new version of LEAP under development with major new analytical capabilities including a new optimization engine (NEMO), indoor air pollution modeling capabilities, mapping of emissions to fine-scale grids, new map-based visualizations, and a new cloud-based technology database.
- LEAP trainings held in countries including Bahrain, Kuwait, Morocco, Lao PDR and Panama.
- Webinars on use of LEAP for the UNFCCC.

- High level international fora to promote our tools and research, including the launch of LEAP2018 at the U.N. Environment Assembly in Nairobi, and side events at the annual CCAC meeting in Toronto and at COP24 in Poland.
- Extensive communications via the LEAP website and the LEAP Facebook group. The website now has over 39,000 members in 195 countries and the LEAP FB page has over 1,500 members. The WEAP website has over 31,000 members in 188 countries.
- LEAP and WEAP are being used extensively. Google scholar shows that in 2018 more than 200 papers were published referencing LEAP and 186 referencing WEAP.
- Several new versions of WEAP, adding automatic river and catchment delineation, automated download and processing of global land use and climate data, links to the latest USGS groundwater modeling software, links to high performance linear program solvers, and a new plugin architecture for building new models within WEAP and enabling easy sharing with others.
- The hosting of several online interactive WEAP trainings for capacity building and the creation of several new training videos.
- Updates to the online Climate Equity Reference Calculator (CERC) and its documentation (<https://calculator.climateequityreference.org/>)

4.3 Organisation and Finance

At the U.S. 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, and thus some coordination is needed, and occurs through informal conversations across program staff.

See Section 1.3 for more discussion of organization and finance.

4.4 Monitoring and institutional learning

4.4.1 How the center has worked to further embed the PMEC system within SEI's workflows

The U.S. Center continues to undertake efforts to improve staff use of PMEC.

4.4.2 How the center has monitored, evaluated and learn 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.

4.4.3 How the center has developed and implemented relevant feedback processes between project activity and higher management

The U.S. Center has a 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.

5 Annex: List of center publications

SEI publications

- Erickson, P. (2018). Confronting carbon lock-in: Canada's oil sands. SEI discussion brief. Stockholm Environment Institute. <https://www.sei.org/publications/confronting-carbon-lock-canadas-oil-sands/>
- Erickson, P. and Lazarus, M. (2018). How limiting oil production could help California meet its climate goals. Discussion brief. Stockholm Environment Institute. <https://www.sei.org/publications/limiting-oil-production-california/>
- Erickson, P. and Lazarus, M. (2018). Towards a Climate Test for Industry: Assessing a Gas-Based Methanol Plant. Discussion brief. Stockholm Environment Institute <https://www.sei.org/publications/assessing-gas-methanol-plant/>
- Forni, L. (2018). Economic and Climate Challenges in the Mendoza Wine Region. Discussion brief. Stockholm Environment Institute. <https://www.sei.org/publications/economic-climate-challenges-mendoza-wine-region/>
- Forni, L., Escobar, M. and Moncada, A. (2018). Examining poverty and equality in water resources planning: a Colombia case study. SEI working paper. Stockholm Environment Institute. <https://www.sei.org/publications/examining-poverty-equality-water-resources-planning/>
- Galaiti, S., Veysey, J. and Huber-Lee, A. (2018). Where is the added value? A review of the water-energy-food nexus literature. SEI working paper. Stockholm Environment Institute. <https://www.sei.org/publications/added-value-review-water-energy-food-nexus-literature/>
- Verkuil, C., Piggot, G., Lazarus, M., van Asselt, H. and Erickson, P. (2018). Aligning fossil fuel production with the Paris Agreement: Insights for the UNFCCC Talanoa Dialogue. Policy Brief. Stockholm Environment Institute. <https://www.sei.org/publications/aligning-fossil-fuel-production-paris-agreement/>

Peer-reviewed journals

- Angarita, H., Wickel, A. J., Sieber, J., Chavarro, J., Maldonado-Ocampo, J. A., Herrera-R., G. A., Delgado, J., and Purkey, D.: Basin-scale impacts of hydropower development on the Mompós Depression wetlands, Colombia, Hydrol. Earth Syst. Sci., 22, 2839–2865, <https://doi.org/10.5194/hess-22-2839-2018>
- Clemens, H., Bailis, R., Nyambane, A. and Ndung'u, V. (2018). Africa Biogas Partnership Program: A review of clean cooking implementation through market development in East Africa. Energy for Sustainable Development 46 (2018), 23–31. <https://doi.org/10.1016/j.esd.2018.05.012>
- Colditz, R., Souza, C.T., Vazquez, B., Wickel, A.J., Ressler, R. (2018). Analysis of optimal thresholds for identification of open water using MODIS-derived spectral indices for two coastal wetland systems in Mexico. International Journal of Applied Earth Observation and Geoinformation, 70 (2018), 13–24. <https://doi.org/10.1016/j.jag.2018.03.008>
- Erickson, P. and Lazarus, M. (2018). Would constraining US fossil fuel production affect global CO₂ emissions? A case study of US leasing policy. Climatic Change (2018) 150:29–42 <https://doi.org/10.1007/s10584-018-2152-z>
- Erickson, P., Lazarus, M. and Piggot, G. (2018). Limiting fossil fuel production as the next big step in climate policy. Nature Climate Change, online 26 November 2018. <http://dx.doi.org/10.1038/s41558-018-0337-0>
- Forni, L., Escobar, M., Cello P., Marizza, M., Nadal, G., Girardin, L., Losano, F., Bucciarelli, L., Young C. and Purkey, D. (2018). Navigating the Water-Energy Governance Landscape and Climate Change

- Adaptation Strategies in the Northern Patagonia Region of Argentina. *Water* 2018, 10(6), 794; <https://doi.org/10.3390/w10060794>
- Ghilardi, A., Tarter, A. and Bailis, R. (2018). Potential environmental benefits from woodfuel transitions in Haiti: Geospatial scenarios to 2027. *Environ. Res. Lett.* 13(2018) 035007 <https://doi.org/10.1088/1748-9326/aaa846>
- Hyman, J. and Bailis, R. (2018). Assessment of the Cambodian National Biodigester Program. *Energy for Sustainable Development*, 46 (2018), 11-22. <https://doi.org/10.1016/j.esd.2018.06.008>
- Kartha, S., Caney, S., Dubash, N.K. and Muttitt, G. (2018). Whose carbon is burnable? Equity considerations in the allocation of a “right to extract” *Climatic Change* 150(1-2), 117-129. <https://doi.org/10.1007/s10584-018-2209-z>
- Kemp-Benedict, E. (2018). Dematerialization, decoupling, and productivity change. *Ecological Economics*, 150 (2018), 204–216. <https://doi.org/10.1016/j.ecolecon.2018.04.020>
- Kemp-Benedict, E. (2018). Investing in a Green Transition. *Ecological Economics* 153(2018), 218-236. <https://doi.org/10.1016/j.ecolecon.2018.07.012>
- Kemp-Benedict, E. and Ghosh, E. (2018). Downshifting in the fast lane: a post-Keynesian model of a consumer-led transition. *Economies* 2018, 6(1), 3; <https://doi.org/10.3390/economies6010003>
- Kemp-Benedict, E., Drakes, C. and Laing, T.J. (2018). Export-Led Growth, Global Integration, and the External Balance of Small Island Developing States. *Economies* 2018, 6(2), 35 <https://doi.org/10.3390/economies6020035>
- La Hoz Theuer, S., Schneider, L. and Broekhoff, D. (2018). When less is more: limits to international transfers under Article 6 of the Paris Agreement. *Climate Policy*, online 8 November 2018. <https://doi.org/10.1080/14693062.2018.1540341>
- Lazarus, M. and van Asselt, H. (2018). Fossil fuel supply and climate policy: exploring the road less taken. *Climatic Change*, Special issue: Fossil fuel supply and climate policy. <https://dx.doi.org/10.1007/s10584-018-2266-3>
- Mehta, V., Young, C., Bresney, S., Spivak, D. and Winter, J. (2018). How can we support the development of robust groundwater sustainability plans? *California Agriculture* 72(1):54-64. Published online March 13, 2018. <https://doi.org/10.3733/ca.2018a0005>
- Piggot, G., Erickson, P., van Asselt, H. and Lazarus, M. (2018). Swimming upstream: addressing fossil fuel supply under the UNFCCC. *Climate Policy*, advanced online. <https://doi.org/10.1080/14693062.2018.1494535>
- Purkey, D. R., Escobar Arias, M. I., Mehta, V. K., Forni, L., Depsky, N. J., Yates, D. N., Stevenson, W. N. (2018). A Philosophical Justification for a Novel Analysis-Supported, Stakeholder-Driven Participatory Process for Water Resources Planning and Decision Making. *Water* 2018, 10(8), 1009; <https://doi.org/10.3390/w10081009>
- Salinas-Rodríguez, S., Barrios-Ordóñez, J., Sánchez-Navarro R. and Wickel, A.J. (2018). Environmental flows and water reserves: Principles, strategies, and contributions to water and conservation policies in Mexico. *River Research and Applications*, online 9 August. <https://doi.org/10.1002/rra.3334>
- Schneider, L and La Hoz Theuer, S. (2018). Environmental integrity of international carbon market mechanisms under the Paris Agreement. *Climate Policy*, online 21 Sept 2018. <https://doi.org/10.1080/14693062.2018.1521332>
- Sivan Kartha, Tom Athanasiou, Simon Caney, Elizabeth Cripps, Kate Dooley, Navroz K. Dubash, Teng Fei, Paul G. Harris, Christian Holz, Bård Lahn, Darrel Moellendorf, Benito Müller, J. Timmons Roberts, Ambuj Sagar, Henry Shue, Peter Singer, Harald Winkler “Cascading Biases against Poorer Countries.” *Nature Climate Change* 8, no. 5 (May 2018): 348–49. <https://doi.org/10.1038/s41558-018-0152-7>.

Other publications

- Broekhoff, D., Piggot, G. and Erickson, P. (2018). Building Thriving, Low-Carbon Cities: An Overview of Policy Options for National Governments. Coalition for Urban Transitions. London and Washington, D.C. <https://www.sei.org/publications/building-thriving-low-carbon-cities-overview-policy-options-national-governments/>
- Kemp-Benedict, E. (2018). Cost-Share Induced Technological Change and Kaldor's Stylized Facts. MPRA Paper, 86607. Munich Personal RePEc Archive, Munich, Germany. <https://mpra.ub.uni-muenchen.de/86607/>. Working Paper.
- Kemp-Benedict, E. and Kim, Y.K. (2018). Technological Change, Household Debt, and Distribution. Working Papers 2018-02, University of Massachusetts Boston, Economics Department. <https://ideas.repec.org/p/mab/wpaper/2018-02.html>
- Malley, C., Hicks, K., Vallack, H., Kuylensstierna, J. and C. Heaps. (2018). Supporting National Planning for Action on SLCPs Using the LEAP-IBC Tool. Chapter 2 in Asian Co-benefits Partnership White Paper 2018 Quantifying Co-benefits in Asia: Methods and Applications. Ministry of the Environment, Japan. <http://cleanairasia.org/wp-content/uploads/2018/04/ACP-Quantifying-Co-benefits-in-Asia-Methods-and-Applications.pdf>
- Schneider, L., Cludius, J. and La Hoz Theuer, S. (2018). Accounting for the linking of emissions trading systems under Article 6.2 of the Paris Agreement. Discussion paper prepared for the International Carbon Action Partnership. <https://icapcarbonaction.com/en/news-archive/591-accounting-for-linking-of-ets-under-art-6-of-paris-agreement>