



# CENTER ON GLOBAL TRANSFORMATION

School of Global Policy & Strategy

## 2019-20 ANNUAL REPORT



# DIRECTOR'S MESSAGE

AUGUST 2020

I would like to begin by expressing my profound appreciation to Professor Gordon Hanson, who served as the inaugural director of the Center for Global Transformation (CGT). Under his 13 years of leadership, Gordon transformed the center from a thought experiment to a central hub for applied research and policy dialogue focused on the opportunities and challenges arising from global economic and technological change. We will miss his insights and leadership and wish him the very best of luck in his new endeavor at Harvard University.

In January 2020, I assumed the role of director and continued the excellent work that was led by Gordon and generously supported by Joan and Irwin Jacobs. It comprised a wide range of activities central to our mission including the exciting work of the flagship research centers at the School of Global Policy and Strategy (GPS):

- The Big Pixel Initiative, which supports research using cutting-edge geospatial tools to address some of the world's most pressing problems;
- The Japan Forum for Innovation and Technology, with its focus on the business and political economy opportunities and challenges of Japan and Asia;
- And the new Center for Commerce and Diplomacy, which showcases our campus as a hub of political economy research and serves as a forum for discussing insights from across the globe.

Supporting timely and innovative research is at the heart of the center and highlights from this past year included awards to support the work being done by the UN's Sustainable Development Solutions Network, research on how air quality affects the occurrence of influenza hospitalizations and deaths, and how by using big data we can offer a snapshot comparison of living standards between countries. We also supported a new study by Professor Jennifer Burney, who deploys a combination of satellite and ground-based data in her work. Published in *Nature Sustainability*, the study found that the shutdown of coal-fired units between 2005 and 2016 saved more than 22,000 lives, and more than 300 million bushels of corn.



Dean Peter Cowhey, PLF Nirupama Rao and PLF Director and Professor John Ahlquist

The Pacific Leadership Fellows program also remains at the core of the center's mission. The program brings dynamic thought leaders from business, policy and academic communities around the globe to UC San Diego. This past year we welcomed six fellows from Brazil, Canada, India and the U.S. They shared their expertise on issues central to the transformation of our social, economic and technological lives in the 21st century. I am excited to work closely with the new director of the program, Professor John Ahlquist, to ensure its continued success in the coming years.

In closing, I am enthusiastic to expand the center's activities in new directions that will broaden our focus to other areas in which the confluence of science and policy are poised to transform the well-being of societies across the planet.

UC San Diego continues to monitor the spread of COVID-19 and is working diligently to protect our campus community. Visit [cgt.ucsd.edu](http://cgt.ucsd.edu) to learn about new research underway and for timely information about virtual events and future activities at the center. Thank you for your involvement in CGT.



Joshua Graff Zivin



PLFs Rebecca MacKinnon and Bennett Freeman traveled to Tijuana, and met with business owners at the BIT Center and visited the border wall in Playas de Tijuana

## SPOTLIGHT ON POSTDOCTORAL FELLOW GREGOR SINGER

Gregor Singer is a postdoctoral researcher affiliated with the UC Institute on Global Conflict and Cooperation working alongside CGT Director Joshua Graff Zivin. He works on issues in environmental and development economics, as well as empirical industrial organization.



Gregor Singer  
Postdoctoral Fellow

Singer is currently working on a research project focused on how air quality affects the occurrence of severe influenza cases that require inpatient hospitalization. In the working paper titled "Air Pollution Increases Influenza Hospitalizations," Singer, along with co-authors Graff Zivin, Matthew Neidell and Nicholas Sanders, combine copious amounts of data on local air quality and hospital admissions across the U.S. to show that poor air quality increases the incidence of influenza hospital admissions and the effects diminish in years with greater vaccine effectiveness. In short, the authors conclude that in addition to increasing vaccination rates, improving air quality may help reduce influenza spread and severity.

A second line of Singer's current work explores the effects of electricity prices on industrial energy efficiency and industrial development using data from factories across India.

Singer received a Ph.D. from the London School of Economics and Political Science. He has also been affiliated with the Grantham Research Institute on Climate Change and the Environment and worked as a consultant for both the European Bank for Reconstruction and Development and the Global Green Growth Institute.

## YEAR AT A GLANCE 2019–20 HIGHLIGHTS

**WELCOMED SIX PACIFIC LEADERSHIP FELLOWS** from Brazil, Canada, India and the U.S., including prominent public figures such as India's former Foreign Secretary, chairman of the BSE Training Institute in India, a representative of the Brazilian government, director of the Bank of Nova Scotia, a leading corporate responsibility advocate and an authority working to promote freedom of expression and privacy on the internet.

**CONTINUED COLLABORATION** with the Big Pixel Initiative, Japan Forum for Innovation and Technology and the new Center for Commerce and Diplomacy at GPS.

**HOSTED A RANGE OF PUBLIC TALKS** on topics such as corporate social responsibility and human rights norms; India and the country's emergence as an Indo-Pacific power in 21st century Asia; energy and economic policy as well as infrastructure development; social protection in Latin America; and the international financial system, including the evolution over the last half century and what may lie ahead.

**PROVIDED RESEARCH GRANTS** to fund both ongoing and new, innovative research projects by professors and graduate students.

## ACKNOWLEDGEMENTS



Joan and Irwin Jacobs' philanthropic support has had a significant impact on numerous cultural, medical, educational and civic organizations in San Diego. Since 2006, they have supported the vision of Dean Peter Cowhey, and former director Gordon Hanson and faculty to make the creation and continued success of CGT possible. Their support enables our campus and the Greater San Diego region to become a center for reflection and action by leaders from the Pacific region, as well as a catalyst for innovative research.

# PACIFIC LEADERSHIP FELLOWS

CGT's Pacific Leadership Fellows program brings leaders to UC San Diego from around the globe to engage in dialogue, research and instruction with students, alumni, faculty and the San Diego community. Fellows comprise remarkable scholars and policymakers who shape strategy in their own countries through government, private sector and academia, and provide valuable insight into how economic and political systems are evolving. Having completed its 14th year, CGT now has hosted 101 fellows from 24 different countries.

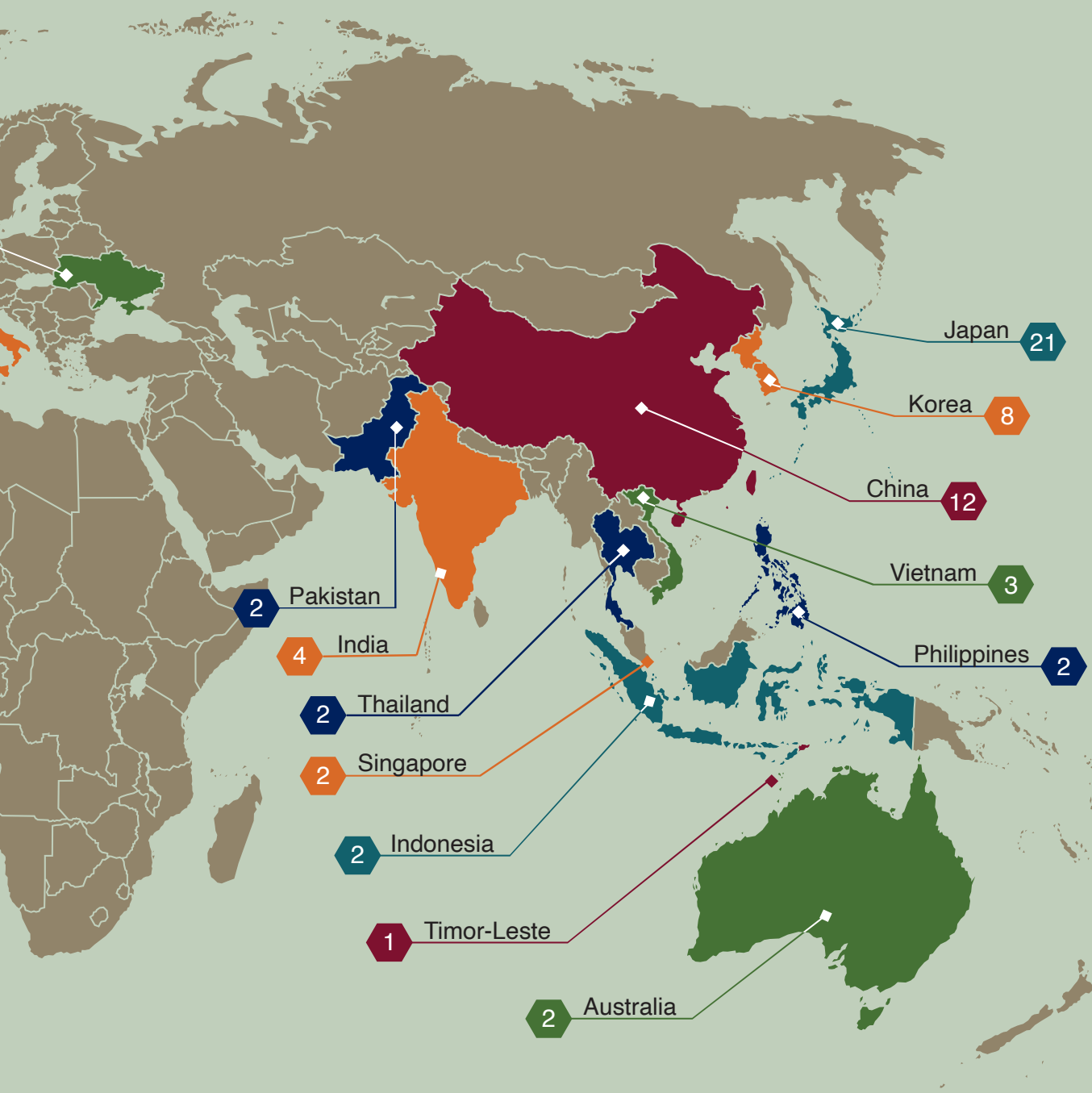
◆ Denotes number of past fellows from that country



## FELLOWS ACTIVITIES

While in residence, each fellow fulfills a number of responsibilities. Though their events and interactions vary based on interests and length of stay, each fellow will:

- **COLLABORATE** with a faculty partner on a project or initiative
- **MENTOR** students informally and in a classroom setting
- **SPEAK** at a public program or guest lecture at community events
- **ENGAGE** with other UC San Diego departments
- **CONNECT** with the broader San Diego regional community, and business, government or nonprofit leaders
- **INTERACT** with supporters and the local community





# PACIFIC LEADERSHIP FELLOWS



**BENNETT FREEMAN**

OCT. 7 - 18, 2019

Faculty Host: Stephan Haggard

## GUIDING CORPORATE RESPONSIBILITY

Bennett Freeman is a leading corporate responsibility advocate and former U.S. human rights diplomat. As principal of Bennett Freeman Associates LLC, he is a senior advisor for major corporations, foundations and NGOs on social responsibility. As senior vice president for sustainability research and policy at Calvert Investments from 2006 to 2015, Freeman reinforced the company's leadership on Sudan divestment and human rights in Burma. He also served as a presidential appointee in three positions at the U.S. Department of State in the Clinton Administration. During his residency at UC San Diego, Freeman met with faculty and students, sharing perspectives on corporate social responsibility and human rights norms. He presented a public talk on Oct. 16 with fellow PLF Rebecca MacKinnon on "Corporate Accountability and the Future of Democracy and Human Rights." He also presented a keynote at the Ethical Corporation Responsible Business West Conference, and gave a talk at the World Affairs Council.



**REBECCA MACKINNON**

OCT. 14 - 25, 2019

Faculty Host: Susan Shirk

## REBOOTING GLOBAL INTERNET POLICY

Rebecca MacKinnon is founding director of the Ranking Digital Rights program at New America, leading a team that works to promote freedom of expression and privacy on the internet. An influential authority on the internet and human rights, MacKinnon is co-founder of the citizen media network Global Voices. MacKinnon was CNN's Beijing and Tokyo bureau chief, and taught at the University of Hong Kong's Journalism and Media Studies Centre and as well as the University of Pennsylvania Law School. During her residency, MacKinnon presented a public talk with Bennett Freeman, visited Tijuana, where she met with business owners at the BIT Center and saw the border wall in Playas de Tijuana. She organized a meeting with GPS faculty to examine the topic of rebooting U.S. global internet policy for the next presidential administration, in addition to meeting with UC San Diego's 21st Century China Center Board and the GPS China Focus student group to share her perspective on the role of media in U.S.-China relations.



**NIRUPAMA RAO**

NOV. 5 - 15, 2019

Faculty Host: Peter Cowhey

## EXPLORING INDO-PACIFIC POWERS

Nirupama Rao is India's former Foreign Secretary; she was only the second woman to occupy this senior most post in India's foreign service. Rao was also the first woman spokesperson of the Indian foreign office and she served as India's first female ambassador to Sri Lanka and China. She served as ambassador of India to the U.S. from 2011 to 2013. She has also taught at Brown University and Columbia University. During her residency at UC San Diego, Rao presented a public talk on Nov. 6 entitled, "India in the Indo-Pacific World." She discussed issues confronting the world's largest democracy, India, and the country's emergence as an Indo-Pacific power in 21st century Asia. While in San Diego, Rao visited officials at the San Diego World Trade Center. She also met with Nuvi Mehta, pre-concert lecturer and a community outreach resource for the San Diego Symphony, to discuss possible collaboration with Rao's organization, the South Asian Symphony Foundation.



**SUDHAKAR RAO**

NOV. 12 - 22, 2019

Faculty Host: John Ahlquist

## ENERGY MEETS ECONOMICS IN INDIA

Sudhakar Rao is a retired Indian administrative service (IAS) officer and chairman of the BSE Training Institute in India. He served as deputy commissioner and district magistrate of Shimoga District. He also served as deputy secretary in the Department of Economic Affairs, Ministry of Finance and director in the Prime Minister's Office. Later he was joint secretary in the Ministry of Power, entrusted with the development of hydel power in the country. He then served for four years as minister in the Embassy of India in Washington, D.C. During his residency, Rao shared insight on energy and economic policy as well as infrastructure development. He gave a talk focused on Indian elections and also met with various UC San Diego faculty including Qualcomm Institute Director Ramesh Rao, Professor of Medicine Anita Raj and 21st Century China Center Chair Susan Shirk.



**TIAGO FALCÃO**

JAN. 20-31, 2020

Faculty Host: Craig McIntosh

## SOCIAL PROTECTION SHIFTS

Tiago Falcão currently serves as the national secretary of Income of Citizenship of the Ministry of Social Development in Brazil. He is an expert in public policy and government management. In 2012, he took over the Extraordinary Secretariat for Overcoming Extreme Poverty in the then Ministry of Social Development and Fight Against Hunger. His career includes other positions in the government, such as secretary of Management of the Ministry of Planning, Development and Management. As a fellow, Falcão offered insights on how the emergence of charismatic leaders, coupled with increases in social expenditures and the launch of conditional cash transfer programs (CCTs), have changed social protection in Latin America. He presented a public talk on Jan. 29 entitled "Is Populism Reshaping Social Protection in Latin America?" While on campus, Falcão met with multiple faculty members, as well as students in the schools Latin American Student Organization. He also toured San Diego State University and met with colleagues at their Center for Brazilian Studies.



**CHARLES DALLARA**

FEB. 10-19, 2020

Faculty Host: Peter Cowhey

## BREAKING DOWN THE FINANCIAL SYSTEM

Charles Dallara is director of the Bank of Nova Scotia, director of the Middle East Investment Initiative and director of the National Bureau of Economic Research (NBER). He served as chairman of the Americas and a member of the board of directors of Partners Group Holding AG until 2019. During his residency, Dallara shared his expertise on international finance and economic policy. He presented on the topic of "The Global Financial System of the Post War Era; Its Breakdown and What Lies Ahead" on Feb. 12. He discussed the Bretton Woods international financial system, its breakdown in the 1970s, the evolution over the last half century and what may lie ahead. He covered exchange rate arrangements, financial flows, macroeconomic policy and trade issues. Dallara met with various UC San Diego faculty members and students, as well as GPS International Advisory Board President Rafael Pastor.

## UPCOMING PACIFIC LEADERSHIP FELLOWS

UC San Diego continues to monitor the spread of COVID-19, working closely with local, state and national officials. We are busy planning the visits of the next outstanding cohort of fellows while working diligently to protect our campus community. Visit [cgt.ucsd.edu](http://cgt.ucsd.edu) for timely information about virtual events and future activities at the center.

**DAVID MALONE**, Under-Secretary-General, United Nations (Canada)

**MAURIZIO VECCHIONE**, Executive Vice President, Global Good & Research (United States)

**CARLOS VIANA**, Deputy Governor for Economic Policy, Brazil Central Bank (Brazil)

**KATE WILSON**, CEO, Digital Impact Alliance (United States)

**JONG-WHA LEE**, Professor, Korea University (South Korea)

## 2019 SUMMER FELLOWSHIPS

CGT's summer fellowship program was established to assist GPS students in conducting high-caliber summer internships related to research on economic growth, equality and market change in the Pacific region.



**DANIEL HORAN, MPP '20**

**Millennium Challenge Corporation, Abidjan, Côte d'Ivoire**

"I worked with the Millennium Challenge Corporation (MCC), an independent U.S. agency which finds constraints to growth in developing economies and then funds development grants to help mitigate those issues. In Côte d'Ivoire, I worked with U.S. and Ivorian staff to help refine indicator selections and then find or develop sources for baseline and ongoing data for those indicators. I also supported MCC and the U.S. Embassy during the AGOA forum, an annual conference to help promote free trade opportunities between the U.S. and sub-Saharan Africa, which was attended by 22 members of U.S. Congress."



**LIN OU, MIA '20**

**United Nations Economic and Social Commission for Asia and the Pacific (UN ESCAP), Bangkok, Thailand**

"This summer I worked as an intern in the ICT and Development Section at UN ESCAP in Bangkok. This division promotes the construction of an Asia-Pacific Information Superhighway (AP-IS) among ESCAP member countries. My daily duties included conducting research on the ICT status, generating graphs for the ICT capacity among regions by STATA, interpreting analysis into accessible briefs and assisting with the preparation of meetings. It was exciting to work with people from different countries and backgrounds, and participate in meetings where I could listen to delegates' interests and concerns."



**NICK RHODES, MIA '20**

**United States Trade Representative's Office, Washington, D.C.**

"Working at the United States Trade Representative's office, I worked quantitatively with economic data to analyze trade flows and research foreign tariff and subsidy laws to monitor WTO compliance. I made particular use of the quantitative and data management skills I learned at GPS, putting the economic concepts covered in class into a real-world context. It's very interesting to actually work in the same areas we have covered in international trade discussions in various courses."



# EXAMINING THE BENEFITS AND OUTCOMES OF THE NATIONAL INSTITUTES OF HEALTH

The National Institutes of Health (NIH) is the largest funder of biomedical research in the U.S., but what are the societal and medical benefits of this government-funded research?

CGT Director Josh Graff Zivin, together with co-authors Pierre Azoulay, Danielle Li and Bhaven N. Sampat, found that NIH funding of biomedical research leads to new patent filings by private companies and increases long-term drug sales, without crowding out private investment in other research areas.

The researchers examined NIH funding of biomedical research projects from 1980 through 2005 and sought to quantify the impact of that funding on the rate of patent production by pharmaceutical and biotechnology firms. They created an entirely new “bibliometric” database which allowed them to link NIH grants that had been cited in publications to patent applications that specifically cited those publications.

This approach allowed the authors to track the often-circuitous path from NIH funding to subsequent patentable innovations. Using publication citations and NIH project data, they also could measure whether NIH funding crowded out private research efforts.

“One of the challenges to evaluating the productivity of government-supported research is establishing direct links between specific research projects and meaningful downstream outcomes, such as a cure for a disease or development of a new blockbuster drug,” said Graff Zivin. “Scientific research doesn’t generally follow a straight path. Scientists build on the prior research of others across a wide range of areas, creating a complicated genealogy of projects which may have contributed to the creation of successful innovations.”

Overall, the study showed that NIH funding increases total private-sector patent activity. The authors estimate that each \$10 million in NIH funding generates 3.1 additional private-sector patents, with approximately half of these patents targeting a disease different from the one that formed the basis of the initial research. In financial terms, the authors’ calculations suggest that \$1 of NIH funding leads to between 70 cents and \$2.13 in lifetime pharmaceutical sales.

“The size of this effect underscores the importance of our approach to linking patents with funding,” the authors wrote. “By looking only within the same disease area when measuring impact, the prior literature in this area misses almost half of the total impact of basic science funding.”

In recognition of Graff Zivin’s work on the paper and related research on innovation, he was recently appointed as chair of the outcomes and analysis group for a National Academies of Sciences committee that examines the small business innovation programs at the National Institutes of Health.



Joshua Graff Zivin speaks about his research



# RESEARCH GRANTS

CGT fosters academic inquiry at GPS and departments across UC San Diego by offering grants for innovative research for faculty and doctoral students. The following are a selection of major projects awarded.

## MAPPING TRANSFORMED LANDSCAPES ACROSS THE PLANET

JENNIFER BURNEY, ASSOCIATE PROFESSOR; SUSANNE BENZ, POSTDOCTORAL SCHOLAR; AND KATHRYN BARAGWANATH-VOGEL, GRADUATE STUDENT RESEARCHER

The earth's land cover and energy balance are affected by human settlement and land cultivation. With support from a CGT research grant, Jennifer Burney and her colleagues are tackling three projects that look at these impacts. First, using sub-city resolution they are mapping urban temperature anomalies globally to understand the equity, diversity and development impacts of urban climate variation. Second, using above-ground information on extractions they have a better understanding of who is pumping groundwater where, how efficiently and for which crops in California's agricultural management. And third, they are creating global cropping season maps to understand total production trends and areas for potential adaptation, as well as to infer where water is being used for irrigation. With papers under review, they seek to provide both the public and policymakers with the tools to better understand how human activity has transformed landscapes across the planet, from urbanization to agriculture.



## ANALYSIS ASSISTS COVID-19 LOCKDOWN RELIEF IN INDIA

GAURAV KHANNA, ASSISTANT PROFESSOR

With support from a CGT research grant, Khanna is working with the Finance Ministry in India to support the country's COVID-19 lockdown relief efforts. Khanna and his colleagues are examining high frequency and high spatial data from the Indian government to identify which sectors are worst affected, which districts have had the sharpest reductions in economic activity, which types of firms are under threat of being adversely impacted and how infrastructure roadblocks may exacerbate these issues. Combining the government's data with other sources of firm level data,

Khanna aims to provide the government with recommendations and an outline of the situation on the ground, working to help countless people in India.

## ACCURATE MEASUREMENTS AID INTERNATIONAL PRICE COMPARISONS

MUNSEOB LEE, ASSISTANT PROFESSOR

Accurate measurement of international price indices is extremely challenging to achieve, particularly because products are not identical across countries. With support from a CGT research grant, Lee is filling in the gap by using big data. His project uses detailed transaction-level data from representative households in the U.S. and Mexico. The unique feature of the data is that every purchase is recorded at the barcode level. Therefore, Lee can compare the price of exactly the same good between the two different countries and quantify measurement error in standard price indices, ultimately offering a snapshot comparison of living standards between countries that should improve the design of social policy programs on both sides of the border.



# CONNECTING TO IMPACT: THE SUSTAINABLE DEVELOPMENT GOAL POLICY INITIATIVE

You don't need to be an expert to see that communities around the world are encountering significant threats to the environment, civic stability and health. Even before the COVID-19 crisis, headlines emerged daily about dubious choices by leaders in our government and others, with no sense of how they will come together to tackle our most entrenched problems.

In 2015, the United Nations (UN) established 17 Sustainable Development Goals (SDGs), which were adopted by all 193 UN member countries to provide an actionable definition for the shared principle of "leave no one behind."

"The SDGs in every country of the world – with the exception of the United States – are the dominant framework for how we think about the challenges of the 21st century. If you're communicating to donors abroad, to the international system, the World Bank or UNICEF, you need to communicate in terms of the SDGs," said Gordon McCord, professor and founder of the Sustainable Development Goals Policy Initiative (SDGPI) at GPS.

Through McCord, SDGPI is connected to the Sustainable Development Solutions Network (SDSN), founded by the UN following its establishment of the SDGs. SDSN USA is the domestic chapter of the global network, led by a small coordinating committee of faculty from UC San Diego (McCord), Yale University and Columbia University.

Earlier this year, McCord sought to parlay his involvement in SDSN into a campus effort, organizing projects connected to the 17 SDGs into a dynamic website. After presenting the concept to CGT leadership, the center provided seed funding for the project, which enabled McCord to hire Joseph Bettles, a GPS Master of Public Policy class of 2021 candidate, to conceptualize the website and implement its construction.

Bettles shares what this experience has meant in the context of his GPS studies. "It was one of those really lucky coincidences where all the skills I've learned up to now, and my interest, everything aligned with this position. I have a theater background, and came to GPS worrying that this put me behind, that I'd need to catch up in some of the other areas more traditionally involved in policy studies," said Bettles. "But the big requirement for this position was for someone creative, which definitely describes me. It's shown me how I can take creative skills or experiences I've had and use them to further the policy agenda for a more sustainable future."

The SDGPI website serves as a tool for understanding and exploring work related to each goal, with connections mapped dynamically and adjusted as projects evolve. Navigating by goal aligns much better with the objectives of users as they search, whether those users are prospective students, grantmakers, policymakers or collaborating faculty from peer institutions around the world.

Through SDGPI, UC San Diego projects are connected to universities around the country and world that are also using the 17 SDGs to orient the impact of their research and service. Projects can respond to and iterate from each other, reducing duplicate efforts and raising the foundation of shared knowledge on topics as crucial as biodiversity loss, healthcare and hunger.

Locally, SDGPI stands to benefit San Diego through a proposed project to collaborate with municipal and county governments on relaying best practices and insights about sustainable development goals from cities all over, from Los Angeles and Honolulu to Helsinki. Through GPS, SDGPI has the opportunity to make the global truly local, an effort that meets the aspirations and strong potential of our internationally facing, dynamic community.

Learn more at [sdgpolicyinitiative.org](http://sdgpolicyinitiative.org).





# cgt.ucsd.edu

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9500 Gilman Drive, # 0519  
La Jolla, CA 92093-0519