Business & Environment

Annual Report 2022
The Harvard Business School (HBS) Business & Environment Initiative (BEI) educates, connects, and mobilizes current and future business leaders to address climate change and other environmental challenges.

2022 might be the year the world really woke up to the realities and the urgency of climate change. We are feeling hopeful about the potential for more collective action, creative and “big” thinking, and purpose in the work of the many stakeholder groups in and around Harvard Business School—our faculty, students, alumni, and practitioners running organizations across geographies, sectors, and disciplines. While we have a long way to go and far more to do, BEI is energized by the momentum around us and we are focused on continuing to build this momentum in HBS curricular and co-curricular activities, for the benefit of all.

As we hope you will discover in the pages that follow, the School’s momentum is manifesting in powerful ways: our faculty are deeply engaged in a range of business and climate change research in the areas of decarbonization, finance, accounting, adaptation and resilience, entrepreneurship, and systems change; together with faculty, BEI is building momentum to make meaningful shifts in the MBA curriculum in business schools around the world; BEI is partnering with three new Harvard organizations that launched in 2022:

- the HBS Institute for the Study of Business in Global Society (BiGS);
- the Climate and Sustainability Impact Lab at the Digital, Data, and Design (D^3) Institute at Harvard; and
- the Salata Institute for Climate and Sustainability at Harvard.

We are increasing entrepreneurial and other career supports for students interested in working in the business and climate change space. We have adopted new platforms to foster alumni networking and student mentorship, and are grateful to be increasingly well connected with a strong and growing group of alumni working in a range of climate-related settings.

Looking back on 2022 makes us all excited for the potential in 2023. The momentum is here.

We are delighted to share this report that provides highlights from the year, and we welcome your feedback and outreach via bei@hbs.edu.

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The Business & Environment Initiative Team

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**INITIATIVES** focus on societal challenges that are too complex for any one discipline or industry to solve alone.
The Snapshot

In 2022, BEI took steps to inspire leadership in addressing climate change by convening faculty for shared learning, engaging student leadership and offering career support, facilitating networking, and creating new tools to disseminate business and environment insights.

Convened hundreds of alumni through faculty presentations and climate networking sessions at Reunions, and via virtual speed-networking sessions.

Faculty authored 22 scholarly articles, 5 new working papers, 2 books, and 8 book chapters on topics such as climate risk and regulation, carbon emissions and decarbonization, and ESG. A complete list of 2022 publications appear in the appendix (beginning on page 32).

Faculty wrote more than 40 teaching cases and over 25 teaching notes, plans, and other supplemental teaching materials on business and environment topics. More than 430,000 cases on business and environment topics were sold for use in classrooms around the world.

Students enrolled in over 18 environmentally focused and related elective MBA courses addressing tough tech, entrepreneurship, food and agriculture, sustainable cities, and sustainable investing.

Served as a hub for MBA students seeking to access the School’s business and environment resources. BEI collaborated across schools and departments to host or co-host over 25 programs and events, including weekly coffee chats, networking events, Climate Week events, and a series of sustainability career events.

In 2022, faculty offered three new climate-related EC courses: Purpose-Driven Marketing taught by Professor Liz Keenan, an Immersive Field Course (IFC) on Decarbonization and Sustainable Production, taught by Professors Mike Toffel and Willy Shih, and Global Climate Change taught by Gunnar Trumbull; and two new Short Intensive Programs (SIP): Climate Adaptation with John Macomber and Joe Allen and the Plant-Based Economy with Max Bazerman.
Business & Environment

Highlights

Objective 1
Engage and promote a faculty community on business and environment topics

Objective 2
Educate students to transform or build organizations to accelerate climate solutions

Objective 3
Disseminate insights from research and foster alumni engagement on critical environmental topics
AREAS OF DEEPENING BUSINESS & CLIMATE CHANGE RESEARCH

Many leaders are increasingly realizing that climate change matters to their business in many business units, sectors, disciplines, and geographies, but do not have the skills to develop strategies and implementation plans to identify and address the range of risks and opportunities that climate poses for their businesses. Faculty research can help leaders understand how to best conceive, implement, and evaluate action plans. Much of the recent business and climate research is centered on the following five topics where actionable insights are needed:

1. Engage and promote a faculty community on business and environment topics

   Highlights

   1. **Decarbonization**, because without it, we will not avoid the worst consequences of global climate change

   2. **Adaptation & Resilience**, because even with mitigation, we will have to deal with the implications of our actions to date

   3. **Climate Accounting & Finance**, because we manage what we measure and because climate solutions will likely need substantial capital funding

   4. **Climate Tech & Entrepreneurship**, because 35–50% of climate solutions are not yet operationalized

   5. **Systems Change to Address Climate Change**, because changing institutions and norms are vital to creating the incentives necessary to stimulate business strategies and products/services to mitigate climate impact and facilitate climate adaptation and resilience
NEW BEI FACULTY AFFILIATES

BEI welcomed four new faculty affiliates in 2022. Daniel Green, an Assistant Professor of Business Administration, whose research focuses on corporate finance, capital markets, and financial intermediation as well as divestment and impact investing; Rosabeth Moss Kanter, Ernest L. Arbuckle Professor of Business Administration, who specializes in strategy, innovation, leadership for change, and the impact of climate on cities; Tarun Khanna, Jorge Paulo Lemann Professor, who has studied entrepreneurship as a means to social and economic development in emerging markets, impact investing, and energy; and Willy Shih, Robert and Jane Cizik Professor of Management Practice in Business Administration, whose expertise is in manufacturing, product development, and decarbonization.

FACULTY SEMINAR SERIES

An increasing number of faculty are expanding research and teaching efforts to include business and environment topics. In order to illuminate the range of work being done on climate change at HBS, BEI partnered with BiGS to organize a series of research roundtables:

- “Harvard’s Climate and Sustainability Ambitions for Research, Teaching, and Campus Operations” with Jim Stock and Mike Toffel
- “Accelerating Decarbonization: A Research Agenda” with George Serafeim, Mike Toffel, and Peter Tufano
- “E-liability Accounting: Decarbonizing Corporate and Harvard University’s Supply Chains” with Robert Kaplan and Karthik Ramanna
- “Can Finance Save the World? Measurement and Effects of Coal Divestment Policies by Banks” with Lauren Cohen, Daniel Green, and Boris Vallee

CLIMATE & SUSTAINABILITY IMPACT LAB OF THE DIGITAL, DATA, AND DESIGN INSTITUTE AT HARVARD

This lab, co-led by Professors George Serafeim, Mike Toffel, and Peter Tufano, seeks to enhance the University’s ability to drive operational and business model sustainability transformations by establishing and sharing an inventory of climate-related datasets, conducting research on decarbonization, and leveraging research to catalyze action. In collaboration with BEI, the D^3 Assembly Series on Climate & Sustainability showcases conversations with HBS alumni and other leaders taking action in business, climate, and sustainability.
INSTITUTE FOR THE STUDY OF BUSINESS IN GLOBAL SOCIETY

The Institute for the Study of Business in Global Society (BiGS), launched in 2022, and led by Professor Debora Spar and Drew Keller, brings together a community of scholars, students, and practitioners to examine those areas where business and society interact and occasionally collide, and to explore how business can help address some of society’s greatest challenges. Climate change is one of several critical issues that BiGS is focusing on. Established as a research-based platform to address topics of worldwide importance to business, BiGS integrates and amplifies work currently underway at HBS and sparks new avenues of inquiry. For climate change, this means exploring ways to share the research output of HBS’s 40+ BEI faculty affiliates who are examining a wide range of climate and sustainability related topics. Contributing to this body of knowledge will be the work that will be generated by BiGS Climate Fellows when they arrive on campus in 2023, with whom BEI will also collaborate.

In September, BiGS partnered with the Harvard Law School, Harvard Kennedy School of Government, and the Harvard Data Science Initiative to host “Reimagining the Role of Business in the Public Square” in Klarman Hall on HBS’s campus. The event brought together leaders from public, private, and non-profit sectors to identify and implement practical, principled, and effective ideas to make meaningful progress on ESG commitments, metrics, and accountability.

SALATA INSTITUTE FOR CLIMATE & SUSTAINABILITY AT HARVARD

Over the summer, James Stock, Vice Provost for Climate & Sustainability, announced the creation of the Salata Institute for Climate & Sustainability at Harvard University. The Institute will support University-wide efforts in research, education, and engagement in climate and sustainability. HBS faculty are supporting the institute in several ways, including Professor Peter Tufano serving as Senior Advisor, and Professor Mike Toffel serving on the faculty advisory board.

The Salata Institute’s Committee on Climate Education (CCE) convenes senior leaders and faculty across Harvard whose research and teaching focuses on preparing Harvard students for leadership in a world with a changing climate. The CCE seeks to envision the future of climate education across Harvard’s schools and to prioritize how to improve climate education at Harvard. The original Committee—which HBS supported via Professors Bharat Anand, Shawn Cole, Forest Reinhardt, and Gunnar Trumbull, as well as BEI Director Lynn Schenk—produced its first report and set of recommendations to advance climate education at Harvard in August 2022.

With support from BEI, the Salata Institute hosted its inaugural kickoff event in 2022 to grow the network of climate-focused students across Harvard and discuss how the Institute can support and empower student leaders to develop climate and sustainability solutions.
AWARDS

*Accounting for Climate Change Wins 63rd Annual HBR McKinsey Award*

In April 2022, the Annual HBR McKinsey Award that honors the best Harvard Business Review article of the year was awarded to Professor Robert S. Kaplan and University of Oxford Blavatnik School of Government Professor Karthik Ramanna for *Accounting for Climate Change*.

*2022 Journal of International Business Studies Decade Award*

The Journal of International Business Studies (JIBS) Decade Award, which recognizes the most influential paper published in the Journal of International Business Studies (JIBS) one decade prior, was awarded to Professor George Serafeim and London Business School Professor Ioannis Ioannou for their article “What Drives Corporate Social Performance? The Role of Nation-level Institutions.”

*Responsible Business Education Awards*

The Financial Times Responsible Business Education Awards honor strong examples of work by business schools that focus on people and planet alongside profit. Runners up include Professor Stuart C. Gilson and Sarah L. Abbott, HBS Research Associate, for “PG&E and the First Climate Change Bankruptcy.”

*SAGE Early Career Trajectory Award*

Professor Ashley Whillans, a BEI faculty affiliate, received the SAGE Early Career Trajectory Award, which recognizes outstanding achievements by early career scholars in social and personality psychology, including contributions to teaching, research, or service to the field.

BOOKS

*Purpose + Profit: How Business Can Lift Up the World by George Serafeim*

Backed by cutting-edge research by Professor George Serafeim, *Purpose + Profit* explores:

- The tactical ways that companies can put the new analytics of doing good into practice, and design initiatives that have positive impact;
- The six archetypes of value creation enabled by these new trends;
- The role of investors and how their recognition that robust management of material ESG issues can pay off in the capital markets is critical to keeping companies on the right path; and
- How we can all look at our choices and our careers through the lens of these societal trends and manage our behavior to drive impact in our lives and for our organizations.
MBA REQUIRED CURRICULUM

Environmental opportunities and challenges are embedded in 8 out of 11 Required Curriculum courses, preparing MBAs to make business decisions involving sustainability issues. In 2022, 17 class sessions in the Required Curriculum featured discussions of cases in which environment was a critical consideration, on topics ranging from decarbonization to impact investing.

MBA ELECTIVE COURSES

BEI-affiliated faculty offered the following 11 environmentally focused elective MBA courses—and 7 additional related courses—and the enrollment of these courses was over 900 students:

**Building Sustainable Cities**
Professor John Macomber
Provides students with tools to address rapid urbanization, increasing pressure on the environment and on basic resources, and the growing difficulty governments face in managing the confluence of these trends.

**NEW**
*Denmark and the Netherlands: Decarbonization & Sustainable Production*
Professors Willy Shih & Mike Toffel
This Immersive Field Course (IFC) offered a unique educational experience, where students convened in the classroom in Fall 2022 to prepare for on-site interactions in January 2023 with business leaders in Denmark and the Netherlands who are engaged in decarbonization including renewable energy production and storage, and sustainable production of industrial and consumer goods.
Entrepreneurial Solutions to the World’s Problems
Professor William Sahlman

The basic premise of this course is that entrepreneurs view problems as opportunities, from climate change to pandemics.

Food and Agribusiness
Professor Forest Reinhardt

A survey of the global food and agribusiness system and management issues associated with changing consumer preferences, technological advances, public policy shifts, food safety, and risk management.

NEW
Global Climate Change
Professor Gunnar Trumbull

Explores the impact of human-induced climate change on modern society and economy. The premise of the course is that a changing climate, and the way we respond to it, will ultimately affect and even transform every aspect of modern capitalism.

Grand Challenges for Entrepreneurs
Professor Tarun Khanna

Addresses entrepreneurs working to create public goods to address grand challenges, as well as entrepreneurs building for-profit solutions atop these public goods.

NEW
Purpose-Driven Marketing
Professor Elizabeth Keenan

In the face of global challenges from widening inequality to a climate in crisis, it is becoming increasingly clear that many consumers want the values of brands they engage with to align with their own, and business is responding.
Reimagining Capitalism: Business & Big Problems
Professor Ethan Rouen
Explores the idea that problems such as environmental degradation and accelerating inequality can be effectively addressed by high performing private firms.

Social Entrepreneurship & Systems Change
Professor Brian Trelstad
Looks at how systems change requires entrepreneurs to think beyond their own organizations to collaborate within their field and to motivate collective action, and to combine direct impact with the indirect effects of changing culture and shaping policy.

Sustainable Investing
Professors Shawn Cole & Vikram Gandhi
Explores whether investors should incorporate what have traditionally been considered “non-financial” criteria in their decisions: for example, climate risk, environmental sustainability, minority representation on boards, and even the potential to create social good.

Tough Tech Ventures
Professors Joshua Lev Krieger & Jim Matheson
Tough technology has the potential to transform incumbent industries and tackle our most pressing societal issues and this course will dig deeply into these challenges to provide impactful and actionable frameworks to drive impact at scale.
**Business Opportunities in Climate Adaptation**
Professors John Macomber & Joe Allen

In January 2022, students participated in a new Short Intensive Program (SIP), co-developed with BEI. Professor John Macomber, along with Professor Joe Allen at the Harvard Chan School of Public Health, designed the course to address the key business opportunities looking through the lens of climate risk in infrastructure, real estate, buildings and public health.

“**For me the most important takeaways from this SIP was how complex the solutions to climate change are and visibility into the main challenges business leaders face when developing resolutions to the most complex problem of the 21st century. The solutions will require public and private partnerships to create sensible policy, drive technological innovation, and employ efficient use of capital. The course was an incredible opportunity to interact and network with industry leaders as well as fellow classmates with interests in the field. The course gave me a practical understanding of the tools and methodologies used to fight climate change and I will carry these lessons with me as I develop my career vision.**”

Dee Taylor  MBA 2023

**Opportunities in the Plant-Based Economy**
Professors Max Bazerman

This Short Intensive Program (SIP) featured a group of highly accomplished speakers from a wide array of functions, explored this burgeoning industry from all angles, and addressed cellular agriculture, alternative proteins, human health, and animal rights.

“The SIP reinforced my dedication to the field and belief in the promise of a plant-based future. As someone looking to join an early-stage operator in this space, I felt a ton of energy that reassured my decision to pursue my career in the field. There is so much to be done in this sector that I am beyond enthusiastic to roll up my sleeves and get to work!”

Monika Berankyte  MBA 2022
INDEPENDENT PROJECTS

Many HBS students extend their learning beyond the classroom through faculty-supervised Independent Projects (IPs). IPs take many forms—for example, students have advised companies on their sustainability strategies, written business plans for environmental ventures they would like to launch, and co-authored teaching cases with faculty. In the fall of 2022, there were over 15 business and environment related Independent Projects, ranging from carbon credits to alternative proteins.

NEW RESOURCE GUIDE: PROVIDING STUDENTS WITH A BUSINESS & ENVIRONMENT ROADMAP

In 2022, 50% of incoming RCs indicated an interest in BEI on their application and 41% of all current students are interested in business and environment topics. BEI partnered with HBS Admissions to introduce these students to the School’s business and environment offerings through Admitted Student Welcome sessions and interactive webinars. Upon arrival on campus, BEI welcomed them at the School’s Business & Environment Kickoff, where they met BEI faculty affiliates, leaders of School’s environmental clubs, Student Sustainability Associates, sector leads from the Career and Professional Development department, Sustainability Operations staff, and iLab entrepreneurial leaders.

Additionally, BEI developed a living resource guide for students to keep up to date with the growing range of resources and opportunities around business and environment at HBS, Harvard, and the Greater Boston area.
SUPPORTING STUDENT CLUBS

With over 400 members, three student clubs dedicated to business and environment continued to increase their visibility and impact: the Energy & Environment Club; the Food & Agriculture Club; and the Sustainability Club. With BEI, the Sustainability Club hosted “Continuing Conversations” throughout the semester, which offered students an opportunity to further explore RC cases with business and environment themes.

The three clubs collaborated to host a one-day Climate Symposium called “Tackling Climate Together,” which attracted more than 500 students. The symposium focused on the intersection of climate change and the critical need for businesses, individuals, policy makers, and consumers to come together to develop innovative solutions that address the climate challenge.

“Chairing the Climate Symposium with Angela Son and Nina Dewees was one of the most important experiences of my time at Harvard Business School. The (green) energy was palpable as we brought together creative, passionate students and business leaders for a day of thoughtful conversations on the challenges and opportunities in climate. I continue to be inspired by the entrepreneurial solutions to climate change evolving within each sector and across them, from energy to food to the built environment and so much more.”

Laura Romine  MBA 2023
RECOGNIZING STUDENT LEADERSHIP

Energy & Environment Club
- Co-Presidents
  - Ashwin Bhanot
  - Maude Hoffman

Food & Agriculture Club
- Co-Presidents
  - Nina Dewees
  - Sommers Kline

Sustainability Club
- Co-Presidents
  - Erin O’Malley
  - Angela Son

Student Association
- Vice President of Sustainability
  - Dhruv Pillai

Student Sustainability Associates
- Audrey Atencio
- Ryan Boyd
- Fang Chen
- Zach Denny
- Paul Divet
- Nick Gannon
- Tommaso Ruggeri
- Tatiana Theoto
- Valeria Tiberi
- Wray Wang

PROMOTING SUSTAINABILITY CAREER OPPORTUNITIES

BEI continues to develop and build on programming that supports students interested in pursuing careers in business and environment related fields. In summer 2022, over 65 MBA students found internships at the intersection of business and the environment. Over the summer, BEI organized a series of networking events to support and connect students working with organizations in roles or on projects focused on business and the environment. BEI showcased some of these students through the BEI Blog.

This year, BEI collaborated with the Career and Professional Development (CPD) office to promote several sustainability career events, including: Careers in Sustainability and Small Group Conversations with Katie Kross; Careers in Energy and Cleantech; Solving Climate and & Sustainability Problems with Jim Matheson; Career Conversations: Investing in Cleantech, Energy, and Infrastructure; and Career Conversations: Cleantech/Greentech.
STUDENT NETWORKING OPPORTUNITIES

**Speed-Networking on Meetaway**
BEI facilitated several virtual networking sessions for students to gain insight from alumni working at the intersection of business and environment through short conversations using the Meetaway platform. These speed networking conversations fostered over 300 connections.

**Summer Fellowships & Internships Networking with Social Enterprise Initiative**
Over the summer, BEI and Social Enterprise Initiative (SEI) hosted a meet-up for students working in roles or on projects focused on business and the environment. This discussion provided an opportunity for students to meet each other, share ideas, topics, trends, or challenges they wanted to raise for brainstorming.

**Sustainable Business & Climate Tech Networking Reception**
In collaboration with the Sustainable Business Education Collaborative (SBEC) schools and programs, students and alumni were invited to the HBS campus in July to meet others interested in sustainability, climate tech, and ESG, and get to know one another through a series of short conversations and speed networking prompts. The event provided an opportunity to meet others interested in sustainability, climate tech, and ESG, and get to know one another through a series of short conversations and speed networking prompts.

*SBEC includes the following schools: Cornell, Duke, HBS, MIT, Stanford, UC Berkeley, University of Michigan, and Yale.*

**HBS & MIT Environment & Sustainability Student Networking Event**
In an effort to connect HBS and MIT students dedicated to sustainability and confronting climate change, BEI and the MIT Sloan Sustainability Initiative hosted an evening networking event in October to foster cross-school connections that empower students to develop climate and sustainability solutions together.
STUDENT-ALUMNI MENTORSHIP

BEI maintains relationships with a number of organizations and individuals who can offer career advice and opportunities to current students. This year, BEI offered several ways to connect with alumni. In the fall, BEI launched the mentor program using an online platform (Chronus) to facilitate relationships between students and alumni pursuing careers that address climate change and other environmental challenges. 

BEI partnered with the Harvard iLab to establish several climate entrepreneurship mentors, where students are offered the opportunity to meet with entrepreneurial Climate Experts across a variety of industries.

BEI COFFEE CHATS

BEI hosted weekly coffee chats throughout the semester where students met with our team to discuss the wide range resources available to students interested in pursuing opportunities related to business and environment. Many students took advantage of this opportunity to connect with classmates and our staff, share experiences, and ask questions about academics, faculty research, mentorship, career opportunities, etc.

CLIMATE WEEK™

BEI supported a series of events as a part of Climate Week in partnership with HBS Sustainability Operations, including a ‘Greener by Default’ webinar, an eating sustainably campaign in Spangler Dining Hall, and a Campus Tree Tour.

Climate Week NYC™ is an annual event that brings together the most influential leaders in climate action from business, government, and the climate community to drive climate action.

COP27 FIRESIDE CHAT WITH PROFESSOR TUFANO

In November 2022, UNFCCC (COP27) was held in Sharm El-Sheikh, Egypt, with the goal of building upon previous successes and paving the way for future ambitions to tackle the global challenge of climate change. At this fireside chat, Peter Tufano, Professor & Senior Advisor to the Salata Institute for Climate & Sustainability, shared with students his experience and key takeaways.
INDEPENDENT PROJECT INFORMATION SESSION

Each year, BEI supports students interested in developing an Independent Project (IP) focused on helping businesses approach the environmental challenges of today’s world. Led by Professor Macomber, he outlined the steps it takes to develop a successful IP, as well as examples of IPs he has supervised in the past.

DIGITAL, DATA, AND DESIGN INSTITUTE ASSEMBLY SERIES ON CLIMATE & SUSTAINABILITY

The series showcases conversations with HBS alumni leaders taking action in business, climate, and sustainability and is organized in collaboration with BEI and Digital, Data, and Design Institute (D^3). The first in the series featured a discussion between Professor George Serafeim, Julia Brady (MBA 1997), Partner at Valo Ventures, and Erik Osmundsen (MBA 1997), Partner at Verdane, on Building and Scaling Climate Solutions. The next in the series featured a discussion between George Serafeim and Reynir Indahl (MBA 1998), Partner of Summa Equity, an investment firm focused on companies that address key global challenges.
SUPPORTING CLIMATE ENTREPRENEURSHIP

In partnership with the ilab, BEI offered students the opportunity to meet with Climate Experts in a variety of industries. Expert Resources include serial entrepreneurs, venture capitalists, creative directors, lawyers, and more. MBA students were encouraged to schedule 1:1 time with seasoned experts to gain valuable knowledge and support.

In collaboration between BEI and the Rock Center for Entrepreneurship, Shara Ticku (MBA 2017), Co-Founder and CEO of c16 Biosciences, joined as an Entrepreneur-in-Residence (EiRs). EiRs have founded, sold, or IPO’d successful ventures in tech, consumer products, healthcare, biotech, media and entertainment, and more.

Harvard iLab Climate Entrepreneur’s Circle

The Harvard Climate Circle is cultivating the next generation of climate entrepreneurs who are actively uncovering new, unexpected ways to take on climate change. Climate Circle participants have access to world-class 1:1 coaching, pro bono legal counsel, warm connections to industry leaders, negotiations advising, and a peer group of ventures that are all working on innovative solutions to tackle climate change. The program is spearheaded by the Harvard Innovation Labs, BEI, and Harvard Alumni for Climate and the Environment. The 2022 Climate Circle cohorts include 28 startups.

NucleateEco

In an effort to support entrepreneurs, BEI has partnered with NucleateEco to provide sponsorship and connections with students seeking to create companies working on solutions related to climate change. NucleateEco offers three Eco tracks: food & agriculture, chemicals & energy, and consumer products.

Harvard Business School Online: Sustainable Investing Course

In 2022, Professors Shawn Cole and Vikram Gandhi launched “Sustainable Investing”, a course that teaches how to evaluate environmental, social, and governance (ESG) factors and how to manage impact investments.
New Venture Competition

The New Venture Competition is an annual competition sponsored by the Rock Center for Entrepreneurship and Social Enterprise Initiative open to all students and alumni who are launching new business and social impact ventures. This year, climate and sustainability were topics covered by over 30 entrants, underscoring the growing level of interest and opportunities to address this critical issue. The winners of both the Tough Tech Prize and Alumni Track had innovative approaches to confronting the climate challenge: Aaron Sabin (MS/MBA 2023) won the Tough Technology Prize for Carbon Vacuum and Steven Henderson (MBA 2016) and Michael Carter won the Alumni Track for FleetZero.

TOUGH TECH PRIZE WINNER

Carbon Vacuum
Aaron Sabin
MBA 2023

Carbon Vacuum is commercializing technology developed at Harvard that mimics the ocean’s natural process of absorbing CO2 using renewable electricity.

ALUMNI TRACK WINNER

FleetZero
Steven Henderson
MBA 2016

Fleetzero is building a fleet of electric ships to deliver cargo without a green premium.

SOCIAL ENTERPRISE TRACK FINALIST

Snappea
Maddie Gray MBA 2022
Courtney Irwin MBA 2022
Noah Lizerbram MBA 2022
Varun Nagarajan MBA 2022

Snappea is a network of fridges located in convenient community locations that brings discounted produce to those experiencing nutrition insecurity.

“We began working on Snappea, which delivers fresh and affordable produce to pick up sites at a time that works for our customers’ schedules, during the Startup Bootcamp Short Intensive Program (SIP) during our required curriculum (RC) year. We all met in an advisory group called “The Society We Need,” which created space for small group discussions around the pathway towards building a more sustainable and equitable future. Through this advisory group, we realized we shared a passion for eliminating nutrition inequity, but that this passion came from very different places—from interests in economic development, social determinants of health, and environmental sustainability. As we ideated business models and solution ideas that could achieve these two ends, Snappea was born.”

Maddie Gray MBA 2022
EDUCATING STUDENTS AROUND THE WORLD ON BUSINESS & ENVIRONMENT TOPICS

In FY 2022, more than 430,000 copies of cases with significant environmental content were sold for use in classrooms around the world with top sales in Australia, United States, and Japan. The three top-selling cases (noted below) address strategic opportunities associated with environmental innovation:

- Unilever’s New Global Strategy: Competing through Sustainability
- Tesla Motors
- Sustainability at IKEA Group

Executive Education

The Advanced Management Program is designed to bring about a full-scale change that empowers executives to create and renew competitive advantage for their organizations. In 2022, AMP included a segment on business and climate change taught by Professor Gunnar Trumbull.

HBP Course Collections: Disseminating Business & Environment Course Materials to Educate Students Around the World

Harvard Business Publishing (HBP) Course Explorer enables faculty at schools around the world to discover new content for their courses. In partnership with HBP, BEI curated a library of course materials focused on sustainability, including the following topics:

- Climate Adaptation Collection
- Responsible Business Education Award-Winning Cases
- Sustainability in the Core Collections: Accounting, Marketing, Operations Management, Strategy
- The Sustainable Future of Food and Agriculture Collection
Disseminate insights from research and foster alumni engagement on critical environmental topics

ALUMNI EVENTS

Early Stage Investing in the Plant-Based Economy

In January, alumni were invited to join for a behind the scenes look at one of HBS’ short intensive programs (SIPs), “Opportunities in the Plant-Based Economy” taught by Professor Max Bazerman, alongside Paresh Patel (co-founder, President, Chief Executive Officer and Director of the Natural Order Acquisition Corp. (NOAC) and MBA class of 2000) and Seba Cossia Castiglioni (co-founder and Chair of the Board of NOAC). Over 40 alumni registered to attend a panel on early-stage funding in the plant-based economy.

Meetaway

In April, BEI hosted a series of alumni-to-alumni speed networking events to foster connections for alumni working in or looking to work in climate-related sectors. All events were hosted virtually on Meetaway, a platform that facilitates short, 1:1 conversations. Over 200 connections were made across sectors, including Sustainable Food & Agriculture, Climate Finance & Investing, Energy & Clean Tech, and Climate, generally.

Entrepreneurship Summit: Leading High-Growth Ventures in an Unpredictable World

In November, a select group of alumni founders, builders, and VC investors gathered together for a two-day convening that provided a rich opportunity to forge connections through HBS with leaders of high-growth, deep tech, and biotech ventures. The goal was to provide attendees with concepts they can immediately apply to their business in addition to valuable connections that will move it in a strong direction. The summit included a BEI hosted session on “The New Gold Rush in Climate Entrepreneurship: Learnings & Opportunities in Today’s Climate Change Landscape”.

**Reunions**

Summer and Fall Reunions featured extensive climate programming, including different opportunities to engage with the BEI team and faculty, tours, an open house, faculty presentations, and a live recording of the Climate Rising Podcast:

**Decarbonization**
- “Decarbonizing the Americas” by Professor Tarun Khanna
- “Geopolitics and the Energy Transition: How the Drive to Net Zero is Changing Global Politics” by Professor Meghan O’Sullivan, Harvard Kennedy School
- “Collaborating with Companies to Accelerate the Energy Transition” by Professor Mike Toffel interviewing Jules Kortenhorst (MBA 1986), CEO, Rocky Mountain Institute (which also became a Climate Rising podcast episode)

**Adaptation & Resilience**
- “Climate Adaptation: How Investors Think About Resilience” by Professor John Macomber

**Climate Accounting & Finance**
- “Accounting for Change—A Conversation with Professor George Serafeim” with Professors George Serafeim and Debora L. Spar
- “Investing Sustainably” by Professor Sara L. Fleiss
- “Sustainable Investing—The New Normal?” by Professor Vikram Gandhi

**Climate Tech & Entrepreneurship**
- “5 Technologies That Will Change the World. How Will They Affect Your Journey as a Leader?” by Professor Shikhar Ghosh
- “Entrepreneurial Solutions to World Problems” by Professor Bill Sahlman

**Systems Change to Address Climate Change**
- “Board of Directors and the Social Responsibility of Business” by Professor Suraj Srinivasan
- “Climate Hackers: How Firms Big and Small are Leading the Transition to a Post-Carbon Society” by Professor Gunnar Trumbull
- “Confronting Climate Change” by Professor Daniel Schrag, Sturgis Hooper Professor of Geology at Harvard University
- “Five Ways to Make Things Better: Taking Positive Action in a Troubled World” by Professor Rosabeth Moss Kanter
- “The Role of Business in Society: Listening to Consumer-Citizens” by Professor Peter Tufano
2022 marked a new host of the Climate Rising podcast, BEI Faculty Chair Mike Toffel, and the production of almost twice as many episodes as in 2021. The podcast addressed several themes, including corporate decarbonization plans and strategies; corporate climate change collaborations with ENGOs and consultancies; and carbon removal strategies. Leaders from operating companies, consultancies, and ENGOs discussed what companies are doing, can do, and should do to confront climate change. 2022 marked a 263% year-over-year increase of total number of downloads. Below is a list of episodes by category:

### Decarbonization
- The HP Way to Net Zero: Ellen Jackowski, HP’s Chief Impact Officer
- How BlocPower is Decarbonizing Buildings: Donnel Baird, Founder and CEO of BlocPower
- Supply Chain Decarbonization: Walmart’s Project Gigaton: Kathleen McLaughlin, Chief Sustainability Office at Walmart, Inc. and President of the Walmart Foundation
- The Aspen Institute’s Shipping Decarbonization Initiative: Ingrid Irigoyen, Director of the Aspen Institute Shipping Decarbonization Initiative
- Strengthening Carbon Offsets: The Oxford Offsetting Principles: Myles Allen, Professor of Geosystem Science at the University of Oxford and Director of the Oxford Net Zero initiative
- How Harvard is Going Fossil-Fuel Free: Jaclyn Olsen, Associate Director of Harvard’s Office for Sustainability, and Erin Craig, Vice President of 3 Degrees
- XPRIZE: Accelerating Climate Change Solutions: Marcius Extavour, XPRIZE’s VP Climate and Energy
- How Footwear Startup Allbirds is Decarbonizing Fashion: Joey Zwillinger, Allbirds Co-founder and Co-CEO
- How New Belgium is Fighting Climate Change One Pint at a Time: Katie Wallace, Chief ESG Officer of New Belgium Brewing Company, and Adam Fetcher, Senior Director of Communications and Public Engagement

### Collaboration
- How World Wildlife Fund Partners with Companies on Climate Change: Carter Roberts, President/CEO of World Wildlife Fund US
- How RMI Collaborates with Companies to Accelerate the Energy Transition: Jules Kortenhorst, CEO of RMI
- How Ceres Supports Corporate Boards to Accelerate Climate Action: Steven Rothstein, Managing Director, Ceres Accelerator for Sustainable Capital Markets
- How CDP Drives Corporate Climate Disclosure: Paul Dickinson, Founder Chair, CDP
- How Environmental Defense Fund Engages Companies on Climate Policy: Victoria Mills, Managing Director of Environmental Defense Fund’s EDF+Biz program
Carbon Removal

- U.S. DOE’s Jigar Shah & the State of Carbon Removal: Jigar Shah, Director of the U.S. Department of Energy’s Loan Programs Office
- Tech-based Carbon Removal: Sustaera’s Direct Air Capture: Shantanu Agarwal, Co-Founder and Director of Sustaera
- Nature-based Carbon Removal: DroneSeed’s Reforestation Model: Grant Canary, CEO of DroneSeed

Bonus

- Rebecca Henderson: Can Capitalism Address Climate Change
- Climate Change Lessons from the U.S. Navy: Forest Reinhardt & Michael Toffel
- Making Infrastructure Climate Ready: Alice Hill, Council on Foreign Relations
- A Lookback at COP27: How Do Companies Engage in Global Climate Policy? Nat Keohane, President of the Center for Climate and Energy Solutions (C2ES)
BUSINESS & ENVIRONMENT INITIATIVE BLOG POSTS

The Business & Environment Initiative (BEI) blog highlights how different stakeholders associated with BEI are confronting climate change, including features of faculty, alumni, students, and staff:

Curricular Opportunities
- “Pursuing Independent Projects” by Drew Keller (MBA 2022)
- “Short Intensive Program (SIP): Climate Adaptation” by Lynn Schenk
- “Short Intensive Program (SIP): Opportunities in the Plant-Based Economy” by Sutton Guldner (MBA 2022) and Monika Berankyte (MBA 2022)

Career Advice
- “Advice from My HBS Career Journey in Renewable Energy” by Alsey Davidson (MBA 2022)
- “Alumni Leaders on Decarbonization Strategies for Combatting Climate Change” by Lynn Schenk
- “Career Advice: Starting a Sustainable Startup” by Mike Kelly (MBA 2022)
- “Career Advice: Transforming the Energy Industry” by Amrit Jalan (MBA 2022)
- “Energy and Cleantech: Career Advice from the Career & Professional Development Office” by Phillip Andrews, CPD
- “Lessons Learned from My HBS Career Journey in Environmental Sustainability” by Aditya Desai (MBA 2022)
- “Student Spotlight: Summer Internships in Business & Environment” by Elise Clarkson

Event Recaps
- “2022 Climate Symposium: Tackling Climate Together” by Elise Clarkson
- “ClimateCAP 2022” by Laura Romine (MBA 2023)
- “New Venture Competition 2022: Business and Environment Ventures” by Elise Clarkson
- “Nucleate Eco: Connecting Aspiring MBA Entrepreneurs with Cutting Edge Climate Research” by Sutton Guldner (MBA 2022) and Jesse Lou (MBA 2022)

NEWS FEATURING BUSINESS & ENVIRONMENT INITIATIVE & PARTNERSHIPS

For further reading on Business & Environment Initiative (BEI) and our recent partnerships:

Business & Environment Initiative
- 6 Things to Know about Sustainability at HBS
- Celebrating Earth Day 2022 with the HBS Business and Environment Initiative
- What climate education should look like

Digital, Data, and Design Institute
- Understanding the Digital, Data, and Design Institute at Harvard

Institute for the Study of Business in Global Society
- Educating, Connecting, and Mobilizing Around Climate Change

Salata Institute
- A global beacon on climate change
- Launching Salata Institute to marshal Harvard resources to fight climate crisis
- New institute to unite, advance Harvard efforts to stem tide of climate crisis
- The Future of Climate Education at Harvard University
**CREATING EMERGING MARKETS SUSTAINABILITY SERIES**

In 2022, BEI partnered with the HBS Creating Emerging Markets Project, developed by Professors Geoffrey Jones and Tarun Khanna, to broaden the reach of three deep and impactful **video interviews** with business leaders in emerging markets that addressed climate change and sustainability:

- COP27 and the Climate Crisis
- The Future of Green Building
- Reducing Plastic Pollution on a Global Scale

**CLIMATE STORIES**

In 2022, BEI launched **Climate Stories**, a series of researched blog posts that tell the unique stories of the business leaders—CEOs, founders, advisors, and more—who are driving climate solutions through a variety of approaches. To accomplish the mission of Climate Stories, BEI worked with Jacqueline Adams (MBA 1978). Adams has spent her career as a journalist, author, and convener. Climate Stories episodes featured:

- Kameale C. Terry, CEO, ChargerHelp!
- Sam Steyer, Co-Founder and CEO, Greenwork
- Keith Kinch, Co-Founder and General Manager, BlocPower
- Erika Myers, then Acting Director of Global E-Mobility, World Resources Institute Ross Center for Sustainable Cities
- Phyllis Newhouse, Founder and CEO, XtremeSolutions; Founder, CEO, and Director, Athena Technology Acquisition Corp
- Lise Grande, President and CEO, U.S. Institute of Peace, and Dr. Teagan Blaine Director of climate, environment & conflict, U.S. Institute of Peace
- Janice Tran, CEO, Kanin Energy: Turning Waste Heat to Power
- Diana Rivera (MBA 2010), Development Director, Lighstource bp: The Role of Solar and Wind Farming (and Other Tools) in the United States’ Clean Energy Future
- Shelly Xu (MBA 2021), Founder, SXD: Reducing Waste Through Beautiful Design
- Amanda Li (MBA 2018), COO and Co-Founder, Banyan Infrastructure: Speeding Climate Change Through Project Finance Efficiencies
- Mary Jo Veverka (HBS 1978), Founder and President, Veverka Family Foundation: Fostering Actionable Climate Literacy
- Claire Broido Johnson (MBA 2002), Chief Operating Officer, Fermata Energy: Vehicle to Everything
- Nisha Desai (HBS 1997), Founder and CEO of Invest With Intention: Democratizing Climate Returns
Alumni Perspectives

Business & Environment Initiative (BEI) extends our gratitude to these and all other alumni who shared their valuable perspectives in 2022 at alumni and student events or in special features, the Climate Rising podcast, the BEI Blog, and Alumni Stories.

ALUMNI STORIES

Decarbonization

- “Singing to the Corn” feature of Taylor Keen (MBA 1997) by Julia Hanna

Adaptation & Resilience

- “New Urban Order: Looking into the not-too-distant future of tomorrow’s sustainable cities” feature of Cheng Lu (MBA 2010); Raphael Carty (MBA 1983); Molly Middaugh (MBA 2018); Frank Yang (MBA 2006); Jules Kortenhorst (MBA 1986); Judy Judson (MBA 2000); Worthing Jackman (MBA 1991); and Barbara Littlefield (MBA 1988) by Deborah Blagg, Julia Hanna, and Maureen Harmon
- “Untapped Potential” feature of Tom Ferguson (MBA 2014)

Climate Accounting & Finance

- “Holding Business to Account” feature of Geeta Aiyer (MBA 1985)
- “Like-Minded” feature of Yumiko Murakami (MBA 1994) and Miwa Matsuo (MBA 1993)
- “Making it Count” feature of George Serafeim and Ronald Cohen (MBA 1969) by Jen McFarland Flint
- “Power Play” feature of Rahul Advani (MBA 2004); Sara Graziano (MBA 2011); Chris Smith (MBA 2001)
- “Savings and Loam” feature of Charley Cummings (MBA 2011) and Philip Giampietro (MBA 2011) by Jen McFarland Flint

Climate Tech & Entrepreneurship

- “A Sustainable Solution for Fashion” feature of James Theuerkauf (MBA 2022), Ferdinand Stockmann (MBA 2022), and Professor Jeffrey Bussgang by April White
- “Hungry for Change” feature of Kate Flynn (MBA 2012) by Christina Gandolfo

Systems Change to Address Climate Change

- “Alumni Summit Explores Leadership for a Sustainable Future” feature of HBS Club of France by Margie Kelley
- “Leading on Climate Change” feature of Raja Al Mazrouei (AMP 186) and Saleh Abdullah Lootah (GMP 10) by Margie Kelley
BEI Blog Features
Matthew Arnold (MBA 1995)  Mike Kelly (MBA 2022)
Monika Berankyte (MBA 2022) Jesse Lou (MBA 2022)
Claire Broido Johnson (MBA 2002) Heather March Takle (MBA 2006)
Alsey Davidson (MBA 2022) Rahul Shendure (MBA 2001)
Aditya Desai (MBA 2022) Julia Trotman Brady (MBA 1997)
Sutton Guldner (MBA 2022) Monica Varman (MBA 2016)
Amrit Jalan (MBA 2022) Christian Weeks (MBA 2010)
Drew Keller (MBA 2022) Frank Yang (MBA 2006)

BEI Climate Stories
Jaqueline Adams (MBA 1978) Diana Rivera (MBA 2010)
Claire Broido Johnson (MBA 2002) Mary Jo Veverka (MBA 1978)
Nisha Desai (HBS 1997) Shelly Xu (MBA 2021)
Amanda Li (MBA 2018)

Climate Adaptation Short Intensive Program
Brad Dockser (MBA 1989) Yumiko Murakami (MBA 1994)
Michelle Dunstan (MBA 2001) Aris Papadopoulos (MBA 1985)
Tariye Gbadegesin (MBA 2006) Meredith Weenick (MBA 2002)

Climate Rising
Shantanu Agarwal (MBA 2010) Carter Roberts (MBA 1988)
Jules Kortenhorst (MBA 1986)

Climate Symposium 2022
Irina Gerry (MBA 2009) Courtney Obregan (MBA 2009)
Amrit Jalan (MBA 2022) Scott Robertson (MBA 2019)
Jim Matheson (MBA 2001)

Career and Professional Development Career Panels
Robert Baldwin (MBA 2021) Jim Matheson (MBA 2001)
Danielle Colson (MBA 2022) Molly Middaugh (MBA 2018)
Alec Forbes (MBA 2021) Lucy Shaw (MBA 2021)
Amrit Jalan (MBA 2022) Morgan Sheil (MBA 2021)
Noor Khalidi (MBA 2021) Mike Tally (MBA 2021)
Maria Lappas (MBA 2021) Maria Woodman (MBA 2018)
Oscar Mak (MBA 2006)
Digital, Data, and Design Institute at Harvard Assembly Series
Erik Osmundsen (MBA 1997)

iLab Climate Experts
Alex Bondar (MBA 2014)  Michael Mancinelli (MBA 2021)
Jeff Engler (MBA 2012)  Erik Snyder (MBA 2009)

Rock Center for Entrepreneurship Entrepreneurs-in-Residence
Shara Ticku (MBA 2017)
Faculty

Research & Teaching
Research, teaching & engagement by topic

At HBS, faculty research, teaching, and engagement on business and the environment is broad and deep.

This body of work is grouped into six topical areas:

1. Decarbonization
2. Adaptation & Resilience
3. Climate Accounting & Finance
4. Climate Tech & Entrepreneurship
5. Systems Change to Address Climate Change
6. Sustainability Strategy & Leadership

The School’s research, teaching, and engagement about mitigating and adapting to climate change—including how to reduce risks it poses and embrace opportunities it offers for innovation—spans many of these topics.
The combustion of fossil fuels to generate energy is the largest source of greenhouse gas emissions and the largest contributor to climate change (IPCC 2014). Innovations are needed to generate vast amounts of carbon free electricity and to use electricity much more efficiently. Faculty are working to address the market potential for renewable energy and nuclear energy as well as grid flexibility and improved demand response technologies. Highlights from the year appear below.

**Course Materials**

- “Aleph Farms: A New Culture of Meat” by Elie Ofek and Jeff Huizinga (case, 522–071)
- “AES Corp: A Global Power Transformation” by Tarun Khanna, Allison Ciechanover and Matt Higgins (case, 723–397)
- “Daimler—Betting on the Future of Mobility” by Jurgen Weiss (teaching plan, 722–080)
- “Dandelion: Making Geothermal Heat Pumps a Real Option” by Jurgen Weiss (teaching plan, 722–074)
- “David Crane’s Clean(er) Energy Strategy at NRG” by George Serafeim, Michael Toffel and Tom Quinn (case, 623–005)
- “Doubling Down: Elon Musk's Big Bets in 2022” by David Yoffie and Daniel Fisher (case, 722–439)
- “Driving Decarbonization at BMW” by Shirley Lu, George Serafeim and Michael Toffel (case, 123–708); “Driving Decarbonization at BMW—Spreadsheet Supplement” by Shirley Lu, George Serafeim and Michael Toffel (teaching supplement, 123–708); “Driving Decarbonization at BMW, Teaching Note” by Shirley Lu, George Serafeim, and Michael Toffel (teaching note, 123–049); “Driving Decarbonization at BMW—Video Supplement” by Shirley Lu, George Serafeim and Michael Toffel (video supplement, 123–706)
- “EnergyNow: Powering a New Market” by Alexander MacKay and James Barnett (case, 723–361)
- “FIJI Water: Carbon Negative? (Abridged)” by Michael Toffel, George Serafeim, Francesca Gino, Stephanie Van Sice and Tom Quinn (case, 623–004)
- “Fueling a Cleaner Future: ACWA Power and Green Hydrogen” by Dennis Yao and Alpana Thapar (case, 722–381)
- “Geely SEA: New Electric Vehicle Platforms” by Willy Shih and Shu Lin (case, 622–001)
- “Iberdrola: Leading the Energy Revolution” by Juan Alcácer and Emer Moloney (case, 723–398)
- “National Electric Vehicles Sweden (NEVS): Materializing a Vision” by Shane Greenstein and Elena Corsi (case 622–076)
– “NuScale—Commercializing the First Small Modular Reactor in the World” by Jurgen Weiss (teaching plan, 722–076)
– “Reimagining Enel: Enabling Sustainable Progress” by Michael Tushman and Kerry Herman (case, 423–001)
– “ReNew Power: Leading the Energy Transition in India” by Gunnar Trumbull and Malini Sen (case, 722–028)
– “Sian Flowers: Fresher by Sea?” by Willy Shih, Michael Toffel and Pippa Tubman Armerding (case, 623–008)
– “TXU (A) and (B): Powering the Largest Leveraged Buyout in History” by Trevor Fetter (teaching note, 122–008)

Courses
– “Advanced Leadership Initiative: Climate Change Deep Dive” taught by Professor Forest Reinhardt
– “Food & Agribusiness” EC Course taught by Professor Forest Reinhardt
– “IFC: Denmark and Netherlands; Decarbonization and Sustainable Production” International Field Course (IFC) taught by Professors Willy Shih and Mike Toffel
– “Tough Tech Ventures” EC course taught by Professors Joshua Lev Krieger and Jim Matheson

In the News
– “How Footwear Startup Allbirds is Decarbonizing Fashion” featuring Mike Toffel, Cold Call podcast
– “The Fifth Year of Short Intensive Programs (SIPs) at HBS” by Shona Simkin, HBS Newsroom

Managerial Articles
Adaptation & Resilience

The world is currently undergoing the largest wave of urban growth in human history. More than half of the global population is now concentrated in urban areas, a proportion that is expected to increase to nearly 70% by 2050 (UN 2018). Cities provide opportunities to innovate to address development needs and to reduce greenhouse gases. Below are examples of faculty work in this critical area.

Course Materials
- “BUA Group” by John Macomber, Pippa Tubman Armerding and Wale Lawal (case, 222–062)
- “Climate Action in Miami” by Rosabeth Moss Kanter (case, 322–101); “Climate Action in Miami” by Rosabeth Moss Kanter and Catarina Martinez (teaching note, 322–128)
- “Climate Challenges for Cities: Introduction to Issues and Actions in the United States” by Rosabeth Moss Kanter and Catarina Mia Martinez (background note, 322–103)
- “Climate Issues on the Ground: Snapshots of Diverse American Cities” by Rosabeth Moss Kanter, Coelin Scibetta and Ryan Barr (background note, 322–102)
- “Masdar City: Aiming for Sustainable and Profitable Real Estate” by Boris Vallee and Fares Khrais (case, 223–036)

Courses
- “Building Sustainable Cities” EC Course taught by Professor John Macomber

In the News
- “Grid-Efficient Buildings and High-Performance Districts Potentially Drive Carbon Positive Development” featuring John Macomber, Urbanland
- “Investing in infrastructure for a more resilient world“ featuring John Macomber, HSBC Global Private Banking
- “Michael Brune’s next battle: Clean up bitcoin” featuring David Yoffie, ClimateWire

Managerial Articles
- “It’s Time to Invest in Climate Adaptation” by Ravi Chidambaram (MBA 1978) and Parag Khanna, Harvard Business Review
Many businesses are investing in practices that protect natural systems while delivering business value. But despite widespread interest in sustainable business models, many barriers remain. Faculty are working to understand the conditions under which new tools—such as impact investing and environmental, social, and governance metrics—can lead to change on a wide scale.

Course Materials
- “Cultivo: Investing in Natural Capital” by Gunnar Trumbull (case, 722–055)
- “PFA Pensions: The Climate Plus Product” by Daniel Green, Victoria Ivashina and Alys Ferragamo (case, 222–088)
- “Pushing Past the Boundaries of ESG Investing: AQR Capital Management” by Lauren Cohen, Richard Evans, Umit Gurun and Quoc Nguyen (case, 222–058)
- “Risks and Opportunities from the Transition to a Low Carbon Economy: A Business Analysis Framework” by George Serafeim (background note, 123–014)
- “ROI vs. ROI: The Grupo Baobá Family Office” by Lauren Cohen, Hao Gao, Jiawei Ye and Grace Headinger (case, 223–018)
- “Sustainability Reporting at Dollar Tree, Inc.” by Suraj Srinivasan and Li-Kuan Ni (case, 122–044)
- “The Role of ESG in Investment Strategy” by Vikram Gandhi and Christopher Diak (background note, 823–078)
- “TotalEnergies’ Investment in Hyzon Motors” by Vikram Gandhi and David Lane (case 822–019)
- “York Capital and Enovix” by William Vrattos, Jo Tango and Alys Ferragamo (case, 223–006)

Courses
- “Entrepreneurial Finance” EC course taught by Professor Shai Bernstein and Paul Gompers
- “Finance and Capitalism” EC course taught by Professors Joshua Coval and Richard Ruback
- “Managing International Trade and Investment” EC course taught by Professor Meg Rithmire
- “Sustainable Investing” EC course taught by Professors Shawn Cole and Vikram Gandhi
- “Sustainable Investing” HBSO course taught by Professors Shawn Cole and Vikram Gandhi

In the News
- “A dirty secret: Here’s why your ESG ETF likely owns stock in fossil-fuel companies” featuring Vikram Gandhi, MarketWatch
- “Cracking down on a Wall Street trend: ESG makeovers” featuring George Serafeim, Financial Review
- “Harvard Business School Professor George Serafeim Explains Why He Welcomes ESG Criticism As Vital to Its Future” featuring George Serafeim, Just Capital
- “International Foundation for Valuing Impacts Holds Inaugural Board Meeting” featuring of George Serafeim, HBS Newsroom
“Measuring outcomes is what really matters: Serafeim” featuring George Serafeim, *Top 1000 Funds*

“The GreenFin Interview: Harvard’s George Serafeim on purpose and profit” featuring George Serafeim, *GreenBiz*

“The triple bottom line is better than ESG to measure a company’s financial, environmental and social performance” featuring Robert Kaplan, *The Economic Times*

“This is what you’re getting wrong about ESG ratings” featuring Vikram Gandhi, *MarketWatch*

“Vikram Gandhi At India Today Conclave |Save Planet Earth: ESG & The Reality Of Sustainable Investing” featuring Vikram Gandhi, *India Today*

“Will Climate Change Concerns Impact Real Estate Investment Strategies?” featuring John Macomber, *Propmodo*

**Managerial Articles**


“De-Facto Financial Regulation in the Form of Corporate Criminal Liability for ESG is Coming” by J.S. Nelson, *The FinReg Blog*

“ESG Reports Aren’t a Replacement for Real Sustainability by Tensie Whelan (OPM 2015), *Harvard Business Review*

“Is it Time for Creditor Activism to Address ESG Risks?” by Vikram Gandhi, *Wealth Management*

“Startups Need an ESG Strategy” by Bruce Simpson and Cait Brumme (MBA 2012), *Harvard Business Review*


“We Need Better Carbon Accounting. Here’s How to Get There.” by Robert Kaplan and Karthik Ramanna, *Harvard Business Review*

**Scholarly Research**

“Carbon Footprinting and Pricing under Climate Concerns” by Marco Bertini, Stefan Buehler, Daniel Halbheer and Don Lehmann, *Journal of Marketing*

“Climate Change Vulnerability and Currency Returns” by Alex Cheema-Fox, George Serafeim and Hui (Stacie) Wang, *Financial Analysts Journal*

“Climate Solutions Investments” by Alex Cheema-Fox, George Serafeim and Hui (Stacie) Wang, HBS Working Paper 22–054


“Stock Price Reactions to ESG News: The Role of ESG Ratings and Disagreement” by George Serafeim and Aaron Yoon, *Review of Accounting Studies*

“Sustainable Strategies and Net-Zero Goals” by Mark Frigo, Robert Kaplan and Karthik Ramanna, *Strategic Finance*

“The Evolution of ESG Reports and the Role of Voluntary Standards” by Ethan Rouen, Kunal Sachdeva and Aaron Yoon, HBS Working Paper 23–024
- “The Issuance and Design of Sustainability-linked Loans” by Maria Loumioti and George Serafeim, HBS Working Paper 23-027
- “Why Is Corporate Virtue in the Eye of the Beholder? The Case of ESG Ratings” by Dane Christensen, George Serafeim and Anywhere Sikochi, *Accounting Review*
As a growing field of interest, faculty research, teaching, and engagement at HBS continues to explore exciting and innovative entrepreneurial opportunities to confront climate change. Because 35–50% of climate solutions are not yet operationalized, faculty are developing research and teaching focused on new ways to finance, manage, and scale potentially game-changing climate solutions.

Books & Book Chapters

Course Materials
- “AppHarvest: Rebuilding the Appalachian Economy Through Agriculture” by Joshua Lev Krieger, William Kerr and Bailey McAfee (teaching note, 823–024)
- “AptDeco: Circular Economy Furniture Marketplace” by Ayelet Israeli (teaching note, 522–078)
- “Bespoken Spirits: Disrupting Distilling” by Benjamin Esty and Daniel Fisher (teaching note, 722–457)
- “Can Goodr Fight Food Insecurity at Scale?” by Daniel Isenberg and William Kerr (case, 822–143)
- “Iluméxico: For Every Family to Have Power” by Brian Trelstad, Isa Oliveres and Jenyfeer Martinez Buitrago (case, 323–026)
- “Metric” by Christina Wallace, Rebecca Cink and Maria Lappas (case, 822–057); “Metric” by Christina Wallace (teaching note, 822–094)
- “Yellow Digital Retailers: Providing Solar Electricity to Transform Rural Africa” by Lynda Applegate and Michael Norris (teaching note, 822–056)

Courses
- “Entrepreneurial Solutions to the World’s Problems” EC course taught by Professor William Sahlman
- “Entrepreneurship and Global Capitalism” EC course taught by Professor Geoffrey Jones
- “Field Course Lab to Market” EC course taught by Professor Kyle Myers
- “Grand Challenges for Entrepreneurs” EC course taught by Professor Tarun Khanna

In the News
- “Assistant Professors Natalia Rigol and Ben Roth: Empower” featuring Professors Natalia Rigol and Ben Roth, *HBS Newsroom*
- “How to Scale a Startup Marketplace for Used Furniture” featuring Ayelet Israeli, *Cold Call* podcast
- “Sprawling ambition: Jonathan Webb on AppHarvest’s bid to transform agriculture” featuring Bill Kerr and Joe Fuller, *Managing the Future of Work* podcast
Businesses cannot drive societal-level change toward sustainability by working on their own. Industry collectives, public-private partnerships, and government regulatory agencies all play important roles in fostering change. Faculty are working to identify the most effective governance mechanisms, including industry self-regulation, government policy, and hybrid approaches. Examples from the past year are noted below.

Books & Book Chapters
- “A Political Economy of Justice” by Danielle Allen, Yochai Benkler, Leah Downey, Rebecca Henderson and Joshua Simons, Chicago: University of Chicago Press
- “Crises and International Business” by Geoffrey Jones, International Business in Times of Crisis (chapter)
- “Democratize Work: The Case for Reorganizing the Economy” by Isabelle Ferreras, Julie Battilana and Dominique Méda, Chicago: University of Chicago Press
- “Sustainability for People and the Planet: Placing Workers at the Center of Sustainability Research” by Julie Yen, Julie Battilana and Emilie Aguirre, Handbook on the Business of Sustainability: The Organization, Implementation, and Practice of Sustainable Growth (chapter)

Course Materials
- “Business Implications from Regulating Carbon Emissions in the EU” by George Serafeim and Benjamin Maletta (case, 122–106)
- “Climate Change & the Biden Administration” by Gunnar Trumbull and James Barnett (case, 722–030)
- “Deglobalization and Alternative Futures” by Geoffrey Jones and Valeria Giacomin (technical note, 322–088)
- “Indigenous Wisdom and the Climate Crisis” by Reshmaan Hussam, Nadia Ahmad and Grace Liu (case, 722–050); “Indigenous Wisdom and the Climate Crisis” by Reshmaan Hussam (teaching note, 722–051)
- “PG&E and the First Climate Change Bankruptcy” by Stuart Gilson (teaching supplement, 222–714)
- “SMART: AI and Machine Learning for Wildlife Conservation” by Brian Trelstad and Bonnie Yining Cao (case 323–036)
Courses

- “Capitalism and the State” EC course taught by Professor Debora Spar
- “Creating Value in Business and Government” EC course taught by Professor Dutch Leonard
- “Global Climate Change” EC course taught by Professor Gunnar Trumbull
- “Reimagining Capitalism: Business and Big Problems” EC course taught by Professor Ethan Rouen
- “Social Entrepreneurship and Systems Change” EC course taught by Professor Brian Trelstad

In the News

- “Consumers want to use their purchasing power to address ecological and social challenges, says Geoffrey G. Jones” featuring Geoffrey Jones, The Economic Times
- “Could remote work give climate migrants and refugees economic stability?” featuring Prithwiraj Choudhury, protocol
- “GOP Fury Over ESG Triggers Backlash With US Pensions at Risk” featuring Elisabeth Kempf, Bloomberg
- “Have the Anticapitalists Reached Harvard Business School?” featuring Deb Spar, New York Times
- “People Trust Business, But Expect CEOs to Drive Social Change” featuring Deb Spar, Working Knowledge
- “Reimagining the Economy: What Would It Take to Put People First?” featuring Julie Battilana, Working Knowledge
- “Rising power plant emissions threaten New England climate goals” featuring Jurgen Weiss, ClimateWire
- “Supply Chain Summit: Golden era of globalization ends while ESG comes into limelight” featuring Willy Shih, DigiTime Asia
- “The looming legal showdown on climate justice” featuring Peter Tufano, Financial Times
- “What climate education should look like” featuring BEI, Harvard Gazette

Managerial Articles

- “Are the Risks of Global Supply Chains Starting to Outweigh the Rewards?” by Willy Shih, Harvard Business Review
- “Business Schools Must Do More to Address the Climate Crisis” by Concepción Galdón, Knut Haanaes, Daniel Halbheer, Jennifer Howard-Grenville, Katell Le Goulven, Mike Rosenberg, Peter Tufano and Amelia Whitelaw, Harvard Business Review
- “Climate Regulations Are About to Disrupt Global Shipping” by Willy Shih, Harvard Business Review
- “Coming Corporate Criminal Liability for ESG Initiatives” by J.S. Nelson, Program on Corporate Compliance and Enforcement
– “The Evolution of ESG Reports and the Role of Voluntary Standards” by Ethan Rouen, Kunal Sachdeva, and Aaron Yoon, *Harvard Law School Forum on Corporate Governance*

**Scholarly Research**
– “Democratizing Work: Redistributing Power in Organizations for a Democratic and Sustainable Future” by Julie Battilana, Julie Yen, Isabelle Ferreras and Lakshmi Ramarajan, *Organization Theory*
Over the past several decades a growing number of firms have incorporated a range of sustainability practices. For some firms, sustainability has been a differentiation strategy, while for others it has become a strategic necessity to ensure survival. Research, teaching, and engagement at HBS has explored the conditions under which sustainability strategy and leadership can lead to superior performance.

Books & Book Chapters
- “A Compass for Decision Making” by Lynn Paine, Responsible Leadership (chapter)
- “Connecter les rêves” by Hubert Joly and Mariana Arnaut, En quête de sens: Un dialogue entre dirigeants et futurs dirigeants [In Search of Meaning: A Dialogue Between Leaders and Future Leaders] (chapter)
- “Responsible Leadership and Transformative Cross-sector Partnering” by James Austin, M. H. Jaën, E. Reficco and A. Vernis, Responsible Leadership (chapter)

Course Materials
- “Envision Group” by Gunnar Trumbull, Bonnie Yining Cao and Dawn Lau (case, 722–045)
- “JetBlue: Relevant Sustainability Leadership (A) & (B), Teaching Plan” by George Serafeim (teaching plan, 123–057)
- “Michelin’s Green Gold Bahia Program: Leaving With Grace” by Sandra Sucher, Shalene Gupta and Susan Winterberg (case, 322–132)
- “Nexleaf Analytics: Saving the World Using the Internet of Things” by Frank Nagle (case, 722–414)
- “Paul Polman” by Elizabeth Keenan, Youngme Moon and Susie Ma (case, 322–098)
- “Project Maji: Pricing Water in Sub-Saharan Africa” by Elie Ofek (teaching note, 522–107); “Project Maji: Pricing Water in Sub-Saharan Africa” by Elie Ofek (teaching supplement, 522–719)
- “Sustainable Product Management at Solvay” by George Serafeim (teaching note, 122–081)

Courses
- “Business at the Base of the Pyramid” EC course taught by Professor Michael Chu
- “Creating and Sustaining Competitive Advantage” EC course taught by Professor Eric Van den Steen
- “Purpose & Profit” EC course taught by Professor Mark Kramer
- “Purpose-Driven Marketing” EC course taught by Professor Elizabeth Keenan

In the News
- “6 Strategies for Building Socially Responsible—and Profitable—Companies” featuring George Serafeim, Working Knowledge
- “11 Summer Sustainability Reads” featuring George Serafeim, Morning Star
- “Business Schools Teaching Sustainability Want to Go Green” featuring Leah Ricci (HBS Operations)
– “Business Schools Are Beginning to Embrace Stakeholder Inclusion” featuring Rebecca Henderson, Ethen Rouen and George Serafeim, Bloomberg
– “ESG Needs To Be Core To Business As Usual” featuring George Serafeim, Forbes
– “FCPA Compliance Report—Professor George Serafeim on Purpose + Profits” featuring George Serafeim, JD Supra
– “Having strong values is central to succeeding in business—sustainability requires empathy: Arthur C. Brooks” featuring Arthur Brooks, The Economic Times
– “How to pay executives in the age of stakeholder capitalism” featuring Lynn Paine, Financial Times
– “Innovation In Compliance—Profits + Purpose with George Serafeim” featuring George Serafeim, JD Supra
– “Larry Fink at BlackRock: Linking Purpose to Profit” featuring George Serafeim, Cold Call podcast
– “Peak Patagonia: The Story Behind the Mic Drop Heard Round the World” featuring Ranjay Gulati, Inc.
– “Private Company Boards Need More Independent Directors—Sustainability Offers a Win-Win Solution” featuring George Serafeim, Russell Reynolds
– “Profits over planet? Experts eye companies at crucial moment for climate change fight” featuring George Serafeim, USA Today
– “Purpose and Profit with George Serafeim” featuring George Serafeim, Thinkers & Ideas podcast
– “Reshaping the Relationship Between Purpose and Profit” featuring George Serafeim, HBS Newsroom
– “Social media helps the environmental movement to mobilise—but digital firms are walking a fine line now: Amit Goldenberg” featuring Amit Goldenberg, The Economic Times
– “The Chat: Driving Purpose and Profit ft. George Serafeim” featuring George Serafeim, ESG Talk Podcast

Managerial Articles
– “The ‘Do-Gooder’s Dilemma’: Why purpose-driven companies can’t lose focus on profits” by Ranjay Gulati, Fast Company

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