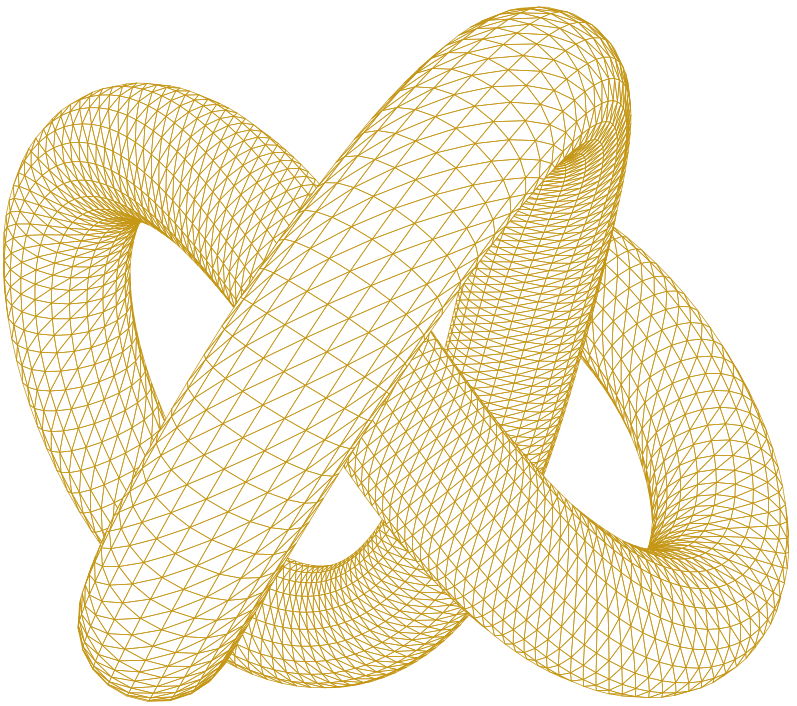
Climate Change:
Impacts & Responses

Seventeenth International Conference on
Climate Change: Impacts & Responses



Sustainable Development for a Dynamic Planet:
Lessons, Priorities, and Solutions

23-25 January 2025 Florida International University, Miami, USA

FIU
Chaplin School of Hospitality & Tourism Management

The Seventeenth International Conference on Climate Change: Impacts & Responses Conference Proceedings

https://on-climate.com/about/history/2025-conference

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Welcome Letter

Dear Conference Participants,

On behalf of Common Ground Research Networks, I welcome you to the Seventeenth International Conference on Climate Change: Impacts & Responses.

Founded in 2009, the Climate Change: Impacts & Responses Research Network is brought together by a common concern for the science of, and social responses to, climate change. We seek to build an epistemic community where we can make linkages across disciplinary, geographic, and cultural boundaries.

This truly international conference brings together a diverse group of scholars, practitioners, and thought leaders from around the world. We are proud to provide a platform for exchanging ideas, and presenting research, addressing some of the pressing issues of our time.

Our conference theme, "Sustainable Development for a Dynamic Planet: Lessons, Priorities, and Solutions," reflects our commitment to exploring new frontiers in research and practice. Over the next few days, In-Person or Online, you will have the opportunity to attend keynotes, panel discussions, and other session types led by our Emerging Scholars. We encourage you to take full advantage of these sessions to gain new insights, expand your professional network, and find inspiration for your own work.

We want to thank our keynote speakers Leslie Paul Thiele, Tayba Hatimy, David Randle, Ed Chiles, T.H. Culhane, Carter Henne, Doug Heske, Enrique Ugalde Vargas, conference chair Carolin Lusby, presenters, and volunteers whose dedication and hard work have made this conference possible. We also thank our host partner Florida International University, for their generous support.

We hope you find this conference to be an intellectually stimulating and rewarding experience. Your active participation is crucial to the success of this event, and we look forward to the lively discussions and valuable connections that will emerge over the next few days.

Warm regards,

Dr. Phillip Kalantzis Cope
Chief Social Scientist
Common Ground Research Networks

Climate Change: Impacts & Responses

Dear Delegates,

A warm welcome to the Common Ground Research Network's (CGRN) 21st International Conference on Sustainability, which this year incorporates the 17th International Conference on Climate Change: Impacts & Responses. While we continue to explore the critical themes of sustainability, the overarching focus of this year's conference is Sustainable Development for a Dynamic Planet: Lessons, Priorities, and Solutions. We are delighted to host this event at Florida International University in Miami, Florida, USA.

This year marks a significant transition. David Humphreys, who has been instrumental in shaping this conference and supporting its growth, concludes his distinguished tenure. I am honored to step into David's shoes, and I thank him for inspiring me to join Common Ground Research Networks and for his dedicated work for our members over the years.
The conference will feature a rich program of plenaries and presentations, showcasing a wide range of research across all CGRN sustainability themes, including climate change. I encourage you to explore the submissions available on our portal here: [insert link].

We are privileged to welcome two outstanding plenary speakers this year.

- **Dr. Tayba Hatimy,** a former dentist, embodies the power of individual action in addressing global challenges. After surviving a near-death experience caused by hazardous waste, she delved into the systemic issues underlying our unsustainable practices and founded an enterprise to tackle these problems.

- **Dr. Leslie Paul Thiele**, a Distinguished Professor of Political Science at the University of Florida, focuses on the responsibilities of citizenship and opportunities for leadership in a rapidly changing world. Their insights promise to be both thought-provoking and inspiring.

This year's conference adopts a format, which allows participants from around the globe to engage meaningfully, whether attending in person or online. CGRN has long been at the forefront of online research collaboration, ensuring a rewarding experience for all attendees.

As we collectively confront the **Unsustainability Emergency**, our hope is that this conference inspires you to act decisively in your professional and personal lives. Through engaging discussions and shared learning, we aim to help you develop the leadership skills necessary for driving urgent change. Additionally, we encourage you to explore the diverse offerings of CGRN's 20+ interdisciplinary research networks.

We look forward to welcoming you to this exciting event. Let's lead, learn, and grow together for a more sustainable future.

Warm regards,

Victoria Hurth

Chaplin School of Hospitality & Tourism Management

Dear Conference Attendees,

As local conference chair and on behalf of the organizing committee, it is my great pleasure to welcome you to the **Seventeenth International Conference on Climate Change: Impacts & Responses**, hosted in the vibrant city of Miami, Florida, and held at Florida International University (FIU), a global leader in sustainability and innovation.

Miami, known as the "Gateway to the Americas," is a fitting location for this year's conference. Its unique blend of cultural diversity, dynamic ecosystems, and economic significance provides a living laboratory for the themes we will explore together. From the stunning beauty of Biscayne Bay to the bustling cultural districts, Miami offers an inspiring backdrop for conversations about creating a more sustainable world.

Our venue, the **Chaplin School of Hospitality and Tourism Management at Florida International University**, is renowned for its commitment to addressing global challenges through research, education, and community engagement. Located in one of the most environmentally dynamic regions of the United States, FIU stands at the forefront of efforts to promote sustainability, resilience, and innovation. You will see firsthand some of the efforts by our students who will interact with you.

This conference is not only a gathering of global thought leaders, researchers, and practitioners but also an opportunity to forge meaningful connections, exchange ideas, and collaborate on solutions to some of the most pressing challenges facing our world today.

We've planned an exciting lineup of keynote presentations, panel discussions, workshops, and networking opportunities that will empower you to deepen your expertise, share your insights, and connect with like-minded professionals.

While you are here, I encourage you to explore Miami's rich cultural tapestry, enjoy its world-class cuisine, and experience the city's vibrant arts and natural beauty. From the iconic beaches to the nearby Everglades, Miami's landscape reflects the intricate balance between human activity and the environment–a balance we are all here to learn from and contribute to.

Thank you for joining us at this important event. Together, we can innovate, collaborate, and drive meaningful progress toward a more sustainable future.
I look forward to meeting each of you and sharing this transformative experience. Welcome to Miami, and welcome to Florida International University!

Warm regards,

Dr. Carolin Lusby
Associate Professor, Global Sustainable Tourism & Conference Chair
Seventeenth International Conference on Climate Change: Impacts & Responses
Florida International University

Climate Change: Impacts & Responses **Research Network**

Founded in 2009, the **Climate Change: Impacts & Responses Research Network** is brought together by a common concern for the science of, and social responses to, climate change. We seek to build an epistemic community where we can make linkages across disciplinary, geographic, and cultural boundaries. As a Research Network, we are defined by our scope and concerns and motivated to build strategies for action framed by our shared themes and tensions.

The Nature of Evidence

The conscious and unconscious actions of one creature – homo sapiens– have come to profoundly influence the course of Earth's natural history, not just in local ecosystems but on a planetary scale. This has been the case since humans began a process of populating the whole Earth about one hundred thousand years ago. Ecosystems were revolutionized by the sustained yield harvesting technologies of hunters and gathers, then the farming and animal husbandry technologies of self-sufficient peasantries. Nevertheless, the most recent epoch ushered in by the industrial revolution and marked by market-directed agriculture, the widespread clearing and harvesting of forests, and the use of fossil fuels has had undeniably course altering impact on the Earth's climate. Greenhouse gases are heating the Earth. Ice that was permanent until recently is rapidly melting. Sea levels are rising. Extreme weather events are occurring with higher frequency. The effects feel differently, and regions are affected by these changes in different ways. Evidence is inevitably wrapped up in ecological, social, and economic systems. In the current persistent challenge of universalizing evidence-based approaches, the struggle is often a proxy for a broader conversation about the vested power of those who have benefited from this epoch-defining economic model. If we are to stem the tide of change – indisputably revealed in the evidence – and look to benefit from the opportunities associated with new models for development, we must supplement the evidence with longer views of building resilient societies and economies.

Ecosystemic Impacts

Today we live in the shadow of already occurring and potentially disastrous impacts on ecosystems, species, and genetic diversity. For instance: the special effects of glacial melt on mountain and riverine biodiversity; sea-level rise on coastal and mangrove systems; the effect of sea temperatures on coral reefs; increased rainfall variability in monsoon regions. These are just a few examples. The specific regional impacts on biomes and the vulnerabilities of different ecosystems across the globe need to be assessed in their specificity. There are parallels between some areas, while there are subtle and complex dissimilarities between the changes that are occurring in different parts of the world. These include floods, drought, forest fires, hurricanes, and other sporadic events that could devastate endemic species and threaten microhabitats. Some ecosystems could be highly vulnerable and will not be able to respond even to short-term impacts such as natural disasters. In the presence of climate change, these short-term events could be even more cataclysmic. The challenge in front of us is to consider solutions that can operate at micro and macro levels.

Human Impacts

Humans are agents in climate change. Humans are affected by climate change: shifting shorelines, declining agricultural productivity, crisis of food supply, availability of water, the health of populations, and extreme weather events. These impacts will be felt differentially in developed and developing worlds. Marginalized populations of people may not only have their lives and livelihoods affected, but also be affected by declines in species abundance and diversity of ecosystems upon which they are dependent at a landscape level. In heterogeneous landscapes with a mix of wilderness islands within a changing agricultural environment, urbanization, and industrial spread could well increase pressures on protected area networks as the effects of climatic changes increase. Agricultural communities, especially traditional farmers and pastoralists, may be forced to shift into what is now within the protected area networks in developing countries. In considering human impacts we must consider unique contexts, both for effects and responses. How are certain communities bearing the burden of climate change? In what ways are attributing responsibility and to whom for the current reality? How do we measure responses on in the context of local, national, and global human life?

Framing Responses

On the experience of the past one hundred thousand years, humans are clearly capable of adaptive responses. Our species has the capacity or can develop the capacity to nurture nature though a period of transition, for instance by creating corridors to assist species adaptation and inventing new agricultures which alleviate and mitigate the effects of climate change. Humans are also capable of precautionary action, reducing greenhouse gases for instance as part of a broader strategy of sustainable development. We may even be able to master technologies which balance and stabilize climate change. The key, however, will be the extent to which our species can take a proactive role, be that technological or acts of social and political will that produce changed patterns of land and energy use. Like no other creature in natural history, and like no other time in this creature's history, this is moment when the future of the planet is in our hands. The consciousness which made us a unique species perhaps a hundred thousand years ago, for the first time today puts us in a position of unprecedented responsibility for the course of natural history. Climate change is a key intellectual and practical challenge for today's science, economics, politics, sociology, and ethics.

The Nature of Evidence

Why the persistent challenge of universalizing evidence based approaches?

Living Tensions

- Equilibria and Disequilibria – change processes and countervailing tendencies
- Communicating Measurement – processes, methodologies, and technologies
- The Fundamentals – ice cap reduction, glacial melt, sea level change.
- Lived Realties – floods, drought, forest fires, hurricanes, and other events
- Data Politics – the use of climate informatics
- Visons of Progress – contesting underlying economic motivations and offering alternatives
- Paleoclimatology – the earth's climate in short and long views
- Regional Variations, Global Change – negotiating and understanding difference
- Biomes and Biozones – considering eco-framings of space
- Environmental Policies – institutional response to eco-systemic realities
- Anthropogenic Factors – understanding and attributing human causes
- Debating Scenarios – slow, rapid, abrupt, or episodic
- The Future of Everyday Life – weather events, natural disasters, and ecological surprises
- Considering Capacity Building – individual, institutional, and systemic
- Communities and Nations – established politics of framing responsibility
- Human Systems – transport, energy, communication
- Public and Private Interest – engaging business stakeholders
- Intrenching Inequality - climate change in the developing world
- Adaptation and Resilience – private, public, and individual change makers
- Alternative and Renewable Energy Sources – technologies, policies, and strategies
- Measures of Responsibility – navigating climate ethics
- Regulatory Solutions – taxes, offsets, standards, and trading
- Climate Finance – valuing nature and action Motivating Solidarity – global movements, local framings

Assessing Impacts in Diverse Ecosystems

What are the impacts of climate change on natural environments in particular and universal views?

Living Tensions

- Paleoclimatology – the earth's climate in short and long views
- Regional Variations, Global Change – negotiating and understanding difference
- Biomes and Biozones – considering eco-framings of space
- Environmental Policies – institutional response to eco-systemic realities
- Anthropogenic Factors – understanding and attributing human causes
- Debating Scenarios – slow, rapid, abrupt, or episodic

Human Impacts and Responsibility

How have we been agents of climate change, what does a politics of responsibility reveal?

Living Tensions

- The Future of Everyday Life – weather events, natural disasters, and ecological surprises
- Considering Capacity Building – individual, institutional, and systemic
- Communities and Nations – established politics of framing responsibility
- Human Systems – transport, energy, communication
- Public and Private Interest – engaging business stakeholders
- Intrenching Inequality - climate change in the developing world

Technical, Political, and Social Responses

How do scientists, technologies, policy makers, and community members respond to climate change?

Living Tensions

- Adaptation and Resilience – private, public, and individual change makers
- Alternative and Renewable Energy Sources – technologies, policies, and strategies
- Measures of Responsibility – navigating climate ethics
- Regulatory Solutions – taxes, offsets, standards, and trading
- Climate Finance – valuing nature and action
- Motivating Solidarity – global movements, local framings

Victoria Hurth

Senior Associate, Institute for Sustainability Leadership, University of Cambridge, United Kingdom

Dr Victoria Hurth is Senior Associate at the University of Cambridge's Institute for Sustainability Leadership and Visiting Fellow of Cambridge Judge Business School. She describes herself as a 'pracademic', taking a pragmatic interdisciplinary approach to the drivers and solutions of organisational responses to climate change and sustainability,. She has a Master's in Environment and Development from the University of Kwa-Zulu Natal and completed her PhD (Exeter) on the role of marketing as a driver of sustainable/unsustainable consumption. Her research and practice now focuses on purpose-driven organisations and the implications for culture, governance and strategy. She has been a British Council 'Climate Change Ambassador' and a climate change advisor for a UK MP. She is currently a member of the UN Task force for developing methodology for SDG indicator 12.6.1. and the Convenor of ISO37000 – the first global standard on Governance of Organisations.

The **Climate Change: Impacts & Responses Research Network** is grateful for the foundational contributions, ongoing support, and continued service of our Advisory Board.

Seventeenth International Conference On Climate Change:

Impacts & Responses

History

Founded in 2009, the **International Conference on Climate Change: Impacts & Responses** is brought together by a common concern for the science of, and social responses to, climate change.

Past Events

- 2009 - Bharati Vidyapeeth Institute of Environment Education and Research, Pune, India
- 2010 - University of Queensland, Brisbane, Australia
- 2011 - Rio De Janeiro, Brazil
- 2012 - University of Washington, Seattle, USA
- 2013 - Labourdonnais Waterfront Hotel, Port-Louis, Mauritius
- 2014 - University of Iceland, Reykjavik, Iceland
- 2015 - UBC Robson Square, Vancouver, Canada
- 2016 - NU University of Science (HUS), Vietnam National University (VNU), Hanoi, Vietnam
- 2017 - Anglia Ruskin University, Cambridge, UK
- 2018 - University of California at Berkeley, Berkeley, USA
- 2019 - Pryzbyla Center, The Catholic University of America, Washington, D.C., USA
- 2020 - Ca' Foscari University of Venice, Venice, Italy (Virtual)
- 2021 - UBC Robson Square, Canada (Virtual)
- 2022 - UBC Robson Square, Canada (Virtual)
- 2023 - UBC Robson Square, Canada
- 2024 - Éklore-Ed School Of Management, Pau, France

The **Climate Change: Impacts & Responses Research Network** is thankful for the contributions and support of the follow organizations.

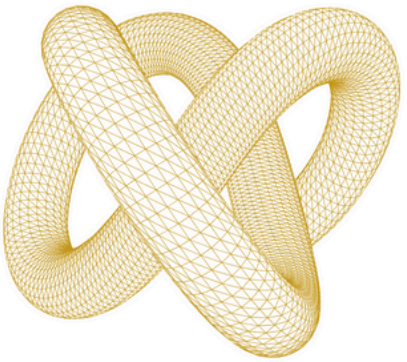
FIU
Chaplin School of Hospitality & Tourism Management

International Institute for the Inclusive Museum

THE CATHOLIC UNIVERSITY OF AMERICA

éklore ed School of Management

Ca' Foscari University of Venice



Seventeenth International Conference on
Climate Change: Impacts & Responses

Sustainable Development for a Dynamic Planet:
Lessons, Priorities, and Solutions

January 23-25, 2025 Florida International University, Miami, USA

Sustainable Development for a Dynamic Planet: Lessons, Priorities and Solutions

We inhabit a dynamic planet where the effects of global environmental degradation, economic inequality and sociocultural injustices are increasingly manifested over time and space. In that way, the challenge of sustainable development is to craft and implement innovative solutions that are flexible and adaptive so that life can continue to flourish and thrive as both the Earth and human society respond to changing circumstances. Achieving sustainable development is therefore an interdisciplinary challenge embracing social, political, cultural, economic and technological change, as well as planetary scale ecological change.

The Twenty-first International Conference on Environmental, Cultural, Economic and Social Sustainability will explore the multidimensional challenge of identifying and implementing resilient, durable and regenerative sustainable development solutions that bring well-being to both people and planet. From a sociocultural perspective, a key challenge is addressing entrenched inequalities, both within the present generation (intragenerational inequity) and between the present generation and those that will follow (intergenerational inequity). In what ways can we create well-being for all without it costing the earth? Creative and imaginative economic responses to environmental issues are coming to the fore, such as the circular economy, carbon neutrality and the need to generate bottom-up governance structures that are just, inclusive and equitable while engaging with planetary scale change. We warmly welcome proposals from all stakeholders for papers, parallel sessions, colloquia and focused discussions that address the challenges of generating a culture of long-term well-being for nature and culture on a dynamic planet.

Carolin Lusby

Associate Professor and Co-director Global Sustainable Tourism, Chaplin School of Hospitality & Tourism Management, Florida International University, USA

Dr. **Carolin Lusby** is an Associate Professor and Co-direction of Global Sustainable Tourism at the Chaplin School of Hospitality & Tourism Management at Florida International University, where she teaches graduate and undergraduate-level courses in tourism, research methods and leadership. She received her doctoral degree in Tourism Recreation and Sport Management from the University of Florida in 2007. Furthermore, Dr. Lusby holds a master's degree in Tourism and the Environment from the World Leisure Center of Excellence at Wageningen University in the Netherlands.

Prior to beginning her career in academia, Dr. Lusby worked in the tourism industry where she found her passion for approaching touring and using tourism as a tool for personal transformation. Among others, Dr. Lusby was a youth travel guide for Europe's biggest teen travel company, worked for a teen adventure travel company and developed skills and training in adventure and experience-based learning. Ultimately, she became a PADI Master Scuba Diver Trainer and a Ropes Course Facilitator.

In her first academic teaching endeavor at California State University Long Beach, Dr. Lusby assumed the role of head of the tourism program. As a lifelong learner, Dr. Lusby became interested in the topic of sustainability and became a Green Globe-certified auditor. Seeing tourism's potential for negative impacts on people, culture and the environment, Dr. Lusby focused on the sustainable development of tourism and incorporated community-based tourism in her study tours. Dr. Lusby speaks German and French and firmly believes in the value of meaningful study-abroad experiences to foster the development of global citizens.

Leslie Paul Thiele

Distinguished Professor, Political Science; Director, UF CAIRES and UF Sustainability Studies, USA

Leslie Paul Thiele is a Distinguished Professor in the Department of Political Science at the University of Florida, where he directs the Sustainability Studies program and the Center for Adaptive Innovation, Resilience, Ethics and Science (UF CAIRES). He serves as the Specialty Chief Editor of the Politics of Technology section of Frontiers in Political Science. Professor Thiele's interdisciplinary research and teaching focus on sustainability, emerging technology, and the intersection of political philosophy and the natural sciences. His central concerns are the responsibilities of citizenship and the opportunities for leadership in a world of rapid technological, social, and ecological change. Dr. Thiele's has published scores of journal articles across many fields, and nine books, the latest of which are Sustainability, 3rd edition (Polity 2024) and The Art and Craft of Political Theory (Routledge 2019).

Tayba Hatimy

Distinguished Professor, Political Science; Director, UF CAIRES and UF Sustainability Studies, USA

Dr Tayba Hatimy is a dentist by profession and a passionate award-winning Social- Enviropreneur with 7 years of experience in fusing Business Development and Social Impact. She is an Academy for Women Entrepreneurs (White House led initiative) 2019 Alumna and pitch awardee, Mandela Washington Fellow, United Nations Institute of Training and Research Pitch Awardee and Alumni Engagement Innovation Fund grantee (U.S Department of State). Dr Hatimy is a Board Director at the Kenya National Chamber of Commerce and Industry (KNCCI) - Mombasa Chapter and also a member of the National Climate Change & Energy Committee of the KNCCI, Chair of Environment Committee at Rotary Club of Mombasa and the Coast Regional Representative for Rotary District 9212 Environmental Team for Clubs in Kenya, Ethiopia, South Sudan and Eritrea.

She is the co-founder and executive director of Baus Taka Enterprise; a tech integrated waste management enterprise based in Mombasa County on a mission to combat marine plastic pollution while providing green job opportunities for youth and women from vulnerable communities.

Baus Taka Enterprises (BTE) offers a smart digital system that guarantees high-quality and sustainable waste management solutions for residential, commercial and industrial clients in Mombasa County. The Baus Taka App, a first of its kind in Kenya, it was launched in November 2021 and leverages on technology to offer a variety of innovative services to households/businesses, waste collectors and the county government to support strategic decision making, enhance zero waste communities and combat the problem of illegal waste dumping in Mombasa.

Recently, Dr. Hatimy was honored as one of Kenya's 17 women driving SDG progress by The United Nations Office at Geneva & Ministry of Foreign & Diaspora Affairs, Kenya, during the 17 Faces of Action Exhibition at the University of Nairobi in February 2024. This prestigious recognition highlights her leadership in promoting sustainable development goal 14 - Life Below Water, through Baus Taka Enterprise's efforts to safeguard marine ecosystems and combat marine plastic pollution. The 17 Faces of Action initiative, led by the first woman Director-General of the United Nations Geneva, H.E. Mrs. Tatiana Valovava, in partnership with the Association of Swiss Women Empowerment (ASWE), showcases the pivotal role of women in achieving the 17 Sustainable Development Goals.

David W. Randle

Profesor, Universidad Latina de Costa Rica, Costa Rica

Dave holds a B.A. from California Lutheran University, an M-Div. from the Iliff School of Theology, and a doctorate in Spiritual Disciplines, Wellness and Environmental Concerns from the University of Northern Colorado, Greeley, CO. He currently serves as President and CEO of the WHALE Center, a member of the UNEP Major Stakeholders Group, UNWTO Affiliate, host of the Blue Community Sustainable Tourism Observatory, and organization with Special Consultative status at the United Nations.
Dave is a PM4SD Certified Practitioner, and Managing Director of the Blue Community Consortium. He served two terms on the Board of Directors of the Global Sustainable Tourism Council, and currently is on the board of directors for the Florida Society of Ethical Ecotourism.

Ed Chiles

Profesor, Universidad Latina de Costa Rica, Costa Rica

Ed Chiles is a graduate of the University of Florida. He owns and operates three waterfront restaurants in Anna Maria Island and Longboat Key Florida, The Sandbar, Beach House and Mar Vista restaurants. He has been in this business since 1979 when he was part of a partnership that purchased and renovated the Sandbar.

In 2007, he initiated and became the managing partner for the Pine Avenue Restoration Project in the city of Anna Maria which is now known as "The Greenest Little Main Street in America".

In 2012 he was awarded the Champion of Tourism Award for the project by the Bradenton area CVB.

In 2015 he along with Richard Jordan and Dr. David Randle co-founded the Blue Community Consortium that is now a UNWTO Affiliate.

In recent years he has become a pioneer in the sustainable tourism industry.

T.H. Culhane

Associate Professor, Patel College of Global Sustainability, University of South Florida, U.S.A

Dr. T.H. Culhane is an Associate Professor at the Patel College of Global Sustainability at the University of South Florida. He is the Director of the Climate Change concentration and teaches courses in the Food and Climate concentrations. He is also the co-founding director of the not-for-profit educational corporation "Solar CITIES Inc." which helps community stakeholders solve urban ecology and development issues surrounding waste-water, solid waste, food security and decentralized clean energy production.

For the previous five years Culhane was a Visiting Faculty Researcher and full professor at Mercy College New York, teaching courses in Environmental Sustainability and Justice, Environmental Psychology and Urban Ecology and leading students on "service learning" and "voluntourism" trips to share environmental technologies in impoverished parts of the Middle East, and the Caribbean.

Culhane has been a Google Science Fair Judge for 6 years and has worked with the US Office of Naval Research and UCLA on STEM science education projects with at risk-youth. In 2010 Culhane and the Palestinian Wildlife Society introduced small-scale biogas technology to stakeholders in the West Bank and Gaza through funding from the US Embassy, US AID and private foundations, and he has been working with the Arava Institute for Environmental Studies and Alumni Network, Engineers without Borders Palestine, Al Najah University, and the Eco-village Network Global Campus, and the HomeBiogas company in Palestine and Israel on a yearly basis since 2006, working to help ensure "peace through prosperity and permaculture".

Culhane got his Ph.D. from UCLA in Urban Planning, living with and working on solar energy and waste management projects with the trash recycling communities of Cairo Egypt, and his Master's in Regional and International Development working on urban agroforestry issues in Guatemala. His undergraduate work at Harvard included a year in the primary rainforests of Borneo, working on community ecology issues with hunter-gatherer tribes. His mission is to empower communities to regain ecological self-sufficiency and economic security through regenerative systems integration, believing that we have all the puzzle pieces to make thriving societies, and just need to come together and put them together.

Carter Henne

President, Sea & Shoreline, U.S.A

Carter is a biologist and is responsible for scientific research and innovative solutions to address water quality and coastal resiliency. He is a native Floridian with a passion for creating self-sustaining natural aquatic ecosystems through scientifically validated restoration methods. Carter completed undergraduate studies in Biology at the University of South Florida and held positions with the Florida Fish and Wildlife Research Institute and Seagrass Recovery where he was Chief Biologist and Project Manager for some of the largest and most successful Florida seagrass projects to date.

Doug Heske

Chief Executive Officer, Newday Financial Technologies, Inc; U.S.A

Heske is a game changing and awards winning business leader with a consistent record of transforming new businesses for rapid expansion. He brings more than 25 years of investment management, Impact, and leadership experience to the industry and his individual accomplishments include building and leading several wealth management organizations in California. Prior to joining Newday as CEO, he ran the Private Client business for Stone & Youngberg, LLC a leading responsible public finance organization which was acquired by Stifel Nicolaus & Company in 2010. Doug was previously President and CEO of Nollenberger Capital Partners, Inc. (NCPI), a San Francisco-based broker/dealer and registered investment advisor. He was instrumental in developing NCPI's wealth management business and orchestrated the firm's sale to Sterne Agee in 2011. Prior to NCPI, he was the California Regional Director of Piper Jaffray, and a member of the firm's Operating Committee. During his thirteen years with Piper Jaffray, he launched the firm's wealth management business in San Francisco, led significant growth for the business across California, and created the firms impact and responsible investment platform. He has served on the Executive Committee of the Securities Industry and Financial Markets Association's (SIFMA) Western District since 1996 and was acting chairman from 2002–2004. He is currently a member of SIFMA's Regional Wealth Management Round Table and has served on FINRA's District 1 Committee. In addition, he is a past board president of The Edgewood Center for Children and Families, where he was a board member for eight years. currently, he serves as a Director for Safe and Sound, and a board trustee for the Oakland Museum of California

Each year a small number of Emerging Scholar Awards are given to outstanding early-career scholars or graduate students. Here are our 2025 Emerging Scholar Award Winners.

Francis Ayensu
Jiangsu University, China

Essien Oku Essien
Drexel University, USA

Kelvin Tang
The University of Tokyo, Japan

Auranzaib Noor Ali
University College London, UK

Pedro Diaz Peralta
Complutense University of Madrid, Spain

Maya Lis
University of California, USA

Arseniy Braslavskiy
University of Maryland, USA

Charalampia Mikropoulou
Aix-Marseille University, France

Stephanie Rost
Gothenburg University, Sweden

Presentations, Presenters, Participants

Could the Environmental Daly Curve Hypothesis Be Valid for Less Industrialized Economies? Testing the Relationship between Carbon Emissions and Economic Growth

Francis Ayensu, Lecturer, School of IT Business, Ghana Communication Technology University, Jiangsu, Ghana

The theory of Environmental Daly Curve (EDC) hypothesis has received little attention from researchers and academicians. Coupled with limited literature and scare empirical studies, the current study aims to fill the research gap by statistically testing the EDC hypothesis for the relationship between carbon emissions and economic growth in less industrialized nations. The research approach is deductive; the research design is explanatory; while the research method is quantitative. The target population represents 155 nations across the globe. From this number, a sample of 75 countries with high air pollution would constitute the sample size. The sample design would be a purposive sampling method since the selected countries must meet certain criteria. The source of data would be primarily secondary data. Data is gathered from World Bank through the database of World Development Indicators. The analysis method is an observation of cross sectional panel data over 31 years from 1990 to 2020. The statistical modeling methods (cross-sectional dependency test, panel unit root, panel cointegration, causality test, CCEMG, DOLS) are performed with the application of statistical softwares (Microsoft Excel, EViews, Stata).

Evaluating Sustainability of Social-ecological Systems: A Comparison of Protected Areas in Guanacaste, Costa Rica and the Azores, Portugal

Jeanie Bukowski, Associate Professor and Director, Political Science and Office of Global Studies & Initiatives, Bradley University, Illinois, United States

I employ the social-ecological systems (SES) framework to map, analyze and compare human-natural systems in terrestrial and marine protected areas in two world regions: the Guanacaste Conservation Area (ÁCG) in the northwest of Costa Rica and the Regional Network of Protected Areas of the Azores (RAPA), on this Portuguese North Atlantic archipelago. Both of these areas feature protected status designations from the global to the local levels of governance and contain several "resource systems," as characterized by the SES framework. In the Azores I focus on the Terras do Priolo terrestrial protected area on São Miguel Island, and the broader Marine Park; and in the ÁCG on the tropical dry forest sectors, and the marine protected areas associated with the Santa Rosa sector. The SES approach frames questions of sustainability through an analysis of complex adaptive systems, assuming that the social, economic, ecological, and cultural systems in a given area are deeply intertwined. I am engaging in Fulbright-supported qualitative fieldwork research (observation; semi-structured interviews; embedding with ecosystem research teams, etc.) to evaluate institutional arrangements and policies in the protected areas in terms of their likelihood of facilitating resilience and sustainability of the natural and human systems in these areas. I anticipate drawing lessons from the Guanacaste and Azores comparison that may inform sustainability policy and practice in these areas and beyond.

Governance for Climate Resilience

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Our study empirically investigates the relationship between several corporate characteristics and climate change reporting, using panel data for years 2018 to 2022 of 108 Canadian public companies. The level of climate change reporting was assessed by using the CDP Score that the company received by CDP (previously Climate Disclosure Project). The findings show that higher levels of climate change reporting is significantly related to board gender diversity, independent board member ratio, board size, commitment to the United Nations Sustainable Goal 13, external sustainability report auditing, financial exposure to physical risks, climate commercial risks, developed emission targets and are operating in certain sectors. This study employs instrumental variable fixed effect panel and ordered probit regression analyses. Our results were robust to various regression specifications and alternatives. The study used the extended ordered probit regression with endogenous treatment to account for potential endogeneity of independent board members by applying the two instrumental variables capturing the existence of a corporate governance board committee and the fact of executive compensation for long-term objectives using data from the LSG EIKON Reuters and CDP databases.

Towards Environmental Sustainability: Assessing the Role of Energy Equity and Income Inequality

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The Sustainable Development Goals (SDGs) set by the UN Agenda 2030 have prompted African countries to strive for environmental quality and equitable energy access. However, few studies have explored the relationship between income inequality dynamics, energy equity, and environmental quality. This study aims to fill this gap by assessing the interdependencies between income inequality dynamics and energy equity in relation to environmental quality in Africa. Using a panel dataset covering 41 African countries from 2008 to 2019, we employ the Driscoll-Kraay standard errors and two-step system GMM estimation method. Our study investigates the unconditional and conditional effects of energy equity and income inequality on environmental quality. Our findings reveal the following: (1) energy equity fosters environmental quality, whereas income inequality detracts from it, and (2) income inequality nullifies the positive impact of energy equity on environmental quality. These findings remain consistent when we use ecological footprint as an alternative measure of environmental quality. We conclude that addressing income inequality is essential for ensuring that energy equity improves environmental quality. Policymakers should prioritize energy equity initiatives to achieve development goals.

Indigenous People Protecting Forests and Finding Practical Solutions for Climate Change Mitigation in Post-coup Myanmar

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Tanintharyi region, at the southernmost tip of Myanmar, is part of one of the most significant biodiversity areas remaining in Southeast Asia – The Dawna-Tenasserim Landscape. The wilderness landscape comprises a continuous block of high conservation value forest straddling eastern Myanmar and western Thailand, and provides habitat for a wide range of vulnerable and endangered species, including tigers (Panthera tigris). On the Myanmar-side, decades of armed conflict has fueled the exploitation of natural resources in some areas but has also meant that large areas have remained free from the development of extractive industries. This paper provides a case study of how one local Indigenous People-led NGO – The Tenasserim Indigenous Peoples Network (TRIPNET) – has created space for local people to manage their natural resources and work for climate change mitigation according to their culture and traditions. TRIP NET has supported local communities to conduct biodiversity assessments and create a network of 32 Community Protected Areas, as well as express their land rights to prevent the expansion of industrial agriculture plantations and gold mining operations.

Sustainable Strategy - Eagle Airlines

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Nnanna Emetu

In this study, we explore Eagle Airlines, a fictitious, commercial airline headquartered in the United States, that offers domestic and international flights with a strong focus on customer safety and service. Recently, the company has embarked on a strategic shift towards minimizing its environmental footprint, recognizing the aviation industry's critical role in contributing to pollution and climate change. Eagle Airlines is committed to aligning its operations with sustainable development goals and fostering a more economic, social, and environmentally sustainable future.

Exploring Water Hyacinth Pyrolysis for South Africa's Decarbonisation and Just Energy Transition

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South Africa, heavily reliant on coal, aims to reduce carbon emissions by transitioning to cleaner energy sources. One promising avenue is using pyrolysis on water hyacinth, an invasive species that threatens sustainability, to create a low-carbon economy. Traditional control methods for water hyacinths are costly and ineffective, prompting the search for alternative solutions. This study uses Response Surface Methodology to optimise pyrolysis parameters, precisely temperature and particle size, to enhance the yield of liquid fractions from water hyacinths. Experiments were carried out at temperatures ranging from 273.22 to 676.78 °C and particle sizes from 380 to 2620 μm, with a heating rate of 30 °C/min and a nitrogen flow rate of 25 l/min. Findings indicate that higher temperatures and larger particle sizes increase liquid yields while decreasing char production. The pyro-oil yield peaked at 48.45 wt.% at 575 °C, compared to 24.36 wt.% at 273.22 °C, before slightly declining at higher temperatures. Conversely, char production dropped from 58.21 wt.% at the lowest temperature to 33.84 wt.% at the highest tested temperature. The study suggests that valorising water hyacinths through optimised pyrolysis can yield significant socio-economic and environmental benefits. This approach, supported by sound policies and strategies, could facilitate the transition towards commercialising bio-oil production, contributing to sustainable energy solutions for South Africa.

A Board Game Approach to Climate Change Education and Advocacy

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This research discusses "EcoQuest," a board game developed to address the urgent issue of climate change through gamification. EcoQuest aims to bridge the perception gap surrounding climate change by immersing players in its complexities while promoting awareness, empathy, and action-oriented mindsets. The study outlines the game's components, gameplay mechanics, and significance, emphasizing its potential as an educational tool for diverse audiences. The research methodology incorporates qualitative methods to assess the game's effectiveness in conveying climate change concepts and inspiring tangible actions. Data collection includes pre- and post-gameplay questionnaires, supplemented by ethnographic observations, providing insights into players' understanding, engagement, and motivations. The study hypothesizes that EcoQuest can serve as a platform for introducing climate change terminology and concepts, utilizing the power of board games to communicate serious issues effectively. Through this approach, the research aims to contribute to the ongoing discourse on climate change education and advocacy, offering a creative and interactive solution to a global challenge. Additionally, preliminary research findings suggest that EcoQuest enhances players' understanding of climate change concepts and motivates them to take action, highlighting the game's potential to drive meaningful change through immersive gameplay experiences.

Towards a Fair Transition to the Green Economy by Mitigating the Distributional Effects of the EU Emissions Trading Scheme

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Carbon pricing is a policy that involves the imposition of charges on carbon dioxide emissions, thereby increasing the price of fossil fuels1. Although meeting the ambitious global greenhouse gas emissions reduction target outlined in the Paris Climate Agreement brings numerous environmental benefits, it also incurs significant implementation costs and may impact various dimensions of human well-being, including welfare, poverty, and poverty distributional aspects. To ensure climate stabilization, it is crucial to exercise supply restraint and de facto carbon pricing, which would result in higher fossil fuel prices. However, predicting the carbon price trend needed to achieve the Paris target is challenging. Nonetheless, it is imperative to establish a hard limit on total fossil carbon consumption to achieve a Paris-consistent emissions reduction trajectory, with permits exclusively available to fossil fuel companies. While a carbon price that varies over time may aid in reducing emissions, a hard cap with auctioned permits is a more direct and proven approach to accomplishing this objective2. Therefore, it is crucial to examine the poverty and distributional effects of various carbon pricing methods that would be compatible with achieving the Paris Agreement targets. However, implementing the Paris Agreement goal of limiting temperature rise to less than 2°C would require a substantial increase in current policy initiatives. Despite providing several environmental benefits, meeting the strict global GHG emissions reduction target entails considerable implementation costs and may adversely affect various aspects of human well-being, as well as have distributional implications for households.

We Need Trusted Intermediaries: Strategies for Effective Climate Change Communication from American and Polish Climate Scientists

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The climate crisis is a critical challenge for human social, political, and economic systems and, at the same time, a profound communication crisis. Scholars observe the disconnect known as the climate change knowledge-action gap (Knutti 2019), where climate science communication still does not effectively reach broad audiences to leverage the needed action. Although much can be done to improve this communication (Moser, Dilling 2011), a "communications gap" often exists between scientists and the public (Hunter 2016). This study, aimed at addressing these communication-related gaps, seeks to understand climate scientists' strategies for enhancing the science-society dialogue on climate change. The author conducted in-depth interviews with eight American and eight Polish climate scientists known for their communicative efforts. Participants shared their experiences, evaluated communication effectiveness, and offered recommendations. Based on the findings, the author proposes a communication model that includes "trusted intermediaries": societal actors who help bridge the gap between scientists and the public. These intermediaries support, rather than replace, scientists, helping translate complex information and foster a stronger connection with the general public. Trusted intermediaries acting as liaisons between academia and the public may answer one of the most pressing problems of scientific communication on climate change, namely the lack of sufficient numbers of scientists involved and the lack of institutional support for science communication. The paper outlines the training efforts undertaken in Poland to engage new climate communicators to support the voices of scientists and thus take on the role of trusted intermediaries in climate communication.

Planning for Sustainable and Just Food Systems in an Uncertain Future: Applying Intergovernmental Panel on Climate Change's Shared Socioeconomic Pathways Scenarios to Long-term Planning

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This research explores approaches for long-term food systems planning in ways that account for and respond to uncertainty in the face of global climate change. Using Revelstoke, Canada, as a case study the project involved researchers working with community stakeholders (1) to consider a scenario that captures an equitable and resilient local food system, and (2) to explore scenario alternatives that respond to external trends and shocks as per the Intergovernmental Panel on Climate Change's (IPCC) Shared Socioeconomic Pathways (SSP) scenarios. The research methods involved a stakeholder workshop, where a future food system scenario was presented to participants via a digital visualization tool and then activities were done to facilitate an exploration of how the scenario would change under IPCC's SSP1 (sustainability) and SSP3 (regional rivalry) scenarios. These activities stimulated thinking about the features of the scenarios, outcomes of the scenarios (with respect to climate action, biodiversity, community health, and social justice), and a timeline of events for the scenarios (from current to 2100). Results from the work include two emergent scenarios (i.e., the initial scenario changed as per SPP1 and SSP3 trends and conditions), with the SPP1-influenced scenario involving increases in technological advancement and the SSP3-influenced scenario involving a higher degree of localization of food systems due to isolationist policies and local culture. The study developed new ways of qualitatively exploring and examining uncertainties in scenario planning, and the approach used in this research can be applied by other researchers and practitioners to support long-term planning in their communities.

Art and Sustainability: The Role of Art in Climate Change Education

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This study explores the potential of arts-based education to enhance environmental literacy and promote sustainable living among students. By integrating arts and environmental education, we can develop a deeper understanding of the human-nature relationship and encourage students to adopt environmentally conscious behaviors. The study examines the role of arts in fostering empathy, creativity, and critical thinking skills, which are essential for addressing the complex environmental challenges we face today. The findings suggest that arts-based education can be a powerful tool in promoting environmental awareness, encouraging community engagement, and inspiring students to take action towards a more sustainable future.

Measuring the Performance of Sustainable Development Goals: Perspectives and Contributions from Local Governments in Colombia

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Progress towards the Sustainable Development Goals (SDGs) has been significantly slow at the global level, raising concerns about the ability to achieve the targets proposed by 2030. Several factors have contributed to this poor progress, including the lack of coordination between national and local policies, insufficient financial resources, lack of reliable monitoring systems and persistent inequalities between and within countries. Currently, the international community monitors SDGs using indicators based on available data and various methodological developments. In the particular case of Colombia, the national government developed methodologies to track their progress towards the 2030 Agenda, however at the local level, significant gaps remain as cities, in particular small and poor ones, lack the capacity and resources to collect, analyze, and report data effectively, leading to inconsistencies and incomplete assessments of SDG progress. This research analyzes the contributions to the SDG goals projected to 2027 established in the Territorial Development Plans (PDT), which are documents that guide public policies by directing resources and ensuring that government decisions are aligned with the needs of the local population. In this study, the PDTs of 10 cities and 4 states of Colombia were analyzed and it was found that the majority of local governments have a low understanding of SDGs and capacity in the formulation of public policy, resulting in PDTs that do not address all targets despite of having critical indicators in poverty (SDG 1), inequality (SDG 10), climate change (SDG 13, 14, 15) and gender (OSD 5).

Community Underwater: Evaluating the Social and Economic Consequences of Flooding in Purok 7 Gugo, Calumpit, Bulacan and the Effectiveness of Local Government Response

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Rafael Baesa, Professor, Department of Public Administration and Governance, Bulacan State University, Bulacan, Philippines
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This study focuses on the economic and social losses due to flooding in Purok 7, Barangay Gugo, Calumpit, Bulacan, Philippines and the evaluation of the government's efforts. The area has been prone to flooding over the past years, caused by intense rainfall and high-water releases from the upstream dams, which has caused considerable loss of property and livelihoods for the people. Employing both quantitative and qualitative research, the study employed questionnaires and face-to-face interviews with 14 heads of families living in flood-prone areas. The study shows that flooding has negative impacts on the physical, emotional, and financial health of the community; respondents complained of social impacts and dissatisfaction with the help provided by the local government. The mean score for the government response was significantly low, suggesting perceived inefficiency in flood prevention measures. The findings of this study shall be used as a reference for local policy makers to come up with workable solutions to the flooding problems and foster community preparedness. The findings show the necessity for better management and development of structures to solve the continuing problem of flooding in Purok 7.

Assessing Residents' Perceptions and Awareness about Household Emission Policies in Ghana

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The government of Ghana has introduced climate change mitigation initiatives with specific goals aimed at reducing emissions and improving residents' health. For instance, it plans to distribute two million solar lanterns to households and increase Liquefied Petroleum Gas (LPG) adoption to 50% among peri-urban and rural households by 2030. Through the Alliance for Clean Cookstoves, 50,000 free cylinders and cookstoves will also be distributed nationwide. This study examines residents' awareness and perceptions of these policies. We conducted a semi-structured online survey in the Greater Accra region from October 2023 to February 2024, gathering 146 valid responses. Using ordered probit regression, we analyzed correlations between socio-demographic factors and respondents' perceptions. Results show that 66% were aware of the ban on second-hand refrigerators, 52% knew about the ban on used air conditioners, and 62% were informed about the refrigerator rebate program. However, 69% were unaware of tax exemptions on solar products and the solar lantern program. Monthly income was the only variable with a statistically significant effect on perception (p-value = 0.010), suggesting higher income correlates with more positive views on emission policies. Given the moderate awareness of these initiatives, this paper discusses measures the Ghanaian government could take to enhance public engagement and effectiveness.

Cultivating Community: How Discourse Shapes the Philosophy, Practice and Policy of Water Management in the Murray-Darling Basin

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In the face of escalating water scarcity, effective water management has become a central concern globally. The Murray-Darling Basin, spanning over a million square kilometres across four states and one territory, is a lifeline for Australian agriculture and rural communities. This study dissects the prevailing environmental discourses shaping water policy in the Murray-Darling Basin and assesses their implications for both the environment and for farming communities. Drawing on five months of extensive field research among farmers and Murray-Darling Basin Authority officials, Dr Amanda Shankland presents a nuanced understanding of farmer perspectives within the broader policy discourse. By examining the interplay between environmental discourses and farmer knowledge, Shankland sheds light on how different ideologies shape policy decisions and, subsequently, impact water management practices. Central to the book's contribution is the identification and analysis of four key environmental discourses prevalent in the Murray-Darling Basin: administrative rationalism, economic rationalism, democratic pragmatism, and green environmentalism. Against the backdrop of looming water scarcity and the declining health of the Murray-Darling Basin, Cultivating Community challenges these dominant discourses by highlighting a new perspective, community centrism, which emphasises community-based cooperation and engagement in water management. By amplifying farmer voices and advocating for a more inclusive approach to policy deliberations, Cultivating Community paves the way for alternative futures in water management that prioritise social values alongside economic and environmental considerations.

Climate Warming Evidence Across Nigeria: A Detailed Examination of Temperature Trends in Sub-National Areas Using Long Memory Process

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Climate change is now a global red light as regards the earth´s sustainability and has become the core of most international discourse. It has become a global environmental pandemic, and Nigeria is not left out from its fallout. Studies have shown that Nigeria is among the countries most affected by climate change. This paper attempts to verify if there is climatic warming or cooling across Nigeria with the help of monthly data from January 1901 to December 2020 on the mean temperatures of 37 subnationals of Nigeria. To do this, we first construct the temperature anomalies for each sub-national and then employ fractional integration to account for the data's probable long memory feature. However, we also study for other statistical features, such as linear trends, and, as usual, employ only data on temperature anomalies. Long memory is found in all cases, and a higher number of positive time trends are detected. Thus, 29 sub-nationals show significant time trends (suggesting climate warming instead of cooling), with the values being higher again in the post-WW2 sample, suggesting that industrialization might have contributed to climate warming in Nigeria. In the post-WW2 sample, only the time trend for Akwa Ibom state is found to be insignificant. The results also indicate some degree of homogeneity in the degree of persistence across the Nigerian sub-nationals.

Shifts in Airborne Tree Pollen Concentration Peaks Amid Climate Change: A Five-year Study in Charleston, SC, United States

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Climate change has significantly increased the length of pollen seasons and elevated airborne pollen levels, resulting in earlier and more intense allergy seasons. Coastal areas are particularly vulnerable, yet there is limited understanding of these impacts in such regions. This study focuses on Charleston, South Carolina, one of the states most affected by climate change. Different types of pollen can combine through inhalation or through similar responses to climate change. Understanding this clustering can help us develop better strategies to manage and reduce allergy symptoms. We collected environmental data and tree pollen data for multiple taxa from 2017 to 2021 from federal databases, and the National Allergy Bureau of AAAAI. A time-series cluster analysis was conducted on tree pollen concentrations, excluding the winter months, and we employed Dynamic Time Warping (DTW) to compute the pairwise optimal alignment of pollen counts across the years. Our analysis reveal three prominent clusters. A shift in pollen counts occurred in May during 2019-2021, whereas in 2021, it shifted to June. By analyzing the normalized distances, we found that the pollen counts of 2017 and 2018 were relatively similar, with a normalized distance of 28.5. In contrast, the pollen counts of the more recent year, 2021, differed significantly from 2017, with a normalized distance of 70.9. We observed a sharp increase (nearly two-fold) in pollen concentrations in the post-COVID years for the less dominant groups and the Juniper and Pinaceae families formed the most dominant cluster.

Assessing Climate Vulnerabilities in the Western Upper Peninsula: Ecosystem Impact, Social Vulnerabilities and Policy Responses

Mercedes Asamani, Doctoral Researcher, Social Science, Michigan Technological University, Michigan, United States

The Western Upper Peninsula (WUP) of Michigan is one of the places in the world currently experiencing the impacts of climate change. This study uses a systematic content analysis of secondary data sources, such as scholarly publications, official reports, and climate projections, to investigate the WUP's vulnerability to climate impacts. The paper evaluates several sectors, including ecosystems, public health, and infrastructure, to identify critical risk areas and investigate how these vulnerabilities relate to social and economic issues. The findings reveal the variety of climate threats that the WUP faces, especially regarding public health, energy systems, and resilient infrastructure. The socioeconomic vulnerabilities of the area, such as an aging population and a dependence on extractive industries, further exacerbate the problems brought on by climate change. The study recommends that regional adaptation strategies incorporate renewable energy transitions, sustainable development practices, and active community engagement to address these vulnerabilities.

Models for Visualized Spatial Assessment and Forecasting of the Level of Technogenic Impact on the Atmosphere of Regional Territories: Development, Research and Practical Application

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The results of the development and application of specialized situational models are presented, allowing for simulation experiments to assess and predict the impact level of various components of emissions from anthropogenic sources into the atmosphere. Two types of models have been developed. The first model enables structural graphical analysis of emission volumes for different types of economic activities in a specific area (region, district, city, etc.) based on enterprise report data and statistics, with visualization and spatial analytics on an interactive map. The second type of model is an artificial neural network integrated with geographic information system tools and an electronic map, which allows for the assessment and forecasting of greenhouse gas dispersion and accumulation results in the studied area based on the following parameters: emission volumes from enterprises, wind speed and direction, as well as the geographical layout of the area of interest to the researcher. The results of using the models for a specific area–the Belgorod region, which is a major agricultural region in Russia–are demonstrated. The simultaneous use of the presented models provides the opportunity to select optimal areas for planting priority agricultural crops or carbon plants, ensuring increased productivity of the area and its economic significance while considering ecological safety. Based on the conducted simulation experiments, practical recommendations have been developed.

Economic Effects of Climate Change: Disentangling the Influence of Climate Change and Media Narratives on the Home Insurance Market

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This study investigates the multifaceted impact of climate change and its media portrayal on the home insurance market. We employ a novel approach to disentangle the effects of objective climate events (e.g., hurricane intensity, flood events) from the influence of climate change-related television news narratives. Firstly, we meteorological data to construct a comprehensive index capturing the physical manifestation of climate change. Secondly, we leverage natural language processing techniques to quantify the volume and sentiment of climate change narratives presented on television news. Finally, we isolate the independent and combined effects of these factors on home insurance premiums and policy availability. This research sheds light on the relative influence of objective climate events and media portrayals on the home insurance market. Our findings will contribute to a more nuanced understanding of how climate change risk is perceived and priced by the insurance industry, and how media coverage shapes these dynamics. The study's insights can inform policy decisions aimed at mitigating climate risk and fostering a more resilient housing market.

Unintended Consequences: The Erosion of Traditional Collective Action and Social Capital by Externally Driven Climate Adaptation Programs

Suman Acharya, Student, Postdoctoral Research Associate, University of Central Florida, Florida, United States

This study examines how externally driven adaptation policies and programs influence collective action across multi-scalar climate change adaptation governance. It contends that addressing the climate crisis effectively requires collective action underpinned by social capital–trust, reciprocity, and sharing–while ensuring the inclusive participation of vulnerable social groups and integrating their traditional knowledge and practices into governance systems. Focusing on Nepal's three-tiered governance structure, the research investigates the effects of externally imposed policies on social capital and collective action across local, provincial, and national levels. Based on ethnographic methods, the findings reveal that farming communities have historically adapted to socioeconomic and climatic challenges through informal collective actions, such as sharing seeds, labor, financial support, and disaster-related information. Community institutions, including forest user groups and cooperatives, further strengthened these efforts by fostering cultural cohesion and collective resource management. However, as social capital interacts vertically and horizontally across multi-scalar governance systems–encompassing governments, NGOs, and private institutions–the strength of collective action diminishes. National political instability, elitism, and institutional gaps weaken trust and collaboration, undermining the effectiveness of adaptation policies. This paper highlights the tension between traditional community-based practices and externally driven adaptation programs, which, while offering short-term benefits, often disrupt social cohesion and exacerbate vulnerabilities. The study concludes that meaningful integration of local institutions, knowledge, and collective identity into multi-scalar governance systems is essential to enhance adaptation efforts. It calls for policymakers to prioritize local-level collective actions and align them within broader governance frameworks to foster inclusive, sustainable climate adaptation strategies.

The State of Climate Change, Water Governance and Community Resilience in the City of Toronto

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Carolyn Johns, Professor, Politics and Public Administration, Toronto Metropolitan University, Canada

The city of Toronto is Canada's largest city, and the fourth largest in North America. In the last two decades, it has experienced significant issues with climate-related water issues, including changing water levels and increasingly frequent and intense wet weather events, which have resulted in, among other things, decreasing water quality and significant local flooding. This paper undertakes an extensive review of current climate science and modelling, climate and water policies, plans and programs in the city, as well as existing governance and community capacities/responses to water-related climate hazards. A modified version of the Baseline Resilience Indicators for Communities (BRIC) framework that incorporates locally relevant environmental, governance and social indicators, is used to build a comprehensive profile of the state of climate change readiness and community resilience in the city. Results from the modified BRIC assessment are used to identify current areas of strength in city/community resilience-building actions and efforts, as well as potential areas of growth and improvement. Using the city of Toronto as an illustrative case-study, this paper demonstrates the importance of establishing a strong baseline understanding of the current community, governance and institutional contexts, as a precursor to, and a fundamental step in addressing existing gaps in community resilience and water governance actions and efforts, and ultimately, in increasing overall climate and community resilience in the city. The paper also explores and highlights the key role of community engagement, equity and Indigenous knowledges and perspectives in building capacity to increase this climate readiness and resilience.

Experience of Warming Increases Education's Effect on Climate Concern in the U.S.

R. Alexander Bentley, Professor, Anthropology, University of Tennessee, Tennessee, United States Among the strongest predictors of climate change awareness in the U.S., outside partisan filters, is education level. Here we show how, in the

U.S., perceptible climate warming increased the effect that education, but not health risk, has on climate concern. Our interpretation is that because education provides capacity to interpret perceived warming, the more warming the greater the effect of education on levels of climate concern.

Beyond the Flypaper Effect: Crowding-In from Federal Investment in Public Transit

Arseniy Braslavskiy, Student, PhD, University of Maryland, Maryland, United States

The efficacy of targeted intergovernmental transfers depends on whether they displace or attract other funds. This paper examines the impact of federal grants for public transit on state and local government spending decisions in the United States. Leveraging the 2009 American Recovery and Reinvestment Act (ARRA) as a natural experiment, I employ a Difference-in-Differences approach with continuous treatment. I find that each \$1 of ARRA transit funding generated \$3.9 of additional capital expenditures over the subsequent eleven years. This increase operates through two key channels: an initial increase in federally-funded expenditures with no displacement of existing state and local funds (a phenomenon known as the flypaper effect), followed by a significant crowding-in of additional state and local investment beyond that. Crowding-in is more pronounced in larger Urbanized Areas and those with existing rail systems, suggesting potential roles for political influence, large upfront costs, and cost overruns in driving this effect.

The Spillway: Photographs from St. Charles Parish, Louisiana

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This photography-based work-in-progress examines the 12-square miles of the Bonnet Carré Spillway, an Army Corps-controlled Mississippi River outlet located between New Orleans and Baton Rouge. I believe this landscape and its surroundings are emblematic of the ways we intersect with the natural world as our climate continues to change. With an interest in the spillway's history as a sugar plantation, current use as a site for recreation, and proximity to the petrochemical industry, my hope is that this project will demonstrate how capitalism, white supremacy, and human desire shape the landscape we inhabit. I seek to generate a dialogue which examines our experience of the climate crisis through our vulnerability and culpability. The Bonnet Carré Spillway's 7000-foot flood control structure is itself an engineering marvel, and first drew me to the site. On either end, parallel seven-mile levees connect the river to Lake Pontchartrain, creating a contained basin for flooding. Working within this local landscape, I connect Louisiana and the Gulf South to global discourse regarding sites of extraction–using the visual to address the violence and erasure endemic to such spaces. Made from an expressive and hopefully-poetic (rather than documentary) position, I intend for the photographs to operate with openness instead of generating a prescriptive or authoritative narrative. Through photographs, video and text, the project draws together the nuanced forces at work at this site–some of which are emblematic of the Anthropogenic landscape–while also bringing visibility to the nuance of this particularly historic, complicated, captivating place.

Nature Interpretation and Integrated Fire Management: A Climate Adaptation Strategy in Itatiaia National Park, Brazil

Maria Eduarda Camilo Peixoto, Student, Master's in Forest Engineering, Federal University of Lavras, Minas Gerais, Brazil

Wildfires have become an increasing threat to biodiversity as climate change continues to advance. To protect the high-altitude grasslands of Itatiaia National Park (INP), part of the Brazilian Atlantic Forest, Integrated Fire Management (IFM) has been adopted as an adaptive management tool. Studies conducted in the park indicate that controlled burns under specific conditions can mitigate the risk of large-scale wildfires while preserving these ecologically sensitive ecosystems. Recognizing the importance of communicating these practices, park managers proposed the development of an interpretive trail in the high-altitude zone to engage visitors, raising awareness about IFM and its role in addressing climate change. The methodology involved five steps: (1) defining the trail objectives based on the INP and IFM management plans; (2) conducting an interpretive inventory using a guided tour method along the trail with a park environmental analyst to identify five potential interpretation points; (3) analyzing interpretive resources to explore and synthesize the selected elements and define themes for each point; (4) determining the target audience; and (5) creating an interpretive script using accessible language and tailored communication strategies. The proposed trail script for visitors guides facilitates reflection on the ecological aspects of high-altitude grasslands and raises awareness of IFM's role in preventing wildfires and conserving biodiversity. By connecting visitors with their natural surroundings and the park's management strategies, this initiative bridges technical conservation practices, social engagement, and policy implementation, providing a scalable communication model for protected areas facing global climate challenges.

Unseen and Undervalued: The Overlooked Role of Elderly People in Climate Change Mitigation

Hari Krishna N Ibanupudi, Global Climate Change and Ageing Adviser, Income Security, Help Age International, Andhra Pradesh, India

Older people are the unsung protectors of crucial ecosystems in some of the world's most climate-vulnerable areas—high mountains, dense forests, and coastlines. As younger generations travel to cities for a stable wage, older people are left to manage the delicate balance of ecosystems that sustain local communities and provide critical services to the global environment. These ecosystems serve as frontline climate change buffers, from the Himalayas' delicate cryosphere to the Amazon rainforest's biodiversity and the flood-prone Sundarbans. If neglected, their degradation would hasten global climate impacts, resulting in more frequent and severe natural disasters, biodiversity loss, and increased vulnerability for millions. Despite their critical role, the needs and vulnerabilities of older people living in harsh environments are frequently disregarded in climate policy debates. Their vital contributions, such as traditional knowledge, ecological management, and adaptive methods, are largely overlooked in both local government and global climate forums. This paper emphasises the essential role of older people in climate adaptation and mitigation in these hotspots and advocates for their long-overdue inclusion in climate governance systems. This study advocates for older people's organisations to have a leadership voice in climate policy dialogues, calling for a more equitable and inclusive approach to global climate adaptation strategies—one that recognises the invaluable contributions of older populations and ensures their protection in the face of escalating climate risks.

Climate Change and Water Governance Challenges in the Great Lakes Region: The Value of Baseline Knowledge and Indicators for Resilience Responses

Carolyn Johns, Professor, Politics and Public Administration, Toronto Metropolitan University, Canada
Amanda Shankland, Postdoctoral Fellow, Politics and Governance, Toronto Metropolitan University, Ontario, Canada

As one of North America's most significant transboundary water regions, the Great Lakes face significant climate-related water challenges at various scales. This paper provides a historical and current overview of the climate change and water governance challenges in the Lake Ontario region, outlines the climate and water changes anticipated by climate scientists, and focuses on how community-based responses can improve governance frameworks for building climate change readiness and resilience. An adapted version of the Baseline Resilience Indicators for Communities (BRIC) framework is used, including a broader range of environmental, political and social factors and both quantitative and qualitative data at the regional and community scales to outline the significance of baseline research related to resilience challenges and responses. The paper uses the Lake Ontario region as an illustrative case study of the need to integrate technical, political and social dimensions at various scales to address challenges at the climate change and water change interface. The paper outlines how this modified framework provides a foundation for understanding how baseline research, inclusive knowledge generation, and community engagement can enhance governance and policy transformations.

International Development Finance for the Energy Transition in ASEAN Member States: Historical Trends and Future Directions

Jeong Won Kim, Senior Research Fellow, Energy Studies Institute, National University of Singapore, Singapore

Southeast Asia is one of the most vulnerable to climate change due to the region's unique geographic, economic and sociodemographic circumstances. In order to minimize the adverse impacts of climate change, ASEAN member states (AMS) have set various targets and policies to tackle climate change and decarbonize their economy. However, most AMS are developing countries struggling with budget and financial constraints, so they have called for external financial support to meet their climate targets and realize energy transition. This study examines historical trends of international development finance that AMS received for their energy sector during the last 20 years (2003–2022), as a traditional major funding source. Then, it discusses whether the trends are aligned with global and AMS's energy transition ambition and whether international development finance is sufficient to support AMS's net zero pathways. The review confirms that bilateral and multilateral development finance for renewable energy generation projects in AMS has been growing, although there are some fluctuations by year. By contrast, development finance for fossil fuel generation was much larger than that for renewable generation until 2016 but became smaller in 2017 with a decreasing trend. Despite such growth, international development finance will be insufficient to achieve AMS's net-zero targets. Thus, it needs to explore how to scale up the finance for the decarbonization and energy transition in this region with additional proper financing models.

Distributional Energy Justice and the Inclusive Human Development Agenda in Africa

Isaac Kwesi Ofori, Student, PhD. Economics, National University of Ireland Maynooth, Kildare, Ireland

This study employs macro data for 36 African countries to address three important gaps in the inclusive human development (IHDI) literature. First, previous studies have not investigated the effect of distributional energy justice (hereafter: energy justice) on IHDI. Second, prior contributions have not explored whether climate change readiness interacts with energy justice to promote IHDI. Third, studies have examined whether the energy justice-climate change readiness interactive effect (if any) has different effects in low-income, and middle- and high-income African countries. Robust findings based on the generalised method of moments reveal that: (i) energy justice promotes IHDI, (ii) climate change readiness amplifies the positive effect of energy justice on IHDI, and (iii) vis-à-vis low-income countries, middle- and high-income countries realise remarkable increase in IHDI with progress in energy justice and climate change readiness. Across the economic, social, and governance perspectives of climate change readiness, I find that the contingency effect of governance readiness is remarkable in all the samples. I conclude that investments in broadening energy justice and Africa's climate change readiness are critical to inclusive human development.

Featured Political Climates and Nonprofit Environmentalism: A Comparative Analysis of State Influence on Environmental Nonprofits in Florida and California

Maya Lis, Student, Society and Environment: US Environmental Policy and Management, University of California, Berkeley, California, United States

This research analyzes the long-term impact of political viewpoints on the environmental nonprofit sector. The focus is on the differences and similarities among nonprofits operating in politically conservative and politically liberal state environments. Specifically, the study explores how the political climate of a state influences the mission, goals, and support systems of environmental nonprofits. It examines how these organizations are affected by state government policies, particularly in terms of formation, funding, and operational execution. The study compares environmental nonprofits in the conservative state of Florida to those in the liberal state of California. Key questions explored include: How do nonprofits' missions align with or resist the prevailing political ideologies? What are the differences in how nonprofits receive funding in different political climates, particularly regarding public and private sector support? Finally, the study assesses the role of state governments in shaping the strategic goals and operational effectiveness of these organizations. Through interviews, case studies, and a comparative policy analysis across several states, the research provides insights into how political environments affect environmental nonprofits' missions, strategies, and sustainability, offering valuable recommendations for nonprofit leaders and policymakers.

Global Sequestration of Atmospheric Carbon Dioxide by Drylands Forestation

Murray Moinester, Emeritus Professor of Physics, School of Physics and Astronomy, Department of Particle Physics, Tel Aviv University, HaMerkaz, Israel

Drylands forestation has the potential for long-term sequestration of atmospheric CO2, based upon studies in Israel's Yatir Forest. This is a 28 km2 planted Aleppo pine forest growing at the semi-arid timberline, having 280 mm average annual precipitation (with no irrigation or fertilization). The organic carbon sequestration rate (assumed representative of global drylands) was measured at Yatir to be ~550 g CO2 m-2 yr-1 (150 g C) organic carbon in the tree's biomass. In addition, soil inorganic carbon (SIC), abstracted from atmospheric CO2, precipitates as roots exhale CO2 into the soil. The CO2 then combines with soil H2O to form bicarbonate (HCO3-), which in turn combines with soil Ca2+ to form calcite (CaCO3). Integrating our measured rate of inorganic carbon deposition to a representative 6 meter depth, we find that ~132 g CO2 m-2 yr-1 precipitates as calcite. Additionally, forestation facilitates the microbial precipitation of calcite in desert soils, which may attain approximately 40% of the total SIC. The potential maximal efficacy of global forestation for reducing global warming and ocean acidification depends on the maximal area available for sustainable forestation. In many dryland areas, plentiful water is available from immediately underlying local paleowater (fossil) aquifers. Using such water should enable a functional dryland forestation area of ~9.0 million km2. Following forestation, the potential total annual sequestration rate would be at least ~7.0 Gt CO2 yr−1; divided between 5.0 Gt CO2 yr−1 (organic) and 2.0 Gt CO2 yr−1 (inorganic); a respectable ~35% of the annual rate of atmospheric CO2 increase.

Empowering Youth as Climate Change Catalysts: Education and Technology for Resilience

Katleho Mojakisane, Sustainable Futures Coordinator, Clean Energy Development, Tangelic, Lesotho

In the face of climate change, young people in underserved regions are disproportionately affected by environmental degradation and resource scarcity, yet their potential as catalysts for transformative action remains largely untapped. This presentation explores how youth in the Global South can be empowered to build climate resilience through education and technology. Focusing on "Considering Capacity Building" and "Adaptation and Resilience," the discussion introduces innovative strategies for equipping young people in rural and marginalized communities to address local climate challenges. Drawing from Tangelic's work in fostering equitable clean energy access, the presentation offers insights into empowering youth as agents of systemic change. Key focus areas include: Building Local Capacity for Resilience: Designing educational frameworks tailored to equip youth with practical knowledge and skills for mitigating climate impacts. Technology-Driven Solutions: Introducing tools like mobile apps, solar-powered learning hubs, and community data platforms to enable scalable, localized solutions. Youth as Changemakers: Sharing real-world examples of youth-led initiatives that address energy inequities, promote sustainable agriculture, and enhance climate literacy. Fostering Solidarity: Strengthening grassroots networks to connect local actions with global climate movements, amplifying young voices in international climate policy. This presentation aims to inspire collaboration among educators, policymakers, and nonprofit organizations, fostering prioritization of youth-focused climate action. By framing young people as both stewards of their environment and innovators of scalable solutions, it advocates for addressing systemic inequities and fostering shared responsibility in the global climate response.

Agriculture and Drinking Water Adaptation to Salinity: Enhancing Climate Resilience in Coastal Bangladesh

Ahmed Ziaur Rahman, Student, Doctoral Research, University College London, United Kingdom

Salinity intrusion has become a significant threat to agriculture and drinking water supply systems in the coastal region of Bangladesh, challenging traditional livelihoods and environmental stability. The coastal people of Bangladesh are trying to cope with the changing climate with a range of adaptation strategies. This paper examines the effectiveness of the current adaptation measures employed to combat soil and water salinity in southwestern coastal Bangladesh in enhancing climate resilience in the agriculture and drinking water sectors. Applying thematic analysis of data collected from Focus Group Discussions, Key Informant Interviews, and field observations, this study provides a comprehensive assessment of the current strategies, challenges, and way forward for salinity adaptations. The analysis has identified several adaptation strategies taken by the local people, including land and water management techniques like polders and irrigation canals, innovative irrigation techniques, as well as community-level strategies like crop diversification, cultivation of salinity-tolerant crop varieties, and reverse osmosis plants to individual-level strategies like rainwater harvesting. The study has evaluated the effectiveness of these strategies based on criteria like scale, cost, seasonality, quality, and productivity. Key findings of the study highlight the effectiveness of some adaptation practices in enhancing resilience while also identifying some overrated adaptation measures and significant financial, institutional, and administrative constraints that hinder the broader implementation of effective adaptation techniques. The study underscores the importance of integrated socio-agricultural management approaches and coordinated efforts among individuals, communities, and institutions, and, offers insights for policymakers and practitioners engaged in enhancing the resilience of coastal communities.

Climate Change and Criminal Law: An International, European and Italian Perspective

Giulia Rizzo Minelli, Researcher, Law, University of Bologna, Agrigento, Italy

The study investigates the role that criminal law could play within the framework of actions that must be put in place in Italy to deal with climate change. Even if the issue related to the climatic crisis has been reflected in numerous recent legislative and judicial initiatives (found in the national legal systems and at international levels), as well as in the actual disruptive exposure of the topic in public debate, there has not been sufficient reflection on a possible role for criminal law to counter this phenomenon. A criminalist reflection is appropriate to assess what role should be attributed to criminal law in dealing with international climate crimes and to ponder whether such action, within the limits of the fundamental principles governing the subject (starting with those of offensiveness, personal responsibility, proportionality and subsidiarity), is exhausted within the scope of national legislation or can be extended to the international perspective. Starting from the observation that there is a deep distinction between "climate" and "environment", an attempt will be made to identify and define "climate", to assess whether it can rise to the status of an autonomous interest protected by the law worthy of protection by criminal law. This proves essential for the identification of a possible "punitive" law of climate, which could presumably be characterized by the use of criminal sanction with a purely ancillary function to the administrative law – called upon to regulate the issue – if not by the use of administrative sanction alone.

Time to Change? The Effects of Information Provision on the Public Acceptability of Climate Change Policies, and Their Persistence Over Time

Constantine Spandagos, Assistant Professor, Natural Resources and the Environment, University of New Hampshire, New Hampshire, United States

To be implementable, climate policies must not only achieve climate goals without unnecessary disruption to economic activity, but must also be socially and politically acceptable. Various interventions to increase policy acceptability have been conducted, but the most effective communication channels and the duration of their effects remain uncertain. This work explores the role of information provision on public acceptability of climate policies and the persistence of these effects over time. We conduct an innovative behavioral experiment featuring a unique feedback mechanism based on real-time macroeconomic model information. Participants first state their acceptance of policies on renewable electricity, electric vehicles, heat pumps, and carbon taxes, and their preferences for recycling carbon tax revenues. They are then informed about the long-term environmental, economic, and equity impacts of their preferences, as predicted by our established general equilibrium model that simulates a country's economy in its entity. Subsequently, participants can update their preferences. We find that informing the public about the impacts of climate policies significantly increases their acceptance. Providing combined information about three types of impacts (environmental, economic, and equity) is often more effective than information about a single type. Among the various types of information, environmental information is found to be the most influential. Finally, we conduct a follow-up study after six months, and report the conditions under which information provision effects are persistent. This work provides valuable insights into designing and communicating climate policies that are likely to gain long-term social acceptance.

PROJECT HALO: Fire Alarm From Space

Gregory Sullivan, Climate Change Innovation Engineer, PROJECT HALO Foundation, Florida, United States

Climate change around the world has produced a large rise in wildfires. One of the largest polluters on our planet is wildfires. In 2021, wildfires around the world, if combined, were the second largest "nation" in CO2 emissions. By reducing the number of wildfires, we also reduce the subsequent pollution. Thus by reducing the number of wildfires, besides saving our planets environment and ecosystems, not to mention other physical impacts, we also greatly reduce multiple forms of pollution. PROJECT HALO offers a new tool that will see fires close to initiation and relay their location directly to the closest first responder. Thus, by putting fires out while they are small, and stopping them from turning into larger, raging wildfires, we greatly reduce the environmental and pollution impact of wildfires. This has already been demonstrated in 2013 with a joint Department of Defense and Forest Service experiment using the geostationary orbit (GEO) Commercially Hosted InfraRed Payload (CHIRP) satellite program. During a week of testing the CHIRP satellite saw 14 fires, and 13 were reported first to the Forest Service (MG Taverney, USAF, Ret). PROJECT HALO will springboard off of the CHIRP program success and provide a DEDICATED satellite to identify fires while they are very small and send their latitude and longitude to the closest first responder. We will use multiple members of the CHIRP Program. Because of our past and current experience, we see deploying PROJECT HALO as a sophomore program.

Human Impacts and Responsibility

The Carbon Footprint of Digital Content: Measuring and Mitigating Climate Impacts

Alisa Bonsignore, Founder, Strategist & Author, Clarifying Complex Ideas, LLC, Arizona, United States

Digital content–including websites, videos, and podcasts–has become a ubiquitous and fundamental part of our modern lives. But this new and accelerating wave of digitization is also increasing the energy demands on an already overextended planet. The bits and bytes are nothing more than energy, and energy has a carbon cost. Corporations, academics, nonprofits, and individuals are all content creators, and we need balance user-centric content with planetary impacts. This study presents easy-to-use metrics to assess and mitigate the carbon footprint of our digital content. Attendees will be able to: 1. Understand the carbon impact of digital content. 2. Calculate the carbon footprint of our organizations' content. 3. Implement techniques for mitigating climate impacts.

Climate Change and Its Impact on Cardiovascular Disease: A Literature Review of the Imminent Risk Global Warming Poses on Cardiovascular Morbidity and Mortality

Lucy Cooke Davies, Student, Bachelors of Medicine and Surgery, Anglia Ruskin University, Essex, United Kingdom
Zoya Arif, Student, MBChB, Anglia Ruskin University, Essex, United Kingdom
Samuel Odlin, Student, MBChB (Student), Anglia Ruskin University, Essex, United Kingdom

Climate change is increasingly recognized as a significant public health challenge. It poses a risk to many areas of medicine, with profound evidence for its threat against cardiovascular health. In this study we investigate both the cause and effect of these threats and suggest changes healthcare and society can initiate to counteract them. Our methodology involves a comprehensive literature review of select papers chosen from relevance to our topic, key words, language published and date released. The findings demonstrate that while a gradual increase in global temperatures is associated with a rise in cardiovascular mortality, the growing frequency of extreme weather events, such as short, intense heatwaves, has a much more significant impact. Additionally, exposure to air pollutants such as carbon monoxide and nitrogen dioxide is linked to an increased prevalence of respiratory disease, which in turn significantly increases both cardiovascular morbidity and mortality. There are actions which healthcare systems and wider society can take to account for this imminent threat. Some of those we propose include committing to switch to more environmentally friendly medications, implementing more 'green' transport options for patients and encouraging intuitive health. In conclusion, climate change threatens to exacerbate the already challenging burden of cardiovascular disease. It is imperative that both healthcare providers and society as a whole implement the necessary adaptations that can mitigate this risk. If not we aren't going to kill the earth. We are going to change the earth to kill us.

Greenness, Air Pollution and Health Impact: Modelling Environmental Methodological Tools to Increase Awareness and Contribute to Efforts of Regulating Illegal/Informal Settlements in Portugal

Pedro Diaz Peralta, Visiting Fellow, Administrative Law- Faculty of Law, Universidad Complutense de Madrid/ Yale University, Madrid, Spain

AUGIs - Áreas Urbanas de Génese Ilegal, are defined in Portuguese legislation as sets of parcels of land predominantly occupied by unlicensed constructions. The purpose of this study is to evaluate the health impact of environmental factors such as traffic and airport pollution, noise exposure and lack of green spaces, in populations surrounding the AUGIs areas of Antiga Fetais, Boavista and Fonte da Pipa, in Loures Municipality. This area is located north to Lisbon, near to runway 21 of Lisbon Airport and close to major motorway junctions. A qualitative review based of the existing literature has been complemented with the critical assessment of available Public Health indicators following exposure to particular matter-(PM2.5, PM10), ultrafine particles-UFPs, nitrous oxides-NOx, Ozone-O3, and other pollutants. Several studies have highlighted the combined role of air pollution and PM in terms of heat mortality and hospital admissions (Stafoggia et al, 2023; Gasparrini et at 2023), linked with the lack of reserved /dedicated green areas (Heo et al, 2023; Hayon, 2024). Health inequity follows also to social inequalities (Heo, Bell, 2023). Besides that, a recent independent study (Transport & Environment, 2024) indicated that UFPs emitted by planes at Lisbon airport metropolitan area has the stronger impact among the EU airports due to its location and could be the cause of 15,473 hypertension cases, 18,615 diabetes cases or 1,837 dementia cases. The need to prevent informal/illegal settlement at AUGIS should be supplemented with proper enforcement of pollution control or adequate access to greenspaces, avoiding urban pockets of social exclusion

Carbon Dioxide and Methane Emissions from Landfill Sites under Hot Weather Conditions: Implications of Sustainability

Abdirashid Elmi, Professor, Environmental Science, Kuwait University, Al Kuwayt, Kuwait

As waste production exponentially increases, landfill continues to be the common waste disposal method. Landfills are significant sources of greenhouse gas (GHG) emissions, contributing to global climate change. This study focuses on assessing the gaseous emissions and dispersion patterns of two major greenhouse gases, methane (CH4) and carbon dioxide (CO2), from landfill sites situated in an arid hot environment. We used ISC-AERMOD- dispersion model was employed to estimate the release and dispersion rates of CH4 and CO2 from major landfill sites across Kuwait under different seasonal conditions. The dispersions of CH4 and CO2 were influenced by the dominant northwestern and southeastern wind directions and thus, the dispersion of CH4 and CO2 extended predominantly toward northeastern direction. The maximum concentrations of CH4 and CO2 were detected in winter and spring seasons, close to the landfill zone, and the dispersion of CH4 and CO2 fluxes during winter and spring seasons was longer than that during summer and fall seasons. Consequently, residential areas close to the disposal sites were exposed to higher concentrations of CH4 and CO2 gases during winter and spring. This study helps assess which areas are best suited for landfill sites under desert climatic conditions, in consideration towards distances that gaseous emissions can disperse.

Experience with Disasters, Media Use, and Climate Change Fears: Who You Gonna Believe, Media or Your Lyin' Eyes?

Ann Gordon, Associate Professor, Political Science, Chapman University, California, United States

Disasters are increasing in frequency and severity due to climate change. To what extent does the public see a connection between these disasters and climate change? Relying on the Chapman Survey of American Fears, a representative national survey, I find that personally experiencing natural disasters and extreme weather is correlated with climate change fears, such as the belief that climate change is causing more frequent and severe disasters. However, personal experience is filtered through media usage habits, ideology, and partisanship. Fox News viewers, even those who have experienced natural disasters or extreme weather in the past year, are less likely to be concerned with climate change or its effects. Viewers of MSNBC, CNN, and those who read a daily national newspaper are more likely to fear climate change and climate-fueled disasters, even when controlling for party identification and experience with disasters or extreme weather. Further, because of their climate change beliefs, they are more concerned with disaster preparedness. The need for preparedness and mitigation has become more urgent, with the United States experiencing a growing number of deadly, billion-dollar disasters from the changing climate. In 2023 alone, there were 28 such disasters, with 492 fatalities. Despite this trend, public opinion is less dependent upon lived experience than media consumption and political beliefs.

Digital Tools and Climate Change Education: Exploring the Role of Digital Games

Adib Jawad, Student, Education, University of Calgary, Alberta, Canada

This study explores the potential of digital technologies, particularly games, to enhance Climate Change Education (CCE) by engaging learners in innovative and interactive ways. Through a multimodal discourse analysis of digital games, the research examines how game elements–such as narratives, visual design, and interactivity–can effectively communicate climate change concepts, foster environmental empathy, and promote problem-solving skills. The study also addresses the inclusion and accessibility of these games, focusing on gender dynamics and technological accessibility to ensure they can reach diverse audiences. Additionally, it considers the practical challenges of implementing game-based learning in educational settings. By providing insights into the role of digital games in CCE, this study informs educators, policymakers, and game developers on how to better engage students and promote climate literacy, offering a forward-thinking approach to addressing the global climate crisis through education.

The Impact of Climate Change on Forced Migration in the Sahel: A Human Rights Perspective

Jerome Nenger, Student, Ph.D., Binghamton University, New York, United States

Climate change profoundly impacts Nigeria's Sahel region, driving environmental degradation, displacing communities, and exacerbating human rights abuses. This narrative review examines the human rights dimensions of climate-induced migration in the region, using Environmental Migration Theory, Human Rights-Based Approach, Intersectionality Theory, and Governance and Policy Theory. It explores the environmental drivers, impacts, and potential solutions to this issue. Key findings reveal that factors such as droughts, desertification, and erratic rainfall serve as significant "push" factors forcing migration. Climate change adversely affects livelihoods, food security, and human rights, particularly concerning food, water, health, and education among vulnerable groups. Addressing these challenges requires a comprehensive approach involving mitigation and adaptation efforts, legal protections for climate migrants, humanitarian aid, and sustainable development initiatives. The review emphasizes the need for collaboration among stakeholders to address root causes and protect human rights, prioritizing equity and inclusion in all interventions.

Response of Rural Farmers to the Effects of Climate Change in Cross River State Nigeria

Friday Ogar Idiku, Senior Lecturer, Agricultural Extension and Rural Sociology, University of Calabar Calabar Nigeria, Cross River, Nigeria

The purpose of this study was to ascertain the response of rural farmers to the effects of climate change in Cross River State, Nigeria. The specific objectives were to describe the socioeconomic characteristics of farmers, examine the level of awareness of climate change among rural farmers, identify the primary sources of information on climate change for rural farmers, evaluate the perceived effects of climate change on agricultural practices; explore the coping strategies employed by rural farmers in response to the impacts of climate change and identify the constraints faced by rural farmers in implementing coping strategies. The research adopted a survey design and 215 respondents were randomly selected for the study. Data obtained was analyzed using descriptive statistics. The findings reveal that 28.8% of the respondents were between the age bracket of 51-60 years, 50.2% were females, majority 51.2% had secondary education with 73.5% having no access to extension services. It was also revealed that 86.0% are aware of climate change and indicated that radio 20% was their major source of information, while perceived critical effects of climate change include cost of food crops increases $\bar{x}$ =4.79 followed by decrease in soil fertility $\bar{x}$ = 4.72 and early weeding 214, mixed cropping 212 were coping strategies as lack of knowledge about appropriate adaptation (n=200) was a major constraint. Empowerment of rural farmers to better manage the impacts of climate change and secure their livelihoods for future generations is essential for sustainable agricultural development.

Misrepresentation of Climate Change as Spiritual and Cultural Crises: The Case of Africa

Essien Oku Essien, Doctoral Student, Communication, Culture and Media Studies, Drexel University, Pennsylvania, United States

This study critically examines the misrepresentation of climate change as primarily a spiritual and cultural crisis in Africa, rather than as an environmental and socio-economic challenge. This mischaracterization has significant implications for local policy formulation, public perception, and effective climate action in the region. Utilizing a narrative analysis approach, the research investigates how historical, cultural, and spiritual narratives are co-opted to frame climate change issues, often diverting attention from scientific evidence and pragmatic solutions. By analyzing community narratives, the study aims to reveal how climate change is frequently portrayed as a consequence of moral failings or supernatural phenomena. This framing not only undermines the urgency and scale of the crisis but also perpetuates a fatalistic outlook, impeding collective action and resilience-building efforts. The research draws on case studies from selected local African tribes in the Niger Delta region of Nigeria to illustrate the pervasive nature of these misrepresentations and their roots in precolonial/colonial histories, religious beliefs, and cultural practices. It aims to highlight how local ancestry, oral traditions, and myths contribute to this skewed narrative. The study argues for a reorientation of climate communication strategies in Africa, emphasizing the integration of scientific knowledge with culturally resonant messaging that acknowledges and respects local beliefs without compromising the facts. By addressing these misrepresentations, the research aims to foster a more informed and proactive approach to climate change in low-informed areas in Africa, promoting practices that are both culturally sensitive and scientifically sound.

Prevention as a Measure to Mitigate and Reduce the Impact of Hydrometeorological Phenomena Originated by Climate Change in Coastal Areas of Mexico from 2022 to 2024

Reyna Parroquin, Professor, Facultad de Arquitectura, Universidad Veracruzana, Veracruz, Mexico

According to the World Meteorological Organization in 2022, the La Niña phenomenon continued for the third consecutive year, which is known as a "triple-dip", a rare event as it generally occurs for shorter periods. This prolonged phenomenon had several global climate impacts, among them, it increased the action of tropical cyclones and hurricanes. Ko Barrett, climate policy expert at the World Meteorological Organization (WMO), emphasizes that the climate will continue to be extreme, highlighting the importance of early warnings and seasonal forecasts for El Niño and La Niña phenomena as crucial tools to predict impact at a global level. The impact is reflected in material losses, human lives, damage to communication routes, destruction in tourist areas, damage to the ecosystem and homes, among others. This research is based on a mixed methodology to reflect on this complex territory that interacts with a set of factors: economic, political, social, ecological and habitat factors. Consultation of plans and programs that regulate the territory, civil protection policies and analysis of successful cases. Its objective is to reflect on the relevance of civil protection protocols, prevention and the importance of strengthening robust early warning systems, the involvement of neighborhood organizations and government entities in order to mitigate the impact.

Worst Case Scenarios for Sweden in Terms of Food Security and Climate Change: A Qualitative Analysis

Stephanie Rost, Student, PhD underway., Gothenburg University, Sweden

This is a study to examine through document analysis the worst case scenarios in terms of food security due to climate change. This is undertaken through an examination of global tipping points, the IPCC scenario 8.5 and other climate data to review what the worst effects could possibly be. This is then complemented by interviews with relevant stakeholders to assess how this impacts civilians living in Sweden during this century.

Climate Change Education Policy in Indonesia: Lesson from the Archipelago

Kelvin Tang, Student, Doctoral, The University of Tokyo, Chiba, Japan

Climate change education has been internationally recognised as a tool to combat climate change. However, the question is how is this global education agenda is translated and internalised within a local context. This study conducts a comprehensive analysis of climate change education within the framework of climate change policy and education policy in Indonesia, an extremely vulnerable state due to its unique geography, topography, and climate. Employing thematic analysis on twenty climate change policy texts, twelve K-12 education policy texts, and seventeen expert interview transcripts, our study explores the congruency of climate change education in both policy domains. Despite the critical need for coordinated policies to optimise the design and implementation of climate change education, our analysis reveals a significant discrepancy between Indonesia's climate change policy and education policy regarding this crucial aspect. Four key themes emerged: the marginalisation of climate change education, the lack of synergies between relevant policies and stakeholders, the predominant economic values, and the optimistic future outlook. The study also assesses the alignment between Indonesia's approach and global trends in climate change education. The findings shed light on critical areas for improvement and development in the integration of climate change education within the Indonesian policy landscape. By contextualising Indonesia's challenges and opportunities within the broader discourse on climate change education, this research highlights the imperative for concerted action and policy reform to develop a more effective climate change education.

Attendance List

Suman Acharya, University of Central Florida, United States
Olivia Amponsah Acheampong, University of Tsukuba, Japan
Atin Adhikari, Georgia Southern University, United States
Abidemi Aina, Morgan State University, United States
Zoya Arif, Anglia Ruskin University, United Kingdom
Corneliu Arsene, University of Manchester, United Kingdom
Mercedes Asamani, Michigan Technological University, United States
Francis Ayensu, Ghana Communication Technology University, Ghana
Yena Bassone-Quashie, Toronto Metropolitan University, Canada
R. Alexander Bentley, University of Tennessee, United States
Alisa Bonsignore, Clarifying Complex Ideas, LLC, United States
Arseniy Braslavskiy, University of Maryland, United States
Lily Brooks, Southeastern Louisiana University, United States
Diana Lucia Buitrago Torres, IPN, Mexico
Jeanie Bukowski, Bradley University, United States
Maria Eduarda Camilo Peixoto, Federal University of Lavras, Brazil
Lucy Cooke Davies, Anglia Ruskin University, United Kingdom
Pedro Diaz Peralta, Universidad Complutense de Madrid/ Yale University, Spain
Petra Dilling, SUNY Empire State University, United States
Abdirashid Elmi, Kuwait University, Kuwait
Essien Oku Essien, Drexel University, United States
Saw Frankie, Tenasserim River and Indigenous Peopleâ€™s Network (TRIP NET), Myanmar
Kelly George, Embry-Riddle Aeronautical University, United States
Ann Gordon, Chapman University, United States
Jayanta Gupta, Florida Gulf Coast University, United States
Tayba Hatimy, Baus Taka Enterprises (BTE), Kenya
Kathy Huynh, The MITRE Corporation, United States
Friday Ogar Idiku, University of Calabar Calabar Nigeria, Nigeria
Obianuju Patience Ilo, University of the Witwatersrand, South Africa
Jubair Islam, Illinois State University, United States
Olga Ivashchuk, Kazakh National Research Technical University, Kazakhstan
Adib Jawad, University of Calgary, Canada
Carolyn Johns, Toronto Metropolitan University, Canada
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Jeong Won Kim, National University of Singapore, Singapore
Barbara Klik, Warsaw University fo Life Sciences, Poland
Huan Kuang, Bryant University, United States
Maya Lis, University of California, Berkeley, United States
Mekelan Lungu, Zambia development agency, Zambia
Sergei Lyuksyutov, University of Akron, United States
Grzegorz Majewski, Warsaw University of Life Sciences, Poland
Stefano Mazzotta, Kennesaw State University, United States
Charalampia Mikropoulou, Aix Marseille University, France

Attendance List

Murray Moinester, Tel Aviv University, Israel
Katleho Mojakisane, Tangelic, Lesotho
Jeff Muhs, Colorado State University, United States
Jagoda Mytych, Jagiellonian University, Poland
Hari Krishna N Ibanupudi, Help Age International, India
Jerome Nenger, Binghamton University, United States
Robert Newell, Royal Roads University, Canada
Auranzaib Noor Ali, Aga Khan University, Pakistan
Samuel Odlin, Anglia Ruskin University, United Kingdom
Isaac Kwesi Ofori, National University of Ireland Maynooth, Ireland
Efraim Parra, Autonomous University of the West, Colombia
Reyna Parroquin, Universidad Veracruzana, Mexico
Maja Radziemska, Warsaw University of Life Sciences - SGGW, Poland
Ahmed Ziaur Rahman, University College London, United Kingdom
Priya Rangaswamy, Baruch College, United States
Alison Rellinger, Mississippi State University, United States
Jennifer Richkus, MITRE, United States
Giulia Rizzo Minelli, University of Bologna, Italy
Stephanie Rost, Gothenburg University, Sweden
Marvin Sambilay, Bulacan State University, Philippines
Adom Seth, University of Tsukuba, Japan
Amanda Shankland, Toronto Metropolitan University, Canada
Constantine Spandagos, University of New Hampshire, United States
Gregory Sullivan, PROJECT HALO Foundation, United States
Kelvin Tang, The University of Tokyo, Japan
Kristian Taylor, University of Tampa, United States
Olga Tserej, Blue Missions, United States
Samuel Chibuzor Umeh, University of the Basque Country, Spain
Patricia Widener, Florida Atlantic University, United States
Todd Wilson, Ohio University, United States
Bagdat Yagaliyeva, Satbayev University, Kazakhstan

Common Ground Research Networks

COMMON GROUND

Founded in 1984, Common Ground is committed to building new kinds of knowledge communities, innovative in their media, and forward-thinking in their messages. Heritage knowledge systems are characterized by vertical separations--of discipline, professional association, institution, and country. Common Ground Research Networks takes some of the pivotal challenges of our time and curates research networks that cut horizontally across legacy knowledge structures. Sustainability, diversity, learning, the future of humanities, the nature of interdisciplinarity, the place of the arts in society, technology's connections with knowledge--these are deeply important questions of our time that require interdisciplinary thinking, global conversations, and cross-institutional intellectual collaborations.

Common Ground Research Networks are meeting places for people, ideas, and dialogue. However, the strength of ideas does not come from finding common denominators. Rather, the power and resilience of these ideas is that they are presented and tested in a shared space where differences can meet and safely connect--differences of perspective, experience, knowledge base, methodology, geographical or cultural origins, and institutional affiliation. These are the kinds of vigorous and sympathetic academic milieus in which the most productive deliberations about the future can be held. We strive to create places of intellectual interaction and imagination that our future deserves.

www.cgnetworks.org

The Common Ground Media Lab is the research and technology arm of Common Ground Research Networks. Common Ground Research Networks has been researching knowledge ecologies and building scholarly communication technologies since 1984.

Since 2009, we have had the fortune of being based in the University of Illinois Research Park while building our latest platform – CGScholar. This is a suite of apps based on the theoretical work of world-renowned scholars from the College of Education and Department of Computer Science at the University of Illinois Urbana-Champaign. CGScholar has been built with the support of funding from the US Department of Education, Illinois Ventures, and the Bill and Melinda Gates Foundation.

The CGScholar platform is being used today by knowledge workers as diverse as: faculty in universities to deliver e-learning experiences; innovative schools wishing to challenge the ways learning and assessment have traditionally worked; and government and non-government organizations connecting local knowledge and experience to wider policy objectives and measurable outcomes. Each of these use cases illustrates the differing of knowledge that CGScholar serves while also opening spaces for new and emerging voices in the world of scholarly communication.

We aim to synthesize these use cases to build a platform that can become a trusted marketplace for knowledge work, one that rigorously democratizes the process of knowledge-making, rewards participants, and offers a secure basis for the sustainable creation and distribution of digital knowledge artifacts.

Our premise has been that media platforms–pre-digital and now also digital–have often not been designed to structure and facilitate a rigorous, democratic, and a sustainable knowledge economy. The Common Ground Media Lab seeks to leverage our own platform – CGScholar – to explore alternatives based on extended dialogue, reflexive feedback, and formal knowledge ontologies. We are developing AI-informed measures of knowledge artifacts, knowledge actors, and digital knowledge communities. We aim to build a trusted marketplace for knowledge work, that rewards participants and sustains knowledge production.

With 27,000 published works and 200,000 users, we have come a long way since our first web app twenty years ago. But we still only see this as the beginning.

As a not-for-profit, we are fundamentally guided by mission: to support the building of better societies and informed citizenries through rigorous and inclusive social knowledge practices, offering in-person and online scholarly communication spaces

Supporters & Partners

As they say, "it takes a village." We are thankful for the generous support of:

And to our Research Network members!

www.cgnetworks.org/medialab

Climate change is one of the most pressing problems facing our world today. It is in the interests of everyone that we engage in systemic change that averts climate catastrophe. At Common Ground Research Networks, we are committed to playing our part as an agent of transformation, promoting awareness, and making every attempt to lead by example. Our Climate Change: Impacts and Responses Research Network has been a forum for sharing critical findings and engaging scientific, theoretical, and practical issues that are raised by the realities of climate change. We've been a part of global policy debates as official observers at COP26 in Glasgow. And we are signatories of the United Nations Sustainability Publishers Compact and the United Nations Climate Neutral Now Initiative.

Measuring

In 2022 we start the process of tracking and measuring emissions for all aspects of what we do. The aim is to build a comprehensive picture of our baselines to identify areas where emissions can be reduced and construct a long-term plan of action based on the GHG Emissions Calculation Tool and standard established by the United Nations Climate Neutral Now Initiative.

Reducing

At the same time, we are not waiting to act. Here are some of the "low hanging fruit" initiatives we are moving on immediately: all conference programs from print to electronic-only; removing single-use cups and offering reusable bottles at all our conferences; working closely with all vendors, suppliers, and distributors on how we can work together to reduce waste; offering robust online options as a pathway to minimize travel. And this is only a small sample of what we'll be doing in the short term.

Contributing

As we work towards establishing and setting net-zero targets by 2050, as enshrined in the Paris Agreement and United Nations Climate Neutral Now Initiative, and to make further inroads in mitigating our impacts today, we are participating in the United Nations Carbon Offset program. As we see climate change as having broad social, economic, and political consequences, we are investing in the following projects.

- Fiji Nadarivatu Hydropower Project
- DelAgua Public Health Program in Eastern Africa
- Jangi Wind Farm in Gujarat

Long Term Goals

We're committing to long-term science-based net-zero targets for our operations – and we believe we can do this much sooner than 2050. We'll be reporting annually via The Climate Neutral Now reporting mechanism to transparently communicate how we are meeting our commitments to climate action.

www.cgnetworks.org/about/climate-pledge

Proceedings of the Seventeenth International Conference on Climate Change: Impacts and Responses, hosted by the Florida International University, Miami, USA, 23-25 January 2025. The conference featured research addressing the following special focus: "Sustainable Development for a Dynamic Planet: Lessons, Priorities, and Solutions" and annual themes:

- **Theme 1: The Nature of Evidence**
- **Theme 2: Assessing Impacts in Diverse Ecosystems Themes**
- **Theme 3: Human Impacts and Responsibility Theme**
- **Theme 4: Technical, Political, and Social Responses**

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