



## **Pathways for Agriculture, Forestry, and Other Land Use (PAFOLU) in Support of Sustainable Development, Equitable Solutions and a Stable Climate**

September 14-15, 2022

University of Oxford, under the auspices of the Oxford Martin School, and online

### **Background and Context**

Our global climate and the modern world are continually changing with complex, co-evolving human and natural stressors growing, which further amplify environmental threats. A diverse portfolio of solutions exists that can reduce the existential threat of human-forced climate change – namely those that aim to reduce carbon-based energy technologies, but also those that can remove carbon dioxide (CO<sub>2</sub>) from the atmosphere. For the removal of CO<sub>2</sub>, we can either deploy technologies that directly capture the gas and store in geologic formations or intensify and/or extensify natural processes that fix carbon into the ground. The latter “nature-based solutions” will require agriculture, forestry, and other land-use (AFOLU) practices to be deployed across landscapes at an unprecedented scale. Yet, these solutions must be sustainable and the potential for unintended and unequally distributed consequences is a notable risk. In order to provide valuable insights and foresights into what are the “best practices” moving forward, we must bring to bear the full portfolio of predictive tools, analytics, and informative metrics, such that stakeholders, decision-makers, and local-to-national leadership can identify, engage, and pursue science-based targets that effectively navigate these interconnected challenges.

### **Objectives**

The Foresight and Metrics Research Initiative of the CGIAR (F&M)<sup>1</sup>, the Joint Program on the Science and Policy of Global Change at MIT (JP-MIT), and Oxford University via the Oxford Martin School (O-OMS) are each pursuing pathways for agriculture, forestry, and other land use (PAFOLU) in support of sustainable development, equitable solutions and a stable climate. They are doing so in distinct but potentially complementary ways. This workshop brings together experts across these and other institutions as well as interested stakeholders from industry, government, and the non-profit sector to jointly identify important knowledge priorities as well as means for meeting these priorities. The workshop addresses global issues in climate, sustainability, mitigation, and AFOLU-based solutions – but also bring these issues down to continental and national foci to a portion of the globe that is expected to undergo rapid development and population growth in the coming decades – Africa.

---

<sup>1</sup> F&M is led by the International Food Policy Research Institute (IFPRI) and draws on expertise from across the CGIAR.

## **Motivation by Session**

### *Foresights into worlds at or below 2°C warming*

The topline goal of CoP26 held in Glasgow was ‘secure global net zero [emissions] by mid-century’. The term ‘net’ recognizes that emissions from difficult to mitigate sectors are unlikely to go to zero by 2050; therefore, other sectors must have negative emissions (remove GHGs from the atmosphere) to attain the goal. At present, the only process capable of removing GHGs from the atmosphere at scale is photosynthesis. Barring substantial advances in other sequestration technologies, this implies that the AFOLU sector must shift from a major source of emissions (approximately 21% of total emissions on a CO<sub>2</sub>eq basis in 2018) to a major net sink of emissions by mid-century. The math is straightforward. If all other sectors reduce emissions by 90% by 2050, AFOLU must shift from today’s positive 21 percent of 2018 emissions to approximately negative 8 percent of 2018 emissions by 2050 to attain the net zero goal.

Pathways to meet the very ambitious emissions reductions objectives set for AFOLU are notably unclear. It is clear that developing countries are crucial to success. Currently, they account for the large majority of global AFOLU emissions. At the same time, looking forward to 2050, they also have very substantial potential to sequester carbon.

The desired outcome of this session is a set of research ideas that contributes materially to the elucidation of pathways to net zero emissions by 2050 in sufficient detail to engage policymakers and planners in developing countries, notably those in Africa. This level of granularity is currently lacking; yet it is crucial for the design of the policies, investments, and financing mechanisms required to achieve net zero emissions in tandem with other development goals.

*By the end of the workshop or shortly thereafter, session leads are requested to develop a slide deck describing collaborative research project(s) that bring together the strengths of their institutions.*

### *Confronting physical and transition risks*

In the desired state of the world, policymakers and planners in developing countries are simultaneously pursuing traditional development objectives and 21<sup>st</sup> century environmental objectives, not least net zero emissions. These objectives require broad scale economic transformations, which pose substantial stresses and risks on their own. At the same time, these objectives must be pursued in a context of unprecedented climate volatility, which will interact with other natural and human events. In 2022, for example, the importance of shocks has been strongly underlined by the lingering effects of Covid-19, the war in Ukraine, and poor growing conditions in major global breadbasket regions. In this context, resilience has come to be viewed as a key facilitator of broader development and mitigation objectives. Without

sufficient resilience, developing countries appear likely to be derailed from achieving shared development and sustainability objectives.

The desired outcome of this session is a set of research ideas that facilitate the efficient consideration of risk/uncertainty in development policy and planning. Improved metrics of resilience appear to be a likely first step. In terms of transition risks, many of the risks and opportunities associated with a transition to a net zero emissions economy are often highly context specific (e.g., South African dependence on coal for power and Nigeria's dependence on oil for foreign exchange). At the same time, there are likely to be considerable analytical economies of scale in the analysis of the physical risks posed by climate change. For example, regional analyses that comprehend major river basins and trading blocs, such as the Zambezi and SADC, may provide much greater insight for similar levels of effort compared with a series of country-based analyses. They also lend themselves to the analysis of regional approaches to confronting climate change, which may have distinct advantages. Finally, because hydropower is often an important part of the energy mix (e.g., the Zambezi and the Nile), these regional analyses link to mitigation policy and strategy as well as a multiplicity of other environmental objectives.

[By the end of the workshop or shortly thereafter, session leads are requested to develop a slide deck describing collaborative research project\(s\) that bring together the strengths of their institutions.](#)

#### *Financing sustainable development*

Intelligent global, regional, and country policies, investments, and financing mechanisms are necessary for meeting 21<sup>st</sup> century goals, but they are not sufficient. At the end of the day, human behavior must change, often substantially. For example, halting deforestation and then enabling afforestation where appropriate will not happen without functional institutional frameworks that provide the pecuniary and social incentives necessary to foster desired behavior changes at the most local levels.

On the positive side, there is a growing appetite amongst countries and corporations to finance activities that credibly and efficiently accelerate progress towards the goal of net zero emissions. On the negative side, the necessary institutional frameworks are a shambles. As of today, actors wishing to finance accelerated progress towards a net zero emissions world must work very hard to invest their funds credibly and effectively, at any scale. This is particularly true in the developing world, which is exactly where scale should be the largest.

The desired outcome of this session is a set of research ideas that seek to address these institutional deficiencies, with a focus on developing countries. Such a program clearly involves efforts at local levels designed to foster desirable changes in behavior. At the same time, it may also involve goals and monitoring at much broader scales, such as a nation or a province, to credibly prevent leakage. To be effective, these frameworks must also advance broader developmental and environmental objectives.

In short, it may be possible to form a coalition of recipient countries (or sub-national regions), financing entities (corporations and developed countries), and non-governmental organizations that can, through research, piloting, and trial/error, develop the necessary functional institutional frameworks for channeling finance towards investments that accelerate progress towards a net zero world while simultaneously contributing to developmental and other environmental objectives.

By the end of the workshop or shortly thereafter, session leads are requested to develop a slide deck describing collaborative research project(s) that bring together the strengths of their institutions.

### *Summary Discussion*

This final session recognizes that an attempt is being made to develop a three-part coherent program. The first part involves rigorous foresight analysis with emphasis on the challenges posed by AFOLU. It addresses the question: 'What are potential feasible pathways to achieving shared objectives?' The second part considers the manifold potential shocks and stresses that await. It addresses the question: 'Which, if any, of the pathways envisioned under part one are robust?' The third part moves from developing a feasible, functional, and robust vision to addressing the challenges of implementation. It addresses the question: 'What institutional frameworks are required for success?'

In all parts, the ultimate emphasis is on present day decision-making with special focus on developing countries.

This session engages the collective wisdom of workshop participants to sharpen the focus of and where possible synthesize the nine (or so) research ideas developed and discussed in each preceding session as well as highlight points of interaction and synergies between them. The session emphasizes the views of stakeholders to initiate the development of clear and deliberate pathways to the generation of value by the research program.

Session leads will incorporate important results from the summary discussion into their respective slide decks.

Shortly after receiving the final decks from session leads (expected not long after the workshop closes), workshop leads will seek to integrate into a single deck and suggest a series of next steps.

## IFPRI-Oxford-MIT workshop “Pathways to Development and a Stable Climate”

September 14-15, 2022  
Oxford Martin School

### AGENDA

(All times are London local time – *Red font indicated hybrid/online portions of meeting*)

#### Day 1 - September 14, 2022

*Registration* 08:45-09:00 am

#### **Morning Sessions:**

**In-person participants briefly introduce themselves** 09:00-09:15 am

**Introductory Remarks: Envisioning the world that we want** 09:15-09:30 am  
Channing Arndt, Charles Godfray, Ken Strzepek

**Foresights into worlds at and below 2°C warming** 09:30-11:00 am  
(45 minutes for presentations and 45 minutes for Q&A)  
Jim Hall, James Thurlow, Jennifer Morris, Angelo Gurgel, and Keith Wiebe  
Moderator: Channing Arndt for Ken Strzepek

*Coffee break* 11:00-11:30 am

**In-person only brainstorming roundtable session** 11:30 am-12:30 pm

*Lunch* 12:30-2:00 pm

#### **Afternoon sessions**

**Analysis and foresights into identifying, confronting and coping with physical and transition risks** 2:00-3:30 pm  
(45 minutes for presentations and 45 minutes for Q&A)  
Adam Schlosser, Faaïqa Hartley, Michael Obersteiner, and Nicola Ranger  
Moderator: Chris Adam

*Coffee break* 3:30-3:50 pm

**In-person only brainstorming roundtable session** 3:50-4:30 pm

**Financing sustainable development** 4:30-5:00 pm  
The [Just Energy Transition Partnership](#)  
Virtual interview with Daniel Mminele led by Laurence Harris

*Dinner* 6:00-8:00 pm

## Day 2 - September 15, 2022

### Morning sessions

#### Building functional markets for sequestration

9:30-11:00 am

Sam Fankhauser, Ruth Meinzen-Dick, Nicola Ranger, and Martin Haigh

Moderator: Charles Godfray

#### Coffee break

11:00-11:30 am

#### In-person only brainstorming roundtable session

11:30 am-12:30 pm

#### Lunch

12:30-2:00 pm

### Afternoon sessions

#### Highlights and Open Roundtable

During this session, we seek to highlight the discussions and key takeaways from the preceding online panels and in-person brainstorming sessions of the workshop.

#### Stakeholder input (approximately 10 minutes per group)

2:00-3:00 pm

- African research networks (AERC, ARUA, MEFMI)
- Development organizations (BMGF, FCDO, USAID, CJ)
- African policy research (CEPPAG, UNECA, NT/EP)
- Forum sponsors present in-person
- Forum sponsors online [up to 20 minutes]

Moderator: Channing Arndt

#### Summary of workshop research presentations and reactions to discussions

3:00-3:30 pm

Include immediate reactions to stakeholder inputs with emphasis on implications for potential collaborative research project(s) that bring together the strengths of their institutions.

Moderator: Adam Schlosser

#### Coffee break

3:30-4:00 pm

#### In-person only: Next steps discussion

4:00-4:45 pm

- Synthesis from organizers: (Adam S, Channing A, Charles G, Chris A, Ken S)
- Comments and open discussion with all in-person attendees

#### Wrap-up and adjourn

4:45-5:00 pm

#### Closing reception

5:30-7:30 pm