

RECOGNIZING RISK— RAISING CLIMATE AMBITION

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Climate
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Acknowledgments

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Foreword

From Simon Sharpe, Deputy Director, Energy, Transport & Nature, COP26 Presidency

To make good decisions about responding to climate change, it is crucial that we understand the full scale of the risk.

A diverse range of organizations carry out annual risk assessments, to inform private and public sector decision-makers, policy makers, and negotiators on the risks associated with climate change, to support their decisions on both mitigation and adaptation. However, a gap remains in that none of these reports meets the needs of a risk assessment for heads of government in terms of being brief, holistic, and faithful to the principles of risk assessment (such as focusing on the plausible worst case). Such an assessment could help heads of government decide the strength of action that is worth taking to avoid unmanageable climate risks, and to manage those that are now unavoidable.

This report summarizes findings of 13 consultative workshops on this topic, carried out with academics, policymakers, think tanks and private sector representatives from across the globe. These workshops were a collaboration between Woodwell Climate Research Center, the UK's Science and Innovation Network and the COP26 Presidency, to better understand barriers to, and best practices in, climate risk assessment and communication in a range of country settings. The findings speak to the need to do things differently, to change the way we not only communicate risk, but the way we do science—to be more collaborative from the start.

Results underline the importance of downscaled, local and sectoral level risk information that allows senior decision makers to relate the climate crisis to their own priorities, at the same time as highlighting the need to clearly communicate the big picture to leaders. This will require engagement across research disciplines and sectors to standardize the way we assess risk, and to deliver information on transboundary and cascading sectoral risks more effectively. By helping heads of government understand the full extent of the risks their countries and citizens face, we can support the urgent action that is required to meet our collective climate change goals.

I look forward to seeing how these lessons learned translate into action.

Introduction

The 26th United Nations Climate Change Conference of the Parties (COP26) brought countries together to accelerate action towards the goals of the Paris Agreement and the United Nations Framework Convention on Climate Change (UNFCCC). To date, however, progress with both national climate change mitigation policy and sub-national adaptation strategy have not matched the severe risks of impending climate change impacts, implying that climate risks are not being communicated and received effectively.

Currently, many climate risk assessments focus on a single hazard, cover large spatial and temporal scales, and often only look at global and national impacts through the end of the century. Climate risks are frequently shown as a function of various future emissions scenarios, which can be a source of confusion and uncertainty. There is still an enormous gap between our understanding of climate risk and climate policy ambition.

In this context, the **COP26 Presidency** and **Woodwell Climate Research Center** (“Woodwell”) organized country-specific workshops to understand how to better deliver climate risk information. We gathered high-emitting nations (Argentina, Australia, Brazil, Canada, China, India, Indonesia, Russia, Saudi Arabia, South Korea, South Africa, United States, and Turkey); collectively, these nations comprise approximately 67% of global carbon dioxide (CO₂) emissions. We convened more than 220 cross-sectoral experts in climate policy, science, resilience, and advocacy, as well as those working in financial risk, to discuss both general perceptions of climate risks and specific aspects of climate risk assessments. Following these workshops, the conversations were distilled to identify the themes that emerged across all workshops, and those that were unique to individual countries. Our goals were to identify both the aspects of climate risk assessments that are most effective at motivating action and those that could be improved. With this report, we address both scientists who have traditionally been involved in the climate risk assessment process, and experts, stakeholders, and decision-makers who for the most part, have not.

To produce these findings, Woodwell researchers synthesized detailed notes from each workshop to identify common themes, challenges, and suggested solutions. The document aims to deliver insight to the scientific community about how climate risk assessments for policymakers can be designed and delivered more effectively.

The first section of the report focuses on the big picture cross-cutting themes that emerged from many or all of the workshops. The second section includes brief summaries of the conversations that took place in each workshop.

Cross-Cutting Opportunities and Challenges for Improvement

In this section we identify key findings that resonated across the workshops, and provide recommendations on how to address the most significant challenges.

Develop risk assessments in collaboration with policymakers

Climate risk assessments are most effective when they answer a specific policy question, and when they respond to an engaged audience eager to make use of relevant climate science. Most workshop participants indicated that for risk assessments to be successful and influential, they should be developed in partnership with policymakers.

“ You need clarity on the objective. What is the decision, the policy, the program, that will use the information produced by this risk assessment? Oftentimes these things are put out there without actually identifying where they will go.

Workshop Participant, Canada

For adaptation and resilience purposes, co-created risk assessments were cited as being effective in assisting implementation because they are designed with a specific set of climate hazards and the end user in mind. Collaborative climate risk assessment development requires shared understanding, strong relationships, and open channels of communication between scientists and policymakers. A recurring theme in the workshops was that scientists are not necessarily the best suited to communicate their results to non-technical audiences, and so in some cases, this might require an intermediary. Similarly, a number of workshop participants suggested that the most prominent climate risk reports—such as the Intergovernmental Panel on Climate Change (IPCC) Assessment Reports—do not resonate far beyond academia because they do not use language that is accessible to non-scientists.

The benefits of scoping risk assessments in partnership with policymakers also extended to increasing ambition for mitigation policy as well. In countries where climate change has become a politically difficult issue, customized climate risk assessments were seen as a potential mechanism for spurring political leaders toward climate action. If a policymaker is particularly interested in agriculture, for example, a focused look at future crop yields makes the climate message more likely to resonate.

In countries where climate change policy is not a priority, focused climate risk assessments could bring much needed attention to the issue. In one country, workshop participants said that natural disasters are a significant problem but they are not often discussed within the context of climate change. For example, clearly attributing specific precipitation and flooding events to climate change—and explaining how they will become more severe in the future—would directly respond to an issue that policymakers feel compelled to prioritize.

“Scientists need to get feedback from the decision makers on what type of information they need and how they will use it,” said one participant in the China workshop. There is a “feeling that there is a significant gap between knowledge and action. Science is irrelevant if the governments don’t know how to use the scientific information correctly.”

RECOMMENDATION

Create channels for climate scientists to collaborate with policymakers, and support open and regular communication between these groups to build a shared knowledge base and appropriately address relevant policy questions.

Provide context-specific climate risk information

Risk assessments that provide detailed information about climate change impacts to specific communities are more likely to motivate increased mitigation efforts. While downscaled and locally-relevant risk assessments most often inform adaptation efforts, they also drive mitigation by increasing awareness of how climate change can destroy valued ways of life, and by demarcating the clear limits to adaptation and the potential loss and damage. Workshop participants agreed that local-scale assessments are important for the general population by allowing communities to see how climate change will affect their livelihoods and lives, and also for the political leaders who are responsive to those constituents and economic interests.

The types of specific risk information needed across societies are as varied as the communities themselves. One workshop participant reported that they had conducted 46 climate change meetings across the country, and through that process identified thousands of different assessment needs. For example, a sheep farmer in one of those meetings was reportedly interested in the changes in temperature at a certain height off the ground because of the implications for livestock breeding. While that level of modeling is not currently achievable, it speaks to the need for context-specific information.

“The best received climate risk assessments are the ones that deliver data at the scale that people work at.

Workshop Participant, Australia

To provide this information, workshop participants encouraged the use of climate risk modeling that produced higher resolution spatial data over shorter timescales. This would be applicable and useful on both regional and municipal levels. While multiple workshops focused on the need for a more standardized and uniform set of scenarios under which risk can be assessed, the need for customized and locally relevant outputs stood out.

“ [It is] important to get to know how universal risks are and how severe the risks are. Local, spatial, detail-oriented information needs to be delivered in a convincing and reliable way.

Workshop Participant, South Korea

RECOMMENDATION

To illustrate localized risk that can be avoided and to highlight the limits to adaptation, stakeholders should be continually engaged in regional climate modeling and climate model downscaling.

Standardize climate risk assessments

Many of the workshops cited the need for a standardized approach to climate risk assessment, which would allow senior policymakers and business leaders to make comparisons across geographies and sectors.

Scientists should “build on current assessments and develop a more standardized and uniform set of scenarios under which risk can be assessed at different scales so people don’t have to sift through a lot of different reports,” said a participant in the Australian workshop.

The discussions touched on the benefits of standardized climate risk assessments to political leaders, but also emphasized the specific help this would provide to understanding the financial cost of climate change impacts.

Banking officials “are beginning to factor climate related risks into regulation, but it is difficult without any international consensus on how to do this,” said one Russian participant.

RECOMMENDATION

Best practices should be standardized in climate assessment processes to facilitate comparisons, while ensuring that each assessment is tailored to a specific audience.

Engage interdisciplinary teams to illustrate cascading climate change impacts and develop solutions

Climate risk assessments that go beyond direct physical hazards are more likely to resonate with political leaders. Every workshop session agreed that physical climate risk assessments are more compelling when they are translated into socio-economic metrics such as public health, jobs, and economic productivity. Public health assessments, in particular, were identified as being important for both adaptation planning and for catalyzing increased climate policy ambition. Regardless of the application, in order to translate climate hazards into climate impacts, vulnerability assessments must be incorporated into the climate risk assessment process.

“We need to explain climate change using examples of what people are dealing with on a daily basis,” said one South African participant. “Climate change language easily becomes too scientific ... once everyone can have a conversation and understanding of climate change, it will spur mitigation and adaptation efforts across sectors.”

Many of the workshops also placed particular emphasis on the need to quantify the costs of climate change impacts, such as the future economic cost of climate change for agricultural production. For example, one workshop noted that shifting climate zones might require the relocation of entire sectors of the country’s agricultural sector—at a potentially enormous cost. Some participants also suggested that risk assessments could often do a better job of identifying compound and cascading risks, to fully illustrate the potentially calamitous scale of the climate crisis. In that vein, workshop participants repeatedly mentioned that calamitous climate risk information presented by itself can be overwhelming and off putting. In order to prompt action, clear solutions need to be put forward, further highlighting the need for interdisciplinary collaboration so that appropriate next steps can be developed to accompany climate risk assessments.

“ [A better understanding of] compounding hazards and drivers and a focus on systemic risks is needed. We have seen a lot of linear risk pathways. We need richer representations and better mechanistic processes on how these physical, biological, and social systems will interact.

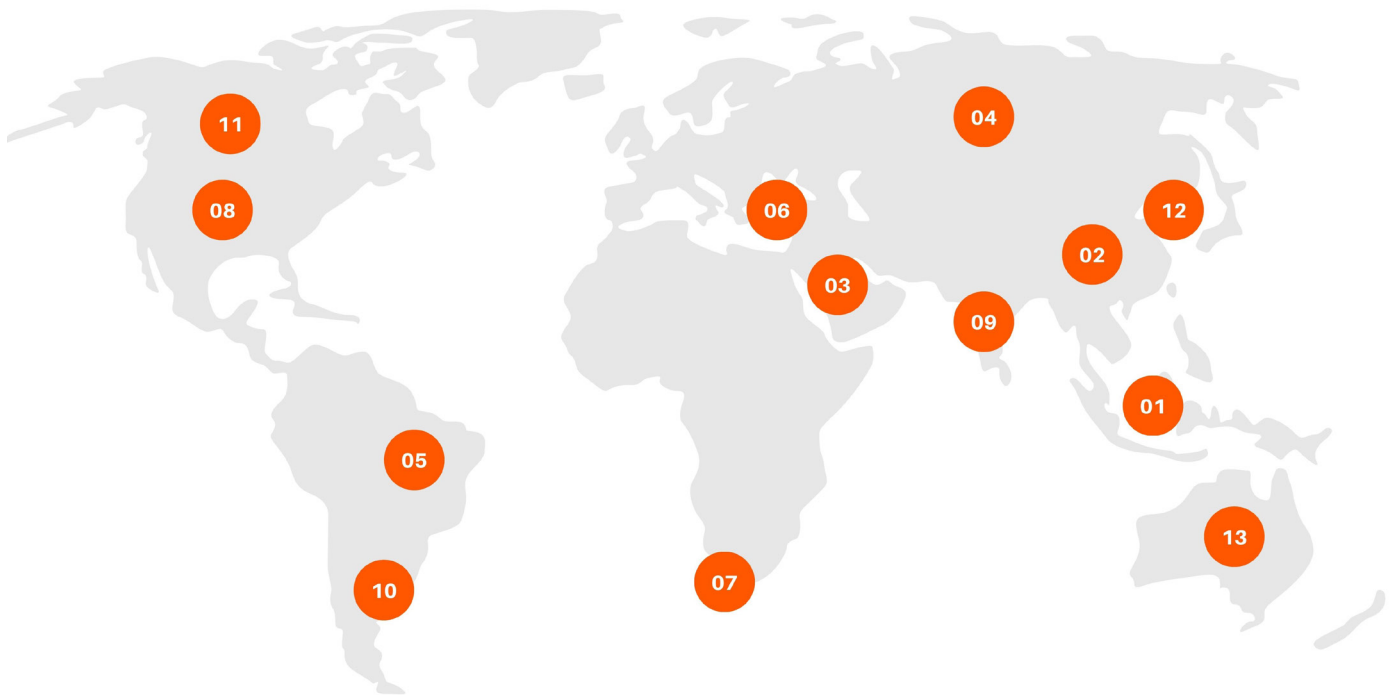
Workshop Participant, United States

RECOMMENDATION

Support interdisciplinary and cross-sectoral teams to co-create climate risk assessments and complementary solutions that will sufficiently address cascading climate impacts.

COUNTRY-BY-COUNTRY

SUMMARY



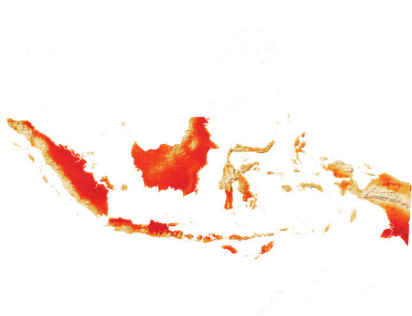
PARTICIPATING COUNTRIES

- | | |
|-----------------|------------------|
| 1. Indonesia | 8. United States |
| 2. China | 9. India |
| 3. Saudi Arabia | 10. Argentina |
| 4. Russia | 11. Canada |
| 5. Brazil | 12. South Korea |
| 6. Turkey | 13. Australia |
| 7. South Africa | |

The maps on the following pages show the predicted increase in days above 32 Celcius in a world 2.5 degrees warmer than today, and for countries that cross the Arctic circle, the increase in average temperature by 2060 in an RCP 8.5 scenario. The data is from global REMO data and CMIP5, respectively

“It’s not that the science isn’t there. It’s that it is not being communicated well. It needs to be localized and paired with climate actions that can be taken.

Workshop Participant, Indonesia



Indonesia

Indonesian participants suggested that building an understanding of climate change risk and impacts could be more widespread—for both the public and government officials. Participants recommended connecting climate change to natural disasters as an example of more effective communication. Disaster attribution, participants said, is a critical entry point to the climate discussion that has yet to be fully leveraged.

According to workshop participants, the Indonesian government is committed to spending money on climate change mitigation, but many Indonesians within government and in the general public still do not appreciate the severity of the threat. Participants said that the IPCC assessments reports—for example—were often ineffective because there was no framework to explain the relevance to Indonesia at national or subnational levels. As with several other workshops, the group emphasized the need for geographically relevant risk assessments that are paired with solutions.

China

The Chinese workshop repeatedly made the point that climate risk scientists should be conducting their work in close collaboration with a variety of other experts - from policymakers to communicators. According to workshop participants, researchers should consider who will be on the receiving end of climate risk assessments, whether that be municipal or national leaders or those in the private sector. Workshop participants also suggested that informing and motivating the public would lead to greater political action on climate. The participants said that scientists, then, must also develop channels to distribute information to the public and government leaders.

In those communications, participants encouraged more use of climate risk maps to demonstrate localized impacts, as well as close collaboration with communications experts to deliver the science effectively.



“Risk communication needs to change so that the public can understand. Scientists tend to not be very good at communicating with the public.”

Workshop Participant, China

Saudi Arabia

Against the backdrop of strong climate change recommendations from the recent Think20 conference in Riyadh, the Saudi Arabian workshop focused largely on specific climate change hazards that are of particular relevance to the Kingdom.

The workshop participants cited flooding, extreme heat, and agricultural impacts, as some of the most prominent climate-related concerns in Saudi Arabia. According to the workshop, major international climate risk assessments appear to be consumed primarily by academics, rather than by policymakers and the general public. Workshop participants noted that there is increased engagement between Saudi climate scientists and government officials, and climate change research was an area of growing focus within Saudi Arabian academic circles.



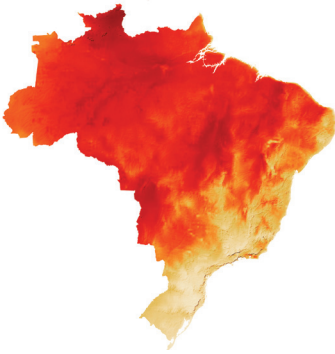
Russia

According to Russian participants, researchers within the financial sector and academia are working to understand the physical hazards and risks associated with climate change in Russia. Differing from every other workshop, several Russian participants expressed confidence that climate change would include positive developments for the country. For example, they said that warming temperatures will increase the ability to grow new crops. While much of the discussion focused on private sector action, relying on business leaders to drive assessments of climate risk

seemed to include significant limitations. Risk assessments were reportedly more limited in areas that did not contain significant business interests and key risk factors—such as permafrost thaw—were not being prioritized.

Like many of the workshops, participants agreed that improved communication among stakeholders is essential to gather necessary data. With the limited data available, the Russian Central Bank is completing climate stress tests to understand the risks and strategize low carbon options for Russia.

Brazil



The Brazilian workshop focused largely on the strained relationship between the federal government and climate scientists. Several participants suggested that the federal government is not receptive to risk information, no matter how customized those assessments are to economic or political issues. These participants described the process of communicating climate science to the national government as an “impossible task.”

The workshop participants put forward several alternative approaches for using climate risk assessments to prompt more ambitious climate policy in Brazil. One potential path was through policy at the subnational government level, where political leaders seem more welcoming to climate science and risk assessments. Another path was through the private sector, focusing on finance and agriculture, as these two industries are highly exposed to climate risk. The consensus was that the private sector might respond to risk that is communicated in more detailed and explicit financial terms, as well as better communication of cascading climate change risks.

“ [Climate change] is a development problem, not just an environmental problem.

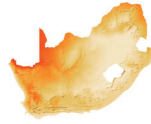
Workshop Participant, Turkey

Turkey



The Turkey workshop highlighted the importance of overcoming language barriers and knowledge gaps in risk communication. According to participants, it is important for risk assessments to not only be translated into the primary language of different regions, but also for attitudes toward and knowledge of climate change to be accounted for when communicating risk. The workshop’s participants explained that many people associate climate change solely with global warming but do not fully grasp the extent and scope of climate change impacts. For example, the public may not connect issues such as water shortages and increased storm frequency to climate change. As a result, risk assessments need to directly connect impacts to the lived experience of local stakeholders. Turkish participants also emphasized the need to not only quantify the impact of climate change now, but also to quantify the costs of action against climate change compared to action in a warmer world in the future.

South Africa



According to South African workshop participants, the effectiveness of climate risk policy needs to be considered at a national and local level. Workshop participants set the stage by explaining that nationally, South Africa has made progress on climate risk policy. At the same time, however, participants acknowledged the need for better communication of climate risk locally. Specifically, they identified the need for risk assessments to be simple, clear, and co-created with communities, including youth organizations, rural townships, indigenous peoples, and faith organizations. The

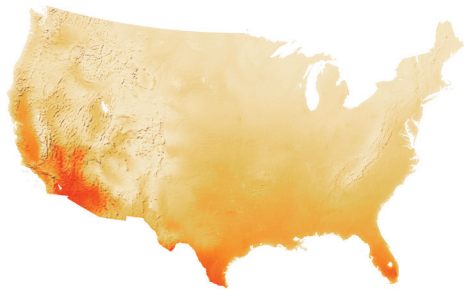
participants said that specific hazards should be explained in a climate context, with a focus on wildfires, flooding, changes in growing season, decreasing rainfall reliability, and water scarcity. The workshop also pushed for more communication of cascading risks, giving the socioeconomic impacts of collapsing fisheries as an example. The participants acknowledged that while there is already knowledge and expertise available, this information is not always actionable and the capacity at the local-level to implement solutions does not always exist.

“Climate change solutions become a problem of not just scientists and policymakers but every stakeholder.”

Workshop Participant, South Africa

“Scientists should not act like doctors giving a terminal diagnosis; we need to deliver the diagnosis with a cure.

Workshop Participant, United States



United States

The risks of climate change in the United States have become more tangible than ever, following the wildfires, heatwaves, and flooding observed throughout the country in 2021. As identified in this workshop, however, actionable information—data that can be used to directly inform decision-making around risk management—is often still missing from climate risk communication.

Participants emphasized that actionable information will look different to different groups, highlighting the need to work with local decision makers and stakeholders from the outset. The data collected, the analysis, and ultimately the messaging must be tailored to a particular audience. In that vein, the climate scientists who analyze the data are not necessarily the most qualified to deliver the message. Well developed relationships between the communicators of climate risks and stakeholders are critical to successful delivery, according to participants. This workshop also highlighted the need to provide actionable solutions in tandem with climate risk assessments, to avoid worst-case scenarios being delivered without context on pathways to avoid those outcomes. When developing solutions in response to climate risks, a multi-disciplinary approach is necessary because climate change intersects with a variety of other socioeconomic issues and stressors.

India

India's workshop touched on the need to differentiate between climate change hazards and vulnerability and the need to incorporate vulnerability assessments with climate risk assessments. However, in terms of communication, vulnerability maps may be easier to understand and may be the most useful tool in communicating potential climate change impacts.

In line with other country workshops, participants advocated for climate risk communication that is closely tailored to the desired audience. For example, climate risk messages to decision makers should focus on solutions and be pragmatic; messages to local communities should be translated into the specific impacts that that community will face. On a national level, the workshop raised the possibility that large Indian corporations—which are acutely aware of their climate risk exposure—could take the lead on setting ambitious climate change policy.

The workshop addressed the need for international climate policy to address livelihood inequities—such as refrigeration, air conditioning, and transportation—between developed and developing countries when forming adaptation and mitigation strategies.



Argentina

Agriculture is a historically prominent feature of Argentina's economy, and much of this workshop focused on risks climate change poses to crops and livestock. According to workshop participants, it will be useful to develop crop-specific climate risk models in order to assess how specific agricultural commodities will be influenced by climate change and to support effective adaptation strategies in farming communities.

Workshop participants also highlighted the need to quantify not only the future physical impacts of climate change, but also the economic costs these impacts will have on different agricultural commodities. This would not only serve the purpose of providing stronger evidence to motivate political action, but would also help develop processes to support adaptation in agricultural communities.





“Clarity on the objective is extremely important. Know where the information is going, and what the capacity of the receiver organization is to connect it to their needs.”

Workshop Participant, Canada

Canada

The Canadian workshop cited successful regional climate risk assessments that were built from joint scoping and strong collaboration between scientists and local government officials. The workshop participants also advocated for the importance of establishing a close working relationship focused on effective communications between media outlets and local champions within government.

As with other country workshops, Canadian participants said that risk assessments that are tailored to specific policy concerns of government leaders may be more effective at raising policy ambitions.

The participants also said that effective risk assessments should not only lay out future hazards, but should also present tangible solutions, developed by cross-disciplinary teams of experts and stakeholders.

South Korea



The South Korean workshop made it clear that there are well-established in-country mechanisms to assess and convey climate change risk. A theme that emerged in this workshop, however, was that the general public in South Korea lacks a thorough understanding of climate change and how it impacts their lives, despite the robust climate risk assessments that are already being conducted. Policymakers and the general public alike were also reportedly confused by the concept of uncertainty that is common in climate risk assessments. Participants in this workshop emphasized the need to have straightforward statistics on how climate change will impact people's lives.

Workshop participants highlighted two specific impacts of climate change in South Korea. The first was the impact of heatwaves, particularly in urban areas and the related impacts on human health. The second was the indirect impact of climate change on agriculture and fisheries. Participants discussed the need for risk assessments to align with and inform adaptation plans, and the need to centralize both risk assessments and adaptation plans across multiple levels of government. As risk assessments and adaptation planning become more interwoven in the future, workshop participants said that stakeholders need to be involved in the assessment process by identifying existing data needs and gaps, and to ensure that vulnerable populations are not excluded from adaptation planning.

“It's easy to run away from risk, avoid, and transfer it... but opportunities [risk presents] are exciting for the private sector.

Workshop Participant, Australia

Australia

Due to the composition of participants, the Australian workshop offered important insight into the role the private sector can play in engaging with climate risk. According to workshop participants, there is more private sector interest in opportunities presented by climate risk (such as adaptation technologies) than in avoiding risks. As a result, framing climate change risks in terms of opportunities may be the most effective way to engage this sector. And, according to several participants, involving the private sector is a crucial step toward translating risk into mainstream decision making and standard business practices.

Several workshop participants also advocated for more positive communication in risk assessments. They suggested that communicating risk assessments alongside the success of previous policy initiatives and the opportunity, co-benefits, and economic stability of a net zero future in Australia may be the best way to encourage further action.



**“IT IS INADEQUATE TO HELP
PEOPLE UNDERSTAND RISK,
THEY NEED TO KNOW HOW
TO RESPOND TO THE RISK.**

Workshop Participant, United States

Conclusion

Rapidly improving climate modeling capability has illustrated climate change risks with greater clarity than ever before. Scientists are providing unprecedented insight into the threat of severe events, from sea level rise and flooding, to heat stress and wildfire. At the same time, national climate policies are woefully insufficient to mitigate the climate crisis. With the world on track for future warming of at least 1.5°C, national leaders must dramatically reduce global emissions in order to maintain hope of restoring a safe and stable climate. Current Nationally Determined Contributions (NDCs) under the Paris Agreement, however, still set a path for an increase in global emissions in 2030.

This disconnect between climate risk and current climate policy suggests that scientific assessments are not being internalized by national leaders in a way that prioritizes climate policy. The *Recognizing Risk—Raising Climate Ambition* workshops demonstrated the potential for climate risk assessments to be delivered more effectively to encourage greater policy ambition from senior policymakers.

The discussions identified challenges that were unique to specific countries. Some are solvable, such as a lack of available data. Others are more challenging, such as political leaders who are not open to receiving any form of climate science. In the face of national-level intransigence, the workshops discussed the potential for climate policy progress to be led instead by subnational governments or from large private sector entities who are acutely aware of their climate risk exposure.

Many of the workshop participants cited the need to combine risk assessment with more positive messaging, highlighting new opportunities and providing actionable solutions.

“Scientists should not act like doctors giving a terminal diagnosis,” said one participant in the US workshop. “We need to deliver the diagnosis with a cure.”

Ultimately, there were four key findings on how climate risk assessments could more effectively cut through to senior political leaders:

- Develop risk assessments in collaboration with policymakers
- Provide granular climate risk information about specific locations and industries
- Standardize best practices in climate risk assessments
- Engage interdisciplinary teams to illustrate cascading climate change impacts

Participants made clear that these solutions must come collectively from the scientists, policymakers at multiple levels of government, and stakeholders. They must, above all, be collaborative. But fully implemented, these steps could help make clear the scale of the climate crisis and the need for more urgent and more significant policy action.



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