COMMUNICATING CLIMATE RISK
A HANDBOOK

COP26 UNIVERSITIES NETWORK

Climate Action Unit

About the UCL Climate Action Unit
The UCL Climate Action Unit works to change how scientists, policymakers, businesses, media, civil society organisations and citizens engage with each other about climate change. Its approach is underpinned by a systems-based understanding of why organisations and individuals are not acting at the scale and pace needed - and how this can be resolved.

About the COP26 Universities Network
This report is published by the COP26 Universities Network: a growing group of over 80 UK universities and research centres working together to promote a zero carbon, resilient future. Its role is to ensure that the UK academic sector plays its role in delivering a successful COP26.
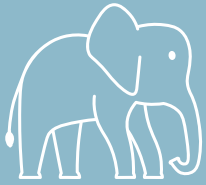
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Ahead of COP26, experts from UK universities delivered a three day conference showcasing the latest research on climate risk: the Climate Risk Summit (29 Sept-1 Oct 2021).

The virtual Summit, funded and coordinated by the COP26 Universities Network, featured an interactive workshop dedicated to the communication of climate risk. The UCL Climate Action Unit delivered this communication workshop in partnership with the AU4DM Network; drawing on the interdisciplinary expertise of both teams.

This handbook expands on the key ideas the UCL Climate Action Unit introduced to workshop participants. Its content is designed specifically for those working at the interface of climate science and policy. This resource is for researchers and academics who want their work to have an impact with policymakers.

'Communicating climate risk: a handbook' explains insights from psychology and neuroscience on how our brains engage with the idea of climate risk, it highlights journalism hacks for writing about risk clearly, it shares lessons learned from the team's experience working with policymakers on climate risk, and it offers a set of useful questions to help other researchers ascertain what policymakers need from climate risk research.

It is a practical guide to communicating climate risk. The need for it has never been greater.

Risk for Elephants

Three insights from the sciences of brain and mind
Improving risk communication

Insight
Elephant and Rider: for people to 'get' climate risk, speak to their elephant

Our brains think in two qualitatively different ways: intuitive thinking and deliberative reasoning. Neither is necessarily right or wrong, nor necessarily rational or irrational. They coexist and are brought to the fore in different circumstances. A useful metaphor to understand how they interact is that of an Elephant for the intuitive, automatic side of our brains, and the much smaller Rider for the deliberative side. Up to 95% or more of what brains do is situated within the Elephant, outside of conscious control and awareness. Conventional wisdom holds that the Rider – reasoning – is in control (or ought to be). What the science shows, however, is that the Elephant determines the direction of travel most of the time. The Rider's primary role is not to 'think rationally' (as commonly assumed), but to rationalise and justify where the Elephant is heading.

Elephant and Rider work together in evaluating situations of risk, but it is only when our brains can evaluate a risk intuitively that we easily 'get' what the problem is. What each individual person processes intuitively (or not) is shaped by their prior experiences and professional expertise. Any abstract issue (like climate change) or metric (like average global temperature) can – over time – become internalised into our Elephants and acquire a 'felt' sense of risk. This happens when we become subject experts, or when we become passionately engaged with the issue. However, without the right exposure, abstract problems may not generate any intuitive risk response at all. Because scientists, policymakers and politicians are governed by their Elephants too, the same applies to them as does to all of us: particular risks may 'jump out', while others do not. For decision makers, it is the risks that 'jump out' that are of their primary concern. Risks that do not may leave them indifferent or make it much harder to grasp the problem.

For people to 'get' climate risk, you have to connect to their Elephant: try to link the hazard or impact you research to the concerns which a particular target audience already understands (see 'Risk currencies', page 11). This means it's a good idea to start with listening to find out their concerns (see 'Focus on listening', page 12).

Communicating risk effectively by connecting to people's elephants is not necessarily the same as scaring them. Fear is not an effective or reliable driver of action, except for running away or hiding under a blanket. To highlight the distinction between intuitive risk evaluation and fear, consider this example:

experienced medical staff dealing with an emergency may intuitively grasp the risks to a patient, but it doesn't require them to be scared before they'll take action. On the contrary, it's unlikely you'll want your doctor to be panicking when they're treating you!

Insight

Ginger-the-Dog: what we think we say is often not what other people hear

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Many abstract words and phrases lack meaning or may have different meanings for different groups of people. Because we cannot point to concrete objects or events to calibrate our mutual understanding of

these abstract words, they can acquire different intuitive meanings for our Elephant brains. This often happens across different disciplines or sectors which have their own practices and ways of working. The consequence is that, if you are speaking to someone with a different professional background from your own, what you think you are explaining is not what they might hear. Here are 2 relevant examples:

Uncertainty: for scientists, it may mean, e.g., 'a measure of the spread in the data'; for most non-scientists (including policymakers) it means 'being doubtful' or 'not knowing'.

Conservative risk estimate: for climate scientists, it usually means 'erring on the side of least drama'; for risk analysts in other domains it may mean the opposite: 'establish the worst that can happen'. These opposing meanings are rooted in different practices of error avoidance: some domains or sectors focus on false positive avoidance (avoiding false alarms); others prioritise false negative avoidance (avoiding something slipping through the net).

It doesn't require much imagination to see that Ginger can cause serious problems in the cross-sector communication of climate risk. Climate scientists have generally tried to avoid misunderstanding by providing rigorous definitions. However, because intuitive, felt meanings reside in our Elephant brains, putting a definition at the top of a policy brief or on the first slide of a presentation will do little to resolve the problem. These unfamiliar definitions address the Rider and may clash with what's inside your audience's Elephant. The words will either pass over their heads ('blah blah') or may even lead to an 'angry elephant' charge and rejection.

Through prolonged exposure, scientific definitions can become internalised and become part of someone's intuitive understanding. Policymakers who work closely with climate scientists may thus come to share an intuitive understanding of the scientific language. But that simply shifts the communication problem down one station: those policymakers are now likely to run into Ginger problems of their own when speaking to people in other roles or departments.

To communicate effectively, rather than resorting to formal definitions, try to surface different meanings early on. Then find alternative ways to communicate in evocative and descriptive language to bypass the Ginger words. In other situations, it may be more effective to change your practice. For example, climate scientists have long attempted to communicate the uncertainty of climate change all the way down the policy chain. This has hindered rather than helped policy formulation and decision making. Rather than communicating the uncertainty, it may be more effective to work with your policymaker audience to 'collapse' the uncertainty to point estimates which are relevant for decision making, e.g., by selecting plausible worst-case values.

Insight
Pyramid of Polarisation: ideas about climate action are fragmenting

The forming and strengthening of an opinion can be likened to starting at the top of a pyramid and, tentatively at first, choosing one side. As a loosely held opinion becomes more strongly held through self-persuasion, we move down the pyramid and progress ever further from someone who took their first step down the other side. The more entrenched our opinions become, the greater the degree of rationalisation our Elephants will produce.

Until a few years ago, this 'pyramid of polarisation and self-persuasion' would have been most apt to make sense of the political polarisation around questions like "Is climate change happening or not?"; "Is it man-made or not?" But with acceptance of climate change in society on the rise, and without any clear way out of the problem, it is increasingly driving an entrenching and fragmentation of opinion around how best to communicate or act on climate change.

Although the disagreements which follow from this opinion fragmentation are subtler than the older divisions between 'sceptics' and 'believers', the consequences are no less pernicious. You may find yourself in a room full of people who all agree that climate change requires urgent action, but who are deeply divided on the best strategy forward:

Do our warnings of climate risk need to be starker or not? Do we need to focus on individual behaviour change, a carbon tax, or government regulation? Do we need nature-based solutions, renewables, nuclear energy, carbon capture and storage, or should we start looking into large-scale geo-engineering? Is it still meaningful to act, or should we give up and focus on deep adaptation? Can we pull off the required transformation within the current economic system, or should we overthrow capitalism?

Paradoxically, the higher the concern in society about climate change, the more widespread this fragmentation could become. The main consequence of this is that risk information alone will be insufficient to drive coherent policy action. What we will need in addition are credible and achievable policy and action pathways and a process of support-building to deliver them.

And if you find yourself in a heated debate with someone who shares your view that climate change is a serious problem, but doesn't agree on what to do or how to communicate about it – try to step away from that particular pyramid. Look not for the middle but the common ground: that a plurality of solutions is needed, and that many of the ideas we have are not mutually exclusive. Together they could add up to the transformation society will need to make.

Climate Risk

Problem

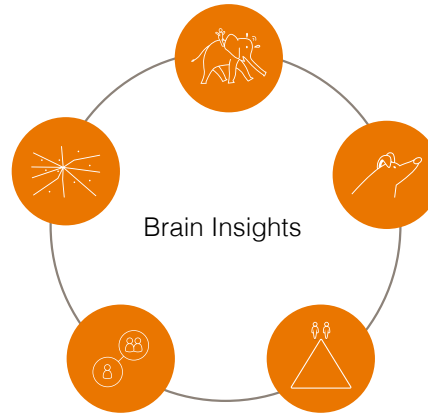Ineffective translation of science into policy

Protagonists

Scientists / Analysts

Research Funders

Decision Makers in Policy, Finance and Business

Our Insights

Brain Insights

Understanding of the gaps in climate risk management

Cross-sector co-production and facilitation skills

Outcomes

scientists communicate climate risk differently

decision makers better equipped to ask the right questions of the science community

research funding better aligned to decision makers' needs
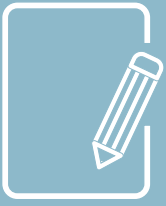
Long-Term Changes

better application of risk management leading to more effective climate policies

new decision support structures and institutions

a culture shift in how scientists and decision makers collaborate

Writing hacks
Tips from science journalism
Ensuring your content is clear and concise

1 Ask 'so what?'

When you write about your research, ask yourself 'so what?'. By this we mean: why is this important, how does this impact people or why should a decision maker care?

Make sure what you have to tell them relates to the things they care about (economic stability, jobs, public health etc.).

You may need to ask 'so what?' several times to really articulate why your research matters to people.

'So what' is a really useful tool to help you identify your main message.

2 Think sentence length

Keep sentences short wherever possible. Remember that your reader is a non-specialist on the subject and probably quite rushed. Make reading your work easy for them.

Each sentence should communicate just one idea, or join together several related ideas.

3 Select your sentence structure

Choose your sentence structure intentionally. If you can't do that as you are writing, do it when you are editing your work.

Simple sentences have one subject and one statement *e.g. "Green plants produce oxygen from carbon dioxide."*	**Compound sentences** have two simple sentences joined together with a conjunction *e.g. "Green plants produce oxygen from carbon dioxide and they remove pollutants from the air."*
Complex sentences have a main statement plus one or more qualifying statements *e.g. "Green plants, through a process called photosynthesis, produce oxygen from carbon dioxide."*	**Complex-compound sentences** have several main statements, each with their own qualifying statements, joined together *e.g. "Green plants, through a process called photosynthesis, produce oxygen from carbon dioxide and remove pollutants, especially particulate matter, from the air."*

Complex-compound sentences are widely used in scientific literature but they can be difficult to follow, so use this sentence structure sparingly. Aim for simple sentences wherever possible.

4 Avoid repetition

Find repetition in your writing and remove it. Do this as routinely as you would perform a spell-check.

You might find repetition **within a sentence**: for example you may use two adjectives or adverbs where one is enough.

Repetition can also occur **in subsequent sentences**: you may explain the same thing twice but using different words. In this situation, pick whichever description is most concise and lose the other.

Finally, check for repetition **across paragraphs**: you may have repeatedly written a noun out in full where you could have used a pronoun.

5 Use the active voice

Using the active voice can be tricky to get your head around, but it will make your writing more concise and direct. The active voice clearly states who or what does an action.

There is a basic formula for writing a sentence in the active voice:

subject + verb + statement = active voice

Still a bit confused? Here's an example:

"Forest fires burned thousands of homes across the city this summer."

Here forest fires are the subject, and burning is the verb.

It is sometimes appropriate to use the passive voice, but don't do it just because you think it sounds a bit fancy. A good rule of thumb? Try to put the majority of your sentences in the active voice, unless you really can't write it any other way.

6 Apply the inverted pyramid

In short; **put the conclusion at the start of your work.**

Your first few sentences need to tell the reader what your main point is and why they should care. You may not have the reader's attention for long if they are in a hurry so get your point across straight away. If they are hooked, they will read on to find out the details. Arrange details from most to least important in the subsequent paragraphs.

Golden Nuggets
Communicating with policymakers
Understanding the space in which you want to communicate

There is always a 'policy mood music'

The policy mood music is a set of implicit assumptions and mindsets held by policy experts about climate change. They appear self-evident to the people holding them, but might actually be unfounded. Here are some recent examples of the policy mood music that we've encountered:

- *"Integrating renewables into the energy system will be difficult and expensive"*
- *"Net Zero pledges by 2050-2060 are enough to take care of the problem"*
- *"We can adapt to the climate risks we'll see in the next few decades"*

The policy mood music shifts over time. It may differ significantly depending on the country or sector you work with.

What you want to communicate will either be in tune with the mood music or will challenge it. In the latter case, you are likely to meet resistance and be misunderstood. This is not wilfullly, but because your message goes against the conventional wisdom. In those situations, test different ways of framing your message with your target audience. This will allow you to identify which framings are least likely to lead to misunderstanding.

Risk currencies

Every policymaker has one or more risk 'currencies': risks which are of primary concern to them. These are risks they understand automatically and intuitively (see "Risk for Elephants' on page 4). Common risk currencies you might encounter are: jobs, economic growth, migration numbers, national security and international relations.

Most climate risk information is presented in currencies which policymakers do not understand intuitively. Want to ensure your research lands with your target audience? Find out the risk currency of the policymakers you want to engage with, and then express or link your messaging as closely as possible to that currency.

Climate risk information does not automatically drive policy action

Most international policymakers taking part in the COP process already know that climate change is a serious problem. Yet this does not help them to know how to act on it. "We know the situation is bad, but what more can we do?" is a question we frequently hear.

The available information on climate risk gets across that the situation is dire, but doesn't get the policymaker any closer to understanding what to do about it. The remedy is to collaborate with policymakers and experts in other domains to identify what policy levers are available to address the risks your work highlights.

Adjust to the time constraints of policymakers

Within academia, workshops and meetings can last from a few hours to several days. In the world of policymakers, meetings are usually 1 to 2 hours long. The more senior a policymaker, the less likely you'll be able meet with them for longer.

When planning science-policy co-production activities, consider designing these as multiple, short interactions. Each one could be with different groups of policymakers. Look at these repeated interactions as an opportunity: you have several chances to refine your understanding of what their needs are and what their risk currency is.

Focus on listening rather than broadcasting

In the limited amount of time you may get with policymakers, prioritise 'listening' over 'broadcasting information'. Understanding what they need is the best use of that time because it will show you what to do to make your outputs more useful and usable.

Doing so allows you to avoid the 'So what?' question; where prospective end users of your research fail to see how it connects to their own risk currencies. If this happens, they will not engage with it.

Outcomes and structure

No matter how intelligent the policy users of your research are, simply bringing them together in a room with risk researchers will usually not work. Without a structured way for the two groups to engage, the outcomes are likely to be poor.

You can avoid this by planning your interaction in advance. Determine first what outcomes you want to achieve from a meeting, then create a structure of interactions with your participants that fulfill those outcomes. Think beyond the usual academic formats of presentations and panel discussions. Instead plan interactive sessions which focus on listening and understanding their risk currencies and the current policy mood music.

Designing such sessions, and formulating the right questions to ask, are skills in their own right. Because of this, work with experienced facilitators to make your science-policy interactions as effective as possible.

All researchers want their findings to have impact. For climate researchers, that usually means delivering benefits to society and the natural environment. For research to benefit society, academics need to communicate what they know to someone who could use that risk information as part of a decision-making process. We call this person their end-user.

That communication doesn't happen just by putting researchers and decision makers in a room together. A structured process is needed to enable each party to work out what the other needs and can give. The process happens through several rounds of dialogue.

The goal of the conversation, for the researcher, is to really understand the decision-maker's perspective. That means finding out what challenges the end user faces, what needs they feel they have, and what objectives that they are trying to achieve.

Directly asking 'what do you need?' may not lead to very deep, considered responses. Additionally, decision makers may not know what they need to know (the unknown-unknowns).

Instead, researchers can ask a variety of questions; the answers to which will help you elicit what an end-user really needs. Below is a list of questions we recommend building a conversation around.

Once this information has been collected, a researcher can then analyse what they have heard - looking for recurring themes and clear dos & don'ts. This enables them to determine what information their end-user will want to hear. The final job for the researcher is then to frame their findings in a way which addresses those needs.

What is your greatest/most immediate concern?

Describe an average day conducting your work.

What are you concerned about?

What is your dream outcome; how do we get you there?

What would success look like (over 6/12/60 months)?

What are your organisation's immediate concerns or priorities?

What are the sorts of problems that you need to solve and what criteria do you base your decisions making on?

How has your work changed in the last 5/10 years?

Tell me about a recent project where you successfully made change happen.

Which of the challenges you face keeps you awake at night / takes up most headspace?

What strategic challenges do you face?

Explain a decision you made recently where you considered climate risk.

Who do you feel is most influential within your organisation?

Can you think of a challenge that made you rethink your goals?

Name one thing that's stopping you at the moment?

What do you believe your boundaries are for the problem you are trying to solve?

How do you keep your stakeholders happy?

What are you trying to achieve? What processes are you using and who are you working with to do this? These all would be followed by why.

What decisions that you need to make might be informed by weather/ climate information? How do you hope to use this data?

Have you considered what would make you fail in your objectives?

Can you tell me a little bit about your current projects to make change happen?

As a senior leader or manager, what do you consider to be your core responsibility regarding the organisation?

Who would you trust to ask for information about the environment or related issues?

How is information shared in your organisation?

What challenges do you routinely face and how do you overcome these?

How do you use academic research in your day to day work to help you achieve your goals?

What do you most desire from climate research?

What areas or decisions of your everyday work feel most unconnected to climate change?

What do you base your decisions on?

What's the worst thing that could happen?

What does your organisation do best?

Risk for Elephants: insights from the sciences of brain and mind

Elephant and Rider: not 1 type of thinking but 2

Resources for non-specialists
*   Jonathan Haidt's The Righteous Mind is the origin of the Elephant and Rider metaphor.

*   It is similar to Daniel Kahneman's System 1/System 2 description of intuitive thinking and deliberative reasoning in Thinking, Fast and Slow.

Academic sources on risk perception
*   Dual-process theories of cognition - the formal jargon for Elephant and Rider - feature extensively in psychologists' study of risk perception. A good entry point into this literature is Slovic et al. (2010) The Feeling of Risk.

*   A brief comment applying the 'risk-as-intuitive-evaluation' idea to climate risk: De Meyer, K. (2019) Geosci. Commun. Discuss. DOI: 10.5194/gc-2019-1-SC1

*   The rationale for the idea that scientists and policymakers should collaborate to 'collapse' the uncertainty around decision-relevant quantities - rather than try to communicate uncertainty down the decision or policy chain - is explained in: De Meyer, K. (2018) Earth Syst. Dynam. Discuss. DOI: 10.5194/esd-2018-36-SC6

Ginger-the-dog and the intuitive meaning of words

Resources for non-specialists
- Ginger-the-dog - as we apply to climate change - is a specific instance of a recurring problem throughout history: how language breaks down when terms become instilled with different meanings. The consequences for politics and society are explored in Mark Thompson's book Enough Said: What's Gone Wrong with the Language of Politics?

The pyramid of polarisation and self-persuasion

Resources for non-specialists
- The Analogy of the Pyramid stems from Carol Tavris's and Elliot Aronson's book Mistakes Were Made (but not by me) (there is a 3rd edition, updated in 2020).

- How this translates into the polarisation of public opinion on many pressing societal issues is explained in Kris De Meyer's TEDxLondon talk The Genie of Polarisation.

Other insights

Shifting the focus from risk to action
Although communicating climate risk information for specific decision-making contexts is necessary, the pyramid analogy and its consequences indicate that - on its own - climate risk information will not drive policy and action. What is the alternative? Building people's capacity for action. How to do this is explored in:
- De Meyer et al. (2020) Environ. Res. Lett. DOI 10.1088/1748-9326/abcd5a

- TEDxLondon Climate Curious podcast with Kris De Meyer: Why there is more to climate action than changing your carbon footprint.

Engaging with your end users

- Sharpe, 2019. Geosci. Commun. DOI 10.5194/gc-2-95-2019
  An editorial in which two experienced scientists discuss how researchers can contribute to society through science communication.

- Rapley & Lubchenko, 2020. Environ. Res. Letters. DOI 10.1088/1748-9326/abba9c
  An article which underscores precisely why scientists should engage with decision makers before conducting research: so that they can present information in a way that the audience can understand.

Writing for decision makers

Books

Either of these books will help you to write clearly and concisely. Their pages contain lots of brilliant writing hacks.
- Evans, H. (2018) Do I Make Myself Clear? Why Writing Well Matters
- Evans, H. & Gillan, C. (2000) Essential English for Journalists, Editors and Writers

Online resources

- Refer to this incredibly comprehensive toolkit, authored by UCL Public Policy, for tips on how to engage with policymakers as an academic.

- Troubleshoot grammar and style queries using this alphabetised treasure trove.

- Get support and skills-based training on writing for the media (and other lay audiences) from the Science Media Centre.