Society for Risk Analysis – Europe
UK chapter: Risk and Uncertainty in a Changing World

Book of Abstracts

Keynote

Dr Julia Pearce
'Tailoring risk and crisis communication for diverse populations'

Dr Julia Pearce is a social psychologist, whose research focuses on understanding and informing public responses to disasters and extreme events. She is especially interested in understanding the likely reactions, needs and appropriate communication strategies for groups who may be placed at particular risk during an emergency. The greater part of her research assesses psychological and behavioural responses to low-likelihood, high impact, extreme events such as chemical, biological, radiological or nuclear (CBRN) terrorism and marauding terrorist firearms attacks. This research has (i) challenged assumptions about public panic by providing evidence to suggest that under-response can be as problematic as over-response during a crisis, and (ii) demonstrated the importance of communicating with members of the public before, during and after extreme events.

Professor Sander van der Linden
'Inoculating against the risk of misinformation'

Sander van der Linden FPsyS FBPsS FAcSS is Professor of Social Psychology in Society in the Department of Psychology at the University of Cambridge and Director of the Cambridge Social Decision-Making Lab.

Before Cambridge, he held posts at Princeton and Yale University. His research interests center around the psychology of human judgment and decision-making and human-technology and human-environment interaction. In particular, he is interested in the social influence and persuasion process and how adults (and adolescents) are influenced by (mis)information and gain resistance to persuasion and manipulation through psychological inoculation. He also researches the psychology of conspiracy theories, extremism, genAI, deepfakes, social networks, reasoning about evidence, and the public understanding of risk and uncertainty, particularly in the context of global challenges such as climate change and public health. His research uses a variety of techniques, from virtual reality to survey, neuro, and lab studies to computational social science, big data, and large-scale interventions.

Panel

How does risk analysis research translate into public policy making and regulatory practice?

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Policy and Regulation work to ensure the robustness, consistency, and transparency of the methods used to quantify, assess, and respond to risk; this approach works well for well understood features of a risk landscape. At the same time, to remain agile, policy and regulation innovate tools for improving the accuracy of identifying risk, enhancing strategic risk management and communication; this reflects an appreciation of an increasingly complex and dynamic risk landscape.
This panel discussion considers how and where tradition and invention in risk analysis is realistically managed from the perspective of practitioners (regulators). Experts from the world of regulation will talk about their experiences on how academic risk research is translated operationally to ensure the safety of our work environment, the physical structures of our work and home environments, and the products that form part of our daily routines.

By bringing to life, though real examples of new complex challenges that regulators face, the objective is to foster an open discussion. Whether traditional or new methods of risk analysis are designed, the panel will explore the value of frameworks (e.g. the SRA Risk Analysis Quality Test) to provide assurances that the methods of risk analysis applied in practice meet various conditions of quality. There is also a broader goal of advancing a risk culture in organisations by fostering norms and practices to better coordinate across multiple teams in a distributed network of assessors, managers, policy makers that essentially work towards mitigate current and future risks.

Sessions

Preparedness and behaviour

Public responses, preparedness, and future behaviours: a case study of the August 2024 Nankai Trough extra information major earthquake advisory

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Abstract
Effective early warnings for natural hazards can save lives if they prompt timely protective action. Because of the probabilistic nature of most warnings, risk managers must communicate uncertain risks, while the public must interpret and act upon this uncertainty. For low-probability, high consequences hazards such as an anticipated Nankai Trough major earthquake, Japanese authorities have decided to err on the side of caution and set up the Nankai Trough Extra Information System that issues advisories following earthquakes in a predefined region to signal elevated risk and encourage preparedness. Its first advisory, issued in August 2024, remained in place for one week without a major event.
This study examines public understanding and responses, preparedness and future behaviours after two advisories/warnings which did not materialise, the August 2024 Nankai Trough advisory and a tsunami warning in July 2025. Using a mixed-methods design, we conducted focus group discussions with 14 stakeholders involved in disaster risk reduction (local and prefectural government, media, banking) followed by a survey of 300 residents of the coastal areas of the Shizuoka Prefecture, Japan. Findings reveal nuanced and temporal effects of warnings and advisories. For stakeholders, warnings can be an opportunity for increasing awareness of the warning system and enhancing preparedness, despite ongoing confusion about how to communicate the uncertainty. Contrary to concerns of a "false alarm effect", we found no evidence that residents were becoming more complacent after the non-event advisory and warning.

Household preparedness is not 'hazard agnostic': a review of key preparedness advice from a multi-hazard perspective

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Abstract
This presentation introduces a database of household-level preparedness advice for 19 natural hazards, synthesised from authoritative sources. While preparedness is often assumed to be hazard-agnostic, we show that although many actions are effective across multiple hazards, some may increase vulnerability or exposure to others. We term these actions asynergistic.
The database is structured around 19 hazard types and six broad preparedness themes, comprising 38 specific preparedness categories. Drawing on our recent review of the household preparedness literature, the database adopts a broad interpretation of preparedness, including socially embedded and gendered practices, and is designed to be applicable in low-income contexts.
Preparedness actions were compiled from sources commonly consulted by households, including government guidance and International and Regional Red Cross and Red Crescent Societies. This produced a database of more than 600 recommended preparedness actions across the 19 hazards.

Many actions are synergistic across hazards, such as maintaining emergency food and water supplies, while others are compatible but resource-dependent. However, a subset are asynergistic, particularly where hazards occur simultaneously or sequentially. For example, sealing exits to reduce exposure to volcanic ash or wildfire smoke may impede evacuation during earthquakes. Storing supplies upstairs to reduce flood damage may also increase losses during wind-related hazards.
A multi-hazard lens also highlights how households may be overwhelmed by competing preparedness advice from different risk owners, leaving them to navigate trade-offs between hazards, resources and priorities. We argue that this database can support more nuanced, locally tailored preparedness advice.

Explaining Household Leftover Reuse Behaviours through the COM-B Framework: Implications for Food Waste Reduction

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University of Leeds, Leeds, United Kingdom

Abstract

In the UK, households account for approximately 70% of total food waste, much of which is linked to how food leftovers are managed at home. Previous research has often conceptualised leftover reuse as a single behaviour, obscuring differences in the mechanisms underlying specific reuse practices and potentially limiting the precision of interventions. Guided by the Capability-Opportunity-Motivation Behaviour (COM-B) model, this study specifically examined three distinct practices: reheating leftovers, transforming them into new dishes, and packing, storing, or freezing them for future use. Survey data from 596 UK households were analysed using structural equation modelling to identify behaviour-specific pathways.
The results indicated distinct pathways. For reheating and packing, storing, or freezing, capability and social opportunity were associated with behaviour only indirectly through motivation, suggesting that skills and social support may not translate into action unless they strengthen motivation. Transforming leftovers followed a more complex pattern. Capability was associated with the behaviour both directly and indirectly through motivation, whereas social opportunity operated only indirectly through motivation. Across all practices, motivation emerged as the central mechanism linking capability and opportunity to action. This interpretation was reinforced by participants' reported reasons for not reusing leftovers, among which food safety concerns were ranked most highly. Rather than indicating a simple lack of capability or opportunity, these concerns suggest a motivational barrier rooted in perceived food safety risk, potentially inhibiting the translation of available skills and resources into reuse behaviour. These findings support behaviour-specific interventions targeting motivation and food safety concerns in household leftover reuse behaviours.

Risk regulation, communication and choice

Omnibus: A European U-turn in risk regulation? Consequences for the EU and the UK

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Abstract

Over the past 20 years or so three major "risk policy trends" have structured European risk policy: 1) a trend towards more precaution 2) a greater focus on transparency and 3) a greater role for public consultation and participation (Löfstedt et al. 2010). The Green Deal launched in 2019 which plays a central role for regulating risky activities- from material supply to manufacturing- is an embodiment of these trends.

The Draghi report on European Competitiveness identified key weaknesses in the European economy and called for simplification as a way to restore European growth. On February 26, 2025, and in direct response to this report, the European Commission introduced the "Omnibus" legislation. Omnibus may be best described as a package of simplification proposals, that modify, slow down and even rolling back several EU rules. It affects a large number of sectors including those regulated under the Green Deal. The key questions that the talk seeks to address are as follows:

- For each of the three major "risk policy trends", is Omnibus a continuation or a U-turn? How does it compare to the Green Deal?
- What are the implications of the Omnibus package for the use of risk science as opposed to alternative such as hazard-based, or precautionary approaches? What are the areas where the use of risk science may be strengthening and areas where it may be weakening?

The talk will focus primarily on the EU level whilst exploring implications for UK policy.

Risk Perception and Communication, Plugged-In: Fifty Years of Process

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Abstract

Thirty years after Baruch Fischhoff's (1995) influential article *Risk Perception and Communication Unplugged*, this commentary revisits the developmental stages and conclusions outlined in this seminal paper documenting and reflecting on the development of risk communication. Fischhoff's work has shaped decades of research and practice, and while not intended in this way, many institutional efforts continue to rely on the earliest, technically focused stages. We reflect on how the field has evolved in the context of Fischhoff's stages, considering the impact of digital platforms, participatory methods, and societal change since 1995 that shape risk communication today. Building on contemporary developments and our own experiences, we propose reordering Fischhoff's stages by moving partnership to the start of the communication process. We also revise its language to better reflect inclusive, collaborative, and dialogic approaches. Key themes include the persistence of information deficit models, the ethical responsibilities of communicators, and the tensions between theory and practice in risk communication. We also reflect on a selection of Fischhoff's (1995) conclusions, identifying still-existing and evolving issues arising 30 years later. We argue that risk communication must be reconceptualised as a relational and political practice: one that respects public agency and centres partnership, rather than serving narrow persuasive aims. Fischhoff's contribution remains inspirational, provocative and instructive. It also challenges risk communicators to think more critically about the field's future and our responsibility to communicate risk ethically, inclusively, and meaningfully.

Deal or No Deal: How risky decisions and what might have been affect happiness and schadenfreude.

Peter Ayton
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Abstract

The TV game show "Deal or No Deal" provides an opportunity to study risky decisions with known risks for real monetary outcomes varying from substantial to trivial. A contestant has one of 22 boxes each containing a hidden amount of money, ranging from £0.01 to £250,000. The contestant owns its unknown contents but must select 5 of the other 21 boxes to open; each opened box reveals an amount not in her own box. The contestant then receives an "offer"—an opportunity to leave with a sure amount of money—and asked: "Deal or No Deal?" Contestants choosing "No Deal" must open

more boxes, followed by subsequent “offers”. Players choosing “Deal” get the money offered but must play on to discover what outcomes and “offers” would have occurred if they hadn’t dealt. Players who decline all deals get the amount in their own box which can differ hugely from declined deals. Three studies measured the happiness of contestants. Unsurprisingly, player happiness correlates with amount of money won. However player happiness is strongly influenced by the direction and magnitude of the discrepancy between winnings and amounts they could have won had they chosen differently: winners of large (modest) sums can be distraught (delighted) on discovering they could have won much more (less). Curiously “offers” vary according to whether players have already dealt or not: players who have already dealt receive higher "offers" than players who have not dealt – as if the game show altered the counterfactuals in order to amplify schadenfreude.

Race, place, and the stress process: climate change and mental health in diverse communities

Charles Ogunbode[1], Stephen Kator Iorfa[1], Moksha Ashok Patel[1], Marsha Myrie Obi[2], Gregor Burroughs[1]
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Abstract
The psychological impacts of climate change are unequally distributed across geographic regions and social groups. This symposium presents research from the IMPACT programme (Interdisciplinary Mental Health Perspectives on Adaptation to Climate Threats), examining how race, structural inequality, and social position shape the relationship between climate stress and mental health, using Pearlin's Stress Process Model as a unifying framework. The papers span Britain, Canada, and West Africa, and employ various methods including large-scale surveys, semi-structured interviews, and community-engaged research. Charles Ogunbode presents pre-registered survey findings from Britain showing that, contrary to the differential exposure hypothesis, ethnic minorities report climate anxiety far exceeding their measured exposure to climate stressors, which points to differential appraisal as the operative mechanism. Moksha Ashok Patel complements this with interview data revealing how racial identity and diasporic heritage shape climate emotions and culturally-specific coping resources among UK people of colour. Marsha Myrie Obi reports insights from the Black Farmer Groundings Symposium in Canada, where climate adaptation, intergenerational trauma, and cultural wellbeing are shown to be inseparable for Black agricultural communities. Steven Kator Iorfa describes "mental weathering", the cumulative erosion of emotional resilience due to climate stress, among residents of five West African cities, and how structural inequality constrains access to the psychological benefits of climate action. Finally, Gregor Burroughs tests whether the relationship between climate stress and wellbeing among young adults in Accra and Lagos is mediated by an aspiration gap. Together, these papers advance a culturally situated, structurally informed understanding of climate change and mental health.

List of presentations:

Racial patterning of climate stress and mental health in Great Britain
Presenter: Dr Charles Ogunbode, University of Nottingham

Environmental justice research demonstrates that people of colour disproportionately bear the burden of climate change impacts globally. Correspondingly, we predicted that ethnic minorities in Britain are disproportionately exposed to climate stressors, which in turn drives racially patterned mental health inequalities. This prediction was tested using the Stress Process Model in a large,

quota-stratified survey of British adults (N = 2, 370) with deliberate oversampling of ethnic minority respondents (Black African, Black Caribbean, Indian, Pakistani, Bangladeshi). Pre-registered analyses examined whether cumulative climate stress (CCS) was racially patterned and whether this contributed to racial inequalities in depression (PHQ-9), generalised anxiety (GAD-7), wellbeing (SWEMWBS), and climate anxiety (CCAS). CCS was not racially patterned ($F = 0.57$, $p = .722$). In contrast, cumulative socioeconomic stress (CSES) was strongly patterned by ethnicity ($F = 15.26$, $p < .001$). Despite equal CCS exposure, ethnic minority respondents reported significantly higher climate anxiety ($F = 16.34$, $p < .001$), and this gap was not attenuated by socioeconomic controls. Furthermore, Race × CCS interactions were non-significant for depression and anxiety, but the relationship between CCS and climate anxiety was significantly amplified among Bangladeshi and Black African, compared with White British, respondents. The results suggest that the differential exposure hypothesis derived from environmental justice research does not transfer to climate stress in the British context. Here, the mechanism appears to be differential appraisal, which is a psychological mechanism that requires different interventions.

Keywords: Climate Anxiety, Mental Health, Stress Process Model, Environmental Justice,

"Feeling everything and nothing": A stress process analysis of climate emotions, racial identity and resilience among UK people of colour

Presenter: Moksha Ashok Patel, University of Nottingham

The emotional experiences of people of colour (PoC) are underrepresented in research into the psychological impacts of climate change. This gap matters because climate change is experienced unequally, and emotional responses as well as coping resources are shaped by cultural factors. Pearlin's stress process model (SPM) offers a valuable framework by conceptualising the relationship between stress and mental health as structured by social position, including race and class. This study explored climate emotions among PoC in the UK using the SPM as an interpretive lens. Semi-structured interviews with 23 participants from Black and South Asian backgrounds examined how racial and cultural heritage shapes
differential exposure to climate stressors and access to coping resources. Data were analysed using reflexive thematic analysis, producing four interconnected themes. Race, Place and Climate demonstrated how diasporic heritage and racial identity structured differential exposure to climate stressors and climate discourse. Feeling Everything and Nothing captured the coexistence of emotional overwhelm and protective numbness which reflects what the SPM predicts when stressors are appraised as severe but response resources are perceived as inadequate. Bleeding into Everyday Life mapped how disrupted sleep, impaired concentration and emotional dysregulation functioned as both stress outcomes and feedback loops intensifying subsequent responses. Community, Culture, Continuity identified culturally specific mediating resources, including faith, intergenerational environmental practices, community networks and collective action, that operating at distinct points in the stress process. By centring the experiences of people of colour, this study advances a culturally situated understanding of climate stress and highlights the need for culturally responsive approaches to climate communication, mental health support and environmental policy.

Keywords: climate change, climate emotions, stress process model, eco-anxiety, people of colour, diaspora, resilience.

Climate Change, Mental Health, and Black Farming Futures in Canada: Insights from the Black Farmer Groundings Symposium

Presenter: Dr Marsha Myrie Obi, University of British Columbia

Climate change poses escalating threats to agricultural livelihoods worldwide, yet its

psychological burden is not distributed equally. For Black farmers in Canada, climate stressors including new pest pressures, heat, drought, water scarcity, flooding, and shifting growing seasons, intersect with longstanding systemic inequities that constrain adaptive capacity, including restricted access to capital, land, and policy influence. This convergence of ecological disruption and structural exclusion generates distinct mental health risks e.g., chronic livelihood insecurity, appearance of new economic precarity (particularly for youth), and the reactivation of intergenerational trauma rooted in land dispossession, enforced agricultural labour, and the ongoing erasure of Black agrarian histories. This paper reports on the Black Farmer Groundings Symposium (February 2026), a community-requested gathering of Black farmers, food workers, and researchers convened under the Interdisciplinary Mental Health Perspectives on Adapting to Climate Threats (IMPACT) project. Thematic reflections from five sessions reveal that participants experience climate adaptation as inseparable from psychological and cultural wellbeing: farming was described simultaneously as a site of climate vulnerability and of recovery from trauma, grief, and displacement. Participants identified that Black farmers are already adapting through deep ecological knowledge and diversified skills, yet largely without targeted institutional support, and that mental health services, community care, and Black-led spaces of fellowship are foundational to climateresilient food systems. Findings support the need for structural interventions, including racebased agricultural data, reparative land justice, and culturally responsive mental health provision, to mitigate the compounding psychological risks climate change poses to this population.

Keywords: climate change; mental health; Black farmers; food sovereignty; adaptation; environmental justice; Canada

“Mental weathering”: uncovering the psychological toll of climate change in urban West Africa

Presenter: Dr Steven Kator Iorfa, University of Nottingham

African climate research has focused predominantly on physical and socioeconomic impacts, while psychological consequences remain comparatively underexamined. Using in-depth interviews, this study investigated lived experiences of the psychological impacts of climate change, and the coping responses employed by residents in five West African cities (Accra, Banjul, Freetown, Lagos, and Monrovia; N = 50). The study was co-produced with partner organizations based in each city. Reflexive thematic analysis generated two interrelated themes. Mental Weathering captures the cumulative erosion of emotional resilience, ontological security, and social stability under ongoing and anticipated climate impacts. Strain to Strategy describes how participants navigated this burden through inward-focused
strategies (distancing, cognitive reframing) and outward-focused action (community mobilization, environmental initiatives), while revealing that access to the psychological benefits of action was itself constrained by material deprivation and structural inequality. Together, the findings highlight climate justice as a psychological concern and offer insights for strengthening climate resilience in one of the world's fastest-urbanizing regions.

Keywords: Climate Change, Coping, Mental Health, Climate Justice, Urban West Africa, Resilience.

Deflated futures? How the aspiration gap mediates the relationship between climate stress and wellbeing among young people in Accra and Lagos

Presenter: Gregor Burroughs, University of Nottingham

Climate change poses severe and compounding threats to the livelihoods and wellbeing of young people in Africa, but the psychological pathways through which cumulative climate stress erodes

mental health in this context remain poorly understood. This paper draws on cross-sectional survey data from young adults (aged 18–35) in Lagos, Nigeria (N = 2,000), and Accra, Ghana (N = 2,000), to examine how the aspiration gap (i.e., the discrepancy between the futures young people desire and those they realistically expect) mediates the relationship between climate stress and mental health outcomes. Drawing from the Stress Process Model (Pearlin et al., 1981) and the economics of aspirations framework (Genicot & Ray, 2020; Fruttero, Muller & Calvo-González, 2025), we proposed that cumulative climate stress undermines the wellbeing of young people in urban West Africa by deflating their aspirations for education, income, work, and housing. We tested the aspiration gap as a mediator of the climate stress–mental health relationship and examined whether cumulative socioeconomic stress moderates this pathway. This study bridges climate psychology and development economics by offering a framework for understanding how environmental threats may perpetuate cycles of disadvantage among young people in rapidly urbanising contexts.

Keywords: Climate Change, Aspirations, Mental Health, Urban West Africa, Stress Process Model

Geothermal energy round table: Lessons from the front lines from Germany, to the Netherlands and the UK

Chair: Ragnar Lofstedt, King's College London

On the 7th and 8th July this year we hosted the second meeting on geothermal energy and risk at Kings College in London. During these two days we had a number of speakers presenting on how public perceive the risks associated with deep geothermal drilling, to how industry and key government players are handling these risks and finally having a discussion on the potential of geothermal energy with regard to helping in the transition from fossil fuels to renewable energy sources. From this meeting, I asked three of the speakers to attend this symposium to share their views with individuals interested in the broader field of risk research. Joining them will be Prof Nick Pidgeon who will share his unique insights on how people perceive the risks associated with geothermal energy. Nick was one of the main speakers at the first geothermal meeting that we held at Kings a couple of years ago.

Panellists:

Stephanie Hurst, Thuringian Ministry for Environment, Energy, Nature Conservation and Forestry
Anne Murrell, Geothermal UK
Nick Pidgeon, Cardiff University
Frederic Bouder, University of Stavanger

Communities, place and climate risk

Stories and Statistics of Place-Based Energy Development: What Counts as Economic Benefit in Shetland's Net Zero Transition?

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Abstract

Economic assessments of net zero energy developments typically focus on employment, investment and regional growth. Yet whether the benefits represented by these indicators are sufficient to secure community support remains under-examined. They may not capture how communities judge

whether development benefits host communities. This study uses a unique opportunity to compare community and model-based accounts of economic benefit in Shetland, an island economy where pressures on labour, housing and public services are closely linked.
The study combines evidence from deliberative workshops in Shetland with the Shetland Economy Model (SEM), a dynamic regional computable general equilibrium model calibrated to Shetland's economic structure. Workshop participants understood economic benefit in place-based terms. Eight substantive themes emerged: employment and workforce development, labour-market displacement, cost of living, local wealth retention, housing, public services and infrastructure, fairness and inequality, and long-term legacy. A further cross-cutting theme concerned how evidence from economic modelling could be communicated so local publics could understand, scrutinise and use it.
The comparison reveals both alignment and gaps between community priorities and modelling capabilities. Some concerns can already be examined through regional economic modelling, while others require model development or complementary qualitative and social analysis. The paper argues that aggregate indicators alone cannot provide a complete account of local economic benefit. Combining deliberative evidence with economic modelling can produce a more transparent, locally grounded and policy-relevant assessment of what a place-based net zero transition delivers, for whom and under what conditions, while making economic evidence more useful for local decision-making.

How Do Heat Risk Perceptions Vary Across Tenure Groups?

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Abstract

Given the recent heatwaves the UK has experienced, and the risk-to-life they pose, public perceptions of heat-related risks is crucial. Housing conditions are now recognised as a key determinant of exposure to extreme heat, with renters often facing greater vulnerability due to poorer housing quality and reduced capacity to implement adaptive measures. Despite this, little is known about how perceptions of heat-related risks vary across housing tenure groups. This exploratory study analysed data from the British Public Perceptions of Climate Risk, Adaptation Options and Resilience (RESiL RISK) survey, a nationally representative two-wave survey conducted across the United Kingdom between 2019 and 2020 (N = 2,530). Using multiple linear regression and mixed effect models, the results indicated that renters perceived themselves as more vulnerable to the direct health impacts of heatwaves than homeowners. However, tenure differences were substantially weaker for risks framed as collective societal impacts or future climate-related threats. These findings suggest that housing tenure is associated primarily with perceptions of personal heat vulnerability rather than broader climate risks. By demonstrating how housing circumstances shape perceptions of heat-related hazards, this study has produced novel insights around housing tenure as an important yet overlooked factor in public perceptions to extreme heat.

Community Participation in Stress-Testing Scenarios

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Abstract

Community participation in stress-testing approaches offers new opportunities for strengthening disaster preparedness. Community residents are often the first to respond during disasters, yet can be excluded from preparedness efforts and training. This presentation demonstrates a participatory

workshop methodology, co-developed with local partners and recently applied through two successful workshops in Indonesia and Canada.
The scenario focuses on warning and evacuation response to validate community asset mapping and evacuation modelling from earlier stages of the project. The stress-test table-top exercise uses a highly engaging card-based approach to identify points of failure and strength within social relationships and physical infrastructure resilience.
This is of particular importance as 'soft components'—such as multi-directional information flows, organisational procedures, and coordination across actors and sectors—are critical during crises, yet may expose underlying gaps if not recognised and addressed beforehand. The approach encourages "outside-the-box" thinking, which is essential for dealing with unprecedented events and multi-hazard scenarios, while highlighting differing capacities and limitations.
This community-level stress-test methodology provides an effective yet simple approach to engaging individuals and communities in disaster preparedness across diverse contexts.

Deliberating The Climate Emergency: Net-Zero, Risk and Time
Nick Pidgeon, Karen Henwood
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Abstract
This paper explores the emergence of temporal dilemmas and potential unintended consequences of the metrics for understanding climate change risk. Historically the agreed metrics for what we can view as dangerous evolved over several decades (Lorenzoni, Pidgeon and O'Connor, 2005). Most recently the 2016 Paris climate accord marked a further significant reframing in what is to be considered dangerous or unacceptable – with a commitment to limiting warming to 1.5 C or less, while also to achieving net-zero emissions soon after the middle of this century. In meeting net zero to avoid 1.5 degrees, danger becomes measured through the time required to meet a set concentration pathway. The paper will first elucidate an issue which is not in any way new to risk characterisation - that the social sciences of risk shows that danger itself cannot be simply ascribed to any science metric (temperature, emission concentrations etc). Second is that the adoption of such a metric to evaluate safety or danger implies that time and temporal dilemmas are at the heart of proposed options for addressing climate risks. While a diminishing time discourse appears fully compatible with the concept of a 'climate emergency', one can also ask here whether this reframing unintentionally legitimises otherwise environmentally damaging or ethically unacceptable options? The paper concludes by discussing some of the challenges associated with 'risk as time'.
Reference Lorenzoni, Pidgeon, O'Connor (2005) Dangerous climate change: the role for risk research. *Risk Analysis*, 25, 1387-1398.

Judgement, decision-making and risk assessment

The Description-Experience Gap in Online Consumer and Healthcare Reviews
Claire Heard
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Abstract
Online reviews are prevalent in online decision making, from choosing consumer products to selecting healthcare services. These reviews are typically presented either as summary descriptions (e.g., star ratings alongside their frequency) or individual reviews that can be sampled sequentially. The consequences of receiving information through summary description versus sequential experience have been studied in risky choice, where a robust description-experience gap has been

found. In this context, when people make decisions from experience, rare events tend to be underweighted. Wulff et al. (2015) generalized this gap from monetary gambles to consumer choices based on product reviews. This study seeks to replicate this effect in the consumer choice domain and test its generalizability to the healthcare choice domain.
107 participants completed a set of 20 choices, where for each of 10 pairs of consumer products/services, they saw product review information about the two choices, before making their choice. Participants completed two versions of each choice pair - once in the description format and once in the experience format. In a second sample conducted concurrently, 102 participants completed the same task, this time involving 10 healthcare products and services. Results replicated the description-experience gap in the consumer choice domain and additionally extended this to the healthcare domain. With online review platforms utilizing summary and individual review presentations, these findings have implications for understanding how review presentation influences choice across both consumer and healthcare domains.

Beyond risk and benefit: Type 1-related factors predominate in consumer acceptance of alternative proteins

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Abstract

This study investigates the psychological determinants of consumer acceptance of four alternative protein sources: legumes, plant-based meat, cultivated meat, and insects. Drawing on dual-process theory, the study distinguishes between Type 1-related factors, including disgust, expected tastiness, familiarity, and naturalness, and Type 2-related evaluations, including perceived health and environmental risks and benefits and sustainability. A quasi-representative sample of 791 UK adults completed an online questionnaire. Repeated-measures ANOVA was used to compare perceptions across protein sources, and a multivariate structural equation model (SEM) to identify the key predictors of willingness to consume each protein source. Consumer acceptance differed significantly across protein sources, with willingness to consume highest for legumes, followed by plant-based meat, cultivated meat, and insects. Across all protein types, disgust and expected tastiness consistently emerged as the strongest predictors of willingness to consume. The influence of disgust increased systematically with the novelty of the protein source, with the largest effect occurring for insects and cultivated meat. Familiarity, prior consumption, and perceived naturalness were also positively associated with willingness to consume. By contrast, most Type 2-related evaluations explained little additional variance in willingness to consume once other psychological factors were considered simultaneously. The findings suggest that interventions to promote alternative proteins may be more effective if they target affective and experiential processes by improving sensory expectations and increasing familiarity and opportunities for direct experience, rather than relying primarily on information about environmental or health benefits.

Overcoming bias through Structured Expert Judgment: An investigation of Cooke's Classical Model through simulation of biased and unbiased experts

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Abstract

Structured Expert Judgement (SEJ) protocols are widely used to support decision-making where empirical data is missing, uncertain, and/or fragmented. One of the most established SEJ protocols is Cooke's Classical Model, which assigns performance-based weights to experts according to their

calibration and informativeness on a set of seed questions with known answers. Despite its widespread use, little work has examined the core principles of the model and whether these weights consistently improve predictive performance compared with equal weighting. The current study uses a Monte Carlo simulation to evaluate the Classical Model under controlled conditions. Simulated experts are modelled either as ideal Bayesians or over-/underconfident decision-makers, with expertise represented by the amount of information available to each expert. Confidence is manipulated independently, varying the weight assigned to empirical information to generate underconfident and overconfident experts while holding underlying knowledge constant, thus allowing for the investigation of homogeneous and heterogeneous expert panels with varying confidence distortions. Results indicate that while the Classical Model differentiates experts based on calibration and informativeness, performance-based weights do not consistently improve aggregate predictive accuracy. Across the examined scenarios, equal weighting generally performed as well as or better than Cooke's performance-based weighting. These findings provide important insight into the validity of Cooke's Classical Model and highlight important considerations for the practical application and validation of structured expert judgement methods.

Developing a Data-Driven Risk Assessment Tool for Police Missing Children Decisions: A Preliminary Study of the West Yorkshire Police Data

Ioanna Ioannou, Angelika Stefan, Cloe Brennan, Ben Yelland
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Abstract

During 2023–2024, UK police received 405,128 missing person calls, translating to 209,763 unique incidents. Children under the age of 18 accounted for 64% of these cases [1]. When a child's whereabouts are unknown, they are vulnerable to harm. Delayed police intervention can escalate risks, such as criminal exploitation or physical injury. Conversely, premature intervention also carries risks, including the potential criminalization of adolescents who resist police contact. Thus, timely and effective police intervention is critical to their wellbeing.

Every day, UK police manages approximately 574 missing children incidents. This study aims to address the immense resource burden of these cases by creating a Bayesian network model to predict the whereabouts of children (e.g., "with exploiter" or "with friends") based on a number of risk factors. Critically, the model is designed to overcome the "prevention paradox" encountered in previous research [2]. It does this by defining risk not merely by whether harm has previously occurred, but by whether harm would likely occur *without* police intervention. The model will be trained on a database of recent, anonymized missing incident reports obtained in collaboration with the West Yorkshire Police.

The present study provides an overview of over 200 anonymised missing children cases extracted from the West Yorkshire Police database. It highlights critical data challenges and outlines the operational framework of the developed tool.

References

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Public perceptions of decarbonisation

To be or not to be, the social perceptions of using agriculture to decarbonise the rural energy economy

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Abstract

The UK agricultural sector is projected to remain a net emitter of greenhouse gases through to 2050, largely due to livestock-related emissions. To minimise the overall carbon footprint, it is vital to reduce emissions from other sources, such as red diesel use in farming. Transitioning to low-carbon alternatives like hydrogen presents a promising pathway. However, there is currently no unified supranational or national policy direction for alternative fuel adoption in agriculture, nor is there a clear understanding of farming communities' perceptions of hydrogen technologies. While public risk perceptions of wider energy transitions have been widely studied, less than 10% of this research focuses on rural populations, creating a critical knowledge gap. The aim of this oral presentation is begin mapping the social dimensions of rural energy system transition using qualitative interviews techniques (sample N=15) and quantitative survey (sample N=247) modified from UKERC's values for energy system change to understand the risk perception towards using agriculture to supply the rural energy economy, awareness of low-carbon fuels and the farms role in the rural energy economy. The preliminary key findings of this ongoing PhD project show affordability and accessibility, is the main perceived value barrier rural energy economy with the rural decarbonisation transition viewed as a distant (2050 and beyond). However, ideally farm want a single energy vector for their farm with keen interest in farms, yet the farm energy system is viewed as insular, not affecting the wider rural energy economy since they prioritise self sufficiency.

Logics of carbon removal: The interplay and (in)coherence of actors and institutions in the sociotechnical system of enhanced rock weathering in the UK

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Abstract

The deployment and scale-up of terrestrial enhanced rock weathering (ERW) is increasingly positioned to play a significant role in the UK's net zero plans. The involvement of multiple actors across diverse sectors, each with their own assumptions, values, beliefs, and rules, raises questions for the technology's implementation and outcome. We interviewed 38 current and prospective actors and draw on institutional theory to understand the emergent arrangements within the sociotechnical system of ERW. The paper draws out five institutional logics: the Agricultural Logic (centred on the agricultural profession), the Market Logic (centred on the private sector and the market), the Public Logic (state-centric), the Quantification and Science Logic (centred on certification and the scientific profession), and the Sustainability Logic (centred on environment and community). We examine the strength and relationality of these logics and the implications for the stability and coherence of the system. We identify four key characteristics of the current ERW landscape: policy lag, market dominance, agricultural paradox, and quantitative primacy. Finally, we offer recommendations if ERW is to be considered a large-scale carbon dioxide removal (CDR) option in the UK, arguing that any equitable, effective, and sustainable development attends to agricultural recognition, institutional plurality, and policy certainty.

Public concerns about ocean iron fertilisation trials

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Abstract

The need to remove carbon dioxide from the atmosphere means there is increasing research into marine carbon removal across many countries. However, some proposed methods are more controversial than others such as ocean iron fertilisation (OIF) where the addition of iron could boost primary production in the ocean increasing its ability to absorb carbon dioxide, thus removing it from the atmosphere. Public support is imperative to the success of such techniques which may potentially threaten coastal communities reliant on the oceans for their livelihoods. To understand how people may respond to a proposed trial of OIF in the US, this perspective aims to summarise findings from the limited research in this area. Marine climate impacts are already causing stress on this environment and public perceptions work has shown a strong negative response to OIF because of its potential to 'mess with nature' and a strong attachment to this iconic environment. As an unfamiliar topic people will rely on heuristics to form their initial risk judgement and will impose criteria to try and constrain any experiments. Due to the uncertainties around this technique people worry about unintended consequences and its irreversibility. Another important factor is trust in those who are conducting the research and their transparency. Furthermore, people are not only worried about climate change but many ocean impacts, which should be considered alongside carbon removal as part of a wider narrative. Ultimately, the inclusion of affected parties is essential with meaningful community engagement if any trials are going to proceed.

Powering Cooperation: Public Perceptions of Fair Use in Off-Grid EV Charging

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Abstract

Off-grid, renewable-powered electric vehicle (EV) charging can help address the challenge of meeting growing demand for low-carbon charging in grid-restricted areas. However, deploying grid-independent charging solutions carries risks. An islanded system with limited generation and storage capacity requires users to be responsive to charge availability and to use the resource responsibly (e.g. unplugging after charging).

This online survey study examines the expectations and attitudes of prospective users (*N*=341, 52% EV owners) towards a novel off-grid charging technology – FEVER (fever-ev.ac.uk) – set for demonstration at a UK leisure site.

Trust in charger reliability and environmental values were key factors influencing acceptance of FEVER. Segmentation analysis identified three 'visitor profiles' that differ in the operational risk they pose the FEVER system: (1) *Enthusiastic Engagers* (33%), who showed the highest willingness to pay for use; (2) *Passive Advocates* (40%), who were responsive to perceive social norms and expectations about use; and (3) *Resistant Pragmatists* (27%), who reported the lowest intention to use the facility cooperatively.

Perceptions of five interventions designed to promote fair use of the facility were examined. Peer-to-peer messaging was the least favoured (due to anticipated risks of social conflict), whereas messages from the venue and incentives that reward cooperation were more widely accepted.

We will discuss the implications of these findings for the ongoing design of FEVER and the associated App, and provide suggestions on how to encourage fair use of off-grid EV charging technologies, thereby reducing operational risk.

Uncertainty, organisations and resilience

Content Analysis of the Changing Business Risk Environment of the UK's Small and Medium Enterprises (SMEs)

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Abstract

Globally, Small and Medium-sized Enterprises (SMEs) contribute significantly to economic growth and socio-economic development. Despite their importance, SME owned businesses continue to operate under severe pressure in a dynamic and rapidly changing business environment. The study conducted a five-year content analysis of the UK's Federation of Small Businesses' Small Business Index (Q1 2021-Q4 2025). It examined small businesses' confidence from the pandemic era through the energy and inflation shocks, culminating in a subsequent post-pandemic decline. A deductive thematic finding identifies a pattern of risk changes, in which the key source of cost pressure shifts over time from energy and inflation to labour costs, taxation, a reduction in domestic demand, and sectoral divergence, with these factors remaining prevalent throughout the period reviewed. The findings contribute to risk governance theory by demonstrating how SME risk priorities evolve from acute external shocks (pandemic disruption and energy crises) to chronic structural risks (labour shortages, taxation, and declining demand). This supports the argument that risk governance should be viewed as a dynamic capability rather than a static risk-management process. The study extends resilience literature by showing that resilience emerges through continual adaptation to changing risk rather than through recovery from a single disruptive event. This study conceptualises a decision framework that sees resilience as holistic rather than a single, isolated distress remedy for SMEs. The research's implications deepen understanding of how to use the SME resilience framework to manage persistent risks in business operations.

Keywords: Business Risk Environment, Small and Medium Enterprises, SME Resilience Framework

Uncertainty in Plain Sight: Exploring How Uncertainty Shapes and Influences Risk Assessments

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Abstract

Uncertainty is inherent in risk assessments, yet how it emerges and influences organisational practice remains less understood. This MRes study examines uncertainty across the risk assessment process through semi-structured interviews with five academics and eleven practitioners. Thematic analysis identified five key influences: data, human judgement, methods, organisation and variability. When not explicitly recognised and managed, uncertainty can remain embedded throughout the assessment process. Findings demonstrate that uncertainty extends beyond incomplete knowledge, arising through interpretation, methodological choices, organisational processes and changing conditions. Academic and practitioner perspectives showed considerable alignment, while organisational influences emerged as a distinct and novel theme. These findings informed the development of a visual framework designed to identify and communicate sources of uncertainty within risk assessments. By making uncertainty more visible, the framework provides organisations with a clearer basis for recognising, communicating and accounting for it.

Ultimately, this research aims to encourage greater recognition of uncertainty, helping organisations understand not only what they know, but how to appreciate what they do not.

"It won't affect us": Perspectives from the Private and Public Sectors on High Impact, Low Probability (HILP) Events

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Abstract

High Impact, Low Probability (HILP) events have previously been framed as 'outlier' events, or even as 'unexpected' or 'unknown' events, due to their rare or unprecedented occurrences. As such, HILPs have been typically thought to be difficult to conceptualise and to take preventative actions or plan responses to. HILPs have had catastrophic impact on societies, in particular due to increasing complexity and cascading impacts; therefore, cross-cutting different actors, sectors, and geographical borders. With the aim to critically investigate if and how HILPs could be better prepared for and responded to, 41 semi-structured interviews were carried out with senior risk and resilience managers across different countries and sectors, under the EU HORIZON AGILE project (AGnostic risk management for high Impact Low probability Events). Our findings examine common points of failure between different types of HILPs, such as limitations in coordination and communications efforts as well as attitudes of "it won't affect us", and insights into differing and overlapping perspectives from the public sector and private sector (including regulated industries), touching on topics such as risk appetite, responsibility, and size of organisations. These provide unique findings for understanding HILPs and their management across different actors and systems. This has significant implications for further improving the likes of stress-testing exercises, risk assessments, and awareness of HILPs, which is of particular importance as complexity and interconnectedness of disasters are expected to increase.

The Governance and Management of High-Impact Low-Probability Events: A Framework for Identifying and Addressing Vulnerability Hotspots

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Abstract

Today, regions are exposed to multiple risks that can manifest simultaneously, including climate change, geopolitical instability, technological interdependencies, and socio-economic inequality. As natural, social, and technical systems become increasingly interconnected, these risks converge, interact, and recombine in complex and dynamic ways. A single triggering event can cascade within and across interdependent systems, following pathways mediated by vulnerability hotspots—areas where systemic vulnerabilities compound and interact. These cascades can culminate in High-Impact, Low-Probability disasters (HILPs). Although the exact nature of a HILP is difficult to forecast due to evolving systemic interdependencies, its impact is invariably catastrophic.

Established risk governance and management approaches struggle to address HILPs adequately because they continue to focus on individual risks in isolation. This research develops a risk-agnostic theoretical framework for understanding and addressing HILPs by mapping how existing governance and management practices shape systemic vulnerabilities. In doing so, it shifts the analytical focus from managing discrete risks to examining vulnerabilities within and across interconnected systems. The framework is grounded in a qualitative analysis of 41 interviews with senior risk and resilience experts. It centres on three interrelated dimensions—sensitivity, coping capacity, and adaptive capacity—and shows that vulnerability hotspots emerge where governance failures occur across the three dimensions. Finally, the framework outlines key challenges within each dimension, including resource allocation, political will, accountability gaps, and common points of failure. The framework can be applied to systemic risk analyses, including risk-agnostic stress testing.