Call for Expressions of Interest: Establishing the Multi-Hazard Research Network (MHRN)

Funding value: Proposals should be in the £12–15m range, with per annum spend not exceeding £5m
Project duration: Initial 3 years (anticipated January 2026 to December 2028), with the potential for future phases
Lead applicant eligibility: UK non-profit institutions (including academic organisations)
Partner eligibility: Lead applicant may partner with any organisation deemed suitable
Competition process: Two-stage (expression of interest followed by full proposal)
Deadline for EOIs: 8 October 2025
Anticipated award date: January 2026

Statement of Need

1. Competition administration

The Foreign, Commonwealth and Development Office (FCDO) Research Commissioning Centre (RCC) has been established to effectively commission and manage research to enhance FCDO's impact. The RCC is part of Global Research and Technology Development (GRTD), which represents the FCDO's portfolio of high-quality and impactful research and development.

Led by the International Initiative for Impact Evaluation (3ie), the University of Birmingham, and a consortium of UK and global research partners, the RCC commissions different types of high-quality research in FCDO's key priority areas. All FCDO-funded research and development (R&D) investments commissioned by the RCC will be implemented using rigorous and robust research methodologies and quality standards. These R&D standards include meeting the Frascati definition requirements and FCDO's Ethical Guidance for Research Evaluation and Monitoring Activities (European Union 2014; FCDO 2019; Organisation for Economic Co-operation and Development 2002).

The RCC is running this open competition to award an accountable grant on behalf of the FCDO. After the competition is concluded, the FCDO will assume all ownership of the relationship with the successful applicant (including financial relationships).

2. Programme Summary

The FCDO is establishing a **Science for Emergencies Centre of Expertise (SECE)** to strengthen global and regional crisis preparedness and response. As a cornerstone of this initiative, FCDO is commissioning a **Multi-Hazard Research Network (MHRN)** to provide rapid, actionable evidence and advice to help prepare for and respond to emergencies. The MHRN will:

- Conduct innovative research, provide rapid, high-quality and actionable evidence, data analysis and modelling to FCDO upon request, and offer expert advice to FCDO and partners to inform responses to emergencies.
- Have a focus on natural hazards and infectious disease outbreaks with an emphasis on cascading impacts and people-centred approaches including social and behavioural sciences.
- Be led by a UK-based academic or other non-profit institution, working with a wider research network including partners in low- and middle-income countries.

This call invites applications from UK-based academic or non-profit institutions to express interest in leading this collaborative network. The lead institution will act as the central operational hub, managing a geographically diverse and multi-disciplinary network. While the lead must be UK-based, international organisations, research institutes, and experts from across the globe are strongly encouraged to participate as partners, especially organisations in low- and middle-income countries (LMICs).

3. Background

Emergencies are becoming more frequent, complex, and interconnected. The number of disasters globally has more than doubled over the past two decades, rising from approximately 200 annually in the 1980s to over 400 in recent years, many with cascading or cross-border impacts (UNDRR, 2022). These trends are driven by a combination of climate change, urbanisation, zoonotic spillover and geopolitical instability, factors that disproportionately affect LMICs with limited institutional and infrastructural resilience (World Bank, 2023). The coping capacities of vulnerable populations and response capacities of national authorities have been stretched or diminished due to economic contraction and multiple shocks.

At the same time, while crisis-related research output has grown, the translation of evidence into timely, actionable tools remains limited. Evaluations of recent responses, including to COVID-19, cyclone Idai, Ebola virus outbreaks, and regional flooding, highlight persistent challenges in delivering decision-relevant insights when and where they are most needed (Lancet COVID-19 Commission, 2022; Wellcome Trust, 2021; IFRC, 2020). These assessments also point to persistent structural limitations in the evidence ecosystem, where research and advisory mechanisms are often fragmented, sector-specific or insufficiently integrated to support the operational demands of complex, multi-hazard contexts.

The FCDO is at the forefront of the UK government response to emergencies overseas. One of the department’s key priorities is strengthening resilience, preparedness and response to crises. To bolster the capabilities of the FCDO, the wider UK government and its partners in response to heightened risks, the FCDO has established the Science for Emergencies Centre of Expertise (SECE) programme.

SECE will improve access to research evidence and expertise for the FCDO, its partners, and the global community, helping them better prepare for and respond to emergencies. SECE’s activity will help reduce exposure and risk for those affected by emergencies, particularly in LMICs where vulnerability to, and effects of, emergencies tend to be greater. SECE will achieve this goal through various means, including strengthening in-house expertise, putting

agreements in place with other government bodies, and bringing in external support through the Multi-Hazard Research Network (MHRN). For a diagram indicating how the MHRN fits into the overarching SECE programme, please see Annex 1.

The MHRN will serve as a central, interdisciplinary platform to bridge the critical evidence-to-action gap. It will provide the FCDO and its partners timely and effective access to expert tools, products and advice throughout the emergency cycle, all tailored to operational needs and developed with local actors.

4. Research need

This is an open call to identify a lead applicant who will partner with a network of organisations to establish and operate a Multi-Hazard Research Network.

The FCDO requires fast and reliable access to context-specific expertise to effectively respond to international emergencies. The MHRN will serve as a strategic, multi-disciplinary platform for the UK and its partners, delivering high-quality research, expert advice, and deployable tools to enhance preparedness and response for emergencies.

The network must be capable of both proactive research (prediction, prevention, preparedness) and reactive response (rapid research, expert advice), aligned with FCDO's operational cycles and strategic priorities. The lead institution will serve as the central administrative and operational hub, coordinating a geographically and thematically diverse consortium of expert organisations.

The network will work in close collaboration with FCDO, its partners, and the broader disaster risk reduction and humanitarian community. It will be responsive to evolving evidence needs and hazard priorities and will be capable of rapid mobilisation in the event of an emergency.

The MHRN will deliver across five core functions, aligned with both routine and surge scenarios.

Routine objectives:

- **RO1. Prediction research:** Taking into account existing approaches and methods, develop novel and/or improved forecasting and predictive tools for potential emergencies, which the FCDO and its partners can use to inform prevention, preparedness, anticipatory and response work.
- **RO2. Preparedness research:** Deliver a programme of research to provide insights and briefs on how best to prepare for imminent hazards and associated cascading and compounding hazards and impacts, including how to engage communities, and communicate and design effective interventions to reduce harm
- **RO3. Emergency response research**: Use innovative research methods to create prototype products and develop these into user-centred products that can be deployed in an emergency to support FCDO and its partners in assessing threats, responding effectively, and anticipating and mitigating indirect impacts. Develop and test user-centred research products and methods that can be quickly deployed to support real-

time response decisions. These may include rapid assessments, scenario planning tools, and guidance products relevant to field and diplomatic operations.

Emergency activation objectives:

- **RO4. Deployment of tools and products:** Facilitate the rapid deployment of previously developed tools and evidence products in emergency contexts (including rapid modelling). Ensure outputs are packaged in accessible, user-centred formats and interpretable by non-technical users under time constraints.
- **RO5. Expert advice:** Provide a flexible ‘ask the expert’ function that convenes the most relevant experts across the network in response to time-sensitive research questions. This may include convening round tables, hosting interdisciplinary fora, conducting webinars, and providing targeted advisory services for country government partners. It may also include delivering rapid evidence syntheses, technical briefings, and data analysis.

5. Key design expectations

Applicants must structure their proposals in alignment with the following design expectations, which reflect FCDO’s operational needs and strategic objectives for the MHRN. The FCDO is not mandating any set structure, governance or overall model for the MHRN. However, lead applicants will need to explain how the model they are proposing will meet the expectations set out below.

Expectation A: Phased multi-hazard focus

In the first two years, the MHRN is expected to concentrate on a focused set of priority hazard areas and cross-cutting research approaches, with the intention to expand and evolve these in consultation over time with the FCDO and its partners. Applicants must clearly articulate how their proposed network will deliver against the four focal areas set out in the table below, with further detail in annexes.

Focal area	Priorities
Hazard type: natural hazards (Annex 2)	The highest priority areas include flooding (all types) and atmospheric hazards (heatwaves and air pollution). Applicants should demonstrate how they will leverage earth observation, geospatial analysis and modelling capabilities to enhance prediction, preparedness and response.
Hazard type: emerging infectious diseases (Annex 3)	Deliver activities in line with the overarching expectations and research objectives for emerging infectious disease outbreaks of epidemic and pandemic potential (predominantly in Africa and including LMIC experts). Alignment with global and regional health security partners, including WHO, Africa CDC, and CEPI is vital. The MHRN should apply a One Health and multi-disciplinary approach.
Approach: cascading and compounding impacts (Annex 4)	Proposals should consider how hazards trigger secondary effects across social, environmental, and economic systems. This includes modelling cascading risks, assessing compound crises, and simulating multi-hazard scenarios.
Approach: people-centred (Annex 5)	Social and behavioural sciences should be embedded throughout the work of the MHRN, with particular emphasis on understanding human, social and economic risk factors and impact of hazards and emergencies, and enabling an ethically informed, people-centred approach to decision-making, planning, design, implementation and review.

Expectation B: One-stop shop

The MHRN should be led by a UK academic or non-profit institution and serve as a **single point of contact** for the FCDO and its partners. It should coordinate a **collaborative and inclusive network**, operated and staffed in such a way as to ensure equitable and mutually beneficial partnerships.

The central unit must be capable of managing incoming requests and mobilising the network to deliver rapid, high-quality responses. It should ensure the FCDO and its partners are signposted to one place for all resources, expertise, support and tools.

Although there are no specific geographic priority areas (with the exception of prioritising work in Africa for the emerging infectious disease hazard area), the network should build and maintain mutually beneficial partnerships with experts, institutions and networks based in at-risk countries in key geographies, including LMICs. The geographic coverage and range of expertise of the MHRN can be expanded over time, so applicants should describe their approach to developing and embedding new partnerships.

Expectation C: Multi-disciplinary collaboration

The MHRN should include expertise across a wide range of research disciplines and ensure specialisms work together to produce products that meet the needs of the FCDO and its partners.

The MHRN should have access to the widest range of academic disciplines possible, for instance:

- **Earth sciences** (hydrology, geology, physical geography, climatology, meteorology, oceanography, glaciology, geophysics, etc.)
- **Biological and medical sciences** (ecology, bioengineering, veterinary science, medicine, virology, epidemiology, public health, genomics, zoology, biophysics, entomology, vaccinology, environmental health, life sciences, biomedical ethics, epidemiological modelling etc.).
- **Social and behavioural sciences** (social and medical anthropology, applied behavioural science, economics, ethics, behavioural data science, human psychology, human geography, politics, sociology, etc.)

The MHRN should facilitate effective collaboration between these disciplines, including ensuring that products and processes produced by the MHRN are created and shared in collaboration across disciplines.

Expectation D: User-centred products

All tools and outputs must meet the needs of FCDO staff and partners and must be:

- **High quality**: Adhering to the highest standards of rigour and subject to robust quality assurance procedures
- **Relevant**: Aligned with the operational and policy needs of FCDO and its partners, and employing the most appropriate methods and expertise
- **Interpretable**: Clear and usable by non-technical audiences
- **Timely**: Ready when needed, especially during crises
- **Actionable**: Informing decision and/or action (for example by giving clear recommendations).

The MHRN will need to develop an understanding of user needs that build on initial FCDO research of staff experiences in emergency and crisis responses and their use of evidence and expertise. This could include user research, co-design workshops or similar with FCDO staff and partners during the inception phase.

The MHRN should use action-oriented ‘research sandpits’ and iterative product development to ensure continuous improvement and relevance, optimising the use of science expertise and evidence in responses.

Expectation E: Commitment to public goods and learning

The MHRN should advance public knowledge and build global capacity through:

- **Providing or leveraging a publicly accessible research platform** for sharing tools and findings in near-real time, creating a pipeline where products are generated and uploaded automatically to the platform when a hazard is predicted or an emergency response is required. At full proposal stage, applicants should present a vision for this platform, with the FCDO being an end user of the product rather than the designer. Effective options that can be integrated with Global Research and Technology Development (a new gateway to FCDO funded research) should be considered. A detailed proposal will be appraised through a separate assurance process at a later date.
- An **open science approach**, including making data and methods open-source and ensuring that all publications and code are available open access, in line with Research Open and Enhanced Access Policy.
- **Sharing of learning and driving uptake**, including engaging in post-hazard event learning loops, evaluating the effectiveness of products/tools and transparent sharing of insights with the disaster risk reduction community.
- Local and regional **capacity and ownership strengthening**, particularly in LMICs, including inclusive active learning networks for informing responses, and testing and scaling innovative practices.

Proposals should demonstrate alignment with these objectives, even if the delivery plans are not fully formed.

6. Deliverables and timeline

The MHRN is expected to operate from early 2026 through November 2028, following a phased approach. The lead institution will be responsible for coordinating the full network and ensuring timely, high-quality delivery across all workstreams. The following core deliverables are expected across the programme period:

Phase	Period	Key Deliverables
Phase 1: Mobilisation and set-up	Q1 + Q2 2026	- Operational and governance structure finalised - Core team and coordination mechanisms established - Ethics review for proposed research, and establishment of underpinning ethics processes and structures - Agreements put in place with partners in the network and mechanisms established to build cross-network relationships.

		- Plans for public launch of MHRN agreed and developed - User research conducted with FCDO and partners to inform the design of MHRN - First-year implementation plan, including timelines, logframes, milestones, roles, Monitoring, Evaluation and Learning (MEL) plan, and engagement strategy
Phase 2: Core functioning and service delivery	Q3 2026–2028	- Plan for iterative development and testing of research and evidence products and support with users. - Demand-led, research products aligned with RO1–RO5: • Predictive tools and dashboards • Preparedness and risk communication products • Emergency decision-support tools • Expert convenings and technical briefs - Quarterly internal check-ins or reports and periodic learning syntheses - Ongoing support to FCDO on evidence uptake, knowledge translation and deployment
Phase 3: Platform development and public goods	Rolling 2026–2028	- Publicly accessible digital platform for tools and knowledge - Open-access data, publications and methods - Continuous development, testing, learning and adaptation of platform and products - Post-emergency evaluations, feedback loops and learning reports that inform future support - Regional capacity-building in LMICs (e.g. workshops, learning exchanges)
Final deliverables	Q4 2028	- Final synthesis report with outputs, lessons, and recommendations - Sustainable handover plan for public goods, platform and services - Assessment of public goods and policy impact - Strategic options paper for future sustainability of the MHRN

7. Budget

One award of up to a maximum of £15m will be granted and managed by the lead applicant, with a maximum annual spend expected not to exceed £5m. Payments will be made quarterly in arrears after FCDO approval of deliverables and financial reports.

Although there is the ambition for future phases of the MHRN beyond the initial three years, the MHRN should be designed for flexibility and no budget increases are expected within the three-year funding cap. Continuity of funding depends on satisfactory performance, ongoing FCDO needs and HMG Treasury allocation. The MHRN's operational model must remain flexible, enabling it to adjust the scope and scale of its activities to align with the evolving priorities of the FCDO and HMG.

8. Required expertise

The lead applicant and their network should demonstrate the technical, operational, and strategic capacity to deliver a multi-year research programme with global reach and multidisciplinary scope. At Expression of Interest stage, the application should present as much of the proposed team as possible and provide a general vision for the collaborative network. Full proposals must include an overview of the proposed team structure, roles, and key personnel, and demonstrate a clear plan for enabling and managing internal collaboration, quality assurance, and learning across the network.

The team should include expertise across the following areas:

Technical expertise

- Natural hazards (e.g. meteorological, hydrological, geological) and infectious diseases, life sciences, social sciences, and public health (e.g. epidemiology, One Health approaches, public health policy).
- Broad methodological and disciplinary expertise (e.g. earth sciences, biological and medical sciences, social and behavioural sciences, data science, modelling, AI, innovation and geospatial analysis).
- Cascading and compounding risk modelling and systems thinking.
- People-centred approaches, including community engagement, social and behavioural sciences and human-centred design.
- Local context and lived experience in LMICs and in at-risk geographies.
- Innovation and advanced technology (e.g. design thinking, AI, big data, frontier technology).

Operational capabilities

- Leadership capability, including thought leadership, from the lead partner, with the ability to secure buy-in from all organisations and individuals in the network and ensure equitable partnerships.
- Experience of building, developing and coordinating multi-partner, multi-country networks and collaborations to drive efficiency and effectiveness.
- Capacity to manage large, multi-year budgets across complex programmes, including maintaining financial oversight, necessary assurance and high rigour in programme and research standards.
- Familiarity with FCDO procedures and working in politically sensitive, resource-constrained environments.
- Proven capabilities to provide timely alerting and monitoring of emerging or forecast threats.
- Rapid mobilisation and crisis-response capabilities, systems, and processes.
- Experience in managing ethically assured research and providing ethics advice on scientific or policy choices.

- Experience and expertise in setting up processes for continual learning and adaptation to test different options and adjust interventions in response to real-time evidence and feedback.
- Expertise in stakeholder engagement, collaboration and policy influence, especially with relevant governments, INGOs, and regional actors.

Platform and communications

- Capacity to develop and maintain digital platforms for open-access sharing and in resource-constrained contexts.
- Skills in knowledge translation, visualisation, and policy-relevant communication including the ability to convey complex findings to non-technical audiences and decision makers.
- Expertise in people-centred approaches to understand and respond to user needs, including behavioural science and human-centred design.
- Experience of convening interdisciplinary, active learning networks across geographies (including between policy makers, experts and practitioners) to ensure real-time sharing of evidence and learning to inform responses.

Delivery practices

- Strong adaptive management practices to respond to changing circumstances and needs, innovation and continuous learning. This includes having flexible governance and decision-making structures to quickly adapt to new information and challenges.
- Robust monitoring and evaluation systems to track progress and outcomes. This includes setting up horizon scanning and feedback mechanisms to ensure that the programme remains relevant, useful and effective.
- Robust approach to due diligence and ongoing risk management to assess the capacity and capability of downstream partners to manage programme funds and deliver objectives. This is crucial even in rapid onset emergencies, where due diligence may be completed in parallel with implementation.
- Sufficient and sustainable programme resourcing to ensure adequate staffing and management to handle the complexities and risks associated with rapid onset programmes.
- Demonstrable commitment to diversity, equity, inclusion and localisation through previous action and future implementation of relevant strategies and approaches.
- Capacity to ensure that safeguarding, ethical research, and open access standards are applied throughout the delivery chain, and that partners are clear about these expectations.

9. Eligibility

Lead applicants must be **UK-based academic or non-profit institutions**. International and private sector organisations may be included as partners but cannot lead. Lead and partner organisations must be legally registered; individuals may not apply.

Lead applicants may only submit **one application** as lead, but may appear on other applications as a partner organisation. Partner organisations may be listed on multiple applications.

The FCDO requires strict adherence to Value for Money (VfM), due diligence, and ethical research standards.

10. Competition process and indicative timeline

This competition will be carried out in two stages.

Stage 1: Expression of interest (EOI): This will be a high-level assessment of proposed approaches and structures, with a focus on identifying lead partners (with wider networks) capable of delivering relevant expertise and capacity.

Stage 2: Full proposal: At this stage, applicants will be invited to submit a detailed bid.

The RCC will coordinate a virtual 'matchmaking' event to enable applicants to meet with and discuss collaboration with interested partner organisations. Participation in this event is not mandatory and will not contribute in any way to the assessment of applications.

Competition milestones	Date
Information event	21 August 2025
Call for EOIs open	4 September 2025
Matchmaking event	15 September 2025
Updated FAQs published	23 September 2025
EOI submission deadline	8 October 2025
Call for proposals open	3 November 2025
Full proposal deadline	3 December 2025
Expected award & grant signing	January 2026
Project end date	December 2028

The competition process will be managed by the RCC on behalf of FCDO. The grant award and ongoing MHRN management will be led by FCDO directly.

11. Criteria for selection

EOIs will be assessed through a competitive process based on the following selection criteria. These criteria reflect the FCDO's priorities for quality, relevance and operational capacity in the establishment of the MHRN.

Full proposal scoring criteria and application form will be released at launch of the next stage of this competition.

Strategic and technical fit	**30%**
• Clear understanding of the purpose and ambition of the MHRN. • Strong alignment with the five core objectives (RO1–RO5): Prediction research, preparedness research, emergency response research, deployment of tools and products, expert advice. • Evidence that the network will provide relevant, high-quality, timely, and actionable tools and advice. • Incorporation of user-centred, interdisciplinary, and adaptive design principles.	
Network strength and collaboration model	**30%**
• Strength and relevance of the lead institution, including capacity to serve as the operational and administrative hub. • Strength of leadership and thought leadership of the lead institution. • Quality and complementarity of proposed partners (UK and international), including engagement with LMIC-based institutions. • Effective governance model and coordination strategy to manage a diverse network and respond to FCDO needs. • Demonstrated commitment to, and prior evidence of, equitable, inclusive and mutually beneficial partnerships. • Expertise in research capacity strengthening and capability building. • Experience of convening multi-disciplinary, active learning networks.	
Technical expertise	**20%**
• Breadth and depth of subject matter expertise across natural hazards, infectious disease, and cascading impacts. • Methodological and multi-disciplinary expertise across fields, such as earth sciences, biological and medical sciences, and social and behavioural sciences. • Context expertise in key at-risk geographies and the lived experience of affected populations, particularly low- and middle-income countries and low resource contexts. • Experience conducting applied, rapid, and policy-relevant research and communicating findings to varied audiences. • Innovation expertise and approach, including horizon scanning, experimentation, technological and methodological innovation.	
Operational and delivery capacity	**20%**
• Experience managing large multi-year, multi-country research programmes. • Evidence that the lead institution has the capacity and capability to maintain the network, ensure continued buy-in, and involve partners in decision-making. • Demonstrated ability to deliver outputs in high-pressure, time-sensitive environments. • Capacity for rapid mobilisation of expertise and responsiveness in emergency contexts.	

12. Contact and further information

Many questions you may have about programmes funded by the FCDO are likely to be covered by the FCDO's Programme Operating Framework and we would recommend you check this guidance for answers to your questions.

For queries not covered by the Programme Operating Framework, nor the published Q&A on the call page please contact rcc@3ieimpact.org using the subject line, "MHRN – Request for clarification". Please submit all questions by 16 September. An updated FAQ will be published on 23 September.

For keeping up to date with announcements about this project, please join the mailing list.

References:

Africa CDC (2025). *Africa's Health Financing in a New Era*. Africa Centres for Disease Control and Prevention.

IFRC (2020). *World Disasters Report 2020: Come Heat or High Water.* International Federation of Red Cross and Red Crescent Societies.

Grant, C. (2024). *The Role of Social and Behavioural Sciences in Emergencies and Crises. Rapid Evidence Review 3. Brighton, UK: Institute of Development Studies.* Knowledge for Development and Diplomacy.

The Lancet COVID-19 Commission (2022). *The Lancet Commission on Lessons for the Future from the COVID-19 Pandemic*. The Lancet.

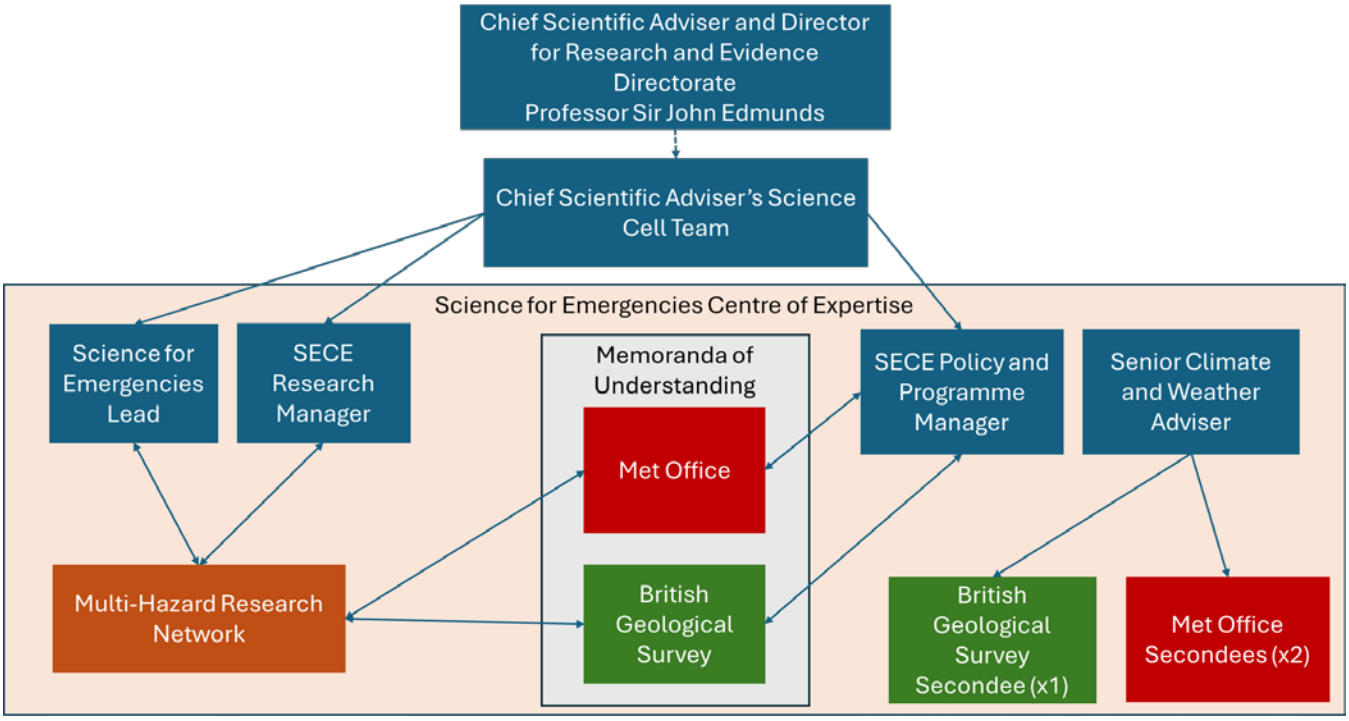
UNDRR (2022). *Global Assessment Report on Disaster Risk Reduction: Our World at Risk: Transforming Governance for a Resilient Future*. United Nations Office for Disaster Risk Reduction.

UNEP & ILRI. (2020). *Preventing the Next Pandemic: Zoonotic diseases and How to Break the Chain of Transmission*. United Nations Environment Programme.

Wellcome Trust (2021). *Improving Global Pandemic Preparedness by 2025.* Wellcome Trust.

World Bank (2023). *World Development Report 2023: Migrants, Refugees, and Societies*. World Bank.

Annex 1: Diagram indicating how the MHRN fits into the broader Science for Emergencies Centre of Expertise (SECE) programme



In this diagram, navy boxes indicate FCDO's in-house staff. Memoranda of understanding (MoUs) have been established between the FCDO and both Met Office and British Geological Survey. The priority hazards to be covered in the Multi-Hazard Research Network complement rather than duplicate the research work in the MoUs. The two MoUs also include seconded experts, as shown in the diagram.

Annex 2: Natural hazards

Background:

It is anticipated that the MHRN will complement and (progressively) explore collaboration with existing partner agreements with the UK Met Office and British Geological Survey (with whom the umbrella programme SECE has pre-existing agreements). This would include, where relevant, linking up through the action-orientated research sandpits process and/or joining up around the timely provision of certain user-centric expert services (for example, around predictive flood risk monitoring).

The MHRN should work in a phased manner, having an initial focus set of hazards where robust capability is provided and then progressively expanding coverage of additional natural hazards shown to be increasingly important, and as new partnerships and collaborative opportunities are identified and developed.

Highest priority hazards:

1. **Flooding** (including fluvial, estuarine, coastal flooding; seasonal flooding risk; surface and flash flooding, dam breaks): Research on flooding (including on the cascading impacts of flooding) is the highest priority within natural hazards for the MHRN. There is a particular need for rapidly producing research and developing tools/products to inform anticipatory action ahead of tropical cyclones.
2. **Atmospheric hazards**: Research and tool/product development on heatwaves and air pollution, including cascading impacts of these hazards.

Minimum requirements:

This focal area will deliver activities and outputs across the range of MHRN objectives and be fully reflective of all the range of core design expectations (A-E). It is anticipated that the focus of effort will be relatively more on Routine Research Objectives RO1 and RO3 and Emergency Activation Objectives RO4 and RO5. Close links and meaningful engagement of LMIC experts and partners will be vital.

Associated technical requirements:

The MHRN should leverage advances in surface and earth observation, and geospatial analysis (including AI) to inform characterisation and presentation of anticipated impacts and access or response options to a range of hazards.

Example questions that the network could be asked to explore include:

- How can action-oriented modelling, methods (including communication/ visualisation approaches) and tools inform and/or trigger anticipatory action ahead of flooding events, including fluvial, coastal (surge) and flash flooding impacts (e.g. ahead of a tropical cyclone making landfall, active monsoon pulses and other extreme rainfall events)?
- What new tools and methods are needed to better inform and trigger anticipatory action or pre-arranged finance ahead of significant heat-related or high air pollution events?

- How can data (e.g. earth observation, media reports) be rapidly analysed and shared following a significant earthquake, volcanic eruption or flood event to support humanitarian agencies and local community responses and decision-making in fragile contexts?
- How can multi-hazard, cascading and compounding impact approaches enhance country-specific preparedness for natural-hazard-associated risks?

Annex 3: Emerging infectious diseases

Background:

Regional and global health security threats are increasing. Outbreaks like mpox, Marburg, and Sudan Ebolavirus have all occurred in FCDO partner countries in the last year demanding rapid responses. Risks are rising due to weak public health, animal, and WASH systems, increased mobility, conflict, human encroachment and climate change. Zoonotic outbreaks in Africa have risen 63% in a decade, with global hotspots widespread from Equatorial Africa to Brazil and Southeast Asia (UNEP & ILRI, 2020). Africa CDC reported 213 public health emergencies in 2024, up from 152 in 2022 (Africa CDC, 2025). The MHRN will provide a demand-led platform for convening expertise and knowledge, to generate and synthesise evidence, and enable FCDO to support its staff and partners with up-to-date information and appropriate tools and products to support prevention, preparedness and emergency responses, taking into account gender and issues affecting marginalised groups.

The MHRN should draw on the UK government health and care research and development framework for pandemic prevention, preparedness and response. It will also be important to align with global and regional health security R&D strategy and partners, including WHO and the CORCs, Africa CDC, CEPI, ISARIC and other partners. MHRN will also develop close links with UKHSA, with which SECE is developing an MOU, and which plays a key role in gathering and sharing epidemic intelligence, reviewing research gaps and needs, and developing and evaluating new vaccines, assays and diagnostics. The network should be able to provide high-quality data analysis and modelling both in preparation for an outbreak, and in real-time, to help guide public health decision-making, particularly in resource-poor environments.

Highest priority emergencies:

The MHRN's emerging infectious diseases focal area will drive evidence generation and synthesis on the prevention, preparedness and response to outbreaks of epidemic and pandemic potential. The priority geography is Africa. Any focus on particular diseases and outbreaks will be selected in line with WHO's pathogen prioritisation approach, and in consultation with FCDO.

Minimum requirements:

The focal area will deliver activities and outputs against all MHRN objectives. Close links and meaningful engagement of LMIC experts and partners will be vital, particularly but not only in Africa. Likely priority areas for research, advice and support include approaches to early detection including potential spillover risks, integration of social and behavioural sciences, use of surveillance and genomics data and data analysis from across sectors, and strengthening approaches to prevention, readiness and emergency response in complex settings.

Minimum requirements for infectious disease analysis and modelling would include: reviewing, compiling and analysing epidemiological and clinical parameter estimates for pathogens of epidemic potential; real-time analysis of outbreak data to quantify (with associated uncertainty) key epidemiological characteristics, including reproduction numbers, the degree of pre- or asymptomatic

transmission, the role of superspreaders, calculation of case or infection fatality and hospitalisation ratios and assessment of the overall size and dynamics of an outbreak (reporting fractions, growth rates, etc); nowcasting and forecasting, including where appropriate the development and application of ensemble modelling methods; where appropriate, real-time projections and scenario analyses to assess the potential impact of different public health interventions (e.g. travel restrictions, contact tracing and isolation, treatment and vaccination programmes); as well as methods to estimate the impact of interventions in real-time; the development and upkeep of a range of open-source tools to undertake the above analyses and associated training and capacity strengthening activities to go alongside these.

It is essential that the team can demonstrate expertise in each of these areas and significant experience of developing and using these methods to guide public-health decision-making in real time. Given the need for the team to respond quickly to outbreaks, demonstrable surge capacity will be required. To aid this, a consortium (including LMIC partners) is strongly encouraged to apply for this component of the MHRN.

Example questions that the network could be asked to explore include:

- What new tools and methods are needed to support preparedness for a disease outbreak in complex contexts (e.g. low-income high density urban settlements with poor health and WASH infrastructure)?
- What is needed to improve interdisciplinary collaboration for modelling with respect to infectious disease outbreaks (e.g. economic, socio-behavioural, political, environmental and zoonotic drivers)?
- How can LMIC governments and their partners be best supported to mount a rapid and evidence-based response to an emerging disease outbreak?

Annex 4: Cascading and compounding impacts

Background:

Hazards rarely occur in isolation with other hazards often co-occurring or being triggered by an initial event. The MHRN should look at emergencies in a holistic way that considers related hazards and cascading and compounding impacts. It should conduct research to develop tools/products that assess the direct impacts of a hazard, secondary hazards that may be triggered or may transpire following the initial event, as well as the longer-term effects.

Minimum requirements:

1. **Identify secondary hazards**: Identify secondary hazards, particularly those stemming from the natural hazards and infectious diseases focal areas. Use systems thinking to model interdependencies and identify opportunities for developing new tools and products to assist the FCDO and its partners in predicting these secondary hazards. Integrate multi-source data (e.g. satellite data or social media) for early detection of secondary hazards.
2. **Forecasting**: Develop realistic multi-hazard scenarios to simulate and test cascading impacts of different hazard types.
3. **Predict interrelated impacts**: Combine geospatial, environmental, social, and economic data to assess likely impacts of hazards in an affected location. Use rapid research, modelling and analysis to produce expert assessment and modelling for the cascading and compounding impacts of hazards including (but not necessarily limited to):
    a. Population health (including mortality, morbidity, and nutrition)
    b. Natural environment
    c. Built environment
    d. Economy
    e. Society and culture

Annex 5: People-centred approaches, including social and behavioural sciences

Background:

Understanding the needs of people and communities affected by an emergency or crisis and how they might respond, is critical in mitigating risk to populations and reducing the impact of crises, particularly on vulnerable groups and those most at risk.

Social and behavioural science (SBS) research and expertise has been identified as a key component.The MHRN therefore requires capabilities to understand and produce evidence on the societal and behavioural impacts of any hazard and potential response actions, particularly those identified as the highest priorities.

The MHRN should embed social and behavioural sciences across all areas of its work, particularly ensuring integration with each of the focal areas, with particular emphasis on understanding human, social and economic risk factors and impact of hazards and emergencies, and enabling an ethically informed, people-centred approach to decision-making, planning, design, implementation and review. SBS must be coordinated and networked across all components of the MHRN.

Minimum requirements:

1. **Applied, evidence-based analysis and practical advice:** bringing social and behavioural science expertise and evidence together to inform responses with a deep understanding of people and decision makers in context.
2. **Integration of social and behavioural science into support given to communities:** integrating SBS into advice given to the FCDO, influencing FCDO staff and on-the-ground partners to ensure interventions are contextually appropriate, trusted and responsive to the needs of affected communities.
3. **Innovative advances in practice:** using collaborative processes and experimentation to develop and test interventions, new approaches and technologies (including AI and behavioural data science), that help decision makers and communities to address challenges.
4. **Real time social and behavioural science evidence, research and learning:** identifying and filling evidence gaps for crisis responses in new, evolving or under-researched contexts or situations, especially in LMICs and building local capabilities. Supporting active learning networks and ensuring timely availability of findings and connection to response. It will be important to build on existing networks (including the FCDO's behaviour change forum) and partnerships (for example with WHO and UK-PHRST).
5. **User-centred products and support**: Research should be designed with the ultimate needs of those affected by emergencies in mind. The MHRN should have a deep understanding of the needs of all people, communities and decision makers involved in a crisis and response. There must be clear links between research and implementation,

with connections to emergency responses in affected regions (particularly responses by British embassies, high commissions and consulates) and with global platforms (e.g. HSOT, UK-PHRST). Products and tools produced by the MHRN should have clear relevance and utility, being tailored to the needs of users from the outset.

Example questions that the network could be asked to explore include:

- How can social and behavioural sciences be meaningfully and usefully embedded from the outset of an emergency response to inform intervention design and decision making?
- How can behavioural science enhance tools, interventions and information approaches during an emergency response? How can they integrate with other areas of expertise and approaches to aid more effective and timely decision-making and responses?
- How can behavioural science help decision-makers anticipate and identify unintended consequences, or indirect impacts, of policy interventions in crises and mitigate these to reduce impact?
- What social and behavioural science approaches can be developed to assist policy-makers in identifying the most appropriate and cost-effective interventions in areas with high risk of hazards?