COSTA RICA PROJECT BRIEF

The Global Risk Modelling Alliance (GRMA) is a public-private partnership initiated by the V20 Group and the Insurance Development Forum (IDF), hosted by the InsuResilience Solutions Fund (ISF).

Costa Rica faces increasing exposure to climate and disaster risks, particularly from floods, droughts, and landslides. Climate change is intensifying these hazards, creating mounting challenges for key sectors such as infrastructure, agriculture, and tourism. Managing these risks effectively requires localised, transparent, and data-driven analytics to inform resilient planning and unlock financial solutions that support long-term adaptation and risk reduction.

GRMA helps countries improve access to high-quality, granular risk data and supports the development of locally adjusted models for priority hazards. At the core of its work is capability development: empowering local experts to generate and apply risk analytics that drive smarter public and private investment. In Costa Rica, GRMA is working with national stakeholders to strengthen its defences against climate hazards through comprehensive risk assessments and data-driven strategies.

Scope of Request for Support

Hazards
Flood, Earthquake, Drought, Volcanic, Landslides

Sector
Infrastructure, Agriculture, Tourism

Geographic Extent
Nationwide, Heredia Canton

Gap Assessment

National stakeholders have highlighted key opportunities for improvement in:

- Data and Modelling: Potential to have centralised, open-access data and develop localised models
- Capacity Development: Enhance training programmes and provide sustained technical support
- Risk Governance: Create cohesive strategies, improve coordination and increase insurance uptake

Expected Results

- 50+ national experts gained experience in hazard modelling and risk analytics
- Open-access risk data and maps for hazards and regions mentioned above
- Custom risk models and assessments available for the infrastructure, agriculture, and tourism
- Sustainability measures, including replicable methodologies and training materials
- Actionable insights integrated into national development and financial planning

Timeline

- **Initial Country Engagement - GRMA** Jun '23
- **Start of GRMA Project Setup** Mar '24
- **Implementation Kick-off with Consultant** Jan '25
- **Final Project Day** Apr '26

Capability Development

The initiative integrates hands-on training experience for national experts across government, academia, and technical institutions in using open-source risk modelling platforms to build longterm national capacity for producing, interpreting, and using risk data, ensuring local ownership and sustainability. In Costa Rica, the focus is on using **CAPRA-Robot** platform - a modular, open-source tool for probabilistic risk assessment across multiple hazards and sectors.

Strategic Project

- **Critical Infrastructure Risk Assessment –** Demonstrating risk estimation for several types of infrastructure for multiple hazards affecting the canton of Heredia

Operational Projects

- **Road Infrastructure Risk Estimation –** Risk analysis for National Route No. 2 (Pan-American Highway South), including probabilistic flood modelling and evaluation of earthquake, landslide, and volcanic hazards.
- **Agricultural Risk to MSMEs –** Quantitative flood and drought loss estimation for key products (coffee, sugar cane, livestock), to inform design of risk transfer mechanisms.
- **Tourism Sector Risk Assessment –** Exposure and flood risk analysis for MSME hotels and hostels, incorporating future climate scenarios to support financial resilience strategies.

National Partner

SUGESE, Costa Rica's insurance regulator

Expert Risk Consultants

INGENIAR, Latin American risk modelling firm and developer of CAPRA-Robot.

CIMNE, Spanish research institute specialising in computational analysis.

Global Shield Country

GRMA acts as a key technical resource for the Global Shield in identifying country-specific needs and options of interventions and instruments to address the financial protection gaps in Costa Rica.

GRMA Grant Funding

EUR 1.6 million *(15 months implementation)*

Expected Impacts

1. Empowering Local Action
By building national capacity and providing tailored risk analytics, the project enables the Escuela de Ingeniería del Lanamme to independently assess the risks facing the national road network. The institution can identify which roads are most at risk and estimate potential costs, thereby supporting evidence-based planning and investment decisions.

2. Unlocking Resilience Finance
High-resolution, transparent risk models provide the foundation for MSME hotels and hostels to make informed investment decisions and to access financial instruments that support recovery and strengthen long-term resilience.

3. Turning Data into Action
With improved tools and technical expertise, the Heredia Municipality is able to integrate risk insights into local policies - enhancing preparedness, prioritizing support for vulnerable areas, and advancing resilience across the canton.