

## Terms of Reference

### Strengthening Disaster Resilience and Risk Mitigation through Ecosystem-based Planning and Adaptation (E4DR)

#### Climate Risk Insurance Advisor (Actuary assigned to PCIC) Band 4

#### 1. Project Description

Mangrove forests offer multiple benefits such as stabilize the coastline, protect water quality, reduce coastal flooding, provide habitat for fish, protect wildlife species, and protect young fish from predators and serves as nesting area. The Philippines holds at least 50% mangrove species of the world's approximately 65 species. However, due to anthropogenic activities as well as natural disturbances, the country continues to lose its rich biodiversity resources including mangroves<sup>1</sup>. Factoring the benefits of mangroves into risk underwriting, insurance products and commercial strategies, re/insurers can meet a growing need from companies and governments to invest in greener infrastructure for a resilient future.

With funding from the German Federal Ministry for the Environment, Climate Action, Nature Conservation and Nuclear Safety (BMUKN) through the International Climate Initiative (IKI), GIZ Philippines is implementing the project, Strengthening Disaster Resilience and Risk Mitigation through Ecosystem-based Planning and Adaptation (E4DR). The project is currently conceptualizing a mangrove insurance product against typhoon hazards and climate risks. The mangrove insurance product development is jointly implemented by GIZ and the Philippine Crop Insurance Corporation (PCIC).

PCIC, under the Department of Agriculture, is implementing multiple initiatives to modernize and expand agricultural insurance coverage, including the development of parametric, hybrid, and area-yield index-based products. The Business Development and Marketing Department (BDMD) serves as PCIC's technical arm for product development, pricing, feasibility research, and market expansion strategies. To strengthen its analytical and operational capacity, GIZ will engage for the PCIC-BDMD a Climate Risk Insurance Advisor (Actuary) to support actuarial modeling, product design, and risk analysis for mangrove insurance targeting local government units (LGUs), marine protected areas (MPAs), farmers and fisherfolk.

#### 2. Main Role

The Climate Risk Insurance Advisor (Actuary) assigned to the Philippine Crop Insurance Corporation provides technical, analytical, and administrative support to the PCIC Business Development and Marketing Department in:

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<sup>1</sup> Kristine B. Garcia, Pastor L. Malabriga, Jr. and Dixon T. Gevaña, 2013. Philippines' Mangrove Ecosystem: Status, Threats and Conservation.

- a) Developing and refining actuarial and statistical models for nature-based insurance products, e.g. mangrove insurance;
- b) Supporting the pricing, loss ratio, and risk-layering analysis of nature-based insurance products, e.g. mangrove insurance;
- c) Assisting in coordination and project management activities between PCIC and GIZ; and
- d) Providing general administrative and technical assistance to ensure smooth implementation of the Corporation's commitment to the PCIC-GIZ MOA.

### 3. Functions/Duties

Under the guidance of the BDMD Manager, the Climate Risk Insurance Advisor (Actuary) shall undertake the following tasks:

- a. Actuarial and Statistical Modelling
  - i. Assist in developing pricing models for nature-based insurance products using historical yield, weather, and claims data.
  - ii. Conduct burn-rate and loss-cost analyses to estimate expected losses and premium adequacy.
  - iii. Support Monte Carlo or stochastic simulation studies to test sensitivity of triggers and attachment levels.
- b. Data Management and Analysis
  - i. Consolidate and clean datasets from multiple sources (e.g., PCIC regional offices, PAGASA, ERA5, etc.).
  - ii. Perform exploratory data analysis to identify loss patterns and correlations between weather parameters and yield performance.
- c. Product Development Support
  - i. Support the design and actuarial validation of nature-based insurance products being developed by PCIC and GIZ.
  - ii. Assist in preparing technical annexes and actuarial justifications for Board approvals and reinsurance submissions.
- d. Documentation and Reporting
  - i. Prepare actuarial summaries, technical briefs, and internal reports for management and partner institution (e.g. GIZ)
  - ii. Maintain a repository of actuarial parameters, datasets, and computational scripts.
- e. Capacity Building
  - i. Assist in organizing training or knowledge-sharing sessions for PCIC staff on basic actuarial and statistical methods.
  - ii. Contribute to the preparation of templates and documentation manuals for actuarial work.
- f. Business Development and Partnership Support
  - i. Support coordination with external institutions and development partners
- g. Administrative and Technical Support
  - i. Perform other tasks that may be assigned from time to time, including administrative functions, report preparation, documentation, meeting support, and other forms of technical assistance to the BDMD Manager.

#### 4. Competency Requirements

- a) Expertise in the fields of applied mathematics/actuarial science
- b) Excellent oral and written communication skills in English and Filipino; ability to speak and understand Waray-waray and/or Bisaya is an advantage
- c) Ability to relate with people of diverse cultures and at all levels of a hierarchical organization and cooperate with colleagues
- d) Ability to transmit knowledge in a user-oriented way
- e) Results and performance-oriented
- f) Digital communication software skills, including MS Teams, Outlook, and other similar software
- g) Integrity, accountability, and authenticity

#### 5. Professional Qualifications

- a) Bachelor's degree in Applied Mathematics major in Actuarial Science;
- b) Background or exposure to insurance, risk management, or financial modeling is a must;
- c) Familiarity with statistical or programming tools (e.g., R, Python, Stata, Excel VBA);
- d) Strong analytical, organizational, and writing skills; and
- e) Ability to multitask and work in a multidisciplinary environment with minimal supervision.

#### 6. Duration of Engagement

The Climate Risk Insurance Advisor (Actuary) will be hired and compensated under the system and procedures of GIZ Philippines. He/she will be engaged for twelve (12) months, from earliest possible date to December 31, 2026, with a possibility for extension.

#### 7. Reporting Relationships/Duty Station

**For content and technical topics purposes:** the Climate Risk Insurance Advisor (Actuary) will be guided by the Manager of Business Development and Marketing Department (BDMD) at PCIC, and coordinate closely with other PCIC technical staff involved in product development, data analytics, and reinsurance operations. All outputs and deliverables shall be submitted in electronic and hard-copy form to BDMD and will be subject to management review and approval before submission to GIZ.

**For disciplinary and administrative purposes:** the Climate Risk Insurance Advisor (Actuary) will directly report to the Principal Advisor of the GIZ E4DR project who holds office at the DEPDev Regional Office VIII in Palo, Leyte. Coordination with the GIZ Office Manila in Makati on Human Relations (HR) and other matters may be required.

**Duty station** is in the PCIC Head Office, 7<sup>th</sup> Floor, Building A, NIA Complex, EDSA, Diliman, Quezon City. Domestic travel to pilot sites in Region VIII and other relevant areas in the Philippines may be required.