



TERMS OF REFERENCE

**DEVELOPMENT OF A DISASTER IMPACT-BASED FORECASTING MODEL FOR INCLUSIVE
ANTICIPATORY ACTION**

Towards Greater Impact for Anticipatory Action Approaches

PHILIPPINES

1. General Information

1.1 Humanité & Inclusion (HI) – Handicap International scope of action

HI is an independent and impartial international organization, working in situations of poverty and exclusion, conflict and disaster. Working alongside people with disabilities and vulnerable populations, HI acts and speaks out to meet their essential needs, improve their living conditions and promote respect for their dignity and fundamental rights in around fifty countries in emergency and development contexts.

The Handicap International network comprises a Federation, created in 2009, and eight national member associations: the French association, which founded the network in 1982 and is recognized as a public utility, and the associations that have gradually been set up in Belgium (1986), Switzerland (1996), Luxembourg (1997), Germany (1998), the United Kingdom (1999), Canada (2003) and the United States (2006). In 2014, a Handicap International Foundation was created. It provides a forum for reflection on the ethical and political issues facing the federal network. As such, it is invested by the Federation in defining the ethical framework that underpins the action of its various entities.

1.2. The mission in the Philippines

Humanity & Inclusion (HI) in the Philippines has been operational since 1985 and is one of the country's key organizations in the disability sector. The operational strategy for the Philippines from 2020 to 2023 is to foster meaningful participation of people at risk of exclusion towards the improvement of their safety, resilience, and quality of life and will focus on the following frameworks:

- Employment & Livelihood Support- vulnerable peoples' access to sustainable and resilient livelihoods;
- Protection & Risk Reduction -save lives, reduce risks, and boost the resilience of vulnerable people and communities;
- Health & Prevention -Promote the health and well-being of vulnerable people of all ages and prevent disabilities.

2. Context of the study

2.1 Project presentation

Individuals are endowed with characteristics such as disability, gender, age, ethnicity, etc., which play a important role in determining vulnerability, needs, strategies and capacities to face disaster. People facing intersectional exclusion factors are particularly vulnerable.

Early action refers to measures taken ahead of an anticipated crisis to prevent or limit potential damage before the shock occurs. Measures are taken based on forecasts of how the event will unfold. While this approach represents an innovative opportunity to prevent risks and limit the impact of a disaster, consideration of specific needs is still limited in risk planning and management.

Early action is an innovative approach to prevent risks, taking measures based on weather forecasts or impact predictions. A growing network of practitioners is implementing this

approach, bringing about a transformation in the humanitarian system, from reactivity to proactivity. However, challenges remain in achieving more qualitative and inclusive early action models.

In this context, Humanité & Inclusion (HI) has been implementing the 3-year (January 01, 2022 - December 31, 2024) project entitled: Towards greater impact of anticipatory action (I2A), in the Philippines, Madagascar and Haiti, funded by the German Federal Foreign Office (GFFO) and Aktion Deutschland Hilft (ADH).

In Philippines, I2A Project is currently being implemented in the municipalities of Tiwi, Albay BICOL region, covering 5 Villages/Barangay, and Mother Kabuntalan in Maguindanao, BARMM region covering 5 Villages/Barangay. The project will positively impact vulnerable populations at risk of disaster by addressing gaps and scaling up good practices for inclusive, people-centered anticipatory action approaches in Bicol and BARMM region in the Philippines.

The project's objectives are to

- **General objective:** Contribute to strengthen resilience of vulnerable populations the most at risk through improved evidence and pilot projects on forecast-based early action, with a focus on addressing gaps and strengthening good practices for anticipatory, inclusive and people-centered approaches.
- **Specific objective:** Strengthen the positive impact for vulnerable populations most at risk through better evidence and pilot projects on forecast-based early action, with a focus on correcting gaps and strengthening good practices for anticipatory, inclusive and people-centered approaches.

In order to achieve its objectives, the project has set itself 3 outcomes:

- **Outcome 1:** Fundamental studies and mapping exercises are produced and disseminated to generate evidence of inclusion in current early action models and related gaps, and to inform the future development of early action protocols ;
- **Outcome 2:** Early action protocols are developed and tested by HI, with a focus on improving inclusion outcomes and tailored support ;
- **Outcome 3:** Capacity-building, knowledge development and technical assistance activities are carried out to foster local and global adoption of good inclusion practices within the early action community of practice.

2.2 Study rationale

As part of Outcome 1, Humanity & Inclusion is issuing a request for external consultation to **develop an inclusive forecast-based anticipation model that will form the basis for the development of early action protocols for cyclone hazard and floods as a derived risks.**

The aim of this study is to better anticipate and prevent cyclone-related risks in order to limit damage to populations in targeted regions, with specific considerations for the most vulnerable populations.

This will involve determining the sources of information needed and accessible for model development, defining differentiated impact scenarios for vulnerable populations, defining relevant trigger thresholds, identifying key partners, and pre-identifying key early measures

specific to the needs of vulnerable populations. The results of the model will enable Humanité & Inclusion to define inclusive early action protocols.

3. Objectives

3.1 Overall objective

The overall objective of this study is to **develop an impact-based forecasting models for cyclone and cyclone-related floods for BICOL and BARMM regions**, in order to identify inclusive early actions and support decision-making to limit damages on populations.

3.2 Specific objectives

This general objective is broken down into the following specific objectives:

- Determine the framework and limits of model development in the target areas,
- **Take stock of existing anticipatory models** in the area, understand their strengths, gaps and weaknesses,
- Identify the key players to involve in defining, implementing and monitoring the model,
- Carry out a risk analysis for cyclones and related floods, taking into account climate trends and forecasts in the target zones,
- Define impact scenarios differentiated by gender, age and disability,
- Build **risks index** based on exposure, vulnerability and capacity needs, enabling to prioritize areas for intervention and early action,
- Process and model the data to determine the anticipation model to be used, with critical **thresholds and trigger indicators** for the deployment of adapted and differentiated early actions,
- **Test the model** based on analysis of past shocks and their historical impact.
- Identify operational recommendations for model monitoring and decision-making.
- Draw up realistic and operational recommendations for implementing an early action protocol, with model and propose key early actions.

Note:

- It will be important to coordinate with key players to find synergies with existing models (i.e. Start Network, FOREWARN). The developed model can be based on existing methodology and models in the country but should be contextualized to the targeted regions.
- Stakeholders participation (local authorities, civil society representatives, National Risk Management Office, experts, representatives of disability organizations, etc.) is strongly encouraged for consultation and validation of key steps.
- The model will be presented to the national working group on Early Action.

4. Methodology

The consultancy comprises three components, broken down by stage below:

Component 1: Pre-requisite steps for model definition and strengthening

This component establishes the prerequisite steps for designing an anticipatory model, determining the framework and understanding the limitations.

- Take stock of existing forecasts monitoring and anticipatory models, and more specifically analyze the strengths and weaknesses of those related to cyclones and cyclone-related floods (reliability, relevance, robustness, efficiency); **It is possible to adapt and strengthen existing models if relevant** ;
- Identify the sources of weather forecasts and hydrometeorological data available at national and local level, both seasonal and short-term, specifying frequency of distribution, margin of error, composite variables (amount of precipitation over a given period, maximum wind speed, trajectory, category, etc.),
- Analyze monitoring and warning capacities at national, regional and community levels,
- Identify the key players to be involved in producing, implementing and monitoring the cyclone anticipation model,
- Define the limitations of the model's construction and the operational recommendations to be implemented.

Component 2: Risk analysis and mapping

This component aims to collect, review and calibrate data/data layers on cyclone hazards and their derived risks, exposure and vulnerabilities of populations and key resources, in order to develop, calibrate and operate a model for real-time cyclone impact forecasting.

- List, analyze and map the risks for cyclones and cyclone-related floods, based on a triangulation of the following data:
 - historical data on cyclone impacts in terms of their characteristics (intensity, trajectory, etc.) and effects - floods, storms, landslides - over the last 20 years (2002-2023) for the regions targeted to establish correlation links,
 - forecasts of climate trends up to 2050 that could influence exposure to cyclone risk and its effects on target areas,
 - sources of metrological forecasts available for the identified region, their reliability and frequency, data availability,
 - specific vulnerability factors in the target areas according to identity (age, gender, disability, ethnicity, minorities) and socio-economic characteristics, based on geo-referencing of demographic data, socio-economic indicators, topography, location of key infrastructures and resources.
- Build risks index to identify the most sensitive and priority areas,
- Define impact scenarios differentiated by gender, age and disability status. Sources of information : historical data (secondary review), Vulnerability and Capacity Assessment results shared by Humanity & Inclusion, and additional interviews. For each scenario, map the damages and identify the number of people affected, disaggregated by gender and age group.

Component 3: Process data and develop an anticipation model based on forecasts and impacts

- Prepare and process data (cleaning, normalization),
- Evaluate the various modeling approaches and forecasting sources available, to conclude which forecasting system is the most appropriate and feasible.

- Develop the anticipation model based on forecasts and impacts, presenting a detailed argumentation for the choices made and outlining the data sources used, the critical thresholds as well as one or two trigger indicators, the return period, etc.
- **Test** the model using simulations of past events, in order to identify the quality and accuracy of the predictions made by the model, define the margin of error, the false alarm rate, the "return period" of the trigger, and the lead time.
- Propose specific early actions (based on analyzed historical impacts and mitigation potential of activities) and achievable lead times.

6. Deliverables

- A kick-off meeting with stakeholders: presentation of the methodology, action plan, etc.
- Induction report
- Intermediate report with inventory of existing models, inventory of existing forecasting data sources, risk analysis and mapping, risk index methodology, proposed model development methodology
- Final report with :
 - (i) Presentation of the anticipatory model in the form of a repository based on trigger indicators and modeled data from reliable sources, explanation of the methodology and choice of indicators, choice of forecasting sources to be used, testing protocol and results, conclusions.
 - (ii) Operational guidelines and recommendations on the implementation of an early action protocol based on the chosen model, and the monitoring mechanisms to be implemented for its follow-up.
 - (iii) Early action proposals
 - (iv) All appendixes: interviews questionnaires, list of interviewed people, inventory of data collected and processed, and any other relevant references.
- Meeting to present the model to the Early Action technical working group.
- Executive summary and presentation material.

6. Principles & values

6.1 Protection and anti-corruption policy

All service providers are aware of HI's corporate policies and adhere to them: Code of Conduct, Protection of Beneficiaries from Sexual Exploitation, Abuse and Harassment, Child Protection Policy, Anti-Fraud and Anti-Corruption Policy. Service providers have implemented procedures to ensure an appropriate response to "Safeguarding" incidents.

<u>Code of conduct</u>	<u>Protecting beneficiaries from sexual exploitation, abuse and harassment</u>	<u>Child protection policy</u>	<u>Anti-fraud, bribery and corruption policy</u>
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6.2 Ethical measures

HI undertakes to ensure compliance with certain ethical measures. These measures must be taken into account in the technical proposal, and the consultant must ensure that these principles are respected throughout the study process, particularly during fieldwork and data collection and analysis:

- Guarantee the safety of participants, partners and teams: the technical bid must specify risk mitigation measures.
- Ensuring a person/community-centered approach: the technical proposal must propose methods adapted to the needs of the target audience (e.g. tools adapted to illiterate audiences / sign language / materials adapted to children...).
- Obtaining the free and informed consent of participants: the technical offer must specify how the evaluator will obtain the free and informed consent and/or assent of the people he is working with.
- Ensure that stakeholders and beneficiaries are involved in the study and that their views are taken into account
- Ensure the security of personal and sensitive data throughout the activity: the technical offer must propose measures for the protection of personal data.
- Plan and guarantee the use and sharing of information
- Ensure the expertise of the teams involved and the scientific validity of the activity.

*These measures may be adapted once the inception report has been completed.

7. Proposed schedule

The total duration of the consultancy should be 60 days maximum, to be refined according to the proposals. The study should start no later than October 19, 2023, with a final report due no later than January 4, 2022.

The consultant or team of consultants should propose a detailed work plan, clearly showing the different phases of the study.

8. Means

8.1 Expected expertise

This consultancy is aimed at engineering/research consultancies and/or experienced freelance consultants.

The consultant's profile must include :

- Expertise in similar studies with at least five years' experience in the disaster risk reduction, development and analysis of weather forecasting models;
- Expertise in predictive analysis and data modeling
- Experience in forecasting and projecting the evolution of current and future humanitarian crises on the basis of current and historical data.
- Mastery of methods that assess the risk and socio-economic impacts of disasters or other shocks.
- Ability to design and plan quantitative and qualitative research methods;
- Ability to manage a research and model development process;

- Good interpersonal communication skills;
- Good knowledge of disaster risk management;
- Excellent command of written and spoken English;
- Knowledge of the context of the project intervention zones;
- Knowledge of disaster management national stakeholders ;
- In case of international team, a national team member shall be part in the team

The complementary profiles of the proposed consultants will be a determining factor in the selection process.

8.2 Study budget :

The budget for this study must include :

- Fees related to the service;
- Accommodation expenses;
- Transportation costs;
- Human resources costs;
- Any interpreting requirements.

The consultant will be responsible for his/her own logistics and security in the case of face-to-face consultancy.

Please note that for the contracting stage, the selected consultant will be required to comply with all professional, tax and social obligations.

The consultant must provide all supporting documents proving the legality of his activities, as well as the appropriate insurance certificates.

9. Bid submission

Tenders must be sent no later than 29/09/2023 with the reference « I2A_Impact-based forecasting model-Philippines » to this email address : logistics@philippines.hi.org.

Any questions relating to the call for tenders should be sent to these addresses. All correspondence to this address must also include the reference « I2A_IBF_Philippines » followed by the bidder's name in the subject line.

Tender content:

The application must include the following three elements:

- **A technical proposal comprising :**
 - An explanatory note on the understanding of the terms of reference ;
 - A presentation of the methodological approach with justification and of the organization of the consultation envisaged with all the stages necessary for the development of the forecasting model;
 - In the case of remote consultancy, a detailed explanation of its mode of operation is required;
 - An indicative timetable for carrying out the consultancy activities ;
- * As a guideline, this methodological and technical proposal should not exceed 5 pages.

- **A financial proposal indicating :**

- Total amount/lump sum;

To help Humanité & Inclusion compare bids, each financial proposal should also include a detailed breakdown of the lump sum, including the consultant's fees (per diem X number of working days);

- Various operational costs (transport, communication, etc.),

In the case of an independent consultant, the application must also include :

- A curriculum vitae (training, qualifications, experience in the above-mentioned fields, list of main publications) highlighting useful information for the consultancy ;
- Professional references supported by certificates of successful completion for similar assignments;
- A letter of motivation.

In the case of a consulting firm, the application must also include:

- A presentation of the firm and publication references;
- A cover letter;
- Legal documents (Patent, NIF, Quitus, etc.);
- A curriculum vitae (training, qualifications, experience in the above-mentioned fields, list of main publications) of the consultant(s);
- Professional references supported by certificates of successful completion for similar assignments.

NB: Humanity & Inclusion is committed to promoting equal opportunities and combating all forms of discrimination. Applications from women and people with disabilities are strongly encouraged.