

## TERMS OF REFERENCE

**1. Title of the assignment:** Risk and vulnerability assessment of Climate change on Health in Indonesia**2. Background and Justification:**

Climate change has a significant impact on almost all human lives and involves many sectors, including the health sector. Anticipating the impacts of climate change on health is a priority to introduce evidence-based strategies and policies in the health sector. Also, in determining the direction of climate change adaptation policies in health in Indonesia, the health sector will need to issue specific health indicators, which are still under discussion and need to be agreed upon by stakeholders. The process of formulating adaptation strategies and policies at various levels, national, regional, and local, requires the availability of up-to-date, comprehensive data and information, including data on diseases and disease risk factors, as well as projections of the distribution of various climate-related diseases.

Since 2021, UNICEF has supported the National Institute of Health Research and Development through the Center for Public Health Efforts to conduct research to obtain appropriate strategies/models in adapting the impacts of climate change on Indonesian public health. This study has provided a compilation of data and information gathered from various national survey results (e.g., Susenas, Riskesdas, IFLS, etc.) and surveillance data, as well as climate data collected from the past ten years, ranging from 2010 to 2020. This secondary data analysis was assessing the relationship between climate patterns (e.g., rainfalls, temperature, humidity) with selected priority diseases, i.e., vector-borne and zoonosis diseases (malaria, dengue, and leptospirosis, schistosomiasis), respiratory diseases (pneumonia/acute respiratory infections, tuberculosis), water-borne diseases (diarrhea), nutritional status for under-five children and water availability, as well hygiene and sanitation. The secondary data analysis has shown that several provinces in Indonesia (e.g., West Java, East Nusa Tenggara, and Papua) are prone to increased disease burden from malaria, dengue, and diarrhea that are attributable to climate change.

To continue supporting the roadmap on Climate Change Adaptation in health, UNICEF is seeking an organization to support the risk and vulnerability assessment of climate change in the health sector that will utilize information/data gathered from the secondary data analysis conducted in 2021. The organization (or experts) is expected to support and collaborate with the Directorate of Environmental Health (Ministry of Health) and National Research and Innovation Agency (BRIN) to complete this task.

**3. Purpose of the assignment:**

The overall objective of this assignment is to support the national government (Ministry of Health, Directorate of Environmental Health) to carry out the analysis of the risk and vulnerability assessment of climate change in the health sector, focusing on the six priority areas that were outlined in the Profile Book published in December 2021.

The specific purposes of the assignment are as follows:

- a. Identify the resources/health systems/populations that are most likely to be affected by the changing climate factors
- b. Analyze susceptibility and disease risks that are sensitive to climate change, including projections of changes in climatic factors that have an impact on 1) vector-borne and zoonotic diseases (malaria, dengue), 2) water-borne diseases (diarrhea of children under five), and 3) respiratory diseases (pneumonia of children under five/acute respiratory infections) in several regions in Indonesia.

**4. Scope of Work:**

The scope of work is as follows:

- a. To conduct a literature review of data and information related to the factors that shape the risk of climate change on health in each disease group (including hazard, exposure, and vulnerability factors)
- b. To compile data (database) on the factors that shape the risk of climate change on health in each disease group (additional variables from the results of the previous study in 2021 can be adopted for the risk and vulnerability assessment)
- c. To carry out the climate risk and vulnerability assessment of disease incidence that are following the guidelines of the Minister of Environment and Forestry Regulation No. 7 of 2018 concerning Guidelines for Assessment of Vulnerabilities, Risk, and Impact of Climate Change, including:
  - i. Mapping of the spatial distribution of climate projections based on data from the Indonesian Agency for Meteorology, Climatology, and Geophysics (BMKG)
  - ii. Mapping of the spatial distribution of regional vulnerability to disease incidence (at subnational levels: regency/city).
  - iii. Mapping of the spatial distribution of vulnerability and disease risk levels that are sensitive to climate change (regency/city level)
- d. To design workshops for consultation within the Ministry of Health and other Ministries/institutions to support the accuracy of the data and information produced
- e. To conduct field surveys for data validation; locations for the field validation will be determined by the analysis results, however, potential location candidates are as follows; West Java, East Nusa Tenggara, and Papua.
- f. To develop the final report on the climate risk and vulnerability assessment of disease incidence following with the MoEF guidelines
- g. To develop the report infographics for the presentation and to provide the policy brief

**The geographical scope** of work: The core component of the assignment will be based in Jakarta and conducted in close collaboration with the MOH (Directorate of Environmental Health and researchers) at a national level. Field validation may be conducted in several regions including West Java, East Nusa Tenggara, and Papua (locations of field surveys subject to change).

## 5. Methodology:

The assessment of vulnerability and health risks as a result of climate change is directed at mapping the level of climate risk (potential impacts of climate-related hazard events) and high-risk and vulnerable areas or locations at the district/city level in Indonesia. The vulnerability and risk assessment in 2022 is a further and more comprehensive analysis of climate modeling with disease patterns and risk factors. This study also refers to data from the 2021 study.

The approach applied in the process of assessing impacts, vulnerabilities, and risks of climate change in the health sector will include desk review, workshops, field studies, and qualitative studies. The review process will refer to the Minister of Environment and Forestry Regulation No. 33/2016 concerning Guidelines for Preparation of Climate Change Adaptation Actions and Minister of Environment and Forestry Regulation No. 7/2018 concerning Guidelines for the Assessment of Vulnerability, Risks, and Impacts of Climate Change.

This assignment will be conducted using a geographic information system (GIS) approach and mathematical calculations (modeling). The preparation process will be also carried out according to the needs of the assessment:

1. Literature Review of the research/study on climate change vulnerabilities and risks, including data and information on the impact of climate change on public health in Indonesia, adopting the systematic review and critical appraisal

2. Primary data collection adopts methods such as Key Informant Interview (KII), Focus Group Discussion (FGD), workshops, field surveys to compensate for the results of the literature review and secondary data analysis in 2021
3. Hazard mapping using a disaster threat component by including climate change information gathered
4. Development of Disease occurrence map
5. Consultation and participatory workshops with relevant government stakeholders to validate the data and information gathered and to accelerate the knowledge transfer

#### 6. Timing/duration of contract:

The duration of the contract is expected to be for 7 months, from June 2022 to December 2022.

#### 7. Deliverable and payment schedule

Task	Deliverable	Deadline	Percentage Payment
1. Develop protocol and instrument (tools) for vulnerability and risk assessment	1.1. Desk review	31 July 2022	20%
	1.2. Protocol and instruments developed		
2. Compile data and conduct the risk and vulnerability assessment of climate change in the health sector, followed by the field validation survey	2.1. Data compilation (primary & secondary) and a dataset created	30 November 2022	70%
	2.2. Data analysis including: <ul style="list-style-type: none"> <li>- Analysis of historical climatic conditions and projections based on available BMKG data</li> <li>- Historical analysis and projected level of vulnerability of the region to the disease incidence</li> <li>- Historical analysis and projected level of disease risk due to climate change</li> </ul>		
	2.3. Field survey conducted for validation of data and information		
3. Develop and submit the final report and disseminate the results of the assessment	3.1. Visualization of data and report infographics developed	31 December 2022	10%
	3.2. Final report package, including the PowerPoint presentation and the policy brief		
	3.3.		

## 8. Qualifications Required:

The institution/agency must be a legal entity:

- a. At least 10 years of experience in conducting assessment and analysis in the area of environmental health or climate change. Experience in conducting assessments for climate change impacts on health is an advantage.
- b. The firm/institution should be nationally registered (in Indonesia under the prevailing law) or have permits to operate in Indonesia.
- c. The firm/institution will partner with MOH researchers in conducting the assessment and liaise with MOH focal point on the implementation.
- d. Communication skills: high level of English, including excellent writing and presentation skills, is a must.

Team members should have the following qualifications:

- International or national experts with sound experience in conducting assessments related to risk, vulnerability and climate changes
- International or national experts on environmental health or public health
- Strong proven work experience in Data Spatial analysis using GIS and Infographic Visualization
- Strong organizational skills and ability to handle multiple tasks under tight deadlines
- Excellent communications skills
- Knowledge of Indonesian contexts, particularly with the environment, climate change and, health sectors
- Excellent programme management
- Finance and operation

## 9. Evaluation Criteria:

CATEGORY	MAX POINT	MIN PASSING POINT
<b>1. ORGANIZATIONAL CAPACITY</b> <ul style="list-style-type: none"><li>• Detail of relevant experience and list of clients in the last five years, including contact details (name, email address, and phone numbers that can be used as reference)</li><li>• Financial Statement and Balance Sheet (audited preferably) for the last 3 years.</li></ul>	15	10
<b>2. QUALITY OF THE TECHNICAL PROPOSAL</b> <ul style="list-style-type: none"><li>• Proposed methodology and approach concerning objectives in TOR</li><li>• Implementation timeline: identify key tasks and timeline, focal person for each activity/deliverable should be identified.</li><li>• Anticipated project risks and mitigation measures as well as quality assurance</li></ul>	35	25
<b>3. KEY PERSONNEL</b> <ul style="list-style-type: none"><li>• Names and full CVs of the institution personnel that will be directly involved in the consultancy, including (but not limited to) the designated Team Leader/ Project Manager.</li></ul>	15	10

<ul style="list-style-type: none"> <li>Adequate and appropriate staff combination with the respective tasks and deliverables (see TOR); and relevant prior experiences of similar scope and complexity.</li> </ul>		
<b>4. TECHNICAL PRESENTATION</b> <ul style="list-style-type: none"> <li>Brief presentation of company profile and portfolio</li> <li>Demonstration of adequate technological capability and skilled personnel to deliver the specific services proposed and as defined in the scope of work and required services.</li> </ul>	10	7
<b>TOTAL TECHNICAL PROPOSAL</b> *The bidder has to meet this minimum passing point for the Technical Evaluation in order to be considered further for the Financial Evaluation	75	52
<b>PRICE/FINANCIAL PROPOSAL</b> Financial proposals should be all-inclusive, including costs for fees, travel, sub-contracts and other necessary expenses.	25	18
<b>TOTAL MARKS</b>	<b>100</b>	<b>70</b>

**Note:**

- 2 The technical evaluation criteria above can be changed to appropriately reflect requirements.**
- 3 The total weight/score of technical components should be in a range of 50 % - 80%, and the total weight/score of financial criteria in a range of 20% - 50%.**
- 4 Sum of technical and commercial must always equal 100 %**