

**Department of Local Governance & Disaster Management**  
**Royal Government of Bhutan**

**Terms of Reference**

Procurement of a consultancy firm to conduct Social Vulnerability Assessment  
(BT-DDM-347933-CS-QCBS)

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## 1 Background

The Royal Government of Bhutan received a grant of USD 4.2 Million from the World Bank for the project “Strengthening Risk Information for Disaster Resilience in Bhutan” (RIR). The objective of the project is to enhance Bhutan’s capacity for risk-informed decision-making and development planning in targeted sectors. The project has three components as follows:

- (i) Component A. Development and Piloting of a Multi-Hazard Risk Decision Support System (MHRDSS)
- (ii) Component B. Strengthening Hydromet and Agromet Services Delivery
- (iii) Component C. Professionalization of Construction Industry for Green and Resilient Infrastructure Development

This ToR is a part of the Component A.

Bhutan is particularly exposed to earthquakes, landslides, flooding, forest fires and windstorms. Geophysically, Bhutan is situated in the young Himalayan Mountains and is recognized as one of the most seismically active zones globally, positioned along the boundary between the Indian and Eurasian tectonic plates. The escalating impact of global climate change and rising temperatures in Bhutan has led to the development of supra-glacial lakes, resulting in glacial lake outburst floods (GLOFs). This phenomenon stands out as one of the most critical natural hazards confronting the country today. While Bhutan is susceptible to a diverse range of natural hazards, it is the existing vulnerabilities that transform physical exposure to hazards into tangible disaster risks. These vulnerabilities encompass inappropriate land use, substandard construction practices due to inadequate quality monitoring, inadequate enforcement of construction policies, and a limited awareness of disaster risk reduction and preparedness planning.

Therefore, Bhutan prioritises the enhancement of disaster risk management and climate resilience in its strategic economic planning and development agenda. With financial support from the World Bank, Bhutan is in the process of strengthening the information and tools available to support multi-hazard risk assessment and effective Disaster Risk Management (DRM).

The Department of Local Governance & Disaster Management (DLGDM), Ministry of Home Affairs (MoHA), is mandated to coordinate all disaster risk management activities in the country. DLGDM collaborates with other Royal Government of Bhutan (RGoB)

agencies and relevant stakeholders to manage information and coordinate activities relating to preparedness, response, recovery, and risk mitigation. Further, DLGDM is collaborating with other RGoB agencies to build capacity for assessing and communicating multi-hazard risk and social vulnerability. Under this assignment, DLGDM intends to engage an international Consultant (a firm) or consortium to provide technical assistance and capacity building to conduct a nationwide socio-economic vulnerability assessment through implementing modified sub-national INFORM Risk Index<sup>1</sup> and put in place a modality (SoP) for regular update.

## 2 Project Objectives

The objectives of this project are to:

1. Assess social, economic, and livelihoods vulnerability to multi-hazard risk at a suitable spatial scale through development of a national socioeconomic and livelihood vulnerability index. This index is to be based on the sub-national implementation of the UN INFORM Risk index, and adjusted for the Bhutanese context. It is expected that the INFORM Index will be augmented with additional field surveys (preferably with survey tools such as the kobo toolbox or ODK that will enable easy and cost-effective data collection) and risk data produced under the RIR project to achieve the necessary requirements for Bhutan and a modality (SoP) in place for update in the future.
2. Address national economic vulnerability by building capacity in key national economic sectors for effective contingency planning and preparedness based on multi-hazard risk information being generated under the RIR project. The objective is to prioritize investments to reduce risk in highly vulnerable sectors and ensure key sectors can maintain a state of readiness so that they can minimise disruption, respond efficiently to events, and recover services and infrastructure quickly.

## 3 Scope of Work

There are 2 Tasks under this assignment, each with a number of sub-tasks.

### Task 1 – Project Inception & Initial Stakeholder Engagement

- i. The Consultant is to conduct a series of meetings with stakeholder groups to prepare for the implementation. The objective is to raise awareness of the project and its objectives, but also to solicit feedback on the approach and take stock of the key agencies and their relevant activities related to this activity.
- ii. Review the existing literature and available statistics in Bhutan, identify the data gaps, and describe a methodology for addressing such gaps through this consulting services.

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<sup>1</sup> <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Subnational-risk>

- iii. Analyze socioeconomic vulnerability assessment methodologies adopted in other countries or in the literature and assess its applicability to Bhutan. These include the US Community Risk Factor, The World Risk Poll Resilience Index, US SoVI , Indonesia Disaster Risk Index , UK Neighborhood Flood Vulnerability Index , Madagascar Social Vulnerability Dynamics, and INFORM Climate Change Index.
- iv. Conduct an inception workshop to present on the approach and work programme.
- v. Develop and deliver a succinct inception report describing the confirmed approach that best meets the needs of the country, schedule, expectations of counterpart agencies, and work and resourcing plan for the project.

## Task 2 – Development of a Bhutan Socioeconomic and Livelihoods Vulnerability Index (Chiwog<sup>2</sup> and Urban zone level)

- i. Develop a methodology for Bhutan Socioeconomic and Livelihoods Vulnerability Index to be applied at the chiwog and urban zone levels. The index should be developed through adapting on the subnational implementation of the INFORM Risk Index.
- ii. The development of the socioeconomic vulnerability index for Bhutan should account for the following considerations:
  - Suitability to the Bhutanese context (what really makes a household vulnerable to disasters), as supported by either literature review, interviews, and/or focus group discussions with stakeholders.
  - Availability of data to populate the variables at appropriate level of analysis (e.g., chiwog), and consideration of feasibility of doing primary data collection (e.g., surveys). The consultant should review the latest survey (Bhutan Livings Standards Survey 2022) and 2017 Population Census to see the data gaps and needs that can be filled with a possible new survey.
  - Insights from socioeconomic vulnerability assessment in other countries or in the literature, such as the US Community Risk Factor<sup>3</sup>, The World Risk Poll Resilience Index<sup>4</sup>, US SoVI<sup>5</sup>, Indonesia Disaster Risk Index<sup>6</sup>, UK Neighborhood Flood Vulnerability Index<sup>7</sup>, Madagascar Social Vulnerability Dynamics<sup>8</sup>, and the INFORM Climate Change Index that accounts for socioeconomic and climate change scenarios<sup>9</sup>.

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<sup>2</sup> Bhutan administrative area: Dzongkhags (Level 1, there are 20) Gewogs (Level 2, there are 205, composed of 1044 Chiwogs which are group of villages); Thromde as level 1 and Demkhongs/constituencies as level 2

<sup>3</sup> <https://hazards.fema.gov/nri/determining-risk>

<sup>4</sup> [https://wrp.lrfoundation.org.uk/interactive\\_resilience\\_index/](https://wrp.lrfoundation.org.uk/interactive_resilience_index/)

<sup>5</sup> [https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI\\_documentation\\_2020.html](https://www.atsdr.cdc.gov/placeandhealth/svi/documentation/SVI_documentation_2020.html)

<sup>6</sup> <https://inarisk.bnnpb.go.id/BUKU-RBI-2022/mobile/index.html>

<sup>7</sup> <https://www.climatejust.org.uk/sites/default/files/Sayers%20at%20el%202017%20-%20NFVI%20and%20Vulnerability%20Indicators.pdf>

<sup>8</sup> <https://www.sciencedirect.com/science/article/pii/S2212420923003631>

<sup>9</sup> <https://drmkc.jrc.ec.europa.eu/inform-index/INFORM-Climate-Change>

- Repeatable and sustainable for future re-calculation by the DLGDM and/or other RGoB agencies, should updated datasets (e.g., new census data) are generated in the future.
- iii. Conducting a participatory workshop to perform conceptual validation on the Bhutan Socioeconomic and Livelihoods Vulnerability Index.
  - iv. Conduct a training workshop to DLGDM and stakeholder agencies on implementation of the socioeconomic and livelihood vulnerability assessment at the chiwog and urban zone level through the use of the Bhutan Socioeconomic and Livelihoods Vulnerability Index. It is suggested that the workshop cover the following topics:
    - Objectives
    - Methodology for index development
    - Limitations/Pitfalls and key lessons from other countries
    - Data requirements, and availability of data in existing reports / official statistics
    - Assessment to complement or augment the INFORM Risk approach
    - Field studies required
    - Updating the analysis in the future
  - v. Support DLGDM in collation of the input data required for the Bhutan Socioeconomic and Livelihoods Vulnerability Index model to produce the index for all chiwogs and urban zones defined across Bhutan.
  - vi. Co-develop with DLGDM a programme of field surveys for verification and/or update of the existing data and collection of new data for the national index with primary data collection and verification of census information in up to 5 urban areas and 10 chiwogs, with provision to scale up to national level.
  - vii. Lead development of the Bhutan Socioeconomic and Livelihoods Vulnerability Index at the chiwog and urban zone levels.
  - viii. To ensure repeatability of the analysis in the future, develop a methodology manual for conducting the socioeconomic vulnerability assessment, and calculating the Bhutan Socioeconomic and Livelihoods Vulnerability Index.
  - ix. Deliver a training of trainers (ToT) program on implementation and maintenance of the Bhutan Socioeconomic and Livelihoods Vulnerability Index and any supplementary work undertaken during this assignment to understand the socioeconomic and livelihoods vulnerability.
  - x. Co-design with DLGDM maps and dashboards for reporting the Bhutan Socioeconomic and Livelihoods Vulnerability Index on the DRM Portal, which can be adapted from the Subnational INFORM Risk Index.
  - xi. Develop and deliver an interpretative report summarising the key findings of the assessment and indicating which chiwogs and zones are most vulnerable and what

are the root causes of this vulnerability. Propose strategies for addressing the vulnerability in these priority locations.

- xii. Transfer all data sets and documents to DLGDM, where the MHRDSS/ Bhutan DRM portal is hosted.

In addition to the sub-tasks above, the consultant is expected to:

- Deliver a final project report describing the final methods used, underpinning assumptions, and recommendations for further work. This report will also include the evaluation of the contingency planning capacity building completed during this assignment.
- Collate and deliver all data, reports, and information generated under this assignment in MS Excel, PDF, MS Word, geospatial, or text formats.

#### 4 Expectations on Capacity Building & Communication

It is the expectation of DLGDM and other RGoB agencies that the Consultant will work in close collaboration with RGoB agencies and will transfer all knowledge and tools required to repeat any analysis undertaken during this assignment.

It is expected that existing tools (for instance, the DRM Portal, InaSAFE, and MS Excel) should be used to the fullest extent rather than for the Consultant to introduce another technology or platform.

#### 5 Duration of the Assignment and Delivery Schedule

Duration of the contract will be for **10 months** from contract signing, with deliverables due as specified in table below. Each deliverable will be reviewed by World Bank and government agencies and assessed for required content in line with this Terms of Reference.

#	Deliverable	Deliverable due date (from contract inception)
1	Inception Report, including project execution and resourcing plans, and the implementation plan for the Bhutan Socioeconomic and Livelihoods Vulnerability Assessment and field surveys). This report should also include the literature review findings from Bhutan relevant documents and consultation and global documents as per Task 1 (ii, iii) as well as the World Bank' Crisis Preparedness Gap Analysis.	1 month

#	Deliverable	Deliverable due date (from contract inception)
2	Presentation and endorsement of the assessment methodology including survey tools	3 months
3	Interpretative report and dashboards for the subnational assessment of socio-economic and livelihoods vulnerability.	6 months
4	Modality (Standard Operation Procedure (SoP)) for future updates of the Bhutan Socioeconomic and Livelihoods Vulnerability Index with easy-to-use survey tools that can be used for collection or verification purposes.	7 months
5	Conduct (ToT) program on implementation and maintenance of the Bhutan Socioeconomic and Livelihoods Vulnerability Index, including data collection and verification methodology and approach. This should include curriculum with both PPT and guidance notes to enable conducting the training by the TOT participants.	8 months
6	Draft Social Vulnerability Assessment Report	9 months
7	Final Social Vulnerability Assessment Report	10 months
8	Final Project Report	10 months
9	Transfer all data, reports, and information generated under this assignment in MS Excel, PDF, MS Word, geospatial, or text formats	10 months

## 6 Requirements for Key Experts and Project Personnel

### Organisational Attributes

In addition to meeting the specifications of the Key Experts, the Consultant's organisation or JV must demonstrate the following attributes:

- Deep domain knowledge of DRM and the decision-making for risk reduction.
- Understanding of multi-hazard risk assessment and risk communication.

- Proven tools and expertise for assessing institutional capacity for disaster preparedness.
- Experience in development and implementation of socio-economic and livelihoods vulnerability assessments and, preferably, implementation of the Subnational INFORM Risk framework in a similar context.
- Experience in development of effective CBDRM campaigns and programmes.
- Experience in government stakeholder engagement and implementation of effective capacity building programmes.
- Familiarity with working conditions and arrangements in Bhutan or the Indian sub-continent.

### Key Experts

The Consultant is required to propose a project team that meets the following criteria. Note that Fluency in English (written & spoken) is essential for all roles.

#	Key Expert Role	Candidate Minimum Specifications	Expected Input
1	Team Leader & Project Manager (International)	<ul style="list-style-type: none"> <li>• Over 15 years of relevant project experience.</li> <li>• Masters or PhD in disaster risk management, planning, geospatial information systems, or engineering.</li> <li>• Able to demonstrate &gt;10 years of experience in multi-hazard risk assessment utilising social vulnerability indices to inform planning and response.</li> <li>• Similar work experience in at least one country other than the country of nationality/residence</li> <li>• Expertise in institutional capacity assessments.</li> <li>• Experience in development of contingency and response plans across government &amp; economic sectors; preferably tourism, agricultural, and power sectors.</li> <li>• Demonstrable familiarity with INFORM Risk and GeoNode is preferable.</li> </ul>	8 months intermittent
2	Socio-economist (International)	<ul style="list-style-type: none"> <li>• Over 10 years of relevant project experience in assessing household and</li> </ul>	3 months

#	<i>Key Expert Role</i>	<i>Candidate Minimum Specifications</i>	<i>Expected Input</i>
		<p>community vulnerability to natural hazards in environments similar to urban and rural Bhutan.</p> <ul style="list-style-type: none"> <li>• Masters or PhD in social science, socio-economics, planning, or humanitarian disaster risk management.</li> <li>• Experience of development and implementation of socio-economic vulnerability indices.</li> <li>• Similar work experience in at least one country other than the country of nationality/residence</li> <li>• Expertise in institutional capacity assessments.</li> <li>• Demonstrable familiarity with Subnational INFORM Risk Index is preferable.</li> <li>• Experience in development of contingency and response plans across government &amp; economic sectors; preferably tourism, agricultural, and power sectors.</li> </ul>	
3	GIS Specialist (International)	<ul style="list-style-type: none"> <li>• Over 8 years of relevant project experience in geospatial analysis and risk analysis for multiple hazards.</li> <li>• A Masters or above in geospatial information systems, computer science or related subject, science, or engineering is preferable.</li> <li>• Demonstrable familiarity with GeoNode and Kobo Toolbox is a strong advantage.</li> <li>• Similar work experience in at least one country other than the country of nationality/residence</li> </ul>	2 months
5	GIS Specialist & Risk Analyst (National)	<ul style="list-style-type: none"> <li>• Over 5 years of relevant project experience in geospatial analysis and risk analysis for multiple hazards.</li> <li>• A Bachelor's Degree or above in geospatial information systems,</li> </ul>	5 months



#	Key Expert Role	Candidate Minimum Specifications	Expected Input
		computer science or related subject, science, or engineering is preferable. <ul style="list-style-type: none"> <li>• Demonstrable familiarity with GeoNode and Kobo Toolbox is a strong advantage.</li> </ul>	
6	Socio-economist & National Coordinator (National)	<ul style="list-style-type: none"> <li>• Over 10 years of relevant project experience in assessing the direct and indirect losses arising from natural hazards.</li> <li>• Masters or PhD in socio economics or economics.</li> </ul>	2 months

All members of the team must confirm their commitment and availability to conduct the assignment in person.

## 7 Field Missions

The Consultant is expected to complete at least 2 missions to Bhutan. Both missions are to involve the team leader. Other international experts must complete at least 1 field mission. The Consultant is invited to propose when in the programme these missions should occur and for which team members for maximum benefit and impact.

## 8 Presentation of Price

The Consultant is expected to present a lump sum price for completion of all tasks. Daily and weekly fee rates for each Key Expert must also be provided.

## 9 Selection Method

The contract is to be awarded on a lump sum basis.

The consultant will be selected following the World Bank's Procurement Regulations for IPF Borrowers, November 2020

## 10 Implementation Arrangements

### Consultant Responsibilities

The Consultant's Team Leader will be the principal contact and will be expected to be readily available during project implementation.

The Consultant shall be responsible for all aspects of performance of services as set forth in the components of this TOR.

The Consultant will work closely with DLGDM and will report to the DLGDM Task Team Lead. Payments to the firm will be contingent on signoff from the DLGDM Task Team Lead. The World Bank will also maintain a close oversight of the implementation and the Consultant may be expected, at times, to report on progress to the World Bank.

### Contractual Terms

The contract is to be awarded on a lump sum basis.

### Working Language

The working language for this project shall be English for communication with the DLGDM, RGoB agencies and the World Bank. All final deliverables shall be in English.

### 11 Inputs to be provided by the Department of Local Governance & Disaster Management & RGoB Agencies

DLGDM and RGoB agencies will be responsible for the following provisions:

- A focal officer for the assignment at DLGDM, who will support with formal communications. The focal officer will also liaise with the firm's national coordinator who will be responsible to coordinate and organize meetings and stakeholder workshops with relevant stakeholders.
- Data on infrastructure and communities based on availability.
- Existing models for seismic and flood hazard.
- Digital Terrain Model (DTM)
- Provision of all available prior reports and datasets relating to multi-hazard risk assessment in Bhutan.
- Access to the DRM Portal and all available reports and specifications on the DRM Portal.
- Senior level oversight and guidance.
- Official correspondences with other stakeholders for requesting data, information, and coordination purposes.