

# **REQUEST FOR PROPOSAL (RFP)**

# For conducting a study for identification of required optimum number of Hydrological and Meteorological Stations for proposed GCF funded project "Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glaciated River Basins of Nepal"

NAME & ADDRESS OF FIRM DATE: January 27, 2020

REFERENCE: UNDP/RFP/01/2020

Dear Sir / Madam:

We kindly request you to submit your Proposal for Conducting a study for identification of required optimum number of Hydrological and Meteorological Stations for proposed GCF funded project "Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glaciated River Basins of Nepal". Please be guided by the form attached hereto as Annex 2, in preparing your Proposal.

Proposals may be submitted on or before **5:00PM**, **Monday**, **February 10**, **2020** and via courier mail to the address below:

# United Nations Development Programme UNDP/RFP/01/2019 (Conducting an assessment- GCF funded project) UNDP Registry, UN House Pulchowk, Lalitpur, Nepal

Your Proposal must be expressed in the English, and valid for a minimum period of 90 days.

In the course of preparing your Proposal, it shall remain your responsibility to ensure that it reaches the address above on or before the deadline. Proposals that are received by UNDP after the deadline indicated above, for whatever reason, shall not be considered for evaluation.

Services proposed shall be reviewed and evaluated based on completeness and compliance of the Proposal and responsiveness with the requirements of the RFP and all other annexes providing details of UNDP requirements.

The Proposal that complies with all of the requirements, meets all the evaluation criteria and offers the best value for money shall be selected and awarded the contract. Any offer that does not meet the requirements shall be rejected.

Any discrepancy between the unit price and the total price shall be re-computed by UNDP, and the unit price shall prevail, and the total price shall be corrected. If the Service Provider does not accept the final price based on UNDP's re-computation and correction of errors, its Proposal will be rejected.

No price variation due to escalation, inflation, fluctuation in exchange rates, or any other market factors shall be accepted by UNDP after it has received the Proposal. At the time of Award of Contract or Purchase Order, UNDP reserves the right to vary (increase or decrease) the quantity of services and/or goods, by up to a maximum twenty-five per cent (25%) of the total offer, without any change in the unit price or other terms and conditions.

Any Contract or Purchase Order that will be issued as a result of this RFP shall be subject to the General Terms and Conditions attached hereto. The mere act of submission of a Proposal implies that the Service Provider accepts without question the General Terms and Conditions of UNDP, herein attached as Annex 3.

Please be advised that UNDP is not bound to accept any Proposal, nor award a contract or Purchase Order, nor be responsible for any costs associated with a Service Providers preparation and submission of a Proposal, regardless of the outcome or the manner of conducting the selection process.

UNDP's vendor protest procedure is intended to afford an opportunity to appeal for persons or firms not awarded a Purchase Order or Contract in a competitive procurement process. In the event that you believe you have not been fairly treated, you can find detailed information about vendor protest procedures in the following link:

# http://www.undp.org/content/undp/en/home/operations/procurement/business/protest-and-sanctions.html

UNDP encourages every prospective Service Provider to prevent and avoid conflicts of interest, by disclosing to UNDP if you, or any of your affiliates or personnel, were involved in the preparation of the requirements, design, cost estimates, and other information used in this RFP.

UNDP implements a zero tolerance on fraud and other proscribed practices, and is committed to preventing, identifying and addressing all such acts and practices against UNDP, as well as third parties involved in UNDP activities. UNDP expects its Service Providers to adhere to the UN Supplier Code of Conduct found in this link :

https://www.un.org/Depts/ptd/sites/www.un.org.Depts.ptd/files/files/attachment/page/pdf/unscc/con duct\_english.pdf

Thank you and we look forward to receiving your Proposal.

Sincerely yours,

Wea ( Niraj Skrestha Assistant Resident Representative (Operations) 1/27/2020

# **Description of Requirements**

Context of the Requirement	<ul> <li>The main objective of this assignment is to identify the optimum number of Hydrological and meteorological stations (agriculture, climate, civil aviation etc) considering the following points;</li> <li>Required number of stations (hydrological, meteorological, climate, agromet, civil aviation etc) that DHM wants to operate/manage during GCF Project and beyond in three basins;</li> <li>Locations (GIS map based) to install / operate such stations – particularly Mountain/ High Hill/ Hills and some in downstream of the proposed glacial lakes (watershed coverage areas);</li> <li>No. of parameters to be measured in each station;</li> <li>Technical specifications of each station that meets WMO or other standards compatible with existing DHM system;</li> <li>Tentative costs of the procurement, delivery and installations of those stations;</li> <li>Cost of establishment of EWS for last mile connectivity (Gandaki and Koshi basin- in the specific watersheds- in Four glaciated river basins;</li> <li>Investment plan for Institutional settings and requirement of capacity building at all levels for smooth function of the system sustainably- during and post project scenarios;</li> <li>DHM's plan for annual maintainance, repairment and monitoring costs during the project (co-financing) and after the project as a regular national budgeting.</li> </ul> The study will also identify the possibility of establishment of Early Warning System for last mile connectivity for the most vulnerable communities in the downsteam of Hongu 2, Lumding tsho, Lower Barun and Thulagi Glacial Lakes. It is to be ensured that there is equal, meaningful and logical participation of local government, and NGOS/CSOs, private sectors and their organizations/networks during the implementation of the proposed system.
Implementing	
Partner of UNDP	Not Applicable
Brief Description	
of the Required Services	As mentioned in the ToR
List and	i) Inception report - 2 copies
Description of	ii) Draft report - 2 copies
	iii) Final report - 2 copies

Expected Outputs	iv) GIS based map and layers of the optimum network for station types.					
to be Delivered	The final autoute of the assignment include:					
	<ul> <li>Incention Report with detailed timelines and the methodologies:</li> </ul>					
	<ul> <li>Raw data and Analysis of the data of the survey done during the consultation</li> </ul>					
	<ul> <li>Raw data and Analysis of the data of the survey done during the consultation and field survey.</li> </ul>					
	and field survey;					
	<ul> <li>Consultation workshop to review and present key findings and recommendations</li> </ul>					
	<ul> <li>For timely submission of the above deliverables with the highest quality, the consulting firm are expected to;</li> <li>Consult wth experts involved in preparation of different studies, including, but not limited to, Environment and Social Safeguards (ESS), Lake Lowering Design, Downstream mitigation works, baseline studies etc,</li> <li>Liaise with the Team Leader, EES and Financial Appraisal Expert to provide relevant inputs to the main funding proposal, as required</li> <li>Consider Gender equality and social inclusion at all levels;</li> <li>Validate in the consultations with adequate documents;</li> <li>Develop criteria and guidelines for the identification of the required numbers of hydro-met stations and selection of location,</li> <li>Document all relevant information related to consultations with communities and submit as annex to the main report with attendees' signature;</li> <li>Share the questionnaires/ guiding questions with the Funding Proposal Team Leader and UNDP prior to conducting survey.</li> </ul>					
Person to Supervise the Work/Performanc e of the Service	Advisor – Resilience and Environment Pillar in close coordination with the Senior Project Officer – Integrated Climate Risk Management through Portfolio Manager, Resilience and Environment Pillar, UNDP Country Office, Nepal.					
Provider						
Frequency of Reporting	As needed and mentioned in the ToR					
Progress Reporting Requirements	As needed and mentioned in the ToR					
Location of work	☑ At Contractor's Location					
Expected duration of work	Three months					
Target start date	20 February 2020					
Latest completion date	31 May 2020					
Travels Expected	Yes					

Special Security	
Requirements	
Facilities to be Provided by UNDP (i.e., must be excluded from Price Proposal)	
Implementation Schedule	
indicating	□ Not Required
breakdown and	
activities/sub-	
activities	
Names and curriculum vitae of	
individuals who	□ Not Required
will be involved in completing the	
services	
Currency of	
Proposal	
	⊠ Local Currency Nepalese Rupees
Value Added Tax	☐ must be inclusive of VAT and other applicable indirect taxes
Validity Period of	🗆 60 days
Proposals (Counting for the	$\boxtimes$ 90 days
last day of	
submission of quotes)	In exceptional circumstances, UNDP may request the Proposer to extend the validity of the Proposal beyond what has been initially indicated in this RFP. The Proposal shall then confirm the extension in writing, without any modification whatsoever on the Proposal.
Partial Quotes	⊠ Not permitted

Payment Terms	Outputs	Percentage	Timing	Condition for	
	Submission and finalization of the Inception Report with detailed work plan and methodology	30%	28 February 2020	Payment Release Within thirty (30) days from the date of meeting the following conditions:	
	Upon submission of the <b>Draft</b> Report, including with annexes	50%	28 March 2020	acceptance (i.e., not mere	
	Upon submission of the final report incorporating inputs from UNDP and GCF Project Formulation Advisory Committee that fits the requirement for GCF Full Funding Proposal	20%	15 May 2020	<ul> <li>quality of the quality of the outputs; and</li> <li>b) Receipt of invoice from the Service Provider.</li> </ul>	
Person(s) to review/inspect/ approve outputs/complete d services and authorize the disbursement of payment	Advisor – Resilience and Environment Pillar in close coordination with the Senior Project Officer – Integrated Climate Risk Management through Portfolio Manager, Resilience and Environment Pillar, UNDP Country Office, Nepal.				
Type of Contract to be Signed	⊠ Purchase Order ⊠ Institutional Contract				
Criteria for Contract Award	<ul> <li>☑ Highest Combined Score (based on the 70% technical offer and 30% price weight distribution)</li> <li>☑ Full acceptance of the UNDP Contract General Terms and Conditions (GTC).</li> </ul>				
Criteria for the Assessment of Proposal	Technical Proposal (70%) ⊠ Expertise of the Firm [250]				

	<ul> <li>Methodology, Its Appropriateness to the Condition and Timeliness of the Implementation Plan [250]</li> <li>Management Structure and Qualification of Key Personnel [500]</li> <li>Financial Proposal (30%)</li> </ul>
	To be computed as a ratio of the Proposal's offer to the lowest price among the proposals received by UNDP.
UNDP will award the contract to:	☑ One and only one Service Provider
Contract General Terms and Conditions <sup>1</sup>	⊠ General Terms and Conditions for contracts (goods and/or services)
	Applicable Terms and Conditions are available at: <u>http://www.undp.org/content/undp/en/home/procurement/business/ho</u> <u>w-we-buy.html</u>
Annexes to this RFP	<ul> <li>Form for Submission of Proposal (Annex 2)</li> <li>General Terms and Conditions (Annex 3)</li> <li>Detailed TOR (Annex 4)</li> </ul>
Contact Person for Inquiries (Written inquiries	UNDP Nepal Procurement Unit query.procurement.np@undp.org
only) <sup>2</sup>	Written inquiries must be submitted mentioning RFP Ref: UNDP/RFP/01/2020, on or before 5:00PM, 5 <sup>th</sup> February 2020. UNDP shall respond to the inquiries by posting queries and responses in UNDP Website: <u>http://np.undp.org/content/nepal/en/home/procurement.html</u> . Inquiries received after the above date and time shall not be entertained.
	Any delay in UNDP's response shall be not used as a reason for extending the deadline for submission, unless UNDP determines that such an extension is necessary and communicates a new deadline to the Proposers.

<sup>&</sup>lt;sup>1</sup> Service Providers are alerted that non-acceptance of the terms of the General Terms and Conditions (GTC) may be

grounds for disqualification from this procurement process. <sup>2</sup> This contact person and address is officially designated by UNDP. If inquiries are sent to other person/s or address/es, even if they are UNDP staff, UNDP shall have no obligation to respond nor can UNDP confirm that the query was received.

Other Information [pls. specify]	The Financial evaluation will be carried out only for the technically qualified submission that pass the minimum technical score of 70% (770 points) of the obtainable score of 1100 points in the evaluation of the technical proposals.		
	The Financial Proposal and the Technical Proposal Envelopes <u>MUST BE</u> <u>COMPLETELY SEPARATE</u> and <u>each of them must be submitted sealed</u> <u>individually</u> and clearly marked on the outside and as either "TECHNICAL PROPOSAL" or "FINANCIAL PROPOSAL", as appropriate. Each envelope MUST clearly indicate the name of the Proposer. Failing to submit the Technical and Financial Proposals in separately sealed envelopes will be treated as non- responsive.		

# Proposed Technical Evaluation Criteria:

I. Expertise of firm / organisation submitting proposal	
1.1 Reputation of Organisation and Staff (Competence / Reliability)	
	25
1.2 Litigation and Arbitration history	
	15
1.3 General Organisational Capability which is likely to affect implementation (i.e.	
loose consortium, holding company or one firm, size of the firm / organisation,	
strength of project management support e.g. project mancing capacity and project	
	35
1.4 Extent to which any work would be subcontracted (subcontracting carries	
additional risks which may affect project implementation, but properly done it offers	
a chance to access specialised skills.	10
1.5 Quality assurance procedures, warranty	
	15
Sub total (1.1 to 1.5)	100
1.6 Relevance of:	
- Specialised Knowledge	30
- Experience on Similar Programme / Projects	
	70
- Experience on Projects in the Region	
	25
<ul> <li>Work for UNDP/ major multilateral/ or bilateral programmes</li> </ul>	
	25
Sub Total for 1.6	150
Total for Expertise of firm / organisation submitting proposal (I)	250

II. Proposed Work Plan and Approach	
2.1 To what degree does the Offeror understand the task?	
	15
2.2 Have the important aspects of the task been addressed in sufficient detail?	
	25
2.3 Are the different components of the project adequately weighted relative to one	
another?	25
2.4 Is there evidence that the proposal been prepared based on an in-depth	
understanding and prior knowledge of the project environment?	
2. E. la the sensential framework edepted environists for the test?	35
2.5 Is the conceptual framework adopted appropriate for the task?	50
2.6 Is the scope of task well defined and does it correspond to the TOR?	
2.7 In the presentation clear and is the sequence of activities and the planning laries	/5
2.7 Is the presentation clear and is the sequence of activities and the planning logical,	
realistic and promise encient implementation to the project:	25
Total for Proposed Work Plan and Approach (II)	
	250
III. Personnel	
3.1 Team leader / Meteorologist	
PhD degree Meteorology and or Water Resources Engineering	50
The degree meteorology and of watch resources engineering	
Experiences in technical study/research on Undralagy/ satiens naturally at high	
mountain areas on glacial lake and GLOE lake outbursts, disaster risk management	
mountain areas, watershed approach, upstream-downstream approach.	150
Knowledge of the region	255
Language Qualifications/ Pulications	23
	25
	25
3.2 Hydrologist	250
PhD Degree in Hydrology or relevant fields with at least ten years of experience in	
sediment and water quality and related field. preferable	50
Experiences in technical study/research on Hydrology/ stations network at high	
mountain areas on glacial lake and GLOF lake outbursts, disaster risk management,	150
Knowledge of the region	100
	25
Sub Total Hydrologist	20
Total for Personnel (III)	250
	500
Grand Total (A+B+C)	1000

#### Annex 2

# FORM FOR SUBMITTING SERVICE PROVIDER'S PROPOSAL<sup>3</sup>

(This Form must be submitted only using the Service Provider's Official Letterhead/Stationery<sup>4</sup>)

[insert: Location]. [insert: Date]

To: [insert: Name and Address of UNDP focal point]

Dear Sir/Madam:

We, the undersigned, hereby offer to render the following services to UNDP in conformity with the requirements defined in the RFP dated [specify date], and all of its attachments, as well as the provisions of the UNDP General Contract Terms and Conditions :

# A. Qualifications of the Service Provider

*The Service Provider must describe and explain how and why they are the best entity that can deliver the requirements of UNDP by indicating the following :* 

- a) Profile describing the nature of business, field of expertise, licenses, certifications, accreditations;
- b) Business Licenses Registration Papers, Tax Payment Certification, etc.
- c) Latest Audited Financial Statement income statement and balance sheet to indicate Its financial stability, liquidity, credit standing, and market reputation, etc. ;
- d) Track Record list of clients for similar services as those required by UNDP, indicating description of contract scope, contract duration, contract value, contact references;
- e) Certificates and Accreditation including Quality Certificates, Patent Registrations, Environmental Sustainability Certificates, etc.
- f) Written Self-Declaration that the company is not in the UN Security Council 1267/1989 List, UN Procurement Division List or Other UN Ineligibility List.

### B. Proposed Methodology for the Completion of Services

The Service Provider must describe how it will address/deliver the demands of the RFP; providing a detailed description of the essential performance characteristics, reporting conditions and quality assurance mechanisms that will be put in place, while demonstrating that the proposed methodology will be appropriate to the local conditions and context of the work.

<sup>&</sup>lt;sup>3</sup> This serves as a guide to the Service Provider in preparing the Proposal.

<sup>&</sup>lt;sup>4</sup> Official Letterhead/Stationery must indicate contact details – addresses, email, phone and fax numbers – for verification purposes

# C. Qualifications of Key Personnel

*If required by the RFP, the Service Provider must provide :* 

- a) Names and qualifications of the key personnel that will perform the services indicating who is Team Leader, who are supporting, etc.;
- b) CVs demonstrating qualifications must be submitted if required by the RFP; and
- *c)* Written confirmation from each personnel that they are available for the entire duration of the contract.

### D. Cost Breakdown per Deliverable\*

	Deliverables [list them as referred to in the RFP]	Percentage of Total Price (Weight for payment)	Price (Lump Sum, All Inclusive)
1	Deliverable 1		
2	Deliverable 2		
3			
	Total	100%	

\*This shall be the basis of the payment tranches

### E. Cost Breakdown by Cost Component:

Description of Activity	Remuneration	Total Period of	No. of	Total Rate
	per Unit of Time	Engagement	Personnel	
I. Personnel Services				
1. Team Leader/Meteorologist	days	30	1	
2. Hydrologist	days	20	1	
II. Out of Pocket Expenses				
1. Travel Costs				
2. Communications				
3. Others				
III. Other Related Costs				

[Name and Signature of the Service Provider's Authorized Person] [Designation] [Date]



Annex 3

# General Terms and Conditions of Contract

http://www.undp.org/content/undp/en/home/procurement/business/how-we-buy.html

#### Annex 4

#### UNITED NATIONS DEVELOPMENT PROGRAMME Terms of Reference

Conducting a study for identification of required optimum number of Hydrological and Meteorological Stations for proposed GCF funded project "Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glaciated River Basins of Nepal"

Project: Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glaciated River Basins of Nepal

-	
Geographic Coverage	Koshi, Gandaki and Karnali Basins particularly focusing on glaciated basins- a) Lower Barun, b) Hongu 2, c) Thulagi and d) Lumding Tsho Glacial Lakes
Organizational Unit:	Resilience and Environment, UNDP CO Nepal
Reporting to:	Assistant Resident Representative, UNDP Nepal, through Portfolio Manager and Senior Project Officer – ICRMP, UNDP CO Nepal
Type of Contract	Institution (Meteorologist / Team Leader, and Hydrologist)
Duration:	Spread over 20 February 2020 to 31 May 2020
Duty Station:	Kathmandu (DHM Office)

#### **Background:**

United Nations Development Programme (UNDP) is collaborating with the Ministry of Finance – the National Designated Authority (NDA) for the Green Climate Fund (GCF), the Department of Hydrology and Meteorology (DHM), the Ministry of Energy, Water Resoucces and Irrigation (MoEWRI) to formulate a five-year project proposal on "**Protecting Livelihoods and Assets at Risk from Climate Change Induced Flooding in Glaciated River Basins of Nepal**". The Department of Forests and Soil Conservation (DOFSC), The Ministry of Forests and Environment (MOFE), the Department of National Park and Wildlife Conservation (DNPWC), and other relevant ministries and departments are some of the key partners that will support in the formulation and implementation of the project.

A Concept Note was submitted to the Green Climate Fund Secretariat on 13<sup>th</sup> February 2018 (available in GCF Website). A detailed funding proposal is currently under development for submission to the GCF.

The UNDP is seeking a qualified and experienced institution (NGO/Consulting firm/ Company) with expertise on requirement of hydro-met stations network to cover Koshi, Gandaki and Karnali basins for the proposed project in selected glaciated watersheds of Koshi, Gandaki and Karnali river basins. This study will constitue an important input on identification of required number of hydrological and meteorological stations and their costs (detail budgets/ Bills of Quantity) for the funding proposal and the feasibility study.

#### Context:

Nepal is home to 8 of the 10 highest mountain peaks in the world, including Mount Everest (8,848 m), whose snowpack and glaciers maintain the perennial flow of major domestic rivers and the Ganges in India. As glaciers retreat, they leave behind weak moraine and ice dams, behind which glacial lakes are formed.

All the major rivers of Nepal are snow and glacier melt-fed and accommodate significant volumes of water flow throughout the year. However, 75% of the annual volume of water is discharged during the monsoon season (June–September) resulting in significant annual flooding.

The observed maximum temperature increases in the high Himalayas in Nepal (0.86 °C per decade) is higher than in the lower parts of Nepal (0.2°C per decade) and above the global average of 0.15-0.20°C per decade. Consequently, the melt rate of Himalayan glaciers is intensifying, the number of glacial lakes is increasing, and existing glacial lakes are expanding. The Glaciated area decreased by 24% and the volume of ice reserve decreased by 29 % from 1977 to 2010 in Nepal<sup>5</sup>, forcing some mountain communities to migrate due to scarcity of water for their livelihood.

Due to climate change-induced accelerated melting of the Himalayan glaciers, the instance of highly destructive GLOFs that decimate communities and assets downstream is increasing. These outburst floods are likely to trigger

<sup>&</sup>lt;sup>5</sup> International Centre for Integrated Mountain Development (ICIMOD) 2014 (Bajracharya et al., 2014)

cumulative disaster events such as flash floods, mudflows and landslides downstream. As climate change continues to accelerate the rate of glacial melt, the livelihoods of millions of people, as well as the growing hydropower industry and other critical assets, are increasingly at risk of devastation from GLOFs and other climate related hazards in Nepal.

Nepal has experienced at least 26 GLOF events in the past. Impacts from GLOFs include loss to lives, agriculture, hydropower, transportation and tourism, among other sectors. Impacts extend to 100 km and more downstream. Nepal is also highly susceptible to floods during the monsoon rains, patterns of which are impacted by climate change. Floods and landslides have caused approximately 8,400 deaths in Nepal from 1983 to 2013, with an average of 269 deaths per year (DWIDP 2013).

With GCF funding, this project aims to safeguard the lives and livelihoods of tentatively above 300,000 people in the Gandaki and Koshi River Basins and their physical and economic assets from the climate-induced threat of glacial lake outburst floods (GLOFs) and related hazards through the two following outputs:

# Output 1 - Institutions strengthened to deliver climate risk information, monitoring and early warning services to local populations and productive sectors of economy

# Output 2 - Investment in GLOF and Flood risk reduction strategies at the watershed level scaled-up.

### **Objective of the Assignment:**

The main objective of this assignment is to identify the optimum number of Hydrological and meteorological stations (agriculture, climate, civil aviation etc) considering the following points;

- Required number of stations (hydrological, meteorological, climate, civil aviation, agro-met etc) that DHM wants to operate/manage during GCF Project and beyond in three basins;
- Locations (GIS map based) to install / operate such stations particularly Mountain/ High Hill/ Hills and some in downstream of the proposed glacial lakes (watershed coverage areas);
- No. of parameters to be measured in each station;
- Technical specifications of each station that meets WMO or other standards compatible with existing DHM system;
- Tentative costs of the procurement, delivery and installations of those stations;
- Cost of establishment of EWS for last mile connectivity (Gandaki and Koshi basin- in the specific watersheds- in three glaciated river basins;
- Investment plan for Institutional settings and requirement of capacity building at all levels for smooth function of the system sustainably- during and post project scenarios;
- DHM's plan for annual maintainance, repairment and monitoring costs during the project (co-financing) and after the project as a regular national budgeting.

The study will also identify the possibility of establishment of Early Warning System for last mile connectivity for the most vulnerable communities in the downsteam of Hongu 2, Lumding tsho, Lower Barun and Thulagi Glacial Lakes. It is to be ensured that there is equal, meaningful and logical participation of local government, and NGOs/CSOs, private sectors and their organizations/networks during the implementation of the proposed system. The findings of the study will be presented for review and discussion in DHM.

# Scope of Work:

After a systematic study of glacier and glacial lakes, a new inventory of glacial lakes has been prepared. In addition, the lakes which are at critical situation have also been identified. The scope of study will be limited to three basins but special attention will be given in the following glaciated basins of Koshi, Gandaki and Karnali (Map attached as Annex);

- a) Lower Barun,
- b) Hongu 2,
- c) Thulagi and,
- d) Lumding Tsho

The project will have the following proposed interventions in each basin:

# Koshi Basin:

- GLOF Risk Reductions with appropriate structural measures
- Installation of Monitoring Stations for Hydro-met/ climate data/ information in the mountain and proposed glaciated basin
- Installation of Early Warning Systems
- Community Based Climate Risk Management Initiatives

# Gandaki Basin:

- GLOF Risk Reductions with appropriate structural measures
- Installation of Monitoring Stations for Hydro-met/ climate data/ information in the mountain and proposed glaciated basin
- <u>Establishment of Early Warning Systems</u>

# Karnali Basin:

 Installation of Monitoring Stations for Hydro-met/ climate data/ information in the mountain ecological belt

The consulting firm should design the optimum station network for hydrological (water level, flow, sediment and water quality) and meteorological (rainfall, climate and agro-met, civil aviation) monitoring by DHM for various sectoral uses particularly Climate Change Disaster Prepardness/EWS, climate information, hydropower, civil aviation, agriculture as guided by but not limited to the following scope of works:

# Scope of works:

# a) Hydrological monitoring:

The hydrological monitoring network design shall be guided mainly by the following fundamental principles:

- real-time data delivery;
- the ability to withstand the impact of a 200-year flood and still be operational;
- provide accurate data for the full range of anticipated flows.

Additionally, the following include the major guidelines to design an optimum hydrological monitoring network:

- i) Interstate and international transfers The network should be able to provide accepted, neutral data to the federal government to use in allocation of water transferred across interstate and international borders.
- ii) **Water budgets** The network should take into account the contribution of water from each river basin to water resources for national policies and planning.
- iii) Flooding The network should generate real-time information to provide current streamflow conditions for accurate and timely flood forecasts and flood zoning maps. In order to account for the physiographic variations and therefore the nature of flooding, following major networks should be considered: a) Glacial Lake Outburst Flood (GLOF) monitoring b) Rainfall induced flood monitoring in major river basins c) Flash flood monitoring mainly in rivers originating from the Churiya range d) Urban flood monitoring in major cities.
- iv) **Water quality** The network should generate information on water quality for water resources distribution planning as well as ecological management. Network design should mainly consider physiographic variations and human disturbances in each watershed.
- v) Sediment monitoring The network should generate information on suspended as well as bed-load for the full range of anticipated flows to produce a national database for design of infrastructure as well as sediment management plans for both federal and provincial governments.

# b) Meteorological Monitoring:

For Meteorological Station Network, optimum network design shall be guided mainly by the following fundamental principles:

# i) **Representativeness:**

**Climate station** network should be representative of the local climatic variability and climatic zones of Nepal.

**Rainfall station** should be representative of the spatial distribution of rainfall and its variability over different elevation/physiographic zones of Nepal.

**Agro-meteorological Station** must be proposed in such a way that it must support agro-meteorological data need of agricultural regimes and its variability over Nepal.

Snow Station must be representative of the snow cover area and the glaciated regions.

## Aeronautical stations must be proposed to cover the network of airports in Nepal for safety of the flights.

- ii) **Coverage:** Station network should be such that to cover climatic regimes, physiographic regions and agricultural regimes of Nepal taking accounts the WMO guidelines.
- iii) **Accessibility:** Station network should be proposed such that it would be accessible, preferably outside the forest area, excluding steep slope and untenanted areas for its sustainability. Station location should be proposed preferably in the government owned /pubic land.

In addition to the above principles, while designing Automatic weather stations network tele-communication network coverage must be considered. If the telecommunication network coverage is not available, reliable with reasonable cost options should be recommened.

# Detail Tasks

The details tasks will include;

- Review the existing hydro-meteorological parameters (climate, agro-met, civil aviation, water level, and sediment, water quality etc.) measured by DHM and define a ranking scheme for the parameters to prioritize network design;
- ii) For each of the identified hydro-meteorological parameters, design criteria for optimum network covering proposed proejct sites in Nepal;
- iii) Consultants should identify the technical specifications of the instruments for each parameter that is compatible with the existing DHM system and that meets WMO standard;
- iv) Stock taking/ mapping of existing Early Warning System in Nepal and their status;
- v) Consultants should workout the tentative cost for the overall procurement, delivery and installation of hydrological and meteorological stations as well as the cost of installation of early warning systems in each of the major river basins in consultation with DHM;
- vi) The geospatial distribution of the network should provide information regarding the homogeneity in observation series;
- iv) Locations (GIS map based) of the proposed stations particularly Mountain/ High Hill/ Hills and some in downstream
- v) Investment plan for Institutional settings and requirement of capacity building at all levels for smooth function of the system sustainably along with annual maintainance, repairment and monitoring costs during the project (co-financing) and after the project as a regular budgeting.

### **Previous Studies**

The consulting firm will take a reference of previous studies carried out by DHM and other agencies in the related subject matter.

### **Documentation and Reporting**

Document, analyse and summarise the key findings and this will be further discussed with DHM and UNDP for using for the full Green Climate Fund proposal;

# Methodology:

The selected experts will consult the GoN authorities, particularly Ministry of Energy, Water Resources and Irrigation, DHM and UNDP to finalize the methodology for the study. The consultation will be carried out with experts, academia, research institutions as required. However, the tentative methodology includes the following but not limited to;

- Literature Review
- Consultations (relevant stakeholders)
- Bilateral meeting
- Experts' judgement

### **Expected Outcomes and Deliverables**

i) Inception report - 2 copies
ii) Draft report - 2 copies
iii) Final report - 2 copies
iv) GIS based map and layers of the optimum network for station types.

The final outputs of the assignment include:

- Inception Report with detailed timelines and the methodologies;
- Raw data and Analysis of the data of the survey done during the consultation and field survey;
- Consultation workshop to review and present key findings and recommendations

For timely submission of the above deliverables with the highest quality, the consulting firm are expected to;

- Consult wth experts involved in preparation of different studies, including, but not limited to, Environment and Social Safeguards (ESS), Lake Lowering Design, Downstream mitigation works, baseline studies etc,
- Liaise with the Team Leader, EES and Financial Appraisal Expert to provide relevant inputs to the main funding proposal, as required
- Consider Gender equality and social inclusion at all levels;
- Validate in the consultations with adequate documents;
- Develop criteria and guidelines for the identification of the required numbers of hydro-met stations and selection of location,
- Document all relevant information related to consultations with communities and submit as annex to the main report with attendees' signature;
- Share the questionnaires/ guiding questions with the Funding Proposal Team Leader and UNDP prior to conducting survey.

# Geographical Area Coverage

The detail of the geographical coverage area is given in the annex (Annex 3: Geographical Areas).

### **Schedule of the Payments**

The payments will be delivery-based on progress submitted consultant as follows:

Installments	Milestones	Payment
lst	Submission and finalization of the Inception Report with detailed work plan and	30%
2nd	Upon submission of the <b>Draft</b> Report, including with annexes	50%
3rd	Upon submission of the <b>final</b> report incorporating inputs from UNDP and GCF	20%
	Project Formulation Advisory Committee that fits the requirement for GCF Full	
	Funding Proposal	

#### **Time Frame**

The assignment will begin soon after signing the contract after submission of the inception report.

The selected institution will have to submit the report as follows:

- o Inception Report with detailed work plan and methodology by 28 February 2020
- o Draft Report (Summary and Actual Field Report) by 28 Mar 2020
- Final Report (Incorporating the Comments/Feedback) by 15 May 2020

The report should be presented in the wider stakeholders for final consultation before finalizing the deliverables. The detailed timeframe will be further defined during the presentation of the inception report. The GCF Project Formulation Advisory Committee will provide its inputs at all stages of the studies until it's finalizations.

# **Reporting and Coordination Line**

- The selected insititution (Hired under UNDP's Procurement Guidelines) will report directly to Advisor Resilience and Environment Pillar in close coordination with the Senior Project Officer – Integrated Climate Risk Management through Portfolio Manager, Resilience and Environment Pillar, UNDP Country Office, Nepal;
- The selected organization will work closely with UNDP CO, relevant government agencies particularly DHM, DoFSC, DNPWC, National and International Consultants (mainly Watershed Management Specialist, Glaciologist), International consultants and other stakeholders towards developing and finalizing the full-size proposal in close coordination.

### **Proposed Study Team**

The core team will include experts having in-depth knowledge, experience in their respective fields. The team members will provide their expertise and support the consultation by providing their technical expertise in the various areas along with management of the overall tasks, including all persons total working days **as below table**;

S.N.	Designation	No. of posit ion	No. of days	Main Responsibility	Desired qualification
1.	Team Leader/ Meteorologist	1	30	<ul> <li>Accountable for the whole study defining methodologies, data collections, analysys and quality report writing, coordinate with all the stakeholders, consultations with stakeholders at all levels;</li> <li>Coordinate with the team members, communicate and collaborate with GoN Authorities at all levels and UNDP, manage logistic and management related issues throughout the process; design methododology; analyse and interpret findings; lead and organize stakeholder consultations; compile and finalize reports in coordination with the team members and submit the report at stipulated time frame.</li> </ul>	PhD degree Meteorology and or Water Resources Engineering with at least 15 years of experience meteorology, climate change and good knowledge of hydrology
2.	Hydrologist	1	20	<ul> <li>Cover for hudrological part of the study for identification of the required number of hydrological stations as described in the scope of the work;</li> </ul>	PhD Degree in Hydrology or relevant fields with at least ten years of experience in sediment and water quality and related field. preferable

#### **Required Human Resources for the Baseline Survey**

# Competencies of the team members:

- Ability to communicate effectively to varied audiences;
- Ability to work under tight schedule; Proven strong analytical abilities;
- Ability to coordinate and collate information obtained from various sources;
- Ability to guide the team members to achieve better results in timely manner;
- Ability to work under pressure with several tasks and various deadlines;
- Actively generates creative, practical approaches and solutions to overcome challenges situations;
- A pro-active approach to problem solving.





# Annexures

# Annex 1 Proposed Project Sites

Proposed Project sites and covered municipalities (Maps- a) Lower Barun, b) Hongu 2, c) Thulagi and d) Lumding Tsho will be provided with Excel Sheet data for better view and understanding)



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