

## Terms of Reference

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# **CONSULTANCY SERVICE SUPPORT TO DEVELOPMENT OF NATIONAL FRAMEWORK FOR CLIMATE SERVICES AND SUPPORT TO SECTORAL WORK GROUPS**

(Contract ID No: PPCR/DHM/S/CQS-37)

Department of Hydrology and Meteorology,

Nagpokhari, Naxal

Kathmandu, Nepal

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## 1. Introduction

This Term of Reference (ToR) is for a consulting firm to lead to the development of a National Framework for Climate Services (NFCS) in Nepal. During this assignment the consultant will carry out national consultations with stakeholders and potential users of climate services in collaboration with the Department of Hydrology and Meteorology (DHM) and moderate sectoral working groups to contribute to the NFCS. The consultant shall identify and prepare a list of climate service products for Nepal. The outcome of the assignment is a detailed Action plan for NFCS, which DHM and sectoral stakeholders are committed to, including a list of climate service products. Sustainability of the outcome is essential, and the consult is to plan and provide training to the DHM key climate service experts to be able to continue the work after the assignment. The consultations on NFCS are to be carried out in consultation with World Meteorological Organization (WMO) and follow the guidelines of WMO to develop the NFCS.

## 2. Background

### 2.1 Pilot Program for Climate Resilience – Building Resilience to Climate Related Hazards

Nepal is one of the most vulnerable countries to climate change, water-induced disasters and hydro-meteorological extreme events such as droughts, storms, floods, inundation, landslides, debris flow, soil erosion and avalanche etc. Therefore, Nepal is selected to be one of the countries for *Pilot Program for Climate Resilience* (PPCR) administered by Asian Development Bank, The International Finance Corporation and The World Bank. [<sup>1,2</sup>]

The project *Building Resilience to Climate Related Hazards* (BRCH)<sup>3</sup> is one of the projects funded through PPCR. The objective of BRCH-project is to enhance government capacity to mitigate climate related hazards by improving the accuracy and timeliness of weather and flood forecasts and warnings for climate vulnerable communities, as well as developing agricultural management information systems services to help farmers mitigate climate related production risks.

The project comprises four components as briefly described below.

- A. Institutional strengthening, capacity building and implementation support of DHM;
- B. Modernization of observation networks and forecasting;
- C. Enhancement of the service delivery system of DHM; and
- D. Creation of an agriculture management information system (AMIS).

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<sup>1</sup> <https://www.climateinvestmentfunds.org/cifnet/?q=country/nepal>

<sup>2</sup> [https://openei.org/wiki/Nepal-Pilot\\_Program\\_for\\_Climate\\_Resilience\\_\(PPCR\)](https://openei.org/wiki/Nepal-Pilot_Program_for_Climate_Resilience_(PPCR))

<sup>3</sup> <http://www.worldbank.org/projects/P127508/building-resilience-climate-related-hazards?lang=en>

**Component A:** Institutional strengthening, capacity building and implementation support of DHM - This component aims to develop and /or strengthen DHM's legal and regulatory frameworks, improve institutional performance as the main provider of weather, climate and hydrological information for the nation, build capacity of personnel and management, ensure operability of the future networks, and support project implementation.

**Component B:** Modernization of the observation networks and forecasting - This component aims to modernize DHM observation networks, communication and ICT systems, improve hydro meteorological numerical prediction systems and refurbish DHM offices and facilities.

**Component C:** Enhancement of the service delivery system of DHM - The objective of this component is to enhance the service delivery system of DHM by creating a public weather service that provides weather and impact forecasts, and information services for climate-vulnerable communities and the key weather dependent sectors of economy.

*Sub-Component C.4 is Establishment of a National Climate Service. This ToR is specifically target to its' part C.4.2. Support for the development of a National Framework for Climate Services and sectoral working groups.*

**Component D:** Creation of an agriculture management information system (AMIS) - The objective of this component is to provide critical and timely agro-climate and weather information to farmers in order to increase productivity and reduce losses from meteorological and hydrological hazards.

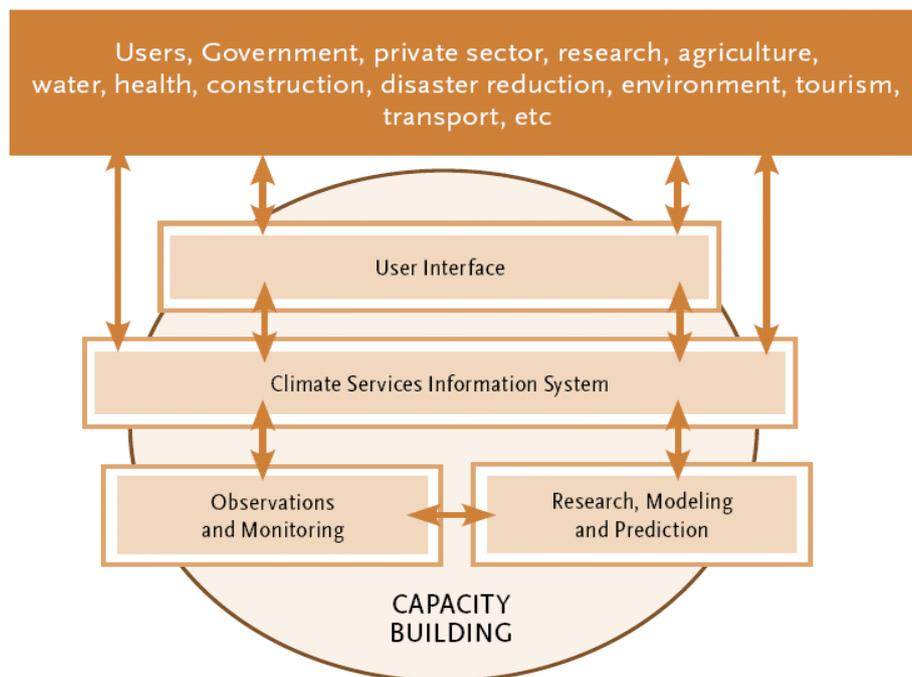
## **2.2 Framework for Climate Services at global and national level**

The Global Framework for Climate Services (GFCS)<sup>4</sup> was established in 2009 at the Third Climate Conference. The vision of the GFCS is "**to enable better management of the risks of climate variability and change and adaptation to climate change, through the development and incorporation of science-based climate information and prediction into planning, policy and practice on the global, regional and national scale.**"

The GFCS consists of five pillars: User Interface Platform; Climate Service Information System; Research, Modeling and Prediction; Observation and Monitoring; Capacity Building. The GFCS has five priority areas: agriculture and food security, water, health, disaster risk reduction and energy. The GFCS will be implemented on three levels: global, regional and national level.

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<sup>4</sup> <http://www.wmo.int/gfcs/>



The aim of this assignment is to support and lead to the establishing the *National Framework for Climate Services* (NFCS) in Nepal and bridge the gap between climate science and the needs of users of climate information. Separate Concept Note is clarifying the GFCS and National Framework for Climate Service (NFCS) and elaborating how different components of BRCH-project will contribute to the NFCS.

In context of this assignment (BRCH sub-component C4.2) the focus will be especially in the User Interface and capacity building of the DHM to meet the users' needs for climate services. To successfully implement NFCS, the national stakeholders should be committed to the Framework, drive the process and design it in collaboration with DHM in the manner that addresses national needs and priorities. Outcome of this assignment will be an Action plan for the NFCS including the climate products for some key priority sectors, which will guide the further steps of development of all five components.

10 Pre-requisites for a successful framework at the national level (according to WMO Guideline: Development of the Global Framework for Climate Services at the national level)

1. Build a strong and enhanced NMHS anchorage for the NFCS; national ownership, leadership and commitment by a designated competent national authority are crucial for success
2. Meet the demand for tailored climate service provision in the priority climate-sensitive sectors in the country (agriculture and food security, health, disaster risk management, energy, Infrastructure/transport, tourism, etc.)
3. Build the capacity of the NHMS and other technical services to jointly elaborate salient climate products and services with their users from each sector, building on multi-disciplinary knowledge and expertise from each sector
4. Improve the widespread communication of climate services
5. Diversify communication channels, through utilization of innovative and suitable channels for broadcasting (aside from television and radio)

6. Modernize and increase the density of the national hydro-meteorological observing network, to improve the capacity to meet growing end-user needs
7. Improve collaborative climate research, towards climate research outputs that are more salient end-user driven
8. Develop and strengthen the Capacity of end-users to further appropriate and utilize climate services
9. Sustain the newly defined Framework for Climate Services at the national level
10. Engage all national stakeholders involved in the production, tailoring, communication and utilization of climate services in a national dialogue around climate service provision, to identify country needs and chart a course for the provision of user-tailored climate services at the national and sub-national levels.

### 2.3 National activities related to climate change

Improved climate services are especially needed in adaptation to climate change. Government of Nepal has launched *National Adaptation Programme of Action (NAPA) to Climate Change* in 2010. During the NAPA process six priority areas were identified: Agriculture and Food Security; Water Resources and Energy; Climate-Induced Disasters; Forests and Biodiversity; Public Health; Urban Settlement and infrastructure. In selected areas adaptation needs and actions were also prioritized, many of them require cross-sectoral collaboration and customized climate services.

Implementation of adaptation measures often takes place at local level. In 2012 the *National Framework on Local Adaptation Plans for Action (LAPA)* was released. It is expected that LAPA would lead to provision and the effective delivery of adaptation services to the most climate vulnerable areas and people.

The goal of *Climate Change Policy* (2011) is to improve livelihoods by mitigating and adapting to the adverse impacts of climate change, adopting a low-carbon emissions socio-economic development path and supporting and collaborating in the spirits of country's commitments to national and international agreements related to climate change.

Ministry of Forest and Environment (MoFE) maintains *Nepal Climate Change & Development Portal*<sup>5</sup>. The aim of the portal is to serve as a gateway to climate change knowledge, opportunities, people, organizations, and networks.

### 2.4 Climate services of Department of Hydrology and Meteorology (DHM)

Hierarchy of national climate services can be categorized as follows:

#### Category 1: Basic climate data services and information products

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<sup>5</sup> <http://www.climatenepal.org.np/main/?p=home>

Functions of a Category 1 capability include design, operation and maintenance of national observing systems; data management including QA/QC; development and maintenance of data archives; climate monitoring oversight on climate standards; climate diagnostics and climate analysis; climate assessment; dissemination via a variety of media of climate products based on the data; participation in regional climate outlook forums and some interaction with users, to meet requests and gather feedback.

### **Category 2: Essential climate data services and information products**

In addition to encompassing all Category 1 functions, Category 2 climate services should include the capacity to develop and/or provide monthly and longer climate predictions including seasonal climate outlooks, both statistical and model-based; be able to conduct or participate in regional and national climate forums; interact with users in various sectors to identify their requirements; provide advice on climate information and products; and get feedback on the usefulness and effectiveness of the information and services provided.

### **Category 3: Comprehensive range of climate data services and information products**

In addition to encompassing Category 2 services, organizations delivering Category 3 climate services would have the capacity to develop and/or provide specialized climate products to meet the needs of major sectors and should be able to downscale long-term climate projections as well as develop and/or interpret decadal climate prediction (as and when available). They would serve to build societal awareness of climate change issues, and provide information relevant to policy development and National Action Plans.

### **Category 4: Advanced climate services**

In addition to the ability to deliver Category 3 services, organizations delivering the Category 4 services would have certain in-house research capacities, and would be able to run Global and Regional Climate Models. They would be able to work with sector-based research teams to assist them in developing applications models (e.g. to combine climate and agriculture information and produce food security products), and to develop software and product suites for customized climate products.

The climate service of DHM has characteristics of category 1 and 2 climate service, which means that DHM Climate service provides a set of basic and essential climate services such as climate data delivery, basic climate statistics, some climate monitoring products and seasonal outlooks. In the Climate Data Portal there are also available interpolated data from observations and downscaled climate scenario data (Climate Data Digitization and Downscaling of Climate Change Projections in Nepal, TA 7173-NEP: Strengthening Capacity

for Managing Climate Change and the Environment, July 2012). The present DHM climate service own capability to produce advanced climate services is limited. The most important present climate services prepared by DHM own experts can be seen online on DHM web-pages<sup>6</sup>. Important objective of this assignment is to improve dialogue between climate service of DHM and users of climate information and, thus, initiate the development of customized climate services.

The aim during the BRCH-project is to develop DHM Climate Service to the level of category 3. Thus, it would have capacity to develop and deliver customized climate services, be able to provide downscaled climate scenarios for Nepal and have resources to raise awareness of climate change. Important part of the work will be provision of climate information for NAP and Climate policy, as well as, for climate risk assessment and management.

### **3. Objectives**

The main objective of this assignment is to establish a National Framework for Climate Services (NFCS) in Nepal and sectoral working groups within the framework, and develop a list of required climate service products for major climate sensitive sectors of Nepal.

The work will be carried out in close collaboration with DHM. The guidelines of WMO to develop GFCS at national level should be applied and good examples of national level progress in other countries should be utilized when appropriate. [<sup>7</sup>]

### **4. Scope of the work**

To achieve the project activities, the consultant will prepare and conduct a national consultation workshop with stakeholders and potential users of climate services together with DHM. In the context of the workshop the consultant will also moderate sectoral working groups to be established during consultation. The outcome will be the Action plan for the NFCS. The Action plan will include concepts of future services for key sectors, timeframe for developing these service and agreed procedures in which DHM and sectoral stakeholders are committed to.

The work within this assignment will target towards provision of customized, user-friendly climate services. It should avoid duplicating earlier work, but instead, build on already existing information about needs of society for climate services, present climate policies and action plans such as NAPA and LAPA. The *baseline studies* on present status of DHM climate services, outcomes of preliminary *stakeholder meetings*, and relevant *development plans* (including a *list of potential future services*) prepared in BRCH-project so far by the Meteorological and Climate Service Expert (MCSE) will be available for the use of the

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<sup>6</sup> <http://www.dhm.gov.np/climate/>

<sup>7</sup> <http://www.wmo.int/gfcs/step-by-step-guidelines-nfcs>

consultant to effectively conduct this assignment. The consultant should review the current status of generating climate information at the country level and assess specific needs for climate services in different sectors and the current status of interfacing mechanisms and interactions between climate services providers and users; identify major areas for improvement and recommend effective mechanisms and practices.

The objective comprises of the following tasks but not limited to:

#### **4.1 Mapping stakeholders and selection of participants for the national consultation workshop – preparatory phase**

To successfully develop NFCS, relevant stakeholders should be involved to the process. Stakeholders should come from various sectors of society. They should include decision-makers, sectoral users of climate information both on national and local level, climate scientist and climate service providers. The consultation should include representatives from different ministries, research institutions, private sector agencies, as well as, NGOs. The National Framework should be able to utilize the information and services available on global or regional level and, on the other hand, NFCS in Nepal would contribute to international collaboration. Therefore, in the national consultation workshop, relevant regional institutions should also be involved. Awareness raising programs and role of media play an important role in mainstreaming climate information into decision-making at various levels and sectors of society. Mapping of stakeholders and selection of participants will be carried out in collaboration with DHM and in accordance to WMO guidelines on “Development of the Global Framework for Climate Services at the national level”.

#### **4.2 Consultation with DHM to develop vision and action plan to enhance climate services in Nepal**

Sustainability of the development of the NFCS is critical part of the assignment. The climate service of DHM will have a key role in the implementation and continuous development of NFCS. Therefore, the consultant is to provide training to the DHM climate service experts on the specific aims of the National Consultation Workshop in Nepal and skills for running interactive stakeholder meetings. The consultant is to share the expertise and lessons learned throughout the process to ensure that DHM experts can smoothly continue the work after the assignment. Therefore, the consultant is required to include into the proposal documents for this assignment a plan for short (1 day) training, which will be conducted by the consultant prior to the Workshop (see 4.3.) and will include basic concepts of GFCS, interactive methods to be used in National Consultation Workshop in user dialogue, and collecting and utilizing user feedback. The consultant is also to describe in the proposal documents how to involve climate experts of DHM into the consultation throughout the whole process.

#### **4.3 National consultation workshop**

In the proposal documents for this assignment the consultant should include a preliminary

plan on how to conduct the National Consultation Workshop (presentations, group work methods etc). The aims of the workshop are to

- Achieve common understanding on how to establish NFCS in Nepal: What will be the structure of NFCS and which organizations will participate on it, the role of DHM climate services as a hub of the Framework and setting an inter-ministerial steering committee for the NFCS
- Draft a Memorandum of Understanding (MoU) to be signed by the institutions to be committed to the NFCS accordingly
- Agree about guidelines for the Action plan for the NFCS
- Collect information on users' needs for customized climate services
- Discuss and recommend arrangements for improved production, better access and sustainable operations for climate predictions and services to facilitate the flow of climate information from global and regional scales through the national and local scales
- Conduct **sectoral working groups** on priority areas in order to chart a roadmap for the effective development and application of climate services. The priority areas for sectoral working groups would be as defined in NAPA, 2010: Agriculture and Food Security; Water Resources and Energy; Climate-Induced Disasters; Forests and Biodiversity; Public Health; Urban Settlement and infrastructure including aviation and tourism. (Task of working groups, see 4.4.)
- Draft a communication plan for the Framework including the roles, contents and target groups of climate portals in Nepal; MoFE *Nepal Climate Change & Development Portal*, DHM online climate services and Climate Data Portal, and further portal development to be done under NFCS
- Agree about monitoring and evaluation of the development of NFCS

#### **4.4 Sectoral working groups –User needs and product development**

In context of the consultation workshops, sectoral working groups will be established to guide the development of customized climate services in each sector and increase the utilization of climate services in practice. The working groups should include both sectoral and climate service experts.

The tasks of the consultant in close collaboration with the working groups are to

- (a) Identify users' needs for customized climate products and services for the sectors services in the sector in question
- (b) Identify services and products that can be developed to meet those sector specific needs;

- (c) Document sector specific data as well as climate data that is currently available to develop those products (this information should be clearly presented in written form and in table format);
- (d) List global data sources that can be used for product development
- (e) Identify data gaps at the national and district level that need to be addressed and modalities of addressing them,
- (f) Develop formats, dissemination methods, and production processes for the climate service products.
- (g) Prepare a plan for services development with clear roles and responsibilities of participating organizations, timelines for development considering DHM present and future capabilities to provide tailored services (fast track actions and longer-term development respectively), costs and finance mechanism.

#### **4.5 Action plan and closure meeting**

The outcomes of the National Consultation Workshop and sectoral working groups are to be compiled into an elaborated Action plan for the NFCS in Nepal including the structure of NFCS, plan for climate services development, and engagement of stakeholders to the Framework. The consultant is to prepare recommendations for the step-by-step work plan to be continued after the PPCR-BRCH and assess the capacity needed in DHM to be able to provide these customized climate products and services on an ongoing basis and improve upon them: human resources, training, ICT, tools for service production. The Action plan should include also communication plan for the NFCS. In the end of the assignment the consultant will conduct a brainstorming meeting with the DHM experts to develop a roadmap for future activities to implement the Action plan.

### **5. Client's Commitments**

- Staff of the DHM/ PMU will provide basic organizational support to the Consultant.
- At the request of the Consultant, the DHM should provide the following documents:
  - Information for all project objectives, including the information on status of observation networks, current climate services and information on ongoing development in DHM and the documentation prepared by MCSE within BRCH project
  - Project Appraisal Document (PAD) and other World Bank materials related to consultancy service;
  - Information on present stakeholder's of DHM

## **6. General requirements for the Consulting Firm / Consultant**

- At least 10 years of Experience in the field of climate research and services, more years is considered as advantage
- Documentary evidence of at least 1 project /assignment (more assignments is an advantage) on international climate consulting in developing countries related to development of climate services / climate research capacity/ adaptation to climate change;
- Experience related to GFCS including regional and national domains of GFCS ; at least 1 project/assignment;
- Clear understanding of the assignment In terms of clarity of methodology and the approach.
- Provision of CV's of the assigned staff and other documentary evidence as a proof of meeting requirements

## **7. Staffing Requirements**

### **1. International climate service expert, Team Leader (2.5 p-m)**

- Expertise on climate service or climate research for at least 8 years, more years is considered as advantage, and expertise in consulting climate resilience in developing countries.
- Proven (documentary) experience in GFCS related work and conducting user dialogue workshops, evidence of at least 1 similar consulting assignment
- MSc or preferably PhD in meteorology/atmospheric science or climate related science

The Team Leader should spend at least 30 days in Nepal.

### **2. National climate service expert - (3 p-m)**

- Expertise in climate services and climate research for 10 years or more
- Proven experience in project work and organizing workshops.
- MSc in meteorology/atmospheric science or climate related science, Ph. D will be an advantage.

### **3. Support staff (2 p-m)**

## **8. Reporting**

Reporting requirements shall be as follows:

- i. Inception Report
  - within 1 month from signing the contract, prior to the national consultation workshop

- ii. Progress Report
  - Brief report on the outcomes of the national consultation workshop
  - Within 2 weeks after the workshop
- iii. Final Report
  - At the end of the assignment

## **9. Expected Deliverables**

- Reports listed above – Inception Report, Progress Report, Final Report
- Final Action plan for the NFCS
- Communication plan
- List of climate service products defined during the consultation according to users' needs
- Formats, dissemination methods, and production processes for the climate service products
- Memorandum of Understanding (MoU) to be signed by the institutions to be committed to the NFCS
- List of ministries for inter-ministerial steering Committee
- Recommendation for further development of NFCS after the BRCH project.

## **10. Payment Schedule**

- 10 percent after submission and approval of Inception Report,
- 30 percent after submission and approval of Progress report
- 40 percent after submission of Final Report and Action plan
- 20 percent after the acceptance of Final Report and Action plan

## **11. Duration of Consultancy**

4 calendar months

## **12. Consultant's Selection Method**

- The selection method will be Selection Based on Consultant Qualification (CQS).