Government of the People’s Republic of Bangladesh
Office of the Project Director, PIU
Agro-Meteorological Information Systems Development Project
Department of Agricultural Extension
Khambari, Farmgate, Dhaka-1215

Request for Expressions of Interest (REOI) for
International Agro-Meteorological Services Consultant on “Agro-Meteorological Information Systems Development Project” (Component C of Bangladesh Weather and Climate Services Regional Project) (Contract Package No.: SD-1)

Memo: 12.01.0000.018.01.001.17.32 Date: 07/11/2017

1. The People’s Republic of Bangladesh has received a credit in the amount of USD 113 million as from the International Development Association (IDA) towards the cost of Agro-Meteorological Information Systems Development Project [Component –C of Bangladesh Weather and Climate Services Regional Project (BWCSR)] to be implemented by Department of Agricultural Extension (DAE) and it intends to apply part of the proceeds to payments for the provision of consultancy services for the project by hiring of an International Agro-Meteorological Services Consultant.

2. Scope of Task/Service:

The services, among others, include the following:

The Individual Consultant shall work as part of the PIU of DAE. Since BMD is mandated to provide weather services, the consultant will also work in close coordination with relevant officials at the Agricultural Meteorology Division of BMD. Key tasks can be organized under the following areas: a) Prepare a comprehensive list of actions to develop appropriate agrometeorological products and services to be posted on the web portal, Bangladesh Agrometeorological Information System (BAMIS); (b) develop appropriate strategies for the dissemination of agrometeorological advisories and products to farming communities in different upazilas, their use by farmers and obtaining feedback from farmers; (c) prepare a comprehensive plan to provide agrometeorological information services and products for the farming communities at the Upazilla and Union Parishad levels; and (d) develop an effective implementation plan for training and capacity building in the area of agrometeorology for the staff in DAE, BARI, BRRI, BSRI and BJRI.

More specifically, this will include but not be limited to the following activities:

a) Study the Project appraisal Document and Project Implementation Manual as reference. Based on this prepare a comprehensive list of deliverables – i.e., Guidelines for developing agrometeorological databases for the 487 upazilas; Guidance document on agrometeorological data analysis and future scenario generation (including the use of crop models) and downscaling the scenarios to block level; and a note on the plan for risk mapping of climate-vulnerable farming communities in Bangladesh; along with timelines for the agro-meteorological products and services in the project;

b) Implement the implementation actions and support the government on the development and provision of agrometeorological advisories and products to farming communities in different regions of Bangladesh through the web portal, BAMIS;

c) Undertake an assessment of existing data for development of agro-advisory bulletins and for crop modeling; prepare a short note on data gaps and need to enhance monitoring;

d) Visit selected upazilas and develop a comprehensive strategy, after discussions with DAE and BMD staff, for developing agrometeorological databases for the 487 upazilas; work with DAE and other institutions to help develop such databases;

e) Develop a plan, in consultation with experts from BMD, DAE, BARI, Bangladesh Rice Research Institute (BRRI), Bangladesh Sugar Crop Research Institute (BSRI) and Bangladesh Jute Research Institute (BJRI) for agrometeorological data analysis and future scenario generation (including the use of crop models) and downscaling the scenarios to block level; support and provide training to the agencies on these aspects;

f) Visit selected sites where automatic weather stations will be installed and prepare a plan for the integration of data from these stations with the data from the agriculture sector collected by DAE through the Agricultural Officers in the Upazillas to facilitate the development of agrometeorological advisories and products for use by the farming community;

h) Prepare a plan, develop TOR for risk mapping of climate-vulnerable farming communities in Bangladesh; and guide in the development of such maps;

i) Visit the offices of Union Parishads and develop the implementation plan for installation of automatic rain gauges and agrometeorological information display boards in all the 4,051 Union Parishads for provision of agrometeorological information to farmers;

j) Visit a few Upazilla Agricultural Offices and prepare a plan for the installation of agrometeorological kiosks with data display screens, computers and printers in the Upazilla Agricultural Offices to cater to the specific information needs of the farming community;

k) Provide guidance and work with DAE, BMD BARI, BRRI, BSRI and BJRI to develop template and support preparation of pilot agrometeorological Advisories;
k) Develop a note on communication of information to farmers on the current weather, expected weather and the related impacts on crop growth and development and advice on controlling any emerging pests and diseases through mobile Apps and other media;
l) Provide advice and training as appropriate on the organization of roving seminars for farmers in local communities to help bridge the knowledge gap between DAE, BMD and farmers; and
m) Undertake training needs assessment and develop guidelines for training and capacity building in DAE where there is currently no expertise available in the area of agro meteorology and also for enhancing the capacity in the agro meteorology division of BMD.

n) Identify, coordinate with relevant institutions, develop agenda for training and facilitate training visits to DAE, BARI, BRRI, BSRI and BJRI officials.
o) Provide technical support as needed to the DAE PIU on the development of agrometeorological services in Bangladesh.

3. Qualification and Experience:
   - The candidate should have at least a Master’s degree in Agricultural Meteorology/Meteorology with applications to agriculture with knowledge of Satellite Meteorology. PhD degree in agricultural meteorology is an advantage.
   - Should possess at least 15 years of work experience as full time researcher in agricultural meteorology in an Academic Research Institute/ University/ International Institute/ UN agency. Work experience in similar type of project is highly preferable.
   - Should have proven skills in writing reports, and use of computer.
   - Should have knowledge of statistical analysis and climate data management.
   - Knowledge of climate prediction techniques with familiarity in the use of climate models and downscaling methods and crop simulation models; basic knowledge of Geographical Information System and Remote Sensing will be an advantage.
   - Experience facilitating focus groups, conducting user testing, and generally working with end users preferred;
   - Should be energetic and be able to travel frequently to project sites.

4. Department of Agricultural Extension (DAE) now invites eligible applicants to indicate their interest in providing the services. Applicants are invited to provide information indicating that they are qualified to perform the services (Complete CV and supporting documents).

5. Detailed Terms of Reference (ToR) will be available upon request from the address provided below either through email or in person. ToR will also be available in the website of DAE (www.dae.gov.bd/site/view/tenders/tender-EOI-job-circular).

6. The consultant will be selected using the Selection of Individual Consultant method in accordance with the World Bank’s Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, January 2011 (Revised July 2014).

7. Expressions of Interest shall be submitted by 17.00 hours (BD local time) on 20 December 2017 to the address below (in person, or by mail, or by e-mail).

Name: Dr. Mazharul Aziz
Designation: Project Director
Address: Room # 726, 6th Floor, Middle Building, Khamarbari, Farmgate, Dhaka-1215
Email: azizzdae@gmail.com
Terms of Reference for International Agro-Meteorological Services Consultant on “Agro-Meteorological Information Systems Development Project” (Component C of Bangladesh Weather and Climate Services Regional Project)

1. Background

The South Asia Region (SAR) is highly prone to water related hazards such as floods, droughts, tropical cyclones and thunderstorms that frequently cut across national borders. In the past 2 decades, over 50% of South Asians, i.e., more than 750 million people have been affected by at least one natural disaster. The societal vulnerability to extreme weather events in South Asia is clearly illustrated in the case of Bangladesh, one of the most densely populated, disaster-prone and climate vulnerable countries in the world. Located at the delta of the Ganga-Brahmaputra-Meghna river systems, it is regularly exposed to extreme weather events such as tropical cyclones associated with storm surges, floods, severe thunderstorms and droughts. Despite the susceptibility of Bangladesh to weather and climate extremes, the country’s hydrometeorological information infrastructure over land, atmosphere and ocean, basic public weather services, forecasting, and multi-hazard end-to-end early warning systems remain weak and need to be strengthened. Further, key climate dependent sectors such as water and agriculture, need tailored weather and climate data, products, information and services to improve planning and decision-making and to mitigate the adverse effects of climate variability and change. Provision of such services at present is limited and needs to be strengthened.

With support from the World Bank, the Government of Bangladesh (GOB) is currently preparing the Bangladesh Weather and Climate Services regional Project (BWCSRP). The main objective of the project is to strengthen government capacity to deliver effective weather and climate information services and improve the quality and access to such services in priority sectors and communities. This objective will be achieved by strengthening the hydromet monitoring and forecasting, and service delivery related to water, agriculture and multi-hazard disaster risk management early warning systems. The BWCSRP has the following main Components:

**Component A:** Strengthening Meteorological Information Services implemented by the Bangladesh Meteorology Department (BMD);

**Component B:** Strengthening Hydrological Information Services implemented by the Bangladesh Water Development Board (BWDB); and

**Component C:** Agro-Meteorological Information Systems Development implemented by the Department of Agricultural Extension (DAE)

In this project, BMD is the provider of weather and climate services, BWDB and DAE are considered as user sectors; with each also producing sector specific information and tools to meet the needs of their own sectoral communities. BMD and BWDB provide critical information for extreme weather and flood warning. For severe weather or flood forecasts to reach people, the role of DDM is essential. Community based early warning system activities will be undertaken in close coordination with Department of Disaster Management (DDM).

In Bangladesh, agriculture contributes to almost 18% to the country’s GDP and provides employment to about 60% of the people. Being primarily rainfed, agricultural productivity of key crops such as rice, jute, tea, and wheat is highly dependent on rainfall and weather patterns. There are approximately 30 key agro-ecological zones in the country. However, at present, neither BMD nor DAE have a systematic way of combining meteorological information and forecasts with agriculture related information to produce tailored Agro-Meteorological bulletins,
information and products for farmers in the different agro-ecological zones that can help farmers make appropriate operational decisions about planting, harvesting, irrigation, adjusting cropping patterns and so forth at the farm level. DAE needs the development of decision support system for agro-climatic information which would be of tremendous value in developing and communicating climate risk information to farmers. This would be developed in collaboration with the Agro-meteorology Division of the BMD and Bangladesh Water Development Board (BWDB).

Weather and climate forecasts are important for reducing risks and enhancing opportunities associated with the achievement of sustainable economic development in recognition of the earth’s limited resources. Recent improvements in weather and climate forecasting systems worldwide has made it possible for national and regional Meteorological services to provide useful information to support decision making sectors affected by weather and climate variability. Bangladesh can take greater advantage of these advances in climate prediction by strengthening its data networks, processing and forecasting infrastructure, and strengthening its skilled human resource.

Component C of the project is focusing on enhancing access to ago-weather services for farmers through the development of the Bangladesh Agrometeorological Information Systems (BAMIS) so as to increase agricultural productivity and reduce losses from meteorological and hydrological hazards. Key Sub-Components of Component C include:

1. Establishment of the Bangladesh Agro-Meteorological Information System (BAMIS)
2. Training, Capacity Building, Project Management and Monitoring and Evaluation
3. Agricultural Disaster Risk Management through Agro-Meteorological information dissemination.

The services of an Individual International Consultant on Agrometeorological Products and Services are needed to assist DAE in planning appropriately the different sub-components of the Agrometeorological Information Systems Development.

2. Objectives
The main objective of the consultancy is to provide technical support to the Project Implementation Unit (PIU) at DAE for the development and delivery of an Agricultural Management Information System being supported by the BWCSRP project. The consultant will draw upon international experience and based on contextual realities and context in Bangladesh, support the PIU on technical aspects relating to the implementation of project activities. This will include advice and guidance to the PIU on all Component C related activities including development and implementation of the BAMIS portal and decision-support system, development of products and tools in coordination with other agencies such as the Bangladesh Agricultural Research Institute (BARI), dissemination of products and information to farmers and training and capacity building activities. The consultant will also help to develop a comprehensive implementation plan for each of the activities outlined under the different sub-components of the Agrometeorological Information Systems Development. The ultimate objective is to help farmers improve their production techniques based on sound interpretation of meteorological knowledge, information, products and services so that they can better manage weather and climate risks for increasing productivity and reduce losses from meteorological and hydrological hazards.

3. Scope of Work
The Individual International Consultant shall work as part of the PIU of DAE. Since BMD is mandated to provide weather services, the consultant will also work in close coordination with relevant officials at the Agricultural Meteorology Division of BMD. Key tasks can be organized under the following areas: a) Prepare a comprehensive list of actions to develop appropriate agrometeorological products and services to be posted on the web portal, Bangladesh Agrometeorological Information System (BAMIS); (b) develop appropriate strategies for the dissemination of agrometeorological advisories and products to farming communities in different upazillas, their use by farmers and obtaining feedback from farmers; (c) prepare a comprehensive plan to provide agrometeorological information services and products for the farming communities at the Upazilla and Union Parishad levels; and (d) develop an effective implementation plan for training and capacity building in the area of agrometeorology for the staff in DAE, BARI, BRRI, BSRI and BJRI.

More specifically, this will include but not be limited to the following activities:

a) Study the Project appraisal Document and Project Implementation Manual as reference. Based on this prepare a comprehensive list of deliverables i.e., Guidelines for developing agrometeorological databases for the 487 upazillas; Guidance document on agrometeorological data analysis and future scenario generation (including the use of crop models) and downscaling the scenarios to block level; and a note on the plan for risk mapping of climate-vulnerable farming communities in Bangladesh; along with timelines for the agro-meteorological products and services in the project;

b) Develop the implementation actions and support the government on the development and provision of agrometeorological advisories and products to farming communities in different regions of Bangladesh through the web portal, BAMIS;

c) Undertake an assessment of existing data for development of agro-advisory bulletins and for crop modeling; prepare a short note on data gaps and need to enhance monitoring;

d) Visit selected upazillas and develop a comprehensive strategy, after discussions with DAE and BMD staff, for developing agrometeorological databases for the 487 upazillas; work with DAE and other institutions to help develop such databases;

e) Develop a plan, in consultation with experts from BMD, DAE, BARI, Bangladesh Rice Research Institute (BRRI), Bangladesh Sugar Crop Research Institute (BSRI) and Bangladesh Jute Research Institute (BJRI) for agrometeorological data analysis and future scenario generation (including the use of crop models) and downscaling the scenarios to block level; support and provide training to the agencies on these aspects;

f) Visit selected sites where automatic weather stations will be installed and prepare a plan for the integration of data from these stations with the data from the agriculture sector collected by DAE through the Agricultural Officers in the Upazillas to facilitate the development of agrometeorological advisories and products for use by the farming community;

g) Prepare a plan, develop TOR for risk mapping of climate-vulnerable farming communities in Bangladesh; and guide in the development of such maps;

h) Visit the offices of Union Parishads and develop the implementation plan for installation of automatic rain gauges and agrometeorological information display boards in all the 4,051 Union Parishads for provision of agrometeorological information to farmers;

i) Visit a few Upazilla Agricultural Offices and prepare a plan for the installation of agrometeorological kiosks with data display screens, computers and printers in the
Upazilla Agricultural Offices to cater to the specific information needs of the farming community;

j) Provide guidance and work with DAE, BMD BARI, BRRI, BSRI and BJRI to develop template and support preparation of pilot agrometeorological Advisories;

k) Develop a note on communication of information to farmers on the current weather, expected weather and the related impacts on crop growth and development and advice on controlling any emerging pests and diseases through mobile Apps and other media;

l) Provide advice and training as appropriate on the organization of roving seminars for farmers in local communities to help bridge the knowledge gap between DAE, BMD and farmers; and

m) Undertake training needs assessment and develop guidelines for training and capacity building in DAE where there is currently no expertise available in the area of agro meteorology and also for enhancing the capacity in the agro meteorology division of BMD.

n) Identify, coordinate with relevant institutions, develop agenda for training and facilitate training visits to DAE, BARI, BRRI, BSRI and BJRI officials.

o) Provide technical support as needed to the DAE PIU on the development of agrometeorological services in Bangladesh.

4. Expected Outputs

The expected outputs of the consulting service are as follows:

a) Guidelines for developing agrometeorological databases for the 487 upazillas and support to development of such databases; note on availability of existing data and data gaps;

b) Guidance document on agrometeorological data analysis and future scenario generation (including the use of crop models) and downscaling the scenarios to block level and training on this issue;

c) A note and Terms of reference on the plan for risk mapping of climate-vulnerable farming communities in Bangladesh

d) Implementation plan for installation of agrometeorological information display boards in all the 4,051 Union Parishads

e) Implementation plan for installation of agrometeorological kiosks in the Upazilla Agricultural Offices

f) Note on dissemination of agromet information to farmers through mobile Apps and other media

g) Training and capacity building needs assessment report for DAE, BARI, BRRI, BSRI and BJRI officials on agro meteorology

h) Guidelines for developing training module for training and capacity building in agro meteorology in DAE, BARI, BRRI, BSRI and BJRI

i) Proposals for study tours and coordination and facilitation with agencies in other agencies

j) Terms of References for different activities as needed and identified based on consultations with DAE, BARI, BRRI, BSRI and BJRI

k) Technical Support in product development, modelling, data digitization

l) Prepare agenda for consultation workshops

m) Hands on training for PIU officials in areas relating to agro meteorology.
n) Develop TOR for consultancy to design university level course on agro meteorology in Bangladesh.
The Consultant will work as a core member of the DAE PIU and provide technical support to the PIU in the development of the Bangladesh Agricultural Management Information System. He will also participate in the Joint Technical Working Group (JTWG)) formed between DAE, BMD, BRRI, BJRI, BSRI and BARI and other stakeholders.

5. Required Skills and Qualifications

- The candidate should have at least a Master’s degree in Agricultural Meteorology/Meteorology with applications to agriculture with knowledge of Satellite Meteorology. PhD degree in agricultural meteorology is an advantage.
- Should possess at least 15 years of work experience as full time researcher in agricultural meteorology in an Academic Research Institute/ University/ International Institute/ UN agency. Work experience in similar type of project is highly preferable.
- Should have proven skills in writing reports, and use of computer.
- Should have knowledge of statistical analysis and climate data management.
- Knowledge of climate prediction techniques with familiarity in the use of climate models and downscaling methods and crop simulation models; basic knowledge of Geographical Information System and Remote Sensing will be an advantage.
- Experience facilitating focus groups, conducting user testing, and generally working with end users preferred;
- Should be energetic and be able to travel frequently to project sites.

Under overall supervision by the Project Director, coordination and monitoring of progress of the expert will be provided by the PIU of DAE.

6. Contract Duration of Service

It is proposed that the Consultant will be hired initially for 12 months from the date of signing of the contract, with possibility of extension based on the performance of the Consultant.

7. Deliverables

The consultant will be responsible for the following deliverables:

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<thead>
<tr>
<th>S.No</th>
<th>Outputs</th>
<th>Time frame for the Report to be provided by the Consultant</th>
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<tbody>
<tr>
<td>1</td>
<td>Guidelines for developing comprehensive agrometeorological databases for the 487 upazillas</td>
<td>In the 3rd month of consultancy</td>
</tr>
<tr>
<td>2</td>
<td>Training and Capacity needs assessment</td>
<td>In the 4th month of consultancy</td>
</tr>
<tr>
<td>3</td>
<td>Plan for training and capacity building in agrometeorology in DAE, BARI, BRRI, BSRI and BJRI and BMD</td>
<td>In the 6th month of consultancy</td>
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4. Preparation of TORs, proposal and agenda for study tour

5. Implementation plan for installation of agrometeorological information display boards in all the 4,051 Union Parishads

6. TOR for Consultancy to develop University level Program on Agrometeorology

7. Implementation plan for installation of agrometeorological kiosks in the Upazilla Agricultural Offices

8. Concept note on mobile Apps for farmers

9. Guidance document on agrometeorological data analysis and future scenario generation (including the use of crop models) and downscaling the scenarios to block level

10. A note on the plan for risk mapping of climate-vulnerable farming communities in Bangladesh

8. Reporting:
The Consultant shall report all ToR activities to the Project Director of Project Implementation Unit (PIU) at DAE Headquarter, Khamarbari, and Dhaka. This position will be based at DAE Head Quarter, Khamarbari, Dhaka with frequent mission at field level. The Consultant will be a key member of the PIU and will work under the guidance of the Project Director, work in close coordination with other members of the PIU and will provide constant feedback.

9. Selection Criteria:
The consultant shall be selected following Individual Consultant (IC) based selection method set forth in Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers, January 2011 (Revised July 2014) on the basis of consultant’s qualification, experiences and capability to carry out the assignment.

10. Terms and Conditions
The Consultant shall be paid remuneration monthly at the rate agreed and included in the contract. Consultant shall be paid monthly remuneration at an agreed rate, which includes all his/her overheads, social charges and other associated costs including local transportation in Dhaka and insurance premium costs. The Consultant shall be responsible for all taxes and duties including income tax applicable as per GoB rules and regulations. In case of travel requirement outside Dhaka and within Bangladesh for project related assignments, consultant shall be paid travel expenses and hotel expenses on actual cost basis and subsistence allowance to cover all other costs.

The Consultant will work under the guidance of the project director, work in close coordination with other members of the PIU and will provide constant feedback. S/he will also work in close coordination with BMD, BARI and other agencies. The Consultant will be based in Dhaka.
DAE shall provide following facilities to consultant during his tenure of services:

a) Office space with furniture & computer
b) Internet access
c) Office stationeries
d) Photocopying facilities

11. **Duration of Assignment is 24 months**

The duration of the assignment: From date of joining to 24 months.