



# ANNUAL REPORT

2020-2021

Towards building advanced intelligent system for agriculture



**BANGLADESH AGRICULTURAL RESEARCH COUNCIL**

[www.barc.gov.bd](http://www.barc.gov.bd)

New Airport Road, Farmgate, Dhaka-1215, Bangladesh



## National Agricultural Research System (NARS)

Institute	Ministry	Areas of Research
Bangladesh Agricultural Research Council (BARC), Dhaka www.barc.gov.bd	Agriculture	Strengthen the national agricultural research capability through research planning, coordination, integration and resource allocation
Bangladesh Agricultural Research Institute (BARI), Joydebpur, Gazipur www.bari.gov.bd	Agriculture	Basic, applied and adaptive research on cereals (other than rice), pulses, oilseeds, vegetables, horticultural crops etc.
Bangladesh Rice Research Institute (BRRI), Joydebpur, Gazipur www.brri.gov.bd	Agriculture	Basic, applied and adaptive research on rice
Bangladesh Jute Research Institute (BJRI), Sher-e-Bangla Nagar, Dhaka www.bjri.gov.bd	Agriculture	Basic, applied and adaptive research on jute production and utilization
Bangladesh Institute of Nuclear Agriculture (BINA), Mymensingh www.bina.gov.bd	Agriculture	Application on nuclear technology in agriculture
Bangladesh Sugarcrop Research Institute (BSRI), Ishurdi, Pabna www.bsri.gov.bd	Agriculture	Applied and adaptive research on sugarcrops
Soil Resource Development Institute (SRDI), Farmgate, Dhaka www.srdi.gov.bd	Agriculture	Soil survey, soil classification and soil characterization
Cotton Development Board (CDB), Khamarbari, Farmgate, Dhaka www.cdb.gov.bd	Agriculture	Cotton production and research
Bangladesh Wheat and Maize Research Institute (BWMRI), www.bwmri.gov.bd	Agriculture	Basic, applied and adaptive research on wheat and Maize
Bangladesh Fisheries Research Institute (BFRI), Mymensingh www.fri.gov.bd	Fisheries and Livestock	Marine and freshwater fisheries research
Bangladesh Livestock Research Institute (BLRI), Savar, Dhaka www.blri.gov.bd	Fisheries and Livestock	Basic and applied research on cattle, buffalo, sheep, goats, poultry, duck, etc.
Bangladesh Forest Research Institute (BFRI), Sholashahar, Chittagong www.bfri.gov.bd	Environment Forests and climate change	Forestry and agroforestry research
Bangladesh Tea Research Institute (BTRI), Srimangal, Moulvibazar www.btri.gov.bd	Commerce	Applied and adaptive research on tea
Bangladesh Sericulture Research and Training Institute (BSRTI), Baliapukur, Rajshahi www.bsrti.gov.bd	Textile and Jute	Research and training on sericulture

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**Bangladesh Agricultural Research Council**  
New Airport Road, Farmgate, Dhaka-1215

## **Published By**

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**October, 2021**

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Printed by: Green Offset Printing Press, 01812-021010

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## **Foreword**

I am delighted to know that BARC Annual Report 2020-2021 is peeping through the window. This report reflects as usual the annual activities accomplished during the reporting period. Bangladesh Agricultural Research Council executes and implements the annual activities of its seven divisions, seven units and one center.

The annual report reveals that each of the divisions, units and the center has done quite a lot of scheduled works within the time frame. On the Golden Jubilee of our Independence, Bangladesh Agricultural Research Council has been honoured with the Independence Award 2021 for its outstanding and glorious contribution to agricultural research and training. Hon'ble Prime Minister of the Government of the People's Republic of Bangladesh, Sheikh Hasina unveiled 'The 100 Agro Technologies Atlas' published by BARC marking the birth centenary of Father of the Nation Bangabandhu Sheikh Mujibur Rahman. Upon consideration of facilitating research improvement and of serving time-need, have submitted several development project proposals to the Ministry of Agriculture. A ten member External Expert Reviewer Panel has been formed comprising a pool of senior scientists for conducting independent annual/periodical review of research programs and giving feedback for modernizing the research programs matching with national and global needs and challenges.

BARC has been implementing 'Development of Upazila Land Suitability Assessment and Crop Zoning System of Bangladesh' from June 2017 to December 2021 being implemented by the coordination of Crops Division of BARC with Soil Resource Development Institute (SRDI) and Institute of Water Modeling (IWM). An international project titled 'Sustainable Soil Management for Nutrition-sensitive Agriculture in Sub-Saharan Africa and South East Asia' was initiated by BARC in collaboration with FAO and the Global Soil Partnership (GSP). BARC is working as the coordination agency of the project titled 'Development of National Soil Map and National Soil Information Systems of Bangladesh'. 'Nutrient Management for Diversified Cropping in Bangladesh (NUMAN)', an international project collaborated with NARS institutes and public universities of Bangladesh and Murdoch University of Australia, is jointly funded by Krishi

Gobeshona Foundation (KGF) and Australian Council for International Agricultural Research (ACIAR).

Improvement of crops through conventional methods, and to fit the developed varieties under different environmental conditions have been a challenge and will remain so in future. Therefore, various programs on adaptive trials of different products and varieties of several crops are under implementation and experimentation. Maximization and intensification of land utilization is another focused area with cropping patterns improvements and soil health management has got importance. Another challenge of malnutrition is vital; we keep focusing on nutritional improvement of consumers through plant and animal sources as well. Cost effective livestock production for increased supply of animal origin food and productivity improvement of animals are our targets to achieve.

The scientists, officers, and staffs of BARC have worked in an innovative, collaborative and inclusive way to make the annual report impressive. I congratulate and thank them for their whole-hearted cooperation and activities during the reporting period. As this Annual Report reflects the spirit of continuous innovation, I believe, it will pave more ways for new strategies in the upcoming years. Finally, I thank those, associated with compiling, editing, and printing the annual report 2020-2021.



(Dr. Shaikh Mohammad Bokhtiar)  
Executive Chairman

## **Executive Summary**

The Annual Report of this year presents the activities of Bangladesh Agricultural Research Council (BARC) associated with governance, management and development of research programmes in the National Agricultural Research System. The highlights of the progress of different activities during 2020-2021 have been focused in this report.

Bangladesh Agricultural Research Council (BARC) has been honoured with the Independence Award 2021 for its outstanding and glorious contribution to agricultural research and training. Hon'ble Prime Minister of the Government of the People's Republic of Bangladesh, Sheikh Hasina awarded BARC as an organisation for its outstanding and glorious contribution to agricultural research and training at her official residence Ganabhaban on May 20, 2021. BARC has published the Atlas with 100 agricultural technologies, marking the birth centenary of Father of the Nation Bangabandhu Sheikh Mujibur Rahman. Hon'ble Prime Minister Sheikh Hasina unveiled "The 100 Agro-technology Atlas" on February 4, 2021 through a video conference from her official residence Ganabhaban.

Two Executive Council (EC) meetings (35<sup>th</sup> & 36<sup>th</sup>) were held on 24 October 2020 and 14 June 2021 in BARC. In these meetings, the Approval of Recommendations was ratified by Bangladesh Agricultural Research Council Recruitment/ Promotion Committee-1, 2 and 3. Provision of Retirement Allowance and Retirement Benefit (Gratuity) to BARC officers/employees were accepted as per rules applicable to government employees.

Acquisition of research by Bangladesh Agricultural Research Institute, Bangladesh Livestock Research Institute, Soil Resources Development Institute, Bangladesh Forest Research Institute, and Cotton Development Board for the 2019-2020 financial year, research progress for 2020-2021 fiscal year, and presentation of the research proposal and budget for 2020-21 fiscal year and the approval of the project under PBRG of PIU-BARC were accomplished in the present annual report. BARC has been implementing 'Development of Upazila Land Suitability Assessment and Crop Zoning System of Bangladesh' from June 2017 to December 2021 being implemented with the coordination of Crops Division of BARC. Two other components of the project are: Soil

Resource Development Institute (SRDI) and Institute of Water Modeling (IWM). An international project titled 'Sustainable Soil Management for Nutrition-sensitive Agriculture in Sub-Saharan Africa and South East Asia' has been initiated by BARC in collaboration with FAO and the Global Soil Partnership (GSP). BARC is working as the coordination agency of the project titled 'Development of National Soil Map and National Soil Information Systems of Bangladesh'. 'Nutrient Management for Diversified Cropping in Bangladesh (NUMAN)', an international project collaborated by NARS institutes and public universities of Bangladesh and Murdoch University of Australia, is jointly funded by Krishi Gobeshona Foundation (KGF) and Australian Council for International Agricultural Research (ACIAR). Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (ID:138)" funded by NATP Programme-2, PIU, BARC from July 2018 to June 2021 were coordinated by Livestock Division, BARC with seven components viz. BLRI, BAU, PSTU, HSTU, RU, CVASU and SAU.

BARC has made proposal for the release fund from the Government on quarterly basis as per approved annual allocation of Budget. In the Financial year of 2020-2021, BARC received Tk. 2749.45 lakh for salary and allowances, supply and services, technology transfer, manpower development and capital fund. To accomplish the activities like technology transfer & manpower development etc. necessary funds were released to the Agricultural Research Institutes (ARI's) and associated organizations according to the budget plan. During the year 2020-21 one audit objection out of 12 has been settled. Planning and evaluation (P&E) division monitored special fund projects of NARS institutes and CRG and PBRG sub-projects under PIU NATP -2, BARC project timely and properly. Two Development Project Proposals (DPP) titled 'Strengthening of Research and Development of Bangladesh Agricultural Research Council' and 'Research and Development of Seaweed Cultivation in Coastal Areas of Bangladesh' have been submitted to Ministry of Agriculture (MoA). Capacity Building for Conducting Adaptive Trials on Seaweed Cultivation in Coastal Areas' project funded by Krishi Gobeshona Foundation (KGF) from 01 Jan 2016 to 30 September 2019 was completed successfully. Under this project, seaweeds were cultivated in "Land-based" (Nursery) and 'Open-seawaters' using 'One-step' (a portion of the seaweed that is attached to ropes) and 'Multi-step' (producing spores) 'seeds' attached to synthetic floating ropes. A National Workshop for presenting research report on 'Availability and Price

Volatility of Rice, Potato and Onion in Bangladesh: An Inter-Institutional Study in 2020' was held on 26 January, 2021 at BARC Auditorium, Dhaka. The workshop was organized as a part of the study program, which was carried out at the Ministry of Agriculture's direction to determine the reasons behind recent price hikes in Rice, Potato, and Onion in Bangladesh.

Programme Based Research Grant Project titled "Collection, Conservation and Characterization of Important Plant Genetic Resources" funded by NATP Programme-2, PIU, BARC is being coordinated by Crops Division, BARC with eight components named: BARI, BRRI, BINA, BJRI, BSRI, BSRTI, CDB and BAU was materialized. Computer and GIS Unit organized training on 'Free and Open Source Software for Agro-Geoinformatics (FOSS4AG)' at Computer lab of BARC on 12-13 February. Participants from BARC, BARI, BRRI, SRDI, DAE, BWDB attended the program. Resource speaker was Anirudh Gaur from University of California, Davis, USA. It organized an awareness workshop at BINA, Mymensingh on 26 February 2020. BINA scientists, extension officials of Mymensingh region and Kishorganj district of DAE and few teachers from Soil Science Department of BAU were attended the program.

Nutrition Unit performed some activities like contamination and adulteration of food and food products, process, chain and mollification; Value addition and standardization of nutritional level in selected food items to mitigate malnutrition; Food-based initiative for improving household food security, income generation and minimize malnutrition; Value addition and standardization of nutritional level in selected food items from poultry origin; Fortification and standardization of nutritional level in selected food items and efficacy test of polyphenolic compounds as quality livestock feed production.

A number of projects have been developed under the Fisheries Division such as Sustainable fisheries development for Haor and Beel community through improved management approach; Improvement of existing fattening technology of carp and high valued Small Indigenous Species (SIS) through Good Aquaculture Practices (GAP) in different agro-ecosystems; Development of in-situ Breeding Technology of Prawn (*Macrobrachium rosenbergii*) and Adoption of Sustainable Eco-Friendly Culture of Prawn and Shrimp (*Penaeus monodon*); Up-scaling of mud crab (*Scylla olivacea*) aquaculture in Bangladesh: Adoption of improve techniques from seed production to fattening and health management.

The Livestock Division is working to achieve the goal of improving nutritional status of the general mass through cost-effective livestock production for increased supply of animal origin food, supporting increased crop production through providing healthy draft animals and biological manure, and helping the rural poor in generation of employment, income and fuel supply through profitable livestock rearing. The division is also engaged to support national avian influenza/bird flue prevention and control programs, to recruit scientists/officers in NARS institutes, to support different research activities of NARS institutes, and to support different activities of National Agricultural Technology Project (NATP), BARC and DLS Units.

Two PBRG subprojects titled ‘Groundwater Resources Management for Sustainable Crop Production in Northwest Hydrological Region of Bangladesh’ & ‘Up-scaling and Application of Solar Photovoltaic Pump for Smallholder Irrigation and Household Appliances in the Central Coastal Region of Bangladesh (ID-001)’ were held in the Bangladesh Agricultural Research Council (BARC) respectively on 23 April, 2019 & 31 July, 2018 with the participation of scientists/experts from BARC.

This Division organized a training Program on ‘Bioinformatics for Sustainable Development in Agriculture’ which organized on 14-16 March, 2021 at the Computer Lab, Computer and GIS Unit, BARC. Teachers/officers from NARS institute (BARI, BIRRI, BFRI, BJRI, BINA, BLRI, and BARC) and Shere-e Bangla Agriculture University participated the training program. Another training programme on ‘Modern Econometric Methods: Analyzing Agricultural Data using STATA and SPSS’ was held on 20-24 June at Computer Labretory, BARC organized by AERS Division.

Nutrition unit of BARC organized different training programmes in Syedpur, Nilphamari and Iswardi, Pabna during 1 July 2019 to 30 June 2020 to create awareness on nutrition, promote nutrition rich agricultural crops production and to increase the knowledge of nutrition through capacity building.

Agricultural Information Centre (AIC) organized a workshop on “Impact of Covid-19 on Agricultural Research & Future Planning in Food Security” on March 8-12, 2021 at Bangladesh Agricultural Research Council. The 50 scientists of BARC attended the workshop.

## Special Achievements

### BARC honoured with Independence Award 2021

Bangladesh Agricultural Research Council (BARC) has been honoured with the Independence Award 2021 for its outstanding and glorious contribution to agricultural research and training.



*Hon'ble Prime Minister Sheikh Hasina handed over the Independence Award 2021 to Dr. Shaikh Mohammad Bokhtiar, Executive Chairman of BARC*

Hon'ble Prime Minister Sheikh Hasina awarded the BARC as an organisation and nine other distinguished personalities with the award at her official residence Ganabhaban on May 20, 2021. BARC Executive Chairman Dr. Sheikh Mohammad Bokhtiar received the award on behalf of the organisation. BARC was founded in 1973 following directives of the then President and Father of the Nation Bangabandhu Sheikh Mujibur Rahman.

## **Publication of “The 100 Agro Technologies Atlas”**

Her Excellency Hon’ble Prime Minister Sheikh Hasina inaugurated the launching ceremony of “The 100 Agro Technologies Atlas” and then addressed the event held at Bangabandhu International Conference Centre on February 4, 2021 through a videoconference from her official residence Ganabhaban. Bangladesh Agricultural Research Council (BARC) has published the Atlas with 100 agricultural technologies, marking the birth centenary of Father of the Nation Bangabandhu Sheikh Mujibur Rahman.

Agriculture Minister Dr. Muhammad Abdur Razzaque MP, Fisheries and livestock minister S M Rezaul Karim, MP, Chairman of the Parliamentary Standing Committee on Ministry of Agriculture Matia Chowdhury, MP, Senior Secretary of Ministry of Agriculture and BARC Executive Chairman Dr. Shaikh Mohammad Bokhtiar spoke on the occasion.



*Hon’ble Prime Minister Sheikh Hasina unveiling ‘The 100 Agro Technologies Atlas’ published by BARC*

The NARS institutes working under the aegis of five different ministries have so far developed 655 high yielding varieties and 591 technologies since 2009. Out of these, the most significant 100 technologies have been chosen and presented in this Atlas. Besides, the Atlas has 25 success stories highlighting the impact of different technologies on the improvement of life and livelihood of the people in Bangladesh.

The Atlas has been enriched with the messages from His Excellency the President, the Hon’ble Prime Minister, other relevant Hon’ble Ministers and Secretaries and Director General of FAO of the United Nations. The technologies and success stories are written both in Bengali and English to reach out national and international communities.

This event paved the way for BARC as well as the Ministry of Agriculture to highlight the successes in agricultural research and development towards attaining food and nutrition security in the country.

## **Mural of Bangabandhu unveiled by Hon'ble Agriculture Minister at BARC**

Dr. Muhammad Abdur Razzaque MP, Minister of Agriculture unveiled the mural of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman at Bangladesh Agricultural Research Council (BARC) premises at Farmgate, Dhaka on December 23, 2020.



*Unveiling the Mural of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman*

The mural was constructed under the management of Bangladesh Agricultural Research Council (BARC). The mural is 10 feet in height and 8 feet in width. It took around three months to make this mural. Mr. Md. Mesbahul Islam, Senior Secretary, Ministry of Agriculture and Dr. Shaikh Mohammad Bokhtiar, Executive Chairman of BARC were present as special guests on the occasion of the mural unveiling program the high officials of ministry of agriculture and heads and senior officers of the research and extension organizations under the ministry of agriculture were attended the program.

### **Formation of External Expert Review Panel**

To ensure the quality and standard of research the Council Act 2012, Clause 9(f) (i) emphasized monitoring and evaluation progress of the programs taken by the ARIs and the on-going activities accomplished by them. In conformity with the above Clause and the Clause 21 (regarding committee formation), a 10 member External Expert Review Panel headed by Dr. Zahurul Karim, former Secretary and former Executive Chairman of BARC, has been formed comprising with a pool of senior scientists for conducting independent annual/ periodical review of research programs and giving feedback for modernizing the research programs matching with national and global needs and challenges. As per the approval of the Ministry of Agriculture, an official order regarding the formation of this panel was issued on March 3, 2021.

# HIGHLIGHTS OF RESEARCH AND DEVELOPMENT

## CROPS DIVISION

### Name of Professionals

**Dr. Md. Aziz Zillani Chowdhury**

Member Director

**Dr. Shah Md. Monir Hossain**

Principal Scientific Officer

### 1. Regional and International Collaboration & Cooperation

#### Linkage with International Organizations and Development Partners in Bangladesh

##### Joined in virtual platform

- Asia Pacific Association of Agricultural Research Institution (APAARI) Executive Committee meeting, 2021-2022: 7-8 April 2021.
- As a focal point of Bangladesh joined Group of National Focal Points for Biodiversity for Food and Agriculture: First part of the second meeting : 02-04 March 2021 (2:0 pm to 9:30 pm Bangladesh time).
- As a focal point of Bangladesh joined Group of National Focal Points for Biodiversity for Food and Agriculture: Second Part of the second meeting of the Group of National Focal Points for Biodiversity for Food and Agriculture. 25–27 May 2021 (2:0 pm to 9:30 pm Bangladesh time).
- Council for Partnership on Rice Research in Asia (CORRA) 24<sup>th</sup> meeting: 20 Nov 2020 and submitted ppt on “Rice Research and Development in Bangladesh).
- Program for Results Financing Project (WB) concept note preparation meeting participated virtually in four meeting.
- MoU revised between BARC and Michigan State University, USA for 3R gene resistant potato variety development.

#### AFACI Project

##### 1. Salt Tolerant Rice Program

Bangladesh Agricultural Research Council (BARC) is implementing an AFACI funded project titled ‘Selection and Dissemination of Elite Salinity Tolerant Rice Varieties of AFACI Member Countries’ from June 2019 to July 2021. Dr. Md. Harun-ur-Rashid, CSO (Crops) is the PI of the AFACI project. The project activity is intended to select elite advance lines of salt tolerant rice that can tolerate more than 8 dS/m at critical stages. Bangladesh Agricultural Research Council in collaboration with Bangladesh Rice Research Institute and Bangladesh Institute of Nuclear Agriculture has been implementing the project in the saline area of Satkhira. Last year this project ranked as outstanding among the participating countries.

## 2. Research Project Development & Evaluation

### a) 'Collection, Conservation and Characterization of Important Plant Genetic Resources' under PIU-BARC, NATP-II (ID# 128)

PIU-BARC, NATP-2 funded PBRG sub-project titled 'Collection, Conservation and Characterization of Important Plant Genetic Resources' coordinated by Crops Division, with eight components viz., BARI, BRRI, BINA, BJRI, BSRI, BSRTI, CDB and BAU is under implementation from February 2018 to January 2022.

#### Major Achievements:

Organi- zation	GP Collection		GP Conservation		Morphological Characterization		Molecular Characterization	
	Target	Achievem- ent	Target	Achieveme- nt	Target	Achieveme- nt	Target	Achieveme- nt
<b>BARI</b>	600	600	600	600	250	844	76	121
<b>BRRI</b>	300	247	300	247	300	264	300	216
<b>BJRI</b>	90	35	90	35	90	97	60	66
<b>BSRI</b>	50	68	50	68	50	51	40	-
<b>BINA</b>	198	199	198	199	98	141	53	83
<b>CDB</b>	-	-	-	-	360	343	-	-
<b>BSRTI</b>	-	-	-	-	60	60	-	-
<b>BAU</b>	30	35	120	136	120	136	90	136
<b>Total</b>	<b>1268</b>	<b>1184</b>	<b>1358</b>	<b>1285</b>	<b>1328</b>	<b>1936</b>	<b>619</b>	<b>622</b>

#### Variety developed:

The striking achievement of the sub-project embarked with release of 14 varieties by BAU (Banana: 5, Aroids: 4 and Yam: 5) and one chewing type sugarcane variety by BSRI from germplasm collected and evaluated during NATP Phase I and II.



Chewing type sugarcane variety, BSRI akh-47



BAU OI Kachu-1 (OIKachu)



BAU Kachu-1 (Panchamukhi)



BAU Kachu-1 Panchamukhi

## **b) ‘Development of Upazila Land Suitability Assessment and Crop Zoning System of Bangladesh’ project**

Crops division coordinated the project titled ‘Development of Upazila Land Suitability Assessment and Crop Zoning System of Bangladesh’ is under implementation from June 2017 to December 2021 with financial support of KGF. The study is to conduct the proposed activities in 300 upazilas. During the period from July 2020 to June 2021, many important activities have been performed for accomplishing the targeted goals of the project. Among those, the land and soil properties (landform, soil group, land type, land relief, soil texture, soil consistency, soil drainage, soil moisture, water recession, soil salinity, soil pH) including AEZ and physiography data compilation and updating of 86 (eighty six) upazilas have been completed. The compilation and updating of chemical properties data (pH, salinity, organic matter, nitrogen, phosphorus, potassium, sulphur, zinc, boron, calcium, magnesium, copper, iron, manganese) of 86 upazilas have also been performed. The land and soil properties data both physical and chemical is required for crop suitability assessment. At present, the land and soil properties data of 264 upazilas out of 300 have been edited and compiled. Meanwhile, soil profile study for 3 (three) dominant soil series have been completed during the reporting period.

As part of the activities for updating land and soil properties information soil survey conducted by SRDI at 12 upazilas during the reporting period. Alongside, soil sample collection and analysis to detect status of different soil chemical properties have been accomplished for 12 upazilas. Soil profile description for 3 (three) dominant soil series in three AEZ have been conducted to study physical & chemical properties of the soil. During the reporting period SRDI printed 40 Upazila Nirdeshika and 61 Upazila Nirdeshika delivered to crop zoning project. Also, preparation of reports along with maps of 14 surveyed upazilas are ongoing.

Considering the importance of fertilizer recommendation, a decision has been made in the advisory committee meeting for validating the effectiveness of crop specific fertilizer recommendation disseminated through ‘Khamari’ mobile apps. In view of that, demonstration trial on T. Aman rice yield has been conducted during the reporting period. The trials were conducted by BARI, BRRI, BINA and SRDI in farmer’s field at 5 (five) locations under different agro-ecological zones (AEZ). The objective of the field trial was to observe the impacts of recommended fertilizer on crop yield with three varying treatments. These are (i) fertilizer prescription based on soil fertility status of Upazila Nirdeshika (followed in crop zoning study), (ii) AEZ based fertilizer prescription as stated in Fertilizer Recommendation Guide-2018 and (iii) Farmers’ practice.

The online GIS based software Crop Zoning Interactive Information System (CZ-IIS) is being registered as gov.bd domain and uploaded into the National Data Centre cloud. The web address of the software is <http://cropzoning.gov.bd>. Institute of Water Modelling (IWM) added many new features in the software such as, spatial and non-spatial data entry, edit and download; menu for accessing crop zoning, cropping pattern, union based profitable crops and fertilizer recommendation, crop variety information. A dashboard of the crop zoning system is developed for quick and easy access of information. During the period, union based suitable

crops and crop specific fertilizer recommendation services have been developed. The 'Khamari' ('খামারি') app could be downloaded and installed from Google play store or from the web address <http://cropzoning.gov.bd>. At present, testing, debugging and adding of new features in the software and mobile app are continuing. In agri-advisory portal, soil fertility status maps, cropping pattern with profitability indicator, crop variety with their characteristics and agriculture technology information have been uploaded (<http://cropzoning.gov.bd>).

During the reporting period, field visits conducted at different locations of 114 upazilas for validation of crop zoning output. Information collected through observing the ground reality, interacting with farmers and extension officials. Validation of output is important in the context of establishing evidence that the procedure, process, activity as employed produce desired results. Many important observations were recorded like non-agriculture land shown as agriculture land and vice versa.

### 3. Preparation of Policy Documents and Providing Inputs

#### Policy Documents:

- বাংলাদেশ উত্তম কৃষিচর্চা নীতিমালা-২০২০ (চূড়ান্ত খসড়া) কৃষিমন্ত্রণালয়ে প্রেরণ যা গেজেট আকারে প্রকাশিত হয়
- বাংলাদেশ উদ্ভিদকৌলি সম্পদ ইনস্টিটিউট আইন-২০২০ (পরিমার্জিত খসড়া) কৃষিমন্ত্রণালয়ে প্রেরণ
- 'সেন্টমার্টিন দ্বীপের পরিবেশ, প্রতিবেশ ও জীববৈচিত্র্য সুরক্ষা এবং টেকসই পর্যটন উন্নয়ন' এর লক্ষ্যে পরিবেশ বান্ধব কৃষি পরিকল্পনা'
- পঁয়াজ উৎপাদনে স্বয়ং সম্পূর্ণতা অর্জনে চার বছর মেয়াদি খসড়া কর্মপরিকল্পনা প্রণয়ন
- Bangladesh Good Agricultural Practices Policy 2020 (English version) and sent to MoA

### 4. Workshop/Meeting/Seminar

#### a) Annual Research Review Workshop on Crop Improvement Program of NARS Institutes: Research Progress, 2019-20 and Research Program, 2020-2021

A review workshop on "Crop Improvement Program of NARS institutes" was being held at BARC during September 20-21, 2020. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was present as Chief Guest and Dr. Md. Aziz Zilani Chowdhury, Member Director (Crops), BARC chaired the inaugural session. Dr. Shah Md. Monir Hossain, Principal Scientific Officer (Crops), BARC welcomed all, stated aims and objectives of the workshop with a brief on the last year recommendation of the workshop. The workshop was organized to review the undertaken research project for improvement and avoiding duplication in research.



*Workshop on Crop Improvement Program of NARS Institutes*

Five technical sessions covering varietal improvement through conventional breeding of cereal crops (rice, wheat, maize, sorghum, millets etc.), oilseeds and pulses, horticultural crops (fruits, vegetables, spices, tuber crops etc) and mutation and recommendations sessions were held during the two day's workshop. While expert members viz., Dr. Mohammad Jalal Uddin, Former EC, BARC Dr. Md. Abdul Jalil Bhuyan, Former DG, BRRI. Prof. Gazi Mohammad Mohsin, Dept. of Genetics and Plant Breeding, Noakhali University of science and technology; Dr. Md. Shamsher Ali, Former DG, BINA were present in the review workshop. The respected five expert members of the workshop critically reviewed the presentations and passed comments/suggestions which are being forwarded to the concerned institutes in formulating future research programs towards achieving SDGs as well as food and nutritional security of the country.

**b) Annual Review Workshop on Crop Production Program of NARS Institutes: Research Progress 2019-20 and Research Program 2020-21**

A review workshop on 'Crop Production' program of NARS Institutes was held at auditorium of BARC during 23-24 September, 2020. The objective of the workshop was to review the research progress of 2019-20 and programs of 2020-21 of NARS institutes to avoid duplication of research in alliance with different vision documents and research priority. Expert scientists of the relevant fields were present as expert members in the workshop and provided various remarks to follow. In the inaugural session Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was present as Chief Guest while Dr. Md. Aziz Zilani Chowdhury, Member-Director, Crops Division, BARC chaired the session. Dr. Shah Md. Monir Hossain, Principal Scientific Officer (Crops), BARC welcomed the participants and briefed the last year recommendations division.



*Workshop on Crop Production Program of NARS Institutes*

There were four technical sessions in the workshop which were chaired by Dr. Md. Abdur Razzaque, Former EC, BARC; Dr. Md. Aziz Zilani Chowdhury, Member Director (Crops), BARC; Dr. Abdul Jalil Bhuiyan, Former DG, BRRI and Dr. Md. Rafiqul Islam Mondal, Former DG, BARI.

The expert members and valued participants provided their suggestions and comments following presentations with a hope to be integrated in outlining future research programs for achieving sustainable food and nutrition of security in align with the SDGs.

c) **Annual Review Workshop on Insect Management Program: Research Progress 2019-20 and Research Program 2020-21**

A review workshop on 'Insect Management Programs' was held at conference room-1 of BARC on 28 September, 2020. The objective of the workshop was to review the research progress 2019-20 and programs 2020-21 to avoid duplication of research and to review the proposed research programs in alliance with different vision documents and priority of research work. Scientists and academia of the relevant fields from research institutes and agricultural universities were present as expert members in the workshop and put their various remarks to be integrated in formulating future research activities. The inaugural session was graced by Dr. Shaikh Md. Bokhtiar, Executive Chairman, BARC was as the chief guest. The session was chaired by Dr. Md. Aziz Zilani Chowdhury, Member-Director (Crops) and Dr. Shah Md. Monir Hossain, Principal Scientific Officer (Crops), BARC welcomed the participants and briefed the last years recommendations.



*Workshop on Insect Management Program*

There were two technical sessions chaired by Dr. Md. Nurul Alam, former EC, BARC, and Md. Aziz Zilani Chowdhury, Member Director (Crops), BARC, respectively. Dr. Md. Nurul Alam, former EC, BARC, Dr Syed Md. Nurul Alam, former Director (Planning and Training), BARI, Professor Khandker Md. Shariful Islam, Department of Entomology, BAU, Dr. Md. Nurul Alam, former EC, BARC, Professor Dr. Md. Ruhul Amin, Department of Entomology, Sher-E-Bangla Agricultural University were present as expert members. Expert members and valued participants placed their valuable suggestions/recommendations which were forwarded to the concerned institutes to integrate in developing future research programs towards achieving food and nutrition of security.

d) **Annual Review Workshop on Disease Management Program of NARS Institutes: Research Progress 2019-20 and Research Program 2020-21**

A review workshop on Disease Management Program of NARS Institutes was held at Conference Room-1 of BARC during 27 September, 2020. The objective of the workshop was to review the progress of 2019-20 and the research program 2020-21 of nine NARS Institutes to avoid duplication of research and to review the proposed research programs for further improvement in alliance with different vision documents and priority research. Scientists and academia of the relevant fields of research institutes and agricultural universities were present as expert members in the workshop and put their various remarks to follow. The inaugural session was chaired by Dr. Md. Aziz Zilani Chowdhury, Member Director, Crops Division and Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was the Chief Guest. Dr. Shah

Md. Monir Hossain, Principal Scientific Officer (Crops), BARC welcomed the participants and briefed the last year recommendations for all the NARS institutes under different categories. Dr. Susmita Das, Principal Documentation Officer, BARC was anchoring the inaugural session and introduced the speakers, made announcements, and engaged with the audience to keep the ceremony agenda flowing.



*Workshop on Disease Management Program of NARS Institutes*

Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC as Chief Guest told the scientists to develop different effective management tools to reduce existing post-harvest losses to an acceptable range. He stressed to develop different disease resistant crop varieties and introduce advanced cultivation techniques to reduce input cost and post-harvest losses as well. The Session Chair, Dr. Md. Aziz Zilani Chowdhury stressed for safe food production towards a healthy life. He gave thrust to adopt the IPM system to manage different plant diseases at the farmer's level which is a national priority. He stated that 10-20% yield would be increased if 05% plant diseases are controlled and he advised the scientists to be more conscious in this regard. There were three technical sessions in the workshop which were chaired by Prof. Dr. Ismail Hossain Mian, Dept. of Plant Pathology, BSMRAU; Dr. Md. Aziz Zilani Chowdhury, Member Director (Crop), BARC; The recommendation session was chaired by Dr. Md. Aziz Zilani Chowdhury, Member Director (Crop) BARC on behalf of EC, BARC. There were three expert members who provided valuable suggestions/recommendations for improving future research programmes after integration in developing research programs towards achieving SDGs and other development goals.

**e) Annual Review Workshop on Biotechnological Program: Research Progress 2019-20 and Research Program 2020-21**

A review workshop titled 'Biotechnological Program of NARS Institutes' including research program based on the National Biotechnology Policy 2012 was held at Conference Room-1 of BARC on 30 September, 2020. The objective of the workshop was to review the research progress of 2019-20 and programs of 2020-21. Scientists and academia of the relevant fields from research institutes and agricultural universities were present as expert members and put their valuable remarks to be persuaded. Dr. Shah Md. Monir Hossain, Principal Scientific Officer (Crops), BARC welcomed the participants and presented the last year's recommendations before the audience.



*Workshop on Biotechnological Program*

The chief guest urged scientists to strengthen tissue culture activities for varietal development as per need of the nation and consumers. The session chair Dr. Md. Aziz Zilani Chowdhury opined that biotechnology started with tissue culture in Bangladesh and being played a vital role to achieve food security especially for potato production. He emphasized on a strong collaboration in Public-Private-Partnership (PPP) for technology development through biotechnological approach and to exchange views and experiences for scaling up skills of man power. Participating institutes presented their respective biotechnological research progress including research plan based on the National Biotechnology Policy 2012. A number of recommendations and opinions were put forward by four expert members and audiences for integration in the future research programmes of respective institutes.

f) **Consultation Workshop on Biotechnological Research Priority for NARS Institutes**

A day-long consultation workshop on Biotechnological Research Priority for NARS Institutes was held on 29 December, 2020 at Bangladesh Agricultural Research Council (BARC), Dhaka. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC graced the inaugural session as chief guest and the session was chaired by Dr. Md. Aziz Zilani Chowdhury, Member Director, Crops Division, BARC. Dr. Shah Md. Monir Hossain, Principal Scientific Officer (Crops), BARC welcomed the participants. Dr. Md. Aziz Zilani Chowdhury, Member Director, Crops Division presented a brief on research priorities of major crops in Bangladesh in order to sensitize the audience.



*Workshop on Biotechnological Research Priority for NARS Institutes*

The chief guest Dr. Shaikh Mohammad Bokhtiar, EC, BARC emphasized importance of biotech tools for improving crop quality and stress tolerance. He also urged all concerned to undertake target oriented coordinated joint projects to achieve better result through integration of everybody's knowledge and expertise. He suggested developing specific joint biotech research proposals based on national demand and submitting the same to Krishi Gobeshona Foundation (KGF) for funding in respect of climate change mitigation and nutrition sensitive agriculture. The relevant personnel from BARI, BRRI, BJRI, BSRI, BINA and CDB attended technical sessions. Dr. Md. Aziz Zilani Chowdhury chaired the technical sessions. Achievements, current experiments/programs and future biotech research thrusts were presented by heads of biotech division of National Agricultural Research Institutes. After a threadbare discussion comments and suggestions provided by the experts a priority was set as per institutional skill and forwarded to the respective institutes for integration in their future programs.

**g) Workshop on Biotechnology Research Based on Biotechnology Policy 2012**

The Progress Review Workshop (9th) on Biotechnology Research Based on the Biotechnology Policy 2012 was held at BARC on 08 December 2020. Under the guidance of the Plant Biotechnology Technical Committee, the crop-related NARS institutes, agricultural universities and private sector have prepared a short (2017-19), mid (2017-22) and long term (2017-2027) biotechnology research plan based on Biotechnology Policy 2012.



*Workshop on Biotechnology Research Based on Biotechnology Policy 2012*

The research areas of the time-bound plan are- i) Developing standard of tissue culture/micropropagation method for prompt production of high quality and disease-free seed/sapling of important plants crops, bamboo and timber, ii) Selection/ reproduction of very important crops (paddy, wheat, pulse, oilseed, etc.) by marker for specific use, iii) Developing nutritional value of crops; producing transgenic plants which are resistant to insects and diseases, abiotic stress-tolerant and harmonious to climate change, iv) Identification, differentiation and determination of characteristics of necessary genes in order to develop variety of plants by transferring genes, v) Determination and conservation of molecular characteristics of plants (including medicinal plants) genetic resources and necessary microorganisms in agriculture sector, vi) Revealing genome of important crops and forest plants for specific use, vii) Introduction, evaluation and testing of transgenic crops and viii) Identifying plant diseases at molecular level. The progress of mid term and the long term activities were highlighted in the workshop. The compiled report was sent to the ministry of agriculture.

**Scientific publications**

Qaumruzzaman, A.K.M., M.M.R. Salim, L. Akhter, M.M. Rahman and M.A.Z. Chowdhury. 2020. Combining ability study in some genetic stocks of bottle gourd. London Journal of Research in Science: Natural and Formal. 20 (3):93-102

**Other publications and technology transfer activities**

1. Third Country Report on “The State of Plant Genetic Resources for Food and Agriculture, Bangladesh (draft) in collaboration with Planning and Evaluation division, BARC (p. 157, November 2020)
2. Proceeding of the workshop on ‘Production and Marketing of Tissue Culture Based Planting Material of High Value Crops’ (155 pages; June 2021)

**Publication : Under PBRG-PGR (ID# 128), PIU-BARC, NATP-2**

1. N. Islam, I. Ahmed, R. Afroz, S. Rahman and A.K. Azad, 2019. Morphological Diversity in Indigenous Cucumber Genotypes of Bangladesh. Global Journal of Science Frontier Research: D Agriculture and Veterinary. Online ISSN: 2249-4626 & Print ISSN: 0975-5896. (BARI)
2. F.N. Jahan, M.A. Rahim, S.M. Bokhtiar and A.K. Samanta, 2019. Potentiality of Underutilized Crop *Dioscorea spp.*: a source of Nutraceutical. SAARC J. Agric., 17(2): 1-13. (BAU)
3. F.N. Jahan, M.A. Rahim, M.M. Hossain, M.H. Rahman, M.A.Z. Chowdhury, M. Moniruzzaman and A.K. Samanta, 2020. Assessment of Quality Characteristics of Boiled Yam tubers Available in Bangladesh, SAARC J. Agric 18(1): 173-182. (BAU)
4. S.E. Bilkis, M.A. Rahim, M.M. Hossain and M.H. Rahman, 2020. Morphological Characterization of Indigenous Banana and Plantains. J. Agrof. Env., 20 (1&2). (Status-Accepted; BAU).
5. S.E. Bilkis, M.A. Rahim, M.M. Hossain and M.H. Rahman, 2020. Molecular Characterization of Indigenous Banana and Plantains. J. Agrof. Env., 20(1&2). (Status-Accepted; BAU).
6. M. Khalequzzaman, M. F. R. K. Prince, M. Z. Islam, E. S. M. H. Rashid and M. A. Siddique, 2021. Microsatellite Marker Based Genetic Diversity Analysis of Aman Rice (*Oryza Sativa L.*) Germplasm Bangladesh. J. Plant Breeding and Genetics. (Status-Accepted; BIRRI).
7. M.A. Rahman, M.M. Ahmed, M.R. Alam, A.M.S. Rahman and S. Biswas. 2020. Morphological Diversity of Some Locally Collected Germplasm of Sugarcane. Bangladesh J. Sugarcane. (41). (Status- Accepted; BSRI).
8. Molecular Diversity Assessment of Some Jute Germplasm using SSR Primers. J. Plant Science Today. (Status-Submitted; BJRI).

• **Leaflet**

- ১। বাউ কলা উৎপাদনের উন্নত প্রযুক্তি;
- ২। বাউ মেটে আলু চাষ করুন, রোগ প্রতিরোধ ক্ষমতা বৃদ্ধি করুন;
- ৩। বাউ কচুর চাষ করুন, খাদ্য, পুষ্টি ও অর্থনৈতিক নিরাপত্তা নিশ্চিত করুন।

## Technology Transfer and Monitoring Unit (TTMU)

### Name of Professionals

Name of Professionals	Designation
Dr. Fauzia Yasmin	Director
Dr. Suraya Parvin	Senior Scientific Officer
Dr. Zakiah Rahman Moni	Senior Scientific Officer

### 1. Training & Training Workshops

Technology Transfer and Monitoring Unit (TTMU) is working to facilitate promptly transfer of technologies generated by the National Agricultural Research System (NARS) to Extension agencies viz. Department of Agricultural Extension (DAE), Department of Fisheries (DoF), Department of Livestock (DLS), private and public organizations. TTMU is also coordinating to strengthen the linkages among research, extension and farmers through different workshops, trainings, meetings, seminars etc. On this contextual, in the reporting period (July 2020-June 2021) TTMU organized 1 training programmes, 2 workshops, 7 monitoring tours and one PBRG sub project on “*Transfer of Agricultural Technologies to Farmers Level for Increasing Farm On Productivity*” ID: 005 of NATP-2 project is going on. One book and one training manual as well as one booklet and one leaflet under PBRG sub-project has been published in this reporting year. The brief descriptions of those activities given below:

### 2. Project Implementation

Dr. Fauzia Yasmin, Director (TTMU), BARC is involved as Coordinator and Dr. Zakiah Rahman Moni, SSO (TTMU) is associate coordinator of this project. Ten NARS institutes (BARI, BINA, BFRI, BJRI, BLRI, BSRI, SRDI, BRRI, CDB, BWMRI) are the components of this sub-project.

### Research Highlight (Developed Technology)

A technology of “Rapid Technology Transfer (RTT) model” was developed from TTMU, BARC for transferring technologies at farmers’ level under PBRG sub-project entitled “*Transfer of Agricultural Technologies to Farmers’ level for Increasing Farm Productivity*” ID-005, PIU-BARC, NATP-2. A total number of 63 technologies from ten institutes (BWMRI-4, BARI-23, BINA-8, BSRI-3, BRRI-12, BJRI-4, CDB-4, SRDI-1, BLRI-2, BFRI-2) have been transferred to 200 farmers of 35 upazilas under 17 districts. The technologies which are developed by CRG and PBRG under PIU-BARC, NATP-2 could be transferred economically and rapidly through this model for dissemination and strengthening Research-Extension-Farmer linkage.



Technology of Rapid Technology Transfer (RTT) model

### **Technology Transfer and Field Monitoring Activities:**

TTMU coordinated with 10 institutes to transfer NARS institutes generated economically viable 63 technologies rapidly among 200 farmers for higher agricultural productivity and profitability with solving problems at farmers' level.

Monitoring activities were strongly hampered due to pandemic corona virus situation. In spite of that TTMU monitored Technology transfer activities at seven sites of six NARS Institutes as follows:

### **Field Monitoring of PBRG Sub-project (ID-005) at seven sites of 6 NARS Institutes during July, 2020 to June, 2021.**

#### **BINA component:**

Dr. Fauzia Yasmin, Coordinator Director (TTMU) and Dr. Zakiah Rahman Moni SSO (TTMU) and Associate coordinator along with Dr. Rathi Mahamud Morshed SSO, PBRG, sub project # ID 005 PI and CO-PI of respective institute monitored BINA developed Improved Cropping Pattern: early T. Aman (BINA Dhan-11) - HYV Mustard (BINA Sharisha-9)- Late Boro (BINA Dhan-10) of six farmers at Mirkandapara village of Parangonj union of Sadar Upazila of Mymensingh district on 02 February, 2021. However, concerned farmers are suggested to exchange their last year success to their neighboring farmers. Performance of trial plots was good.



*Monitored at Mymensingh , BINA 02 February, 2021*

#### **BINA component:**

Dr. Fauzia Yasmin, Coordinator monitored BINA developed Improved Cropping pattern: T. Aman (BINA Dhan-11) - HYV Lentil (BINA Masur-8)- Aus (BINA Dhan-14, BINA Dhan-19) of six farmers at Mathurapur village of Gazna union of Modhukhali upazila under Faridpur district on 01 March, 2021. Concerned farmers were suggested to harvest their crop 7 to 10 days later. They are also suggested to exchange their last year success to their neighboring farmers. Performance of trial plots was good.



*Monitored at Faridpur , BINA 01 March, 2021*

**BLRI component:**

Dr. Fauzia Yasmin, Coordinator monitored BLRI developed preservation of green grasses/fodder (Var. BLRI Napier 1, 4) through silage technique of 8 farmers at Tiabond village of Potajia union of Shahjadpur upazila of Sirajgonj district on/during 10-11 February, 2021. Preserved grasses will be used as fodder to overcome fodder crisis in the rainy season. Concerned farmers are suggested to gap filling in the trial plot, where applicable. Performance of trial plots was good.



*Monitored at Sirajgonj, BLRI on 10-11 February, 2021*

**BSRI component:**

Dr. Fauzia Yasmin, Coordinator, monitored BSRI developed technology BSRI Akh 42 variety (chewing) and BSRI Akh 45 variety (gur) trial plots of seven farmers at Dabirgonj and Protap villages of Ullapara upazila, Kalipur village of Salanga upazila, Ghorachora village and Brahmoboyra village of Sadar upazila under Sirajgonj district on/during 08-09 February, 2021. Performance of trial plots was good. However, concerned farmers were suggested for thinning and gap filling in their trial plots, if applicable. They were also suggested to exchange their last year success to their neighboring farmers.



*Monitored at Sirajgonj, BSRI on 08-09 February, 2021*

**BJRI component:**

Dr. Zakiah Rahman Moni, Associate Coordinator, monitored BJRI developed BJRI Tossa Pat-8 (Rabi-1) variety trial plot of eight farmers of Diaragolra & Golracharkhanda villages of Jagir union under Sadar upazila of Manikgonj district on 06 October, 2020. Long lasting flood and continuing heavy rainfall seriously hampered the crop. Five to ten days old seedlings were found in the trial plots during monitoring. Although, crop field was inundated and damaged several times due to flood. Condition of germinated seedling was good.



*Monitored at Manikgonj, BJRI on 06 October, 2020*

**BARI component:**

Dr. Fauzia Yasmin, Coordinator Director (TTMU) and Dr. Zakiah Rahman Moni SSO (TTMU) and Associate coordinator along with Dr. Rathi Mahamud Morshed SSO, PBRG, sub project # ID 005 PI and CO-PI of respective institute, Monitored newly established fruit orchard of two farmers at Babugonj upazila, Barishal. The conditions of the orchards were good. Md. Jahidul Islam Feroz, owner of the orchard informed that the size



*Monitored at Barisal, BARI on 20 -23 December, 2020.*

of malta grown in his orchard was good and he earned a lot. Although nutritional deficiency was observed in 2 to 3 plants. Also monitored newly established fruit orchard of four farmers at Muladi upazila, Barishal. The condition of these orchards was good. Orchard owners informed that they sold guava, banana, malta from their orchard and they earned a lot. Monitoring was done during 20-23 December, 2020.

### **BFRI component:**

Dr. Fauzia Yasmin, Coordinator and Dr. Zakiah Rahman Moni, Associate Coordinator monitored the technology entitled Pabda & Gulsha with Rui and shing fish at Tegouri village of Gouradar union of Nakla upazila under Sherpur district on 03 February, 2021. Fishes of 5 ponds were harvested on December, 2020. The trial entitled Validation & Demonstration of Culture of Pabda (*Ompok pabda*), Gulsha (*Mystus cavasius*) with Rui (*Labeo rohita*) was demonstrated in 03 farmers pond having the average pond size of 0.36 acre in Nokla upazilla of Sherpur district. After six months rearing, the production obtained were 8043, 7862 and 7707 kg/ha from Pond-1, pond-2 and Pond-3, respectively. The net profit of pond-1 and pond-2 were Tk. 69945 and Tk. 65860, respectively. The trial of the technology showed satisfactory impact upon neighboring farmers.



*Monitored at Sherpur, BFRI on 03 February, 2021*

### **Collection of Technology Data**

TTMU constructed a questionnaire to assess the data base scenarios of transferred and non-transferred technologies generated by the researchers from the inception of 10 NARS institutes. Two enumerators were recruited to collect technology related information from these 10 NARS institutes. Information from CDB, SRDI, BSRI, BRRI, BFRI, BJRI and BINA has already been collected. The technology related information collection of the rest 2 institutes (BARI and BLRI) is stopped due to pandemic Corona virus situation.



*Discussion meeting with Dr Md. Mojibur Rahman, Director Agriculture, BJRI*

### **Annual Review Workshop (PBRG, ID-005):**

2<sup>nd</sup> Annual Progress Review workshop for the project was held on 14 December 2020 at BARC Auditorium. Dr. Fauzia Yasmin, Director (TTMU) and coordinator presided over the workshop. All PI & Co-PI of ten components (BARI, BWMRI, BRRI, BINA, BFRI, BSRI, BLRI, BJRI, SRDI& CDB), extension personals (DAE, DoF, DLS), scientists and officials of BARC, Expert members were present in the workshop. Progress Activities of ten NARS institutes along with BARC part were presented in this workshop. Comments and suggestions made by the Annual Review workshop was compiled and sent to the respective components.



*Annual Review Workshop (PBRG-ID 005), 14 December 2020*

### **Coordination meeting:**

A day-long 2<sup>nd</sup> coordination meeting was held on 19 October 2020 at BARC with the active participation of all 10 components. Dr. Fauzia Yasmin, Director (TTMU) and coordinator presided over the meeting. Discussions of the coordination meeting was compiled as proceedings and also sent to the concerned components for necessary action. In addition, 3<sup>rd</sup> co-ordination meeting was held on 06 May 2021 using zoom platform.



*Coordination meeting (PBRG-ID 005), 19 October 2020*



*Coordination meeting (PBRG-ID 005), 06 May 2021 using zoom platform.*

## **3. Preparation Policy Document and Inputs:**

### **Inputs/Comments:**

#### **BARC comments on:**

- The implementation of the decision in the meeting held on the participation of women entrepreneurs in investment.
- The Schedule of Mobile Court Act 2009 including finalization of draft amendments to Bangladesh Water Act, 2003 and Bangladesh Water Rules, 2018
- ‘Inland Navigation Act, 2021’ (Draft) and ‘Commercial Shipping Act, 2021 (Draft)’
- The draft ‘Aircraft Accident and Catastrophic Incident Investigation Rules-2021’

- Local Government Institutions Election Act, 2020
- National Action Plan for the Prevention of Violence against Women and Children for Monitoring and Evaluation Frame work
- Report on the progress of implementation of the decisions taken at the meeting of the National Disaster Management Council (NDMC)
- The draft Government Property Management Rules 2020 received under the Restitution of Deeded Property Act

#### **4. Activities of Innovation Team, Computer & GIS, BARC for Ministry of Agriculture:**

Dr. Fauzia Yasmin, Director (TTMU) attended in every monthly meeting, prepared innovation idea as a member of innovation team of BARC.

#### **An Innovation Idea:**

An innovation idea has been devised to simplify the “Fertilizer Specification Approval Process” service. Dr. Fauzia Yasmin, Director (TTMU) and Dr. Zakiah Rahman Moni, SSO (TTMU) submitted innovation idea at Computer and GIS Unit of BARC as team member of Shapla group on 25-01-2021

#### **5. Training, Workshop, Seminar, etc. (Foreign and Local) Organized**

##### **A. Training: Training of Trainers (ToT) Program on “Spices Technologies”**

Giving emphasis on human immunity during the pandemic Covid-19 situation and also rising price of onion two day-long Training of Trainers (ToT) program on “Spices Technologies” was conducted at Spices Research Center (SRC), Shibganj, Bogura on 29-30 December, 2020 funded by PIU-BARC, NATP-2. This program is jointly organized by Technology Transfer and Monitoring Unit (TTMU), Bangladesh Agricultural Research Council (BARC) and SRC, BARI, Shibganj, Bogura. Thirty Agriculture Officer (Upazilla Agriculture Officer, Agriculture Extension Officer) from 27 districts were participated. Mr. G. M. A. Gofur, Additional Director, DAE Bogura region and Dr. Fauzia Yasmin, Director (TTMU), BARC was presented as Chief guest and Special guest in inaugural session respectively. Dr. Md. Hamim Raza, Cheif Scientific Officer and Head, SRC, BARI, Shibganj, Bogura was the chairperson in inaugural session.

Twenty five different technologies on “Spices Crop Production” were transferred in two days training program such as modern technologies of Onion cultivation, Bunch Onion, Onion seed, Chive, Ginger, Garlic, Turmeric, Chili, Coriander, Black Cumin, Fenugreek, Fennel, Dill, Sickel shaped fenugreek, Bay leaf, Cinnamon, Plum, Black pepper production. Different production, propagation technique and method of spice crop plantation, pest, fertilizer, soil, irrigation management, collection, preservation and processing of spice crops were transferred to the

extension personnel through this training. A detail conversation was occurred between participants and researchers through lecture and visits (field and laboratory). The participants expressed that this training is more effective for Covid-19 situation and also in the case of rising price of onion. The participants also suggested that, this type of training programme could be conducted by TTMU, BARC in another region and duration should be increased for strengthening linkage between research and extension.



*ToT program on Spices technologies at SRC, BARI, shibganj, Bogura on 29-30 December 2020*

## **B. Workshop**

### **Review Workshop on “Matured Technology Developed by NARS Institutes (2018-19 to 2019-20)”**

A Review Workshop on “Matured Technology Developed by NARS Institutes (2018-19 to 2019-20)” was held on 10 March 2021 at BARC Auditorium-1 chaired by Dr. Fauzia Yasmin, Director (TTMU). Scientist representative of NARS institutes extension organizations (DAE, DoF, DLS), BADC, DAM, SCA, NATP-2 were participated in this workshop. A total of 273 matured technology were presented by 12 NARS institutes. Dr. Md. Abdur Razzaque, Sector Coordinator (Extension), PMU, NATP-2 and Former Executive Chairman, BARC was the Chairperson of the Technical session I & II. Representative of each institutes (CDB, BINA, BRRI, BWMRI, BSRI, BFRI (Fish), BLRI) and (BARI, BSRTI, BFRI (Forest), BJRI, SRDI) presented technologies in technical session I & II respectively.



*Review Workshop on “Matured Technology Developed by NARS Institutes (2018-19 to 2019-20)” on 10 March 2021*

### C. Meeting Organized

#### **Agriculture Technology Extension Coordination Committee (ATECC) Meeting for Rabi Season /2020**

A meeting of Agriculture Technology Extension Coordination Committee (ATECC) was held on 16 November 2020 at BARC for Rabi Season/2020. The meeting was presided by Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC. In this meeting Dr. Shaikh Mohammad Bokhtiar welcomed all the members by Zoom Platform in Covid-19 pandemic situation. He suggested that this meeting should be conducted regularly to strengthen research-extension linkage for rapid dissemination of the newly developed technologies. Mr. Mahfuj Hossain Mirdha, Director (In-Charge), Field Service wing, DAE coordinated this meeting. All the participants of ATECC from NARS institutes (BARI, BRRI, BINA, BSRI, BJRI, CDB, SRDI), DAE, DAM, BADC, AIS, BIRTAN, SCA, Hortex foundation, BARC and private organization joined in the meeting by Zoom platform. Md. Abdul Majid, Deputy Director (Extension), DAE presented all activities of this meeting. Dr. Fauzia Yasmin, Director (TTMU), BARC as member of this committee recommended to disseminate promising technologies viz. BARI Gom-30, BARI Gom-32, BARI Gom-33, WMRI Gom-1 and Binasharisha-9 for robi season through demonstrations/field day selected from PBRG sub-project entitled “*Transfer of Agricultural Technologies to Farmers’ level for Increasing Farm Productivity*” ID-005, PIU-BARC, NATP-2



*ATECC meeting for Rabi/2020 16 November2020*

#### **ATECC Meeting for Kharif-1 Season/2021**

A meeting of Agricultural Technology Extension Coordination Committee (ATECC) was held on 28 February 2021 at BARC for Kharif Season/2021. The meeting was presided by Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC. He welcomed all the members and opined this meeting is the reflection of the research organization, DAE, private organization are working jointly for the food and nutritional security for the nation. The ATECC meeting should conduct regularly to strengthen research-extension linkage for rapid dissemination of the newly generated technologies by the NARS institutes. Mr. A. K. M. Monirul Alam, Director (In-Charge), Field Service Wing, DAE coordinated this meeting. All the participants of ATECC from NARS institutes, DAE, DAM, BADC, AIS, BIRTAN, SCA, Hortex foundation and private organization attended in the meeting. Md. Abdul Majid, Deputy Director (Extension), DAE presented all the

activities of this meeting. Dr. Fauzia Yasmin, Director (TTMU), BARC as member of this committee was presented in this meeting.



*ATECC meeting for Kharif-1/2021.28February 2021*

## **6. National and International Linkage (MoU/Agreement)**

### **Assisted to the activities/Technical support**

- Helped and given cooperation to the activities of Executive Chairman, BARC
- Provided technical and official support to other divisions of BARC as part of good cooperation and good interdivisional relationship.

### **Activities with other Organization**

- Attended inaugural session of SAC GB meeting
- Participated and given cooperation actively for SAARC Charter Day-2020
- Coordinated with the personnel of DAE, DoF, DLS

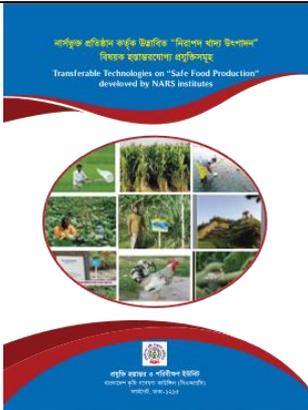
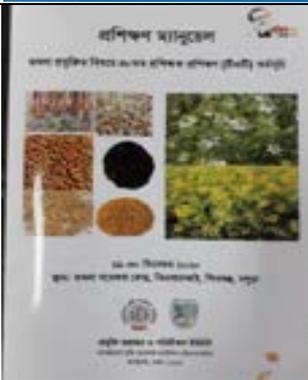
### **Others:**

Officers of TTMU has attended a good number of Workshops, Seminars, Training and Meetings

## **7. Publication(s) by the division/section in different journals/media**

In this reporting year TTMU, BARC published one book, one training manual, two workshop proceedings, one booklet, one leaf let has been published.

**Book (1):**

<p>নার্সভুক্ত প্রতিষ্ঠান কর্তৃক উদ্ভাবিত “নিরাপদ খাদ্য উৎপাদন” বিষয়ক হস্তান্তরযোগ্য প্রযুক্তিসমূহ শিরোনামে একটি বই জুন ২০২১ এ প্রকাশিত হয়েছে।</p>	
<p><b>Training Manual: (1)</b> মশলা প্রযুক্তির বিষয়ে ১টি প্রশিক্ষণ ম্যানুয়াল প্রকাশিত হয়েছে। ২৯-৩০ ডিসেম্বর ২০২০</p>	
<p><b>Book let</b></p>	
<p><b>Leaf let</b></p>	

**Workshop Proceeding: 02**

- Yasmin, F., Moni, Z. R., (2020-2021): A Review Workshop on “Matured Technology Developed by NARS Institutes (2018-19 to 2019-20)” on 10 March 2021. Technology Transfer and Monitoring Unit, BARC, Farmgate, Dhaka

- Yasmin, F., Moni, Z. R., Morshed, R.M. (2019-2020): “Annual Progress Review Workshop of PBRG sub-project “*Transfer of Agricultural Technologies to Farmers Level for Increasing Farm Productivity*”ID: 005 of NATP-2 on 14 December 2020. Technology Transfer and Monitoring Unit, BARC, Farmgate, Dhaka

## **8. Publications as Report**

### **Monitoring Report**

#### **Field Monitoring Report**

- i. Yasmin, F., Moni, Z. R. , Morshed, R. M. (2021). Report on Field Monitoring of PBRG sub project NATP-2 of BARC implemented in Mymensingh by BINA.
- ii. Yasmin, F., Morshed, R.M. (2021). Report on Field Monitoring of PBRG sub project NATP-2 of BARC implemented in Faridpur by BINA. Monitored with Monitoring Team of coordination Unit. 202
- iii. Yasmin, F., Moni, Z. R. , Morshed, R.M. (2021). Report on Field Monitoring of PBRG sub project NATP-2 of BARC implemented in Sirajganj by BLRI.
- iv. Yasmin, F., Moni, Z. R., Morshed, R.M. (2021). Report on Field Monitoring of PBRG sub project NATP-2 of BARC implemented in Sirajganj by BSRI.
- v. Moni, Z. R. , Morshed, R.M. (2020). Report on Field Monitoring of PBRG sub project NATP-2 of BARC implemented in Manikgonj by BJRI monitored with Monitoring Team of coordination Unit.
- vi. Morshed, R.M. (2020). Report on Field Monitoring of PBRG sub project NATP-2 of BARC implemented in Barishal by BARI.
- vii. Yasmin, F., Moni, Z. R. , Morshed, R.M. (2021). Report on Field Monitoring of PBRG sub project NATP-2 of BARC implemented in Sherpur by BFRI.

### **Progress and Work Plan Report**

- Yasmin, F., Moni, Z. R., Morshed, R.M. (2020-2021): Half yearly progress report on PBRG sub-project “*Transfer of Agricultural Technologies to Farmers Level for Increasing Farm Productivity*”ID: 005 of NATP-2. Technology Transfer and Monitoring Unit, BARC, Farmgate, Dhaka
- Yasmin, F., Moni, Z. R., Morshed, R.M. (2020-2021): Annual Progress Report on PBRG sub-project “*Transfer of Agricultural Technologies to Farmers Level for Increasing Farm Productivity*”ID: 005 of NATP-2. Technology Transfer and Monitoring Unit, BARC, Farmgate, Dhaka
- Yasmin, F., Suriya, P., Moni, Z. R. Annual Progress and Work-plan Report: (2020-2021) and future work-plan (2021-22)” Technology Transfer and Monitoring Unit, BARC, Farmgate, Dhaka
- Budget Report according to Work-plan: (2020-2021): “Budget for future work-plan (2021-22). Technology Transfer and Monitoring Unit, BARC, Farmgate, Dhaka
- Annual Plan Agreement (APA) Report: (2021-2022): APA Report of Technology Transfer and Monitoring Unit, BARC, Farmgate, Dhaka

### **9. Others:**

Provide input and activity of three months (July-September, October-December, January-March and April-June) published in BARC News Letter for 2020-2021

### **10. Regular Activities**

Attended a good number Training, Workshop, Seminar, Meeting  
Innovation Team attended in every month  
Preparation Meeting Minute

# PLANNING AND EVALUATION DIVISION

## 1. Coordination and Monitoring

### a. Coordination of Projects

Coordination of Programme Based Research Grant (PBRG) sub-projects, under PIU, BARC, NATP-2 and Other Projects

#### Total PBRG and Other Projects: 06

- Plain land eco-system (Project ID: 061)
- Char land eco-system (Project ID: 096)
- Coastal eco-system (Project ID: 098)
- Drought eco-system (Project ID: 097)
- Support to Seaweed Cultivation, Processing and Marketing through Assessment and Capacity Development (TCP/BGD/3704)
- Capacity Building for Conducting Adaptive Trials on Seaweed Cultivation in Coastal Areas (3rd Phase)

### b. Monitoring and Evaluation of Research Projects

- Regular desk monitoring and reporting has been done.
- Project Completion Report (PCR) of 3 projects has been submitted to PIU-BARC, NATP-2. The reviewed PCR are correcting as per reviewer comments.

## 2. Field Monitoring 2020-21

### Plain Land Ecosystem (Project ID: 061)

No. of Field Visit: Total 04

- i. Date and venue of visit: 21.08.2020; BFRI, Fulpur

#### Team members

Dr. Md. Abdus Salam

Dr. Kabir Uddin Ahmed

Dr. ASM Mahbubur Rahman Khan

## Suggestions

Early vegetables production in homestead, management of previously transplanted fruit and spices crop, data collection of two cropping pattern and preparation of report, high value fish pabda, golsa, shing and magur cultivation, Livestock vaccination. Cattle fattening programme supposed to be strengthened.

ii. Date and venue of visit: 05.09.2020; BRRI, Tengra, Sreepur, Gazipur

### Team members

Dr. Md. Abdus Salam

Dr. Kabir Uddin Ahmed

Dr. ASM Mahbubur Rahman Khan

Dr. Subhash Chandra Sarker

## Suggestions

Early vegetables cultivation in the homestead, motivate farmers in organic manure use in homestead vegetable production, management of planted fruit tree at homestead, for controlling insect of papaya use admire, quick sale of pani kochu, data collection of two cropping pattern and preparation report, transplant drumstick at homestead area, release fingerlings in high density and supply feed regularly. Livestock vaccination, cattle fattening programme to be strengthened.



*Views of the Field Monitoring*

iii. Date and venue of visit: 02.01.2021; BARI, Sherpur

### Team members

Dr. Md. Abdus Salam

Dr. Kabir Uddin Ahmed

Dr. ASM Mahbubur Rahman Khan

## Suggestions

More care needed on homestead vegetable production, sowing new vegetable instead of bitter gourd, apply fungicide in the potato field for late blight disease, take care fish for winter diseases, vaccination for cattle, duck and chicken and de-worming, disseminate information about cattle fattening, two LSP to be developed and one successful pigeon reared advise for increasing number of pigeon.

iv. Date and venue of visit: 08.01.2021 to 09.01.2021 at BARI, Rangpur, Azodhapur (Plain land)

Dr. ASM Mahbubur Rahman Khan

Increase capacity of two LSP, cultivate BARI released brinjal variety, mini mixed orchard in the nearby homestead area, producing more vegetables in the homestead area, collect sonali chicken from farm, discussion about PCR preparation.



*Views of the Training Program*

**Project ID: 096**

No. of visit: 04

i) Date and venue of visit: 22.08.2020; BARI, Mymensingh

**Team members:**

Dr. Md. Abdus Salam

Dr. Kabir Uddin Ahmed

Dr. ASM Mahbubur Rahman Khan

**Suggestions:**

Early vegetables cultivation in homestead, management of previously transplanted fruit and spices tree, Data collection of two cropping pattern and preparation of report, Production program on BARI released variety (BARI Sarisha-14,17, BARI LAU-5 and BARI tomato-14 &15), increase number of pond for improve fish culture, Livestock vaccination, Cattle fattening programme to be strengthened from each selected farmer. Khaki Campbell and Sonali chicken should be reared with more number of birds.



*Field Monitoring of Charland Eco System Project*

ii) Date and venue of visit: 25.09.2020 at BARI, Bogura

**Team members:**

Dr. Md. Abdus Salam

Dr. Kabir Uddin Ahmed

Dr. ASM Mahbubur Rahman Khan

**Suggestions:**

Cultivate early winter vegetables in the homestead area, fruit tree management, collect two cropping pattern data and report preparation, increase number of pond and culture high value fish (Pabda, golsha, shing and magur), vaccination and deworming of livestock, implement cattle fattening program.



*Field Monitoring of Charland Eco System Project*

iii) Date and venue of visit: 01.01.2021 at BINA Jamalpur

**Team members:**

Dr. Md. Abdus Salam,

Dr. Kabir Uddin Ahmed,

Dr. ASM Mahbubur Rahman Khan

Md. Emdadul Islam

**Suggestions:**

Introduce BARI Bt Begun-4 or any BARI develop brinjal variety of Begun, Set up BINA Lemon garden in the nearby homestead, motivate farmer for more vegetables production in the homestead area, regular vaccination of cattle, duck and chicken, Ensure FMD vaccine for selected cattle of fattening, motivate more farmer in pigeon rearing.

iv) Date and venue of visit:

10.01.2021 to 11.01.2021 at BARI, Bogura

Dr. ASM Mahbubur Rahman Khan

**Suggestions:**

Take care of homestead vegetables production, arrange field day for production program (Mustard), use fungicide against late blight disease in potato field, take care for disease of fish in the winter season, increase capacity of two LSP, discussion on PCR preparation.

## **Drought and Rain-fed Ecosystem (Project ID: 097)**

No. of field visit: 01

i) Date and venue of visit: 3-5 June/2021 at Nykhongchari, Bandarban

### **Team members:**

Dr. Shaikh Mohammad Bokhtiar, EC, BARC

Dr. Md. Abdus Salam

Dr. Kabir Uddin Ahmed

The team visited the FSRD Drought project activities at Nykhangchari, Bandarban and also attended the training programme on Sheep Rearing and a Field day on Black Bengal Goat Rearing.



*Field Monitoring of Drought and Rain-fed Eco System*

### **a) Regional and International Collaboration & Cooperation**

#### **b) Preparation of Country Reports for the Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture**

Dr. Md. Abdus Salam, Member Director (Planning and Evaluation), Bangladesh Agricultural Research Council (BARC) and National Focal Point (NFP) of ITPGRFA with the help of the Member Director (Crops), BARC and Service provider prepared the draft “Third Country Report on the State of the Plant Genetic Resources for Food and Agriculture, Bangladesh”. The draft report submitted to Secretary of the Intergovernmental Technical Working Group on PGRFA Food and Agriculture Organization, Rome, Italy on December 2020.



#### **b) Tenth Session of the Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture**

Dr. Md. Abdus Salam, Member Director (Planning and Evaluation), Bangladesh Agricultural Research Council and National Focal Point (NFP) of ITPGRFA, Bangladesh attended the Tenth Session of the Intergovernmental Technical Working Group on Plant Genetic Resources for Food and Agriculture meeting held in FAO Head Quarter, Rome, Italy during 22-24 June 2021 through zoom Platform. Following issues were discussed- (i) Implementation of the Second Global Plan of Action for Plant Genetic Resources for Food and Agriculture, (ii) Status and trends of seed policies, (iii) Preparation of the Third Report on the State of the World's Plant Genetic Resources for Food and Agriculture, (iv) Access and benefit-sharing for plant genetic resources for food and agriculture, (v) Digital sequence information on plant genetic resources for food and agriculture,



*Online meeting of Technical Working Group*

(vi) The role of plant genetic resources for food and agriculture in mitigation and adaptation to climate change, etc.

### **c) Training**

Dr. Suraya Parvin, PSO (P&E), (A.C.) BARC attended a training programme entitled “Data Processing and Analysis using STATA and SPSS including Statistical measure” on 09-16 march/2021 conducted by Helen Killer International, Bangladesh at Bangladesh Bureau of Statistics (BBS), Agargaon, Dhaka.



*A view of the Training Session*

## **4. Linkage with International Organizations and Development Partners**

- ১৪/১০/২০২০ তারিখে বাংলাদেশ কৃষি গবেষণা কাউন্সিল এবং ইউনিভার্সিটি পুত্রা মালয়েশিয়া এর মধ্যে শিক্ষা ও গবেষণা ক্ষেত্রে সহযোগিতার নিমিত্ত প্রস্তাবিত সমঝোতা স্মারক স্বাক্ষরের অনুমতি প্রদানে মতামত প্রেরণ।
- ০৭/০৯/২০২০ তারিখে বাংলাদেশ ও আলজেরিয়া এর মধ্যে কৃষিক্ষেত্রে দ্বিপাক্ষিক সহযোগিতা বিষয়ে মতামত প্রদান।
- ২০/১০/২০২০ তারিখে Korea Environment Cooperation (K-eco) এর আর্থিক সহায়তা 2020 Seoul Initiative Network on Green Growth Project Proposal কৃষি মন্ত্রণালয়ে প্রেরণ।
- ০২/১২/২০২০ তারিখে বাংলাদেশ পাট গবেষণা ইনস্টিটিউট (বিজেআরআই) এবং অর্গানিক এগ্রো ও জুট লাইফ ফাইবার টেক এর মধ্যে সমঝোতা চুক্তিপত্রের বিষয়ে মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২১/১২/২০ তারিখে অক্টোবর ২০২১ হতে ৩১ মার্চ ২০২২ মেয়াদে সংযুক্ত আরব আমিরাতের দুবাই-এ অনুষ্ঠিতব্য World Expo 2020 Dubai-তে বাংলাদেশের অংশগ্রহণ ফলপ্রসূ করার লক্ষ্যে আয়োজিত সভার অগ্রগতি'র প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
- ০১/০২/২০২১ তারিখে Memorandum of Understanding (MoU) between the Department of Civil and Environment Engineering, University of Washington (CEE-UW), USA and Department of Agricultural Extension (DAE) Bangladesh এর উপর বাংলাদেশ কৃষি গবেষণা কাউন্সিলের মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ০৭/০১/২০২১ তারিখে ব্রাজিল ও বাংলাদেশের মধ্যে প্রস্তাবিত Basic Agreement on Technical Cooperation এর বিষয়ে মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।

- ২১/০১/২০২০ তারিখে মালদ্বীপ হতে প্রাপ্ত “Memorandum of Understanding (MoU) on Technical and Economic Cooperation between Maldives and Bangladesh” এর খসড়ার বিষয়ে মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২২/০২/২০২১ তারিখে বাংলাদেশ কৃষি গবেষণা কাউন্সিল (BARC) ও ইউনিভার্সিটি পুত্রা মালয়েশিয়া (UPM) এর মধ্যে শিক্ষা ও গবেষণা ক্ষেত্রে সহযোগিতার নিমিত্ত প্রস্তাবিত স্মারক (MoU) স্বাক্ষর বিষয়ে অবহিতকরণ।
- ২৪/০২/২০২১ তারিখে Memorandum of Understanding (MoU) on Cooperation in Agriculture between the Government of Bangladesh and Indonesia এর খসড়ার বিষয়ে মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ০৬/০৩/২০২১ তারিখে Memorandum of Understanding (MoU) between the Department of Agricultural Extension (DAE), Bangladesh and Solidaridad Network Asia Limited (SNAL) এর উপর বাংলাদেশ কৃষি গবেষণা কাউন্সিলের মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ১৮/০৩/২০২১ তারিখে বাংলাদেশ ও ভারতের মধ্যে কৃষিক্ষেত্রে দ্বিপাক্ষিক সহযোগিতার বিষয়ে মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৫/০৩/২০২১ তারিখে বাংলাদেশ ও হাঙ্গেরী সরকারের মধ্যে স্বাক্ষরিতব্য “Agreement on Economic Cooperation and establishment of the Joint Commission of Economic Cooperation” খসড়া চুক্তির উপর মতামত প্রদান।
- ২৮/০৩/২০২১ তারিখে Support to the International Year of Fruit and Vegetables 2021 এর উপর মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৫/০৫/২১ তারিখে Draft Memorandum of Understanding (MoU) between Cotton Research Institute, Egypt and Cotton Development Board of Bangladesh এর উপর মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৫/০৫/২১ তারিখে Follow up action plan on the agreed Joint Commission between Bangladesh and Sri Lanka regarding Agriculture Sector Cooperation এর উপর মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।

## 5. Research Project Development and Evaluation

- **Research and Development of Seaweed in Coastal Areas of Bangladesh.**  
Submitted to KGF
- **Improving Research Qualities of ARIs through Review and Evaluation by an External Panel of Experts**  
Submitted to KGF
- **DPP evaluation**  
Member Director (Planning and Evaluation) acted as a Chairperson of the feasibility study committee of BINA DPP on “Strengthening Research Activities of BINA” on May 2021
- **PBRG NATP-2 Sub projects**

- **Mid-Term Evaluation**

Assistance to the PIU-BARC of NATP-II project activities.

- **Capacity Building for Conducting Adaptive Trials on Seaweed Cultivation in Coastal Areas (3rd Phase)**

- A mid-term evaluation of “Capacity Building for Conducting Adaptive Trials on Seaweed Cultivation in Coastal Areas” was completed during 17 to 19 February 2021 in Nuniarchara, Cox’s Bazar headed by Dr. Md. Aziz Zilani Chowdhury, Member Director (Crops), BARC.
- In the evaluation team other members were Dr. Md. Saifullah, Member Director, Admin & Finance, BARC; Dr. Md. Abdus Salam, Member Director (Planning & Evaluation), BARC; Dr. Tapan Kumar Dey, Sr. Program Specialist (Crops), KGF; Dr. A M Shahabuddin, Associate Professor, SAU, Sher-e-Bangla Nagar, Dhaka and Dr. Kabir Uddin Ahmed, CSO (P&E), BARC.
- A report was submitted to Executive Director of Krishi Gobeshona Foundation, Farmgate, Dhaka.

## **6. Coordination of PBRG sub Projects and Other Projects**

### **i) Plain Land (ID 61)**

**Name of the technology:** Mustard – Mungbean – T. Aus – Black Gram cropping pattern for Madhupur Tract Soil.

A total of forty farmers (male 21 and female 19) were trained on ecofriendly production of vegetables, high valued fish production and poultry rearing in two batches under this program.

### **ii) Coastal (ID 98)**

**Name of the technology:** Integrated Rice-Fish-Vegetables cultivation in Ghers year-round vegetables production through “Modified Atkapalia Model” and “Modified Lebukhali Model” are being practiced among the co-operative farmers of Nowakhali and Patuakhali.

The results clearly indicate that the project is improving the livelihood of the participating farmers. It was observed that integrated farming system intervention is profitable. Effective and sustainable integration was observed in the Crop + Livestock + Poultry + Fisheries + Vermicompost + homestead farming system which increased the net income and employment of farm family.

### **iii) Charland (ID 96)**

**Name of the technology:**

- Radish-Carrot-Groundnut for Padma Char land
- Native Sheep Rearing in Char land area

Training on FSRD technologies was organized by BARC in four batches.

In the homestead component, four types of activities were undertaken with year-round vegetables and fruits production, new plantation and fruit tree management. Year rounds vegetables and fruits production at homestead area was carried out at FSRD sites of Mymensingh and Bogura by following the Narekeli model and Goyeshpur model, respectively.

**iv) Drought (ID 97)**

- As coordination unit, Planning and Evaluation Division of BARC has been coordinating FSRD programs of all the component institutes. During October 2020 to March 2021 (6 months) BARC has organized first year annual review workshop, two coordination meeting with the PIs and Co-PIs of Component Institutes and two field visits (FSRD sites: Godagari, Rajshahi , Amnura, Chapai Nawabganj under OFRD, BARI component).
- Under homestead production system, for year-round vegetables and fruits production in the homestead, Barind model was used in three FSRD sites namely, Basantapur, Amnura and Chanduria while the Goyespur and Golapgonj model used in Jiaroki and Kamalbazar, respectively.

**v) Capacity Building for Conducting Adaptive Trials on Seaweed Cultivation in Coastal Areas (3rd Phase)**

Collection of new species in different locations with adaptive trial, post-harvest processing, agar extraction protocol development, awareness-building program for entrepreneurs, survey of scope of seaweed marketing, laboratory based seed production program is continuing. Regarding adaptive trials, various factors such as water quality parameters, maintaining lunar cycle and culture area were examined to find out optimal condition for suitable growth and yield of seaweed. In addition, multistep seed production of *Ulva lactuca* and biology of *Gracillaria tenuistipitata* were also studied to ensure the regular supply of seaweed seed for cultivation purpose.



Activities lab and field

**vi) Support to Seaweed Cultivation, Processing and Marketing through Assessment and Capacity Development (TCP/BGD/3704)**

Project has successfully completed. Draft PCR has been submitted to FAO on 10 May 2021.

- Project has successfully completed. Draft PCR has been submitted to FAO on 10 May 2021.

**• Major outputs/achievements**

- Developed the seaweed training module “Seaweed Cultivation – Farmers Training Manual”.



- ii. Strengthened the capacity of stockholders on seaweed culture, processing and marketing through field training

**Table: Seaweed training**

Date	Location	Area	Number of participants
18.12.2020	Cox's Bazar	Nuniarchara	30
19.12.2020	Cox's Bazar	Nazirhattech	30
08.03.2021	Cox's Bazar	Rejukhal	30
29.01.2021	Shatkhira	Burigoalini	30
Total			120



*Views of the Training Program*

- iii. Dissemination of the seaweed technologies through demonstration activities Supported

- Total 70 demonstration plots were placed in three districts, Cox's Bazar, Shatkhira and Bagerhat. Cox's bazar is the main culture area of seaweed and most of the stakeholders are situated in the region. The water quality parameters are very much suitable for the seaweed culture in the region. Seed is available in the natural bed, for this reason 60 demonstration plots were set up in the Cox's bazaar region. Other 10 demonstration plots were set up Shatkhira and Bagerhat.



*The seaweed technologies Disseminated through demonstration activities supported*

- iv. Survey on Training Needs Assessment of the seaweed culture

- Main activities completed under this include-
- Conducted a questionnaire survey in the selected training area
- Conducted focus group discussion
- Collected of leaflet and booklet on seaweed mariculture technology
- Prepared and submitted need assessment report

## v. Media news about seaweed training and demonstration



*News about seaweed training and demonstration*

## 7. Preparation of Policy Documents and Providing Inputs

### Preparation

- শস্য এবং পরিকল্পনা ও মূল্যায়ন বিভাগের সমন্বয়ে দেশে মানসম্মত নিরাপদ খাদ্য উৎপাদনের লক্ষ্যে বাংলাদেশ GAP নীতিমালা-২০২০ প্রণয়ন ও কৃষি মন্ত্রণালয়ে প্রেরণ করা হয়। যা পরবর্তীতে “বাংলাদেশ উত্তম কৃষি চর্চা নীতিমালা-২০২০” হিসেবে গত ২১/১২/২০২০ তারিখে মন্ত্রী সভার বৈঠকে উপস্থাপিত ও অনুমোদিত হয় এবং গেজেট আকারে প্রকাশিত হয়।
- ৩০/০৯/২০২০ তারিখে “কোভিড-১৯ (COVID-19) এর অভিঘাত মোকাবেলায় কৃষি উৎপাদন বৃদ্ধি, বিপণন ব্যবস্থার উন্নয়ন এবং কৃষি পণ্যের ন্যায্যমূল্য নিশ্চিতকরণে কৃষি মন্ত্রণালয়ের কর্মপরিকল্পনা-২০২০” বাস্তবায়নের লক্ষ্যে দপ্তর/সংস্থা কর্তৃক প্রেরিত প্রস্তাবসমূহ পর্যালোচনার নিমিত্ত zoom প্ল্যাটফর্মে অনুষ্ঠিত অনলাইন সভার সিদ্ধান্ত মোতাবেক প্রস্তুতকৃত প্রস্তাবনা কৃষি মন্ত্রণালয়ে প্রেরণ।

### Comments

- ০৩/০৯/২০২০ তারিখে খসড়া অষ্টম পঞ্চবার্ষিক পরিকল্পনার (২০২০-২০২৫) কৃষি অধ্যায়ের উপর বিভাগসমূহের সহায়তায় মতামত প্রেরণ।
- ১৫/১০/২০২০ তারিখে বাংলাদেশ কোয়ালিটি কাউন্সিল আইন-২০২০ এর প্রস্তুতকৃত খসড়ার উপর মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৯/০৯/২০২০ তারিখে NSSS Action Plan 2016-21 এর বাস্তবায়ন অগ্রগতি প্রতিবেদনের খসড়ার উপর মতামত প্রেরণ।
- ১৫/১১/২০২০ তারিখে কৃষি সেক্টরের উপর সেক্টর এ্যাকশন প্লান (Sector Action Plan on “Agriculture”) প্রণয়নের জন্য তথ্যাদি শস্য বিভাগের সহায়তায় প্রেরণ।
- ২০/১০/২০২০ তারিখে Korea Environment Cooperation (K-eco) এর আর্থিক সহায়তা 2020 Seoul Initiative Network on Green Growth Project Proposal কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৪/১১/২০২০ তারিখে ‘কুড়িগ্রাম কৃষি বিশ্ববিদ্যালয় আইন, ২০২০’- এর খসড়ার উপর মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৪/১১/২০২০ তারিখে ‘ঠাকুরগাঁও বিশ্ববিদ্যালয় আইন, ২০২০’- এর খসড়ার উপর মতামত কৃষি মন্ত্রণালয়ে প্রেরণ করা হয়েছে।
- ২৪/০২/২০২১ তারিখে Regional Integrated Multi-Hazard Early Warning System (RIMES) এবং কৃষি সম্প্রসারণ অধিদপ্তর (DAE) এর মধ্যে প্রস্তাবিত সমঝোতা স্মারক (Memorandum of Understanding) স্বাক্ষর কৃষি মন্ত্রণালয়ে প্রেরণ।

- Department of Agricultural Extension (DAE) Bangladesh এর উপর বাংলাদেশ কৃষি গবেষণা কাউন্সিলের মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ১৮/০৩/২০২১ এসডিজি ট্র্যাকারে হালনাগাদ তথ্য-উপাত্ত সরবরাহ করে কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৩/০৩/২০২১ তারিখে ২০২১-২২ অর্থ বছরের অনুমোদিত প্রকল্পের বিস্তারিত বরাদ্দ প্রস্তাব, অনুমোদিত নতুন প্রকল্প প্রস্তাব এবং সারসক্ষেপ কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৫/০৩/২০২১ তারিখে কোভিড-১৯ বৈশ্বিক মহামারির অভিঘাত মোকাবিলায় বাংলাদেশ কৃষি গবেষণা কাউন্সিল (বিএআরসি) কর্তৃক গৃহীত পদক্ষেপ এবং ভবিষ্যৎ কর্মপরিকল্পনা প্রেরণ।

### Report APA:

- Evaluation Report (2019-20), Quarterly Reports of 2020-21 and Final APA for 2021-22 submitted to APAMS software.
- APA reports (Evaluation and Quarterly) also uploaded on APAMS software.
- ০৮/০৪/২০২১ তারিখে বিএআরসি ২০২০-২১ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তির ১.৬.১ নং সূচকে বর্ণিত “আন্তর্জাতিক সহযোগিতায় প্রশিক্ষিত ব্যক্তি” এর লক্ষ্যমাত্রা অর্জন বিষয়ক প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২০২০-২১ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তিতে নির্ধারিত বিপরীত বাংলাদেশ কৃষি গবেষণা কাউন্সিলের ১ম, ২য় ও ৩য় ত্রৈমাসিক অর্জন বিষয়ক প্রতিবেদন তৈরি করে কৃষি মন্ত্রণালয়ে প্রেরণ, এপিএএমএস সফটওয়্যারে আপলোডসহ বিএআরসি’র ওয়েবসাইটে আপলোড করা হয়েছে।
- ২৯/০৪/২০২১ তারিখে বিএআরসি’র ২০২১-২২ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তির চূড়ান্ত কপি এপিএএমএস সফটওয়্যারে আপলোড করা হয়েছে।
- “এপিএ প্রতিবেদনের জন্য তথ্য সংগ্রহ সহজীকরণ” সেবাটির অফিস আদেশ জারী করা হয়েছে এবং সেবাটি বিএআরসিতে চালু করা হয়েছে।

### Comments on Policy Documents

- ২৭/০৮/২০২০ তারিখে দক্ষতা উন্নয়ন সংক্রান্ত প্রকল্প পরিবীক্ষণ ও সমন্বয়সাধনের লক্ষ্যে বাংলাদেশ কৃষি গবেষণা কাউন্সিলের আওতায় বাস্তবায়নামূলক প্রকল্প সম্পর্কিত তথ্যাদি কৃষি মন্ত্রণালয়ে প্রেরণ।
- ০৩/১১/২০২০ তারিখে হাওর এলাকায় বাস্তবায়িত এবং বাস্তবায়নামূলক প্রকল্পসমূহের তথ্যাদি শস্য বিভাগের সহায়তায় পানি সম্পদ মন্ত্রণালয়ে প্রেরণ।
- ২২/১১/২০২০ তারিখে “খাদ্য নিরাপত্তা ও দুর্যোগ সহায়তা ক্লাস্টার” কমিটির ১০ম সভার সিদ্ধান্ত মোতাবেক বাস্তবায়ন অগ্রগতি প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২৫/১২/২০২০ তারিখে পার্বত্য চট্টগ্রাম উন্নয়ন বোর্ড কর্তৃক প্রস্তাবিত “পার্বত্য চট্টগ্রাম এলাকায় সুগারক্রপ চাষাবাদ জোরদারকরণ” শীর্ষক প্রস্তাবিত প্রকল্পে বিএসআরআই এর কারিগরি সহায়তা প্রদানের লক্ষ্যে MoU স্বাক্ষরের অনুমতির সম্পর্কিত মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ২১/১২/২০২০ তারিখে কৃষি মন্ত্রণালয়ের আওতায় ২০২০-২১ অর্থ বছরের বার্ষিক উন্নয়ন কর্মসূচিভুক্ত প্রকল্পসমূহের সেপ্টেম্বর, ২০২০ পর্যন্ত সময়ের বাস্তবায়ন অগ্রগতি পর্যালোচনা সভায় গৃহীত ৫.৮ নং সিদ্ধান্ত বাস্তবায়ন অগ্রগতি’র প্রতিবেদন প্রেরণ।
- ১৩/০৯/২০২০ তারিখে “খাদ্য নিরাপত্তা ও দুর্যোগ সহায়তা ক্লাস্টার” কমিটির ১০ম সভার সিদ্ধান্ত মোতাবেক বাস্তবায়ন অগ্রগতি প্রতিবেদন প্রেরণ করা হয়েছে।—কৃষি সেক্টরে জাতীয় সামাজিক নিরাপত্তা কর্মসূচি বিষয়ক প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
- ০২/১২/২০২০ তারিখে বাংলাদেশ পাট গবেষণা ইনস্টিটিউট (বিজেআরআই) এবং অর্গানিক এগ্রো ও জুট লাইফ ফাইবার টেক এর মধ্যে সমঝোতা চুক্তিপত্রের বিষয়ে মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ১৪/১২/২০২০ তারিখে মন্ত্রিপরিষদ বৈঠকে (কোভিড-১৯) বিষয়ে গৃহীত সিদ্ধান্তসমূহের বাস্তবায়ন অগ্রগতি বিষয়ে হালনাগাদ তথ্য কৃষি মন্ত্রণালয়ে প্রেরণ।

- ২১/১২/২০২০ তারিখে কৃষি মন্ত্রণালয়ের আওতায় ২০২০-২১ অর্থ বছরের বার্ষিক উন্নয়ন কর্মসূচিভুক্ত প্রকল্পসমূহের অক্টোবর, ২০২০ পর্যন্ত সময়ের বাস্তবায়ন অগ্রগতি পর্যালোচনা সভায় গৃহীত ৫.৭ নং সিদ্ধান্ত বাস্তবায়ন অগ্রগতি'র প্রতিবেদন প্রেরণ।
- সকল সদস্য পরিচালকগণের সহায়তায় ৩১/০১/২০২১ তারিখে “Addressing Challenges of 4th Industrial Revolution” এর উপর বাংলাদেশ কৃষি গবেষণা কাউন্সিলের মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।
- ০২/০২/২০২১ তারিখে GIZ এর কারিগরী সহায়তায় ‘NAP/NDC Support programme’ শীর্ষক প্রকল্পের Implementation Agreement (IA) স্বাক্ষরের জন্য মতামত কৃষি মন্ত্রণালয়ে প্রেরণ।

## 8. Workshop/Seminar/Training/Meeting

### A) Annual Review Workshop on progress of activities of 2019-20 and Work Plan for 2020-21

- Held on 10 August 2020
- 50 scientists/officers attended
- Progress of the approved work plan 2019-20 were presented by technical divisions/units
- Work plan for 2020-21 were presented in the workshop & then revised according to the comments/suggestions/recommendations
- Final workplan 2020-21 sent to the divisions/units.

### Seaweed DPP feasibility study meeting

A feasibility study meeting was conducted at BARC on 09 May 2021.

### B) Integrated Farming Research and Development for Livelihood Improvement in the Plain Land Eco-System (ID-061)

#### Meeting:

- Coordination meeting with PIs at conference room-2 on 12.07.2020 with the participation of 7 (M-6; F-1) members.

#### Training:

- Methodology of Farming System Research and Development was held on 02.10.2020 to 04.10.2020 at Training Room, BARI, Alamnagar with the participation of 30 (Male-29; Female-1) Scientific Assistant.

#### Workshop:

- 2<sup>nd</sup> Year Annual Review Workshop held on 25.08.2020 at BARC Auditorium with the participation of 69 (Male-58; Female-11) participants.
- 3<sup>rd</sup> Year Annual Review Workshop held on 28.12.2020 at BARC Auditorium with the participation of 43 (Male-41; Female-2) participants.



### C. Improvement of Farm Productivity through Intervention with Improved Agricultural Technologies in Char Land Eco-system (Project ID: 096)

#### Meeting:

- Coordination meeting was held on 13.07.2020 at conference room-2 with the participation of 9 (Male-8; Female-1) members.
- Coordination meeting was held on 06.12.2020 at conference room-2 with the participation of 18 (Male-16; Female-2) PIs and NATP Personnel.



#### Training:

- Methodology of Farming System Research and Development organized on 27.10.2020 to 29.10.2020 at Seminar Room, Training Building with participation of 30 (Male-23; Female-7) Scientists
- Methodology of Farming System Research and Development organized on 07.11.2020 to 09.11.2020 at Training Room, OFRD Shyampur, BARI, Rajshahi with participation of 30 (Male-30; Female-0) Scientific Assistant



#### Workshop:

- 2<sup>nd</sup> Year Annual Review Workshop held on 26.08.2020 at BARC Auditorium with the participation of 67 (Male-55; Female-12) participants.
- 3<sup>rd</sup> Year Annual Review Workshop held on 27.12.2020 at BARC Auditorium with the participation of 41 (Male-36; Female-5) participants.



### D. Climate Resilient Farming Systems Research and Development for the Coastal Eco-system (ID: 098)

#### Meeting:

- Coordination meeting held on 15.07.2020 at Conference room-2 with participation of 8 (Male-8; Female-0) members.

#### Training:

- Methodology on Farming System Research and Development held on 12-14 September 2020 at Training Room, BARI, Bineorpota, Satkhira with participation of 30 Scientific assistant and sub assistant agriculture officer (Male -29; Female-1)



### **Workshop:**

- 2<sup>nd</sup> Year Annual Review Workshop on 27.08.2020 at BARC auditorium with participation of 65 participants (Male-54; Female-11)



- 3<sup>rd</sup> Year Annual Review Workshop on 31.12.2020 at Seminar Room, Training Building with participation of 37 participants (Male-35; Female-2)



### **E. Livelihood Improvement of farmers through Integrated Farming System Research and Development of Drought and Rain-fed Ecosystem (Project ID: 097)**

- Coordination meeting held on 16.07.2020 at Conference room-2 with participation of 7 (Male-7; Female-0) members



### **Workshop:**

- 1<sup>st</sup> Year Annual Review Workshop held on 29.12.2020 at Seminar Room, Training Building with participation of 44 participants (Male-42; Female-2)



### **F. Expert Panel workshop**

- A review workshop was held at BARC on June 1, 2021 in the presence of Hon'ble Agriculture Minister and Senior Secretary to inform the activities and for the guidance of the ministry to the panel of experts from outside the institute, formed in order to improve the quality of research under Schedule 'KA' institutions of National Agricultural Research System.

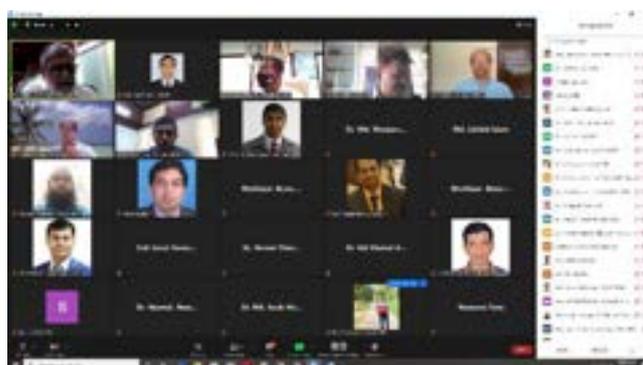
- The recommendations of the review workshop were sent to the Ministry of Agriculture on June 10, 2021.
- The three meetings of the panel of experts from outside the institute were held at BARC.



*Expert Panel Workshop*

**G. Workshop for Preparing the Country's Agriculture Related Action Plan in line with the 4<sup>th</sup> Industrial Revolution (4IR)**

- A review workshop was held on 13th June, 2021 at BARC with the participation of the focal points/ representatives of the departments/ agencies under the Ministry to formulate an integrated action plan for the development of agricultural sector of the country in line with the 4<sup>th</sup> Industrial Revolution (4IR).
- The minutes of the workshop have been sent to all the departments/agencies including the Ministry of Agriculture.



*Online Workshop*

## 9. Meeting on Annual Performance Agreement

- i) ২০২০-২১ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তির অর্ধবার্ষিক মূল্যায়ন এবং প্রমাণসমূহের উপর বিশেষজ্ঞ পূলের পর্যালোচনা সভা
  - Venue and Date: BARC, 12 January 2021
  - Total 70 Participants attended from MoA, BARC and NARS institutes.
- ii) ২০২০-২১ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তির এপিএ টিমের মাসিক সভা
  - Conducted 12 meetings from July 2020 to June 2021.



*Monthly meeting of APA Team*

- iii) ২০২১-২২ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তির খসড়া প্রণয়নের নিমিত্ত নির্বাহী চেয়ারম্যান মহোদয়ের সভাপতিত্বে আয়োজিত সভা
  - Venue and Date: BARC, 14 April 2021
  - Total 20 Participants attended from BARC



*Annual Performance Agreement meeting*

## 10. Regular/Routine Activities

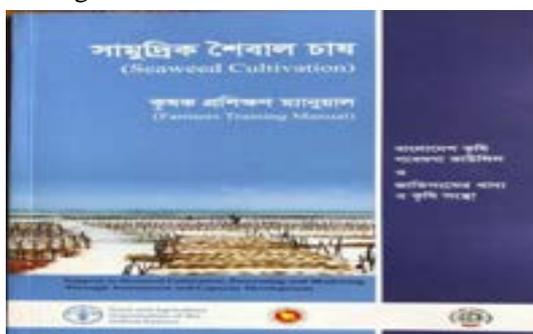
### Reporting

- a. **Annual Report**
  - BARC Annual Report for 2019-20 submitted to MoA for publishing.
- b. **ADP review meetings**
  - Monthly reports were submitted to the MoA for ADP review meeting
- c. **Monthly Progress Report of different projects of MoA**
  - Monthly reports were submitted to the MoA
- d. **Annual Performance Agreement (APA)**
  - Evaluation Report (2019-20), Quarterly Reports of 2020-21 and Final APA for 2021-22 submitted to APAMS software.
  - APA reports (Evaluation and Quarterly) also uploaded on APAMS software.

- ০৮/০৪/২০২১ তারিখে বিএআরসি ২০২০-২১ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তির ১.৬.১ নং সূচকে বর্ণিত “আন্তর্জাতিক সহযোগিতায় প্রশিক্ষিত ব্যক্তি” এর লক্ষ্যমাত্রা অর্জন বিষয়ক প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
  - ২০২০-২১ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তিতে নির্ধারিত বিপরীত বাংলাদেশ কৃষি গবেষণা কাউন্সিলের ১ম, ২য় ও ৩য় ত্রৈমাসিক অর্জন বিষয়ক প্রতিবেদন তৈরি করে কৃষি মন্ত্রণালয়ে প্রেরণ করা হয়েছে, এপিএমএস সফটওয়্যারে আপলোডসহ বিএআরসি’র ওয়েবসাইটে আপলোড করা হয়েছে।
  - ২৯/০৪/২০২১ তারিখে বিএআরসি’র ২০২১-২২ অর্থ বছরের বার্ষিক কর্মসম্পাদন চুক্তির চূড়ান্ত কপি এপিএমএস সফটওয়্যারে আপলোড করা হয়েছে।
  - “এপিএ প্রতিবেদনের জন্য তথ্য সংগ্রহ সহজীকরণ” সেবাটির অফিস আদেশ জারী করা হয়েছে এবং সেবাটি বিএআরসিতে চালু করা হয়েছে।
- e. Reports on Prime Ministers Directions**
- Monthly report sent to MoA
- f. Reports on Secretary Meetings**
- Monthly report sent to MoA
- g. Reports on SDG**
- Monthly Report sent to MoA
  - ৩০/০৯/২০২০ তারিখে টেকসই উন্নয়ন অভীষ্টসমূহ (SDGs) Goal-2এর Targets and Indicators- 2.5.1 এর তথ্য প্রেরণ।
  - এসডিজি এ্যাকশন প্ল্যান বাস্তবায়ন অগ্রগতি প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
  - ১৩/১২/২০২০ তারিখে এসডিজি এ্যাকশন প্ল্যান বাস্তবায়ন অগ্রগতি প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
  - ১৮/০৩/২০২১ টেকসই উন্নয়ন অভীষ্টসমূহ (SDGs) জাতীয় কর্মপরিকল্পনা দলিল হালনাগাদকরণ কৃষি মন্ত্রণালয়ে প্রেরণ।
  - ০৮/০৪/২০২১ তারিখে টেকসই উন্নয়ন অভীষ্ট (এসডিজি) এর কৃষি মন্ত্রণালয় সংশ্লিষ্ট সূচকসমূহের বর্তমান অবস্থা পর্যালোচনার লক্ষ্যে গত ০৯ ফেব্রুয়ারি, ২০২১ তারিখে অনুষ্ঠিত Zoom প্ল্যাটফর্মে অনুষ্ঠিত অনলাইন সভার কার্যবিবরণীর বাংলাদেশ কৃষি গবেষণা কাউন্সিল সংশ্লিষ্ট সিদ্ধান্তের বাস্তবায়ন অগ্রগতি প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
- h. কৃষি সেক্টরে জাতীয় সামাজিক নিরাপত্তা কর্মসূচি বিষয়ক মাসিক প্রতিবেদন**
- কৃষি সেক্টরে জাতীয় সামাজিক নিরাপত্তা কর্মসূচি বিষয়ক মাসিক প্রতিবেদন কৃষি মন্ত্রণালয়ে প্রেরণ।
- i. ৪র্থ শিল্প বিপ্লব**
- ২৫/০৫/২১ তারিখে ৪র্থ শিল্প বিপ্লবের সাথে সামঞ্জস্য রেখে দেশের কৃষি খাতকে এগিয়ে নিতে/গড়ে তুলতে কৃষি মন্ত্রণালয়ের কর্মপরিকল্পনা প্রণয়ন।

## 11. Publications

- Developed the seaweed training module “**Seaweed Cultivation – Farmers Training Manual**”.

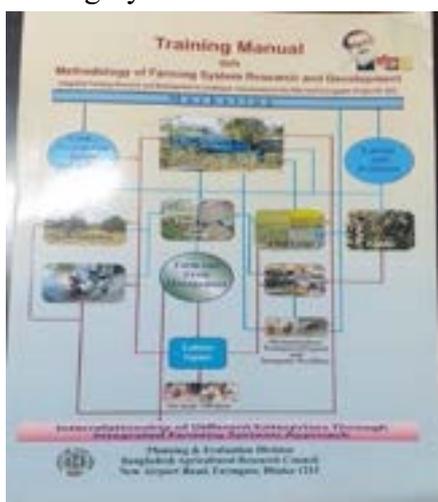


*Farmers Training Manual on Seaweed Cultivation*

- BARC Annual Work Progress (2019-2020) and Work Plan (2020-21) published.
- Prepared Annual Report 2019-20 and news on workshops/training/seminars were submitted to the AIC unit for BARC Newsletter
- Prepared the draft “Third Country Report on the State of the Plant Genetic Resources for Food and Agriculture, Bangladesh”.



- Training Manual on “Farming System Research and Development has been published.



- Developed 4 video documents on FSRD PBRG Sub-projects.
- ১৯ অক্টোবর/২০২০ তারিখে ড. মো. আবদুছ ছালাম, সদস্য পরিচালক বিএআরসি ‘র লিখিত প্রবন্ধ “করোনা ও খাদ্য নিরাপত্তা” দৈনিক যুগান্তর পত্রিকায় প্রকাশিত হয়



- Akter, M. T., Islam, M. M., Bithy, P. A., Parvin, S., Bari, M. E. (2021) Effect of Plant Growing Structures and media on yield of Tomato in the Rooftop Garden. *Asian Journal of Biology*. 11 (2): 36-46.
- Islam, M. M., Islam, S., Parvin, S., Rimi, T.A., Ziasmin, Siddika, M., Afsana, N. Akher, S. A. (2020) Rooftop gardening a Source of Environment Conservation and Crop production with Changing Climate for Dhaka City. *Envir. & Ecosystem Sci*. 4 (1): 1-4.



## 12. Award Received

- Planning and Evaluation Division secured first position among the divisions of BARC for e-filing and received appreciation letter.



- Dr. Suraya Parvin awarded for APA 2020-21 preparation, implementation and reporting.



# MANPOWER AND TRAINING UNIT

## Professionals:

### **Dr. M. Baktear Hossain**

Director (Manpower & Training)

### **Mr. Md. Al Mobasher Hussen**

Principal Training Officer (Current Charge)

During the reporting period (July 2020 to June 2021) a total of 6,164 scientists/officers from the National Agricultural Research System (NARS) institutes including Bangladesh Agricultural Research Council (BARC) and other associate organizations participated in the revenue/other sources' funded training/workshop/seminar/higher studies programs at home and abroad through physical and virtual modality.

The major activities that Manpower and Training Unit has accomplished/assisted in implementation during the reporting period are delineated below.

## **1.1: 7<sup>th</sup> CGIAR Advisory Committee (CAC) Meeting:**

The 7<sup>th</sup> CAC meeting was held on 23 February 2021 at 2.30 pm at the BARC Conference Room-1, Farmgate, Dhaka. The meeting was chaired by Dr. Shaikh Mohammad Bokhtiar, Executive Chairman of BARC. Dr. Muhammad Abdur Razzaque MP, Hon'ble Minister, Ministry of Agriculture attended the meeting as chief guest while Mr. Md. Mesbahul Islam, Senior Secretary, Ministry of Agriculture was present as special guest. The representative from CG centers like IRRI, CIMMYT, WorldFish, IFPRI, CIAT and CIP were present in the meeting.



*Dr. Muhammad Abdur Razzaque MP, Hon'ble Agriculture Minister, attended the meeting as chief guest*

The chair of the meeting Dr. S.M. Bokhtiar gave a brief overview of the CGIAR activities in Bangladesh and the objective of the CAC meeting.

The chair requested all the CG center presenters to briefly present their ongoing programs/activities/projects in Bangladesh. In the presentations, representatives from different CG centers highlighted the major activities/programs/projects and their impacts in the agricultural development of Bangladesh.

Mr. Md. Mesbahul Islam, Senior Secretary, MoA appreciated the CG centers' continued support towards the agricultural development in Bangladesh. He hoped that CG centers would continue their activities with advanced global science and knowledge and with the spirit of partnership

among the national and international organizations, thereby contributing towards ensuring of food and nutrition security in Bangladesh.

Dr. Muhammad Abdur Razzaque MP, Hon'ble Agriculture Minister thanked the CG centers for their continued support towards the agricultural development in Bangladesh. The Hon'ble Minister briefly highlighted the contributions of the CG centers working in Bangladesh saying “We are now self sufficient in food production. We are now a rice surplus country having the production around 38 million MT (FY 2019-20) and occupied 3<sup>rd</sup> position in global scale of rice production. We have also achieved success in fruits and vegetable production. Our success has been quite visible in fisheries and livestock sector as well”. The Hon'ble Minister mentioned different challenges in agriculture namely increasing diversification of production in line with consumption diversification; increasing private sector participation in the agriculture and improving agro-processing value chains; reducing instability of production; increasing resource use efficiency; reducing loss of arable land; minimizing yield gap; maintaining food security, safety and quality; expanding irrigation and farm mechanization through appropriate technology; and developing resilience to climate change impacts. He urged the CG centers to come up with advanced global science and technologies to cope with these challenges of Bangladesh agriculture.

Dr. S.M. Bokhtiar, Executive Chairman of BARC and chairperson of the CAC acknowledged the contributions being made by all CG centers in Bangladesh in ensuring food and nutrition security. The chair hoped that the cooperation between the government and CG centers would continue to be strengthened in the days ahead. Dr. Bokhtiar requested the CG centers to come forward with their overseas knowledge and expertise to address the challenges in agriculture such as loss of arable land, population growth, climate changes, inadequate management practices, postharvest loss, imperfect market etc.

## **1.2: N-27<sup>th</sup> Foundation Training held at National Agriculture Training Academy (NATA):**

The inaugural ceremony of the suspending N-27 Foundation Training Course for the Scientists of NARS started at NATA on 19 December 2020 under the supervision and management of BARC. In the four months long foundation training course, 37 NARS scientists participated. The inaugural ceremony was chaired by Dr. Md. Abu Sayeed Miah, Director General, NATA. Mr. Md. Mesbahul Islam, Senior Secretary, MoA was present as the chief guest while Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was present as a special guest. The representative from government organizations and NARS institutes were also present in the inaugural ceremony.



*Md. Mesbahul Islam, Senior Secretary, MoA, delivering speech as chief guest*

The chief guest Md. Mesbahul Islam mentioned “The officials of NARS need to learn the administrative affairs so that they can run the administration efficiently.”

The special guest, Dr. Shaikh Mohammad Bokhtiar underscored the importance of the foundation training course for the NARS scientists. He added, “During the foundation training course, all participants should take part in all the academic sessions and other co-curricular activities.”

The chairperson, Dr. Abu Sayeed expected that the participants would develop leadership qualities through comprehending different sessions and lessons of the foundation training course.

### 1.3: Training on Annual Performance Agreement (APA)

Manpower and Training Unit, BARC organized day long training on Annual Performance Agreement (APA) as strategic activity of APA, 2020-2021. The training was held on 26 January 2021 at Conference Room-1, BARC. As many as 42 officers of the Council attended the training program. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC inaugurate the training as chief guest. Dr. Humayra Sultana, Joint Secretary (Budget and Monitoring) and Focal Point, APA Team, MoA conducted training session as resource speaker. A total of five topics like: i) Guidelines for APA, ii) APA structure, iii) APA Process and Timeline, iv) APA mandatory strategic objectives and d) APA monitoring & evaluation were discussed in the training.



*Dr. S.M. Bokhtiar, Executive Chairman, BARC inaugurating training as chiefguest*

### 1.4: Training on Administration and Financial Management

Manpower and Training Unit, BARC organized two-day training on Administration and Financial Management for ensuring institutional transparency, accountability, proper utilization of resources and enhancing institutional efficiency. The training program was held during 27-28 March 2021 at conference room-1, BARC. Forty BARC officers participated in the training program. A total of ten topics like (i) Office management, (ii) National Integrity Strategy (NIS), (iii) The Govt. Servants (Discipline & Appeal), Rules 2018, iv) Budget management, (v) Accounting & Auditing System, (vi) Income Tax, (vii) PPA-2006 & PPR-2008, (viii) Retirement benefits, (ix) Delegation of Financial Power and (x) Tax and Vat management were discussed in the training.



*Ms. Wahida Akter, Additional Secretary (Admin), MoA conducting training as Resource Person*

Ms. Wahida Akter, Additional Secretary (Admin), Ministry of Agriculture; Mr. M. Saifullah Panna, Joint Secretary (SOE-1), Ministry of Finance; Mr. Shah Eyamin-ul-Islam, Procurement Consultant, World Bank Office, Dhaka; Mr. Md. Jahangir Salim, Ext. Asst. Commissioner, National Bureau Of Revenue (NBR), Taxes Zone-14, Dhaka; Dr. Md. Saifullah, MD (Admin & Finance) and Mr. Ajit Kumar Chakraborty, Director (Finance), BARC conducted the training sessions as a resource persons.

### **1.5: National Seminar on ‘Feasibility of IOT Based Precision Agriculture for Sustainable Agriculture’**

Nodes Digital Bangladesh submitted a project proposal entitled ‘Feasibility of IOT based Precision Agriculture for sustainable agriculture in Bangladesh’ to the Ministry of Agriculture. As per direction of Ministry of Agriculture, BARC organized a seminar on 10 September 2020 to review the feasibility of the proposed project from Nodes Digital Bangladesh. The seminar was attended by 30 representatives of NARS institutes including BARC.

Dr. Saad Hasan, Chairman, Nodes Digital Bangladesh was the keynote speaker at the seminar. Dr. Saad Hasan mentioned in his presentation, the goal of this project is to conduct a feasibility analysis for IOT based precision agriculture techniques in Bangladesh.



*Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC delivering speech as chairperson*

Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC presided over the seminar. He delivered speech on the importance of IOT based precision agriculture and its impact in the context of Bangladesh. Based on the recommendation of the seminar, it was decided to form a committee for project preparation & feasibility analysis headed by BARC. The committee will have one representative each from BARC, BARI, SRDI and Nodes Digital Bangladesh.

### **1.6: International Seminar on World Food Day**

World Food Day 2020 was observed on 16 October 2020 in Bangladesh throughout taking various programs. The theme of the day was Grow, Nourish, Sustain, Together. Our Actions are our Future. BARC assisted to Ministry of Agriculture for implementation different events including international seminars, public awareness-raising activities etc. An international seminar was organized at Pan Pacific Sonargaon Hotel on 16 October, 2020.



*Hon'ble PM Inaugurating World Food Day 2020*

Honourable Prime Minister of the People's Republic of Bangladesh, Sheikh Hasina virtually graced the seminar as chief guest. Agriculture Minister Dr. Muhammad Abdur Razzaque, MP presided over the function while Matia Chowdhury, Chairman of the Parliamentary Committee on Agriculture, Food Minister Mr. Sadhan Chandra Majumder, and Fisheries and Livestock Minister Mr. SM Rezaul Karim were present in the event as special guests. Md. Mesbahul Islam, Senior Secretary, Ministry of Agriculture delivered the welcome address. A recorded speech of Mr. QU Dongyu, the Director General of FAO was played at the Program. Dr. S.M. Bokhtiar, Executive Chairman BARC, was present in the program. A video documentary in respect to the "food heroes" (farmers) of Bangladesh was screened at the function. Besides, agronomists, nutritionists, and agro-economists from home and abroad also participated in the seminar. Dr. David Dawe, Senior Economist, FAO Asia Pacific Region made keynote presentation in the technical session. More than 500 officials from all over the country including Deputy Commissioners, Superintendents of Police, officers from the Ministry of Agriculture, Ministry of Fisheries and Livestock and Divisional, District and Upazila Offices of the Ministry of Food were also virtually connected.

### **1.7: International Seminar on World Soil Day**

Ministry of Agriculture organized a seminar on World Soil Day, 5 December 2020 to raise food output for a growing population. Maintaining good health of soil is an indispensable part of agricultural practice. BARC, Soil Resource Development Institute, Food and Agriculture Organization of UN, Practical Action Bangladesh and Soil Science Society of Bangladesh were also co-organizers. The day was observed in Bangladesh with the theme 'Keep soil alive, protect soil biodiversity'.



*World Soil Day Observance on 5 Dec, 2020*

Dr. Muhammad Abdur Razzaque, MP, Minister of Agriculture as the chief guest virtually said, "Population has been rising by 2.2 million heads every year. We have a great challenge ahead of raising food production to feed the rising population." He also mentioned, "To maintain a sustainable growth in crop production, it is now imperative to maintain sound health of soil. Biodiversity of soil is necessary for producing nutrition rich quality food." The Minister also inaugurated a 'Soil Museum Software' and unveiled the cover of a book titled 'Land Degradation in Bangladesh'. S M Rezaul Karim, Minister of Fisheries and Livestock, Md. Mesbahul Islam, Senior Secretary, MoA spoke as special guests while Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC, Bidhan Kumar Bhandar, Director General, SRDI, Robert D Simpson, FAO Bangladesh Representative and Md. Hasanuzzaman Kallol, additional secretary of agriculture also spoke among others.

## 1.8: Study Visit for Trainees of N-27 Foundation Training Course at NADC, BARC

Manpower & Training Unit arranged a study visit at National Agriculture Display Centre (NADC), BARC on March 1, 2021 for scientists as part of N-27 Foundation training. The trainees were briefed on the activities of the NARS organization displayed at the NADC. An exchange meeting was also held for in details activities and role of NARS including BARC. Mr. Md. Al Mobasher Hussen, Principal Training Officer, BARC presented a power point on the activities of the National Agricultural Research System in the meeting. Dr. Md. Abdus Salam, Member director (Planning & Evaluation), BARC spoke as chief guest while Dr. Md. Baktear Hossain, Director (Manpower & Training), BARC presided over the meeting. Dr. Md. Abdul Mazed, Deputy Director, NATA & Course Coordinator (Extr Academy), N-27 foundation training course spoke as special guest. The meeting was attended by 37 scientists, course coordinator & course officials.



*Md. Al Mobasher Hussen, PTO presented a power point on the activities of NARS*

### 2.1: In Country PhD (Revenue)

One of the major tasks of Manpower & Training Unit of BARC is to facilitate higher studies for NARS scientists in various disciplines of agriculture. A total of 19 NARS scientists were awarded PhD fellowship during the financial year 2013-2014 under revenue funding in the country. The financial management and performance monitoring activities in this connection are being carried out as usual. Fourteen researchers have already completed their study while four are at final stage for thesis submission. One BJRI scientist could not continue PhD research on account of health reasons.

### 2.2: In Country PhD (CSISA-BARC Scholarship Program)

There was a provision of five slots for in-country PhD under CSISA-BARC Scholarship Program. The five PhD researchers are: one from BARC and two from BARI, one from BINA and another from BFRI (fisheries). The program is being jointly funded by IRRI, CIMMYT and World Fish Centre under CSISA-BD project. The financial management and performance monitoring activities in this connection are being carried out as usual. Four scientists have completed their PhD research while the remaining one is at final stage for thesis submission

## 3. Foreign Training/Seminar/Workshop/Consultation Meeting

During the reporting period apart from in-country activities, Manpower and Training unit conducted the nomination process for participation in virtual international seminar/workshop/meeting. A total number of 41 research managers/scientists/personnel under different fields of agriculture and cross cutting issues attended 21 programs (training/seminar/workshop/meeting) to enrich their professionalism in order to achieve the country's ultimate goal to ensure food and nutrition security. Details are as follows:

**Foreign Training/Workshop/Seminar/Meeting (2020-2021) through virtual modality**

<b>Sl. No</b>	<b>Name, Designation, Organization</b>	<b>Program Title/Topics</b>	<b>Date &amp; Duration</b>	<b>Organized by</b>
1.	Dr. Md. Baktear Hossain Director (M&T), BARC	Training on 'Writing Scientific Reports & Policy Briefs'	27-30 July 2020	Helen Keller International
2.	Dr. Kabir Uddin Ahmed Director (AIC), BARC	Training on 'Writing Scientific Reports & Policy Briefs'	27-30 July 2020	Helen Keller International
3.	Dr. Md. Giashuddin Miah Vice Chancellor, BSMRAU, Gazipur	GIFS-BARC Scientists on the Post-harvest food handling & Processing (Theme-4) concept proposal	August 5, 2020	GIFS, Canada & BARC
4.	Dr. Md. Nazirul Islam, Director General, Bangladesh Agricultural Research Institute (BARI), Gazipur	GIFS-BARC Scientists on the Post-harvest food handling & Processing (Theme-4) concept proposal	August 5, 2020	GIFS, Canada & BARC
5.	Dr. Md. Shahjahan Kabir, Director General, BRRI, Gazipur	-Do-	August 5, 2020	GIFS, Canada & BARC
6.	Dr. Md. Aziz Zilani Chowdhury, Member Director (Crops), BARC, Dhaka	GIFS-BARC Scientists on the Post-harvest food handling & Processing (Theme-4) concept proposal	August 5, 2020	GIFS, Canada & BARC
7.	Dr. Md. Miaruddin Director (Research), BARI, Gazipur	GIFS-BARC Scientists on the Post-harvest food handling & Processing (Theme-4) concept proposal	August 5, 2020	GIFS, Canada & BARC
8.	Dr. Md. Durul Huda, CSO, Farm Mechanization & Postharvest Technology Division, BRRI, Gazipur	GIFS-BARC Scientists on the Post-harvest food handling & Processing (Theme-4) concept proposal	August 5, 2020	GIFS, Canada & BARC
9.	Dr. Md. Ahiduzzaman, Associate Professor & Head, Dept. of Agro-processing, BSMRAU, Gazipur	GIFS-BARC Scientists on the Post-harvest food handling & Processing (Theme-4) concept proposal	August 5, 2020	GIFS, Canada & BARC
10.	Dr. Md. Atiqur Rahman, SSO, BARI (Lien at Hortex Foundation), Dhaka	GIFS-BARC Scientists on the Post-harvest food handling & Processing (Theme-4) concept proposal	August 5, 2020	GIFS, Canada & BARC
11.	Dr. Md. Giashuddin Miah Vice Chancellor, Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Gazipur	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC

<b>Sl. No</b>	<b>Name, Designation, Organization</b>	<b>Program Title/Topics</b>	<b>Date &amp; Duration</b>	<b>Organized by</b>
12.	Dr. Md. Nazirul Islam, Director General, Bangladesh Agricultural Research Institute (BARI), Gazipur	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC
13.	Dr. Md. Shahjahan Kabir, Director General, Bangladesh Rice Research Institute (BRRI), Gazipur	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC
14.	Dr. Mirza Mofazzal Islam Director General Bangladesh Institute of Nuclear Agriculture (BINA), Mymemnsingh	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC
15.	Dr. Md. Aziz Zilani Chowdhury, Member Director (Crops), BARC	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC
16.	Dr. Md. Tofazzal Hossain Professor & Director, IBGE, BSMRAU, Gazipur	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC
17.	Dr. Khandakar Md. Iftekharuddaula, CSO & Head, Plant Breeding Division, BRRI	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC
18.	Dr. Md. Abdullah Yousuf, CSO & Head, Biotechnology	GIFS-BARC Scientists on the Genomics & Phenomics for Plant Breeding (Theme 1) Concept Proposal	August 10, 2020	GIFS, Canada & BARC
19.	Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC	FAO Regional Conference for Asia and Pacific at Intercontinental Hotel, Dhaka	14 Sept.2020	FAO (Virtual & Physical Meeting)
20.	Dr. M. Baktear Hossin CSO (Soil), BARC, Dhaka	Virtual Regional Expert Consultation workshop on Agriculturally Important Microorganisms	28 Oct. 2020	APAARI Bangkok, Thailand
21.	Dr. Monowar Karim Khan Member Director, BARC	-do-	28 Oct.2020	APAARI Bangkok, Thailand
22.	Dr. Md. Mosharraf Uddin Molla, Member Director (AERS), BARC, Farmgate, Dhaka	Senior Officials Meeting of the 36 <sup>th</sup> Session of COMCEC	Nov. 18-19, 2020	COMCEC, Turkey

<b>Sl. No</b>	<b>Name, Designation, Organization</b>	<b>Program Title/Topics</b>	<b>Date &amp; Duration</b>	<b>Organized by</b>
23.	Dr. Nazmun Nahar Karim CSO (Agricultural Engineering) Bangladesh Agricultural Research Council, Farmgate, Dhaka	8 <sup>th</sup> Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific	December 11, 2020	ESCAP, Bangkok, Thailand
24.	Dr.Md. Saifullah, CSO, Forestry Unit (NRM), BARC	"Sustainable Management of Community-based Non-wood Forest Products and its Contribution towards Improvement of Rural Livelihoods in South Asia"	Nov. 11-12, 2020	SAARC Agriculture Center
25.	Dr. Md. Aziz Zilani Chowdhury, Member Director (Crops), BARC, Dhaka	24 <sup>th</sup> Annual Meeting of the Council for Partnerships on Rice Research in Asia (CORRA)	20 Nov. 2020	IRRI. Philippines
26.	Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC	Invitation of the 2nd Informal Consultation on the Establishment of Sustainable Agriculture and Inclusive Rural Development (SAIRD)	08 Dec. 2020	South Asian Institute of Research & Development (SAIRD), Indonesia
27.	Dr. Md. Harunur Rashid Director, PIU-BARC NATP-2, Dhaka	SAARC Regional Consultation on 'UN Decade of Family Farming, Formulating Strategies and Action Plan to Strengthen Smallholder Family Famers in South Asia	5-6 Nov. 2020	SAARC Agriculture Center
28.	Dr. Md. Mosharraf Uddin Molla Member Director (AERS), BARC	-do-	5-6 Nov. 2020	SAARC Agriculture Center
29.	Mr. Md. Mustafizur Rahman Principal Technical Officer BARC	99 <sup>th</sup> Centre for Agriculture & Bioscience International (CABI) Board Meeting	8-9 December 2020	CABI, UK
30.	Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC	OIC 3 <sup>rd</sup> General Assemble Meeting of Islamic Organization for Food Security	2-3 December 2020	Islamic Organization for Food Security, Turkey
31.	Mr. Md. Mustafizur Rahman Principal Technical Officer BARC	6 <sup>th</sup> D-8 Ministerial Meeting on Agriculture and Food Security	15-16 December 2020	The Islamic Republic of Pakistan

<b>Sl. No</b>	<b>Name, Designation, Organization</b>	<b>Program Title/Topics</b>	<b>Date &amp; Duration</b>	<b>Organized by</b>
32.	Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC	The South Asia Biosafety Program (SAID)	9 December 2020	SABP, USAID
33.	Dr. Suraya Parvin Principal Training officer (P&E) BARC	Advance Training Course on Data processing and analysis using STATA & SPSS	9-16 March 2021	Helen Keller International
34.	Dr. Md. Anower Hossain, Chief Scientific Officer (CC), Irrigation & Water Management Division, Bangladesh Agricultural Research Institute, Gazipur	Regional Consultation on 'Advanced Water Management Options for Sustainable Crop Production in South Asia'	5-6 April 2021	SAARC Agriculture Centre
35.	Dr. Khokan Kumar Sarker, Senior Scientific Officer, Soil & Water Management Section, Horticulture Research Centre, BARI, Gazipur,	-do-	5-6 April 2021	SAARC Agriculture Centre
36.	Dr. Munshi Rashid Ahmad, Chief Scientific Officer, Hill Agricultural Research Station, BARI, Khagrachari (BARI),	Regional Consultation on 'Enhancing Sustainable Livelihoods and National Security in Hilly Regions of SAARC Countries through Horticulture Approach'	7-8 April 2021	SAARC Agriculture Centre
37.	Dr. Md. Jamal Uddin, Senior Scientific Officer, Regional Agricultural Research Station, BARI, Hathazari, Chattogram	-do-	7-8 April 2021	SAARC Agriculture Centre
38.	Dr. Nirmal Kumar Dutta, Chief Scientific Officer (CC), Entomology Division, BARI, Gazipur,	Regional Consultation on 'Impacts of Agricultural Chemicals Inputs on the Environment and Human Health in South Asia'	21-22 April 2021	SAARC Agriculture Centre
39.	Dr. Md. Sultan Ahmed, Principal Scientific Officer, Entomology Division. BARI, Gazipur	-do-	21-22 April 2021	SAARC Agriculture Centre
40.	Dr. Mian Sayeed Hassan, Member Director (NRM), BARC	Training on "Certification process and traceability of GAP products (fruits & vegetables)"-	24-25 May 2021	SAARC Agriculture Centre
41.	Dr. Mohammad Rafiqul Islam Chief Scientific Officer (Livestock), BARC	Virtual training program on "The WTO's Sanitary and Phytosanitary Agreement: Bangladesh perspective"	1-3 June 2021	APAARI, USAID, USDA and MoA, Bangladesh.

#### 4. In-country Training/ Workshop/ Seminar

During the reporting period 51 training programs and 53 workshops/ seminar were arranged by the divisions/units of BARC. Under revenue funding 26 training programs and 27 workshops were organized. The participants for the training and workshop/seminar were 1,733 and 4,177 respectively.

Detailed lists are given below:

#### Programs Implemented During 2020-2021

##### 4.1: Training (Revenue)

##### A. In-house-Training

Division/ Unit	Training Title	Training Venue	Duration	No. of Participants
Computer & GIS Unit	Capacity development in Service Process Simplification (SPS) for Officers	BARC	20-21 Jan.2021 (2 days)	40
	Development of Innovation Capability for Officers	BARC	3-4 March 2021 (2days)	39
	Training on E-Filing for Officers	BARC	12 April 2021	20
	Training on E-Filing for Officers	BARC	13 April 2021	20
Manpower& Training Unit	Training on Annual Performance Agreement (APA) for Officers	BARC	26 Jan.2021	42
	Training on Administrative and Financial Management for Officers	BARC	27-28 Mar. 2021 (2 days)	37
Admin Unit	Training on Good Governance (1 <sup>st</sup> batch) for Officers	BARC	26 Sept. 2020	30
	Training on Good Governance (2 <sup>nd</sup> batch) for Staff (3 <sup>rd</sup> & 4 <sup>th</sup> class)	BARC	12 Dec. 2020	30
	Training on HRD and performance enhancement for Staff (3 <sup>rd</sup> class)	BARC	6-14 Dec. 2020 (7 days)	42
	Training on Office Management and Annual Confidential Report for Officers	BARC	26 Dec. 2020	50
	Training on HRD and performance enhancement for Staff(4 <sup>th</sup> class)	BARC	15-24 Feb.2021 (7 days)	34

	Training on Good Governance (3 <sup>rd</sup> batch) for Staff (3 <sup>rd</sup> & 4 <sup>th</sup> class)	BARC	18 March 2021	30
	Training on Office Management and Annual Confidential Report for Staff(3 <sup>rd</sup> & 4 <sup>th</sup> class)	BARC	20 March 2021	40
	Training on Administrative and Financial Management for Staff (3 <sup>rd</sup> class)	BARC	9-10 June 2021	42
	Training on Administrative and Financial Management for Staff(4 <sup>th</sup> class)	BARC	9-10 June 2021	34
	Training on Office Management and Annual Confidential Report for Staff(3 <sup>rd</sup> & 4 <sup>th</sup> class)	BARC	12 June 2021	35
	Training on Good Governance (4 <sup>th</sup> batch) for Staff (3 <sup>rd</sup> & 4 <sup>th</sup> class)	BARC	13 June 2021	35
	<b>Total (Program 17)</b>			<b>600</b>

#### B. Training Organized for NARS Scientists and Others (Revenue)

Division/ Unit	Training Title	Training Venue	Date	No. of Participants
Manpower & Training Unit	Foundation Training for NARS scientists (27 <sup>th</sup> Batch)	NATA, Gazipur	19 Dec. 2020 to 18 March 2021	37
Nutrition Unit	COVID-19 and Role of Food Based Nutrition to reduce Stunting & Wasting	BARI, Khagrachari	9-12 Jan.2021	35
	Awareness building on the importance of nutrition: Next to COVID-19	Khulna(Buro Bangladesh)	29 Jan. to 01 Feb.2021	35
	Awareness building on the importance of nutrition: Next to COVID-19	Cox's Bazar Police Line	12-15 Feb. 2021	35
	COVID-19 Epidemic: Importance of Quality Processing and preservation of Agro-products	Shyamnagar, Satkhira	19-21 March 2021	35
	COVID-19 Epidemic: Importance of Quality Processing and preservation of Agro-products	DoF, Jessore	3-6 June 2021	35
Livestock Division	Training on Bioinformatics for Sustainable Development in Agriculture	BARC	14-16 March 2021	40

NRM (Soil)	Training Program on Use of Fertilizer Recommendation Guide-2018	BARC	22-24 March 2021	40
AERS Division	Modern Econometric Methods for Analyzing Agricultural Data using STATA and SPSS	BARC	20-24 June 2021	20
<b>Total ( Program 9)</b>				<b>312</b>

**C. Training Organized for NARS Scientists & Others (NATP-2 and Other Funding source)**

<b>Division/ Unit</b>	<b>Training Title</b>	<b>Training Venue</b>	<b>Date</b>	<b>No. of Participants</b>
TTMU	Training of Trainers on Transferable Matured Technology on Spices Crop Production	SRC, BARI, Bogura	29-30 Dec. 2020	30
NRM (Agril Engineering)	Training on Use of 'Modern Farm Machinery for Ensuring Food Security'	BARC	23-25 Feb.2021	30
NRM (Forest)	Training on 'Climate Smart Agriculture' (NARS, Universities, DAE, NGOs etc.)	BARC	24-25 March 2021	40
NRM (Soil)	Training Program on Climate Change, carbon sequestration & adapt. strategies	BARC (Virtual)	22-24 June 2021	40
	Sustainable Soil Management for Nutrition Sensitive Agriculture	Chuadanga Sadar	20 Feb.2021	20
	Sustainable Soil Management for Nutrition Sensitive Agriculture	Chandina, Cumilla	27 Feb.2021	20
	Sustainable Soil Management for Nutrition Sensitive Agriculture	Chandina, Cumilla	06 Mar.2021	20
Planning & Evaluation Division	Methodology of Farming System Research & Development	BARI, Rangpur	2-4 Oct. 2020	30
	Methodology of Farming System Research & Development	BARC, Dhaka	27-29 Oct. 2020	30
	Methodology of Farming System Research & Development	BARI, Rajshahi.	7-9 Nov.2020	30
	Methodology of Farming System Research & Development	BARI, Satkhira	12-14 Sept. 2020	30

Livestock Division	Training on Antimicrobial Resistance in Bangladesh	BARC	1-3 Feb.2021	25
	Control of peste des petits ruminants (PPR) in Bangladesh	DLS, Rangpur	24 Feb.2021	30
	Control of peste des petits ruminants (PPR) in Bangladesh	DLS, Dinajpur	25 Feb.2021	30
	Control of peste des petits ruminants (PPR) in Bangladesh	DLS, Rajshahi	27 Feb.2021	30
	Control of peste des petits ruminants (PPR) in Bangladesh	DLS, Rajshahi	28 Feb.2021	30
PiU_BAR C, NATP-2	<b>Total 9 batches training organized under PIU_BAR C, NATP_2</b>	BARC	July 2020-June 2021	356
<b>Total (Program 25)</b>				<b>821</b>

**Total Training (Program Number 51):(A+B+C): Participant Number: 1,733**

#### **4.2. A. Workshop (Revenue)**

<b>Division/ Unit</b>	<b>Workshop Title</b>	<b>Venue</b>	<b>Duration</b>	<b>No. of Participant</b>
Crops Div.	Annual Review Workshop on Crop Improvement Program of NARS Institutes: Research Progress 2019-20 and Research Program 2020-21	BARC	20-21 Sept. 2020	60
	Annual Review Workshop on Crop Production Program of NARS Institutes: Research Progress 2019-2020 and Research Program 2020-21	BARC	23-24 Sept. 2020	60
	Annual Review Workshop on Disease Management Program of NARS Institutes: Research Progress 2019-20 and Research Program 2020-21	BARC	27 Sept. 2020	60
	Annual Review Workshop on Insect Pest Management Program of NARS Institutes: Research Progress 2019-20 and Research Program 2020-21	BARC	28 Sept. 2020	60
	Annual Review workshop on Biotechnology Program of NARS institutes: Research Progress 2019-20 and Research Program 2020-21	BARC	30 Sept. 2020	60
	Progress Review Workshop (9 <sup>th</sup> ) on Biotechnological Research Based on Biotechnology Policy-2012	BARC	2 Dec. 2020	50

	Workshop on Identification of Biotechnological Research Priority for NARS Institutes	BARC	29 Dec. 2020	50
TTMU unit	Review Workshop on Matured Technologies Developed by NARS Institutes	BARC	10 March 2021	100
AERS Div.	Review of Socio-Economic Research Programs of NARS	BARC	4 Oct.2020	58
	National Budget 2021-2022: Review Workshop	BARC	21 June 2021	40
Computer & GIS unit	Workshop on “Innovation and Service Process Simplification	BARC	07.11.2020	38
NRM Div. (Soils)	Research Review and Program Planning Workshop of Soils Programs of NARS Institutes	BARC	23-25 Nov. 2020	80
NRM Div. (Engg.)	Agricultural Engineering Research Planning Workshop	BARC	14-15 Oct.2020	96
NRM Div.(Forestry)	Research Workshop on ‘Forestry and Agro forestry Research Activities of different NARS Institutes’	BARC	18-19 Nov.2020	60
P&E Div.	Workshop on Annual Progress 2019-2020 & Work Plan 2020-2021	BARC	10 Aug. 2020	50
	Half-Yearly Evaluation of APA 2020-21: Review Workshop	BARC	11 Feb.2021	70
	Workshop on Sustainable Development Goal (SDG)	BARC	13 Jan.2021	150
AIC	Effect of COVID-19 in agricultural research & addressing the pandemic in terms of food security	BARC	9 March 2021	45
Livestock Div.	Annual Review Workshop on Research Achievements 2018-19, Research Progress 2019-20 and Research Program 2020-21 of NARS Institutes	BARC	21-22 Oct. 2020	60
	Workshop on Mitigating the impacts of COVID-19 on the livestock sector in Bangladesh	BARC	26 Nov. 2020	60
Fisheries	Training Workshop on Future Fisheries and COVID-19: Boost up value addition of Fish and Fish Products and its opportunity	Rajshahi University	5 Dec. 2020	75

Nutrition	Training Workshop on Food Adulteration and Contamination: Inside Fact and Consumer Responsibility	Kotchandpur, Jhenaidah	8 Nov. 2020	75
	Training Workshop on Food Adulteration and Contamination: Inside Fact and	Barishal	19 June 2021	75
	<b>Total (Program 23)</b>			<b>1,532</b>

#### 4.3 B. Workshop/Seminar (NATP and KGF Funding)

Division/Unit	Activity	Venue	Duration	No. of Participant
Different Division/ Unit	<b>Total 23 workshop (organized under NATP-2 funding)</b>	<b>BARC</b>	<b>-</b>	<b>1,399</b>
AERS Div.	Workshop on presentation of draft report conducted to unveil the reasons for increasing in prices of daily essential rice, potato and onion under KGF funding	BARC	24 Dec. 2020	60
	Workshop on presentation of final report conducted to unveil the reasons for increasing in prices of daily essential rice, potato and onion under KGF funding	BARC	26 Jan.2021	60
	<b>Total (Program 25)</b>			<b>1,519</b>

#### 4.4 C. Seminar (Revenue & Other)

Division/Unit	Activity	Venue	Duration	No. of Participant
M&T Unit	Seminar on Feasibility of IOT Based Precision Agriculture for Sustainable Agriculture Sector in Bangladesh	BARC	10 Sept.2020	30
	7 <sup>th</sup> CGIAR Advisory Committee Meeting under CIMMYT funding	BARC	23 Feb.2021	36
Admin Unit	Seminar on Grievance Redress System	BARC	28 Sept.2020	30
	Seminar on Grievance Redress System	BARC	03 Dec. 2020	30
	Seminar on impact of COVID-19 crisis on agriculture sector and future action	BARC	20 December 2020	1,000
	<b>Total (Program 5)</b>			<b>1,126</b>

**Total Workshop/Seminar (Program Number 53): (A+B+C): Participant Number: 4,177**

**5. Higher Education: (Summary of Higher Study at BARC (PhD) (2020-2021))**

SI No.		PhD		Total	Remark
		Foreign	Local		
1.	2013-2014 (Revenue)	-	18	18	14 : Completed
2	2011-2012 (CSISA-BARC)	-	5	5	04 : Completed
3.	PIU-BARC: NATP-2	60	80	140	140 Ongoing
	<b>Total</b>	<b>60</b>	<b>103</b>	<b>163</b>	

**6. HRD Status of BARC (2020-2021)**

Events	No. Programs	No. of participants	Remarks
Training	51	1,733	Rev: 26; Others: 25
Workshop/ Seminar	53	4,177	Rev:27; Others: 26
Foreign Meeting/Seminar/Workshop	21	41	Virtual modality
Higher Study (PhD)	-	163	Rev. + NATP-2 funding
Others	25	50	BARC participated in various local training/ seminar/ workshop organized by other organization
<b>Total</b>		<b>6,164</b>	-

## FISHERIES DIVISION

Fisheries Division of the Bangladesh Agricultural Research Council has been working for sustainable fisheries and aquaculture research and development including blue economy. The Key activities are project development, supervision, execution, technology development, monitoring and evaluation of the research projects, coordinate research programmes with the NARS Institutes, universities, BFRI, DoF, and the agencies which are engaged in nutritional research and development like FAO, WorldFish etc. Also, it's a part of regular activities of the job to organize and attend in national and international seminar, workshop, symposium, conference, meeting and training in the field of fisheries and aquaculture, value addition etc. reporting national issues, review of scientific papers, expert opinion and advisory services etc.

Also, maintaining liaison with national and international agencies for collaboration and strengthening national research and developmental program in fisheries along with agriculture and livestock. Moreover, the technical advisory services also provided to the Ministry of Agriculture (MoA) on different issues related to agricultural research and special emphasis with fisheries & aquaculture development.

A brief description of the activities done by the Fisheries Division during the reporting periods between 2020-2021 are given below:

### **Professional(s)**

**Dr. Md. Monirul Islam,**

Member Director

### **Program/Project Developed**

A total of 10 PBRG sub-projects were developed and implementing under the direct supervision and monitoring of the Fisheries Division, BARC. The component parts of the PBRG sub-projects are BFRI, BAU, PSTU, BSMRU, RU, SAU, SUST, JUST and NSTU.

### **Organizing Workshop/Seminars**

The following workshops were organized by the Fisheries Division at Rajshahi University, Rajshahi. In these workshops, key note paper was presented by Dr. Md. Monirul Islam, Member Director (Fisheries), BARC. With the view to creating awareness to the mass people regarding fish nutrition and its benefits as well as fish adulteration and consumers responsibility. The participants viz., University teachers, Upazila Fisheries officers including other officials at Upazila level, scientists, extension workers, teachers, fish traders, fish feed dealers and reporters from the print and electronic media were invited both of the workshop from the said region/districts. However, in these workshop programme Dr. Manjurul Alam, Chairman, Faculty of Fisheries, RU was present as a Chief guest .

### Workshop Programme Implemented by the Fisheries Division

Title	Places/Venue/Date	Total Programme	Total Participants
Future fisheries and COVID-19: Boost Up value addition of fish and fish products and its opportunity	Rajshahi University 5 December 2020	01	75



*Pictures of Training Workshop*

#### **Policy Level Contribution**

The Fisheries Division contributed a good deal in several programs on aquaculture advocacy, motivation of rural fish farmers and project design by the NARS Institutes, Bangladesh Directorate of Fisheries (DoF), Bangladesh Fisheries Research Institute (BFRI), worldFish and few NGOs working at the grassroots level. However, Member Director (Fisheries) working as an expert member in different organisation, some of which are as follows:

#### **Expert Committee**

- Acting as a expert Member of the Directorate Fisheries (DoF)
- Tender Evaluation Committee, NATP Project, PIU, DLS component
- Acting as a Member of the 'Fish and Fisheries Products (AFDC -23)' Committee of BSTI;
- Acting as a one of the examiner of the Department of Fishries and Technology, Patuakhali Science and Technology University (PSTU), Dumki, Patuakhali.
- Acting as a Member, recruitment committee, BFRI

#### **National Level Collaboration and Linkages**

Fisheries Division continued to be closely involved in the process of programme development, review mechanism of various food and aquaculture related activities of NARS, relevant institutes and universities. Besides, the unit is also involved in planning and organization of activities undertaken by the institutions, like, DoF, WorldFish, BFRI, DAE, BIRTAN, FAO etc., working in the field of fisheries and aquaculture.

#### **Research Management and Coordination**

As a part of the regular yearly activities, Fisheries Division was involved in the review, monitoring and participatory program development of the fisheries and aquaculture research and development

activities of the DOF, BFRI and Member Director (Fisheries) took part in BARC's centrally monitoring of the supplementary research funding program implemented by the different NARS Institutes and Universities during the reporting year.

### **Field Monitoring and Evaluation**

Fisheries Division, BARC also regularly monitor and evaluate the project activities at field level. Dr. Md. Monirul Islam with his team member visited to monitor the BARC funded different ongoing project activities like Universities and NARS institutes during the reporting period. Thereafter, the activities done under the core research program reporting to the Planning and Evaluation Division in prescribed format and finally presented the field observation in the workshop organised by the BARC in the presence of Principal investigators of the project and other relevant scientists.

However, also monitor the ongoing PBRG sub-project activities implementing by BFRI, PSTU, STU, SUST, SAU, KU, JUST and BAU under the supervision of Fisheries Division, BARC.



*Pictorial Views of Field Monitoring*

## NUTRITION UNIT

Nutrition unit of the Bangladesh Agricultural Research Council is working for better human nutrition. A key activities done by the Unit like project development, supervision, execution, technology development, monitoring and evaluation of the research projects, coordinate research programmes with the NARS Institutes, universities, BCSIR, BFSA, BIRTAN, and the agencies which are engaged in nutritional research and development like FAO, WHO, World Vision, World Fish, IFRI, Hellen Killer etc. Also, it's a part of regular activities of the job to organize and attend in national and international seminar, workshop, symposium, conference, meeting and training in the field of nutrition in agricultural research and technologies, food adulteration, contamination and mitigation measures; reporting national issues, review of scientific papers, expert opinion and advisory services etc.

In addition, maintaining liaison with national and international agencies for collaboration and strengthening national research and developmental programme in nutrition along with agriculture, fisheries and livestock. Moreover, the technical advisory services also provided to the Ministry of Agriculture (MoA) on different issues related to agricultural research (including crop, livestock, fisheries & nutrition as a whole) and development.

A brief description of activities done by the Nutrition Unit during the reporting 2020-2021 period are given below:

### **Professional(s)**

**Dr. Md. Monirul Islam**, Director (Nutrition)

### **Program/Project Developed and Implementation**

Presently following projects are implementing by the nutrition Unit, BARC which are as follows. These coordinated PBRG sub-projects are ongoing under the direct supervision and monitoring by the nutrition Unit.

- Contamination and adulteration of food and food products, process, chain and mollification
- Value addition and standardization of nutritional level in selected food items to mitigate malnutrition
- Food-based initiative for improving household food security, income generation and minimize malnutrition
- Fortification and standardization of nutritional level in selected food items and efficacy test of polyphenolic compounds as quality livestock feed production

### **Training Programme**

As a part of the human resource development, Nutrition unit of BARC was organized different training programmes in the different location the country eg. Khulna, Satkhira, Cox's Bazar and Jessore during the fiscal year of 2020-2021 to create awareness building on nutrition knowledge,

food utilization, balanced diet and health benefits , promote nutrition rich agricultural crops production and means to increase the knowledge of nutrition through capacity building.

### **Training Programme Implemented by the Nutrition Unit**

Title	Places/Venue	Duration	Total Programme implemented	Total participants
Awareness building on the importance of nutrition information next to COVID-19	BURO, Khulna	29January-01 February	01	35
Awareness building on the importance of nutrition information	Tourist Police Conference Center, Coxs Bazar	12-15 February 2021	01	35
COVID-19 Epidemic: Importance of quality processing and preservation of agro-products	DoF, Jessore	3-6 June 2031	01	35
COVID-19 Epidemic: Importance of quality processing and preservation of agro-products	Upzila Confrence Room, Shaymnagr, Satkhira	19-22 March 2021	01	35
“COVID-19 and Role of Food Based Nutrition to reduce Stunting and Wasting”	HRC, BARI, Khagrachari	8-11 January 2011	01	35

A total of 35 participants ( grand total 175 participants) in each training programme from the different organization considering with the multi-sectors like sub-assistant agriculture officer, health workers formal and non-formal teachers, local journalists, producers, family farmers, small entrepreneurs, traders, pesticide dealers, depot owner, consumers and other government agency extension workers were attended.

Noted that the programme was organized to disseminate the messages focusing on food based nutrition with the view that acquired knowledge would be further transferred to neighbors’ and others stakeholders. The courses were designed with multidisciplinary sectors covering and emphasized the following areas viz, agriculture products, gardening, small-scale fish culture, livestock; food hygiene, sanitation, quality safe food, food security, micronutrient benefits, food utilisation, cooking process, food adulteration and mitigation measures, improvement of nutrition level, processing to restore food value, nutrition care of lactating and pregnant women as well as adolescent girls and preservation techniques of fruits and vegetables, quality control, etc. In

addition, special attention was given to the all of the programmes how and which food can help to improve immunity to protect COVID-19.

The resource speakers were selected from the multidisciplinary sector like Agriculture, fisheries and Livestock as well as scientists from BARI, BFRI, BLRI and Universities. However, Dr Md. Monirul Islam, Director (Nutrition), BARC was attended as a key speaker in all of these training programmes to facilitate and make the entire training programme effective and successful.



*Pictorial views of training activities*

### **Organizing Workshop/Seminars**

A couple of training workshops were organized during 1 July 2020 and 30 June 2021 at Koat Chandpur, Jenaidah and SHC, DoF, Barisal. In the both of the workshops, key note paper was presented by Dr. Md. Monirul Islam, Director (Nutrition), BARC. With the view to creating awareness to the mass people regarding food adulteration, mitigation measures and consumers responsibility. A total of 75 participants in each program from the multidisciplinary sectors., viz., Upazila Agriculture Officer including other officials at Upazila level, scientists, extension workers, teachers, fruit traders, growers, pesticide dealers and reporters from the print and electronic media were invited both of the workshop from the said region/districts were attended.

However, in these workshop program Md. Anisur Rahman Talukder Additional Director, DoF, Barisal and Professor Yeamin Hossain, Rajshahi University was present as a Chief Guest respectively.

#### Workshop Program Implemented by the Nutrition Unit

Title	Venue	Duration	Total Programme	Total Participants
Food Adulteration and Contamination: Inside Fact and Consumer Responsibilities	Koat Chandpur, Jenaidah	8 November, 2020	01	75
Food Adulteration and Contamination: Inside Fact and Consumer Responsibilities	SHC, DoF, Barisal	19 June 2021	01	75



*Pictorial views of the workshop activities*

Director (Nutrition) also attended in telecast program, talk show to share and disseminate nutrition knowledge, food safety, food adulteration, mitigation measures in different electronic media viz., Channel 24, Atn News, Jamunatv., ntv, Rtv, Channel 71, DBC, Samoytv, Boishakhitv etc. including radio furti. In addition, a number of research results done by the Nutrition Unit, BARC were published in different print media.

## **Key Research Activities done by Nutrition Unit**

### **1. Detection of Heavy Metals Residue in Native and Exported Rice**

Rice is the main food of Bengalis. No matter how varied our diet may be in our daily life, there seems to be dissatisfaction in food without rice. Starting from rice, rice is made suitable for making rice through a few special processes. It is true that Bangladesh is now self-sufficient in many kinds of food including rice. In addition to rice, various types of food such as chira, muri, noodles, khai, pitha, polao, biryani, etc. are made from rice. At present, various types of bakery products such as cakes, biscuits, etc. are being prepared from rice. Rice has been playing a major role in the diet of people in Bangladesh, India, Pakistan and other parts of the world for centuries. According to the United States Department of Agriculture (FDA), energy per 100 grams of rice is 365 kilocalories, 60 grams of sugar, 6.13 grams of protein and 0.8 grams of fat. According to the texture, variety and aroma of rice, it is known to people by different names, such as Eri, Boro, Aman, Nazirsail, Chinigura, Basmati and Basful etc.

In addition to the essential nutrients in rice, some basic substances exist. Foods are considered unsafe if they are found in excess of a certain amount in a food. Basic elements like arsenic, cadmium, chromium, lead are called heavy metals. The heavy metals mentioned are found in nature in both organic and inorganic types. However, the most harmful of these are inorganic metals. Heavy metals are present in a certain amount of organic matter in rice which is not harmful to human beings. However, according to the principles of poisoning, it is said that "everything in excess is poisonous." When inorganic metals enter the human body, they cannot be excreted, resulting in long-term accumulation in the human body, damaging the kidneys, liver and brain.

The amount of heavy metals in soil and water varies from place to place. These heavy metals from soil or water spread to different parts of plants in different processes and eventually accumulate in food grains. Heavy metals include some metals such as arsenic, lead, chromium, cadmium, etc., which accumulate in the body through various biochemical processes and cause serious harmful effects. Therefore, considering the health hazards and in the interest of public welfare, the Nutrition Unit, Bangladesh Agricultural Research Council undertook research activities to analyze the presence of heavy metals in different rice samples.

#### **Types of collected rice samples**

Rice samples were collected from the Dhaka city, Mohammadpur Krishi Market, Mirpur-1, Malibagh, Kawran Bazar, Farmgate and various chain shops in particular for testing the presence of heavy metals. A total of 13 types of local and imported rice samples were collected to determine the presence of heavy metals such as: BRRI dhan28, Guti, Paijam (boiled), Paijam (Atap), Aman, Miniket, Basmati, Basful, Nazir Sail, Tilda. (Basmati), Fortune (Basmati), Kahinur (Basmati) and Birui.

The collected samples were packaged in food grade zip lock bags after measuring 500 g each separately. Each sample is then properly labeled and analyzed from an internationally recognized laboratory.

#### **Results of heavy metals analyzed in rice samples**

The study made observation that other than imported Kohinoor basmati rice none of the analysed samples contained heavy metal in any of the samples. Tested samples of Kohinoor basmati rice contained 0.48 mg (ppm) of lead per kg of rice, which is higher than the maximum tolerable level

prescribed for the human body. It is noted that the minimum detection level (LOD) in each rice sample was 0.01 ppm.

According to the World Health Organization and the Food and Agriculture Organization (FAO) and the European Commission, the maximum safe intake for cadmium and lead in rice is 0.2 ppm, 1.0 ppm for arsenic and 1.0 ppm for chromium.

পরীক্ষাকৃত চালে ভারী ধাতুর উপস্থিতি

ক্র. নং	চালের নমুনা /প্রকারভেদ	আর্সেনিক (As) (পিপিএম)	ক্যাডমিয়াম (Cd) (পিপিএম)	ক্রোমিয়াম (Cr) (পিপিএম)	সীসা (Pb)(পিপিএম)
1	ব্রি ধান-২৮	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
2	গুটি	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
3	পায়জাম	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
4	পায়জাম আতপ	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
5	আমন	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
6	মিনিকেট (বাজারে প্রচলিত নাম)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
7	দেশী বাসমতি	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
8	বাঁশফুল	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
9	নাজিরশাইল	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
10	টিলডা বাসমতি	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
11	ফরচুন বাসমতি	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)
12	কোহিনূর বাসমতি	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	0.48
13	বিরুই	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)	ND (LOD:0.01)

### Conclusion

Groundwater in many countries, including Bangladesh, has high levels of inorganic arsenic, which is more harmful than organic arsenic. In Bangladesh, especially in Chandpur, Munshiganj, Gopalganj, Madaripur, Noakhali, Satkhira, Comilla, Faridpur, Shariatpur, Meherpur, Bagerhat, arsenic levels are higher than other districts. Consumption of inorganic arsenic-containing water or food for long-term accumulation in the body can play a role in the development of skin cancer, wounds, etc., as well as diabetes and heart disease.

To make all the farmers aware to refrain from applying low quality fertilizers on the agricultural land and to strictly warn the factory authorities about the waste control rules of various industrial factories as well as to bring them under punishment by conducting mobile courts by the appropriate authority. Also to create public awareness by informing everyone about these issues through various media.

It is worthwhile to mention here that due to the presence of heavy metals especially arsenic in rice, there is a panic among the general public about arsenic rich rice. But arsenic and other heavy metals are present in rice in a certain amount in the organic state which does not have any harmful effects on humans by ingestion. So there is nothing to worry about the presence of arsenic in rice.

## **2. Street food: How safe and healthy**

Street food is becoming more and more popular in the country as it is easily available, cheap and delicious. About 80 percent of the world's people, including tourists, depend on it in one way or another. From the big cities to all kinds of parks, in front of educational institutions, markets and various philosophical places, just as there is a noisy atmosphere of people, there is also an overflowing crowd of consumers in the street food shops. Just as these foods create an awe-inspiring environment for consumers, so too do vendors keep the wheel of the economy afloat with a thriving business. A research survey confirmed that there are more or less 140 types of street food selling in the country. The main buyers of these foods are laborers, Tokai, low-income people, drivers, tourists, school-college-university students, men and women shoppers, shop workers and as well as many housewives even return home with these street food. However, in the developed world, the food sold on the streets is quite clean, but in countries like Bangladesh, it is different. Someone is helpless and someone is constantly taking these foods without thinking about any kind of harmful side.

It is thought that these foods are rich in a variety of microorganisms. In particular, due to improper processing of foods, they are easily infected by harmful microorganisms, such as bacteria that spread the disease, which is usually not possible to detect.

Many of the country's underprivileged people have chosen the business of selling street food to make a living, but they are not at all aware of the need to serve safe and healthy food. As a result, the food processing methods prepared or served by them are not very healthy, due to which these foods are consumed by different classes of people, resulting in fever, headache and abdominal cramps. Occasionally there are a number of harmful effects that can lead to life-threatening food poisoning, often leading to life-threatening health risks. In order to create public awareness in this regard, the Nutrition unit of BARC has been carried out the research to analyze the popular street foods are available in Dhaka city to detect the presence of harmful pathogens and or bacteria. In

addition study was included the research survey of the process of making and serving the street food to the consumers. In this research, all of the samples were analyzed from a recognized laboratory.

### **Place and method of collection of Tested Samples**

The street food is divided into two categories namely liquid (sugarcane juice, fruit juice, lemon juice, tamarind water) and solid or hard food (velpuri, panipuri, noodles, chatpati, various types of fruit mashed jhalmuri etc.). Samples of these street foods were collected from Mirpur, Gabtali, Mohammadpur, Dhanmondi, Newmarket, Dhaka University area, Sadarghat, Gulistan, Jatrabari, Khilgaon, Hatirjhil Lake and Farmgate Basila of Dhaka city.

Zip lock bag was used for the collection of hard samples and bottles for liquid samples. After sample collection, each sample is stored in an ice-cooled cooler box and stored at room temperature. Finally, samples were sent to the accredited laboratory and all the samples from collection to analysis are followed by the internationally recognized criteria. Noted that each sample analysis was repeated 3 times.

### **Results of in street food samples**

The study made observation that almost all of the samples are contaminated with harmful microorganisms total coliform and *E. Coli* in particular. In case of tetul and lemon water sample were found free of microorganisms. From the results, it can be concluded that need to train up the street food vendors how to prepare and selling safe foods. At the same time, peoples need to aware themselves about the health hazards of eating or drinking street foods.

### **Policy Level Contribution**

The Nutrition Unit contributed much in several programs on nutritional advocacy, motivation of rural households and project design by the NARS Institutes, Bangladesh National Nutrition Council (BNNC), Bangladesh Food Safety Authority (BFSA), Institute of Food Science and Technology (IFST) of BCSIR, ICDDR'B and few NGOs working at the grassroots level. However, Director (Nutrition) working as an expert member in different organisation, some of which are as follows:

### **Expert Committee**

- a. Acting as an expert Member of the Tender Evaluation Committee, NATP Project, PIU, DLS component
- a. Acting as a Member of the 'Fish and Fisheries Products (AFDC -23)' Committee of BSTI;
- b. Acting as a Member of the "Oils, fats and allied products" Sectional Committee of BSTI, Dhaka.
- c. Acting Member, Agriculture and Food Division Committee (AFDC), BSTI, Dhaka

- d. Acting as a one of the examiner of the Department of Fishries and Technology, Patuakhali Science and Technology University (PSTU), Dumki, Patuakhali.
- e. Acting as expert member of the “Food Safety Authority (FSA)” (Fruits and vegetables Committee/crop sector)
- f. Member of the National Plan of Action on Nutrition (NPAN)
- g. Member, Nutrition Working Group (NWG)

### **National Level Collaboration and Linkages**

Nutrition Unit continued to be closely involved in the process of programme development, review mechanism of various food and nutrition related activities of NARS, relevant institutes and universities. Besides, the unit is also involved in planning and organization of activities undertaken by the institutions, like, DAE, BIRTAN, BNNC, IFST, BFSA, ICDDR’B WFP, INFS, FAO etc., working in the field of food and nutrition, food safety, food adulteration and mitigation, primary health care, food habit, food utilization and cooking practices.

Director (Nutrition) actively contributed to the BSTI to provide quality products and developing standards of these different products and to play the key role by providing suggestion/expert opinion to the BSFA to minimize food adulteration and its mitigation measures.

Dr. Md. Monirul Islam, Director (Nutrition) was also actively engaged with BFSA and contributed to produce the Recommended Level/MRL of Pesticides Residue and Food additives and Preservatives for Bangladesh standards.

### **Research Management and Coordination**

As a part of the regular yearly activities, Nutrition Unit was involved in the review, monitoring and participatory program development of the nutritional activities of the BFSA, DAE, DAM, BIRTAN, BNNC, IFST, HK and ICDDR’B. As Director (Nutrition) took part in BARC’s centrally monitoring of the supplementary research funding program implemented by the different NARS Institutes and Universities during the reporting year.

### **Field Monitoring and Evaluation**

Nutrition Unit, BARC also regularly monitor and evaluate the project activities at field level. Dr. Md. Monirul Islam with his team member visited to monitor the BARC funded different ongoing project activities like BLRI, BRRI, BAU, BFRI, universities during the reporting period.

However, Dr Shaikh Mohammad Bokhtiar, Executive Chairman of BARC also practically visited the ongoing activities of the PBRG sub-project under the supervision of Nutrition Unit, BARC in Khagrachari. During his visit it was observed that farmers are encouraged and motivated to continue such type of activities themselves to minimize malnutrition and ensure food security.

However, also monitor the ongoing PBRG sub-project activities implementing by BARI, BFRI, BLRI, PSTU, HSTU and BAU under the supervision of Nutrition Unit, BARC.



*Field Monitoring activities*

### **Publication(s)**

Depending on the research finding and other activities, Nutrition unit has been produced and or published Scientific paper, reports, proceedings of the seminar symposium etc. as a regular basis. During the reporting period following documents were published.

### **Leaflets**

- স্ট্রীট ফুড কতটা নিরাপদ ও স্বাস্থ্যকর
- চাউলে ভারী ধাতুর উপস্থিতি।

However, a number of popular articles were published in the different national daily newspaper with the emphasis of recent issues COVID-19 in particular which are as follows:

- পুষ্টি নিরাপত্তার বাঁধাঃ পুষ্টিকর খাদ্য ভাবনা পুষ্টিজ্ঞানের অভাব ও অসচেতনতা
- কোভিড-১৯ পরবর্তী খাদ্য নিরাপত্তা ও পুষ্টি ভাবনা এবং করণীয়
- বানিজ্যিকভাবে উৎপাদিত পোল্ট্রি ফিডের রাসায়নিক বিশ্লেষণের তুলনামূলক ফলাফল
- চিংড়ি চাষ : একটি সম্ভাবনার প্রতিবন্ধকতা ও করণীয়

### **Journal Publication (International)**

- Molla, M. M., Sabuz, A. A., Chowdhury, M. G. F., Khan, H. H. M., Alam, M., Nasrin T.A.A., Khatun, and Islam M. M. 2021. Bioactive Compounds and Antioxidant Properties of Selected Minor Indigenous Fruits in Bangladesh: Asian Journal of Agricultural and Rural Development. Vol.11.Issue 1 (2021):35-46.<http://www.aessweb.com/journals/5005>.
- Molla, M. M., Kamal, M. M., Sabuz, A. A., Chowdhury, G. F. M., Khan, H. H. M., Khatun, A., Miaruddin, M. Zashimuddin, M. and Islam M. M. 2021. . Chemical

composition, bioactive compounds, antioxidant potential and mycotoxin of minor exotic archidendron pauciflorum fruit with the focus of Bangladesh. *Biocatalysis and Agricultural Biotechnology*. 34. (2021). 102039. P.1-7.

- Sarker. M.M., Hossain B.M., Islam, M.M., Kamal. M. H. A. and Idris H. M., 2020. Unraveling the diversity and assemblage of phytoplankton in homestead ponds of central coastal belt, Bangladesh: *Aquaculture research*, WILEY. DOI: 10.1111/are.14878 ( JCR impact factor 1.75, Q2 category), 1-18pp.
- Pingki, F.H., Hossain, M.B., Amin, S.M.N., Sultana, M., M.M. Islam, Rahman, A.F.M.A., Nur, A.U. and A. Arshad., 2020. Prevalence of malnutrition and associated factors of pond fish farmers from Noakhali Coast, Bangladesh. *Journal of Environmental Biology*. september 2020.P-1171-1178. Journal Home page : [www.jeb.co.in](http://www.jeb.co.in) « E-mail : [editor@jeb.co.in](mailto:editor@jeb.co.in). DOI : [http://doi.org/10.22438/jeb/41/5\(SI\)/MS\\_08](http://doi.org/10.22438/jeb/41/5(SI)/MS_08)
- Rafikul Islam<sup>1</sup>, Mohammad Belal Hossain<sup>1\*</sup>, Md. Nahidul Islam<sup>1</sup>, Md. Monirul Islam<sup>2</sup>, Md. Tazul Islam, 2020. Nutrient Composition of Small Indigenous Fish Species (SIS) from Homestead Ponds of Noakhali Coast, Bangladesh. *Egyptian Journal of Aquatic Biology & Fisheries*, Zoology Department, Faculty of Science, Ain Shams University, Cairo, Egypt. ISSN 1110 – 6131; Vol. 24 (7): 943- 954 (2020). [www.ejabf.journals.ekb.eg](http://www.ejabf.journals.ekb.eg)

### **Lambert Academic Publication**

1. Proximate composition of some SIS from homestead ponds of Bangladesh.
2. Nutritional health status of homestead pond fish farmers, Bangladesh.
3. Fish diversity in the homestead ponds of Noakhali, Bangladesh.

### **Books Chapter**

“Bioactive compounds and biochemical and antioxidant properties of selected minor indigenous fruits in Bangladesh” :Cutting-edge Research in Agricultural Sciences (International Book) (Ref. no. 2021/BP/9076D)

## NATURAL RESOURCES MANAGEMENT DIVISION

### Agricultural Engineering Unit (AEU)

Agricultural Engineering Unit, Natural Resources Management Division, BARC has been implementing the mandated activities and beyond. Agricultural Engineering Unit (AEU), since its inception, has been prioritizing, planning, approving, reviewing, monitoring and coordinating irrigation and water management, farm mechanization and postharvest technology related research program of the NARS Institutes and other institutions including universities, Department of Agricultural Extension (DAE) and NGOs. The Unit conducted training program and seminar/workshop and maintain strong linkage with the national (IEB, BWDB, WARPO, BSTI, NGOs (IDE, BWP /GWP), BAS and Universities etc.) and international (CIMMYT, IRRI, CSAM, and FAO etc.) organizations. Agricultural Engineering Unit's activities of 2020-21 have been briefly discussed below:

#### 1. Research Program Development of NARS institutes

- A. Two days NARS Research Planning Workshop on Agricultural Engineering was held on 14-15 October 2020 with the participation of the institutes from the National Agricultural Research System (BRRI, BINA, BSRI and BWMRI), Department of Agricultural Extension (DAE), Rural Development Academy (RDA), International Rice Research Institute (IRRI), Bangladesh Rural Advancement Committee (BRAC), Agricultural Universities etc. The objectives of the workshop were to review the status and needs of agricultural engineering research in Farm Machinery, Irrigation & Water Management and Postharvest Technology. Ninety Agricultural Engineers from NARS Institutes, universities and other organization participated in the workshops. Participants and expert members gave valuable suggestions on Agricultural Engineering Research Reports (2019-20) and Planning Future Research Program (2020-21) of NARS Institutes and recommendations in various issues.
- B. Attended internal and central research review workshops of BARI and BRRI.

#### 2. Monitoring & Evaluation

- i. BARC expert and coordinating personnel conducted field monitoring of PBRG project Up-scaling and Application of Solar Photovoltaic Pump for Smallholder Irrigation and Household Appliances in the Central Coastal Region of Bangladesh (ID-001) at Charfassion on 4 November, 2020 and attended training course under this project entitled Solar Home System Establishment, Utilization & Maintenance based on BARI Solar Pump. CSO and Head, FMPHT Division, BARI & PI of this project was the Chairman of the inaugural session. Upazila Agriculture Extension Officers of Charfassion and Lalmohon of Bhola and SSO and In-charge, OFRD, BARI, Bhola was present among other Special Guests. FMPE Division, BARI arranged the training course and twenty trainees corresponding farmers, electricians, mechanics and SAAO were participated from the project sites. The objective of the training was to disseminate the knowledge of maximum utilization of solar energy, operation & maintenance of solar pump and solar home system among participants of Charfassion and Lalmohon of Bhola.



*Training program at Charfassion, Bhola*

- ii. Conducted field monitoring of PBRG project Up-scaling and Application of Solar Photovoltaic Pump for Smallholder Irrigation and Household Appliances in the Central Coastal Region of Bangladesh (ID-001) at Charfassion and Lalmohon of Bhola, Kolapara and Galachipa of Patuakhali, Borguna Sadar and Amtoli of Borguna from 5 -9 November, 2020 (BARI component's project location). BARC experts and coordinating personnel attended field days arranged by BARI at project locations.



*Lalmohon, Bhola; Kalapara, Patuakhali*



*Charkajol and Charbisash, Golachipa, Patuakhali*



*Amtoli, Borguna; Borguna Sadar, Borguna*

*Photographs of field monitoring at Bhola, Patuakhali and Borguna district*

iii. BARC experts and coordinating personnel visited BRRRI project locations at Bakerganj, Barisal and Nalcity, Jhalokati on 11 December 2020, Ramjankathi, Jhalokati on 12 December 2020 and Pirojpur Sadar on 13 December 2020. Project sites were in on-grid area. Signboards were inclusive of project details. A set of portable 8 solar panels with a pump and thresher have been given to the selected farmers. Installation of solar pump and solar panel for household appliances in the project site was completed as per inception report. The solar home system was found linked with national grid and storage system was given.



*Nalcity, Jhalokati*



*Bakerganj, Barisal*



*Ramjankathi, Jhalokati*



*Pirojpur Sadar*



*Photographs of field monitoring at Barisal, Jhalokati and Pirojpur district*

iv. BARC expert and coordinating personnel of PBRG project conducted field monitoring and attended training course under PBRG Sub-project ID: 001 entitled Portable Solar Panel Based Solar Pump, Paddy Thresher and Solar Home System Establishment, Utilization & Maintenance as a chief guest at BRRRI Barishal Regional Station on 12 December 2020. Upazila Agriculture Extension Officer of Barishal and scientists of BRRRI also attended this program. IWM Division, Component BRRRI arranged the training course and twenty trainees corresponding farmers, electricians, mechanics and SAAO participated from the project area. The objective of the training was to disseminate the knowledge of maximum utilization of solar energy, operation & maintenance of portable solar pump, solar powered thresher and solar home system among participants of Bakerganj and Barishal Sadar.



*Training program at BRRRI Barishal Regional Station, Barishal*

- v. Organized a field day at Horipur, Mithapukur, Rangpur on 31 October, 2020 about the production technology of BRRi Dhan87 for its low water demand and maximum yield. BRRi and BARC scientists, Upazilla Agricultural Officer, local leaders and farmers were attended in this field day. The objective of this field day was to familiar the farmers with low water demanding production technology of BRRi Dhan87.



*Field Day Horipur, Mithapukur, Rangpur*

- vi. A field day conducted at Bonogram, Pabna on 16 October, 2020 focusing the water saving small lifecycle BRRi Dhan57, BRRi Dhan87 and BRRi hybrid Dhan4 production technologies. BRRi component organized this field day program. Scientists from BRRi and BARC were attended in this program. Local leaders and farmers were the participants. Chief Scientific Officer from IWM division, BRRi were attended in this program through online medium. All the speakers told the farmers about the important of these above mentioned varieties.



*Field Day Bonogram, Pabna*

- vii. A farmers training program on modern production technologies of rice varieties was organized at Sothibari, Mithapukur, Rangpur on 08 January, 2021. Expert scientists from BRRi and BARC were delivered lectures towards the trainees. The farmers were attended in this program and learnt various technologies of rice cultivation.



*Farmer's training program at Sothibari, Mithapukur, Rangpur*

### 3. Regional and International Collaboration & Cooperation

A. Worked as member in the different committee as mentioned below:

- i. PEC of project entitled “ Projection of sea level rise and assessment of its sectoral (agriculture, water and infra-structure) impacts of Department of Environment
- ii. BANCID Study and Publication Sub-Committee.
- iii. Advisory Committee of Appropriate-scale Mechanization Innovation Hub- Bangladesh.
- iv. Country Project Management Committee (C-PMC) for the project entitled “Solar Irrigation for Agricultural Resilience (SoLAR)” of IWMI and IDCOL.

B. Attended meetings/seminar/ workshops organized by FAO, CSAM, KGF, IWM, WARPO, BARI and BRRI etc.

### 4. Research Project Evaluation

Evaluated Annual Report and Half Yearly Report of PBRG sub-project entitled ‘Design and Development of fertilizer deep placement mechanism for existing rice transplanter’ (Project ID # 064).

### 5. Preparation of Policy Documents and Inputs

Furnished Comments on the following aspects/ issues and send to the MOA

১. আলিম ইন্ডাস্ট্রিজ, এক্সপার্ট ইঞ্জিনিয়ারিং ও উত্তরণ ইঞ্জিনিয়ারিং এর সাথে পৃথকভাবে বিএআরআই এর ৩টি সমঝোতা স্মারক স্বাক্ষর সংক্রান্ত এর উপর মতামত প্রেরণ
২. ৪<sup>th</sup> Five Year Plan (FY 2021-FY 2025) এর Agriculture Chapter এর Water Resource Management অংশের উপর মতামত প্রেরণ
৩. বাংলাদেশের “Nationality Determined Contribution (NDC)” -তে দেশের কৃষি খাতের আওতায় ০৩ টি Mitigation এর বিষয়ে সুনির্দিষ্ট মতামত প্রেরণ
৪. JICA কর্তৃক মহেশখালি – মাতারবাড়ি এলাকায় Water Front Industry গড়ে তোলার বিষয়ে পরিচালিত জরিপ এর উপর মতামত প্রেরণ
৫. কৃষি মন্ত্রণালয়ের ২০১৯-২০ অর্থ বছরের বার্ষিক প্রতিবেদন প্রস্তুতের জন্য তথ্য প্রেরণ
৬. Inputs for cooperation in the field of agriculture between Bangladesh and India
৭. খসড়া জাতীয় নদী রক্ষা কমিশন আইন ২০২০ এর উপর বাংলাদেশ কৃষি গবেষণা কাউন্সিল এর মতামত প্রেরণ
৮. জাতীয় কৃষি যান্ত্রিককীকরণ নীতিমালা ২০২০ ইংরেজিতে অনুবাদ
৯. মিরপুর এগ্রিকালচারাল ওয়ার্কশপ এন্ড ট্রেনিং স্কুল (MAWTS) এর সাথে বাংলাদেশ কৃষি গবেষণা ইনস্টিটিউট-এর সমঝোতা স্মারক (MoU) স্বাক্ষর সংক্রান্ত মতামত প্রেরণ
১০. ৪র্থ শিল্প বিপ্লবের সাথে সামঞ্জস্য রেখে দেশের কৃষি খাতকে (ফসল উপখাত) এগিয়ে নিতে/গড়ে তুলতে প্রণীত কর্মপরিকল্পনা প্রেরণ

## 6. Seminar/ Workshop/Meeting

### i. Annual Workshop on ‘Research Review 2019-20 and Research Program 2020-21 on Agricultural Engineering of NARS Institutes’

Agricultural Engineering Unit, Natural Resource Management Division, BARC organized Research Review 2019-20 and Research Program 2020-21 on Agricultural Engineering of NARS Institutes” in Bangladesh Agricultural Research Council on 14-15 October 2020 with the participation of the institutes from the National Agricultural Research System (BRRI, BINA, BSRI and BWMRI), Department of Agricultural Extension (DAE), Rural Development Academy (RDA), Agricultural Universities, etc. The workshop was splitted into an inaugural, three technical and a concluding sessions.

The inaugural session was chaired by Dr. Nazmun Nahar Karim, MD (Livestock) and CSO, Ag. Engg. Unit, BARC on 14 October 2020. She briefed the last year’s comments/recommendations in her welcome address. Dr. N N Karim also emphasized on undertaking researches considering National Agricultural Plan-2018, National Agricultural Mechanization Policy 2020, Perspective Plan, National Agricultural Extension Plans etc. The chief guest of the inaugural session, Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC urged the concerned scientists to work with due importance on agricultural mechanization in Bangladesh following government’s priorities. He also highlighted the agricultural researches that need immediate attention for food security of the country.

Technical Session-I (Farm Machinery) was chaired by M. Harun Ur Rashid, Ex-Director General, BARI & Ex-Executive Chairman, BARC on the same day. Expert members were Md. Abdus Sattar, Ex-Director General, BARI & Ex-Director General, BJRI and Dr. Sultan Ahmmed, MD (NRM) (PRL), BARC. Technical session-II (Post Harvest Technology) was chaired by Dr. Sultan Ahmmed, MD (PRL), NRM Division, BARC which was held on the same day. In this session, Prof. Dr. Md. Abdul Alim, Member, Bangladesh Food Safety Authority was expert member. Technical session-III (Irrigation and Water Management) was chaired by Dr. Wais Kabir, Ex-Executive Chairman, BARC and Ex-Executive Director, KGF which was held on 15 October 2020. Expert members in this session were Dr. Ahmad Ali Hassan, Ex-Director General, BINA; Dr. Shirazul Islam, Ex-Director Research, BARI, Dr Asgar Ali Sarkar, Ex-Director (Admin and Support Service), BINA and Dr. Md. Abdur Rashid, Ex-CSO (IWM), BRRI.

At the end of each session, participants participated in the discussion on the presentations. The rapporteurs presented their reports and draft recommendations were finalized. The proceeding of the workshop was sent to the participating institutes.



*Pictorial view of research review and planning workshop*

**ii. Annual Review Workshop of PBRG Sub-project ID # 001**

Agricultural Engineering Unit, Natural Resource Management Division, BARC organized Second Annual Review Workshop of PBRG Sub-project “Solar Pump Project (ID # 001)” on 12 October 2020 in BARC, Dhaka. The participants were scientists/experts from different research institutes.

The inaugural session was held under the chairmanship of Dr. Nazmun Nahar Karim, Member Director (Livestock) & CSO (Ag. Engg.), BARC. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was present as the chief guest. Dr. Md. Harunur Rashid, Director, PIU-BARC, NATP-2 was present as the special guest. Technical session was chaired by Dr. Ahmmmed Ali Hassan, Ex-DG, BINA. Dr. Md. Abdul Wohab, Ex-DG, BARI and Dr. Sultan Ahmmmed, MD (NRM) (PRL), BARC were present as expert members. Annual Progress presentation of BARI and BIRI component was followed by lively discussion. The Rapporteur presented their reports in concluding session and draft recommendations were finalized. At the end Member Director (Livestock) & CSO (Ag. Engg.), BARC concluded the annual workshop with thanks to the participants for their spontaneous contribution.



*Pictorial view of Annual Review Workshop of PBRG Sub-project ID # 001*

**iii. Annual Review Workshop of PBRG Sub-project ID # 002**

Agricultural Engineering Unit, Natural Resource Management Division, BARC organized Second Annual Review Workshop of PBRG Sub-project entitled “Groundwater Management Project (ID # 002)” on 11 October 2020 in BARC, Dhaka. The participants were scientists/experts from different research institutes.

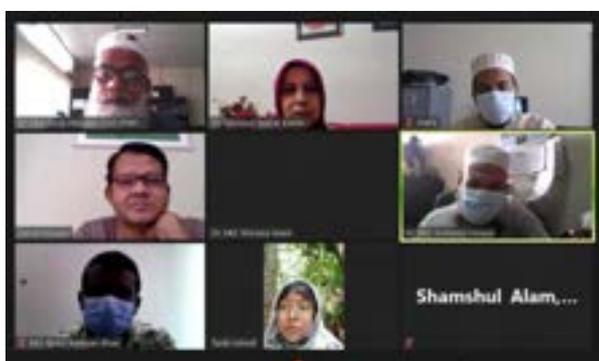


*Pictorial view of Annual Review Workshop of PBRG Sub-project ID # 001*

The inaugural session was held under the chairmanship of Dr. Nazmun Nahar Karim, Member Director (Livestock) & CSO (Ag. Engg. Unit), BARC. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was present as the chief guest. The special guest was Dr. Md. Harunur Rashid, Director, PIU-BARC, NATP-2. Technical session was chaired by Dr. Shirazul Islam, Ex-Director Research, BARI. Expert Members were Dr. Md. Abdur Rashid, Ex-CSO, BIRI and Dr. Md. Asgor Ali Sarkar, Ex-Director (SS), BINA. Annual Progress presentation of BINA, BARI and BIRI component was followed by lively discussion. The Rapporteur presented their reports in concluding session and draft recommendations were

finalized. At the end Member Director (Livestock) & CSO (Ag. Engg.), BARC concluded the annual workshop with thanks to the participants for their spontaneous cooperation.

- iv. Organized eighth coordination meeting of PBRG sub-project “Up-scaling and Application of Solar Photovoltaic Pump for Smallholder Irrigation and Household Appliances in the Central Coastal Region of Bangladesh” (ID-001) on 6 May 2021 in order to keep the project activities in right track. Coordinator, Consultant, PIs, Co-PIs and SOs of the project to join these meetings through Zoom Video Conferencing due to Covid-19 pandemic situation. PIs from the project component BARI and BRRI presented their progress of the project activities. The chairman of the meeting requested Consultants, PIs, Co-PIs and SOs to comments/ suggestions for the improvement of the project activities. The proceedings of the seventh and eighth meeting were send to project personnel for implementation of the suggestions.



*Pictorial view of Eighth Coordination meeting of PBRG subproject's (001)*

- v. Organized eighth coordination meeting of PBRG sub-project “Groundwater resources management for sustainable crop production in northwest hydrological region of Bangladesh” (ID: 002) on 6 May 2021.



*Pictorial view of Eighth Coordination meeting of PBRG subproject's (002)*

#### **vi. First C-PMC Meeting of Bangladesh**

Dr. Nazmun Nahar Karim, Member Director (Livestock) & CSO (Ag. Engg.), BARC participated virtually in the first meeting of Country Project Management Committee (C-PMC) of Swiss Development Cooperation (SDC) funded and the International Water Management

Institute (IWMI) implemented project titled “Solar Irrigation for Agricultural Resilience in South Asia” on 20<sup>th</sup> October 2020. The main goal of the project is to contribute to climate-resilient, gender and socially-inclusive agrarian livelihoods in South Asia by supporting national government efforts to promote solar irrigation. This project is being implemented in four South Asian countries of Bangladesh, India, Nepal and Pakistan. In Bangladesh IWMI is implementing this project in partnership with Infrastructure Development Company Limited (IDCOL).

#### **vii. Sixteenth Session of the Governing Council of CSAM**

Dr. Nazmun Nahar Karim, Member Director (Livestock) & CSO (Ag. Engg.), BARC participated in the Sixteenth Session of the Governing Council of the Centre for Sustainable Agricultural Mechanization (CSAM) of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) convened virtually on 4 December 2020. The Session was attended by representatives of all nine members of the Council, namely Bangladesh, Cambodia, China, India, Malaysia, Pakistan, Philippines, Thailand and Vietnam. Representatives from Japan also attended the meeting as observers.



*Sixteenth Session of the Governing Council of CSAM*

#### **viii. 8<sup>th</sup> Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific**

Dr. Nazmun Nahar Karim, Member Director (Livestock) & CSO (Ag. Engg.), BARC participated in the 8<sup>th</sup> Regional Forum on Sustainable Agricultural Mechanization in Asia and the Pacific was organized by the Centre for Sustainable Agricultural Mechanization of the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP-CSAM) on 11 December 2020 on the theme of “Agriculture Beyond the Covid-19 Pandemic: Building Back Better through Sustainable Agricultural Mechanization”. The 8<sup>th</sup> Regional Forum was conducted in hybrid mode and comprised of two sessions: a morning session titled ‘Policy Dialogue on China’s Experience in Strengthening Food Systems amid the Response to COVID-19’ held on-site in Beijing and broadcast live online, and an afternoon session titled ‘Discussion Forum on Agriculture Beyond the COVID-19 Pandemic: Building Back Better through Sustainable Agricultural Mechanization’ organized fully online. Over 150 participants

from 20 countries attended the two sessions of the 8<sup>th</sup> Regional Forum both online and in Beijing.

#### ix. 18<sup>th</sup> AGM of Bangladesh Water Partnership

Dr. Nazmun Nahar Karim, Member Director (Livestock) & CSO (Ag. Engg.), BARC participated in the 18<sup>th</sup> AGM of Bangladesh Water Partnership (BWP) convened virtually on 26 December 2020.

#### 7. Training

Agricultural Engineering Unit, Natural Resources Management Division, BARC organized a training course on “Use of Modern Farm Machinery for Ensuring Food Security” was held on 23-25 February 2021 at Auditorium-2, Training Building, BARC, Dhaka. The Course Director and the Course Coordinator were Dr. Mian Sayeed Hassan, Member Director (NRM), BARC and Dr. Nazmun Nahar Karim, CSO (Add. Charge), Agril. Engg. Unit, BARC respectively. Thirty participants like as Scientific Officers, Teachers and Agriculture Engineers from BARI, BRRI, BINA, BSRI, SAU, DAE and BADC were attended in this training program.



*Training on use of modern farm machinery for ensuring food security*

The training course was divided into two parts; one is theoretical course and another is practical course. The well renowned prominent Scientists/Managing Director/Marketing Manager were selected as a trainer from BARC, BADC, BARI, BRRI, BSRI, DAE, ACI Motor Limited and Alim Industries Limited. Welcome address and course introduction has given by Dr. Nazmun Nahar Karim, CSO (Add. Charge), Agril. Engg. Unit, BARC. The Chief Guest and the Special Guest were Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC and Dr. Md. Harunur Rashid, Director, PIU-BARC, NATP-2 respectively. The inaugural session was ended after delivering speech by Dr. Mian Sayeed Hassan, MD (NRM), BARC. The main objective of this training program was to accelerate the use of modern agricultural machineries at all agricultural activities. Present status, challenges and prospects of farm mechanization in Bangladesh, business model of farm machinery, renewable energy uses in farm machinery, engineering technologies for sugarcrop production and processing, fruit and vegetable postharvest machinery uses in Bangladesh, conservation agriculture,

Agricultural Mechanization Roadmap and Policy were discussed in the training. After a successful completion of training course, the program was ended by distributing certificates among the trainees.

## **8. Regular Activities**

- i. Worked as a member in the different committee of BARC
- ii. Attended meetings/seminar/ workshops organized by BARC
- iii. Attended training programme organized by BARC
- iv. Evaluated Annual Report and Half Yearly Report of PBRG sub-project entitled ‘Design and Development of fertilizer deep placement mechanism for existing rice transplanted’ (Project ID # 064).
- v. Worked as a member of the recruitment committee of PBRG projects and other projects.
- vi. Examiner of PHD doctoral Thesis Evaluation of the Department of Water Resources Engineering of Bangladesh University of Engineering and Technology (BUET)
- vii. Worked as a member of “Study on developing operational shadow prices for water to support informed policy and investment decision making process”.

## **9. Publications**

- a. Contributed to publish BARC Annual Report 2019-20.
- b. Contributed to publish BARC Newsletter 2020-21.
- c. Published training manual on “Use of Modern Farm Machinery for Ensuring Food Security”.
- d. Contributed to publish training manual on “বারি সোলার পাম্প ভিত্তিক সোলার হোম সিস্টেম স্থাপন, ব্যবহার ও রক্ষণাবেক্ষণ”
- e. Contributed to publish leaflet on “ভূ-গর্ভস্থ পানি সম্পদের ভারসাম্য ব্যবস্থাপনার লক্ষ্যে নাচোল ও নিয়ামতপুর উপজেলার জন্য পানি সাশ্রয়ী এবং লাভজনক শস্য বিন্যাস”

## FORESTRY UNIT

Forest Unit, Natural Resources Management Division, BARC has been implementing the mandated activities and beyond. Since its inception, the forest unit has been prioritizing, planning, approving, reviewing, monitoring and coordinating OFRD, BARI, and BFRI for agroforestry and forestry technologies related research programs of the NARS Institutes. The Unit conducted training program and seminar/workshop and maintain strong linkage with the national (BARI, BRRI, BFRI, BTRI, BSRTI, BSRI, CDB, BIRTAN, and DoF, *etc.*), Universities (BAU, BSMRAU, SAU, IFESCU, *etc.*) and international (ICRAF, ICIMOD, and FAO, *etc.*) organizations. Forest Unit's activities of 2020-2021 has been briefly discussed below:

### 1. Name of the Professionals

#### Dr. Md. Saifullah

MD (A&F) and Chief Scientific Officer (AC)  
Forest Unit, Bangladesh Agricultural Research Council

### 2. Policy Level Contribution

#### a. Policy Research on Forestry, Agroforestry and Environmental and Climate Change Aspects:

Furnished nine Policy Comments on the following aspects/issues and send to the MoA/MoFE

- Mujib Climate Prosperity Plan Decade 2030 এর উপর মতামত
- বন্যপ্রাণি ও জীব বৈচিত্র্য সংরক্ষণে বঙ্গবন্ধু জাতীয় পুরস্কার প্রদান বিধিমালা
- Concurrence on the revised Grant Agreement and the revised Grand Design Documents (GDD) on the Project on “Consortium for Scaling-up Climate Smart Agriculture in South Asia’ to be supported by International Fund for Agriculture and Rural Development (IFAD).

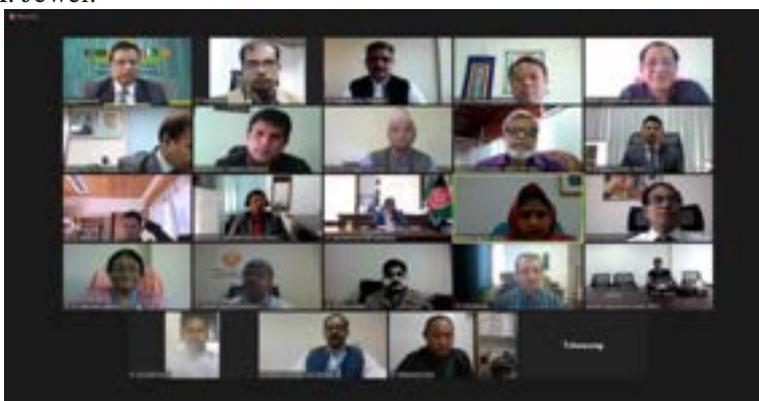
### 3. Evaluation and Review of Forestry Research Program

There are 70 forestry research programs of BFRI that were reviewed, evaluated and suggested for future research as needed and technically sound. Also gave some advisory service for conducting research as priority basis in the annual research program of Bangladesh Forest Research Institute for the financial year 2021-2022.

### 4. Organized Seminar/ Workshop:

#### A. National Seminar/ Workshop

Participated a national expert consultancy meeting on” Sustainable Management of Community-based Non-wood Forest Products and its Contribution towards Improvement of Rural Livelihoods in South Asia” during 11-12 November 2020 at Zoom Online Platform. A book chapter was presented, titled on “Sustainable Management of Non-Wood Forest Products for Rural Livelihood in Bangladesh” by M. Saifullah and K. N. A. Jewel.



*Participating Online Zoom meeting organized by SAARC Agriculture Centre*

## B. Review of Workshop of NARS Institutes

Two days Research Review and Program Planning Workshop was held on 18-19 November 2020 with the participation of the institutes from the National Agricultural Research System (BFRI, BARI, BRRI, BINA, BJRI, BSRTI, BTRI and BSRI). A total of 60 Participants were present in the workshop, among them 26 were male and the rest were female. The objectives of the workshop were to review the status and needs of forestry research in forestry, agroforestry and wildlife technology. Participants and expert members gave valuable suggestions on research reports (2019-20) and planning for the future research program (2020-21) of NARS Institutes and recommendations in various issues.



*Some Pictorial views of the Workshop*

## C. Review Workshop of PBRG Sub-project ID 074:

A day long workshop has been organized on 17 September 2020 at the Auditorium 1 (2<sup>nd</sup> floor) of BARC under the auspices of the project “Exploration, Identification, Characterization, Multiplication and Ex-situ Conservation of Endangered Forest Genetic Resources including Medicinal plants of Bangladesh: BARC Component” funded by the NATP Phase-II and implemented by the three components namely BAU component, BFRI Component, and IFESCU Component under supervision and coordination of Forest unit, NRM division, BARC. The objectives of the workshop were (a) exploring the 2<sup>nd</sup> year activities of the project,

(b) Familiarization with the project work plan for the next year, and (c) accomplish the mandate/obligation of PIU-BARC, NATP-2 for further fund disbursement.



Review Workshop of PBRG sub-project ID 074

About 40 scientists/academia from different organizations namely BARC, BAU, IFESCU, BARI, and NATP attended the inception workshop. PI of the Sub-Projects presented their 2<sup>nd</sup> year Annual progress report. On the basis of the presentation some queries were discussed elaborately and given some comments/suggestions/recommendations regarding improvement of the sub-project works/experiments. The participating organizations were also suggested to prepare a questionnaire for the documentation of information for each of the components.

#### **D. Coordination Zoom meeting**

The coordination meeting was held on 07 July 2020 for sub project ID 072, 09 July 2020 for the sub-project ID 077 and 14 July 2020 for the sub-project ID 074. The Coordinator, Dr. Sultan Ahmmed welcomed all the participants namely Associate Coordinator, Consultant, PIs, Co-PIs and SSO of the project to join this meeting through Zoom Video Conferencing due to Covid-19 pandemic situation. After exchange greetings, the project coordinator, requested the individual participants of each component to present progress of their sub-project. There was an open discussion and necessary suggestion were given as needed.



Sub-project ID 072

Sub-project ID 074

Sub-project ID 077

*A coordination meeting on Zoom platform held with PIs and Co-PIs*

All component has expressed their similar opinion about insignificant effect of Amphan (super cyclone) and COVID-19 pandemic situation on sub-project field activity.

### **E. Attend on Annual Review Workshop Organized by PIU-BARC, NATP**

Presented the 2<sup>nd</sup> year Annual progress report by the coordinating component-BARC and the participating organizations in the Annual Review Workshop organized by PIU-BARC, NATP-2 during 26 November 2020. Three presentations were continually presented by the coordinator of the three sub-projects ID 072, ID 074 and ID 077 coordinated by the Forest Unit, NRM Division. The workshop was successfully completed by the valuable comments and suggestions of the audience and experts were compiled.



*Pictorial views of Annual Review Workshop organized by PIU-BARC, NATP-2*

### **5. Organized Training on “Climate Smart Agriculture”**

A two days long training organized on “Climate Smart Agriculture” at the Auditorium 2, 4<sup>th</sup> floor, BARC on 24-25 March, 2021. Forty participants came from different NARS institutions, *eg.*, BARC, BARI, BRRI, BJRI, BSRI, BTRI, BFRI, BLRI, SRDI, CDB. Participants enjoyed the ten different lectures delivered by the different renowned scientists and experts of the specific topic. The Executive Chairman has been given reassurance positively and also inspiration to the organizer of the training and the extraordinary and good

looks training manual. Certificate was given to the participant for the successful participation of the training.



*Some pictures of the training program*

#### **F. Submission of 2<sup>nd</sup> Year Annual Report**

The participating organizations submitted their 2<sup>nd</sup> year Annual report. BARC compiled those reports and evaluated their performance individually on the basis of the satisfactory research activities. The compiled 2<sup>nd</sup> year annual report has been submitted to the Director, NATP on 28 July 2020.

#### **G. Monitoring and Evaluation of PBRG Sub-projects Activities**

Field monitoring activity of the participating organizations has been constantly monitored their activities preferably using the participatory monitoring and evaluation tools, although it was slightly hampered due to Covid 19 pandemic situation. But desk monitoring through over telephone was continually done.

## Monitoring Visit at BTRI Panchagarh

Dr. Md. Saifullah, Member Director (A&F), CSO (Forest) and Coordinator with the sub-project personnel visited the activities of BTRI Panchagarh station, Bangabandhu Tea Gallery and research fields contacted with the beneficiaries' farmers on 06 March 2021 and instructed PI and Co-PI for the smooth running of the project activities, Accordingly.



*Monitoring of Bangabandhu Tea Gallery and PBRG sub-project activity at BTRI Panchagarh*

## H. Linkage

Maintained strong Linkage with NARS Institutes, BSTI, DoF, BCSIR, DoDM, MoFE, DoE, Universities, NGOs etc.

1. Technical committee meeting of MoEF (October 2020)
2. Department of Environment (DoE) (November 2020)

## I. Publications

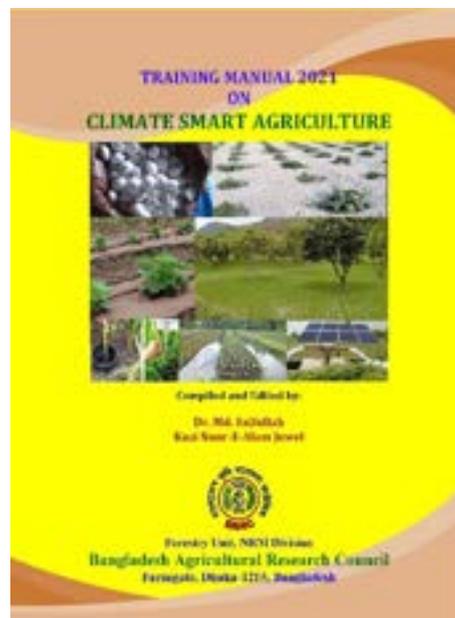
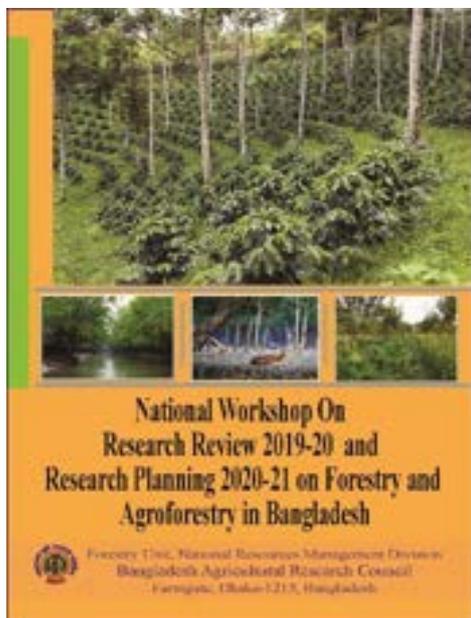
1. Leaflet- চা চাষে ছায়াতরু
2. Leaflet - ঔষধী বৃক্ষ ও বিলুপ্তপ্রায় বনজ কৌলীসম্পদ সংরক্ষণ
3. Leaflet - চরাঞ্চলে কৃষিবনায়ন

চা চাষে ছায়াতরফ

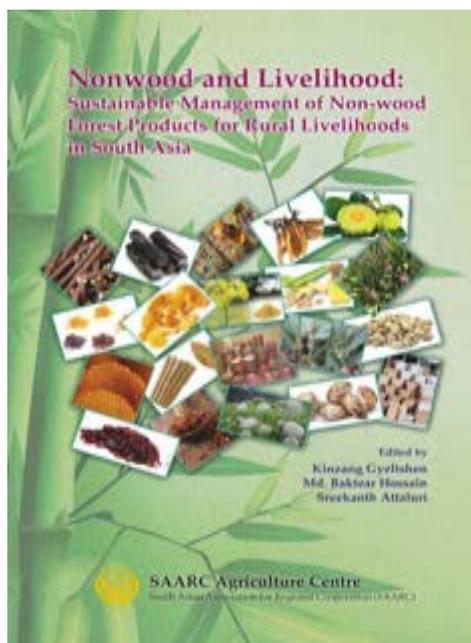
উষধী বৃক্ষ ও বিলুপ্তপ্রায় বনজ কৌলীসম্পদ সংরক্ষণ

চরাঞ্চলে কৃষিবনায়ন

4. A Workshop Proceedings on " Research Review 2019-20 and Program Planning 2020-21 on Forestry and Agroforestry in Bangladesh"
5. A Training manual on 2021 "Climate Smart Agriculture"



6. **Book Chapter:** Saifullah, M. and Jewel, K. N. A. (2021). Sustainable Management of Non-wood Forest Products for Rural Livelihoods in Bangladesh, 3: 32-62, *In:* Gyeltshen, K., Hossain, M.B. and Attaluri, S. eds. 2021. Nonwood and Livelihood: Sustainable Management of Non-wood Forest Products for Rural Livelihoods in South Asia. SAARC Agriculture Centre, SAARC, Dhaka, Bangladesh, 166p.



## SOILS UNIT

### Name of Professionals

- 1. Dr. Md. Baktear Hossain**  
Director (Manpower & Training) and  
Chief Scientific Officer (Soils) A/C
- 2. Dr. Md. Khairul Alam**  
Principal Scientific Officer (Soils Unit)
- 3. Dr. Mian Sayed Hassan**  
Member Director (NRM)

### Project Development And Coordination

Project development is a major responsibility of Bangladesh Agricultural Research Council (BARC). The Soils Unit of BARC is working in line with the mandate of the Council. The Unit oversees the soil fertility and fertilizer management related programs of the country. The Soils Unit is involved in development of both national and international coordinated/collaborated projects. The Unit developed four national coordinated project under Program Based Research Grant (PBRG) projects of NATP-2. The projects are now on-going. The Unit is also involved in three international collaboration projects which are also now on-going.

### National Coordinated Projects:

#### 1. Project Title: Determination of Critical Limit of Nutrients for Soils and Crops

It is a coordinated project developed by Soils Unit of BARC with NATP-2 funding under PBRG. The major objectives of the project are:

1. Delineation of the present status of different nutrients in calcareous, non-calcareous, piedmont and terrace soils.
2. Determination of critical limit of different nutrients for cereal, vegetable and oilseed crops.
3. Validation of critical limits through field experiments.

BARI, BRRI, BINA and BAU are working as the implementing organizations and Soils unit of BARC is working as the coordination unit of the project. The project was initiated on 11 March 2018 with signing of LoA between Soils Unit, BARC and PIU-BARC, NATP-2. The project will be continued until February 2022. Critical Limits of different nutrients for different soils and crops are being determined under this project. Total cost of the project is Tk. 3,28,61,110/- only. The project is coordinated by BARC; while BARI, BRRI, BINA and BAU are working as implementing organization.

**Work distribution among different components is as follows:**

Organization	AEZ	Nutrient	Crop
BARI	11, 13, 28	K and Zn	Wheat, maize and cabbage
BIRRI	18, 19, 20	P, K, S and Zn	Rice
BINA	25, 26, 27	P (Bray & Kurtz) and Mg	Maize and mustard
BAU	1, 3, 9	Mg, S and B	Wheat and mustard

Twelve AEZs have been selected as the study areas under the project. A bench mark survey was conducted in the study areas to know the present nutrient and fertilizer use. For the purpose, a total of 720 soil samples (4 components × 3 AEZs/component × 2 Upazilas/AEZ × 3 villages/Upazila×10 spots/village) were collected. Soil samples were analyzed for macro- (N, P, K, Ca, Mg& S) and micro- (Fe, Mn, Cu Zn & B) nutrients and basic soil characteristics like pH, organic matter and texture. Soils with different nutrient levels were identified, from where the bulk soil samples were collected for pot experiments. To determine critical limit of a particular nutrient and crop, pot experiments were conducted by the component organizations using soils with different levels of that particular nutrient and crop. At least 20 soils from 20 locations were used for one nutrient of which 12 soils were from deficient areas, 4 soils from low fertility areas and the remaining 4 soils were from medium fertility areas of the particular nutrient. Sprouted seeds of the test crops were sown in the pot and the crops were harvested at 8-10 weeks of seeding. Dry matter (DM) yield were recorded and plant samples were analyzed for the particular nutrients under study. Critical limit for the particular nutrient and crop were determined by Cate and Nelson method (1965). Critical limit will also be determined by statistical approach developed by Waugh et al. (1973). The results have been validated through field experiment at the farm level in the last Rabi and Kharif-1 (pre-monsoon) seasons. Inception workshop was held on 28 June 2018. The second year annual report was submitted on 15 April 2020 while the second Annual Review workshop was organized on 22 September 2020.

**Critical Limits of different crops and nutrients estimated by different component organizations**

Nutrient	Crop	Present CL (FRG-2018)	Estimated CL	Estimated by
Phosphorus	Rice	8.0 mg kg <sup>-1</sup>	8.7 mg kg <sup>-1</sup>	BIRRI
	Maize (Rabi)	10 mg kg <sup>-1</sup>	16.1 mg kg <sup>-1</sup>	BINA
	Maize (Kharif-I)	10 mg kg <sup>-1</sup>	14.5 mg kg <sup>-1</sup>	BINA
	Mustard	10 mg kg <sup>-1</sup>	14.8 mg kg <sup>-1</sup>	BINA
Potassium	Rice	0.12 meq 100 g <sup>-1</sup>	0.09 meq 100 g <sup>-1</sup>	BIRRI
	Wheat	0.12 meq 100g <sup>-1</sup>	0.17 meq 100g <sup>-1</sup>	BARI
	Cabbage	0.12 meq 100g <sup>-1</sup>	0.18 meq 100g <sup>-1</sup>	BARI
	Maize	0.12 meq 100 g <sup>-1</sup>	0.16 meq 100g <sup>-1</sup>	BARI
Magnesium	Maize (Rabi)	0.50 meq 100g <sup>-1</sup>	0.60 meq 100g <sup>-1</sup>	BINA
	Maize (Kharif-I)	0.50 meq 100g <sup>-1</sup>	0.52 meq 100g <sup>-1</sup>	BINA
	Wheat	0.50 meq100g <sup>-1</sup>	0.50 meq100g <sup>-1</sup>	BAU
	Mustard	0.50 meq 100g <sup>-1</sup>	0.55 meq 100g <sup>-1</sup>	BAU
	Mustard	0.50 meq 100g <sup>-1</sup>	0.59 meq 100g <sup>-1</sup>	BINA
Sulphur	Rice	10 mg kg <sup>-1</sup>	16.1mg kg <sup>-1</sup>	BIRRI
	Wheat	10.0 mg/kg	13.5 mg/kg	BAU
	Mustard	10.0 mg/kg	14.0 mg/kg	BAU

Zinc	Rice	0.60 mg kg <sup>-1</sup>	0.70 mg kg <sup>-1</sup>	BRRI
	Wheat	0.60 mg kg <sup>-1</sup>	0.69 mg kg <sup>-1</sup>	BARI
	Cabbage	0.60 mg kg <sup>-1</sup>	0.75 mg kg <sup>-1</sup>	BARI
	Maize	0.60 mg kg <sup>-1</sup>	0.71 mg kg <sup>-1</sup>	BARI
Boron	Wheat	0.20 mg/kg	0.30 mg/kg	BAU
	Mustard	0.20 mg/kg	0.25 mg/kg	BAU



*Dr. Shaikh Mohammad Bokhtiar, EC, BARC and Dr. BaktearHossain, Director (Manpower & Training), CSO (Soils Unit) and Director (SAC) visiting the experiments of CL Project at BINA, Mymensingh*

## **2. Project Title: Improvement of Soil Health and Crop Productivity in Climate Vulnerable and Polluted Areas Through Organic Amendments**

It is also a coordinated project developed by Soils Unit of BARC with NATP-2 funding under PBRG. The major objectives of the project are:

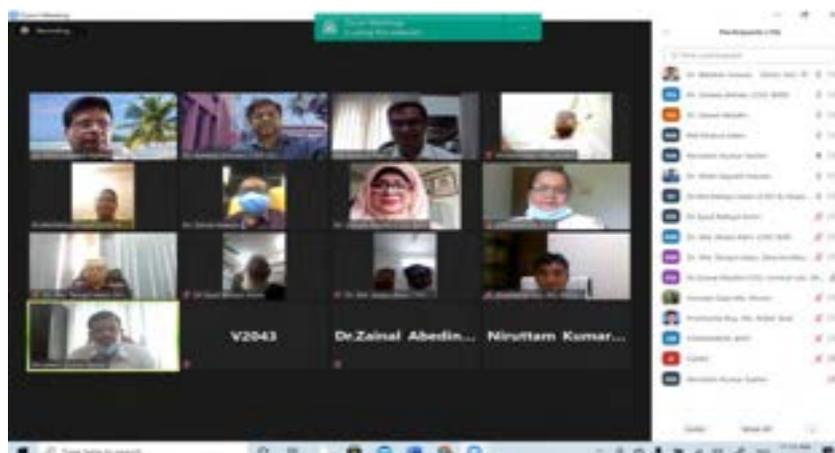
1. Bio-physicochemical characterization of soils in the climate vulnerable and polluted areas
2. Examine potentiality of different organic materials for amending problem soils and improving crop yields in the study areas
3. Quantify the effects of different organic materials on carbon sequestration
4. Development of climate smart technology packages for major crops and cropping patterns in Bangladesh.

BARI, BRRI, BINA, BAU, BSMRAU and SAU are working as the implementing organizations and BARC is working as the coordination unit of the project. The project was initiated on 11 March 2018 with signing of LoA between Soils Unit, BARC and PIU-BARC, NATP-2. The project will be continued until February 2022 (actual completion date was June 2021). The research programs are being implemented in different climate vulnerable and polluted areas of the country to achieve the mentioned objectives. The inception workshop was held on 09 August 2018. The second year annual report was submitted on 01 July 2020 while the second annual Review workshop was organized on 29 September 2020.

### Work distribution among the components:

Organization	Problem Soils Types	Study Location
BARI	Saline, Drought & Acidic	Saline: Dumuria, Khulna Drought: Godagari, Rajshahi Acidic Soils: Belabo, Narshingdi
BRRI	Heavy Metal Polluted Soils	Sreepur, Gazipur Industrial areas
BINA	Drought Prone Soils	Nachole, Chapai Nawabganj
BAU	Charland & Acidic Soils	Charland: Char Dadna, Islampur, Jamalpur Acidic soils: Modhupur, Tangail
BSMRAU	Haor, Arsenic, other heavy metals & Saline Soils	Haor: Sunamganj Arsenic: FaridpurSadar Other heavy metal: Bhaluka, Mymensingh Saline: Batiaghata, Khulna
SAU	Saline soils	Kalapara, Patuakhali

Total cost of the project is Tk. 3,71,26,906/-. A number of studies are being conducted under the project in climate vulnerable areas of Dumuria and Batiaghata, Khulna and Kalapara, Patuakhali (saline soils), Godagari, Rajshahi and Nachole, Chapai Nawabganj (drought prone areas), Belabo, Narshingdi and Modhupur, Tangail (acidic soils), and on pollutedsoils in industrial areas of Sreepur, Gazipur and Bhaluka, Mymensingh (heavy metal polluted soils). Different types of organic fertilizers/materials like vermicompost, trichocompost, poultry manure, standard organic fertilizer, biochar etc. are being studied to observe their effectiveness for amendment of climate vulnerable and polluted soils, and improvement of soil health and crop productivity. These organic fertilizers/materials are being studied in combination with different chemical fertilizers in different ratios to identify the best organic fertilizers/materials and best combination with chemical fertilizers for amendment of the above-mentioned climate vulnerable and polluted soils.



*Coordination meeting was arranged by Member Director, NRM and Coordinator, organic amendment project (ID:135)*

### 3. Project title: **Microbial Characterization of Bangladesh Soil and Development of Climate Smart Biofertilizers for Crop production and Soil Fertility**

This project is a coordinated project funded by PIU-BARC (NATP-2) under sub-sector: Natural Resources. There are five components in the project including, (i) Coordination Component: NRM Division, BARC, (ii) Soil Science Division, BARI (iii) Soil Science Division, BRRI, (iv) Soil Science Division, BINA, and (v) Soils and Nutrition Division, BSRI, Ishurdi, Pabna. The project was initiated in October 2019 and will be continued until June 2022. The inception workshop was held on 29 December 2019. The second year annual report was submitted on 12 August 2021 while the second annual Review workshop was organized on 29 September 2020.



*Intensive cropping at Saint Martin*



*Soil sampling at Saint Martin (BARI Component)*

#### **International Collaboration Project:**

##### **1. Project Title: Nutrient Management for Diversified Cropping in Bangladesh (NUMAN)**

It is an international collaboration project between NARS institutes and public universities of Bangladesh and Murdoch University of Australia. The project is being jointly funded by Krishi Gobeshona Foundation (KGF) and Australian Council for International Agricultural Research (ACIAR). The objectives of the project are:

##### **Broad objective(s)**

The broad objective or aim of this project is to increase the profitability and sustainability of intensive and emerging cropping systems in Bangladesh through improved nutrient management.

**State specific objective(s)** succinctly, in the order in which they will be achieved. (Objectives should be precise, specific, and result-oriented, and achievable within the time frame).

- i. Identify differences between current and recommended fertilizer use on farms, gather evidence of nutrient imbalance and identify barriers to adoption of more profitable and sustainable nutrient management practices.
- ii. Develop and test tools for sustainable nutrient management in intensively cropped areas of north-west Bangladesh and in emerging cropping systems based on CA and on coastal zone soils of southern Bangladesh.
- iii. Out-scale the use of tools and development of policies to advance practice change towards improved fertilizer use efficiency through engagement with farmers' groups, extension, the private sector and government policy.
- iv. Improve the knowledge of soil resources and capability for nutrient management by research partners and key stakeholders.

**It is big project involving the following organizations and project components:**

<b>Organizations</b>	<b>Division/Department</b>	<b>Remarks</b>
BARC	Soils Unit	Coordinator (KGF funding part)
Murdoch University, Australia		Coordinator (ACIAR funding part)
BARI	Soil Science Division	Implementing organization
	On-Farm Research Division	Implementing organization
	Agricultural Economics	Implementing organization
BIRRI	Soil Science Division	Implementing organization
SRDI		Implementing organization
BAU	Department of Soil Science	Implementing organization
	Rural Sociology	Implementing organization
Khulna University	Agro-technology Discipline	Implementing organization
PSTU	Department of Soil Science	Implementing organization

**Besides, there are following two strategic partners in the project:**

1. Bangladesh Fertilizer Association (BFA)
2. Conservation Agriculture Service Provider Association (CASPA)

Intensive cropping areas of Durgapur (AEZ-11) and Godagari (AEZ-25) Upazila of Rajshahi and Sadar Upazila of Thakurgaon (AEZ-1) and Mymensingh (AEZ-9) and coastal areas of Dakope of Khulna (AEZ-13) and Amtali of Barguna (AEZ-13) have been selected as the research hubs under the project.

It is an international collaboration project involving four NARS institutes including BARC, BARI, BIRRI and SRDI; three public universities including BAU, Khulna University and PSTU; and the Murdoch University, Australia. The project is being jointly funded by Krishi Gobeshona Foundation (KGF) and Australian centre for International Agricultural Research (ACIAR). The KGF funding part is being coordinated by BARC and ACIAR funding part by Murdoch University, Australia through PIO/Liaison Office in Dhaka. There are also two strategic partners in the project including Bangladesh Fertilizer Association (BFA) and Conservation Agriculture Service Provider Association (CASPA). The Letter of Agreement (LoA) between BARC and KGF was signed in the first week of January 2018; and between BARC and implementing organizations in the second week of January 2018.

The activities of the project can be grouped into two categories;

1. Socio-economic and gender aspects of fertilize management; and
2. Soil fertility and fertilizer management activities.

For the socio-economic and gender studies, quantitative and qualitative research approaches were being employed. Research programs for the soil fertility and fertilizer management activities have been developed on the basis of identification of real field problems through field visit, discussion with farmers and rigorous discussion among the project team members. Research programs have been designed for the on-station, on-farm and laboratory-based studies. In addition to Principal Investigators (PIs) and Co-PIs, six Research Fellows (leading to in-country PhD) and 20 Research Assistants (leading to MS) have been engaged in implementation of the project activities. Existing research facilities of the respective implementing organizations are being used for the research. The project activities have been started since Kharif-1 season 2018. Three and half years of the project have been completed successfully so far. The project has been approved for two years extension.



*Field monitoring of NUMAN Project*



*Mid term review of NUMAN Project*



*Progress review workshop under NUMAN Project*

## 2. Project title: Sustainable Soil Management for Nutrition-sensitive Agriculture in Sub-Saharan Africa and South East Asia

This is an international project in collaboration with the involvement of the Government of Bangladesh, FAO and the Global Soil Partnership (GSP). BARC is responsible for coordination and implementation of the project in Bangladesh and SRDI is working for co-implementation with BARC. It is a 3-year long project initiated in December 2018 and will be continued until November 2021. The project is being funded by the German Government. In addition to Bangladesh, the project is being piloted in Malawi and Burkina Faso.

As per the work plan of the project, necessary activities have been completed in the last year (2020-2021) to achieve the overall progress of the project (field examination, training provision, training need assessment, preparation of training manual, research etc.). In the meantime, a PIC committee meeting was held on 03 June 2021. Three batch training for farmers on Sustainable Soil Management for Nutrient Sensitive Agriculture at Chuadanga sadar (Chuadanga), Baliadangi (Thakurgaon) and Chandina (Cumilla) has been done. The progress of BARC component was presented in a progress review workshop held at BARC auditorium.



*Signing ceremony of Soil 4 Nutrition Project*



*Expert consultation workshop of Nutrition 4 Soil Project (FAO)*



*Progress review workshop at BARC auditorium and field visit by NPC of the Project*

### **3. Project Title: Development of National Soil Map and National Soil Information Systems of Bangladesh**

This project is a coordinated project between BARC and SRDI in which BARC is working as the coordination agency. The project is funded by AFACI. The project was initiated in October 2019 and will be continued until September 2023. The major objective of the project is to develop a National Soil Map for sustainable soil management and food security of Bangladesh which will be the part of the Soil Atlas of Asia. The project evaluation meeting held on 3 November 2020. The project has made the following progress:

- The National Soil type Map prepared by applying the principles and guidelines of World Reference Base (WRB).
- A Soil Organic Carbon (SOC) Map (draft)
- A soil salinity map also has been prepared



*Expert consultation meeting of Soil Atlas Project*

#### **Policy Level Contribution**

##### **Activities of Fertilizer Technical Sub-Committee**

Fertilizer Technical Sub-Committee was formed by the Ministry of Agriculture (MoA) in 1997 to help the National Fertilizer Standardization Committee. Member-Director (NRM), BARC works as the convener and Additional Director (Implementation), DAE as the Member Secretary of the committee. The committee comprises of 20 (Twenty) members with the CSO (Soils), BARC, CSOs of Soil Science Divisions of different NARS institutes, CSO, OFRD, BARI; representatives from different concerned organizations like Departments of Environment, Livestock, Fisheries,

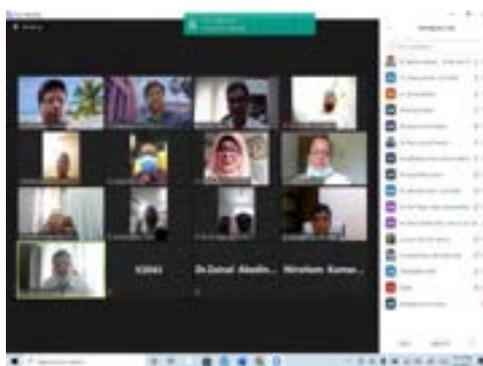
BSTI, SRDI, BADC, BCIC etc. Presently, director, AIS, has been added as another member of the Technical Sub Committee.

The principal activities of Technical Sub-Committee of Fertilizer Standardization are as follows:

- Organized periodic meetings of Fertilizer Technical Sub-committee for Standardization of new fertilizers and review the existing fertilizers.
- Organized meetings on Fertilizer need and quality control.
- Giving comments on policy issues related to use/ import/export/production of fertilizer and fertilizer materials as and when necessary by the Government.
- Monitoring Fertilizer Quality.



*52<sup>nd</sup> Fertilizer Technical Sub-committee for Standardization.*



*53<sup>rd</sup> Fertilizer Technical Sub-committee for Standardization.*

During 2020-2021, two meetings of Fertilizer Technical Sub-committee were held with Executive Chairman (first one) and Member-Director (NRM) (second one) in the chair. Three meetings of sub-committee (Fertilizer Specification update Committee, Fertilizer Inspection Manual Preparation Committee and Manual for Fertilizer Analysis update Committee) under TSC were held during 2020-2021.

A number of organic and chemical fertilizers and PGRs were evaluated in these meetings of which the following number of organic fertilizers, chemical fertilizers and plant growth regulators were recommended for standardization to the National Fertilizer Standardization Committee headed by the Secretary, Ministry of Agriculture.

<b>Recommended for standardization</b>	<b>Nos.</b>
Organic fertilizer	15
Plant growth regulator	5
<b>Under process of standardization</b>	
Organic fertilizer	32
Chemical fertilizer	3
Plant growth regulator	10
Bio-fertilizer	2



*Organic Fertilizer factory visit at Thakurgaon*

**The Soils unit of BARC also performed the following activities during 2020-2021**

CSO (Soils) have been serving as convener of 3-membered committee of field monitoring for evaluating the capacity of quality organic fertilizer producing factory. The committee visited Organic and Vermicompost Fertilizer factory at Dinajpur, Thakurgaon, Chuadanga and submitted report to the convener of technical sub-committee on fertilizer (TSC).



*Visited Apex Biofertilizer and Biopesticides Ltd. at Gobindaganj, Gaibandha*



*Visited organic fertilizer at Bogra*

## The Soils unit provided comments to the Ministry of Agriculture on the following aspects:

১. “কৃষিতে জৈব সারের ব্যবহার ৩৫% বৃদ্ধিকরা (২০৩০ সালের মধ্যে) ও গ্রীন হাউস গ্যাস নির্গমন হ্রাসকরণ” এর উপর মতামত প্রদান।
২. Stockholm Convention on Persistent Organic Pollutants (POPs) এর আওতাভুক্ত নতুন ১৬টি Chemicals বাংলাদেশ কর্তৃক অনুসমর্থন (Ratification) বিষয়ে বাংলাদেশ কৃষি গবেষণা কাউন্সিলের মতামত প্রসঙ্গে।
৩. খসড়া ভূমি ব্যবহার স্বত্ব আইন ২০২০ এর উপর মতামত প্রসঙ্গে।
৪. Commonwealth Finance Ministers meetings (CFMM)-এ অংশগ্রহণের নিমিত্ত অর্থনৈতিক সম্পর্ক বিভাগের সচিব মহোদয়ের জন্য ব্রিফ তৈরির জন্য বাংলাদেশ কৃষি গবেষণা কাউন্সিলের তথ্য সরবরাহ প্রসঙ্গে
৫. মহসিন এন্টারপ্রাইজ এর ছত্রাকনাশক 'ডিকোপ্রাইমা' কে কৃষকদের মাঝে ভর্তুকি মূল্যে প্রকল্পের মাধ্যমে বিতরণের ব্যবস্থা গ্রহণ সংক্রান্ত।
৬. “দেশের কৃষি জমি অকৃষি জমিতে রূপান্তর সংক্রান্ত প্রতিবেদন” এর উপর মতামত প্রদান।
৭. জৈবসারের অনুমোদন, বিনির্দেশজারী এবং জাতীয় সার প্রমিতকরণ কমিটির পরবর্তী সভায় উপস্থাপনের জন্য প্রস্তাব/ মতামত প্রেরণ প্রসঙ্গে।
৮. বাংলাদেশ ব্যাংক কর্তৃক প্রস্তুতকৃত “Green Bond Taxonomy” এর উপর মতামত প্রদান।
৯. হাওর মহাপরিকল্পনাভুক্ত (২০১২-২০৩২) প্রকল্প বাস্তবায়ন অগ্রগতি প্রতিবেদন প্রেরণ সংক্রান্ত মতামত প্রেরণ।
১০. পটুয়াখালী বিজ্ঞান ও প্রযুক্তি বিশ্ববিদ্যালয় (PSTU) এর সাথে বাংলাদেশ কৃষি গবেষণা ইনস্টিটিউট (বিএআরআই) এর মধ্যে সমঝোতা স্মারক স্বাক্ষর সংক্রান্ত বিষয়ে মতামত প্রদান।
১১. দেশে লবণ নীতি-২০২০ এর উপর মতামত প্রদান।
১২. “Leaders Statement on Reducing Methane Pollution” এর উপর মতামত প্রদান।
১৩. জৈব সারের অনুমোদন, বিনির্দেশজারী এবং জাতীয় সার প্রমিতকরণ কমিটির পরবর্তী সভায় উপস্থাপনের জন্য প্রস্তাব/ মতামত প্রেরণ প্রসঙ্গে।
১৪. মৃত্তিকা সম্পদ উন্নয়ন ইনস্টিটিউট এবং নেদারল্যান্ড ভিত্তিক বেসরকারি উন্নয়ন সংস্থা ICCO এর মধ্যে সমঝোতা স্মারক স্বাক্ষর বিষয়ে মতামত প্রদান।

## Research Management And Coordination

Soils unit of Natural Resources Management Division of BARC organizes Annual Research Review and Planning Workshop on Soils Program of NARS institutes. In 2020-2021, the workshop was held at BARC premise during 22-24 November 2020 with scientific professionals involved in soils and fertilizer management research in the NARS institutes of the country. Research programs conducted in all the NARS institutes during 2019-2020 were reviewed in the workshop. The workshop was divided into seven technical sessions and one recommendation session. The technical sessions were divided into different areas of soil fertility and fertilizer management research and environmental issues. Besides reviewing on-going research programs, new research programs proposed for 2020-2021 were also discussed in the workshop. Scientists from different NARS institutes took part in the discussion, contributed and shared their knowledge, thoughts and experiences for improvement of the programs and avoiding duplication.



*Annual Research Review and Planning Workshop on Soils Program of NARS institutes in 2020-2021*

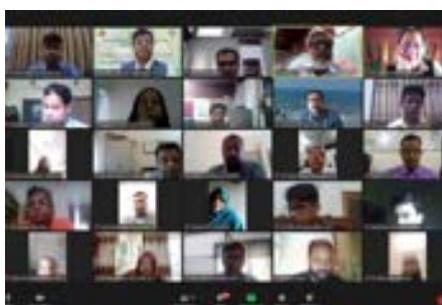
### **Monitoring And Evaluation**

Soils Unit of BARC is actively involved in the regular monitoring and evaluation program of BARC. Scientists of Soils Unit worked as the team members of the Monitoring and Evaluation teams formed by the Planning and Evaluation Division of BARC. Director (M&T) and CSO (Soils) (Addl. Charge) work as the team leader of a Monitoring Team almost every year and presents report in the workshop.

### **Training**

**Soils Unit, NRM, BARC conducted training programs on the following titles:**

1. Conducted training program on “Climate change, carbon sequestration and adaptation strategies” during June 22-24, 2021. There were 40 participants in the training program and they were NARS scientists, university teachers, BADC officers and DAE officials.
2. Conducted training program on “Training on Fertilizer Recommendation Guide-2018” during March 22-24, 2021. There were 40 participants and mainly from DAE officials, NARS scientists, university teachers and BADC officers.
3. Conducted farmers training program on “Sustainable Soil Management for Nutrient Sensitive Agriculture” at Baliadangi (Thakurgaon), Chandina (Cumilla) and Chuadanga Sadar (Chuadanga). A total of 60 farmers (20 from each location), 40 Sub Assistant Agriculture Officer (SAAO) and 40 Agriculture Extension Officers or officers at equivalent rank were participated in the program.



*Different training program arranged by Soils Unit, NRM, BARC in the BARC premises and at countryside*

## **Workshop**

Organized Research Review and Planning Workshop on Soil Management Program of NARS Institutes during 22-24 November 2020. Eighty (80) participants from Soil Science Division of NARS institute (BARI, BRRI, BINA, BJRI, BSRI, BTRI, BFRI, SRDI, CDB and BSRTI), Senior Soil Scientists, Soil experts, Professors of soil science from different universities and DAE officials were participated in the workshop. Recommendations of the workshop were sent to respective institutes.

## **Publication(s)**

Soils Unit published the following documents during 2020-21

1. Published Proceedings of Research Review and Program Planning Workshop of Soils Program of NARS Institutes 2019
2. Published two proceedings of Fertilizer Technical Sub-Committee Meetings.
3. Training Need Assessment Report on Sustainable Soil Management for Nutrition Sensitive Agriculture.
4. Published Training Manuals of the following training program: “Sustainable Soil Management for Nutrient Sensitive Agriculture”.
5. Published Training Manual on “Manual for Fertilizer Analysis”.
6. Published Training Manual on “Fertilizer Inspection Manual”.
7. Training Manual for training on “Fertilizer Recommendation Guide-2018”.

8. Published six manuscripts in indexed journal and one book chapter in Springer Nature publications.



*Some Publications from Soils Unit, Natural Resources Management Division, BARC.*

## Other Activities

Scientist of Soils unit worked as the members of the following committee-

- Online সার সুপারিশমালা-2018 Innovation services now available in [www.frg2018.com](http://www.frg2018.com) and at the Google play store.
- CSO (Soils) has been working as Director (Manpower and Training), BARC since June 2019
- CSO (Soil) has been working convener of Organic Fertilizer factory investigation committee.
- Participated as member/resource person of various committee meetings, training programs and development activities organized by ARIs, SRDI, DAE and NGOs.

- CSO (Soils) have been working as convener of Fertilizer Inspection manual amendment committee.
- CSO (Soils) has been working as member of Fertilizer Analysis manual amendment committee.
- CSO (Soils Unit) served as an external examiner of BScAg (Hons.) and MS level examinations of BAU, PSTU and SAU.
- CSO (Soils Unit) served as an MSc Ag Soil Science thesis examiner.
- CSO (Soils Unit) served as an examiner for PhD thesis of Department of Soil Water and Environment of University of Dhaka and Sher-e-Bangla Agricultural University.
- CSO (Soils Unit) worked as a member of Steering Committee for Establishment of Laboratory of SRDI
- CSO (Soils Unit) worked as member of Project Management Committee of Soil Resources Management and Strengthening Farmers Services Project.
- PSO (Soils Unit) works as an Honorary Research Associate at Murdoch University, Australia
- PSO (Soils Unit) serves as Topic Editor /Land/ Journal (IF-3.35)
- PSO (Soils Unit) is assigned as Guest Editor of Special Issue of Land Journal on “Effect of Conservation Agriculture on Soil Health and Crop Production”.
- PSO (Soils Unit) serves a co-supervision of PhD Student at UPM, Malaysia
- PSO (Soils Unit) published 6 high impact research articles and one book chapter.

# **LIVESTOCK DIVISION**

## **Name of Professionals**

**Dr. Nazmun Nahar Karim**

Member Director (C.C.)

**Dr. Mohammad Rafiqul Islam**

Chief Scientific Officer

The Livestock Division of BARC is involved in organizing and managing various research and other related activities for improving the livestock sector in Bangladesh. This division is working to achieve the goal of improving nutritional status of the general mass through cost-effective livestock technology for increasing supply of animal origin food, supporting increased crop production through providing healthy draft animals and biological manure, and helping the rural poor in the generation of employment, income and fuel supply through profitable livestock rearing.

To carry out the mandated responsibilities of BARC and to full-fill the national need, this division is entrusted with the duties of planning, reviewing, prioritizing, approving, monitoring, evaluation, supervision and coordination of the livestock research programs implemented by the relevant NARS institution and other institutions including universities, Department of Livestock Services (DLS) and NGOs. The division is providing training and research support to the NARS institution, DLS, relevant faculties of various educational institutions and NGOs. The division is imparting policy support to the relevant NARS institutes and extension agencies. The division is arranging, conducting and participating in training, meetings and seminars/workshops. The division is also engaged to support national avian influenza/bird flu prevention and control programs, to recruit scientists/officers in NARS institutes, to support different research activities of NARS institutes, and to support different activities of National Agricultural Technology Project (NATP), BARC and DLS Units.

## **Activities**

### **1. Research Programme Development of NARS Institutes**

- a. Reviewed progresses of on-going research projects and to evaluate & approve the new research project proposals for 2020-21 of Bangladesh Livestock Research Institute (BLRI)
- b. Evaluated final reports of the projects for 2019-20 of BLRI
- c. Helped to prepare BLRI's future research plans.
- d. Technical support to the research programs of BLRI throughout the year
- e. Attended the Annual Research Review Workshop '2020 of BLRI

## 2. Monitoring and Evaluation

- a. Scientists of Livestock Division conducted the desk monitoring of the activities of PBGR Sub-project throughout the year
- b. Scientists of Livestock Division monitored the activities of PBGR Sub-project in the field level
  - i. PBRG sub-project: Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (ID:138)

BLRI component of this project was on 29 July 2020. Monitoring team visited the laboratories activities along with the PI of this project. monitored Principal Investigator (PI) explained the activities going on, specially the antibiotic sensitivity test as well as molecular detection of the bacteria. Team suggested to start sequencing activities with the isolate and mentioned some points for improvement of the experiment.



*Pictorial view of field monitoring & evaluation of project ID-138 (BLRI component)*

- ii. PBRG sub-project: Application of Gamma-ray Irradiation to develop stress tolerant capability in fodder crops and their production performance under on-station and on-farm conditions (ID:110)

Monitoring team from BARC visited the BLRI component of this project on 29 July 2020. Team visited the field activities and discussed with PI regarding project achievement. PI informed the team that activities were going according to the plan. Team suggested specific points for achieving the goal.



*Pictorial view of field monitoring & evaluation of project ID-110 (BLRI component)*

iii. PBRG sub-project: Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (ID:138)

Monitoring team of BARC visited BAU component on 11 January 2021. PI informed the team about the on-going activities of the project regarding samples collection, test and analysis. Team suggested some points regarding the activities improvement.



*Pictorial view of field monitoring & evaluation of project ID-138 (BAU component)*

iv. PBRG sub-project: Preparedness for the control of PPR in Bangladesh (ID:139)

BAU component of the project was monitored by the BARC monitoring team on 13 February 2021. Co-PI and PhD student under the project informed the current activities of the laboratory.

Team observed the cell culture and PPR virus propagation was going on. Team suggested starting the activities for monoclonal antibody development as soon as possible.



*Pictorial view of field monitoring & evaluation of project ID-139 (BAU component)*

v. PBRG sub-project: Development of knowledge hub on Feed Resources for efficient feeding management of livestock (ID:108)

Monitoring team from BARC visited the BAU component of the project on 11 January 2021 (Figure 5). Team visited the laboratory and discussed with PI regarding project achievement. PI informed the team that activities were going according the plan. Team suggested specific points for achieving the goal.



*Pictorial view of field monitoring & evaluation of project ID-139 (BAU component)*

vi. PBRG sub-project: Application of Gamma-ray Irradiation to develop stress tolerant capability in fodder crops and their production performance under on-station and on-farm conditions (ID:110)

Monitoring team from BARC visited the BINA component of the project on 11 January 2021. Team visited the laboratory and field activities and discussed with PI regarding project achievement. PI informed the team that activities were going according to the plan. Team suggested specific points for achieving the goal.



*Pictorial view of field monitoring & evaluation of project ID-110 (BINA component)*

vii. PBRG sub-project: Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (ID:138)

BARC monitoring team visited PSTU component to monitor the activities of the project on 24 January 2021. Team visited the laboratory and discussed with PI regarding project achievement. PI informed the team that activities were going according to the plan. Team suggested specific points for achieving the goal.



*Pictorial view of field monitoring & evaluation of project ID-138 (PSTU component)*

viii. PBRG sub-project: Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (Project ID:138)

Monitoring team of BARC visited HSTU component on 25 February 2021. Team visited the laboratory and discussed with PI about the activities. PI informed the team about the on-going activities of the project regarding samples collection, test and analysis. Team suggested some points regarding the activities improvement.



*Pictorial view of field monitoring & evaluation of project ID-138 (HSTU component)*

- ix. PBRG sub-project: Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (Project ID:138)

Monitoring team of BARC visited RU component on 28 February 2021. Team visited the laboratory and discussed with PI about the activities. PI informed the team about the on-going activities of the project regarding samples collection, test and analysis. Team suggested some points regarding the activities improvement.



*Pictorial view of field monitoring & evaluation of project ID-138 (RU component)*

- c. Scientist of Livestock Division reviewed the half-yearly reports and annual reports of PBRG Sub-Projects implemented by different organizations.

### **3. Regional and International Collaboration and Cooperation**

#### **a) Memorandum of Understanding (MoU)**

A MoU between Bangladesh Agricultural Research Council (BARC) and University Putra Malaysia (UPM) has been finalized by Ministry of Agriculture. The final MoU has send to UPM for signing by Vice-chancellor of UPM.

#### **b) Co-host of the workshop**

Livestock Division, BARC acted as co-host of a international workshop entitled “Dairy networking: A path toward sustainable dairy development” organized by Integrated Dairy Research Network (IDRN) on 11 January 2021. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was present as Special Guest on that Occasion.

#### **c) Participation of Livestock Division Scientists as a Resource Person in different Training course**

- i. Dr. Md. Rafiqul Islam acted as a resource person in the training on PBRG Framing system Research project of Planning division.
- ii. Dr. Md. Rafiqul Islam acted as a resource person in the training session "Goat rearing through modern technology” for farmers at Meherpur organized by Bangladesh Livestock Research Institute.
- iii. Dr. Md. Rafiqul Islam acted as a resource person in the training session "Antimicrobial resistance in Bangladesh” organized for scientists/teachers/officers at Bangladesh Agricultural Research Council and Bangladesh Livestock Research Institute
- iv. Dr. Md. Rafiqul Islam acted as a resource person in the training session "Control of PPR in Bangladesh” organized for scientists/teachers/officers at Department of Livestock Services, Rangpur, Depart of Livestock Services, Dinajpur, Sylhet Agricultural University and Rajshahi University

#### **d) Acted as a Member of Different Committees**

- i. Acted as a member for the National Avian Influenza Control Committee, DLS.
- ii. Acted as an Academic Council Member for Sylhet Agricultural University
- iii. Acted as a technical member for the committee of Bull progeny testing project, DLS
- iv. Acted as a member for the Committee on Market value assessment for BARC
- v. Acted as a member for the National Antimicrobial Resistance Surveillance Control Committee, DLS.
- vi. Acted as a member for the National PPR control Committee, DLS.
- vii. Acted as an External examiner for different universities
- viii. Acted as a co-supervisor for MS thesis at BAU

#### **4. Research Project Evaluation**

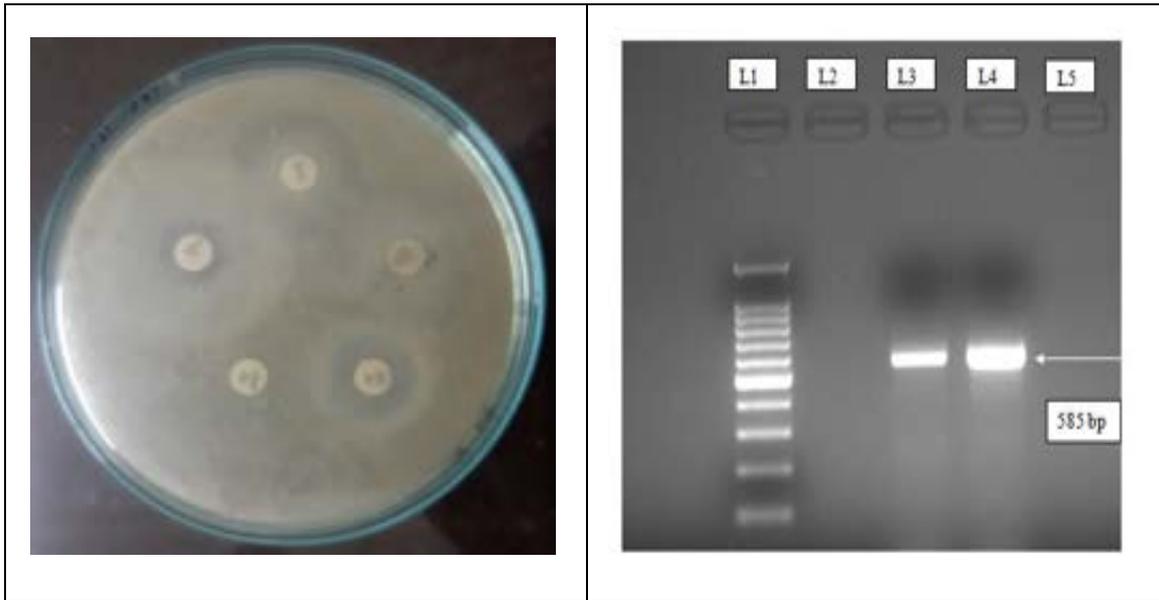
a) PBRG sub-project “Development of knowledge hub on Animal Feed Resources for efficient feeding management of ruminants to enhance productivity (ID: 108)” funded by NATP Programme-2, PIU, BARC coordinated by Livestock Division, BARC with three components viz. BLRI, BAU and SAU are implementing from July 2018 to June 2021. Scientists of Livestock division monitored the activities of the components throughout the year and conducted coordination meeting. All components have collected different types of livestock feed samples during conducting the survey Determination of Chemical composition of collecting feed samples had been completed. Meta-analysis of data and feeding trial have been done by PIs (Figure 10). Extraction ratio and harvest index of some feed had been completed like wheat, rice etc. Livestock division organized the Annual progress review workshop on 12 November 2020. Scientists from different organizations were joined to the workshop and PIs presented last year activities. A

proceeding was prepared and included the recommendations received from the audience. Proceedings have been sent to the PIs for fruitful achievement in future.



*Pictorial view of field activities of the project ID-108*

b) PBRG sub-project “Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (ID:138)” funded by NATP Programme-2, PIU, BARC coordinated by Livestock Division, BARC with Seven components viz. BLRI, BAU, PSTU, HSTU, RU, CVASU and SAU are implementing this project from July 2018 to June 2021. Scientists of Livestock division monitored the activities of the components throughout the year and conducted coordination meeting. Field based data survey was conducted from Farmers, Veterinarian and Medicine sellers by all components. Samples were collected from all different districts. Isolation and identification of bacteria were done by using different culture media, Gram’s staining, and biochemical tests Antibiotic Sensitivity test was done. Antibiotic resistance bacteria have been identified molecularly. Livestock division organized the Annual review workshop on 05 November 2020. Scientists from different organizations were joined to the workshop and PIs presented last year activities. A proceeding was prepared and included the recommendations received from the audience. Proceedings have been sent the PIs for conducting further activities according to recommendations.



Antibiotic sensitivity test result of *E. coli* (E-100) on Muller Hinton agar

Amplification of PCR product; Lane 1:100 bp ladder, Lane 2: Negative, Lane 3: Specific for *E. coli* (Size-585bp for 16Sr RNA gene). Lane 4: Positive control and Lane 5: negative control.

c) PBRG sub-project “Preparedness for the control of PPR in Bangladesh (ID:139)” funded by NATP-2, PIU, BARC coordinated by Livestock Division, BARC with Two components viz. BLRI and BAU are implementing the project from July 2018 to June 2021. Scientists of Livestock division monitored the activities of the components throughout the year and conducted coordination meeting. BLRI component collected nasal swab samples from Meherpur sadar, Meherpur; Jhenaidah sadar, Jhenaidah ; Dhamrai, Dhaka ; Debhata, Satkhira; Baliadangi, Thakurgaon, Brahamanbaria, Manikganj, Rangpur, Sylhet, Gazipur, Bagura, Pabna and Natore. Samples were tested by Polymerase chain reaction (PCR) method.

Three upazilas were selected for developing PPR free zone. Selected upazilas are Badarganj, Rangpur; Deabhata, Satkhira and Gangni, Meherpur, where mass vaccination campaign was performed. BAU component conducted PCR amplification of N protein gene of PPR to confirm the viruses form collected samples, and sequencing were done from co-infection free samples. Finally samples were selected for virus isolation in cell culture. Cultivation of PPR virus in Vero cell line is going on. Livestock division organized the Annual review workshop on 05 November 2020. Scientists from different organizations were joined to the workshop and PIs presented last year activities. A proceeding was prepared and included the recommendations received from the audience. Proceedings have been sent the PIs for conducting further activities according to recommendations.



Agarose gel electrophoresis of PCR products (351 bp) amplified with NP3 and NP4, PPR specific primers. Lane M: 100bp DNA molecular weight marker; Lane PC: Positive control; Lane NC: Negative control; Lane S1-S9: Field samples.

Vaccination Campaign at Gangni Upazilla, Meherpur.

- d) PBRG sub-project “Application of Gamma-ray Irradiation to develop stress tolerant capability in fodder crops and their production performance under on-station and on-farm conditions (ID:110)” funded by NATP Programme-2, PIU, BARC, coordinated by Livestock Division, BARC with Two components viz. BLRI and BAU are implementing the project from July 2018 to June 2021. Scientists of Livestock division monitored the activities of the components throughout the year and conducted coordination meeting. Experiment was conducted consisting of seven BLRI Napier cultivars as, Napier-1, napier-2, Napier-3, Napier-4, Rokona, Pakchong and Markiron one Para and one German grasses by BINA component. Out of 9 fodder cultivars, 20Gy treated plants produced higher fresh weight in Napier-2, Napier-3, Rokona, Markoron, Para and Gernan grass; whereas, 30Gy treated plants produced higher fresh weight in Napier-1, Napier-4 and Pakchong. They produced higher fresh weight than those of control plants (parents) except in few cases. On the basis of higher fresh weight and plant type (bushy and compact growth), 28 plants (17 from 20Gy and 11 from 30Gy) were selected and re-grown as  $M_2$  clones for agronomic evaluation. The selected ( $M_2$  clones) 7 different cultivars of Napier grass were regrowth grown in BLRI Fodder Research Plot and the data on biomass production, morphological characteristics and fractions of fodder were recorded and the chemical composition of the fodders were almost analyzed by BLRI component. The selected ( $M_2$  clones) two water logged grass like German and Para were regrown. In salinity stress experiments, selected best mutants from seven Napier cultivars were exposed to salinity stress of  $8dSm^{-1}$ ,  $10dSm^{-1}$  and  $12dSm^{-1}$  of EC. The expression of *NHX1*, *NHX2*, *SOS1*, *HKT* family and AKT transporter genes were carried out through semi-quantitative RT-PCR Livestock division organized the Annual review workshop on 11 November 2020. Scientists from different organizations were joined to the workshop and PIs presented last year activities. A proceeding was prepared and included the recommendations received from the audience.

Proceedings have been sent to the PIs for conducting further activities according to recommendations.

Gene	Napier-4					Rokona					Pakchong				
	0 hr	1 hr	6 hrs	24 hrs	72 hrs	0 hr	1 hr	6 hrs	24 hrs	72 hrs	0 hr	1 hr	6 hrs	24 hrs	72 hrs
AKT1															
HKT7															
SOS1															
NHX1															
NHX2															
HKT3															
HKT4															
HKT8															
Actin															

Expression patterns of the novel salinity tolerant genes of different Napier cultivars. Semi-quantitative RT-PCR was carried out with specific primers using the RNA isolated from leaves subjected to salinity stress for various time points. Actin amplification was used as the internal control.

## 5. Preparation of Policy Documents and Inputs

- “পশুজবাই ও মাংসের মান নিয়ন্ত্রণ বিধিমালা, ২০২১” (খসড়া) এর উপর মতামত প্রদান।
- “মৎস্যখাদ্য ও পশুখাদ্য উৎপাদন ও বিপণন ব্যবস্থাপনা নির্দেশিকা, ২০২০” (খসড়া) উপর মতামত প্রদান।
- যুক্তরাজ্যের Chief Veterinary Officer কর্তৃক প্রেরিত পত্রের বিষয়ে প্রয়োজনীয় ব্যবস্থা গ্রহণ বিষয়ে মতামত প্রদান।
- “The draft report of the first inaugural meeting of the Global Leaders’ Group (GLG) on Antimicrobial Resistance” এর উপর মতামত প্রদান।
- অষ্টম পঞ্চবার্ষিক পরিকল্পনার প্রাণিসম্পদ সেক্টরের উপর মতামত প্রদান।

## 6. Workshop/Meeting/Seminar

### a) Workshop on “Research Progress 2019-2020 and Research Program 2020-2021 on Livestock of NARS Institute”

A very interactive and outcome based two days long workshop on "Research Progress 2019-2020 and Research Program 2020-2021 on Livestock of NARS Institute" was convened during 21-22 October 2020 at the Auditorium of Bangladesh Agricultural Research Council. (BARC). The workshop was hosted by the Livestock Division, BARC. The workshop was attended by the participants from different organizations like BARC, DLS, BLRI, Universities, PKSf, FAO and other stakeholder organizations. The inaugural session was graced by Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC as the chief guest while Dr. Abdul Jabbar Sikder, Director General, Department of Livestock Services (DLS) and Dr. Nathu Ram Sarkar, Director General, Bangladesh Livestock Research Institute (BLRI) graced the occasion as the special guests. The inaugural session was chaired by Dr. Nazmun Nahar Karim, Member Director (Livestock), BARC. The inaugural session was started with the welcome remarks of Dr. Mohammad Rafiqul Islam, Chief Scientific Officer, Livestock Division, BARC. After the inaugural session, two technical sessions were held. Technical Session-1 was chaired by Kazi M. Kamaruddin, Consultant, PBRG Sub-projects, BARC on the same day. Technical Session-2 was chaired by Dr. Md. Jahangir Alam Khan, Former Director General Bangladesh Livestock Research Institute on 22 October 2020. Head of 7 research divisions of BLRI presented research progress reports for the year 2019-20 and proposed research programme for the year 2020-21. Following presentation, Participants, professionals and panel of experts have given their valuable comments, suggestions and guidelines to align the research activities with national demand and priority, which were recorded.



*Pictorial view of workshop on "Research Progress 2019-2020 and Research Program 2020-2021 on Livestock of NARS Institute"*

### b) Annual Review workshop on PBRG Sub-projects (ID: 138 & 139)

Livestock division, BARC organized a daylong Annual Review Workshop on two PBRG sub-projects “Determination of Antimicrobial Resistance and Residues in Livestock and Poultry Food Products and Feed in Bangladesh (ID-138)” and “Preparedness for the control of PPR in Bangladesh (ID-139)” held on 05 November 2020 at BARC Auditorium. The workshop was

attended by the participants from different organizations (DLS, BLRI, BARC, University, ICDDRB, KGF and other stakeholder organizations). The inaugural session was held under the chairmanship of Dr. Nazmun Nahar Karim, Member Director (Livestock) & Coordinator of PBRG sub-projects, Dr. Md. Aziz Zilani Chowdhury (Crop), Member Director, BARC as the chief guest while Dr. Harunur Rashid, Director, PIU-NATP, BARC as the special guests. Welcome address was delivered by Dr. Mohammad Rafiqul Islam, CSO, Livestock Division, BARC & Associate Coordinator of these sub-projects. He briefed a presentation about the BARC component activities. Technical session-1 was chaired by Dr. Kazi M. Kamaruddin, Consultant, NATP-2, BARC. and Technical session-2 was chaired by Dr. Shah Md. Ziqrul Haq Chowdhury, Ex. Member Director, Livestock Division, BARC. The annual progress activities of 2019-2020 were presented by Principal Investigators of the project of BAU, BLRI, SAU, PSTU, RU, HSTU and CVASU component.



*Pictorial view of Annual Review workshop on PBRG sub-projects (ID: 138 & 139)*

### **c) Annual Review workshop on PBRG Sub-projects (ID: 108 & 110)**

Livestock Division, BARC organized a very interactive and outcome based Annual Review Workshop on two PBRG sub-projects ("Development of knowledge hub on Feed Resources for efficient feeding management of livestock (ID-108)" and "Application of Gamma-ray Irradiation to develop stress tolerant capability in fodder crops and their production performance under on-station and on-farm conditions (ID-110)") which were held on 11 November 2020 at BARC Auditorium. Participants from DLS, BLRI, BARC, Universities, FAO, USAID, KGF, PIU-BARC, Universities and other organizations attended in this workshop. The inaugural session was held under the chairmanship of Dr. Nazmun Nahar Karim, Member Director, Livestock & Coordinator of PBRG sub-projects, Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC as the chief guest while Dr. Harunur Rashid, Director, PIU-NATP, BARC as the special guests. Welcome address was delivered by Dr. Mohammad Rafiqul Islam, Chief Scientific Officer, Livestock Division, BARC & Associate Coordinator of these sub-projects. The workshop was attended by the participants from different organizations (DLS, BLRI, BARC, University, FAO, KGF, Universities, PKSF and other stakeholder organizations). There were two Technical sessions followed by a concluding sessions. Technical session-1 was chaired by Dr. Kazi M. Kamaruddin, Consultant, Livestock Division, BARC and Technical session-2 was chaired by Dr. Shah Md. Ziqrul Haq Chowdhury, Ex. Member

Director, Livestock. The annual progress activities of the year 2019-2020 were presented by Principal Investigators of BAU, BLRI, SAU, and BINA components.



*Pictorial view of Annual Review workshop on PBRG sub-projects (ID: 108 & 109)*

**d) Workshop on "Impact of COVID-19 on The Livestock Sector in Bangladesh and Their Mitigation Strategies"**

A very interactive and outcome oriented daylong consultative workshop on "Impact of COVID-19 on the livestock sector in Bangladesh and their mitigation strategies" was convoked on 26 November 2020 at the BARC auditorium. The workshop Was hosted by the Livestock Division Bangladesh Agricultural Research Council. The inaugural session was graced by chief guest Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, Bangladesh Agricultural Research Council (BARC). The session was graced by two special guests Dr. Abdul Jabbar Sikder, Director General, Department of Livestock Services and Dr. Nathu Ram Sarker, Director General, Bangladesh Livestock Research Institute. The inaugural session was chaired by Dr. Nazmun Nahar Karim, Member Director (Livestock), BARC. The inaugural session was started with the welcome remarks of Dr. Mohammad Rafiqul Islam, CSO, Livestock Division of BARC. The technical session was started with the chairmanship of Dr. Md. Jahangir Alam, Former Director General, BLRI. The workshop was attended by the academia, scientists and professionals from organizations like BARC, DLS, BLRI, University, different public and private stakeholder organizations.



*Pictorial view of workshop on "Impact of COVID-19 on the livestock sector in Bangladesh and their mitigation strategies"*

#### **e) Coordination Meeting**

- i. A coordination meeting of PBRG sub-project “Preparedness for the control of PPR in Bangladesh (ID:139)” was conducted by Livestock division at the dated 04 January 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. Member Director, Livestock division chaired the meeting and scientists of the division were present. PIs of BLRI and BAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.
- ii. A coordination meeting of PBRG sub-project “Development of knowledge hub on feed resources for efficient feed management of livestock (ID: 108)” was conducted by Livestock division at the dated 04 January 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. Member Director, Livestock division chaired the meeting and scientists of the division were present. PIs of BLRI, BAU and SAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.
- iii. Livestock division conducted a coordination meeting for the PBRG sub-project “Application of Gamma-ray irradiation to develop stress tolerant capability in fodder crops and their production performance under on-station and on-farm conditions (ID: 110)” on 05 January 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. This meeting was chaired by Member Director, Livestock division and scientists of the division were present. PIs of BINA and BLRI components presented their activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.
- iv. Livestock division conducted a coordination meeting for the PBRG sub-project “Determination of antimicrobial resistance and residues in livestock and poultry food products and feed in Bangladesh (ID:138)” on 05 January 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. This meeting was chaired by Member Director, Livestock division and scientists of the division were present. PIs of BLRI, BAU, HSTU, RU, CVASU, PSTU and SAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PIs and Co-PIs for necessary actions according the recommendations.
- v. A coordination meeting of PBRG sub-project “Development of knowledge hub on feed resources for efficient feed management of livestock (ID: 108)” was conducted by Livestock division at the dated 01 February 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. Member Director, Livestock division chaired the meeting and scientists of the division were present. PIs of BLRI, BAU and SAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.

- vi. A coordination meeting of PBRG sub-project “Preparedness for the control of PPR in Bangladesh (ID:139)” was conducted by Livestock division at the dated 02 May 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. Member Director, Livestock division chaired the meeting and scientists of the division were present. PIs of BLRI and BAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.
- vii. A coordination meeting of PBRG sub-project “Development of knowledge hub on feed resources for efficient feed management of livestock (ID: 108)” was conducted by Livestock division at the dated 03 May 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. Member Director, Livestock division chaired the meeting and scientists of the division were present. PIs of BLRI, BAU and SAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.
- viii. Livestock division conducted a coordination meeting for the PBRG sub-project “Application of Gamma-ray irradiation to develop stress tolerant capability in fodder crops and their production performance under on-station and on-farm conditions (ID: 110)” on 04 May 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. This meeting was chaired by Member Director, Livestock division and scientists of the division were present. PIs of BINA and BLRI components presented their activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.
- ix. Livestock division conducted a coordination meeting for the PBRG sub-project “Determination of antimicrobial resistance and residues in livestock and poultry food products and feed in Bangladesh (ID:138)” on 05 May 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. This meeting was chaired by Member Director, Livestock division and scientists of the division were present. PIs of BLRI, BAU, HSTU, RU, CVASU, PSTU and SAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PIs and Co-PIs for necessary actions according the recommendations.
- x. A coordination meeting of PBRG sub-project “Development of knowledge hub on feed resources for efficient feed management of livestock (ID: 108)” was conducted by Livestock division at the dated 17 June 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. Member Director, Livestock division chaired the meeting and scientists of the division were present. PIs of BLRI, BAU and SAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according the recommendations.

- xi. A coordination meeting of PBRG sub-project “Development of knowledge hub on feed resources for efficient feed management of livestock (ID: 108)” was conducted by Livestock division at the dated 30 June 2021 with the PI and Co-PI of the sub-project under NATP-2, BARC. Member Director, Livestock division chaired the meeting and scientists of the division were present. PIs of BLRI, BAU and SAU presented their research activities. After discussion regarding the activities, recommendations have been taken. Minutes for all meetings of the sub-projects have been prepared and sent to the PI and Co-PI for necessary actions according to the recommendations.



*Pictorial view of the online coordination meetings*

## **7. Training**

### **a) Training Program on “Antimicrobial Resistance in Bangladesh” at Bangladesh Agricultural Research Council and Bangladesh Livestock Research Institute**

Livestock Division, Bangladesh Agricultural Research Council organized a training Program on “Antimicrobial Resistance in Bangladesh” on 01- 03 February, 2021 at Auditorium-2, Training Building, BARC and Antimicrobial Resistance Laboratory, BLRI, Savar. In this training course, Twenty five teachers/officers from Universities, BLRI, BARC, NIB and Department of Livestock Services (DLS) were present as participants. The inaugural session where held under the chairmanship of Dr. Nazmun Nahar Karim, Member Director (Livestock), Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, Bangladesh Agricultural Research Council was present as Chief Guest in the inaugural session. Welcome address was delivered by Dr. Mohammad Rafiqul Islam, CSO, Livestock Division, BARC.



*Pictorial view of the Training Program on “Antimicrobial Resistance in Bangladesh” at Bangladesh Agricultural Research Council*

Resource person were successfully conducted lectures and practical sessions on Antibiotics: present status, implication and opportunities, Discriminate and indiscriminate use of antimicrobial drugs and environmental hazards, Hands on training of collection, transportation and preservation of samples, Hands on training of Bacterial culture Rational Basis of Antibiotic Therapy , Biosafety

and Biosecurity for AMR Laboratory, AMR Control: One Health Approach, Hands on training of culture sensitivity test, AMR/AMU situation in Bangladesh and AMU guidelines. After successfully completion of the course, certificates awarded to the participants.

**b) Training Program on “Bioinformatics for Sustainable Development in Agriculture” at Computer Lab., Computer and GIS Unit, BARC**

Livestock Division, Bangladesh Agricultural Research Council organized a training Program on “Bioinformatics for Sustainable Development in Agriculture” was organized on 14-16 March, 2021 at the Computer Lab., Computer and GIS Unit, BARC. In this training course, Twenty teachers/officers from NARS institute (BARI, BIRRI, BFRI, BJRI, BINA, BLRI, BARC) and Sher-e Bangla Agriculture university were present as participants. The inaugural session where held under the chairmanship of Dr. Nazmun Nahar Karim, Member Director, Livestock Division, Bangladesh Agricultural Research Council, Dhaka. Dr. Md. Aziz Zilani Chowdhury, Member Director, Crops Division, Bangladesh Agricultural Research Council, Dhaka, was present as Chief Guest. In the inaugural session. Hasan Md. Hamidur Rahman, Director, Computer and GIS Unit, was present as special guest. The workshop was started with the welcome remarks of Dr. Mohammad Rafiqul Islam, CSO, Livestock Division, BARC. Resource person were successfully conducted lectures and practical sessions on Introduction to Bioinformatics and General Aspects, Bioinformatics for Sustainable Agriculture, Hands on Training on Bioinformatics Database. Introduction to NCBI, Ensemble and TAIR database, Hands on training on gene/promoter prediction, Hands on training on Primer design, Hands on training on BLAST and Sequence Alignment, Hands on training on exploring Plant Metabolic Pathway Databases and Ensemble Plants Database, Hands on training on Protein Identifications, Protein sequence and functional information database (UNIPROT), Hands on training on Protein functions, Domain and Motif Analysis, Hands on training on Prediction of Immunogenic and Antigenic Peptides and Antigenic Propensity Analysis, Hands on training on exploring Kyoto Encyclopedia of Genes and Genomes (KEGG) and Data mining. After successfully completion of the course, certificates awarded to the participants.



*Pictorial view of the Training Program on “Bioinformatics for Sustainable Development in Agriculture” at Computer Lab., Computer and GIS Unit, BARC*

**c) Training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ at Divisional Livestock Office, Rangpur Division, Rangpur**

Livestock Division, Bangladesh Agricultural Research Council organized a training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ on 24 February 2021 at the Conference Room, Divisional Livestock Office, Rangpur Division, Rangpur. In this training course, Thirty officers from Department of Livestock Services (DLS) were present as participants. Dr. Mohammad Rafiqul Islam, Chief Scientific Officer, Livestock Division, Bangladesh Agricultural Research Council, Farmgate, Dhaka was present as Chief Guest in the inaugural session. Shah Jamal Khonbdokar, Director, Divisional Livestock Office, Rangpur Division, Rangpur was present as special guest. Resource persons were successfully conducted lectures on Recognition, Epidemiology and Geographical Distribution of PPR; Global PPR Control Strategy, Molecular Diagnosis of PPR; Treatment, Prevention, and Control of PPR and PPR Control Model for Bangladesh. After successfully completion of the course, certificates were awarded to the participants.



Pictorial view of the Training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ at Divisional Livestock Office, Rangpur Division, Rangpur

**d) Training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ at District Livestock Office, Dinajpur**

Livestock Division, Bangladesh Agricultural Research Council (BARC) organized a training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ on 25 February 2021 at the Conference Room, District Livestock Office, Dinajpur. In this training program, 20 officers from Department of Livestock Services and ten teachers from University of Hajee Mohammad Danesh Science and Technology University, Dinajpur were present as participants. Dr. Mohammad Rafiqul Islam, Chief Scientific Officer, Livestock Division, BARC, Farmgate, Dhaka was present as Chief Guest in the inaugural session. Dr. Md. Shahinur Islam, District Livestock Officer, Dinajpur and Professor Dr. Md. Khaled Hossain, Department of Microbiology, HSTU, Dinajpur were present as special guests. Resource persons were successfully conducted lectures on Recognition, Epidemiology and Geographical Distribution of PPR; Global PPR Control Strategy, Molecular Diagnosis of PPR; Treatment, Prevention, and Control of PPR and PPR Control Model for Bangladesh. After successfully completion of the course, certificates were awarded to the participants.



*Pictorial view of the Training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ at District Livestock Office, Dinajpur*

**e) Training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ at Divisional Livestock Office, Rajshahi Division, Rajshahi**

Livestock Division, Bangladesh Agricultural Research Council organized two batches of training Programs on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ on 27<sup>th</sup> and 28<sup>th</sup> February 2021 at the Conference Room, Divisional Livestock Office, Rajshahi Division, Rajshahi. In these training programs, Twenty officers from Department of Livestock Services (DLS) and ten teachers from University of Rajshahi (RU) in total thirty officers/teachers in each batches were present as participants. The inaugural session was held under the chairmanship of Dr. Mohammad Rafiqul Islam, Chief Scientific Officer, Livestock Division, Bangladesh Agricultural Research Council, Dhaka. Dr. Shaikh Azizur Rahman, Director, Divisional Livestock Office, Rajshahi Division, Rajshahi was present as Chief Guest in the inaugural session. Prof. Dr. Md. Jalal Uddin Sarder, Dept. of Veterinary and Animal Sciences, University of Rajshahi, Rajshahi and Dr. Md. Ruhul Amin Al Faruque, Assistant Director, Divisional Livestock Office, Rajshahi Division, Rajshahi were present as special guests. Resource persons were successfully conducted lectures on Recognition, Epidemiology and Geographical Distribution of PPR; Global PPR Control Strategy, Molecular Diagnosis of PPR; Treatment, Prevention, and Control of PPR and PPR Control Model for Bangladesh. After successfully completion of the course, certificates were awarded to the participants.



*Pictorial view of the Training Program on ‘Control of Peste des Petits Ruminants (PPR) in Bangladesh’ at Divisional Livestock Office, Rajshahi Division, Rajshahi*

## 8. Regular Activities

- a. Writing speech for the high officials of BARC and MoA for different national and international events (e.g. World Food Day, Vegetables Fair, Fruits Fair etc.)
- b. Scientists of Livestock Division acted as a member/member secretary in different committees formed for observing national and international days (World Food Day, National Independence Day, National Victory Day etc.).
- c. Scientists acted as rapporteurs in different workshops conducted by BARC and the MoA
- d. Preparation of proceedings of different meetings and seminars).
- e. Actively participated in different workshops/seminar organized by different Divisions/units of BARC, other national and international organizations.
- f. Attended project workshops (inception, review and completion) arranged by different Divisions/Units of BARC and other organizations

## 9. Publications

### Scientific Publications

- i) Aminur Rahman, Kumar Jyotirmoy Roy, KM Ashikur Rahman, Mst Khudishta Aktar, Md Abdul Kafi, Md Shafiqul Islam, Md Bahanur Rahman, **Md Rafiqul Islam**, Khandker Saadat Hossain, Md Mizanur Rahman, Hadi Heidari (2021). Adhesion and proliferation of living cell on surface functionalized with glycine nanostructures. Nano Select. <https://doi.org/10.1002/nano.202100043>
- ii) Contributed to publish BARC Annual Report (2019-20)
- iii) Contributed to publish BARC Newsletter (2020-21)
- iv) Published a training manual on “Control of Peste des Petits Ruminants in Bangladesh”, February 2021.
- v) Published a training manual on “Antimicrobial resistance in Bangladesh”, February 2021.
- vi) Popular articles
  1. Mycotoxins in agricultural commodities: A global threat. The Asian Age, 30 September 2020.
  2. Prebiotics: Potential gastrointestinal health guards for human. BSSF Safe Food Digest, 16 October 2020.
  3. কোরবানির গুরু ক্রয়ঃ প্রয়োজন বাড়তি সতর্কতা| দৈনিক দেশকাল 18 Ryb, 2021|

## AGRICULTURAL ECONOMICS AND RURAL SOCIOLOGY DIVISION

### 1. Name of Professionals

Member Director:	<b>Dr. Md. Mosharraf Uddin Molla</b> (CC from February, 2020 to date)
Chief Scientific Officer-1:	<b>Dr. Md. Mosharraf Uddin Molla</b>
Principal Scientific Officer-2:	Vacant
Stenographer-Cum-Computer Operator:	<b>Mrs. Arati Rani Sarker</b>
Office Assistant-Cum-Computer Operator:	Vacant
Office Sohayak:	<b>Md. Abdul Jalil</b>

### 2. Research Program Development of NARS Institutes

Not performed due to COVID-19 pandemic.

### 3. Monitoring & Evaluation

i) Coordinated PBRG Sub-project:

Monitoring of Coordinated PBRG Sub-projects (ID: 021 & ID: 158) under AERS Division

- Monitored two sub-projects:

a) Project ID:021

Implementing Component: 2 (Agril. Econ. Division, BARI & BINA)

Location: BARI, BINA (Headquarter)

b) Project ID:158

Implementing Component: 2 (Dept. of Agril. Econ.,BAU, Mymensingh & Dept. of Agril. Econ. & Policy, SAU, Sylhet)

Location: Moulvibazer

### 4. Regional and International Collaboration & Cooperation

-Participation in the SAARC regional expert consultation program on “UN Decade of Family Farming: Formulating Strategies and Action Plan to Strengthen Smallholder Family Farmers in South Asia” in Virtual mode during 5-6 November 2020 organized by SAC. A Country paper named “Situation of Family Farming in Bangladesh” was presented including National Action Plan at that event.



*Paper Presentation on ‘Situation of Family Farming in Bangladesh’*

### 5. Research Project Evaluation

Nil

## 6. Preparation of Policy Documents and Inputs

- Inputs of LDCs in the Asia-Pacific on Response to COVID-19 and Way Forward
- Comments for conducting the study on impact of COVID-19 to the countries graduation from LDC
- Comments on Invitation to Discuss the Concept Note and Statute of Sustainable Agriculture and Inclusive Rural Development (SAIRD) to Replace CAPSA
- Comments on the MoU between Bangladesh and Kenya signed in 1082
- Comments on “National Employment Policy 2020” (Draft)
- Comments on Public Stock Holding for Committee on Agriculture
- Inputs/information for inclusion at Bangladesh Economic Review 2021 (Bangla & English)
- Comments on “Annual Agriculture and Rural Credit Policy: 2021-22”
- Inputs on Trade Monitoring Report of WTO
- Comments on the Concepts and Definitions used in Census and Survey of BBS
- Inputs for preparing the “National Budget 2021-22”
- Comments on the Concept note of “Bangladesh Tariff Policy”
- Comments on the draft Policy of Investment by Bangladesh in Abroad
- Inputs/agenda for the 5<sup>th</sup> Meeting of Bangladesh-UAE Joint Commission (JC)
- Inputs/agenda for the 3<sup>rd</sup> Joint Trade Committee (JTC) between Bangladesh-Vietnam in 2021
- Comments on the permission of Aromatic rice export

## 7. Workshop/Meeting/Seminar

### a) Review Workshop:

#### **Review of Socio-economic Research Programs of NARS Institutes**

A workshop on “Review of Socio-economic Research Programme (2019-20) and Future Research Programme (2020-21) of NARS Institutes” was held on 4 October 2020 at the Auditorium of Bangladesh Agricultural Research Council (BARC), Farmgate, Dhaka. In the inaugural session Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC attended as the Chief Guest and Dr. Md. Mosharraf Uddin Molla, Member Director (AERS), BARC presided over the session. At first, Session Chair welcomed all and stated aims of the workshop with highlighted the priority areas of socio-economic research in National Agricultural Policy, 2018. He also presented in brief the recommendations of the previous year workshop which are expected to be incorporated in future research programme of the respective NARS institutes. The Chief Guest thanked all for their participation in the midst of hurdles driven by COVID-19. He specially highlighted the importance of socio-economic research for policy formulation in the country. He requested to senior agricultural economists to take an initiative for preparing a policy report on “Doubling Farmers’ Income of Bangladesh” based on SDG. In that case, necessary logistic support will be provided from BARC, he stated. A total of 58 participants including scientists, professors, agriculture experts and delegates attended the workshop from different research organizations, universities and private sectors. The present and future research activities were presented by the Head or nominee of the related division of four NARS institutes (BRRI, BINA, BSRI& BFRI) in technical

session. Research programme of Agricultural Economics Division, BARI was not presented due to their internal difficulties. Technical session was presided over by Dr. A.S.M. Anwarul Huq, DG, BJRI, Dhaka. Four expert reviewers namely Dr. M. Shahadad Hossain, Former DG, BARI, Dr. S.M. Khalilur Rahman, Former MD(AERS), BARC, Professor (Retd.) Dr. S.A.Sabur, BAU, Mymensingh and Dr. M. Shahe Alam, Former CSO, Agricultural Economics Division, BARRI were reviewed the presented research programme critically. However, the following comments/suggestions were made in the day long workshop by the expert reviewers and valued participants which are expected to be integrated in formulating future research programmes of the respective division of NARS institutes.

### **Comments/Suggestions:**

#### **Bangladesh Rice Research Institute (BARRI)**

- **Achievement of research programme 2019-20:**

1. “Product diversification” term in the nutrition study should make clear.
2. Study should conduct on how to increase the adoption rate of BARRI hybrid varieties. Need to increase the sample size in costs and return analysis study.
3. Should investigate the input use according to the farm category.
4. Presentation slides would be more rigorous.
5. The last year recommendations did not reflect to the presented studies.
6. What are the drivers of adoption/ dis-adoption of newly released rice varieties in the adoption study?
7. The constraints, conclusion, and recommendations should be clear and specific.
8. A study should have on the demand/ requirement of combine harvester for mechanized rice harvesting in Bangladesh.
9. The study reports should be more details.

- **Future research programme 2020-21:**

1. Season and location-wise assessment of different rice varieties is important.
2. Farm level and on-station yield gap estimation is required.
3. It should be “Comparative profitability and competing output” rather than “Comparative profitability and competing enterprise”.
4. Should not be shaping the “future value chain”. It could be improving the rice value chain.
5. Should conduct a study to address the reasons behind reducing hybrid rice areas.
6. In case of saline tolerant rice varieties, BINA varieties should be included besides BARRI varieties.
7. Should conduct more study on agricultural marketing.
8. Should conduct study on emerging issues, such as, causes of falling or rising market price and what should be the policy to cope with that.
9. Study should conduct about bio-fortified rice.
10. A comparative study should have on the private and BARRI hybrids focusing the costs, profit, and constraints.

## **Bangladesh Institute of Nuclear Agriculture (BINA)**

### **• Achievement of research programme 2019-20:**

1. The endogeneity and omitted biased problem should address in Tobit/Logit/Cobb-Douglas estimation.
2. Should explain why the yield of a variety differs from region to region.
3. Moisture content should consider while calculating yield in the costs-benefit analysis.
4. Farm category wise input use pattern, yield and profitability presentation would be more interesting.
5. The results should have meaningful interpretation.
6. The yield gap concept should be clear.
7. The collection procedure of soil fertility data should clear in the study.
8. The yield gap should discuss in details.
9. The recommendations should be clear and specific.

### **• Future research programme 2020-21:**

1. The resource use efficiency and technical efficiency are different concepts which should be used carefully.
2. The sample selection process should make clear in the study.
3. A comparative study should conduct including the stress tolerant varieties of BRRI and BINA.

## **Bangladesh Sugarcrop Research Institute (BSRI)**

### **• Achievement of research programme 2019-20:**

1. Besides technical efficiency estimation, cost efficiency would generate more interesting results.
2. What are reasons behind region-specific variety adoptions should clarify.
3. What are reasons behind large/small yield gaps should clarify.

### **• Future research programme 2020-21:**

1. A study should have on the value and supply chain of sugarcane in Bangladesh.
2. Why sugar mills are not profitable, should identify the causes and suggest policy pathways on how to make profitable.
3. Profitability and comparative study of chewing crops with others should be conducted.
4. In-depth and comparative study should conduct between sugarcane and sugar bit.

## **Bangladesh Forest Research Institute (BFRI)**

### **• Achievement of research programme 2019-20:**

1. Recommended to do partial budgeting in their research activities.
2. The economic life length of rubber plant should identify.
3. The title should be objective oriented and vice-versa.
4. The study should review and revised again.

## General Recommendations

1. To overcome the manpower shortage problem, project based coordinated programs can be run.
2. Recommended to highlight if the last years proposed programs and recommendations are addressed or not.
3. Should provide the details of the studies to the expert members prior to the workshop.
4. Agricultural Economics Division of NARS institutes should invite Member Director (AERS), BARC in their research program and share the findings accordingly.
5. The presentation should be more articulate.
6. The recommendations should be specific, result based and actionable.

## b) National Workshop:

### “Availability and Price Volatility of Rice, Potato and Onion in Bangladesh: An Inter-Institutional Study in 2020”

A National Workshop for Presenting Research Report on “Availability and Price Volatility of Rice, Potato and Onion in Bangladesh: An Inter-Institutional Study in 2020” held on 26 January, 2021 at BARC Auditorium, Dhaka organized by the AERS Division, BARC. The workshop was organized as part of the program of the aforementioned study, which was carried out at the Ministry of Agriculture's direction to determine the reasons behind recent price hikes in Rice, Potato, and Onion in Bangladesh. Under the supervision of AERS division, BARC, three distinct inter-institutional and multi-disciplinary Study Teams led by Agricultural Economists of NARS institutes conducted a detailed investigation with farmers, traders and different stakeholders of these most indispensable commodities across the country.

Dr. Md. Abdur Razzak, the Honorable Minister, Ministry of Agriculture, Government of the People's Republic of Bangladesh and Md. Mesbahul Islam, the Honorable Senior Secretary of the Ministry attended as Chief Guest and Special Guest respectively. A number of participants attended the Workshop, including the heads of NARS institutes, KGF, Hortex Foundation, Member Directors of BARC, NARS institute scientists, renowned university professors, agriculture experts, and delegates from the Ministry of Food, Trade & Tariff Commission, DAE, DAM, BADC, BBS, BIDS, and representatives from the Rice, Potato, and Onion Traders Associations for import, storage, processing, and marketing.



*Workshop on Price volatility of Rice, Potato and Onion*

Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC attended the Workshop and presided over the session. He specially acknowledged the Hon'ble Minister and the Secretary for their presence at the occasion and expressed gratitude to the research stakeholders and the Krishi Gobeshona Foundation for funding the study. He anticipated that the findings of this study will aid policymakers in making better decisions. The welcome address was given by Dr. Md. Mosharraf Uddin Molla, Member Director (AERS), BARC and Member Secretary of the Study Team, who also presented the justification and outline of the research work. Prof. Dr. Jahangir Alam, Vice-Chancellor University of Global Village and Former Director General, BLRI, and Coordinator of the Study Team, presented a brief summary of the research findings. Md. Abdur Rauf Sarker, SSO, AED, BRRI, Prof. (Retd.) Dr. Shaikh Abdus Sabur, Agribusiness and Marketing Department, BAU and Dr. Md. Abdur Rashid, CSO and Head, AED, BARI presented the detailed study findings on Rice, Potato and Onion, respectively. The studies clearly defined the major causes of the price hike for these commodities and made suggestions on how to resolve the situation. Based on the study findings, some recommendations were made to overcome the current situation for long-term benefits.

**c) Progress Review Workshop (2<sup>nd</sup> Year) on “Cost and Return Analysis of Selected Crops in Bangladesh (ID: 021)”**

A day-long Progress Review Workshop of PBRG Sub-project titled “Cost and Return Analysis of Selected Crops in Bangladesh (ID: 021)” was held on 05 October 2020 at the BARC Auditorium-1 organized by AERS division as coordinating part with participation of two implementing components: Agricultural Economics Division of BARI, Gazipur and BINA, Mymensingh. The inaugural session was presided over by Dr. Md. Mosharraf Uddin Molla, Member Director (AERS), BARC. In the session, Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was the Chief guest and Dr. Harunur Rashid, Director, PIU-BARC, NATP-2 was the Special guest. Total 60 participants including PIs & Co-PIs of component parts, scientists of NARS institutes, renowned university professors, agriculture experts and delegates from different research organizations and private sectors. The technical session was presided over by Dr. Md. Jahangir Alam Khan, VC, University of Global Village, Barisal and Ex Director General, BLRI, Dhaka.



*Progress Review workshop of PBRG*

#### **d) Review Workshop on “National Budget 2021-22 Analysis: Agriculture and Agricultural Development Perspective”**

A Review Workshop on “National Budget 2021-22 Analysis: Agriculture and Agricultural Development Perspective” was held on 21 June at Conference of BARC organized by AERS Division. The inaugural session was presided over by Dr. Md. Mosharraf Uddin Molla, Member Director (AERS), BARC. Dr. Shaikh Mohammad Bokhtiar, Executive Chairman, BARC was the Chief Guest at the inaugural session as well as Moderator of the technical session. Professor Dr. Md. Saidur Rahman, Department of Agricultural Economics, Bangladesh Agricultural University, Mymensingh presented the Key note on the proposed National Budget 2021-22. All officers and scientists of BARC were the participants of the review workshop.



*Pictorial view of National Budget 2021-22 Analysis*

#### **8. Modern Econometric Methods: Analyzing Agricultural Data using STATA and SPSS**

A training programme on “Modern Econometric Methods: Analyzing Agricultural Data using STATA and SPSS” was held on 20-24 June at Computer Lab., BARC organized by AERS Division. The Resource Speakers were the Professors from Bangladesh Agricultural University, Mymensingh. Twenty participants (Agricultural Economist) from NARS Institutes and agricultural universities attended the training programme. Dr. S. M. Bokhtiar, Executive Chairman, BARC was the Chief Guest at Concluding Session and handed over the certificates to the participants of the training programme.



*Pictorial view of the training program*

## 9. Regular Activities

- Working as a Member of Executive Council, BARC, Technical committee, Recruitment committee, Investigation committee, Purchase committee, Receiving committee (goods), Project implementation committee etc.
- Performed as a Resource Person in the training programme titled “Methodology of Farming Systems Research & Development” organized by P&E Division, BARC
- Performed as a Resource Person in the training programme titled “Collection of Data in Social Science” organized by Training and Communication Wing, BARI
- Acted as a member of Expert Technical Committee for Agriculture Census 2019 of BBS
- Participation in Inter-ministerial Committee of MoA for estimating cost of production of paddy, rice and wheat
- Participation in Agricultural Price Advisory Committee for estimating minimum price of Tobacco
- Acted as a member of Steering Committee for Strategic Plan for Agricultural and Rural Statistics (SPARS) formed by BBS
- Working as a Reviewer of Scientific Journal
- Working as a Supervisor/Co-supervisor of MS Thesis
- Working as an Examiner of MS Thesis
- Annual Report 2019-20 was prepared

## 10. Publication

1. J. U Ahmed, M.A. Kashem, T.B. Shan, P. Das and M.M.U. Molla (2021). Impact of Adopting Agricultural Technologies on Profitability and Production Practices of Tribal Farmers in Bangladesh. *Journal of Social Sciences*, Science Publications, Volume 17, No. 1, 2021, 106-117. ISSN: 1549-3652 (Print); 1558-6987 (Online).
2. “Availability and Price Volatility of Rice, Potato and Onion in Bangladesh: An Inter-institutional Study in 2020”. Study Report, Agricultural Economics & Rural Sociology Division, BARC, Dhaka.

## 11. Others

### Supervisor of MS Thesis (SAU, Dhaka)

1. Profitability and Resource Use Efficiency of Broiler Farming in Selected Areas of Gazipur District
2. Women’s Participation in Homestead Vegetable Production in Some Selected Areas of Patuakhali District
3. Comparative Profitability of Onion Production in Some Selected Areas of Bangladesh

### Examiner of MS Thesis (SAU, Dhaka)

1. Financial Profitability and Resource use Efficiency of Mustard Cultivation in Selected Areas of Sirajganj District

## Computer & GIS Unit

Computer and GIS unit of BARC was established in the year 1985 with an aim to cater the information need in support of agricultural research and development activities of the country. The major responsibilities of the unit involve overall management of Information and Communication Technology (ICT) related activities in view of hardware, software, networking etc. The ultimate goal was to establish BARC as information hub of NARS so that overall agricultural research system becomes strengthened and robust in terms of information availability, accessibility, dissemination etc. through online system to cater information need of stakeholder in agriculture sector. The unit plays a vital role to establish/strengthen ICT infrastructure to facilitate MIS related activities/services among NARS institutes. The activities also involved in assessing needs of Computer hardware, software, network equipment, preparing technical specification for procurement of the goods/accessories, evaluating technical proposal, receiving and distributing ICT goods etc. The unit also provides support for troubleshooting of hardware, software, network, internet/email and related services for smooth running of the system. In addition to that, it conducts various ICT based capacity building training, workshop, seminar for the personnel of BARC and NARS institutes. Besides, the unit conducts a lot of other activities such as preparation of progress report, need assessment, review and evaluation of research program, recruiting of computer personnel etc. Personnel of the unit are also working as innovation officer of BARC.

Geographic Information System (GIS) is another important functional part of the unit. Maintenance, necessary updating and output preparation of AEZ land resources database and local level Upazila Nirdeshika database (soil, land, nutrition and others) is an on-going activity of this unit. Land suitability assessment and crop zoning of 300 upazila is an important outcome of GIS activity and it is being carried out by the unit since 2017.

However Computer and GIS Unit administers e-Filing system of BARC, updates and uploads files in website, provides various inputs and reports to Ministry of Agriculture and other organizations. Innovation activities are led by the unit as a routine job.

### Professionals of Computer & GIS Unit

The following computer professionals worked in the Computer & GIS Unit during July 2020 to June 2021:

- i. **Mr. Hasan Md. Hamidur Rahman**, Director
- ii. **Mr. Nazmul Haq Md. Selim**, Data Entry Officer (CC)

### Project Proposal Development

Developed two project proposals during the period:

1. “কোভিড-১৯ এর অভিঘাতসহ বিভিন্ন আপদকালীন পরিস্থিতি মোকাবেলায় কৃষি উৎপাদন বৃদ্ধি চলমান রাখা, কৃষি বিপণন ব্যবস্থার উন্নয়ন এবং কৃষি পণ্যের ন্যায্যমূল্য নিশ্চিতকরণে কৃষি মন্ত্রণালয়ের কর্মপরিকল্পনা-২০২০” এর বাস্তবায়ন কৌশলের আলোকে প্রস্তাবিত কার্যক্রম-submitted to Planning and Evaluation Division, BARC.
2. “Training on Agro-Geospatial data analysis and management” submitted to KOICA

## **Project Implementation:**

### **Crop Zoning Project**

BARC has been implementing “Development of Upazila Land Suitability Assessment and Crop Zoning System of Bangladesh” since June 2017 to December 2021. Crop Zoning project (in short) is being implemented with the coordination of Crops Division of BARC. Two other components of the project are: Soil Resource Development Institute (SRDI) and Institute of Water Modeling (IWM). Following activities were done during this period:

- Compilation, editing and coding of land and soil properties data (physical & chemical) have been completed for 86 Upazila.
- Compilation and editing/updating soil chemical data of 86 Upazilas have been completed.
- Land and soil properties map layers for 86 Upazila have been prepared.
- Soil survey conducted in 12 Upazila for updating land and soil properties information.
- Soil chemical analysis for determining the level of different soil chemical properties such as, soil pH, soil salinity, organic matter, nitrogen, phosphorus, potassium, sulphur, boron, zinc, calcium, magnesium, ammonium, iron, manganese and copper has been completed for 20 Upazila and soil sample analysis of 20 Upazila is under process.
- Printing of 40 Upazila Nirdeshika report have been completed and report writing is ongoing for 14 Upazila.
- Soil profile study for 3 dominant soil series under different AEZ have been completed.
- Collection of socio-economic data through focus group discussion (FGD) for 59 Upazila have been completed.
- Socio-economic data editing and economic profitability analysis for 139 Upazila have been completed.
- Economic profitability indicator in terms of gross margin and BCR were calculated for 76 crops for Upazilas selected as study location under Rangpur and Rajshahi division.
- Information such as cropping season, planting time, harvesting time, duration, yield and other specific characteristics for 20 crop varieties (tea-11, rice-4, wheat-2, sugarcane-1, jute-1, malta-1) have been documented and formatted both in Bangla Unicode and English language.
- Compilation, editing and documentation both in Bangla Unicode and English language for 4 innovative technology information (hydroponic, floating agriculture, roof gardening, vermicomposting), 3 pest management technology (blast disease, sex pheromone trap, fruit bagging), 1 seed production technology (onion seed production) and 1 post-harvest management technology (hot water treatment of mango) have been completed.
- Crop rules which elaborates edaphic and agro-climatic requirements of crop have been devised for Tea and Malta.
- Agro-edaphic suitability and agro-climatic suitability limitation rating for 3 (three) crops Potato (heat tolerant), Tea and Malta have been formulated

- Agro-edaphic and agro-climatic suitability limitation ratings of 74 (seventy four) crops formulated earlier under different cropping seasons have been rechecked and modified to get more an accurate crop suitability outputs.
- Existing Upazila, Union and Mouza map layers were updated through creating new boundary or readjusting the existing boundary.
- Updating of soil and landform map and preparation of soil sample location map (e.g. conversion and re-projection of existing maps, scanning of updated hardcopy map, geo-referencing, projection, editing) of 135 Upazila have been completed.
- Non-agricultural land area map layers have been produced for 11 Upazila.
- A total 2370 spatial interpolated maps of 158 Upazila for fifteen soil chemical properties (soil salinity, soil pH, om, n, po, pb, k, s, zn, b, ca, mg, fe, cu, mn) have been prepared.
- Carried out desk validation of land type and crop suitability outputs of different Upazila.
- Field visits were carried out at different locations in 114 upazila of which 24 in Barisal, 14 in Sylhet, 18 in Dhaka, 10 in Mymenshingh, 12 in Khulna, 18 in Rajshahi, 15 in Rangpur and 3 in Chittogram division for validation of crop zoning outputs.
- Demonstration trial on T.Aman rice yield has been conducted at 5 location to observe the impacts of crop specific fertilizer recommendation disseminated through ‘Khamari’ mobile apps.
- The online GIS based software Crop Zoning Interactive Information System (CZ-IIS) has been registered as gov.bd domain and uploaded into the National Data Centre cloud (Address: <http://cropzoning.gov.bd>). Many new features were added in the software and a dashboard of the crop zoning system has been developed for quick and easy access of information.
- A mobile app named ÔLvgvwiÕ (Khamari) has been developed and integrated into main system (CZIIS). The ‘Khamari’ app can be downloaded and installed from Google play store or from the web address <http://cropzoning.gov.bd>. During the reporting period Union based suitable crops and crop specific fertilizer recommendation services have been developed.
- Soil fertility status maps, cropping pattern with profitability indicator, crop variety with their characteristics and agriculture technology information have been uploaded to the bi-lingual agri-advisory portal (<http://cropzoning.gov.bd>).
- Organized 2 project advisory committee meetings 1 progress review workshop and several internal meetings some using Zoom. Training program on ‘Khamari’ mobile app was conducted for Sub-Assistant Agricultural Officer (SAAO) and farmers at 5 Upazilas in Barisal division.
- Prepared of Half yearly progress report for the period July – December 2020 and submitted to KGF.
- Progress and achievement of the project is presented in the 75<sup>th</sup> KGF board meeting held on 12<sup>th</sup> November 2020.21)
- Drought Monitoring Project

BARC has been implementing “Establishment of climate service for agriculture management and crop monitoring system for Bangladesh” project with ICIMOD, Nepal since 2017 to 2020. In this project, two online portals on national and regional drought monitoring and outlook system developed by ICIMOD in collaboration with BARC. The online portals are linked with BARC website (links are located inside Database menu).

### **Policy Level Contribution**

Computer and GIS Unit plays important role in giving opinion and feedback upon ICT related policy level issues asked from MoA time to time. During the period, following opinions are sent to MoA:

- Opinion on e-Governance Act
- Opinion on Geospatial Rules
- Opinion on Copernicus program
- Opinion on ICT Policy 2018
- Opinion of BARC on Prayer for NOC to realize foreign grant on GSMA Agri Tech Innovation Fund awarded to Grameen Phone
- Opinion of BARC on BARI-Netherland ITC organized Geospatial training program

### **Research Management/ Financial management and Coordination**

Director (Computer and GIS) has been working as Principal Investigator of Crop zoning project since 2017. As a PI of the project, he had to handle the project management as well as budgetary issues aligning with financial rules and regulations.

### **Training, Workshop, Seminar etc. Organized**

**1) Workshop on “Innovation and Service Process Simplification (SPS)”**

The workshop held on 07 November 2020. Participants (40) were all BARC officers, Duration-1 day

**2) Training on “Development of innovation capability”**

The training held on 3-4 March 2021. Participants (40) were all BARC officers, Duration-2 days.

**3) Training on “Capability Development in Service Process Simplification (SPS)”**

The training held on 20-21 January 2021. Participants (40) were all BARC officers, Duration-2 days.

**4) Training on e-Filing for Officer**

The training held on 12-13 April 2021. Participants (40) were all BARC officers, Duration-1 day (2 batches).

### **Training, Workshop, Seminar etc. Attended:**

- দপ্তরনথি প্রশিক্ষণ-সংস্থার ফোকাল পার্সন ও এডমিনগণের প্রশিক্ষণ on 20 April organized by A2I (virtual)
- সেবা সহজিকরণ কার্যক্রমের অগ্রগতি পর্যবেক্ষণ ও পরিবীক্ষণ সংক্রান্ত ০১ (এক) দিনের কর্মশালা on 24 June organized by A2I (virtual)
- Training on co-designing national products & enhancing user experience 21-24 June 2021 organized by RIMES at BMD

### **Publication by the Division/Section in Different Journals/ Media:**

- Newspaper article in the Daily Janakantha on “টেকসই কৃষি উন্নয়নে আইসিটি বিষয়ে বিবেচ্য” (16/09/2020)

### **Other Activities:**

#### **1. Server and Network Operation**

Following activities regarding server and network administration performed:

Cloud based antivirus Bit Defender (no. of user license 140) was procured and installed in all computers (desktop, laptop, workstation and server) of BARC centrally for the protection of computers from malware and virus. The Bit Defender antivirus is a light software and it is managed centrally from cloud. Scanner, UPS, Portable Hard Disk, Pen drive, Printing Toner etc. were procured from revenue budget and distributed among BARC officers.



*Server and Network operation station*

Internet service availability and email account creation (email under barc.gov.bd domain) for BARC officers were done for newly recruited officers time to time. It is a part of routine activities.

## 2. Host Virtual Meeting Using Zoom Platform

Virtual meetings conducted instead of physical meeting/ workshop/ seminar due to Covid-19 pandemic. Zoom license procured for BARC and created more than 20 meetings during this period and provided support to host the meetings.

## 3. National Agricultural Display Centre (NADC) Operation

Worked as member secretary of NADC operation and maintenance committee. Three consecutive meetings held with members/ focal points of NARS institutes and they gave words to update respective display rack within very short time. Due to Covid-19, they could not update display items in time. Further letter is issued to update the display items by next one month (12/09/2021).



*National Agriculture Display Centre*

## 4. Database and Apps Development

- The National Data Center (NDC) authority upgraded the version of hosting platform. To align with the new platform, all previously developed applications are updated.
- The Personnel Data Sheet (PDS) application is upgraded to Version 3.0 from the earlier version 2.0.

## 5. Uploading, Updating and Maintenance of BARC Website

- BARC web portal ([www.barc.gov.bd](http://www.barc.gov.bd)) updated regularly based on data received from different sections/division. Files are uploaded and pages are updated in regular basis. The website structure is changed several times as per instruction from MoA
- Website upload and update report sent to MoA, BARC administration and APA Focal Point within 7th day of each month as well as quarterly basis. During this period **2022 files uploaded** and **307 files updated**.

## 6. E-Filing Administration and Support

- e-Filing administration activities performed including user creation, update, delete etc.
- e-Filing report generation in prescribed format and sent to MoA, BARC administration and APA Focal Point within 7th day of each month as well as quarterly basis.
- e-Filing support to different unit/division

## 7. Functioning of BARC Innovation Team

Director (Computer & GIS) has been working as Innovation officer of BARC. As an innovation officer, conducted following activities during this financial year:

- Prepared Innovation work plan-2021, Innovation Report-2020 with the help of innovation team members
- Conducted 2 training (two day long) and 1 workshop (day long) for BARC officers.
- Conducted 5 Innovation meeting at BARC
- Attended 3 meeting arranged by MoA
- Information of innovation team and its activities uploaded to BARC website under the Innovation menu as per guideline of MoA
- Conducted other activities according to the Innovation workplan 2020-21 with the help of innovation team members.

## **8. Report/Opinion to MoA and Other Organization**

During this period, following ICT related reports/documents prepared and sent to related organization:

- Innovation activities report of BARC (half yearly and yearly) according to Innovation work plan 2019-20 to MoA
- Monthly e-Filing, e-GP reports to MoA
- Monthly website update/upload reports MoA
- E-Service list to MoA
- “Digital Bangladesher pothe ogojatra” report to MoA
- Different e-Services, Innovation, SIP and SPS information (with picture) sent to MoA
- Opinion of BARC on Prayer for NOC to realize foreign grant on GSMA Agri Tech Innovation Fund awarded to GP sent to MoA
- Remarkable achievements of Computer and GIS unit since 2009 to to-date and future plan (2030 and 2041) sent to Planning and Evaluation division, BARC
- Input provided to admin section for monthly integration meeting of MoA
- Progress Report of BARC activities according to ICT Policy 2018 to MoA
- Progress Report of BARC activities according to Digital Bangladesh Taskforce sent to MoA
- Quarterly APA, integrity report sent to planning division, BARC
- Quarterly service delivery report sent to citizen charter update committee according to BARC citizen charter.

## **9. Climate Database Update**

Updated climate database of BARC (<http://climate.barcapps.gov.bd>) upto 2018. The daily weather data of 2019 is purchased from BMD, processed and generated monthly data and uploaded in website.

## **10. Continuation of GIS Activities**

Maintenance and necessary output preparation of AEZ land resources database and local level upazila nirdeshika database (soil, land, nutrition and others) has been continuing as an on-going activity. AEZ land resources data is used for earlier crop zoning study of Bangladesh. Also, the information of 15 (fifteen) upazilas of upazila nirdeshika database were used in SPGR GIS sub-project for earlier crop zoning study. The AEZ database is being used extensively by Crop zoning project. The 32 newly created Upazila is demarcated using the data of AEZ database. Upazila map generated with updated administrative boundary, land type, soil data, mapping unit etc.

## **11. Support to BARC and Different Component of NATP as PEC and TEC Member**

Necessary supports provided to BARC and NATP-2 in procurement of goods, works and services.

## **12. Support to Divisions/Sections of BARC for Hardware/Software; Data Analysis; Information Sharing and Resource Management**

Support provided to different divisions/sections to fix various types of computer hardware and software problems. Several types of maps, NARS map, climatic map etc. provided to scientists/researchers/ extensionists as per requirement.

## **13. Support for Planning, budgeting and Procurement of Computer Resources (Hardware, Software & Accessories etc.)**

Prepared requirement assessment, specification, budgeting for procurement of computer hardware, software and accessories under BARC and distribution of hardware, software and

network equipment. Support provided to KGF as Focal point of BARC in ARMIS project implemented by KGF.

#### **14. BARC Citizen Charter Update**

Director (Computer & GIS) worked as convener of BARC Citizen Charter update committee.

#### **15. Publication**

Published Newspaper article on “ICT in Sustainable Agricultural Development”.

#### **16. Meeting/Seminar/Workshop Participation**

The personnel of Computer and GIS unit attended various meetings/seminars/workshops under different capacity at BARC and other organizations during this period. Some of those are focal point meeting and workshop, PCR workshop, stakeholder workshop, monsoon and climate related workshop, E-Nothi training etc.

#### **17. Focal Point of BARC of Integrated Digital Service Development Platform**

Worked as Focal Point for the “Integrated Digital Service Development Platform” by Ministry of Agriculture (MoA). Provided feedback for two components related to BARC and overall Software Requirement Specification (SRS).

#### **18. Convenor of ARMIS Technical Committee**

Working as convenor of ARMIS technical committee and provide suggestions to necessary changes for the improvement of the application. Also give support to deploy any changes in ARMIS portal. E-Filing Training of BARC Officers (1<sup>st</sup> batch on 12-04-2021 and 2<sup>nd</sup> batch on 13-04-2021)



*A View of E-Filing Training of BARC Officers*

Pictorial View of Different Activities



*Workshop on “Innovation and Service Process Simplification (SPS)” on 7-11-2020*



*ÓTraining on “Capability Development in Service Process Simplification (SPS)” on 20-21 January 2021*



Training on “Development of Innovation Capability” on 3-4 March 2021

**Crop Zoning Project Activities:**



*Advisory Committee Meeting, Crop Zoning Project (09-08-2020)*



*Advisory Committee Meeting, Crop Zoning Project (19-01-2021)*



*Progress Review Workshop, Crop Zoning Project (13-03-2021)*



*Internal Meeting, Crop Zoning Project (15 February 2021)*



*Progress Review Workshop, Crop Zoning Project (13-03-2021)*



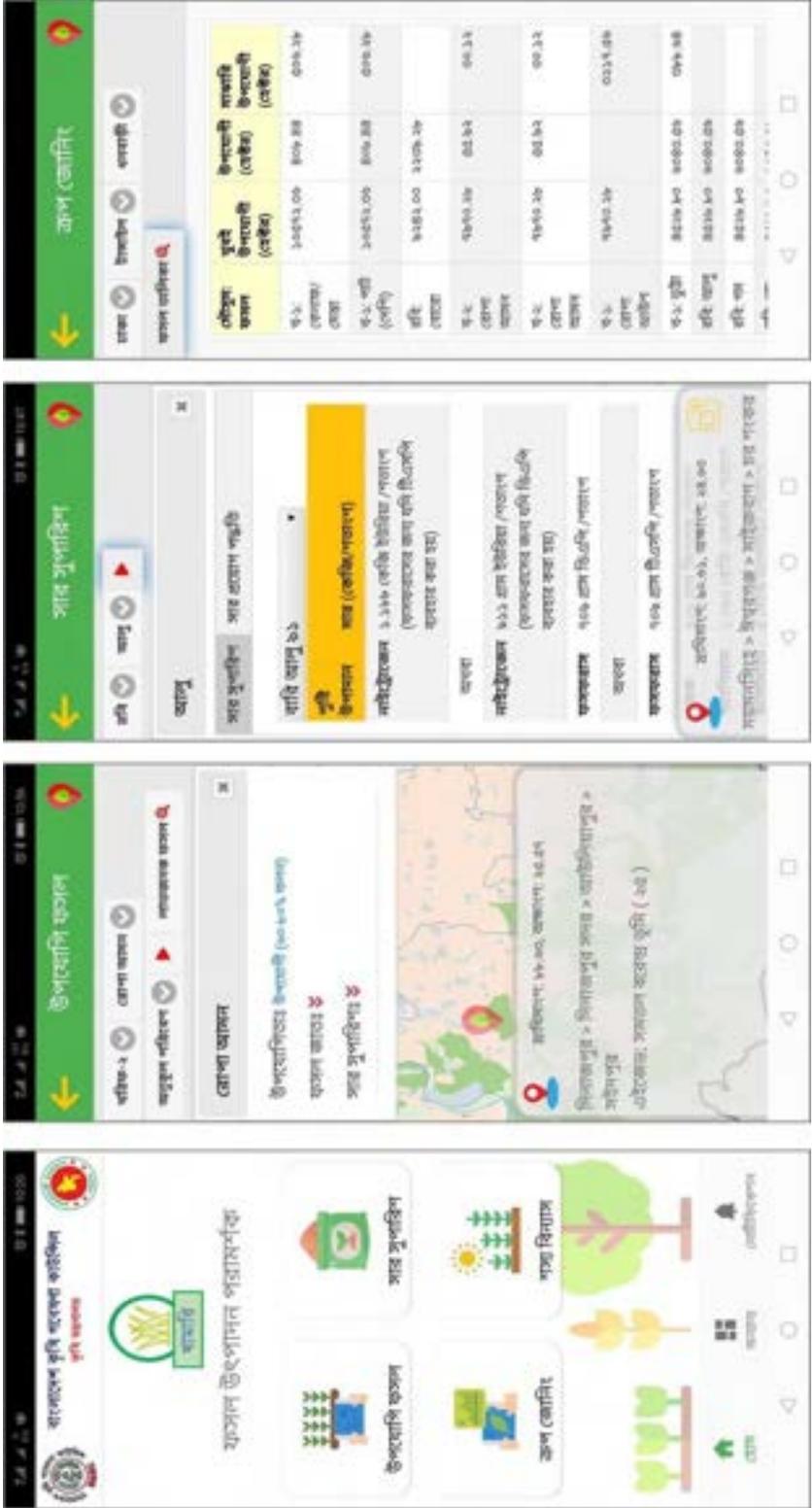
*Field Validation of Crop Zoning Output*

Crop Zoning Interactive Information Software (CZIIS)

The screenshot shows the Crop Zoning Interactive Information System (CZIIS) web application. The interface is divided into several sections:

- Top Navigation:** Includes a search bar, the text "Dhanbari", and a "Login" button.
- Header:** Displays the system name "Crop Zoning - Interactive Information System (CZIIS)" and the logo of the Bangladesh Agricultural University.
- Left Panel:**
  - Dashboard:** A menu icon and the text "Upazila: Dhanbari".
  - Active Location:** Dropdown menus for "Division: Dhaka", "District: Tangail", and "Upazila: Dhanbari".
  - Map Layers:** A list of layers with checkboxes:
    - Settlement and River
    - Bio-Physical Suitability (Boro)
    - Agro-Climatic Suitability (Boro)
    - Edaphic Suitability (Boro)
    - Admin Boundary
    - Soil Sample Location
    - Edaphic
    - Agro-Climatic
    - Agro-Ecological Zone (AEZ)
    - Flood Prone Area
    - Open Street Map
- Center:** A map showing a green-colored area labeled "Boro".
- Right Panel:**
  - Season:** Dropdown menu with "Rabi" selected.
  - Crop:** Dropdown menu with "Boro" selected.
  - Crop Characteristics:** Dropdown menu with "Favourable environment" selected.
  - Table Buttons:** Three buttons labeled "Table" corresponding to the "Edaphic", "Agro-Climatic", and "Bio-Physical" categories.

“Khamari” Mobile App



Agri-advisory Portal

Phone: (080) 02 9122214 Email: [info@ibisc.gov.bd](mailto:info@ibisc.gov.bd)

সহকারী সচিব - কৃষি বিভাগ - কৃষি পরামর্শ কেন্দ্র - কৃষি পরামর্শ কেন্দ্র - কৃষি পরামর্শ কেন্দ্র - কৃষি পরামর্শ কেন্দ্র

কৃষি-পরামর্শ বাতায়ন  
বাংলাদেশ কৃষি গবেষণা কাউন্সিল  
কৃষি পরামর্শ

সহকারী সচিব - কৃষি বিভাগ - কৃষি পরামর্শ কেন্দ্র - কৃষি পরামর্শ কেন্দ্র - কৃষি পরামর্শ কেন্দ্র - কৃষি পরামর্শ কেন্দ্র

### শস্য জাতের পরিচিতি : বোরো ধান

অনুকূল পরিবেশ

জাতের নাম: টি ১৮ ১০০  
পরিচিতি: অনুকূল পরিবেশ  
প্রতিবৎস (মিঃ): ১৫০ - ১৫০  
জল (লি / একর): ৭.৫০  
অনুকূল জাত: ২০১১  
বৈশিষ্ট্য:



কৃষি বিভাগ

কেন্দ্রের নাম  
কেন্দ্রের ঠিকানা  
কেন্দ্রের ফোন (উপরি)  
কেন্দ্রের ফোন (নিম্ন)  
www

## **AGRICULTURAL INFORMATION CENTRE**

Agricultural Information Centre (AIC), a knowledge management hub of BARC, is engaged in collecting, organizing and disseminating research generated information. It renders knowledge services to the stakeholders ranging from researchers to policy makers with a view to enhancing their capacity. This service is aimed to enhance agricultural productivity. The center works on the principle of providing quality agricultural information in order to accelerate research and development. AIC provides knowledge services to the National Agricultural Research System (NARS) including documentation services. The documents generated in the institutes of NARS and beyond are huge in number subsequently deposited in the AIC library of BARC. Information in terms of quantity and quality is managed in an institutional repository. AIC maintains two sections: 1. Documentation and Publication, 2. Library and Reprography. The activities are performed by AIC during 2020-2021 are described below:

### **Professionals:**

#### **Personnel of AIC**

The following professionals worked in Agricultural Information Centre during July 2020 to June 2021:

Dr. Kabir Uddin Ahmed, Director

Dr. Susmita Das, Principal Documentation Officer

Dr. Md. Taibur Rahaman, Principal Librarian

Md.Wasiuzzaman, Junior Bibliography Officer

### **1. Documentation and Publications**

Agricultural Information Centre published the biannual Bangladesh Journal of Agriculture (BJA), Annual Reports, Quarterly BARC newsletter, technical directories, technical reports, telephone directory, yearly diary, greeting cards. It prepared a good number of reports for Agriculture Standing Committee and question-answers including supplementary, star-marked and non-star marked questions required by the Parliament Sessions and relevant ministers for Parliament Meeting. AIC also organized annual religious and national events through designing and distributing Eid, Bangla and English New Year Greeting Cards, Banner, taken part in advertisement for disseminating scientific information, and designs of different research

publications. It monitored different research projects and participants in different National and International seminars, workshops, symposiums and other relevant programs. It was also involved in preparing notes for the events organized by BARC or ministries including guests of different national seminars, workshops, symposiums. Agricultural Information Centre acted as master of ceremonies or facilitator for different national and international seminars, workshops and symposiums.

Information was maintained by AIC in two ways: in the digital databases for easy access for the users and in printed inventory documents available in the library. The center attempted in bringing out the printed inventory of the information resources in series publication. This inventory was hoped to help the users to identify the materials of their interest. During this period, the following publications were accomplished by AAIC.

- a. Publication of BARC Annual Report 2019-2020
- b. Publication of NARS Directory 2019-2020
- c. Publication of BARC Newsletter (Vol.18.3, 18.4. (2020) & 19.1 (2021))
- d. BARC Calendar 2021 with NARS Technologies
- e. BARC Diary 2021 with different quotes of Bangabandhu Sheikh Mujibur Rahman



*Glimpse of Different Publications*

## 2. Library and Reprography

This section is responsible for development of collection, literature search, update and maintenance of databases, news clipping services, resource exchange & sharing, and photography and photocopy services. This section is dedicated for scientific professionals, graduate students and policy makers.

AIC devoted considerable efforts and resources for the development of an outstanding library collection to meet the expanding needs of agricultural research and to serve as an information resource center for NARS institutes. AIC library had a total collection of about 24,700 information materials in the form of 20,000 books and reports, pamphlets and 1100 bound journals and serial etc. The Establishment of Bangbandhu Corner at BARC library was a recent addition to the scenic beauty of the library and to store the books on Bangabandhu.



*Hon'ble Senior Secretary, MoA Inaugurated the Bangbandhu Corner at BARC Library on 21 Feb, 2021*

### 2.1 Development of Collection

Every year new books, reports, pamphlets, bound journal etc. were added in professional manners to the existing ones. The AIC library maintained a total collection of about 24,700 information materials in the form of books, reports, pamphlets, bound journal etc. In the previous year, 108

new books and reports were procured and 20 current journals/ Newsletters were published by AIC during 2020-2021.

## **2.2 Literature Search**

The centre rendered literature search services from digital full-text using CDS-ISIS and D-space database management- to satisfy the queries of the researchers, agricultural scientists, planners and policy-makers. It also provided search services on specific requests by teachers, students and users from NARS institutes and other organizations during 2020-2021. BARC and NARS scientists, teachers and students of Universities, NGO and private organizational personnel were the users of this library.

## **2.3 Update and Maintenance of Databases**

Agricultural Information Centre updated and maintained the databases of different publications. It had its own repository using DSpace with database on Koha 6211 books and reports of different sorts out of which 273 records were added during the previous year. It's database was rich in Journals, Newsletters, and Periodicals of about 1130 records.

## **2.4 News Clipping Services**

News clippings from daily newspapers both in Bangla and English on different research related issues or events, programs and ceremonies related to agriculture were identified and processed in different formats and were circulated to the users for their attention. These had been compiled and prepared with a content list and finally preserved in the library. 603 Articles in Bangla and English were identified, compiled and preserved in the library for users. Later, these clippings were compiled with a content list and preserved in the library. One hard copy was prepared and preserved as a reference copy.

## **2.5 Resource Exchange and Sharing**

The AIC library performed resource exchange and sharing activities with national and international organizations during 2020-2021 like the previous years. Recently the library has started collecting information materials from FAO, CGIAR Centers, BBS, BANSDOC and NARS institutes on a regular basis.

## 2.6 Online Archive of Important Documents

The AIC library developed a database driven online archive based on Content Management System (CMS) last year. The database contained digital contents of non-conventional documents of high archival value (policy documents, all kinds of reports, proceedings and other mimeographs).

## 2.7 Photography and Photocopy Services

AIC regularly provides photography and photocopy services to all the divisions and units. Last year, it captured photographs of 85 workshops/trainings/seminars/meetings. It also supplied **18000** photos in digital and printed form to the concerned divisions and officials.

## 2.8 User Service

During 2020-2021, 300 users of different categories used the BARC library. Besides the BARC and NARS scientists, university teachers and students, NGO and private organizational personnel used the library for meeting their queries.

## 2.9 International Linkage

Agricultural Information Center, BARC is linked with different international organizations. Dr. Susmita Das, Principal Documentation Officer (AC), AIC, acted as Asia Ambassador of Plan S- an International Expert Group of Open Access Research, a board member of the working group of AgriXiv- a preprint repository for agriculture in India and Core Member of YPARD Bangladesh. Dr. Susmita Das, attended BARC-GIFS (Canada) meeting on data management and analytics with a view to establishing an agricultural data portal for research on 11 march 2021.



## 2.10 Training/Workshop/Seminar

Agricultural Information Centre (AIC) also arranges different workshops, trainings, seminars and meetings for wider and quick delivery of agricultural scientific findings.

### 2.10.1 National Training Program

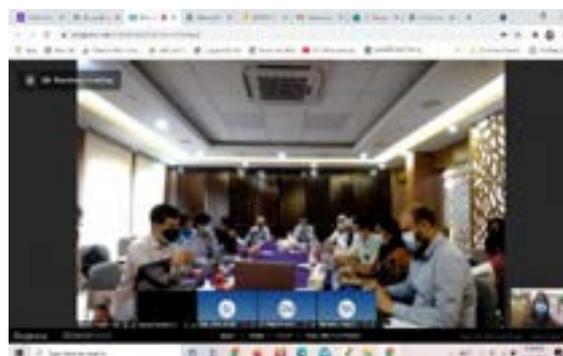
Agricultural Information Centre (AIC) organized a national workshop on *on Impact of Covid-19 on Agricultural Research & Future Planning in Food Security* on March 8-12, 2021 at Bangladesh Agricultural Research Council. 50 scientists of BARC attended in the workshop. The main objective of the workshop was to make the NARS scientists and officers skilled in scientific and modern techniques of technical report writing and journal paper editing. Three Papers were presented by Dr. Aziz Zillani Chowdhury, MD, Crops, Dr. Md. Abdus Salam, MD, P&E and Dr. Md. Harunur Rashid, Director PIU- BARC.



*Resource Person and Participants on The Workshop*

### 2.10.2 Training Program

Dr. Susmita Das attended a training Program on “Co-production Workshop on National Output Products & Enhancing User Experience” by BMD 21 June-24 June, 2021.



*A View of Co-production Workshop on National Output Products & Enhancing User Experience*

### **2.10.3 Bangladesh Betar Live Talk Show**

Dr. Susmita Das attended a live talk show on the role of NARS in food security in Bangladesh in a live program in Bangladesh Betar.

### **2.10.4 Preparation of Policy Documents and Inputs**

Agricultural Information Center prepared 9 reports for Agriculture Standing Committee and Question-Answer including Supplementary, Star Marked and Non-Star Marked remarkably. It provided information for 9<sup>th</sup> and 11<sup>th</sup> meeting of Committee on Government Assurances. AIC also answered questions for the Hon'ble Prime Minister for 5<sup>th</sup> session of 11<sup>th</sup> Parliament. It answered star marked questions and supplementary questions answer by the Hon'ble Minister for Public Administration and concerned ministers for 11<sup>th</sup> Parliament. Agricultural Information Center provided theme song for the birth centennial of Bangabandhu Sheikh Mujibur Rahman. President's Addresses were input in the first session of the 11<sup>th</sup> Jatiya Sangsad. It answered questions by Hon'ble Agriculture Minister for the act 71ka (3) of 11<sup>th</sup> Parliament. Agricultural Information Center provided input as an editor of National souvenir committee of special issue of 100 years celebration of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman.

## **3. Publications**

Three scientific papers, four monographs, one annual report, two training manuals and four issues of BARC newsletters were published from Agricultural Information Centre (AIC), BARC during 2020-2021.

### **3.1 Scientific Paper (04)**

1. Das, S., Nasiruddin, M., & Kabir, W. (2021). Strategies of extension service providers to meet the information needs of the farmers: *The SAARC Journal Of Agriculture*, 19(1), 249-258. Dhaka, Bangladesh.
2. Das, S. Das, R & Mondal, M. (2020) Assessing the Library and Information services for Strengthening Agricultural Information Delivery System : A case Study on NARS Libraries : *International Journal of Library Science*, 189(1),p.1-9. DOI: <http://www.ceserpublications.com/index.php/IJLS>
3. Das, S., & Gutam, S. (2020). *Preprint South Asia Survey 2020 A Report*. 2020/10/04. DOI:10.35543/osf.io/wmav8.
4. Das, S. & Mondal, M. (2021) Socio-Economic Factors Affecting Agricultural Production and Income in Bangladesh. *Journal of Agricultural Socio-Economic (JASE)*, 2(2), p. 43-48. DOI: <http://dx.doi.org/10.33474/jase.v2i2.10856>

**3.2 Annual Report (01)**

Ahmed. K.U. & Das, S. (2020). Annual Report 2019-2020. Bangladesh Agricultural Research Council (BARC). Dhaka, Bangladesh.

**3.3 NARS Directory (01)**

Bokhtiar, S. M., Ahmed. K.U., Das, S., Rahman, H.M.H., & Quayyum, M.A.Q. (2020). Directory of Annual Agricultural Research Programme of NARS Institute 2019-2020. Bangladesh Agricultural Research Council (BARC). Dhaka, Bangladesh.

**3.4 BARC Newsletter (03)**

Das, S., & Ahmed, K. U. (2020). BARC Newsletter. Bangladesh Agricultural Research Council. 18(3&4): Dhaka.

Das, S., & Ahmed, K. U. (2021). BARC Newsletter. Bangladesh Agricultural Research Council. 19(1): Dhaka.

**3.5 Collection of ISBN Numbers**

ISBN Numbers for three books of BARC were brought by AIC through proper formalities.



**3.6 Editor of National Souvenir Committee**

Dr. Susmita Das worked as an editor of National Souvenir Committee of special issue for 100 years celebration of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman by Ministry of Agriculture. The publication was inaugurated by Hon'ble Prime Minister, Sheikh Hasia.



*National Souvenir*

### 3.7 Popular Articles (09)

A total of nine popular articles were published during the reporting year of 2020-2021. One popular article titled ‘Agricultural Success: Reflection of Bnagababandhu’s Dream’ was published in ‘The Daily Sun’ by Dr. Susmita Das. Another popular article titled Agricultural research system and pivotal role of BARC to face challenges of safe and nutritional security’ was published in ‘The Asial Age’ by Dr. Susmita Das. The Bahumatrik.com, an online daily published two popular articles in Bangla. One important popular article was published by Dr. Susmita Das in ‘The Daily Samokal’. Another important popular article was published in collaboration in ‘The Daily Samokal’. Three popular articles related to agricultural development in Bangladesh were published in the special issues of the Krishikotha.



Articles Published on National Daily



banners of different programs during the reported period. AIC took part in advertisement for disseminating scientific information, and designs of different research publications.

- c. Involved with different research projects and participates in different national and international seminars, workshops, symposiums and other relevant programs were mentored by Agricultural Information Centre during 2020-2021.
- d. Last year, Agricultural Information Centre monitored different research projects undertaken by Bangladesh Agricultural Research Council.
- e. As a member of different monitoring teams, Agricultural Information Centre participated in different field visits to various localities where projects have been undertaken by BARC and NATP-2 during 2020-2021.
- f. Agricultural Information Centre, as a member of the BARC innovation team, contributed to generating innovative ideas, piloting and showcasing different innovations in BARC.
- g. During 2020-2021, Agricultural Information Centre prepared speeches for chief guest, special guest of different national seminars and international conferences, seminars, workshops and symposiums.
- h. AIC was involved in preparing notes for the events organized by BARC during the reported time.
- i. Agricultural Information Centre acted as master of ceremonies or facilitator for different national and international conferences, seminars, workshops and symposiums organized by BARC during 2020-2021.
- j. AIC worked as focal person of Krishi media in last year.
- k. Acted as a member of reception committee of Inauguration session of 100 Agro Technologies book which was inaugurated by Hon'ble PM
- l. Prepared speeches for chief guest/special guests of different national seminars; Master of ceremonies (different seminars and workshops) etc.
- m. Conducted a session on Techniques of Writing Popular Article on Zoom platform in Scientific Report Writing Training Program organized by NATP-2.
- n. Distributed publications to different national & international organizations
- o. Worked as assigned officer in Digital World Fair 2020
- p. Worked as an editor of National souvenir committee of special issue of 100 years celebration of the Father of the Nation Bangabandhu Sheikh Mujibur Rahman
- q. Wrote article on special issue of 100 years celebration of the Father of Nation Bangabandhu Sheikh Mujibur Rahman
- r. Monitored research projects, participated as member in different team/committee, master of ceremonies (different seminars and workshops) etc.

## **ADMINISTRATION AND FINANCE**

The following table listed personal worked for administration and finance during reporting period.

### **Name of Professionals**

<b>Name</b>	<b>Designation</b>
<b>MD. Abdul Mottakin</b>	Director (Support Service)
<b>Muhammad Mahbulul Hassan</b>	Deputy Director (Establishment)
<b>K. M. Ali Haider</b>	Senior Assistant Director (Establishment)
<b>MD. Shohag Fokir</b>	Assistant Director(Establishment)
<b>Aysa Siddika</b>	Assistant Director (Establishment) (C.C.)

### **Administration**

#### **BARC Recruitment/Promotion Comittee-1 (DPC-1)**

In the fiscal year 2020-2021, a meeting was held on 24 May 2021. Dr. Md. Harunur Rashid and Dr. Shah Md. Monir Hossain from BARC were promoted PSO (4th grade) to CSO (3<sup>rd</sup> grade) in this meeting.

#### **BARC Recruitment/Promotion Comittee-2 (DPC-2):**

In the fiscal year 2020-2021, a total of 3 meetings were held on 01 March 2021, 15 March 2021 and 21 June 2021 respectively. These meetings have been recommended promotion of Md. Daloar Hossain as Deputy Director (Accounts) and K. M. Ali Haider as Senior Assistant Director (Establishment).

#### **BARC Recruitment/Promotion Comittee-3 (DPC-3)**

8 meetings were held on 01 November 2020, 01 March 2021, 15 March 2021, 29 March 2021, 03 April 2021, 03 June 2021, 21 June 2021 and 22 June 2021 respectively in the fiscal year 2020-2021. Direct recruitment of Madhab Banik as Site Engineer, Md. Kawser as Maintenance Supervisor, Md. Rafikul Islam and Md. Anwar Hossain as Word Processing Assistant, Md. Muzahidul Islam and Md. Asadul Islam as Accountant, Kanij Fatema as Head Cashier, Nazmunnahar as Proof Reader and Md. Aowlad Mia as Store Clerk has been recommended in these meetings.

#### **Increment Order, Promotion Order, Retirement Order and Retirement Benefit**

All Increment orders, Promotion orders, PRL orders were issued by Establishment unit. (1) Dr. Sultan Ahmmed, Member Director (NRM) (2) Shantosh Kumar Roy, Assistant Director (Store) (3) Hosne Ara Ferdous, Junior Bibliographic Officer (4) Sabina Yasmin, Office Assistant (5) Md. Sultan, Driver and (6) Faruk Ahmed, Office Assistant cum Computer Operator went on PRL in this fiscal year. Retirement benefits of all employees have been provided or are in the process of being provided.

#### **Executive Council Meeting**

The 35<sup>th</sup> and 36<sup>th</sup> meetings of Executive Council were held on 24 October 2020 and 14 June 2021 in BARC conference room-1. These meetings considered among others:

- (1) The Approval of Promotion to the post of Chief Scientific Officer (CSO), Deputy Director (Accounts), Senior Assistant Director (Establishment) and Direct Recruitment to the post of Site Engineer, Maintenance Supervisor, Word Processing Assistant, Accountant, Head Cashier, Proof Reader and Store Clerk Recommended by Bangladesh Agricultural Research Council Recruitment/ Committee-1, 2 and 3.
- (2) 40 advanced technology innovations under 5 departments of Technological Research on Jute Wing by Bangladesh Jute Research Institute, BSRI sugarcane 47 and a variety called Madumala in the southern region invented by Bangladesh Sugar crop Research Institute and 5 technology invented by Soil Resources Development Institute in 2018-19 fiscal year.
- (3) Research progress of 8 projects in 5 program areas under Textile Physics Division, 10 projects in 5 program areas under Chemistry Division, 9 projects in 7 program areas under Mechanical Processing Division, 7 program under Pilot Plant and Processing Division and 9 projects in 8 program areas under Microbiology and Bio-Chemistry Department of Bangladesh Jute Research Institute. Yield Performance Study of various crops in saline soils of coastal areas of the country, 23 ongoing research programs on determination of suitable varieties by Soil Resources Development Institute.
- (4) Bangladesh Jute Research Institute's non-development budget proposal of Tk 4935.00 lakh and development budget proposal of Tk 1168.00 lakh. Bangladesh Sugar crop Research Institute's non-development budget proposal of Tk 3453.00 lakh and development budget proposal. Soil Resources Development Institute's non-development budget proposal of Tk 5270.00 lakh and development budget proposal of Tk 2100.00 lakh.
- (5) Budget revision/rearrangement of 48 components of 24 PBRG sub-projects implemented under PIU-BARC, NATP-2.
- (6) Time extension of 51 PBRG sub-projects implemented under PIU-BARC, NATP-2.

## Finance Unit

Existing Officer's of Finance Unit:

SL #	Name of the Professionals	Designation
1.	<b>Mr. Ajit Kumar Chakraborty</b>	Director (Finance)
2.	<b>Mr.Md. Jashim Uddin Chowdhury</b>	Deputy Director (Budget)
3.	<b>Mr.Md. Daloar Hossain</b>	Sr. Asstt. Director (Accounts) & Deputy Director(A/cs) Addi.charge
4.	<b>Mr.Md. Jobair Reza</b>	Asstt. Director (Audit)

### 1. Introduction :

Bangladesh Agricultural Research Council (BARC) is the apex body of the National Agricultural Research System (NARS) comprising 12 national agricultural research institutes. As per the BARC Act 2012, it has the mandate to develop priorities in agricultural research, allocate resources and function as a coordinating body to improve the overall research activities of the NARS. BARC received funds from Development and Revenue Budgets of the Govt. to conduct its annual mandate activities like research management, coordination, monitoring, evaluation, technology transfer and manpower development. In this respect BARC's Finance Unit prepares the MTBF budget and financial plan of medium term activities and accordingly disburses fund for achievement of the goal. It keeps all the record of expenditure incurred during the year and reports to the Ministries, CAO, IMED, Development Partner and other Govt. Offices in time. It also reconciles the Accounts with CAO to prepare the final accounts which is submitted before the Public Accounts Committee (PAC) of the National Assembly.

### 2. Budgeting and Expenditure Control:

The Govt. has implemented "Medium Term Budgetary Framework (MTBF)" for all the Ministries including Ministry of Agriculture and its Divisions, Bodies and Corporations since 2005-06. Accordingly, BARC prepared budget in the form of MTBF for Revenue Head and Development Projects and submitted to the Ministry of Agriculture for approval.

### 3. Fund Release/Disbursement :

BARC makes proposal for the release of fund from the Govt. on quarterly basis as per approved annual allocation of Budget. In the Financial year 2020-2021, BARC received Tk. 2749.45 lakh for Salary and allowances, Supply and services, Technology Transfer , manpower development and capital fund. To implement the activities like technology transfer & manpower development etc. As necessary funds were released to the Agricultural Research Institutes (ARI's) and associated organizations according to the budget plan. The overall financial progress made during the FY 2020-21 is as follows:

## Financial Progress under Revenue Budget

(Taka in lakh)

Sl. No.	Line items	FY 2020-21		Achievement (%)
		Budget	Expenditure	
1.	Basic Salary	731.50	710.37	97.11
2.	Allowances	597.45	580.82	97.22
3.	Supply and Services	467.50	463.57	99.16
4..	Workshop, Seminar	60.00	60.00	100
5.	Training	100.00	100.00	100
6.	Repair and Maintenance	70.50	70.19	99.56
7.	Retirement Benefit	687.00	687.00	100
8.	Capital expenditure	44.00	44.00	100
	<b>Total :-</b>	<b>2757.95</b>	<b>2715.95</b>	<b>98.78%</b>
	(-) Own Income	8.50	-	-
		2749.45	2715.95	98.78%

### 4. AFACI Projects & Others

Sl #	Projects name
1.	AFACI Salt tolerant Rice
2	CCSISA contribution to HRM in Agriculture
3.	Feed the future Biotechnology potato partnership
4.	Development of Upazila Land suitability assessment and crop zoning system of Bangladesh (KGF)
5.	Capacity building for conducting adaptive trials seaweed cultivation in coastal area (KGF)
6.	Nutrient management for diversified cropping in Bangladesh (KGF)

### 5. Accounting

BARC's Finance Unit maintained its accounts following standard accounting system. It has kept a well-printed Cash Book, General Ledger, Trial balance, Bank reconciliation, Advance Register, Budget Control Register, iBAS++ software posting (Budget and Expenditure), CPF, Gratuity, Leave salary, Benevolent fund, Group insurance and other related books to record all transaction during the year accurately.

### 6. GoB Audit

GoB civil audit department not yet conducted audit for the FY 2020-2021

### 7. Settlement of Audit Objections

During the year 2020-21 one audit objections have been settled out of 12 audit observation:

Sl. No.	Particular	Settled audit objections	Amount (Tk)
1.	Revenue	02	51,000.00
2.	Development	06	17,27,000.00
	<b>Total :</b>	<b>08</b>	<b>17,78,000.00</b>

**8. Reporting:** BARC Finance unit has kept all the record of expenditure incurred during the year and reported to the Agriculture Ministry, IMED, CAO, Development Partner and other Government offices monthly, quarterly, half yearly and annually for revenue and development programs..

### 9. Monitoring and Evaluation:

Monitoring and Evaluation are the integral part of an effective planning and performance based budgeting plan became successful and the value for money was realized only when the

proposed targets for outcomes/outputs were achieved. To attain the targets, BARC Finance section regularly maintained desk monitoring on the utilization of fund for planned activities including budgetary and expenditure control mechanism.

#### 10. Reconciliation

BARC also reconciled the Accounts with CAO to prepare the Final Accounts which was submitted before the Public Accounts Committee (PAC) of the National Assembly.

#### 11. Retirement benefits

During the year 2020-21, retirement benefits and CPF payment made to the Officer's and Staff of BARC are shown below:-

##### A) CPF Final payment:-

1.	Officer's (5 persons)	Tk. 98,96,000.00
2.	Staff (10 persons)	Tk. 87,55,000.00
	<b>Total.=</b>	<b>Tk. 1,86,51,000.00</b>

##### B) CPF Non Refundable:-

1.	Officer's (0 persons)	Tk. 0
2.	Staff (2 persons)	Tk. 11,00,000.00
	<b>Total.=</b>	<b>Tk. 11,00,000.00</b>

##### C) CPF Loan:-CPF loan provided to the Officer's and Staff during the year is as follows:

1.	Officer's (0 persons)	Tk. 0
2.	Staff (26 persons)	Tk. 4,03,000.00
	<b>Total.=</b>	<b>Tk. 4,03,000.00</b>

##### D) Gratuity payment:-

1.	Officer's (5 persons)	Tk. 3,58,93,000.00
2.	Staff (12 persons)	Tk. 2,59,49,000.00
	<b>Total.=</b>	<b>Tk. 6,18,42,000.00</b>

##### E) Leave Salary payment:-Leave Encashment allowed to the Officer's and Staff during the year are as follows:-

1.	Officer's (2 persons)	Tk. 19,64,000.00
2.	Staff (4 persons)	Tk. 12,33,000.00
	<b>Total.=</b>	<b>Tk. 31,97,000.00</b>

##### F) Benevolent Fund:-

1.	Officer's & Staff (0 persons)	Tk. 0
2.	Medical Assistance(0 persons)	Tk. 0
	<b>Total.=</b>	<b>Tk.0</b>

#### 12. Income tax

Salary statement provided to the Officer's and Staff for payment of Income tax during the year.

#### 13. Group Insurance:

BARC undertook Group Insurance scheme for well being of its Officers and Staff for any unavoidable incident with Jiban Bima Corporation since 40 years. During the year no case.

<b>Bangladesh Agricultural Research Council</b> <b>Farmgate, Dhaka-215</b> www.barc.gov.bd					
<b>SL</b>	<b>Name</b>	<b>Designation</b>	<b>Office</b>	<b>Phone (Office)</b>	<b>Email</b>
1.	Dr. Shaikh Mohammad Bokhtiar	Executive Chairman	Executive Chairman's Office	222242666	ec-barc@barc.gov.bd
2.	Dr. Md. Aziz Zilani Chowdhury	Member Director	Crops Division	58155006	md-crops@barc.gov.bd
3.	Dr. Md. Monirul Islam	Member Director	Fisheries Division	58155001	dir-nutrition@barc.gov.bd
4.	Dr. Mian Sayeed Hassan	Member Director	NRM Division	222242626	md-nrm@barc.gov.bd
5.	Dr. Md. Abdul Awal	Member Director	Chairman's Office	222242649	maawal70@barc.gov.bd
6.	Dr. Nazmun Nahar Karim	Member Director(CC)	Livestock Division	222242650	nazmun.karim@barc.gov.bd
7.	Dr. Md. Abdus Salam	Member Director (CC)	Planning and Evaluation Division	222242637	masalamsso@yahoo.com , ma.salam@barc.gov.bd
8.	Dr. Md. Saifullah	Member Director (CC)	Administration and Finance Division	222242628	m.saif@ barc.gov.bd
9.	Dr. Md. Mosharraf Uddin Molla	Member Director(CC)	AERS Division	222242630	md-aers@barc.gov.bd
10.	Ajit Kumart Chakraborty	Director	Finance Unit	58153053	dir- finance@barc.gov.bd
11.	Dr.Md. Baktear Hossain	Director	Training & Manpower Unit	222242625	m.baktear@barc.gov.bd
12.	Dr. Fauzia Yasmin	Director	TTMU	222242632	f.yasmin@barc.gov.bd
13.	Dr. Kabir Uddin Ahmed	Director	AIC	222242643	kabir@barc.gov.bd
14.	Md. Abdul Mottakin	Director (SS)	Support Service Unit	58155041	a.mottakin@barc.gov.bd

15.	Hasan Md. Hamidur Rahman	Director	Computer and GIS Unit	58152275	h.rahman@barc.gov.bd
16.	Dr. Md. Harunur Rashid	Director, PIU-BARC, NATP-2	PIU-BARC	9130702	directornatpbarc@gmail.com
17.	Dr. Mohammad Rafiqul Islam	Chief Scientific Officer	Livestock Division	222242658	mrislam210@hotmail.com
18.	Dr. Shah Md. Monir Hossain	Principal Scientific Officer	Crops Division	222242664	monirmsmh@yahoo.com
19.	Md. Mustafizur Rahman	Principal Technical Officer	Office of the Executive Chairman	222242657	m.rahman@barc.gov.bd
20.	Dr. Susmita Das	Principal Documentation Officer	Agricultural Information Centre	222242661	susmitabarcc@gmail.com
21.	Md. Jashim Uddin Chowdhury	Deputy Director (Budget)	Finance Unit	222242641	ju.chowdhury@barc.gov.bd
22.	Md. Daloar Hossain	Deputy Director (Accounts) (Add.Charge)	Finance Unit	222242635	d.hossain@barc.gov.bd
23.	Mohammad Mahbul Hassan	Deputy Director (Establishment)	Support Service	222242663	m.hassan@barc.gov.bd
24.	Dr. Suraya Parvin	Senior Scientific Officer	TTMU	58157493	parvin.su1980@gmail.com
25.	Dr. Md. Taibur Rahman	Principal Librarian (Add.Charge)	Support Service Unit	222242631	sad-proc@barc.gov.bd
26.	Md. Al Mobasher Hussen	Principal Training Officer	Training Unit	58151798	mobasher1973@gmail.com
27.	Dr. Zakiah Rahman Moni	Senior Scientific Officer	TTMU	58157492	zrmoni@yahoo.com
28.	Mirza Tosaddeque Hossain	Executive Engineer	Engineering Section	222242662	exn@barc.gov.bd
29.	Dr. Md. khairul Alam	Principal Scientific Officer (Deputation)	Soil Unit	222242656	khairul.alam@barc.gov.bd
30.	K.M. Ali Haider	Senior Assistant Director	Support Service Unit	48118660	haiderbarc@gmail.com a.haider@barc.gov.bd
31.	Dalil Uddin Basunia	Assistant Director (C.S.)	Support Service Unit	58154915	-

32.	Shohag Fakir	Assistant Director (Establishment)	Support Service Unit	58154916	shohag_1988@yahoo.com
33.	Md. Jobair Reza	Assistant Director (Audit)	Finance Division	48110172	mjobair2906@gmail.com
34.	Md. Mostafa Kamal	Data Entry Officer (CC)	Executive Chairman's Office	222242666	mkamal.barc@gmail.com
35.	Nazmul Haq Md. Selim	Data Entry Officer (CC)	Computer and GIS Unit	58151798	nazmul.barc@gmail.com
36.	Aysha Siddika	Assistant Director (CC) (Establishment)	Support Service Unit	-	aysa.barc@yahoo.com
37.	Md. Sirajul Islam	Assistant Director (AC) (Store)	Support Service Unit	-	sirajbarc@gmail.com
38.	Abu Hashem Mostofa Kamal	Security Officer	Support Service Unit	222242654	-
39.	Mohammad Tawfiqur Rahaman	Transport Supervisor	Support Service Unit	222242652	tawfiqrml@gmail.com
40.	Md. Monowar Karim	Deputy Assistant Engineer (Deputation)	Engineering Section	-	monwar380@gmail.com
41.	Md. Wasiuzzaman	Junior Bibliographic Officer	Agricultural Information Centre	-	wasibarcaic@gmail.com
42.	Md. Kawser	Maintenance Inspector	Engineering Section	222242662	ahmedkawser1058@gmail.com
43.	Madhab Banik	Site Engineer	Engineering Section	222242662	sengr.barc@gmail.com

**ANNEXURE-II****THE GOVERNING BODY****(31 May 2018-30 May 2021)****BANGLADESH AGRICULTURAL RESEARCH COUNCIL**

1	Honorable Minister for Agriculture	Chairman
2	Honorable Minister for Fisheries and Livestock	Co-Chairman
3	Honorable Minister for Environment, Forests and Climate Change	Co-Chairman
4	Begum Matia Chowdhury, Parliament Member, Sherpur-2	Member
5	Mr. Abdul Mannan, Parliament Member, Bogra-1	Member
6	Secretary, Ministry of Agriculture	Member
7	Secretary, Ministry of Fisheries and Livestock	Member
8	Secretary, Ministry of Environment and Forests	Member
9	Member (Agriculture), Planning Commission	Member
10	Vice Chancellor, Bangladesh Agricultural University	Member
11	Chairman, Bangladesh Agricultural Development Corporation	Member
12	Executive Chairman, Bangladesh Agricultural Research Council	Member
13	Director General, Department of Agricultural Extension	Member
14	Director General, Bangladesh Agricultural Research Institute	Member
15	Director General, Bangladesh Rice Research Institute	Member
16	Director General, Bangladesh Jute Research Institute	Member
17	Director General, Bangladesh Institute of Nuclear Agriculture	Member
18	Director General, Bangladesh Sugarcrop Research Institute	Member
19	Director General, Department of Livestock Services	Member
20	Director General, Department of Fisheries	Member
21	Joint Secretary, Finance Division, Ministry of Finance	Member
22	Joint Secretary (Discipline and Law), Ministry of Public Administration	Member
23	Chief Conservator of Forests, Forest Department	Member
24	Professor Dr. Mostafa Ali Reza Hossain, Bangladesh Agricultural University, Mymensingh	Member
25	Professor Dr. Alok Kumar Paul, Sher-E-Bangla Agricultural University, Dhaka	Member
26	Professor Dr. Haseena Khan, Dhaka University, Dhaka	Member
27	Mr. Motahar Hossain Mollah, President, Bangladesh Krishok League, Kapasia, Gazipur	Member
28	Dr. F. M Ansarey, Managing Director, ACI, Dhaka	Member
29	Dr. Muhammad Musa ED, BRAC, 65, Mohakhali, Dhaka	Member
30	Member Director (Administration & Finance), BARC	Member & Member Secretary

**ANNEXURE-III****THE EXECUTIVE COUNCIL  
BANGLADESH AGRICULTURAL RESEARCH COUNCIL**

1	Executive Chairman, Bangladesh Agriculture Research Council, Dhaka	Chairman
2	Director General, Bangladesh Agricultural Research Institute, Gazipur	Member
3	Director General, Bangladesh Rice Research Institute, Gazipur	Member
4	Director General, Bangladesh Jute Research Institute, Dhaka	Member
5	Director General, Bangladesh Institute of Nuclear Agriculture, Mymensingh	Member
6	Director General, Bangladesh Sugarcrop Research Institute, Ishurdi, Pabna	Member
7	Director General, Bangladesh Livestock Research Institute, Savar, Dhaka	Member
8	Director General, Bangladesh Fisheries Research Institute, Mymensingh	Member
9	Director, Bangladesh Tea Research Institute, Srimongal, Moulvibazar	Member
10	Director, Bangladesh Forest Research Institute, Chittagong	Member
11	Director General, Soil Resource Development Institute, Dhaka	Member
12	Director, Bangladesh Sericulture Research and Training Institute, Rajshahi	Member
13	Executive Director, Cotton Development Board, Dhaka	Member
14	Executive Director, Krishi Gobeshona Foundation, Dhaka	Member
15	Member Director (Crops), BARC	Member
16	Member Director (Planning and Evaluation), BARC	Member
17	Member Director (Natural Resources Management), BARC	Member
18	Member Director (Agricultural Economics and Rural Sociology), BARC	Member
19	Member Director (Livestock), BARC	Member
20	Member Director (Fisheries), BARC	Member
21	Member Director (Administration and Finance), BARC	Member Secretary



**BANGLADESH AGRICULTURAL RESEARCH COUNCIL**

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