

National Agricultural Technology Program- Phase II Project
NATP-2

Enhancing Agricultural Technology Generation



NATP-2 BARC COMPONENT

Progress Report

September 2016 - November 2017



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National Agricultural Technology Program-Phase II Project (NATP-2)

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Executive Summary

Agriculture in Bangladesh comprises crops, livestock and fisheries. It provides food, feed, fiber and fuel to its citizens and animals, and plays a key role in economic development of Bangladesh. For achieving the set goal of SDG and turning Bangladesh into a middle income country by the 2030, the GDP has to grow by 7% per year. To attain the rate and to keep pace with the population growth, agriculture must grow at a constant rate of minimum 4-4.5% per year. National Agricultural Research System (NARS) is responsible to achieve and maintain this rate by generating agricultural related technologies and Department of Agriculture Extension (DAE), Department of Fisheries (DOF), and Department of Livestock Services (DLS) are responsible for extension of generated technology to the farmers. Both research and extension have made an impressive contribution to food security as well as food safety in the country.

Bangladesh agriculture faces many challenges. Major challenges are degradation of soil resources and declining of animal and fisheries resources and adaptation to climate change vulnerability. To that effect, the Government of Bangladesh (GoB) gives top priority to the development of agriculture sector through its increased productivity, production, supply chains, value addition and market linkages. NATP-2 is being implemented by five inter-related components which address a range of constraints to technology generation, to technology transfer and adoption at farm level and to farmers access to markets. Component-1 (Enhancing Agricultural Technology Generation) is being implemented by PIU, BARC. The component has been supporting the need based research with competitive basis development of crops, fisheries and livestock.

Under Agricultural Innovation Fund (AIF-1), One hundred ninety (190) CRG research projects have been awarded to the different NARIs and non-NARIs institutions. All the awarded CRG sub-projects have already been started and the implementation progress of the awarded CRG sub-projects is good and being regularly monitored by the PIU-BARC. As a part of AIF-1, 22 nos of PBRG research projects have already been placed in the Executive Council (EC), BARC for approval. The rest of PBRG research proposals will be processed for approval of EC, BARC very soon. After completion of all the required formalities, the approved PBRG sub-projects will be offered for funding.

Under human capacity development of NARS institute, total 140 Ph.D programs of which 80 in-country and 60 foreign are being processed for awarding to the NARS scientists and mid level civil servants of Extension Line Agencies (DAE, DOF & DLS) and project related organizations. Total 60 foreign and 60 nos of incountry scholarships are underway of awarding. Local training is the continuous process and has been implemented for the BARC and NATP-2 officials for smooth operation of project. Moreover, communications are being conducted with the foreign organizations for implementing the international training/ study visit for the NARS scientists.

Supporting the project and as a part of procurement of service, four consultant and 15 core contractual staff have been recruited for smooth running of the project activities. Recruitment of the rest two consultants are being completed very soon.

From the inception of the project, the total expenditure incurred 1.98 mill. USD (GoB 0.14 mill. USD and RPA 1.84 mill. USD) against the fund received 2.73 mill. USD (GoB 0.2 mill. USD and 2.53 mill. USD). The financial progress is made 72 % according to fund release and component financial progress is 3.8 %.

NATP-2: Negotiation Meeting

To increase agricultural productivity of smallholder farms and improve smallholder farmers' access to markets in selected districts, The Government of Bangladesh and The World Bank has signed the agreement on 10 May 2015. National Agricultural Technology Program (NATP-2) with total cost of 242.32 million USD for six years, duration 1st October 2015 to 30 September 2021. Under two sponsored ministry – Ministry of Agriculture and Ministry of Livestock and Fisheries, five components of this project:



Photo: Signing of Negotiation for NATP-2 project between Government of Bangladesh and The World Bank ,Left Side: Mr. Kazi Shafiqul Azam, Additional Secretary, ERD, MoF, GOB Right Side: Mr. Patrick Verissimo, Lead Rural Development Specialist, WB, at WB office, Dhaka, Bangladesh

Enhancing Agricultural Technology Generation, PIU-BARC; ii) Supporting Crop Development, PIU-DAE; iii) Supporting Fisheries Development, PIU-DoF; iv) Supporting Livestock Development, PIU-DLS; v) Project Management- PMU. The project is funded by GoB, World Bank, IFAD and USAID.



Photo : Team members of GoB and WB in the negotiation session of NATP-2, World Bank Office, Dhaka, Bangladesh

Negotiation Team members:

1. Kazi Shafiqul Azam, Additional Secretary, Economic Relations Division, Team Leader
2. Dr. Krishna Gayen, Joint Secretary, Finance Division, Member
3. Mr. Md. Ali Noor, Joint Secretary, Ministry of Fishaeries & Livestock, Member
4. Mr. Ajay Kumar Roy, Director General, Department of Livestock Services, Member
5. Dr. Md. Abdur Razzaque, Project Director, NATP Preparation Facility Project, Member
6. Mr. Md. Jamal Hossain Mazumder, Deputy Secretary, Economic Relations Division, Member
7. Mr. Mainul Kabir, Deputy Secretary (Drafting), Legislative Division, Ministry of Law, Member
8. Md. Mahbubul Hoque Patwary, Deputy Chief, Ministry of Agriculture, Member
9. Ms. Nargis Khanam, Deputy Chief, Planning Commission, Crops Wing, Member
10. Dr. Md. Abdul Jalil Bhuiyan, Managing Director, Hortex Foundation, Member
11. Dr. Md. Khaled Kamal, Deputy Director (LR), NATP Preparation Facility Project, DAE, Member
12. Sk. Mustarizur Rahman, PSO, Department of Fisheries, Member
13. Dr. Md. Kabir Ikramul Haque, Member Director (Fisheries Division), Bangladesh Agricultural Research Council, Member
14. Ms. Nazia Afrin Chowdhury, Senior Assistant Chief, ERD, Member

1. Introduction

Bangladesh is predominantly an agricultural country and agriculture continues to be the driving force of the economy. Agriculture sector comprises crops, livestock, fisheries and forestry. This sector contributes a major share in national GDP 15.33%, its growth rate 2.6% and employs about 45.1% of the working force in FY 2015-2016 (BER, 2016). Agriculture plays a dominant role in national economy in terms of sustainable land management, food security, value addition, employment and export earnings. Bangladesh agriculture has made a tremendous progress over the past four decades. Food (Rice, wheat, maize) production has increased significantly from around 15 million tons in 1971 to about 39 million tons in 2015-2016 (BER, 2016). National GDP growth rate increased to 7.05% in FY 2015 -2016 from 6.55% in FY 2014-2015. Within the agriculture sector, most of the sub-sectors performed well during FY 2015-16. Contribution of crops and horticulture sub-sector is 8.32% in national GDP in FY 2015-16. NARS institutes and extension line agencies played a vital role by developing and disseminating new agricultural technologies to the farmers and development of effective research-extension linkages through the integrated approaches taken by the Ministry of Agriculture and Ministry of Fisheries and Livestock, Government of Bangladesh.

Bangladesh agriculture is now transforming rapidly from low input subsistence to commercial agriculture with higher levels of input use and different high value agricultural commodities production. Although Bangladesh achieved self-sufficiency in food grain but yet a lot of supports are needed for transforming agriculture towards commercial farming. Moreover, sustainable intensification and diversification of agriculture through technological change requires an efficient and productive national agricultural technology system, comprising agricultural research (Technology development and refinement) and agricultural extension (Technology dissemination and adoption). These needs to be supported by appropriate value addition and market linkages through smallholders' participation in emerging/ established commodity supply chains for higher value agriculture.

While overall poverty has significantly declined over the last two decades, the poverty in rural areas has not declined as fast as in urban areas; the proportion of people living in extreme poverty in rural areas is still higher than in urban areas. Hence, improvement of agriculture and acceleration of its growth is essential for achieving further economically, socially and environmentally sustainable economic growth and poverty reduction.

To achieve these strategic goals, the GOB sought the support of Development Partners (IDA) to provide technical and financial support to activities aimed at boosting agricultural production through productivity enhancement, and increasing smallholders' income. The World Bank, jointly with IFAD and USAID, decided to provide financial support to GOB for the National Agricultural Technology Program- Phase II Project (NATP-2). Thus, National Agricultural Technology Program- Phase II Project (NATP-2), a national project of the People's Republic of Bangladesh funded by GOB, IDA, IFAD and USAID has been started its interventions through the coordinated efforts of Ministry of Agriculture (Lead Ministry) and Ministry of Fisheries and Livestock.

2. Objectives of NATP-2

The overall objective of the project is to support the strategy of the Government of Bangladesh (GOB) to improve national agricultural productivity, market linkage and farm income, with a particular focus on small, marginal and female farmers.

The Project Development Objective (PDO) of National Agricultural Technology Program-Phase II Project (NATP-2) is to increase agricultural productivity of smallholder farms and improve smallholder farmers' access to markets in selected districts. The PDO will be achieved through the generation and release of more productive and locally adapted technologies, enhancing availability of quality seeds/breeds/fingerlings/breeding materials at the small farm level and providing relevant production, value addition, food safety and marketing support.

3. Project (NATP-2) Components

National Agricultural Technology Program-Phase II Project (NATP-2) is consists of five inter-related components which address a range of constraints to technology generation, to technology transfer and adoption at farm level, and to farmers' access to markets. The components are:

Component – 1: Enhancing Agricultural Technology Generation is being implemented by the Project Implementation Unit (PIU) of Bangladesh Agricultural Research Council (BARC);

Component – 2: Supporting Crop Development is being implemented by the PIU of Department of Agricultural Extension (DAE);

Component – 3: Supporting Fisheries Development is being implemented by the PIU of Department of Fisheries (DOF);

Component – 4: Supporting Livestock Services is being implemented by the PIU of Department of Livestock Services (DLS) and

Component – 5: Project Management is being implemented by the Project Management Unit (PMU), NATP-2, MoA

4. Component – 1: Enhancing Agricultural Technology Generation

This component is being implemented by the Project Implementation Unit (PIU) of Bangladesh Agricultural Research Council (BARC). As an apex body BARC is coordinating agricultural research with all NARS, and non-NARS (Public Universities, NGOs and other Organization). National Agricultural Research System (NARS) Research Institutes with BARC as the lead agency. The Component has been supporting the need based research and development of crops, fisheries and livestock. The purpose of this component is to generate demand-led agricultural technologies (both improved varieties/breeds/fingerlings and production & post-production management packages, socio-economic, etc.) and release them to farmers/ users in order to increase productivity and production and also to provided location and problem specific technological solutions to production problems under specific agro-ecological conditions and constrained areas.

It will contribute to achieving the PDO by helping improve the performance of the National Agricultural Research System (NARS) through supporting the development of agricultural technologies and the strengthening of agricultural research institutions.

The research component has been supporting through Competitive Research Grants (CRGs) Programs implementing short to medium term research activities based on farmers' need and with participation of NARS Institutes, Universities and private sectors as well as supporting Program Based Research Grants (PBRGs) in Public Sector Agricultural Research Institutes implementing longer duration research initiatives in strategic areas including varietal development, bio-technology and climate vulnerability, etc. The component will also assist institutional capacity building of the NARS through reforms, human resource development-one of the major activities of the component, linkages and sustainable fund flows.

The Specific Objectives of the Research Component

- a) One hundred (100) Competitive Research Grants (CRG) proposals will be undertaken;
- b) Thirty three (33) Program Based Research Grants (PBRG) proposals will be undertaken;
- c) Forty (40) improved technologies will be demonstrated in the farmers' fields of project areas;
- d) Targeted HRD Programs (80 local PhDs, 60 foreign PhDs, short-term training, study visit, etc.) will be implemented and
- e) Research and training facilities in NARIs, particularly in outreach stations (RARS/ARS) will be improved.

Activities of Research Component

- a) Awarding 100 (one hundred) CRG sub-projects;
- b) Awarding 33 (thirty three) PBRG sub-projects;
- c) Arrangement for effective supervision, monitoring and evaluation of the awarded CRG & PBRG sub-project by the respective recipient research organizations and BARC;
- d) Improving research and training facilities in outreach stations (RARS/ARS) of NARIs through conducting need assessment;
- e) Implementing HRD Programs – 80 local PhDs, 60 foreign PhDs, Short-term training, Study visit, etc.;
- f) Organizing workshop/seminar/consultation meeting, etc.

5. Progress of different activities of Research Component

5.1 Agricultural Innovation Fund (AIF-1) Management

This component will contribute to achieving the PDO by helping improve the performance of the National Agricultural Research System (NARS) through supporting the development of agricultural technologies. NARS Research Institutes with BARC as the lead agency will implement this research. This research will have nationwide coverage. Under Agricultural Innovation Fund (AIF-1) two types of research will be implemented. AIF-1 would be used to cover sub-projects research and related cost. Selected research proposals will receive 100% AIF-1 grants; maximum limit for each CRG research proposal will be BDT 57.58 lakh (USD 74,300) and maximum limit for each PBRG will be BDT 387.50 lakh (USD 500,000). The cost will depend on the size and nature of the proposal.

5.2. Competitive Research Grant (CRG) Research Project

The first window of NATP-2 research investment is Competitive Research Grants (CRGs) program that promotes demand driven applied and adaptive research with better research-extension-farmer linkages. Better linkages make new technology more relevant and speed up dissemination. CRG critically targets to mobilize research capacity, stimulate creativity and promote efficiencies in the research system. CRGs are open to all research providers, National Agricultural Research Institutes (NARIs) and non-NARI research providers (University, NGOs and Private Organizations). In the CRG system, research providers are selected on competitive basis using calls for proposals and subjected them to rigorous review by the peer reviewers before being selected for funding. CRG programs are fully funded through the USAID Trust Fund (TF) which will close in September 30, 2018. Only those eligible CRGs are considered that effectively complete by that time.

According to guideline of AIF-1, PIU-BARC advertised invitation of Concept Note for CRG sub projects on 03 October 2016. After deadline, PIU received 537 nos of CRG research proposal. Nine Technical committees reviewed 537 nos. of CRG subprojects and selected 206 nos. of CN for submission of full proposals. Principal Investigator (PI) of successful CN was submitted their full proposal within deadline. Technical division of BARC prepared independent reviewer panel. According to Project Implementation Manual (PIM), each full proposal reviewed by two independent reviewers. After review, Executive Council of BARC approved 190 nos of sub projects with 6.24 million US\$ (48.34 crore BDT) against the targeted one hundred (100) CRG sub-projects. Approximately 1.20 million US\$ remain unallocated due to time short. PIU-BARC has disbursed fund 0.88 million US\$ (6.85 Crore BDT) for research.

Table. NARIs and non-NARIs institutions wise CRG:

SL. No.	Name of Institute/Organization	No. of Awarded CRG Sub-projects
1.	Bangladesh Agricultural Research Council (BARC)	04
2.	Bangladesh Agricultural Research Institute (BARI)	41
3.	Bangladesh Rice Research Institute (BRRI)	14
4.	Bangladesh Institute of Nuclear Agriculture (BINA)	04
5.	Bangladesh Jute Research Institute (BJRI)	03
6.	Bangladesh Sugarcrop Research Institute (BSRI)	05
7.	Bangladesh Tea Research Institute (BTRI)	04
8.	Soil Resources Development Institute (SRDI)	01
9.	Bangladesh Sericulture Research & Training Institute (BSRTI)	04
10.	Bangladesh Fisheries Research Institute (BFRI)	06
11.	Bangladesh Livestock Research Institute (BLRI)	03

SL. No.	Name of Institute/Organization	No. of Awarded CRG Sub-projects
12.	Bangladesh Forest Research Institute (BFRI)	03
13.	Cotton Development Board (CDB)	04
14.	Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU)	10
15.	Chittagong Veterinary & Animal Science University (CVASU)	03
16.	Hajee Mohammad Danesh Science & Technology University (HSTU)	05
17.	Patuakhali Science & Technology University (PSTU)	07
18.	Bangladesh Agricultural University (BAU)	33
19.	Sher-e-Bangla Agricultural University (SAU)	08
20.	Sylhet Agricultural University (SAU)	14
21.	University of Dhaka (DU)	03
22.	University of Khulna (KU)	01
23.	Noakhali Science & Technology University (NSTU)	02
24.	University of Rajshahi (RU)	04
25.	National Institute of Biotechnology (NIB)	02
26.	Sustainable Development Associates (SDA)	01
27.	Bangladesh Fisheries Research Forum (BFRF)	01
Total		190

Sub-sector-wise distribution of CRG Research projects

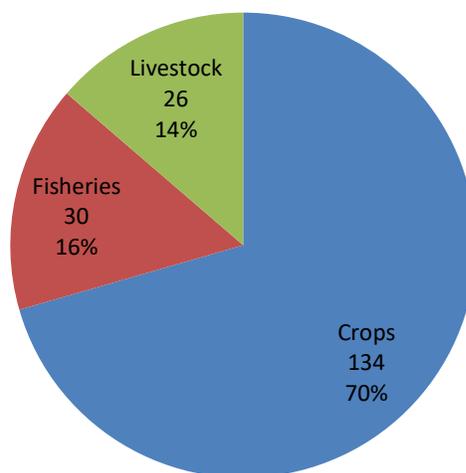


Table. Distribution of CRG Research Project according to Technical Division/Unit

SI No.	Division	Nos. of CRG Research Project
1.	Crops Division	62
2.	Agricultural Economics and Rural Sociology Division (AERS)	10
3.	Planning & Evaluation Division	10
4.	Natural Resource Management Division	
	Soil Unit	19
	Forest Unit	11
	Agricultural Engineering Unit	16
5.	Fisheries Division	30
	Nutrition Unit	6
6.	Livestock Division	26
	Total	190

N.B. Details of CRG Rresearch Projct are presentated in the following pages.

Project ID: 315

- Title** : **ARTHROPOD PESTS INFESTING ORNAMENTAL PLANTS IN BANGLADESH: STRATEGIES FOR MANAGEMENT.**
- Sub-sector : Crops
Thematic area : Crop Protection-Pests
- Goal** : (i) Identification and categorization of arthropod pests of ornamental plants in different areas.
(ii) Assessment of potential loss by the pests.
iii) Identification of management options for control of the pests.
(iv) To ensure improve ornamental crop production through proper management of the pests and increase yield of ornamental crops.
(v) To develop skilled manpower, create scope, and improve livelihood of related people.
(vi) To decrease dependency of flower import and save foreign currency.
- Objectives** : * Survey and identification of insect and mite species cause damage to ornamental plants in Bangladesh.
* Establishment of relationship between weather factors and pest population dynamics.
* Development of management tactics and training for commercial flower growers.
- Duration** : April, 2017 to September, 2018.
- Implementing Agency** : **Bangabandhu Sheikh Mujibur Rahman Agricultural University, Gazipur 1706**
- Principal Investigator**:

Dr. Md Ruhul Amin
Professor, Department of Entomology
Bangabandhu Sheikh Mujibur Rahman Agricultural University
Gazipur 1706



Photo: Field activities under the project, BSMRAU,

Project ID: 337

Title : **INTEGRATED PEST MANAGEMENT (IPM) APPROACHES TO MAJOR PESTS OF TEA FOR SUSTAINABLE TEA PRODUCTION.**

Sub-sector : Crops (Tea)

Thematic area : Tea Protection (Diseases & Pests)

Goal : Minimizing the load of synthetic pesticides through a sustainable management practice along with consumers' safety.

Objectives :

- i) To develop integrated pest management (IPM) strategy by incorporating all the suitable methods in a compatible manner for the management of major pests of tea for sustainable tea production in Bangladesh.
- ii) To introduce a permanent control measures with safety of natural enemies and reducing comparative use of synthetic pesticides to keep the surroundings healthy.
- iii) To minimize the risk of pesticide residue in made tea through utilization of IPM practices and ensure consumers safety.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Tea Research Institute**

Principal Investigator :

Mohammad Shameem Al Mamun
Senior Scientific Officer (Entomology)
Bangladesh Tea Research Institute Sub Station,
Panchagarh.

Project ID: 339

Title : **IDENTIFICATION OF VAM AND DETERMINATION OF THEIR POTENTIALITY ON TEA CULTIVATION**

Sub-sector : Crops (Tea)

Thematic area : Farm Productivity Enhancement

Goal : Enhance productivity of the tea gardens through ecofriendly and economically.

Purpose/ Objectives:

- i. To find out the VAM (Vesicular Arbuscular Mycorrhiza) from the soil of tea garden.
- ii. To determine their colonization potentiality on tea plants.

Duration : June 2017 to September 2018

Implementing Agency: **Bangladesh Tea Research Institute**

Principal Investigator :

Md. Moshir Rahman Akonda

Scientific Officer, Plant Pathology Division

BTRI, P.O.: Srimangal-3210

U.Z: Srimangal, Dist.: Moulvibazar.



Photo: Cuttings planted in primary bed, Srimangal, Sylhet

Project ID: 340

Title : **DETERMINATION OF RESIDUE LEVEL OF COMMONLY USED PESTICIDES IN TEA.**

Sub-sector : Crops (Tea)

Thematic area : Safe food and environment

Goal : Production of safe tea with minimizing the risk of pesticide to human health and environment

Objectives :

- i.To determine the residue of commonly used pesticides in tea
- ii.To fix the safe harvest interval of those pesticides in tea
- iii.To pin point its status in the sample so that preventive and precautionary measures could be made in time

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Tea Research Institute**

Principal Investigator :

Shovon Kumar Paul
Scientific Officer
Entomology Division, Bangladesh Tea Research Institute
Srimangal, Moulvibazar.

Project ID: 342

Title : **BTRI CLONES AND IMPROVED SEEDS TO THE STAKEHOLDERS**

Sub-sector : Crops

Thematic area : Genetic Enhancement of Major Crops for High Yield

Goal : Disseminate BTRI clones and improved seeds to the stakeholder within stipulated period of time.

Purpose/Objectives :

- (a) Establishment of zonal nurseries under BTRI and local garden collaboration;
- (b) To support tea estates with particular emphasis on less developed tea estates;
- (c) To improve the national production as well as quality of Bangladesh tea.

Duration : June 2017 to September 2018

Implementing Agency : **Bangladesh Tea Research Institute**

Principal Investigator :

Dr.Md. Abdul Aziz

Principal Scientific Officer

Botany Division, BTRI, P.O.: Srimangal-3210

U.Z: Srimangal, Dist.: Moulvibazar.

Project ID: 345

Title : **PRODUCTIVITY ENHANCEMENT OF PROMISING VEGETABLE VARIETIES DURING WINTER AND SUMMER IN SYLHET REGION.**

Sub-sector : Crop (vegetable)

Thematic area : Crop Production-Crop Management

Goal : Enhance vegetable production in Sylhet region.

Purpose/Objectives :

- a. To identify suitable vegetable variety(s) and production technologies for Sylhet region.
- b. To popularize suitable vegetable variety(s) and production technologies in Sylhet region.
- c. To improve knowledge and skill of farmers for vegetable production in Sylhet region

Duration : April 2017 to September 2018

Implementing Agency: **Bangladesh Tea Research Institute**

Principal Investigator :

Dr. Md. Shahidul Islam
Professor
Department of Horticulture
Sylhet Agricultural University, Sylhet.

Project ID: 368

Title : MORPHO-MOLECULAR CHARACTERIZATION OF UNDERUTILIZED INDIGENOUS VEGETABLES IN BANGLADESH.

Sub-sector : Crops

Thematic area : Crop production and crop improvement

Goal : Documentation of genetic diversity in underutilized vegetables for their yield and nutritional improvement

Purpose/Objectives:

1. Collection and conservation of important underutilized vegetables;
2. Documentation of their phenotypic characteristics; and
3. Documentation of their molecular characteristics using DNA markers

Duration : May 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator:

Dr. Md. Shahidul Islam
Professor
Department of Biotechnology
Bangladesh Agricultural University, Mymensingh-2202.

Project ID: 369

Title : **DEVELOPMENT OF SUSTAINABLE BIOLOGICAL WEED MANAGEMENT TECHNIQUES THROUGH ALLELOCHEMICALS FROM CROP RESIDUES**

Sub-sector : Crops

Thematic area : Plant Protection- Diseases and Pests

Goal : Development of environmental friendly weed management technique for sustainable weed management along with organic matter enrichment in soil.

Purpose/Objectives :

- a) To screen out potential crop residues for allelochemicals
- b) To explore the possibility of using allelopathic properties of crop residues for weed suppression
- c) To study the dose response and time of application of selected crop residues for crop performance
- d) To improve the existing organic matter status of the soil

Duration : May 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator: Dr. Md. Romij Uddin

Professor, Department of Agronomy

Bangladesh Agricultural University, Mymensingh-2202

Project ID: 376

Title : **ADAPTION OF A NEW SPECIES “TOMATILLO (*PHYSALIS PHYLADELPHICA* LAM./*PHYSALIS IXOCARPA* BROT.**

Sub-sector : Crop (vegetables)

Thematic area : Crop production - Crop improvement

Goal : Biodiversity and food security management.

Purpose/Objectives:

- On-farm research trials of tomatillo based on agro-morphogenic traits
- Biochemical analysis of tomatillo based on nutritional and antioxidant traits
- Screening and physiological analysis of tomatillo against salt and drought stress

Duration : April 2017 to September 2018

Implementing Agency: **Sher-e-Bangla Agricultural University, Dhaka-1207**

Principal Investigator:

Professor Dr. Naheed Zeba

Department of Genetics and Plant Breeding

Sher-e-Bangla Agricultural University, Dhaka-1207

Project ID: 384

Title : **CHARACTERIZATION AND DOCUMENTATION OF MINOR FRUITS IN BANGLADESH WITH SPECIAL EMPHASIS ON COASTAL AND HILLY AREAS**

Sub-sector : Crops

Thematic area : Genetic Resources and Biodiversity

Goal : The project has been designed to characterization and documentation of minor fruits in Bangladesh with special emphasis on coastal and hilly areas fruits for varietal development and protect from piracy.

Purpose/Objectives:

The proposed research project is designed to achieve the following objectives:

- i) to collect and conserve of important minor fruits from coastal and hilly areas of Bangladesh;
- ii) to characterize the physio-morphological features and nutritional status of collected minor fruits from coastal and hilly areas of Bangladesh; and
- iii) to document the information for future use in varietal improvement also protect these local landraces from piracy.

Duration : May 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural University, Mymensingh**

Principal Investigator:

Prof. Dr. Md. Mokter Hossain
Dept. of Horticulture
Bangladesh Agricultural University, Mymensingh

Project ID: 389

Title : **OXIDATIVE STRESS TOLERANCE OF MAIZE UNDER DROUGHT AND SALINITY: MECHANISM AND IDENTIFICATION OF STRESS INDUCIBLE PROTEINS**

Sub-sector : Crop

Thematic area : Maize production- Varietal improvement

Goal : Discovery of oxidative stress tolerance mechanism in maize

Purpose/Objectives :

1. Understanding oxidative stress tolerance in maize at physiological, biochemical and molecular level in contrast maize genotypes in relation to tolerance to drought and salinity.
2. Protocol development for expression of inducible protein and related transcript.
3. Identification of important inducible protein under drought and salinity tolerance for further biotechnological work.

Duration : April 2017 to September 2018.

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Motiar Rohman

Senior Scientific Officer

Plant Breeding Division, BARI, Gazipur 1701.

Project ID: 400

Title : **EVALUATION OF ENDOCRINE BIOPESTICIDES AGAINST MAJOR SUCKING INSECT PESTS OF VEGETABLES.**

Sub-sector : Crops (Vegetable)

Thematic area : Plant protection-diseases and pests.

Goal : Effective control of major sucking insect pests of vegetables using endocrine biopesticides towards the production of safe vegetables as well as ecological sustainability.

Purpose/Objectives : The present project aims to study the potentiality of endocrine-based biochemicals against major sucking insect pests of vegetables both in the laboratory and field conditions. However, the specific objectives are:

- (a) to evaluate the potentialities of endocrine biopesticides on the inhibition of growth and development as well as mortality of different sucking insects in the laboratory condition.
- (b) to investigate the field efficacy of selected endocrine biopesticides on the mean populations, percent reduction of population over control, abundances of natural enemies in vegetable-ecosystem and marketable yield of selected vegetables.
- (c) identification of effective endocrine biopesticide/s based on laboratory and field screening for managing the major sucking insect pests of vegetables as viable replacement of conventional and broad-spectrum insecticides.

Duration : May-2017 to September-2018

Implementing Agency: **Bangladesh Agricultural University, Mymenisngh-2202**

Principal Investigator :

Professor Dr. Gopal Das

Department of Entomology

Bangladesh Agricultural University, Mymenisngh-2202

Project ID: 413

Title : **ASSESSMENT OF ECOSYSTEM SERVICES AND BENEFITS OF ROOFTOP GARDENING FOR CLIMATE-FRIENDLY CITY DEVELOPMENT USING GEOSPATIAL TECHNOLOGY.**

Sub-sector : Crops (Flowers and Ornamentals)
Thematic Area : Crop Production-Crop Management

Goal : The following goals will be achieved after implementation of the sub-project: Improvement of urban ecosystem services through ecofriendly rooftop gardening and capacity building of urban household community to promote and strengthening urban agricultural economy activities.

Objectives : State clearly specific objective/s (not more than 3) with target/s which are realistic and achievable.

1. To identify existing plant species diversity of selected household rooftops of the study area;
2. To assess the benefits of rooftop gardens in providing thermal comfort and ecosystem services; and
3. To investigate and identify suitable vegetable and flower species for rooftop gardening through demonstration.

Duration : April 2017 to September 2018.

Implementing Agency: **Sher-e-Bangla Agricultural University, Dhaka-1207**

Principal Investigator :

Prof. Dr. Md. Forhad Hossain
Department of Agroforestry and Environmental Science
Sher-e-Bangla Agricultural University
Dhaka-1207

Project ID: 440

Title : **TOBACCO REPLACEMENT THROUGH HIGH VALUE AND NUTRIENT RICH CROPS FOR FOOD SECURITY AND NUTRITION OF CHARLAND PEOPLE UNDER BHUAPURUPAZILLA OF TANGAIL.**

Sub-sector : Crops

Thematic area : High Value Agriculture

Goal : Tobacco replacement and increase food security and nutrition for charland people of Bhuapur, Tangail.

Objectives :

- To ensure food security and nutrition for charland people by replacement of tobacco with high value and nutrient rich crops.
- i) To increase productivity, income and change livelihood by adaptation and dissemination of high value and nutrient rich crops against tobacco
- ii) To develop skill, knowledge and awareness of the farmers.

Duration : April 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Mohammad Asiqur Rahaman
Senior Scientific Officer
On-Farm Research Division
Bangladesh Agricultural Research Institute (BARI), Tangail-1900

Project ID: 442

Title : **INCREASING PRODUCTIVITY OF CROPPING SYSTEM IN SOME COASTAL AREAS OF BANGLADESH**

Sub-sector : Crops

Thematic area : Farm Productivity Enhancement.

Goal : The goal of the project is to enhance household and national food security through cropping system approach.

Purpose/Objectives :

- i. To develop sustainable production technology of selected *Rabi* crops for improved cropping system in saline and non-saline tidal ecosystem.
- ii. To evaluate the agro-economic performance of the designed cropping systems in saline and non-saline tidal ecosystem.
- iii. To assess farmers' response on the acceptability of designed cropping systems.

Targeted beneficiary (ies): The farming community of the project site will be the most beneficiary group. Their land, labour and other resources productivities will be increased as well as management capabilities and attitude to technologies and innovations will be enhanced which ensure human resource development. The information generated through this research project will strengthen the knowledge of the researchers.

Duration : April 2017 to September 2018

Implementing Agency : **Patuakhali Science and Technology University,
Dumki, Patuakhali.**

Principal Investigator:

Dr. Swadesh Chandra Samanta
Professor
Department of Agronomy
Patuakhali Science and Technology University.

Project ID: 444

Title : **EFFECT OF DIFFERENT FRUIT BAGGING MATERIALS ON THE PRODUCTION OF QUALITY AND SAFE MANGO.**

Sub-sector : Crops (Fruits)

Thematic area : Crop production-Disease and Pests

Goal : Safe mango production through fruit bagging technology.

Purpose/Objectives :

(i) To control the pest and diseases of mango by applying minimum pesticide.

(ii) To investigate the effect of bagging materials on the fruit development, physico-chemical compositions and shelf- life extension of mango.

(iii) To create awareness of the mango growers through training and increase the production of exportable safe mango.

Duration : April 2017 to September 2018

Implementing Agency: **Hajee Mohammad Danesh Science and Technology University
Dinajpur-5200**

Principal Investigator :

Dr. Md. Tariqul Islam
Associate professor
Department of Horticulture
Hajee Mohammad Danesh Science and Technology University
Dinajpur-5200.

Project ID: 451

Title : **MOLECULAR IDENTIFICATION OF THE TOMATO LEAF CURL VIRUS (TOLCV) RESISTANT/ TOLERANT TOMATO LINES**

Sub-sector : Crops (Non-cereal crops:Vegetable)

Thematic area : Crop Production-crop improvement

Goal : Characterization of local tomato germplasm carrying ToLCV resistance/tolerance gene/s using advanced molecular techniques.

Objectives :

a) Screening of Tomato Leaf Curl Virus (ToLCV) resistant/tolerant germplasms through rolling circle amplification (RCA) analysis.

b) Identification of the resistant/tolerant lines using molecular markers (SSR) linked to ToLCV resistance/tolerance.

c) Molecular confirmation of the ToLCV resistance/tolerance by agro-inoculation of the ToLCV infectious clone into the promising tomato lines.

Duration : April 2017 to September 2018

Implementing Agency: **University of Dhaka, Dhaka-1000**

Principal Investigator :

Professor Dr. Mohammad Nurul Islam
Professor
Plant Breeding and Biotechnology Lab
Department of Botany
University of Dhaka, Dhaka-1000

Project ID: 452

Title : **EFFECTIVENESS OF NON-CHLORINE SANITIZERS IN IMPROVING THE SAFETY AND QUALITY OF HIGH VALUE EXPORTABLE FRESH BETEL LEAF**

Sub-sector : Crops (Fruits and Vegetables)

Thematic area : Postharvest Processing and Value Addition

Goal : Safe betel leaf production

Purpose/Objectives : The main objectives of this project is,

- i) To identify the point of contamination during production and processing in the project area and recommend the best safety practices during betel leaf production and processing.
- ii) To evaluate the use of non-chlorine sanitizers against food borne pathogen during postharvest processing to improve the quality and safety of betel leaf.
- iii) To introduce hygiene and sanitation in strengthening postharvest management of the project beneficiaries in value chain of betel leaf .

Duration : April 2017 to Sept 2018

Implementing Agency: **University of Dhaka, Dhaka-1000, Bangladesh**

Principal Investigator:

Md. Latiful Bari, Ph.D.
Principal Scientist & Head
Food Analysis and Research Laboratory
Center for Advanced Research in Sciences
University of Dhaka, Dhaka-1000, Bangladesh



Photo: Instruction of non-chlorine sanitizers from farmers



Photo: Practice on non-chlorine sanitizers

Project ID: 459

Title : **SELECTION OF SALT TOLERANT SUNFLOWER AND MUSTARD GENOTYPES BASED ON PHYSIOLOGICAL AND BIOCHEMICAL TRAITS.**

Sub-sector : Crops

Thematic area : Crop production and crop improvement

Goal : Area and production of sunflower and mustard will be increased in the coastal area through the use of salt tolerant genotypes.

Purpose/Objectives :

1. To select salt tolerant genotypes of sunflower and mustard for the coastal area of Bangladesh.
2. To determine the physiological mechanism of salt tolerant sunflower and mustard genotypes.
3. To determine biochemical characterization of sunflower and mustard genotypes and their oil quality relation under salt stress.

Duration : April 2017 to September 2018.

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Shakhawat Hossain
Senior Scientific Officer
Central Laboratory
Oilseed Research Centre
Bangladesh Agricultural Research Institute, Gazipur.

Project ID: 465

Title : **VALIDATION AND UP SCALING OF FRESH CUT FRUITS AND VEGETABLES PROCESSING TECHNOLOGIES**

Sub-sector : Crops (Post harvest processing and value addition)

Thematic area : Postharvest

Goal : To develop quality fresh cut fruits and vegetables in view to improve nutritional security and reduce postharvest losses.

Purpose/Objectives :

i. To know the existing situation of fresh cut fruits and vegetables in Bangladesh

ii. To study the use of sanitizer, safe food additives, edible coating and packaging of fresh cut fruits and vegetables to extend the shelf life with quality

iii. To determine the microbial load and storage potential of fresh cut fruits and vegetables for safe products

Duration : April 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator:

Dr. Taslima Ayesha Aktar Nasrin
Senior Scientific Officer
Postharvest Technology Section
Horticulture Research Centre, BARI, Joydebpur, Gazipur-1701.

Project ID: 474

Title : **STATUS OF INSECT BIODIVERSITY AND ECOSYSTEM FUNCTIONS IN TEA ESTATES OF THE SYLHET REGION.**

Sub-sector : Crops (Tea)

Thematic area : Tea Production-Management Practices.

Goal : Ensure biodiversity conservation and sustainable tea production in tea estates.

Purpose/Objectives :

- (i) Determine variations in insect biodiversity among four microhabitat types in tea estates.
- (ii) Determine relationships of various functional groups of insects with understory vegetation and microclimatic changes in tea estates.
- (iii) Recommend biodiversity conservation and management strategy for the tea estates.

Duration : April 2017; to September 2018.

Implementing Agency: **Sylhet Agricultural University, Sylhet-3100.**

Principal Investigator :

Dr. Md. Abdul Maleque
Associate Professor and Chairman
Department of Entomology
Faculty of Agriculture
Sylhet Agricultural University (SAU), Tilagarh, Sylhet-3100.

Project ID: 477

Title : **SURVEY, MONITORING AND ECO-FRIENDLY INTEGRATED MANAGEMENT OF MAJOR INSECT PEST AND DISEASE IN CHILLI AT JAMALPUR REGION.**

Sub-sector : Crop(Spices)

Thematic area : Plant-protection-diseases and pests

Goal : To ensure the safe food security and socio economic development of char land People through IPM approach for chilli production

Purpose/Objectives :

a) To find out the major insect pest(s) and disease(s) in chilli and their management approaches

b) To motivate the chilli framers for controlling major pest(s) and quick dissemination of new IPM technologies among them

c) To reduce the indiscriminate use of pesticides and ensuring food security

Duration : April 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. MosharrafHossain
Principal Scientific Officer
RARS, BARI, Jamalpur

Project ID: 479

Title : **COLLECTION, EVALUATION, CHARACTERIZATION AND BULB PRESERVATION OF LILIUM IN BANGLADESH**

Sub-sector : Crops

Thematic area : Crop production-Crop improvement

Goal : To introduce and popularize a new flower 'Lilium' as well as increase farmer's income and livelihood

Purpose/Objectives :

- i. To collect lilium germplasm from different sources
- ii. To evaluate the performance of lilium under the climatic condition of Bangladesh
- iii. To find out the suitable method for preserving lilium bulb

Duration : April 2017 to 30 September 2018

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Farjana Nasrin Khan
Senior Scientific Officer
Floriculture Division, Horticulture Research Centre
BARI, Joydebpur, Gazipur-1701.

Project ID: 490

- Title** : **CROP PRODUCTIVITY ENHANCEMENT THROUGH AGRONOMIC PRACTICES IN SYLHET REGION**
- Sub-sector : Crops, Research Thrust: Food and nutrient security
- Thematic area : Unfavorable ecosystems (11)
- Goal : Increase crop production to ensure food and nutritional security, poverty reduction and livelihood improvement of the small and marginal farmers.
- Purpose/Objectives :
- (i) To increase cropping intensity and crop productivity through introduction of new varieties of pulses, oilseeds, wheat and other upland crops during rabi season in Sylhet region under limited water condition.
 - (ii) To increase individual crop yield and system productivity through soil, water, fertilizer and crop management practices.
 - (iii) To facilitate adoption of improved technology in the project area for increasing crop production.
- Duration : June 2017 to September, 2018

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator:

Dr. Dilwar Ahmed Choudhury
Principal Scientific Officer
Director General's Office, BARI, Gazipur

Project ID: 504

Title : **RISK ASSESSMENT AND DEVELOPMENT OF MANAGEMENT APPROACH(ES) AGAINST TOMATO LEAF MINER, TUTA ABSOLUTA.**

Sub-sector : Crops

Thematic area : Plant Protection -Diseases and Pests

Goal : To identify critical time of attack and severity and develop an effective and suitable bio-rational management approach against the invasive species, *Tuta absoluta* for ensuring quality tomato production in Bangladesh.

Purpose/Objectives:

- i. To findout severity and critical time of attack of the Tuta absoluta on tomato
- ii. to develop an effective management approach(es)
- iii. To demonstrate the impact of best management approach in terms of yield and net income and motivate the farmers to adopt this technology through field day and training/workshop.

Duration : April 2017 to 30 September 2018

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Shahadath Hossain
Principal Scientific Officer
Entomology Section
Horticulture Research Center
Bangladesh Agricultural Research Institute, Gazipur.



Photo: Survey on incidence and pest

Project ID: 518

Sub-project title : IDENTIFICATION OF DIFFERENT SPECIES OF BACTERIA CAUSING BACTERIAL DISEASES OF SILKWORM (*BOMBYXMORI*) L. AND THEIR CONTROL.

Sub-sector : Crops

Thematic area : Pest Management.

Goal : Development of control measures for bacterial diseases of silkworm.

Purpose/Objectives :

- i. Study on different bacterial species.
- ii. Study on relationship between host and pathogen.
- iii. Study on effective chemicals to control bacterial diseases

Duration : April 2017 to September, 2018.

Implementing Agency : **Bangladesh Sericulture Research and Training Institute.**

Principal Investigator :

Md. Aftabuddin
Research Officer
Bangladesh Sericulture Research and Training Institute.
Baliapukur, Padma Abasik.
Rajshahi-6207.

Project ID: 520

Title : **STUDY ON THE NUTRITIONAL QUALITY OF UNDERUTILIZED MULBERRY FRUITS, LEAVES & SILKWORM PUPAE AND THEIR VALUE ADDITION**

Sub-sector : Crops

Thematic are : Nutrition

Goal : Nutritional assessment of some sericultural byproducts and their value addition.

Purpose/Objectives :

- To prepare Jam, Jelly, Juice etc. from mulberry fruits.
- To prepare mulberry tea from mulberry leaves.
- To extract pupae oil form silkworm pupae and study on it's fatty acid profile.

Duration : April 2017 to September' 2018.

Implementing Agency : **Bangladesh Sericulture Research and Training Institute.**

Principal Investigator :

Md.Shakhawat Hossain
Research Officer
Bangladesh Sericulture Research and Training Institute
Baliapukur, Padma Abasik
Rajshahi-6207.

Project ID: 526

Title : **STUDIES ON THE SPECIES COMPLEX AND THEIR BIO-RATIONAL BASED MANAGEMENT OF FRUIT FLIES INFESTING FRUITS AND VEGETABLES IN BANGLADESH**

Sub-sector : Crops

Thematic area : Pest management (Research thrust area: Safe food and environment)

Goal : Sustainable management of fruit flies attacking different fruits and vegetable crops to increase yield and quality of those crops.

Objectives :

- i. Identification and documentation of species composition of fruit flies infesting fruits and vegetables using morphometric and molecular tools.
- ii. Development of bio-rational based management options of different fruit fly species.
- iii. Field validation of the developed technologies in the farmer's field.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Syed Nurul Alam
Chief Scientific Officer & Head
Entomology Division, Bangladesh Agricultural Research Institute
Joydebpur, Gazipur, Bangladesh.



Photo: Deployment of pheromone lures of different species of fruit fly at different crop fields;

Project ID: 528

Title : **UPSCALING OF LAC PRODUCTION TECHNOLOGIES FOR POVERTY REDUCTION OF THE ULTRA POOR AND MARGINAL FARMERS**

Sub-sector : Crops

Thematic area : Development of Underutilized Crops

Goal : Improve livelihood condition of the ultra poor and marginal farmers.

Objectives:

1. Development of management packages of biotic and abiotic stresses of lac cultivation at the targeted locations;
2. Field validation of the developed technologies and expansion of lac cultivation in promising areas of the country involving ultra poor and marginal farmers for poverty reduction.
3. Awareness development of lac growers, extension personnel and related consumers on the developed technologies as well as different aspects of lac cultivation for the improvement of lac industry.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator:

Dr. Debasish Sarker
Principal Scientific Officer
Entomology Division
Bangladesh Agricultural Research Institute.



Photo: Field of Lac Production, Gazipur &

Project ID: 529

Title : **DETERMINATION OF ADULTERATION OF COMMONLY USED PESTICIDES AND THEIR LEFT OVER RESIDUE IN MAJOR FRUITS AND VEGETABLES.**

Sub-sector : Crops

Thematic area : Pest management (Research thrust area: Safe food and environment).

Goal : Minimizing pesticide adulteration and consumers health hazards by curtailing pesticide dependency and making awareness on safe usage of pesticides.

Objectives :

- i) To determine the level of pesticide residues remain in fresh fruits and vegetables collected from different markets of Bangladesh.
- ii) To determine the Pre-Harvest Interval (PHI) of the selected pesticides in major vegetables collected from supervised field trials.
- iii) To check adulteration of the commonly used pesticides collected from different locations of Bangladesh.

Duration: April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute.**

Principal Investigator:

Dr. Md. Sultan Ahmed
Principal Scientific Officer
Entomology Division
Bangladesh Agricultural Research Institute
Gazipur-1701.

Project ID: 538

Title : **DEVELOPMENT OF PRODUCTION PACKAGE WITH SPECIAL EMPHASIS ON OFF SEASON FLOWERING OF DRAGON FRUIT.**

Sub-sector : Crops

Thematic area : Crop Production - Crop Management

Goal : To increase availability of fruit round the year.

Purpose/Objectives:

- i. To developed off season production technique of dragon fruit
- i) To standardize a production package of dragon fruit cultivation

Duration : June -2017 to September-2018.

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Moshir Rahman
Senior Scientific Officer (SSO)
Regional Horticulture Research Station
BARI, Sibpur, Narsingdi.

Project ID: 583

- Title** : **TESTING OF COTTON CULTIVATION TECHNOLOGY IN THE DROUGHT PRONE AREA OF BARIND TRACT OF BANGLADESH.**
- Sub-sector : Crops
- Thematic area : Farm productivity enhancement
- Goal : To expand cotton cultivation in the drought prone areas for increasing domestic production and farmer's income.
- Purpose/Objectives :
- a) To asses adaptability of cotton varieties suitable for drought prone areas.
 - b) To determine optimum sowing time for drought prone area.
 - c) To investigate on the impact of mulching on cotton production in the Barind tract.
- Duration : April, 2017 to September 30, 2018

Implementing Agency : **Cotton Development Board**

Principal Investigator :

Md. Rezaul Amin
Principal Scientific Officer
Cotton Research Center, Cotton Development Board
Rangpur, Bangladesh

Project ID: 584

Title : **DEVELOPMENT OF ECO-FRIENDLY MANAGEMENT OF SUCKING INSECTS OF COTTON**

Sub-sector : Crops.

Thematic area : Climate change.

Goal : To develop environment friendly management practice against sucking pest of cotton.

Objectives :

- i) To develop suitable sucking insect-pest management practices under climate change
- ii) To reduce dependency on chemical approaches.

Duration : July, 2017 to September 30, 2018.

Implementing Agency : **Cotton Development Board**

Principal Investigator :

Md. Akhtaruzzaman
Additional Director (Research)
Cotton Development Board
Khamarbari, Farmgate, Dhaka-1215.

Project ID: 599

Title : COLLECTION AND MOLECULAR CHARACTERIZATION OF RESURGED PHYTOPATHOGEN *SCLEROTINIA SCLEROTIORUM* CAUSING WHITE MOLD DISEASE OF DIFFERENT CROPS AND ITS INTEGRATED MANAGEMENT

Sub-sector : Crops

Thematic area : Pest Management (Plant Protection)

Goal : Increasing productivity of different crops through study of nature of the pathogen and proper management of white mold disease to reduce crop loss

Purpose/Objectives :

- a) Characterization and study of the nature of *S. sclerotiorum* collected from different hosts through cultural, morpho-physiology and pathogenicity test.
- b) Molecular characterization and determination of genetic variability of the collected isolates of *S. sclerotiorum*.
- c) Development of eco-friendly package for controlling the white mold disease through integrated approaches for safe production of selected crops.

Duration : Start- April, 2017 End- September, 2018

Implementing Agency : Bangladesh Agriculture Research Institute

Principal Investigator :

Dr. Md. Muzahid-E-Rahman
Senior Scientific Officer
Plant Pathology Division
Bangladesh Agriculture Research Institute
Joydebpur, Gazipur-1701, Bangladesh

Project ID: 601

Title : **MOLECULAR CHARACTERIZATION AND INTEGRATED MANAGEMENT OF CUCUMBER MOSAIC VIRUS INFECTING CUCUMBER (CUCUMIS SATIVUS) IN BANGLADESH.**

Sub-sector : Crops
Thematic area : Plant protection-Disease and pests

Goal : CMV strain will be identified with management package developed.

Purpose/Objectives :

- a. Proper detection of Cucumber mosaic virus strain(s) infecting cucumber in Bangladesh using molecular tools.
- b. Study the virus-vector relationship in development of viral disease in the cucumber field.
- c. To develop potential management options for minimizing CMV infection through integrated approach.

Duration : April-2017 to September-2018

Implementing Agency : **Bangladesh Agriculture Research Institute**

Principal Investigator :

Dr. Mohammad Siddiqur Rahman
Senior Scientific Officer
Plant Pathology Division
Bangladesh Agricultural Research Institute
Joydebpur, Gazipur-1701

Project ID: 602

Title : **INTENSIFICATION OF MUSTARD AND LENTIL CULTIVATION BETWEEN EARLY T. AMAN AND LATE BORO RICE**

Sub-sector : Crops

Thematic area : Crop production- Crop Management (oilseeds, pulses)

Goal : Attaining self sufficiency in oilseeds and pulses production

Purpose/Objectives :

- i) To include HYV mustard and lentil varieties between early T. aman and late boro rice cropping sequences;
- ii) To increase cropping intensity and crop yield through designing suitable cropping patterns;
- ii) To improve knowledge and skills of farmers about improved production technologies of mustard and lentil for increased production

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Institute of Nuclear Agriculture.**

Principal Investigator :

Dr. A F M Feroj Hasan
Senior Scientific Officer and Head
Adaptive Research and Extension Division (ARED)
Bangladesh Institute of Nuclear Agriculture (BINA)
BAU Campus, Mymensingh-2202

Project ID: 605

Title : **STANDARDIZATION OF *TRICHODERMA* FORTIFIED COMPOST FOR GROWTH PROMOTION AND ECO-FRIENDLY MANAGEMENT OF TOMATO DISEASES.**

Sub-sector : Crops (Vegetables)
Thematic area : Plant Protection (Diseases and Pests)

Goal : To Standardization *Trichoderma* fortified compost for growth promotion and Eco-friendly management of vegetable diseases with special emphasis on Tomato.

Purpose/Objectives : Specific objectives of the study are as follows:

- I. to collect, isolate and identify and to select the most antagonist isolate of *Trichoderma* against the major soil-borne and seed-borne fungal pathogens of vegetables including tomato and screening of *Trichoderma* against major fungal pathogens.
- II. o optimize the composting materials and the dose and substrate of *Trichodermato* mix with the *Trichoderma* fortified compost.
- III. to assess *Trichoderma* fortified compost in controlling soil-borne and seed-borne fungal diseases of tomato and as plant growth promoting microbe (PGPM) in growth promotion and yield of tomato.

Duration : April 2017 to September 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University**

Principal Investigator :

Dr. Md. Khurshed Alam Bhuiyan
Professor
Dept. of Plant Pathology, BSMRAU
Gazipur 1706

Project ID: 613

Title : **DISTRIBUTION, SEVERITY, SPECIES DIVERSITY AND DAMAGE ASSESSMENT OF PAPAYA MEALYBUG**

Sub-sector : Crops
Thematic area : Pest management

Goal : know the, distribution, severity of damage, species diversity and damage assessment of papaya mealybug.

Objectives :

- i . To know the distribution of papaya mealybug in Bangladesh
- ii. To determine the damage severity of papaya mealybug in major papaya growing districts of Bangladesh
- iii. To know the species diversity of papaya mealybug in Bangladesh
- iv. To assess the extent of loss caused by papaya mealybug.

Duration : April 2017 to September 2018

Implementing Agency : **Sher-e-Bangla Agricultural University, Dhaka**

Principal Investigator :

Dr. Mst Nur Mohal Akhter Banu
Associate professor
Department of Entomology
Faculty of Agriculture
Sher-e-Bangla Agricultural University, Dhaka

Project ID: 623

Title : **ROOFTOP GARDENING: AN INITIATIVE TO SPREAD URBAN HORTICULTURE WITH CHANGING ENVIRONMENT.**

Sub-sector : Crops (vegetables)

Thematic area : Crop Production – Crop Management

Goal : Improvement of atmospheric conditions of the mega city and growing crops through rooftop gardening.

Purpose/Objectives :

- i. To develop a rooftop garden model to increase the intensity of rooftop gardening in the Dhaka city for the conservation of environment.
- ii. To identify the suitable plant growing structures and growing media in support of *kharif* season's vegetable crops, brinjal and/or chili for the rooftop garden.
- iii. To identify the suitable plant growing structures and growing media in support of *rabi* season's vegetable crops, capsicum and/or tomato for the rooftop garden.

Duration : July 2017 to September 2018

Implementing Agency : **Sher-e-Bangla Agricultural University, Dhaka**

Principal Investigator :

Dr. Mohammad Mahbub Islam
Professor
Department of Agricultural Botany
Sher-e-Bangla Agricultural University
Sher-e-Bangla Nagar, Dhaka-1207.

Project ID: 668

Title : **DEVELOPMENT OF PROTECTIVE CULTIVATION TECHNIQUES OF GLADIOLUS AND GERBERA IN BANGLADESH**

Sub-sector : Crops

Thematic area : Crop Production – Crop Management

Goal : To available quality flowers round the year.

Purpose/Objectives :

- i) To develop suitable protective culture technique for gladiolus and gerbera
- ii) To standardize optimum substrate for soilless culture of gerbera
- iii) To establish technology for off-season gladiolus production

Duration : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Kabita Anzu-Man-Ara
Principal Scientific Officer,
Floriculture Division, HRC
Bangladesh Agricultural Research Institute
Joydebpur, Gazipur-1701.



Fig: Protective cultivation techniques of Gladiolus and Gerbera, BARI Campus, Joydebpur, Gazipur

Project ID: 670

Title : **IDENTIFICATION OF MAJOR INSECT AND MITE PESTS OF MAJOR VEGETABLES IN BANGLADESH AND THEIR ECO-FRIENDLY MANAGEMENT.**

Sub-sector : Crops
Thematic area : Plant Protection – Diseases and Pests

Goal : Identification of major insect and mite pests of vegetables and improvement of eco-friendly pest management approaches.

Purpose/Objectives :

- Identification of major insect pests of vegetables from the major vegetable growing areas of Bangladesh
- Identification of major mite pests of vegetables from the major vegetable growing areas of Bangladesh
- Development of eco-friendly management approaches of some important major insect and mite pests of vegetables

Duration : April 2017 to September 2018

Implementing Agency : **Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka-1207**

Principal Investigator :

M. Rahman
Professor
Department of Entomology
Sher-e-Bangla Agricultural University
Sher-e-Bangla Nagar, Dhaka-1207

Project ID: 672

Title : **PRODUCTIVITY ENHANCEMENT THROUGH ADAPTATION OF IMPROVED CROP PRODUCTION TECHNOLOGIES IN PREVIOUS NCLAVES OF NORTHERN REGION OF BANGLADESH.**

Sub-sector : Crops (Potato, Mustard, Rice, Jute, Maize)

Thematic area : Crop production and crop management.

Goal : Attaining food security of previous enclaves' farmers through adaptation of NARIs developed technologies.

Purpose/Objectives :

a) To find out the alternative crops and cropping patterns by assessing and comparing the existing cropping systems with NARIs technologies;

b) To improve crop productivity through adaptation of selected NARIs developed location specific technologies (crops, cropping patterns and fertilization methods), and

c) To increase efficiency and income of previous enclave farmers.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Samim Hossain Molla
Senior Scientific Officer
On-Farm Research Division
Bangladesh Agricultural Research Institute
Alamnagar, Rangpur.

Project ID: 688

Title : **IMPROVED CROPS PRODUCTIVITY OF BEEL AREAS OF BANGLADESH.**

Sub-sector : Crops

Thematic area : Unfavorable Ecosystems

Goal : Sustainable and higher productivity of food crops contributing to food and nutritional security and underground water resource saving and eco-friendly food crop production in beel areas of Bangladesh.

Purpose/Objectives :

- i. To identify technology (8-10) for improving crop productivity
- ii. To adapt HYV and best crop management practices (10-12)
- iii. To improve knowledge (120 farmers) and income (20-30%) of farmers

Duration : April 2017 to September 2018

Implementing Agency : Bangladesh Agricultural Research Institute

Principal Investigator :

Dr. Md. Abul Khayer Mian
Principal Scientific Officer
Agronomy Division
Bangladesh Agricultural Research Institute
Joydebpur, Gazipur 1701.

Project ID: 695

- Title** : **QUANTITATIVE ANALYSIS FOR THE TOXIC CHEMICAL RESIDUES IN FRUITS AND VEGETABLES USING CHROMATOGRAPHIC TECHNIQUES OF SELECTED MARKETS IN BANGLADESH.**
- Sub-sector** : Crops
- Thematic area** : Crop protection- Diseases & Pests
- Goal** : Exploring the status of food insecurity: focused on fruits and vegetables in different areas of Bangladesh.
- Purpose/Objectives** : The proposed project work planned to –
- i) Develop protocol for toxicant residues analysis in fruits and vegetables,
 - ii) Assess the amount and degradation rate of leftover residue of commonly used chemicals in fruits and vegetables.
 - iii) Compare the residual level of toxicants among the studied samples in relation to the regions.
- Duration** : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Md. Azharul Islam
Associate Professor
Department of Environmental Science
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 698

Title : **IDENTIFICATION OF CLIMATIC FACTORS RESPONSIBLE FOR DISEASE AND INSECT OUTBREAK AND THEIR APPROPRIATE MANAGEMENT IN SOUTHERN REGION OF BARISAL.**

Sub-sector : Crops

Thematic area : Rice protection (pest management)

Goal : Strengthening the research capacity on climate change and pest-diseases of food crop.

Purpose/Objectives :

- i) To identify the physical and climatic factors responsible for disease and insect outbreak
- ii) To develop effective and sustainable management packages for controlling those pests
- i) To identify breeding location of insects in particular

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigator :

Dr. Md. Alamgir Hossain
Chief Scientific Officer
Bangladesh Rice Research Institute
Regional Station, Sagordi, Barisal.

Project ID: 701

Title : **CHARACTERIZATION OF IMPORTANT RICE GERMPLASM OF BANGLADESH.**

Sub-sector : Crops (Rice)

Thematic area : Rice Production Varietal Development

Goal : Identification of diverse genotypes and safeguard of local rice germplasm from biopiracy

Purpose/Objectives :

- i. to characterize rice germplasm both morphological and at molecular level
- ii. to study the genetic diversity of Bangladeshi rice germplasm

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigator :

Dr. Mohammad Zahidul Islam
Scientific Officer
Genetic Resources and Seed Division
Bangladesh Rice Research Institute, Gazipur-1701, Bangladesh.

Project ID: 708

Title : **COMBATING SEEDLING BLIGHT AND RAISING HEALTHY SEEDLING/SEED GERMINATION IN COLD ENVIRONMENT**

Sub-sector : Crops (Rice)

Thematic area : Pest management (Research issue- Adaptation to climate change)

Goal : Sustaining rice yield using precision technologies on seed germination and raising healthy seedling.

Purpose/Objectives :

- a. Development of control measures for seedling blight disease and effective seedling raising method during Boro season.
- b. Digitalization of *Ankuri* seed germinator and efficacy of *Ankuri* seed germination technique at farmers' level.
- c. Skill development and knowledge empowerment of farmers on healthy seedling raising technique in trays and field.

Duration : June 2017 to September 2018

Implementing Agency : **Bangladesh Rice Research Institute.**

Principal Investigator :

Dr. Tahmid Hossain Ansari
Position: Principal Scientific Officer
Plant Pathology Division, BRRI, Gazipur 1701

Project ID: 712

Title : **IDENTIFY AND FORMULATE BIOPESTICIDES TO CONTROL BAKANAE PATHOGEN.**

Sub-sector : Crops (Rice)

Thematic area : Rice Production-Diseases and Pest

Goal : Enhancing rice yield through using environmental safe biopesticide.

Purpose/Objectives : The objectives of the research project are-

1. To find out effective microbes (*Bacillus* spp, *Pseudomonas* spp., *Trichoderma* spp.) along with plant active ingredients/plant products as sources of biopesticide/s for controlling akanae disease.
2. To find out suitable carrier material with prolong shelf life for biopesticide formulation.
3. Strengthening research facility of Plant Pathology Laboratory

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Rice Research Institute.**

Principal Investigator :

Dr. Quazi Shireen Akhter Jahan
Principal Scientific Officer
Plant Pathology Division
BRRI, Gazipur-1701

Project ID: 714

Title : INTROGRESSION OF HEAT TOLERANT QTL (*QHTSF4.1*) INTO BANGLADESHI MEGA RICE VARIETIES THROUGH MARKER-ASSISTED BREEDING

Sub-sector : Crops

Thematic area : Rice Production – Varietal Improvement

Goal : development of high yielding high temperature tolerant rice variety

Purpose/Objectives :

- i) To introgress heat tolerant QTL (*qHTSF4.1*) in to Bangladeshi mega rice varieties.
- ii) to evaluate phenotypic gain of heat tolerant QTL introgression lines against high temperature in controlled condition.
- iii) to promote fixed introgression lines for yield and other traits for recommending in to proposed variety trial.

Duration : April2017 to September 2018

Implementing Agency : **Bangladesh Rice Research Institute.**

Principal Investigator :

Dr. Munnujan Khanam
Principal Scientific Officer (PSO)
Plant Physiology Division, BRRI, Gazipur.

Project ID: 716

Title : **UP SCALING OF BRRI RELEASED NEW PROMISING RICE VARIETIES THROUGH QUALITY SEED PRODUCTION AT FARMERS' LEVEL**

Sub-sector : Crops

Thematic area : Rice Production and Management Practices

Goal : Livelihood improvement of the farmers through introducing new promising rice varieties as well as quality seed production.

Objectives:

- To enhance rapid dissemination of BRRI released new promising T. Aman and Boro rice varieties to the farmers of the specific suitable areas.
- To strengthen quality seed production from demonstration plots through improved management and facilitate storage and distribution of the seeds among farmers.
- To train farmers for updating their knowledge and skill on modern rice production.

Duration : July 2017, to September 2018

Implementing Agency : **Bangladesh Rice Research Institute.**

Principal Investigator :

Dr. Md. Shafiqul Islam Mamin (CV-Attachment 1)
Chief Scientific Officer and Head
Adaptive Research Division (ARD)
Bangladesh Rice Research Institute (BRRI), Gazipur 1701



Photo: Farmers field day, Bhaluka, Mymensingh



Photo: Quality seed production field, Chandina,

Project ID: 729

Title : **INTEGRATED RODENT MANAGEMENT IN WHEAT AND RICE THROUGH ECO-FRIENDLY CONTROL TECHNIQUES.**

Sub-sector : Crops, Research Thrust: Safe food and Environment.

Thematic area : Diseases and Pests.

Goal : To increase substantial amount of rice and wheat production managing yield loss due to rodent infestation by applying appropriate rodent management techniques.

Purpose/Objectives :

- i) To study on rodent species composition and their damage severity in wheat and T-aman rice.
- ii) To develop appropriate techniques for controlling rodents in wheat & T-aman rice.
- iii) To validate and upscaling of developed rodent control techniques.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. ATM Hasanuzzaman
Senior Scientific Officer
Vertebrate Pest Division
BARI, Gazipur.

Project ID: 730

Title : **DEVELOPMENT OF PROPAGATION AND PROCESSING TECHNOLOGY FOR BAY LEAF AND CINNAMON.**

Sub-sector : Crops (Vegetables and Spices)

Thematic area : *Crop production- crop management.*

Goal : Development of appropriate propagation and standard processing techniques of Bay leaf and Cinnamon for rapid dissemination of selected high yielding lines/varieties (CZ GAZ 033 and CT 001) to increase bay leaf and cinnamon production as well as ensure quality leaf and quill production, respectively.

Purpose/Objectives :

a) To develop standard propagation techniques for rapid dissemination of bay leaf and cinnamon to ensure quality sapling production.

b) To develop processing techniques for bay leaf and cinnamon for quality leaf and quill production.

c) Enhance quality sapling production to increase cultivation expansion and domestic production of cinnamon and bay leaf.

Duration : May, 2017 September 2018.

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Shailendra Nath Mozumder
Senior Scientific Officer
Regional Spices Research Centre
BARI, Joydebpur, Gazipur-1701.

Project ID: 732

Title : **VALIDATION OF INTEGRATED PEST MANAGEMENT (IPM) TECHNOLOGIES IN THE FARMERS FIELDS AGAINST MAJOR INSECT PESTS OF SOYBEAN AT NOAKHALI REGION**

Sub-sector : crops.

Thematic area : Crop protection- Diseases and pests

Goal : Increase soybean production; reduce poverty and nutritional deficiency through adaption of IPM strategy.

Objective(s) :

1. To validate IPM technologies in the farmers fields for creating awareness
2. To popularize IPM technologies among the farmers
3. Increase yield of soybean by applying IPM technologies in the fields

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Gobinda Chandra Biswas
Principal Scientific Officer
Oilseed Research Centre
BARI, Joydebpur, Gazipur-1701.

Project ID: 744

Title : **PRODUCTION AND FIELD RELEASE OF PARASITIDS AND PREDATORS FOR MANAGEMENT OF MAJOR INSECT PEST OF SUGARCROP**

Sub-sector : Crops

Thematic area : Crop Protection – Diseases and Pests

Goal : Rearing and release of suitable bio-agent for sugarcane and sugarbeet.

Purpose/Objectives :

- i. Development of mass rearing protocol for predators, *Forficula auricularia*, egg parasitoids, *Trichogramma chilonis* and larval parasitoids, *Bracon hebetor*.
- ii. Development of a suitable field release techniques for the management of major insect pests of sugarcane and sugarbeet and
- iii. Demonstration and adoption of appropriate pest management practices with bio-agents to the farmers field.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Sugarcrop Research Institute**

Principal Investigator :

Md. Elmur Reza
Scientific Officer, Entomology Division
Bangladesh Sugarcrop Research Institute,
Ishurdi, Pabna.

Project ID: 746

Title : **SCREENING OF SUGARCANE CLONES BASED ON ADAPTIVE MECHANISMS UNDER DROUGHT AND SALINITY STRESS DUE TO CLIMATIC CHANGE.**

Sub-sector : Crops

Thematic area : Crop production-Crop management

Goal : Increased productivity and production of sugarcane in drought and saline areas.

Purpose/Objective : Selecting sugarcane varieties with superior tolerance to abiotic stress condition.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Sugarcrop Research Institute**

Principal investigator :

Dr. Mst. Kohinoor Begum
Principal Scientific Officer (cc)
Physiology and Sugar Chemistry Division
Bangladesh Sugarcrop Research Institute
Ishurdi-6620, Pabna.



Photo: Screening of Sugarcane clones



Photo: Planted of Sugarcane clones

Project ID: 753

Title : **INDUCTION OF SOMACLONAL VARIATION IN NON-FLOWERING GERmplasm OF SUGARCANE THROUGH *IN VITRO* CULTURE**

Sub-sector : Crops

Thematic area : Crop Production - Crop Improvement

Goal : Development of superior somaclones from the non-flowering germplasm

Purpose/Objectives :

- i. Induction of somaclonal variants
- ii. Detection of somaclones
- iii. Enrichment of sugarcane germplasm bank

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Sugarcrop Research Institute**

Principal investigator :

A. M. Sajedur Rahman
Scientific Officer
Breeding Division
Bangladesh Sugarcrop Research Institute
Ishurdi-6620, Pabna

Project ID: 755

Title : **ENHANCEMENT OF PRODUCTIVITY OF KENAF IN CHAR AREAS.**

Sub-sector : Crops (Non-cereal crops - Fiber crop: Kenaf)

Thematic area : Jute/kenaf production- Crop management

Goal : Introduce kenaf production in char land towards poverty alleviation and environmental enrichment.

Purpose/Objectives :

(a) To identify key sustainability and environmental impact issues due to kenaf cultivation under suitable cropping pattern in char areas.

(b) To develop kenaf seed production technique for mitigating seed crisis.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Jute Research Institute**

Principal Investigator :

Dr. Md. Abul Fazal Mollah
Principal Scientific Officer
Bangladesh Jute Research Institute
Regional Station, Rangpur, Bangladesh

Project ID: 765

Title : **SELECTION OF SUPER HIGH-YIELDING RICE GENOTYPES**

Sub-sector : Crops

Thematic area : Rice production: varietal improvement

Goal : To increase crop productivity and to enhance food security in the country through developing super high yielding rice varieties under proper management practices.

Purpose/Objectives :

- To select super high yielding lines for favorable boro areas having improved morpho-physiological traits, 300-350 filled grains/panicle and 9 t/ha yield compared with BRRI dhan 28 and 29 and to produce quality seeds of selected genotypes.

- To identify promising morpho-physiological traits of super rice lines – responsible for higher yield under recommended crop-management practices.

- To select super high yielding boro genotypes (yield target 9 t/ha) involving farmers in participatory varietal selection procedures and to promote activities for releasing as variety.

Duration : May 1, 2017 to September 30, 2018

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigator :

Dr. A S M Masuduzzaman
Chief Scientific Officer
Office of Director (Research)
Bangladesh Rice Research Institute (BRRI), Gazipur-1701

Project ID: 767

Title : **SCREENING OF SHATTERING TOLERANCE OF *BRASSICA NAPUS*.**

Sub-sector : CROPS (Oilseed crops)

Thematic area : Crop production-crop improvement

Goal : Increase yield of rapeseed.

Purpose/Objectives :

(a) Development of shattering tolerance *B napus* lines

(b) Increase the yield of *B. napus*

(c) Reduce the shattering loss in *B. napus*

Duration : May, 2017 to June, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Mubarak Ali
Principal Scientific Officer
Oilseed Research Centre, BARI, Gazipur.

Project ID: 768

Title : **INCREMENT OF CROP PRODUCTION BY UTILIZATION OF FALLOW LAND THROUGH UNDERUTILIZED CROPS IN COASTAL SALINE AREA OF NOAKHALI**

Sub-sector : Crops (Minor cereals and oil crops)

Thematic area : Production and Processing (Cross-cutting)

Goal : Adjustment the risks of saline prone fallow land through sustainable use and conservation of underutilized crops, particularly in the context of farm productivity and profitability of small and marginal farmers living on newly accreted coastal chars.

Objectives :

- To increase crop diversification and cropping intensity by introducing and cultivation of newly developed high yielding varieties of underutilized crops (Barley, Foxtail millets, Proso millet, Sorghum, Safflower and Linseed) as well as collection and evaluation of local planting materials available in other areas.
- To concentrate on developing a suitable management system for untested saline fallow lands in coastal char area which not yet go through this practice.
- To develop suitable post-harvest machineries for using household level and prepare different kinds of food products, assess their quality and make it familiar with consumer level through active participation of farmers.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Aminur Rahman
Senior Scientific Officer
On-Farm Research Division
Bangladesh Agricultural Research Institute
Maijdee Bazar, Noakhali-3800.

Project ID: 777

Title : **IMPROVEMENT OF DRY DIRECT SEEDED BORO RICE BASED CROPPING PATTERN THROUGH CLIMATE SMART TECHNOLOGIES AND ITS ADOPTION IN DROUGHT-PRONE AREAS**

Sub-sector : Crops

Thematic area : Farm Productivity Enhancement

Goal : Improving crop productivity for sustaining food security in the drought prone areas of Bangladesh using different climate smart technologies

Purpose/Objectives : The project has the following objectives:

- a) To select suitable T. Aman – Rabi – DDS Boro cropping pattern(s) through farmer’s participatory approach.
- b) To evaluate the effect of different climate smart technologies on the agronomic efficiency and productivity of T. Aman – Mustard – DDS Boro pattern.
- c) To improve awareness of the farmers to the DDS boro rice based cropping patterns towards adoption of the technology package.

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Md. Moshiur Rahman
Professor, Department of Agronomy
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 783

Title : **COLLECTION, CONSERVATION AND MAINTENANCE OF DIFFERENT FRUIT GERMPLASM IN THE HILLY REGION OF BANGLADESH.**

Sub-sector : Crops: Fruits

Thematic area : Crop Production - Crop improvement

Goal : Collecting fruit germplasm from different locations of Khagrachari Hill Tracts to conserve genetic diversity for the researchers for further research works and varietal development activities.

Purpose/Objectives :

- I. Collection of Indigenous germplasm of diversified fruit species from different locations of Khagrachari
- II. Conservation of collected germplasms through ex-situ methods of conservation
- III. Maintenance of germplasm for further research works and varietal development activities

Duration : April/2017 to September/2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Md. Golam Rahman
Scientific Officer
Hill Agricultural Research Station (HARS), Khagrachari Hill Tracts
Bangladesh Agricultural Research Institute (BARI), Khagrachari.

Project ID: 785

Title : **STUDY ON BIONOMICS, SPECIES DIVERSITY/HOST RANGE, MANAGEMENT TECHNIQUE OF MEALYBUG IN KENAF AND MESTA**

Sub-sector : Crops (Fibre crop: Jute)

Thematic area : Crop Protection -Diseases and Pests

Goal : To develop sustainable management technique against mealybug in kenaf and mesta

Purpose/Objectives :

- 1) To study the biology, and host diversity of mealybug
- 2) To quantify the yield loss caused due to mealybug infestation
- 3) To develop a suitable management package against mealybug

Duration : April/2017 to September/2018

Implementing Agency : **Bangladesh Jute Research Institute**

Principal Investigator :

Dr. Md. Nazrul Islam
Principal Scientific Officer
Entomology Department
Pest Management Division
Bangladesh Jute Research Institute
Manik Mia Avenue, Dhaka 1207

Project ID: 801

Title : **ASSESSMENT OF LAND DEGRADATION SITUATION FOR IMPROVING SOIL QUALITY AND CROP PRODUCTIVITY USING NUCLEAR TECHNIQUES.**

Sub-sector : Crops (8. Soil/water management)

Thematic area : Conservation and management of natural resources

Goal : Developing land degradation database for achieving food security and sustainable agricultural development by improving soil quality and crop productivity.

Purpose/Objectives: State clearly specific objective/s (not more than 3) with target/s which are realistic and achievable.

- i) To monitor the changes of physical and chemical properties of soil from 43 soil series of Bangladesh within 50 years (1967-2017).
- ii) To develop national data base of fallout radionuclides (^{137}Cs , ^{210}Pb , ^{226}Ra , $^{210}\text{Pb}_{\text{ex}}$, ^{238}U , ^{40}K etc.) in soil with reference value and soil erosion/deposition rate over several time scales in Bangladesh.
- iii) To utilize nuclear techniques for short term changes by land use practice and the effectiveness of specific soil conservation measures/management system to sustain soil fertility and crop productivity.

Duration : July 2017, to September 2018

Implementing Agency : **Bangladesh Institute of Nuclear Agriculture (BINA)**

Principal Investigator :

Dr. Md. Mahbubul Alam Tarafder
Senior Scientific Officer, Soil Science Division
Bangladesh Institute of Nuclear Agriculture (BINA)
BAU campus, Mymensingh

Project ID: 804

Title : **IMPROVEMENT OF SPICES VARIETIES CUMIN, SWEET PEPPER, CHILLI, TURMERIC AND BLACK PEPPER THROUGH INDUCED MUTATION**

Sub-sector : Crops

Thematic area : Crop Production-Crop Improvement

Goal : Improvement of spices crops cumin, sweet pepper, chilli, turmeric and black pepper to enhance spices production for food security.

Purpose/Objectives :

- i) Collection of local and exotic germplasm of cumin, sweet pepper, chilli, turmeric and black pepper.
- ii) Screening of the collected germplasm of these spices and irradiation of the seeds for generating mutants.
- iii) Selection and evaluation of desirable mutants for developing varieties with high yield potential, good aroma and flavour.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Institute of Nuclear Agriculture (BINA)**

Principal Investigator :

Dr. Md. Rafiqul Islam
Senior Scientific Officer & Head
Horticulture Division
Bangladesh Institute of Nuclear Agriculture (BINA)
BAU Campus, Mymensingh

Project ID: 809

Title : **DEVELOPMENT OF SALINITY TOLERANT WHEAT GENOTYPES THROUGH PHYSIOLOGICAL AND BIOCHEMICAL APPRAISAL**

Sub-sector : Crops

Thematic area : Wheat Production-Varietal Improvement

Goal : The goal of the project is to identify salinity tolerant wheat genotypes which could be used to increase the productivity in the coastal areas of Bangladesh.

Purpose/Objectives : The general objective of the program is to increase wheat productivity fitting the crop in rabi season in saline area of Bangladesh. The specific objectives are to:

- i) to screen wheat genotypes against salinity tolerance
- ii) to analyze morphological, physiological and biochemical changes of selected wheat genotypes against salinity tolerance, and
- iii) To develop wheat variety tolerant to salinity

Duration : April 2017 to September 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Gazipur, Bangladesh**

Principal Investigator :

Dr. Md. Moshikul Islam

Associate Professor and Head

Department of Agronomy

Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU),

Gazipur, Bangladesh.

Project ID: 656

Title : ENHANCING THE CROP PRODUCTIVITY THROUGH ADOPTION OF CLIMATE SMART TECHNOLOGIES IN THE SALINITY AREA OF BANGLADESH

Sub-sector : Crops

Thematic area : Climate Change

Goal : To improve the crop productivity through adoption of climate smart technology in the salinity area of Bangladesh

Purpose/Objectives :

- i. To identify the existing cropping systems being practiced by the farmers in the coastal area of Noakhali district and the reasons liable to poor yields.
- ii. To increase the yield of *Boro* and Transplant *Aman* rice, sesame, sunflower and maize through varietal selection and adopting salinity stress ameliorative agronomic practices.

Duration : June 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh**

Principal Investigator :

Dr. Md. Abdul Kader

Professor

Department of Agronomy

Bangladesh Agricultural University, Mymensingh

Project ID: 633

Title : INNOVATION OF FLASHFLOOD COPING RICE TECHNOLOGY FOR HAOR AREA THROUGH PARTICIPATORY APPROACH

Sub-sector : Crops

Thematic area : Rice Production

Goal : Increase resilience of haor farmers in rice production against flashflood

Purpose/Objectives :

- i. To access the occurrence time, frequency and duration of flash flood;
- ii. To identify flash flood coping promising rice technologies according to site specificity; and
- iii. To select and validate the most promising flash flood coping early rice variety.

Duration : July 2017 to September 2018

Implementing Agency : **Sylhet Agricultural University, Sylhet**

Principal Investigator :

Dr. Md. Ashraful Islam

Professor

Department of Agricultural Extension Education

Sylhet Agricultural University, Sylhet

Project ID: 378

Title : **IMPACT OF WHEAT RESEARCH ON ADOPTION OF TECHNOLOGIES, RETURN AND COMPETITIVENESS IN BANGLADESH**

Sub-sector : Agricultural Economics

Thematic area : Policy Planning

Goa : Generate database on impact of wheat research on adoption of technologies, return and competitiveness in Bangladesh by using scarce resources which can be used by policy makers, researchers and extension personnel to fill up the knowledge gap in the crop sector.

Purpose/Objectives:

- i. To prepare data base on the adoption of wheat technologies at farm level and to find out the factors affecting their adoptions and sustainability;
- ii. To estimate the financial and economic returns and competitiveness of wheat cultivation in Bangladesh along with its impact on the livelihood of the farmers;
- iii. To estimate the returns to investment (IRR, NPV, BCR) in wheat research and development in Bangladesh.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator:

Dr. Md. Abdul Matin
Chief Scientific Officer
Agricultural Economics Division
BARI, Gazipur.

Project ID: 393

Title : **CULTIVATION, MARKETING AND PROCESSING OF MEDICINAL AND AROMATIC PLANTS (MAPS) IN BANGLADESH**

Sub-sector : Agricultural Economics

Thematic area : Supply chain and Marketing

Goal : The overall goal of this study is to promote medicinal and aromatic plants as an agribusiness enterprise in Bangladesh.

Purpose/Objectives :

The project aims to analyze the present status and future potentiality of Medicinal and Aromatic Plants (MAPs) in Bangladesh as well as disseminate existing technologies and build capacity of MAPs cultivation. The specific objectives are:

- i. To understand the existing production systems, costs and return, and key social, institutional, environmental and other factors that govern the present status of MAPs;
- ii. To map the value chain and estimate the value addition in each of the nodes in the value chain and assess the efficiency of the value chains;
- iii. To identify the constraints in production, marketing and processing of MAPs.

Duration : June 2017 to September 2018.

Implementing Agency : **Bangladesh Agricultural University, Mymensingh -2202.**

Principal Investigator :

Dr. Shaikh Abdus Sabur
Professor
Department of Agribusiness and Marketing
Bangladesh Agricultural University, Mymensingh -2202.

Project ID: 406

Title : **ASSESSMENT OF POSTHARVEST LOSSES BASED ON POSTHARVEST PRACTICES AND MARKETING PERFORMANCES IN SELECTED VEGETABLE SUPPLY CHAINS IN BANGLADESH**

Sub-sector : Agricultural Economics

Thematic area : Supply Chain and Marketing

Goal : Raise farmers and traders income through reducing postharvest losses from different segments of vegetable supply chains and ensuring food safety for the consumers.

Purpose/Objectives:

- (i) *To assess the knowledge, attitude and practices (KAP) of different stakeholders toward post-harvest handling, losses as well as food safety and food quality in selected vegetable supply chains;*
- (ii) *To estimate postharvest losses at different segments of selected vegetable supply chains and to identify factors affecting postharvest losses at farm and trader's level; and*
- (iii) *To assess the status of market opportunities through analysing supply chains for selected vegetables in the study area.*

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator:

Dr. Md. Abdul Monayem Miah
Principal Scientific Officer, Planning and Evaluation Wing
Bangladesh Agricultural Research Institute
Joydebpur, Gazipur-1701



Fig : Sorting of bitter gourd, 9 mile Bazar, Bogra



Fig : Improved packaging of bitter gourd, 9 mile Bazar, Bogra



Fig : Traditional packaging of bittergourd, 9 mile Bazar, Bogra

Project ID: 407

Title : **SUPPLY CHAIN ANALYSIS OF MAJOR VEGETABLES PRODUCED IN HILLY AND COASTAL REGIONS OF BANGLADESH**

Sub-sector : Agricultural Economics

Thematic area : Supply Chain and Marketing

Goal : Improve production and marketing system of vegetables by removing constraints of supply chain in hilly and coastal region and to promote the farmers and traders' income and the country as well.

Purpose/Objectives :

- i. To analyze input supply, production system and profitability of major vegetables in hill and coastal region
- ii. To examine the existing market, marketing system and supply chain of selected vegetables in those areas
- iii. To identify the linkage/integration between local market and different city market of selected vegetables.
- iv. To identify the production and marketing drawbacks and suggest some policy recommendations for improving the vegetables supply chain.

Duration : June, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator:

Mohammad Shamsul Hoq
Scientific Officer
Agricultural Economics Division
Bangladesh Agricultural Research Institute
Joydevpur, Gazipur.

Project ID: 429

Title : **IMPACT OF IMPROVED AQUACULTURE TECHNOLOGIES ON PRODUCTIVITY AND LIVELIHOOD OF FISH FARMERS IN BANGLADESH.**

Sub-sector : Agricultural Economics

Thematic area : Policy and Planning (Socio-economics)

Goal :

The goal of the proposed project is to assess the impacts of improved aquaculture technologies on productivity and livelihood of fish farmers in Bangladesh.

Objectives:

- To compare productivity and profitability of fish farming between traditional and improved fisheries technologies users;
- To identify the determinants of adopting improved fisheries technologies at farm level;
- To assess the impact of improved fisheries technology on fish yield and livelihood of fish farmers.

Duration : April 2017 to September 2018

Implementing Agency : **Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka-1207**

Principal Investigator :

Dr. Mohammad Mizanul Haque Kazal
Professor & Chairman
Department of Development & Poverty Studies
Sher-e-Bangla Agricultural University
Sher-e-Bangla Nagar, Dhaka-1207

Project ID: 454

Title : AGRICULTURAL PRACTICES AND LIVELIHOOD PATTERNS OF SELECTED TRIBAL COMMUNITIES IN BANGLADESH

Sub-sector : Agricultural Economics

Thematic area : Production and Farm Productivity

Goal : Improvement of the livelihood of Tribal farmers' through the use of agricultural technologies in Bangladesh.

Purpose/objectives :

- i. To identify the socioeconomic profile and livelihood pattern of tribal farmers' of Sylhet and Chittagong regions;
- ii. To know the agricultural practices of tribal farmers'; and
- iii. To explore the potentiality of the use of agricultural technologies to improve the livelihood of tribal farmers'.

Duration : July 2017 to September 2018

Implementing Agency : **Sylhet Agricultural University, Tilagor, Sylhet-3100.**

Principal Investigator :

Professor Dr. Jasim Uddin Ahmed
Chairman, Department of Agricultural Economics and Policy
Sylhet Agricultural University, Tilagor, Sylhet-3100.

Project ID: 593

Title : **DEVELOPMENT OF A BUSINESS MODEL ON CROPS AND CATTLE FOR LOW CARBON FARMING TECHNIQUE: AN INITIATIVE FOR FARM LEVEL IN COASTAL REGION OF BANGLADESH.**

Sub-sector : Agricultural Economics
Thematic area : Production and farm productivity

Goal : Mix crop-cattle agri-business model development for sustainable low carbon farming (LCA) technique using bio-gas plant and bio-char production.

Purpose/Objectives :

(i) Provide direct enterprise assistance to adopt low carbon farming techniques and disseminate community based adaptation practices.

(ii) To develop business model on crop and cattle combination in farm for economic and environmentally sustainable low carbon farming by bio-gas production and bio-char utilization.

(iii) To formulate climate change adoption policy for improving farm level adaptation capacity.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh.**

Principal Investigator :

Professor Dr. Fakir Azmal Huda
Professor and Head
Department of Agricultural Economics
Bangladesh Agricultural University
Mymensingh-2202.

Project ID: 649

Title : **ECONOMICS OF ADOPTION OF BIO-SECURITY MEASURES FOR CONTROLLING AVIAN INFLUENZA IN BANGLADESH'S POULTRY FARMS**

Sub-sector : Agricultural Economics

Thematic area : Production and Farm Productivity

Goal : To improve the level of adoption of bio-security measures for controlling avian influenza in Bangladesh's poultry farms

Purpose/Objectives :

- a) To examine the level of adoption of bio-security measures by different categories of poultry farms
- b) To estimate the private and social costs and returns from complying bio-security measures by the poultry farms
- c) To examine the driving factors associated with the adoption of bio-security measures by poultry farms

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Ismat Ara Begum
Professor
Department of Agricultural Economics
Bangladesh Agricultural University
Mymensingh-2202, Bangladesh

Project ID: 700

Title : **VALUE CHAIN ANALYSIS OF RICE AND ITS BYPRODUCTS IN BANGLADESH**

Sub-sector : Agricultural Economics

Thematic area : Supply Chain and Marketing

Goal : Document the opportunities and constraints of value chains of rice and its byproducts to explore the consumers demand and to promote the economy as well.

Purpose/Objectives :

- i. To identify major value chains for rice and rice by-products (rice bran and bran oil, rice husk, feeds) in Bangladesh.
- ii. To map the different activities of the actors and value addition processes of the respective chains focusing distributional issues as well as costs and margins of the actors involved in the chains.
- iii. Sketch the feasibilities and future prospects of value chains of rice byproducts as a new dimension for the economy of Bangladesh.

Duration : April. 2017 to Sept. 2018

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigator :

Md. Imran Omar
Senior Scientific Officer (SSO)
Agricultural Economics Division
Bangladesh Rice Research Institute (BRRI), Gazipur-1701.

Project ID: 750

Title : **COST AND RETURN ANALYSIS OF SUGARCANE PRODUCTION WITH INTERCROPS IN BANGLADESH.**

Sub-sector : Agricultural Economics

Thematic area : Crop production

Goal : The goal of the proposed project is to create an update financial database of sugarcane production with intercrops in Bangladesh by 2018.

Project purpose/objectives:

- i. To determine the level of input use and estimate cost and return of sugarcane production with intercrops;
- ii. To estimate the level and determinants of farm-level technical efficiency of sugarcane farmers; and
- iii. To identify constraints of sugarcane cultivation at farm level.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Sugarcrop Research Institute**

Principal Investigator :

Dr. Sayeeda Khatun
Principle Scientific Officer(cc)
Agricultural Economics Division,
Bangladesh Sugarcrop Research Institute, Ishurdi, Pabna.

Project ID: 512

Title : **DEVELOPMENT OF A SUSTAINABLE AGRICULTURAL RISK MANAGEMENT TECHNOLOGY IN AREAS AFFECTED BY FLASH FLOOD USING NUMERICAL CLIMATE MODELING DATA ANALYSIS.**

Sub-sector : ICT and Disaster Management in Agriculture
Thematic area : Climate change

Goal : Development of a sustainable integrated adaptation framework to avoid negative effect in the crop production under different climate change scenarios in the flash flood prone areas.

Purpose/Objectives :

(i) To assess the risk of meteorological disasters; disease and pest damage using meteorological numerical model projection data along with a suitable crop simulation model

(ii) To develop a scenario of different crop production in areas affected by flash flood

Duration : April, 2017 to September, 2018

Implementing Agency : **Sylhet Agricultural University, Sylhet-3100.**

Principal Investigator :

Dr. Md. Altaf Hossain
Chairman and Associate Professor
Department of Agricultural Construction and Environmental
Engineering
Sylhet Agricultural University, Sylhet-3100.

Project ID: 554

Title : **AGRICULTURAL IMAGING SYSTEM FOR RICE AND MUNGBEAN DISEASE DETECTION AND MANAGEMENT IN AGRO-FIELD**

Sub-sector : ICT and Disaster Management in Agriculture

Thematic area : MIS for Research Management

Goal : Surveillance and monitoring of pathotypes of disease of major crops through wireless based image acquisition and processing in the field.

Purpose/Objectives :

- i. To develop a pathological system for crop disease detections through advanced image processing in agricultural field.
- ii. To establish the real time monitoring technique to manage the crop disease in the field through wireless sensor networking.
- iii. To obtain the model for identification of the exact causes of devastation in agro field based on Artificial Neural Network (ANN).

Duration : April 2017 to Sept 2018

Implementing Agency : **Patuakhali Science and Technology University, Patuakhali.**

Principal Investigator :

Dr. S.M. Taohidul Islam
Associate Professor and Chairman
Department of EEE, PSTU
Dumki, Patuakhali

Project ID: 612

Title : **ENHANCING AGRICULTURAL RESEARCH INFORMATION SERVICES THROUGH DIGITIZATION OF RESEARCH OUTPUTS**

Sub-sector : ICT in Agriculture and Disaster Management

Thematic area : ICT in Agriculture

Goal : Making information resources electronically available and accessible to different stakeholders for facilitation of adoption of research findings for higher productivity.

Objectives: The objectives are to:

1. Improve service by ensuring greater accessibility to the e-content of scholarly publications
2. Develop digital repository of important documents to serve the researchers, policy-makers and other stakeholders.
3. Promote efficient delivery of information to researcher, policy-makers and other end users through Open Archives Initiative (OAI)

Publish research results online and make available in the web to facilitate research capability

Duration : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Council.**

Principal Investigator:

Md. Rafique Mostafa Kamal
Director (Addl. Charge)
Agricultural Information Centre
BARC. New Airport Road, Farmgate, Dhaka-1215.

Project ID: 715

Title : **DEVELOPING MOBILE APPS FOR ENHANCING RICE PRODUCTIVITY**

Sub-Sector : ICT and Disaster Management in Agriculture

Thematic Area : Web-enabled Databases

Goal : Enhancement of BRRI's e-governance through ICT innovations with a view to better sustainability of agricultural research, improving functional efficiency and supporting the national goal of becoming a middle-income country.

Objectives :

1. Strengthen and capacity building of BRRI employee in ICT and e-governance in association of SMART agriculture.
2. To increase agricultural productivity through developing mobile apps and rice database for researcher, extension worker, farmer etc.
3. To improve research and development in agriculture through ICT innovations for sustainable development.

Strengthening of the linkage among NARS scientists through ICT.

Duration : April 2017, to September 2018

Implementing Agency : **Bangladesh Rice Research Institute.**

Principal Investigator :

Dr. Md Ismail Hossain
Principal Scientific Officer (PSO) & Head
Agricultural Statistics Division, BRRI, Gazipur-1701.

Project ID: 769

Title : **DEVELOPMENT OF MOBILE APPS FOR ASSESSMENT OF NITROGEN FERTILIZER IN CEREAL CROPS**

Sub-sector : ICT and Disaster Management in Agriculture
Thematic area : Web-based information systems for natural resources

Goal : To enhance cereal production by assessment of N-fertilizer requirement of cereal crops

Objectives:

- i.To use digital camera image and software for assess leaf nitrogen of rice, wheat and maize at different growth stage.
- ii.To establish a relationship between morpho-physiology parameters with image parameters of rice, wheat and maize.
- iii.To develop a mobile phone applications for phenotyping and assessment of nitrogen requirement by image analyses

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Shamim Ara Bagum
Senior Scientific Officer
Seed Technology Division
BARI, Joydebpur, Gazipur-1701.

Project ID: 787

- Title** : **OFFLINE FERTILIZER RECOMMENDATION THROUGH MOBILE APPS.**
- Sub-sector : ICT & Disaster Management in Agriculture
- Thematic area : Data bases on NRM & socioeconomics.
- Goal : To contribute to the production of crops by sustaining productivity of the land and ensuring efficient use of fertilizers through using mobile apps.
- Purpose/Objectives :
- a) To provide location specific instant offline fertilizer recommendation through mobile app directly to the farmers as well as other beneficiaries i.e. agricultural extension worker, entrepreneurs of UDC, Scientists of SRDI and other Organization.
 - b) To reduce misuse of chemical fertilizers as well as increase crop production by using union wise soil test based balanced fertilizer through this mobile app.
 - c) To develop and disseminate a union wise soil fertility and fertilizer use database that will lead to establish an integrated and effective soil, crop and fertilizer management in Bangladesh in the long run.
- Duration : April 2017 to September, 2018.
- Implementing Agency : **Soil Resource Development Institute**
- Principal Investigator :
- Dr. Mohiuddin Ahmed
Principal Scientific Officer
Soil Resource Development Institute
Regional Laboratory, Dhaka.

Project ID: 629

Title : **DEVELOPMENT AND UPGRADATION OF DIGITAL CONTENTS OF NATIONAL AGRICULTURAL DISPLAY CENTER (NADC) AT BARC**

Sub-sector : Crops, Livestock, Fisheries

Thematic area : ICT in Agriculture

Goal : Introduce NARS achievement to the stakeholder/target people (beneficiaries) through web application

Purpose/Objectives :

- a) To collect detail information of displayed items in NADC including developed Agricultural technologies by NARS institutes.
- b) To digitalize and/or develop contents through text, image and audio-visual format.
- c) To develop a user friendly web application and make the contents available through LAN and Internet.

Duration : Jan 2017 To September 2018

Implementing Agency : **Bangladesh Agricultural Research Council**

Principal Investigator :

Dr. Md. Baktear Hossain
Director (Additional Charge)
Computer and GIS Unit
Bangladesh Agricultural Research Council (BARC)
New Airport Road, Farm gate, Dhaka- 1215

Project ID : 311

Title : **INHIBITION OF ARSENIC ACCUMULATION IN RICE WITH PHYTOFORTIFICATION OF MICROELEMENTS FOR NUTRITIONAL SAFETY.**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Soil and Water Pollution

Goal : To inhibit arsenic bioaccumulation in rice in arsenic affected areas through micro/trace element(s) phytofortification.

Purpose/Objectives : The main objectives of this research is as follows-

- a. To examine the potentiality of different micro/trace elements like Fe, Mn, Si, Se etc. for inhibition of arsenic bioaccumulation in rice.
- b. To find out the suitable dose of micro/trace elements for practical application in different arsenic contaminated soils to avoid deficiency and/or toxicity, and
- c. To analyse the bioaccumulation/enrichment of micro/trace elements and arsenic in rice and soil.

Duration : April, 2017 to September, 2018

Implementing Agency : **Patuakhali Science and Technology University, Dumki, Patuakhali-8602.**

Principal Investigator:

Dr. Md. Shariful Islam
Associate Professor
Department of Agricultural Chemistry
Patuakhali Science and Technology University
Dumki, Patuakhali-8602.

Project ID: 323

Title : **DEVELOPMENT OF GINGER PRODUCTION TECHNOLOGY UNDER SOILLESS CULTURE USING FERTIGATION TECHNIQUE IN BANGLADESH.**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Soil Fertility and Fertilizer Management

Goal : Mass production of disease free seed rhizome, soilless cultivation of ginger and dissemination of generated technologies to the ginger growers of the country.

Purpose/ Objectives:

- a) To study the suitability of ginger cultivation under fertigation system
- b) To determine the effect of soilless substrates (such as coco dust, sawdust and paddy husks) on growth and yield of ginger
- c) To determine the optimum growth substrate for ginger cultivation using fertigation technique
- d) To produce disease free healthy seed rhizome for higher yield and economic return

Duration : April, 2017 to September 30, 2018

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Ashikul Islam
Senior Scientific Officer
Spices Research Centre
Shibganj, Bogra



Fig: Ginger production technology, Spice



Fig: Ginger production technology visited

Project ID: 382

Sub-project title : Development of existing maize based cropping patterns for sustain soil fertility in south-western region of Bangladesh

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Soil Fertility and Fertilizer Management

Goal:

Development of maize based cropping patterns for improving and sustaining soil fertility.

Purpose/Objectives :

- i) To develop present maize based cropping patterns for sustaining soil fertility
- ii) To improve and maintain soil fertility through better nutrient management
- iii) To adapt improved maize based cropping systems for increasing farmer's income
- iv) To increase productivity and profitability for attaining food and nutrition security

Duration : April, 2017 to September, 2018

Implementing Agency : Bangladesh Agricultural Research Institute

Principal Investigator :

Md. Sirajul Islam Ph.D
Chief Scientific Officer
Bangladesh Agricultural Research Institute
Regional Agricultural Research Station, Jessore

Project ID: 419

Title : **MANAGEMENT OF ACID SOILS FOR SUSTAINABLE CROP PRODUCTION IN MADHUPUR TRACT AND NORTHERN & EASTERN PIEDMONT PLAINS**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Ecologically Unfavorable Land and Soil Management

Goal : Improvement of crop productivity in the acid prone areas of Madhupur Tract and Northern & Eastern Piedmont Plains for sustaining food security

Purpose/Objectives :

The proposed study has the following purposes/objectives:

i) To determine lime and organic manure requirement to attain suitable pH for field crop production.

ii) To evaluate the effect of lime and organic matter amendment on yield and nutrient uptake of major crops and cropping patterns.

Duration: Start : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Md. Anamul Hoque
Professor
Department of Soil Science
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 492

Title : **CONSERVATION AGRICULTURAL PRACTICES FOR THE IMPROVEMENT OF SOIL HEALTH, CROPPING SYSTEM PRODUCTIVITY AND FARMERS' INCOME.**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Soil Organic Matter Management

Goal : Improvement of Soil Fertility and Crop Productivity with Generation of Higher Income for the Farmers.

Purpose/Objectives :

- i. To monitor the changes in SOM and soil physico- chemical properties as governed by CA practice;
- ii. To assess the cropping system productivity under intensive rice- based agriculture and
- iii. To observe economic benefits of CA over traditional practice.

Duration : April 2017 to September 2018.

Implementing Agency: **Bangladesh Agricultural Research Institute**

Principal Investigator :

Nazmus Salahin
Scientific Officer
Soil Science Division
BARI, Gazipur

Project ID: 499

Title : **NUTRIENT MANAGEMENT FOR A ROOFTOP GARDEN**

Sub-sector : Natural Resource (Land and Soil Resources)

Thematic area : Soil Fertility and Fertilizer Management

Goal : Increase yield, vertical expansion of agriculture and ensure family nutrition.

Purpose/Objectives :

I.To develop fertilizer recommendation for vegetables, fruits and flowers grown on the rooftop garden.

II.To find out the optimum soil and manure ratio as a media for better growth and development of crops under rooftop garden.

III.To increase yield, popularize rooftop garden in the urban area and ensure family nutrition.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator:

Ibne Saleh Md. Farhad
Scientific Officer, Soil Science Division
Bangladesh Agricultural Research Institute
Joydebpur, Gazipur-1701.



Fig: Measurement of Organic and inorganic



Fig: Seedlings grown in seed bed for rooftop

Project ID: 545

Title : **EFFECT OF NITROGEN, PHOSPHORUS AND POTASSIUM ON GROWTH, YIELD AND LEAF QUALITY OF MULBERRY.**

Sub-sector : **Natural Resources**

Thematic area : Soil Fertility and Fertilizer Management

Goal : Leaf production ensured as well as raw silk production increased.

Purpose/Objectives :

- i. To observe the appropriate rate of N, P and K for mulberry production.
- ii. To increase of mulberry leaf production.
- iii. To improve leaf quality of mulberry.

Duration : July, 2017 to September, 2018.

Implementing Agency : **Bangladesh Sericulture Research and Training Institute**

Principal Investigator:

Faruque Ahmed
Research Officer
Bangladesh Sericulture Research and Training Institute
Baliapukur, Padma Abasik, Rajshahi-6207.

Project ID: 559

Title : **SYMBIOTIC AND MOLECULAR CHARACTERIZATION OF POTENTIAL SALINE TOLERANT RHIZOBIAL STRAINS AND BIO-FERTILIZER PRODUCTION FOR SOYBEAN AND GROUNDNUT.**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Biofertilizer

Goal : Discovery of salt-tolerant Rhizobia species and biofertilizers production for promoting soil fertility, and soybean and groundnut production in saline affected areas of Bangladesh.

Purpose/Objectives :

- i) To isolate, identify and preserve of effective rhizobial strains collected from soybean and groundnut root nodules from saline stress areas of Bangladesh.
- ii) To study symbiotic, biochemical and molecular characteristics of saline stress tolerant effective rhizobial strains and their taxonomy (family, genus and species).
- iii) To use these effective strains for biofertilizer production for soybean and groundnut cultivation.

Duration : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Faridul Alam
Senior Scientific Officer
Soil Microbiology Laboratory
Soil Science Division, Bangladesh Agricultural Research Institute
Joydebpur, Gazipur-1701

Project ID: 570

Title : **IMPROVING CROP YIELD BY USING POLYTHENE MULCH AND POTASSIUM FERTILIZATION IN SALINE SOILS**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Ecologically unfavorable Land and Soil Management

Goal : Generation of salinity escaping technology for improvement of crop yield in saline soils

Purpose/Objectives :

- (i) To determine temporal and spatial variability in soil salinity in the coastal region of Bangladesh
- (ii) To improve crop yield through reduction of salt effect by using polythene mulch and application of K fertilizer in coastal saline soils of Bangladesh.
- (iii) To determine the effects of salinity on the nutritional quality of crops

Duration : April 2017 to September 2018

Implementing Agency: **Patuakhali Science and Technology University
Dumki, Patuakhali-8602**

Principal Investigator :

Dr. Mohammad Asadul Haque
Professor
Department of Soil Science
Patuakhali Science and Technology University
Dumki, Patuakhali-8602

Project ID: 666

Title : **UPDATING OF FERTILIZER RECOMMENDATION THROUGH INTERPRETATION OF RESEARCH RESULTS GENERATED BY THE NARS INSTITUTES.**

Sub-sector : Land and Soil Resource Management
Thematic area : Soil Fertility and Fertilize Management

Goal : Publication of updated Fertilizer Recommendation Guide (FRG) for sustainable crop production through balanced fertilization

Purpose/Objectives :

- Updating of fertilizer recommendation for crops and cropping patterns under different Agro-ecological Zones (AEZs).
- Publishing the updated FRG.

Duration : May 2017 to 30 September 2018

Implementing Agency : **Bangladesh Agricultural Research Council**

Principal Investigator :

Dr. Md. Abdus Satter
Chief Scientific Officer (Soils)
Bangladesh Agricultural Research Council
Farmgate, Dhaka-1215, Phone: 02-9132411

Project ID: 690

Title : **ASSESSING AND MITIGATING THE CONTAMINATION OF VEGETABLE CROPS AND SOIL UNDER IRRIGATION WITH URBAN WASTEWATER.**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Soil and Water Pollution

Goal : The goal of the research project is to reduce the crop and soil contamination from wastewater irrigation and to increase safe food production through development of proper irrigation management technologies

Purposes/Objectives- The objectives of the project are

(i) To evaluate the effect of urban wastewater irrigation on the yield and contamination of vegetable crops and soil

ii) To determine health risk to the consumers of wastewater irrigated produce, and contribution of wastewater to nutrient requirement for the crops, and

iii) To develop an effective management practice for the use of wastewater for growing vegetable crops to minimize the microbial and other contaminations.

Duration: May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator:

Dr. Sujit Kumar Biswas
Senior Scientific Officer
IWM Division, BARI, Gazipur 1701

Project ID: 697

Title : **INTENSIFICATION OF CONSERVATION FARMING IN NORTH WEST BANGLADESH.**

Sub-sector : **Natural Resources**

Thematic area : **Soil Organic Matter Management**

Goal : **Reduce poverty in the North West Bangladesh by improving productivity, profitability and sustainability of smallholders.**

Objectives:

i) To assess the extent of benefits of sustainable conservation farming with respect to different cropping systems.

ii) Facilitate adoption of productive and sustainable conservation agriculture (CA) based technologies that are climate resilient and profitable for small holders.

Duration : **July,2017 to September, 2018**

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigator:

Dr.Md. Harun-Ar-Rashid
Senior Scientific Officer
Bangladesh Rice Research Institute
Regional Station, Rajshahi.

Project ID: 706

Title : **Delineating rice yield limiting soil factors for some selected paddy soils of Bangladesh.**

Sub-sector : Natural resources

Thematic area : Soil fertility and fertilizer management

Goal : Increase rice yield all over the Bangladesh.

Purpose/Objectives:

1. To identify rice yield limiting factors of selected paddy soils in Habiganj, Faridpur, Rangpur and Gazipur districts.
2. To find out an appropriate nutrient ratio for maximum rice yield.
3. To find out microbial activity in soils of specific locations.

Duration : April 2017 to September, 2018

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigators:

Dr. Mosud Iqbal
Senior Scientific Officer
Soil Science Division
Bangladesh Rice Research Institute

Project ID: 707

Title : **UP-SCALING OF BIOFERTILIZER FOR IMPROVEMENT OF SOIL HEALTH AND RICE YIELD IN BANGLADESH.**

Sub-sector : Land and Soil Resources

Thematic area : Biofertilizers

Goal : Improvement of paddy soil biology and rice yield

Purpose/ Objectives :

- i) to identify beneficial rice associated bacteria from selected saline and drought prone paddy soils
- ii) to upscale biofertilizer with beneficial microorganisms and its dissemination for the improvement of soil health and paddy yield.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Rice Research Institute.**

Principal Investigator :

Dr. Umme Aminun Naher
Principal Scientific Officer
Soil Science Division
Bangladesh Rice Research Institute.

Project ID : 735

Title : **PRODUCTION OF COMPOST, VERMICOMPOST AND TRICHO-COMPOST FROM HOUSEHOLD SOLID WASTE AND THEIR UTILIZATION ON TOMATO AND CABBAGE PRODUCTION.**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Soil Organic Matter Management

Goal : Minimize waste disposal problem, increase soil fertility and crop productivity by applying compost produced from waste

Purpose/Objectives :

- i. To produce compost, vermicompost and tricho-compost from household solid waste;
- ii. To find out effective microbes, process parameters and waste characteristics suitable for different types of composts; and
- iii. To quantify the agronomic and economic effectiveness of compost, vermicompost and trichocompost in increasing yield of tomato and cabbage, and maintaining/improving soil fertility.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator:

Dr. Ranjit Sen
Senior Scientific Officer
Soil Science Division
BARI, Gazipur-1701

Project ID: 791

Title : **EFFECT OF VARIETY AND FERTILIZER ON COTTON YIELD, FIBER QUALITY AND SEED OIL CONTENT.**

Sub-sector : Land and Soil Resources

Thematic area : Soil Fertility and Fertilizer Management

Goal : Cotton yield and cottonseed oil production will increase in Bangladesh that will contribute in farmer's additional income from cotton cultivation.

Purpose/Objectives :

- a. To determine the NPK requirements of cotton variety CB 14
- b. To determine the NPK requirements of cotton variety CB 15
- c. To know the effect of various rates of NPK on cottonseed oil content

Duration : July, 2017 to September 30, 2018

Implementing Agency : **Cotton Development Board**

Principal Investigator :

Khalequzzaman
Senior Scientific Officer
Cotton Research, Training and Seed Multiplication Farm
Cotton Development Board , Sreepur, Gazipur.

Project ID: 798

Title : **HEAVY METAL IN THE INDUSTRIAL POLLUTED AREA: SPATIAL DISTRIBUTION, RISK ASSESSMENT AND BACTERIAL BIOGEOGRAPHY OF CONTAMINATED SOILS.**

Sub-sector : Natural Resources (Land and Soil Resources)

Thematic area : Soil and Water Pollution

Goal : Pollution load assessment in soil-plant system of the industrial areas for evaluating health risk index (HRI) and generate the bacterial biogeography.

Purpose/Objectives : The following objectives have been taken to -

- a. Investigate the accumulation and spatial distribution of heavy metal in industrial contaminated soils using GIS tools and the consequence responses of crop grown in contaminated areas.
- b. Illustrate the risk of heavy metal pollution merging spatial and analytical data.
- c. Make a broad-scale map of patterns of bacterial biodiversity and determine the health risk index (HRI) of different heavy metals.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Gazipur-1706**

Principal Investigator :

Dr. M. Saiful Alam
Associate Professor
Department of Soil Science, BSMRAU
Gazipur-1706.

Project ID: 802

Title : **STUDIES ON THE PERFORMANCE OF VERMICOMPOST AND ORGANIC MATERIALS FOR IMPROVING SOIL FERTILITY AND CROP PRODUCTIVITY.**

Sub-Sector : Land and Soil Resources

Thematic area : Bio-fertilizers

Goal : Increased soil fertility to enhance crop productivity

Objectives :

- a) Isolation and selection of effective earthworms as rapid decomposer for different organic residues
- b) To select the suitable organic residues/combination for producing vermicompost with effective earthworms.
- c) To see the effects of vermicompost on soil fertility and crop productivity

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Institute of Nuclear Agriculture (BINA)**

Principal Investigator:

Dr. Md. Azizul Haque
Principal Scientific Officer
Soil Science Division, BAU Campus, BINA, Mymensingh.

Project ID: 467

Title : **ESTIMATION OF GREENHOUSE GAS (CO₂, CH₄ AND N₂O) EMISSION AND CARBON SEQUESTRATION FROM CROP FIELDS**

Sub-sector : Natural Resources (Land and Soil Resources)
Thematic area : Impact of Climate Change on Natural Resources

Goal : Mitigation strategies for greenhouse gas emissions and C loss from agricultural systems.

Purpose/Objectives :

- a) to estimate the emissions of carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) from soils under different agricultural practices;
- b) to quantify the carbon sequestration capacity and greenhouse gas emission potential of different agricultural systems; and
- c) to develop mitigation strategies for greenhouse gas emissions and C loss from agricultural systems.

Duration : April 2017 to September 2018.

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Habib Mohammad Naser
Principal Scientific Officer
Soil Science Division
Bangladesh Agricultural Research Institute (BARI)
Joydebpur, Gazipur 1701.

Project ID : 301

- Title** : **DEVELOPMENT OF CLIMATE RESILIENT MANGROVE ECOSYSTEMS IN THE SUNDARBAN.**
- Sub-sector** : Natural Resources
- Thematic area** : Forests and Biodiversity Conservation
- Goal** : The overall goal is to respond to climate change and to mitigate its effects through the protection, rehabilitation and wise use of mangrove ecosystems through processes that maintain their protective function, values and biodiversity while meeting the socio-economic development and environmental protection needs in the Sundarban and its adjacent areas.
- Purpose/Objective** :
- a) To develop mangrove vegetation in the coastal areas and to improve carbon sink.
 - b) To promote climate smart and sustainable management of coastal ecosystems through application of innovative approach for ecosystems rehabilitation.
 - c) Raising awareness among mangrove dwellers through capacity building programs.
- Duration** : April 2017 to September 2018

Implementing Agency : **Bangladesh Forest Research Institute, Sholoshohar, Chittagong.**

Principal Investigator :

Dr. M Masudur Rahman
Divisional Officer
Mangrove Silviculture Division
Bangladesh Forest Research Institute
Muzgunni, Khulna-9000.

Project ID : 310

Title : **SCALING-UP OF FARMER LED AGROFORESTRY PRACTICES FOR LIVELIHOOD IMPROVEMENT AND RESOURCES CONSERVATION IN THE MADHUPUR GARH AREA.**

Sub-sector : Natural Resource (Forestry)

Thematic area : Low Productivity

Goal : To improve farm productivity, income and livelihood of farmer while conserving natural resource through adoption of improved agroforestry practices.

Purpose/Objectives :

1. To support farmers in the improvement of production and conservation of local agroforestry practices in the project area.
2. To develop location-specific improved agroforestry practices in the project area.

Duration : May 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator:

Dr. Kazi Kamrul Islam
Professor and Head
Department of Agroforestry
Bangladesh Agricultural University, Mymensingh.

Project ID: 386

Title : **AGRO-FORESTRY FOR LIVELIHOOD DEVELOPMENT OF JHUMIA COMMUNITY (SHIFTING CULTIVATORS) IN CHITTAGONG HILL TRACTS, BANGLADESH.**

Sub Sector : Diversification of agricultural productivity

Thematic area : Farm productivity enhancement

Goal : The goal of the project is to improve livelihood security of *Jhumia* community of Chittagong Hill Tracts (CHTs) through application of bio-diverse eco-friendly agro-forestry technology

Purpose/ Objectives :

a) Improve the capacity of household and *jhum* land based agroforestry systems to enhance livelihoods of *Jhumia* community.

b) Introduce sustainable land use system on hill farming for optimizing the yield of food, fodder, timber, fuel-wood, bamboo, cane, medicinal plants etc.

c) Assess socio economic and environmental benefit based on sustainable hill farming practices

Duration : June , 2017 to September, 2018

Implementing Agency : **Bangladesh Forest Research Institute**

Principal Investigator :

Dr. Md. Mahbubur Rahman
Divisional Officer
Silviculture Genetics Division
Bangladesh Forest Research Institute
P.O. Box- 273, Chittagong 4000



Photo: Discussion meeting and Seedling distribution of bamboos, trees, fruits and medicinal plants among the selected farmers.

Project ID: 418

Title : **GROWTH AND PRODUCTIVITY ASSESSMENT OF AGAR PLANT (*AQUILARIA MALACCENSIS* ROXB.) THROUGH MANAGEMENT PRACTICES.**

Sub-sector : Natural Resources (Forestry)

Thematic area : Non-timber forest products including medicinal plants

Goal : Productivity assessment of Agar plant through use of technologies

Purpose/Objectives :

- i) To identify the farmers best management practices for agar plant cultivation.
- ii) To study the growth of agar plant and system productivity with intercropping of medicinal plants.
- iii) To suggest the policy and technological issues for improvement of agar production, processing and marketing.

Duration : April 2017 to September 2018

Implementing Agency : **Sylhet Agricultural University, Tilagor, Sylhet-3100.**

Principal Investigator :

Professor Dr. Md. Abul Kashem
Chairman
Department of Soil Science
Sylhet Agricultural University, Tilagor, Sylhet-3100.

Project ID: 432

Title : **ADAPTATION TO CLIMATE CHANGE AND SUSTAINABLE LIVELIHOOD THROUGH MORINGA BASED AGROFORESTRY PRACTICE IN BANGLADESH.**

Sub-sector : Forestry

Thematic area : Farm productivity enhancement in changing climatic situation

Goal : The following goals will be achieved after implementation of the sub-project: Improving the livelihood of poor farmers as well as bring back the ecological congenial environment through Moringa based agroforestry practice.

Objectives : State clearly specific objective/s (not more than 3) with target/s which are realistic and achievable.

- i. To identify major constraints of Moringa related to planting materials, production technology and marketing approaches
- ii. To collect, conserve, screen, and identify potential Moringa cultivars for sustainable agroforestry farming system
- iii. Cost benefit analysis and evaluation of potential Moringa based agroforestry practices for ensuring sustainable livelihood of the poor farmers.

Duration : July 2017 to September 2018

Implementing Agency : **Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka 1207**

Principal Investigator:

Professor Dr. Md. Kausar Hossain
Department of Agroforestry and Environmental Science
Sher-e-Bangla Agricultural University, Dhaka- 1207

Project ID: 551

Title : IDENTIFICATION AND ECONOMIC ANALYSIS OF EXISTING AGROFORESTRY PRACTICES IN THE NORTHERN REGION OF BANGLADESH FOR BETTER AGROFORESTRY PRACTICES.

Sub-sector : Natural Resources (4.5.3. Forestry)

Thematic area : 2.14.Low Productivity

Goal : To increase the productivity of agroforestry practices through improved technologies.

Purpose/Objectives :

- i) To identify and document the existing agroforestry practices of northern part of Bangladesh
- ii) To analyse economic value of the existing agroforestry practices
- iii) To suggest improved agroforestry practices for the farmers.

Duration : April 2017 to 30 September 2018

Implementing Agency : **Hajee Mohammad Danesh Science & Technology University
Dinajpur-5200, Bangladesh.**

Principal Investigator :

Dr. Md. Shoaibur Rahman
Associate Professor
Dept. of Agroforestry and Environment, Faculty of Agriculture
Hajee Mohammad Danesh Science & Technology University
Dinajpur-5200, Bangladesh.

Project ID: 582

Title : **DEVELOPMENT OF AGROFORESTRY MODEL FOR CONVERSION OF RICE-COTTON BASED HILL FARMING SYSTEM IN THE CHITTAGONG HILL TRACTS.**

Sub-sector : Natural Resources (Forestry)

Thematic area : Unfavorable ecosystems

Goal : Cotton yield and cottonseed oil production will increase in Bangladesh that will contribute in farmer's additional income from cotton cultivation.

Purpose/Objectives :

- i. To assess the current status of jhum system
- ii. To develop a model of agroforestry system to replace traditional jhum system
- iii. To develop jhum farmers skill and knowledge on agroforestry system

Duration : July, 2017 to September 30, 2018

Implementing Agency : **Cotton Development Board**

Principal Investigator :

Mong Sanue Marma
Senior Scientific Officer
Hill Cotton Research Station
Cotton Development Board
Balaghata, Bandarban.

Project ID: 595

Title : **UP-SCALING OF MULTISTORY AGROFORESTRY SYSTEM FOR DIVERSIFIED PRODUCTION, HIGH INCOME AND ECOSYSTEM SERVICES**

Sub-sector : Low productivity

Thematic area : Forestry

Goal : Income generation and productivity increment by maintaining farm environment through agroforestry

Purpose/Objectives :

- To expand the multistory agroforestry system (MAFS) with the introduction of middle- and lower-story crops in a jackfruit orchard for increasing diversified products.
- To evaluate the economic and land-use performances of MAFS and compare with the conventional practices.
- To investigate the ecosystem services in terms of microclimatic modifications and system dynamics of the MAFS.

Duration : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh.**

Principal Investigator :

Dr. Md. Abiar Rahman
Professor
Department of Agroforestry and Environment
BSMRAU, Gazipur 1706.



Fig: Multistory Agroforestry System for Diversified Production

Project ID: 596

Title : **RICE-BASED AGROFORESTRY IN BANGLADESH – STATUS AND OPPORTUNITIES FOR SUSTAINABLE LAND USE SYSTEM AND COMBATING FUTURE CLIMATE CHANGE CHALLENGES.**

Sub-sector : Natural Resources (Forestry)

Thematic area : Livelihood Improvement

Goal : Sustainable rice based agroforestry system to combat climate change

Purpose/Objectives :

- Documentation of rice based agroforestry practices in the northwest region of Bangladesh
- Analysis of the impacts of practicing agroforestry systems in terms of land use, productivity and profitability under climate change,
- Formulation of policy and guidelines for promotion of agroforestry in different ecosystems.

Duration : April 2017 to September 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Gazipur 1706, Bangladesh**

Principal Investigator :

Tofayel Ahamed
Professor
Department of Agroforestry and Environment
BSMRAU, Gazipur 1706.

Project ID: 815

Title : **STUDIES ON GUMMOSIS OF SHADE TREES IN TEA PLANTATION AND ITS MANAGEMENT**

Sub-sector : Forestry
Thematic area : Low Productivity

Goal : Gummosis of shade trees is found in different parts of the world, especially in tropical countries. The disease could be caused by several species of fungi particularly *Phytophthora* (Vashishta and Sinha, 2010). The first conspicuous symptom of the disease on the trunk of trees is usually gummy exudates. Lesions are found at points just above ground level in some plants but could be high-up in others. The lesions could spread all over the trunk including lateral branches. In older lesions, the bark cracks and dies causing stem canker (Mehrotra and Aggarwood, 2006). The disease can adversely affect tree height, diameter, branching pattern, leaf production, wood quality and survival of trees in landscape. This will impact on the cultural, recreational and aesthetic values of the tree species. Therefore, proper operation maintenance and appropriate technology are needed to overcome these serious problems. This study will help to find out the suitable management techniques of gummosis of shade trees in order to increase production of tea in Bangladesh.

Purpose/Objectives :

- i) To survey for the incidence of gummosis of shade trees in major tea plantation areas of Bangladesh
- ii) To identify the causal agents (insect and pathogen) of gummosis
- iii) To determine suitable control measures of gummosis.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Forest Research Institute**

Principal Investigator :

Dr. M. AhsanurRahman
Senior Research Officer
Forest Protection Division
Bangladesh Forest Research Institute
Chittagong-4000, Bangladesh.

Project ID: 439

Title : **EVALUATION OF TREE-CROP INTERACTION FROM EXISTING AGROFORESTRY SYSTEMS IN SYLHET REGION FOR FOOD SECURITY BY THE LENS OF CLIMATE-SMART AGRICULTURE FRAMEWORK**

Sub-sector : Natural Resources (Forestry)

Thematic area : Low productivity management

Goal : Build livelihoods by generating knowledge, choice and opportunities

Purpose/Objectives :

- i.To investigate long-term biophysical interactions and systems performance of existing agroforestry systems in Sylhet region.
- ii.To identify limiting factors, qualitative tendencies and management strategies.
- iii.To assess the trade-offs between trees and crops from a wide array of possible management options.

Duration : Start: July 2017 End : September 2018

Implementing Agency : Sylhet Agricultural University

Principal Investigator :

Mohammad Samiul Ahsan Talucder
Associate Professor
Department of Agroforestry and Environmental Science
Sylhet Agricultural University, Tilagor, Sylhet 3100.

Project ID : 307

Title : **IMPROVEMENT OF COCONUT HARVESTING AND DEHUSKING MACHINE.**

Sub-sector : Agricultural Mechanization and Farm Machinery

Thematic area : Postharvest Farm Machinery

Goal : Enhances risk free coconut harvesting and processing.

Purpose/Objective :

- i) To conduct the baseline survey on present status of harvesting and dehusking practices of coconut in selected major coconut growing areas of Bangladesh
- ii) To improve coconut climber & dehusker, and evaluate the performance of climber and dehusker along with economic feasibility
- iii) To conduct training and demonstration of climber and dehusker at users level in the project areas.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Md. Nurul Amin
Senior Scientific Officer
Farm Machinery and Postharvest Process Engineering Division
Bangladesh Agricultural Research Institute,
Joydebpur, Gazipur-1701



Project ID: 473

Title : **DEVELOP A HYDROGEOLOGICAL FRAMEWORK AND A SUSTAINABLE CROP ESTABLISHMENT PERIOD FOR HAOR AREAS OF BANGLADESH.**

Sub-sector : Natural resources (Water resources for agriculture)

Thematic area : Water Resources for Agriculture Use.

Goal : Land suitability and water productivity for major cropping pattern

Purpose/Objectives :

- i. To investigate the influence of climatic variability on haor water dynamics
- ii. To investigate the geo-structural and hydraulic characteristics of aquifer
- iii. To assess land suitability and cropping practice by application of GIS in haor area
- iv. To develop a crop establishment period and the water management package suitable for haor area

Duration : April 2017 to September 2018

Implementing Agency : **Sylhet Agricultural University, Sylhet-3100.**

Principal Investigator :

Dr. Sanjida Parveen Ritu
Associate Professor
Dept. of Irrigation and Water Management
Faculty of Agricultural Engineering and Technology
Sylhet Agricultural University, Sylhet-3100.

Project ID: 491

Title : **IMPROVING THE PERFORMANCE OF MECHANIZED SEEDING THROUGH INNOVATIONS IN SEED METERING SYSTEM**

Sub-sector : Agricultural Mechanization and Farm Machinery

Thematic area : Pre-Harvest Farm Machinery

Goal : To improve precision in mechanized maize planting and thus help expand mechanized maize cultivation in Bangladesh.

Purpose/Objectives : The overall objective of the project is to develop a precision seed metering system for adoption in two-wheeled tractor operated maize planters used for conventional and conservation agriculture. The specific objectives are:

- i) Benchmark the performance of maize seed meters and identify the critical design parameters using a high speed camera at the 'Tillage-cum-Seeding' laboratory;
- ii) Design and develop a precision seed metering system for maize planting;
- iii) Fabricate a seeder incorporating the precision seed metering system and validate its performance through on-station field trial.

Duration : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Abdul Matin
Senior Scientific Officer
Farm Machinery & Postharvest Process Engineering Division
Bangladesh Agricultural Research Institute (BARI)
Joydebpur, Gazipur1701, Bangladesh

Project ID: 519

Title : **DEVELOPMENT OF MODERN REELING MACHINE AND ITS USE FOR QUALITY AND QUANTITY RAW SILK PRODUCTION IN THE FIELD.**

Sub-sector : Agriculture Mechanization and Farm Machinery.

Thematic area : Farm machinery.

Goal : Quality raw silk production.

Purpose/Objectives :

- To produce quality raw silk through developing modern reeling machine.
- To improve renditta.
- To minimize the reeling cost.

Duration : April 2017 to September' 2018.

Implementing Agency : **Bangladesh Sericulture Research and Training Institute.**

Principal Investigator :

Md. Abdul Alim
Research Officer
Bangladesh Sericulture Research and Training Institute
Baliapukur, Padma Abasik
Rajshahi-6207.

Project ID: 548

Title : **DESIGN AND DEVELOPMENT OF A COMPENSATED Emitter FOR EFFICIENT DRIP IRRIGATION SYSTEM IN BANGLADESH**

Sub-sector : Natural Resources (Water Resources for Agriculture)

Thematic area : On farm Water Management

Goal : The goal of this project is to introduce an efficient and low-cost irrigation system in Bangladesh

Objectives : The objectives of the proposed project are to:

1. design a labyrinth type pressure compensated drip emitter for micro irrigation;
2. manufacture emitters and improve their water application uniformity indices, and
3. identify the backward and forward linkages for a sustainable business of drip products.

Duration : April 2017 to September 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University
Gazipur 1706, Bangladesh**

Principal Investigator:

Dr. Md. Moinul Hosain Oliver
Associate Professor,
Department of Agricultural Engineering
Bangabandhu Sheikh Mujibur Rahman Agricultural University
Gazipur 1706, Bangladesh.

Project ID: 576

Title : **DESIGN AND DEVELOPMENT OF POWER OPERATED OIL PALM FRUIT STRIPPER**

Sub-sector : Agricultural Mechanization and Farm Machinery

Thematic area : Post-Harvest Farm Machinery (2.3)

Goal : The main goal of this project is to develop a new machine for separation of fruit-let from fruit bunch for small scale palm oil processor.

Purpose/Objectives : The goal will be met through the following specific objectives:

- 1) To determine effective treatments (temperature, sterilization time etc) for efficient fruit separation.
- 2) To design and develop of different parts of a oil palm stripper
- 3) To evaluate the working performance of the machine in the Departmental Laboratory

Duration : July 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural University, Mymensingh-2202.**

Principal Investigator:

Dr. Md. Abdul Awal
Professor
Department of Farm Power and Machinery
Bangladesh Agricultural University, Mymensingh-2202.

Project ID: 624

Title : **DEVELOPING A MODEL-BASED WATER MANAGEMENT PLAN FOR HAOR WETLANDS OF BANGLADESH TO REDUCE THE VULNERABILITY OF BORO RICE CROP TO FLASH FLOODS.**

Sub-sector : Natural Resources (Water Resources for Agriculture)

Thematic area : On Farm Water Management

Goal : Adapting the developed prototype of haor water management approach across the entire haor region for attaining optimum rice production under the risk of future climate change

Purpose/Objectives:

- (i) Instrumenting some representative haors for monitoring real time hydro-meteorological data
- (ii) Developing a distributed physics-based model for simulating haor hydrology and rice yield
- (iii) Developing haor water management scenarios for different climate change induced hydrological alternations

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University (BAU), Mymensingh 2202.**

Principal Investigator:

Dr. Mohammed Mizanur Rahman
Associate Professor
Department of Irrigation and Water Management
Bangladesh Agricultural University (BAU)
Mymensingh 2202

Project ID: 696

Title : **IMPROVEMENT OF WATER PRODUCTIVITY FOR ENHANCING CROP PRODUCTION IN WATER SCARE AREA OF NORTH-WEST BANGLADESH**

Sub-sector : Natural Resources (Water resources for Agriculture)

Thematic area : Water resources for Agriculture Use

Goal : Water and Land Productivity Improvement

Purpose/Objectives : The objectives of the project are as follows.

- i) to maximum utilization of water resources for crop production in water scare areas;
- ii) to improve water productivity by appropriate water management practices

Duration : June, 2017 to September, 2018

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigator :

Dr. Shahana Parveen
Senior Scientific Officer
Irrigation and Water Management Division
BRRI, Gazipur.

Project ID: 705

Title : **IMPROVEMENT AND VALIDATION OF BRRI DEVELOPED HEAD FEED MINI COMBINE HARVESTER.**

Sub-sector : Agricultural Mechanization and Farm machinery

Thematic area : Postharvest Farm machinery

Goal : Adoption of appropriate harvesting machinery at farmers level for attaining sustainable rice cultivation

Purpose/Objectives :

- To modify the BRRI developed combine harvester
- To test and evaluation of modified combine harvester at selected locations
- To validate of the developed technology to the end users

Duration : April 2017, to September 2018

Implementing Agency : **Bangladesh Rice Research Institute**

Principal Investigator :

Bidhan Chandra Nath
Senior Scientific Officer
Farm Machinery and Postharvest Technology Division
Bangladesh Rice Research Institute (BRRI), Gazipur-1701

Project ID: 728

- Title** : **DEVELOPMENT OF SHELF STABLE VALUE ADDED PRODUCTS FROM ONION, GARLIC AND GINGER.**
- Sub-sector : Agricultural Mechanization and Farm machinery
Thematic area : Post-harvest farm machinery
- Goal** : Increase income of the stakeholders and to improve their livelihood through processed products as well as reducing post-harvest loss and import cost.
- Purpose/Objectives** :
- i) To identify post-harvest practices and to determine the post-harvest losses of onion, garlic and ginger in farmers field
 - ii) To study storage stability and determine organoleptic acceptability of developed products
 - iii) To minimize the post- harvest losses and optimize process parameter to obtain high quality process products of onion, garlic and ginger.
- Duration** : April/2017 to September/2018
- Implementing Agency** : **Bangladesh Agricultural Research Institute.**
- Principal Investigator** :
- Dr. Md. Masud Alam
Senior Scientific Officer (Ag. Engg.)
Spices Research Centre
Bangladesh Agricultural Research Institute, Shibganj, Bogra.

Project ID: 748

Title : **DESIGN AND DEVELOPMENT OF EFFICIENT AND LOW COST SUGARCANE POWER CRUSHER FOR GOOR PRODUCTION**

Sub-sector : Agricultural Mechanization and Farm Machinery

Thematic area : Post harvest Farm Machinery

Goal : Hygienic goor production as well as farmer's livelihood improvement.

Purpose/Objectives :

- i. Design and development of sugarcane crusher for efficient juice extraction;
- ii. Development of a low cost sugarcane crusher;
- iii. Reducing process loss of goor production.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Sugarcrop Research Institute**

Principal Investigator :

Sayed Shams Tabriz
Senior Scientific Officer and Head
Agricultural Engineering Division
Bangladesh Sugarcrop Research Institute
Ishurdi-6620, Pabna.

Project ID: 774

Title : **DEVELOPMENT OF A LOW COST BATTERY OPERATED ROTARY TYPE UPLAND WEEDER**

Sub-sector : Agricultural Mechanization and Farm Machinery

Thematic area : Pre-harvest Farm Machinery

Goal : Ensure food security and accelerate livelihood of farmers' by mitigating the drudgery of weeding and crop production cost

Purpose/Objectives :

- a) To develop a cost effective rotary weeder for medium and small scale farmers
- b) To evaluate the performances of weeder in research field
- c) To disseminate the technology among the farmers by adaptive trail in farmers' field.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Israil Hossain
Chief Scientific Officer
Farm Machinery and Postharvest Process Engineering Division
Bangladesh Agricultural Research Institute
Joydebpur, Gazipur-1701

Project ID: 811

Title : **DEVELOPMENT AND DISSEMINATION OF FERTILIZER DEEP PLACEMENT APPLICATOR FOR INCREASING FERTILIZER USE EFFICIENCY AND FARM PRODUCTIVITY**

Sub-sector : Agricultural Mechanization/Farm Machinery

Thematic area : Farm Machinery

Goal : The goal of this project is to increase fertilizer use efficiency and crop yield by fertilizer deep placement using fertilizer applicator.

Purpose/Objectives :

- i. To develop and promote fertilizer applicator for fertilizer deep placement.
- ii. To increase fertilizer use efficiency by fertilizer deep placement under the soil.
- iii. To increase crop production with saving of fertilizer and environment pollution.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Md. Abdul Wohab
Chief Scientific Officer
Regional Agricultural Research Station (RARS)
Bangladesh Agricultural Research Institute (BARI),
Rahmatpur, Barisal-8211.

Project ID: 814

Title : **DEVELOPMENT AND ADAPTATION OF WATER SAVING IRRIGATION TECHNIQUES FOR UPLAND CROPS**

Sub-sector : Water Resources for Agriculture

Thematic area : On Farm Irrigation Water Management

Goal : The goal of the research project is to increase water use efficiency through development and adaptation of improved water saving technologies in drought and saline prone areas of Bangladesh.

Purpose/Objectives : The major objectives are:

(i) To develop raised bed alternate and fixed furrow irrigation techniques for upland major crops in drought and salt prone areas, respectively;

(ii) To develop drip irrigation systems with higher water distribution uniformity and water use efficiency for high value upland crops;

(iii) To validate and adapt the site specific water saving technologies at farmers' field condition for crop production.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. K. K. Sarker
Scientific Officer
IWM Division, BARI, Gazipur.

Project ID : 305

Title : **BREEDING BIOLOGY AND INDUCED BREEDING TECHNIQUE OF THE FRESHWATER GANGMAGUR, *HEMIBAGRUS MENODA* (HAMILTON, 1822).**

Sub-sector : Fisheries

Thematic area : Fish production and productivity.

Goal : Development of environmental friendly breeding technique for protection, conservation and sustainable aquaculture of endangered tasty and high market valuable freshwater gangmagur.

Objectives : The aim of this research work is to develop suitable technology for breeding, larval rearing and culture management of the Menoda catfish, *Hemibagrus Menoda*, which could be disseminated among the hatchery managers, nursery operators and fish farmers. To achieve this goal the proposed research has been designed with the following objectives:

1. To study the reproductive cycle of *H. menoda* by Fecundity, Gonado Somatic Index (GSI) and gonadal histology; and
2. To develop induced breeding technique of *H. menoda* using inducing hormones.

Duration : May 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Md. Idris Miah
Professor (Selection grade)
Department of Fisheries Management
Bangladesh Agricultural University
Mymensingh-2202, Bangladesh.

Project ID: 316

Title : **EFFECTS OF VACUUM AND MODIFIED ATMOSPHERE PACKAGING ON MICROBIOLOGICAL AND BIOCHEMICAL PROPERTIES OF FRESH FISH STORED AT REFRIGERATION TEMPERATURE (4 °C).**

Sub-sector : Fisheries

Thematic area : Fisheries protection/ conservation/management (Harvesting, handling, processing and preservation of fish and fisheries products to HACCP standard)

Goal : Development of a proper vacuum and MAP packaging system for whole dressed or portion of fish to increase the value, convenience and shelf-life of fishes under refrigeration condition in the market

Purpose/Objectives :

- 1) To know the consumer's preferences to assess the acceptability of MAP packaged whole dressed or portion of fish in the market.
- 2) To determine the microbiological and biochemical quality of whole dressed or portion of fish stored under vacuum and different modified atmosphere packaging at 4°C.
- 3) To determine the overall quality and shelf-life of whole dressed or portion of fish stored under vacuum and different modified atmosphere packaging at 4°C.

Duration : June 2017 to September 2018

Implementing Agency : **University of Rajshahi, Rajshahi-6205**

Principal Investigator :

Dr. Md. Tariqul Islam

Associate Professor, Department of Fisheries

University of Rajshahi, Rajshahi-6205

Project ID: 333

Title : **DEVELOPMENT OF GREEN MUSSEL *PERNA VIRIDIS* FARMING SYSTEM IN COASTAL AREAS FOR BOOSTING BLUE ECONOMY OF BANGLADESH**

Sub-sector : Fisheries

Thematic area : Fish Production and Productivity

Goal : The ultimate goal of the proposed project is to develop the farming system of green mussel (*P. viridis*) in the coastal areas for supporting the blue economy of Bangladesh. In order to develop the farming system of green mussel, special emphasis will be given to identify the potential sites, larval occurrence, abundance of seed and culture potential of *P. viridis* in coastal areas of Bangladesh.

Purpose/Objectives :

- To apply site capability rating system for fast and effective evaluation of potential farming sites of green mussel in coastal areas of Bangladesh
- To obtain near real-time data on feeding behaviour, larval occurrence, abundance of seed and seasonal variation of spat settlement density with different substrates of green mussel in coastal habitat in Bangladesh
- To develop appropriate green mussel culture technology and profitability model in context of Bangladesh by piloting different culture systems at potentially suitable farming areas.

Duration : April 2017 to September 2018

Implementing Agency : **Chittagong Veterinary and Animal Sciences University, Khulshi-4225, Chittagong, Bangladesh**

Principal Investigator :

Dr. Md Asaduzzaman
Assistant Professor and Head
Department of Marine Bioresources Science
Chittagong Veterinary and Animal Sciences University, Khulshi-4225,
Chittagong, Bangladesh



Fig: Green Mussel *Perna viridis* farming system

Project ID: 363

Title : **BUSINESS OPPORTUNITIES OF ORNAMENTAL FISHERIES IN BANGLADESH: DEVELOPMENT OF A PRODUCTION AND ECONOMIC ASSESSMENT MODEL**

Sub-sector : Fisheries

Thematic area : Fish production and productivity

Goal : The goal of this research is to develop ornamental fish farming as a means of poverty reduction

Purpose/Objectives : The purpose of this research is to facilitate potential investors of Bangladesh in ornamental fish farming business by providing them with a general understanding of the business, various aspects of project concept development, start-up, production, finance, and business management.

-Potential investors interested in this business venture would want to know exactly what returns on investment can be expected. And so the objective of this study is to:

- a) Social and economic parameters of community determined and monitored, local knowledge and needs identified, existing consumer preference vis-a-vis marketing strategies adopted by ornamental fish aquarium business service providers explored
- b) develop a production and economic model of ornamental fish business including profitability analysis
- c) design strategies for promoting ornamental fish aquarium business service.

Duration : 1 July, 2017 to 30 September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Professor Dr. Md. Sadiqul Islam
Department of Fisheries Biology & Genetics
Bangladesh Agricultural University, Mymensingh 2202

Project ID: 364

Title : **STUDY ON QUALITY OF FISH FEED, BROOD USED AND FINGERLINGS PRODUCED IN COMMERCIAL FISH FARMS OF BANGLADESH**

Sub-sector : Fisheries

Thematic area : Fish production and productivity

Goal : To analyze the present status and suggest guidelines for quality seeds production to commercial hatchery owners and fish farmers in Bangladesh

Purpose/Objectives :

1. To evaluate the quality of feed (the major ingredients) used in the fish farms and to assess the performance of broodstock and fingerlings of selected carp, catfish and perch farmed in Bangladesh;
2. To develop a set of principles for the hatchery owners on how to maintain and improve the quality of broodstock and how to produce fish seed with prime quality that ensure high survival, good growth, and best disease resistance in the grow-out; and
3. To prepare a guideline for the feed producers (manufacturers) and fish feed users (fish farmers & hatchery owners) on using feed ingredients and maintaining quality.

Targeted beneficiary(ies):

- i. Commercial fish farmers
- ii. Fry traders
- iii. Hatchery owners
- iv. Fish feed manufacturers
- v. Fisheries researchers and planners

Duration : September, 2017 to 30 September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Professor Dr. Md. Shahjahan
Professor
Department of Fisheries Management
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 397

Title : SEED PRODUCTION OF BHAGNA, *LABEO ARIZA* (HAMILTON, 1807) THROUGH LINE BREEDING TRIAL IN BANGLADESH

Sub-sector : Fisheries

Thematic area : Fish breeding and propagation

Goal : Seed production through line breeding technique and development of base population of *L. ariza*.

Purpose/Objectives :

The specific objectives of this proposed research project are-

- a) to domesticate the wild sources of *L. ariza* for gonadal maturation under captive condition; &
- b) to perform the induced breeding of *L. ariza* under different line breeding trial.

Duration : April 2017 to September 2018.

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. A.K. Shakur Ahammad
Associate Professor
Dept. of Fisheries Biology and Genetics
Bangladesh Agricultural University
Mymensingh-2202, Bangladesh

Project ID: 410

Title : **DEVELOPMENT OF SUSTAINABLE AQUACULTURE SYSTEM IN THE INUNDATED LOW-LAYING AGRICULTURE LAND IN THE COASTAL REGION OF BANGLADESH.**

Sub-sector : Fisheries

Thematic area : Fish production and productivity

Goal : Emerging aquaculture system development-increasing fish production without/reducing feed cost.

Purpose/Objectives : The aim of this research is to utilize the unused submersed low-laying agriculture land and to use the *Hygroryza aristata* floating grass as feed for fishes directly to develop a new low cost fish production technology by maintaining good aquatic environment through open water fisheries management in the southern coastal region of Bangladesh.

Objectives :

1. To utilize *Hygroryza aristata* floating grass as fish feed;
2. To utilize the submerged low-laying agriculture land and tidal water for emerging aquaculture system with maintaining good water quality;
3. To determine the proximate composition of *Hygroryza aristata* and fish in relation to growth performance; and
4. To examine biological, economical and environmental advantages achieved through new interventions proposed aquaculture systems.

Duration : April 2017 to September 2018

Implementing Agency : **Patuakhali Science and Technology University
Dumki, Patuakhali-8602.**

Principal Investigator :
Md. Moazzem Hossain
Associate Professor
Department of Fisheries Management
Patuakhali Science and Technology University
Dumki, Patuakhali-8602.

Project ID: 462

Title : **STUDY ON ENVIRONMENTAL AND SOCIO-ECONOMIC IMPACT OF DAUDKANDI MODEL FLOODPLAIN FISHERIES MANAGEMENT**

Sub-sector : Fisheries

Thematic area : Protection, conservation and management of fisheries genetic resources

Goal : The goal of the sub-project is to provide solid evidence to the policy planners and researchers working in the fisheries sector of Bangladesh to replicate *Daudkandi* model of community floodplain aquaculture considering environmental and socio-economic impacts.

Purpose/Objectives :

The purpose of the sub-project is to assess the socio and environmental impact of Daudkandi model of community floodplain aquaculture of Comilla district for future replication of this model. The specific objectives of the project are to:

- Assess the impact of Daudkandi model of community floodplain aquaculture on fish population.
- Assess the impact of Daudkandi model of community floodplain aquaculture on water quality and cropping system
- Assess the impact Daudkandi model of community floodplain aquaculture on the livelihood of fishing community.

Duration : April 2017 to September 2018

Implementing Agency : **Sustainable Development Associates (SDA), 180/6/12A (1st floor), Titas Road (near water pump), East Rampura, Dhaka-1219,**

Principal Investigator :

Md. Alam Hossain

House 608, Apt. D2(1st floor), NSB Century

East Kazipara, Mirpur, Dhaka-1216, Bangladesh



Project ID: 464

Title : **PRODUCTION OF ASIAN SEABASS (*LATES CALCARIFER*) IN BRACKISH AND FRESHWATER EARTHEN POND UNDER NATURAL AND ARTIFICIAL FEEDING REGIME IN SOUTH-WEST COASTAL ZONE OF BANGLADESH.**

Sub-sector : FISHERIES

Thematic area : Fish production and productivity

Goal : The goals of this research project are

- To develop aquaculture model of Asian seabass in brackish and freshwater earthen ponds.
- To develop suitable artificial feed for seabass aquaculture system.

Purpose/Objectives:

1. To compare growth and survival of Asian seabass in brackish and freshwater pond.
2. To develop suitable feeding regime for seabass aquaculture.
3. To determine optimum stocking density of seabass in captive aquaculture system.

Duration : June 2017 to September 2018

Implementing Agency : **Patuakhali Science and Technology University, Patuakhali.**

Principal Investigator :

Dr. Muhammad Abdur Raazzak
Assistant Professor
Department of Aquaculture
Patuakhali Science and Technology University

Project ID: 471

Title : DNA BARCODING OF FRESHWATER FISHES OF BANGLADESH: IMPLICATION FOR CONSERVATION AND MANAGEMENT.

Sub-sector : Fisheries

Thematic area : Protection/ conservation/ management

Goal : To conserve the genetic diversity of freshwater fishes of Bangladesh

Purpose/ Objectives : State clearly specific objective/s (not more than 3) with target/s which are realistic and achievable.

- i.To know the genetic diversity of freshwater fishes of Bangladesh exploring the mitochondrial Cytochrome C Oxidase Subunit I (COI) gene;
- ii.To develop a standardized reference library as 'Bangladesh Barcode of Life' Data base system to store all the DNA barcode data for the use of researchers, students and policy makers and
- iii.To know the conservation status and recommendation on management of genetic diversity of freshwater fishes of Bangladesh.

Duration : April 2017 to 30 September 2018

Implementing Agency : **University of Dhaka.**

Principal Investigator :

Dr. Md. Sagir Ahmed
Professor
Department of Zoology
University of Dhaka.

Project ID: 484

Title : **MANAGEMENT OF INDIGENOUS FISHES IN WETLAND (GAJNER *BEEL*, PABNA) ECOSYSTEM**

Sub-sector : Fisheries

Thematic area : Fisheries Protection/ Conservation/ Management

Goal : To establish sustainable management system for indigenous fishes on population-level and ecosystem-based approaches towards increase the availability of these fishes and its production in the Gajner *Beel*.

Purpose/Objectives :

- To find out the fish diversity with emphasis on indigenous fish species composition in relation to fishing gear in the Gajner *Beel*;
- To identify the causal factors for threatening/ declining of indigenous fish species in the Gajner *Beel*; and
- To estimate the size at sexual maturity and spawning season of selective indigenous fishes in the Gajner *Beel*.

Duration : June, 2017 to September, 2018

Implementing Agency : **University of Rajshahi, Rajshahi-6205, Bangladesh.**

Principal Investigator:

Dr. Md. Yeamin Hossain
Associate Professor
Department of Fisheries
Faculty of Agriculture, University of Rajshahi
Rajshahi-6205, Bangladesh

Project ID: 488

Title : **DEVELOPMENT OF ARTIFICIAL BREEDING TECHNIQUE FOR *CIRRHINUS REBA* COLLECTED FROM DIFFERENT REGIONS OF BANGLADESH**

Sub-sector : Fisheries

Thematic area : Fish breeding and propagation

Goal : Sustainable aquaculture and revival of threatened indigenous fish species *C. reba* through mass seed production using artificial propagation technique.

Purpose/Objectives :

- i. To assess the genetic variation of *C. reba* collected from different region of Bangladesh for quality Broodstock management
- ii. To develop artificial breeding technique for *C. reba*
- iii. Crossbreeding of *C. reba* for the genetic improvement of the stocks of Dinajpur region

Duration : July, 2017 to September, 2018

Implementing Agency : **Hajee Mohammad Danesh Science and Technology University (HSTU), Dinajpur-5200.**

Principal Investigator :

Dr. Imran Parvez
Associate Professor
Department of Fisheries Biology and Genetics
Hajee Mohammad Danesh Science and Technology University
(HSTU), Dinajpur-5200

Project ID: 489

Title : **DEVELOPMENT OF QUALITY VALUE ADDED FISH PRODUCTS AND UTILIZATION OF BY-PRODUCTS**

Sub-sector : Fisheries

Thematic area : Socio-economic and marketing

Goal : Development of new value added fish products and ensuring proper utilization of the fisheries by-products.

Purpose/Objectives : The objectives of the project are as follows:

- a) Development of new fish products and their quality assurance;
- b) Proper utilization of fish by-products; and
- c) Value addition to fish product and by-product.

Duration : April 2017 to September 2018

Implementing Agency: **Sylhet Agricultural University, Sylhet-3100**

Principal Investigator :

Dr. Md. Abu Sayeed
Professor
Department of Fisheries Technology and Quality Control
Sylhet Agricultural University, Sylhet 3100

Project ID: 493

Title : CHARACTERIZATION OF COMMERCIAL PROBIOTICS USING FOR FISH AND SHRIMP CULTURE IN BANGLADESH.

Sub-sector : Fisheries

Thematic area : Fish Production and Productivity

Goal : To develop comprehensive microbial database of probiotics using for fish and shrimp culture in Bangladesh for ensuring food safety and quality.

Purpose/Objectives :

1. To enlist probiotics using for aquaculture in Bangladesh.
2. To isolate and characterize bacteria from commercial probiotics using for aquaculture
3. To determine the probiotic properties and antibiotic susceptibilities of different bacterial isolates.

Duration : April 2017 to September 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University
Gazipur-1706.**

Principal Investigator :

Dr. S. M. Rafiquzzaman
Associate Professor
Department of Fisheries Biology and Aquatic Environment
Faculty of Fisheries
Bangabandhu Sheikh Mujibur Rahman Agricultural University
Gazipur-1706.

Project ID: 497

Title : **EVALUATION OF THE SUITABILITY AND EFFICACY OF POTATO AND WHEAT AS PREBIOTIC COMPOUNDS ON THE GROWTH PERFORMANCE, SURVAIVALITY AND TISSUE COMPOSITION OF *LABEO ROHITA* AND *CATLA CATLA***

Sub-sector : Fisheries
Thematic area : Fish production and productivity

Goal : Innovation of a cost effective fish feed formulated by potato and wheat which would be helpful to increase the fish production which will uplift nutrition, livelihood and income for fish farmers.

Purpose/Objectives : The specific objectives are:

- i) To determine the effect of potato and wheat as prebiotics on the growth and production performances of *Labeo rohita* and *Catla catla*;
- ii) To evaluate the potato and wheat supplemented feed on the tissue composition of *Labeo rohita* and *Catla catla* and
- iii) To know the effect of potato and wheat on the survivality of *Labeo rohita* and *Catla catla*.

Duration : July 2017 to September 2018

Implementing Agency: **Bangladesh Agricultural University, Mymensingh-2202.**

Principal Investigator :
Md. Sazzad Hossain
Professor, Department of Aquaculture
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 502

Title : **MOLECULAR IDENTIFICATION OF LOCAL AND EXOTIC STRAINS OF KOI (*ANABAS TESTUDINEUS*) FOR STRATEGIC CONSERVATION MANAGEMENT**

Sub-sector : Fisheries

Thematic area : Protection, conservation and management of fisheries genetic resources

Goal : Genetic structure and molecular identification of Koi fish (*Anabas testudineus*) in Bangladesh by marker developed in the present study

Purpose/Objectives :

- i). To study complete mitochondrial genome of local and exotic koi (*A. testudineus*) in Bangladesh
- ii) To study genetic structure of local and exotic koi population in Bangladesh
- iii) Molecular marker development for the prompt identification of quality broodstock of local and exotic koi for breeding program

Duration : July, 2017 to September, 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University
Gazipur.**

Principal Investigator:

Dr. Mohammad Shafiqul Alam
Assistant Professor
Department of Genetics and Fish Breeding
Faculty of Fisheries
Bangabandhu Sheikh Mujibur Rahman Agricultural University,
Gazipur.

Project ID: 510

Title : **DEVELOPMENT OF NANOMATERIAL MEDIATED FEED FOR IMPROVING GROWTH AND IMMUNITY OF FISHES**

Sub-sector : Fisheries

Thematic area : Fish Production and Productivity.

Goal : Improve nutritional quality of fish feed by applying nanoparticles that will be ensured better growth of fishes and produce healthy fish for human consumption.

Purpose/Objectives :

1. Preparation of shape and size controlled nanoparticles for different metals under oilbath heating.
2. Synthesis of nanomaterials (micronutrient) mediated feed for disease free fish growth and development.
3. To observe growth performance, meat quality (proximate compositions), haematological parameters and immune responses of fishes by adding different doses of nanoparticles in an experimental diet.

Duration : July 2017 to September 2018

Implementing Agency : **Rajshahi University, Rajshahi-6205**

Principal Investigator :

Dr. Md. Jahangir Alam
Associate Professor
Department of Agronomy & Agricultural Extension
Rajshahi University, Rajshahi-6205

Project ID: 553

- Title** : **INDUCTION OF BREEDING AND LARVAL REARING OF *BOTIA DARIO* AND *LEPIDOCEPHALICHTHYS GUNTEA* FOR AQUACULTURE AND RECREATIONAL USE IN BANGLADESH.**
- Sub-sector** : Fisheries
- Thematic area** : Fish production and productivity
- Goal** : The main goal of this project is to make the fry of endangered *Botia dario* and *Lepidocephalichthys guntea* available for commercial as well as ornamental culture in Bangladesh through induced breeding and larval rearing technique. It will create new avenue for income generation for the hatchery operators and ornamental fish traders. people through nursery management and culture. In near future, the enhanced production of those species could have provided low price protein sources for the resource- poor. In long run, a sustainable production will help to conserve fish biodiversity, enhance increased abundance and protect the fish from extinction.
- Purpose/Objectives** :
- The specific objectives of the sub-project are to:
- ✓ develop the breeding technique of *Botia dario* and *Lepidocephalichthys guntea*. through optimizing hormones for successful induced breeding
 - ✓ develop nursery management techniques
 - ✓ assess their feasibility for commercial and recreational aquaculture
- Duration** : August 2017 to September 2018
- Implementing Agency** : **Noakhali Science and Technology University, Noakhali.**
- Principal Investigator** :
- Dr. Shyamal Kumar Paul
Assistant Professor
Department of Fisheries and Marine Science
Noakhali Science and Technology University, Noakhali.

Project ID: 587

Title : **IMPACT OF AQUACULTURE ON AGRICULTURAL PRODUCTION IN GREATER NOAKHALI DISTRICTS.**

Sub-sector : Fisheries

Thematic area : Fish Production and productivity.

Goal : The overall goal of this research is to identify the present status of agricultural production and productivity and its impacts on non-aquaculture farmers' livelihood.

Purpose/Objectives:

- i. To identify the status of agricultural production and productivity of the adjacent aquaculture farm.
- ii. To determine the soil and water quality of the adjacent aquaculture farm.
- iii. To assess the impacts of aquaculture farming on livelihood status of non-aquaculture farmers.

Duration : April 2017 to September 2018

Implementing Agency: **Noakhali Science and Technology University, Noakhali.**

Principal Investigator :

Dr. Md. Jahangir Sarker
Associate Professor
Department of Fisheries and Marine Science
Noakhali Science and Technology University, Noakhali-3814.



Fig: Focus Group Discussion, Companygonj, Noakhali

Project ID: 609

Sub-project title : **DNA barcoding and metabarcoding of coral associated fish and zooplankton community of Saint Martin's Island for effective conservation of marine life**

Sub-Sector : Fisheries

Thematic area : Fisheries protection/conservation/management

Goal : Contribution to conservation of the only coral island of Bangladesh i.e. Saint Martin's Island as a biodiversity hotspot.

Purpose/Objectives:

- a. To build a precise inventory of coral associated fish based on DNA barcoding along with morphometrics.
- b. To assess population genetic structure of an ecologically/commercially important fish or shell fish species found in the island area.
- c. To assess the diversity of zooplankton by DNA metabarcoding through next generation sequencing (NGS).

Duration : April 2017 to September 2018

Implementing Agency : **Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka-1207, Bangladesh.**

Principal Investigator:

Dr. Kazi Ahsan Habib
Professor
Department of Fisheries Biology and Genetics
Faculty of Fisheries and Aquaculture
Sher-e-Bangla Agricultural University
Sher-e-Bangla Nagar
Dhaka-1207, Bangladesh.

Project ID: 648

Title : **POTENTIALS OF MODERNIZATION IN FISHERIES SECTOR OF BANGLADESH: STUDY ON THE PEOPLES' PROFILE, TECHNOLOGIES AND POLICIES.**

Sub-sector : Fisheries

Thematic area : Fish production and productivity

Goal : The goal of this research is to increase sustainable fish production through technology modernization in Bangladesh

Purpose/Objectives : The purpose of this research to strengthen national policy frameworks to promote a shift towards more sustainable fish production and resource efficiency, thus contributing to green growth and poverty reduction in Bangladesh in achieving the Sustainable Development Goals (SDGs).

To achieve this purpose, the project has focused on achieving three specific objectives:

- a. To unfold the technological change and modernization which have taken place in the fisheries sector;
- b. To assess how far technological changes and modernization affected the socio-economic condition of the fisherfolkas well as the sustainability of the fishery resources;
- c. To assist stakeholders (government, private sector, and civil society) in designing and implementing specific policy-oriented activities to shift towards more sustainable fish production through modernization the sector.

Duration : July 2017 to 30 September 2018

Implementing Agency : **Sylhet Agricultural University, Sylhet-3100**

Principal Investigator :

Dr. Md. Tariqul Alam
Professor
Department of Aquaculture
Sylhet Agricultural University, Sylhet-3100

Project ID: 674

Title : **PRODUCTION AND PRODUCTIVITY IMPROVEMENT OF HAOR FLOODPLAIN FISHERIES FOR UPLIFTMENT OF FISHERS' LIVELIHOOD.**

Sub-sector : Fisheries

Thematic area : Fish production and productivity

Goal : Increase fish production in *haor* floodplain and livelihood improvement of fishers' in Sylhet region.

Objectives : The proposed study will be set out to address the following objectives:

- 1) To improve the fish yield in *haor* floodplain through community based management;
- 2) To assess the biodiversity of stocked and non-stocked fish species;
- 3) To uplift the livelihood of community people in *haor* area.

Duration : April, 2017; to September, 2018

Implementing Agency : **Sylhet Agricultural University, Sylhet-3100, Bangladesh.**

Principal Investigator :

Dr. Nirmal Chandra Roy
Associate Professor
Department of Fish Biology & Genetics
Sylhet Agricultural University
Sylhet-3100, Bangladesh

Project ID: 718

Title : **STUDY OF THE CLIMATE CHANGE IMPACT ON FISHERIES RESOURCES AND FISHERS' ESPECIALLY WOMEN AND CHILDREN IN SELECTED CLIMATE HOTSPOT ZONE OF BANGLADESH**

Sub-sector : Fisheries

Thematic area : Climate change

Goal : Find out the changes in fisheries resources due to climate change and recommendation for better livelihood of the affected fishers' community.

Purpose/Objectives : The proposed project is designed to determine the alteration in fisheries resources and identify the need for Fishers' particularly for women and children due to climate change.

The specific objectives of the project are as follows:

- i. To determine the changes in livelihood (education, health, nutrition, water sanitation, children and women protection and migration) of fishers' particularly women and children in selected climate hotspot zone;
- ii. To determine the change in availability of fish species through survey, as well as the primary productivity and water quality parameters of climate hotspot zone and non-affected areas;
- iii. Histopathological analysis of gonad, liver, gills, muscles and kidney of the fishes of climate hotspot zone with those of non-affected ones and evaluation of eggs and sperm quality.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Zakir Hossain
Professor
Department of Fisheries Biology and Genetics
Faculty of Fisheries
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 778

**Sub-project title : FINE TUNING OF SHORT CYCLE CULTURE OF SHRIMP
PENAEUS MONODON IN ROTATION WITH TILAPIA IN THE
COASTAL *GHERS*.**

Sub-sector : Fisheries
Thematic area : Fish production and productivity

Goal : Increasing of productivity of *gher* fishery through harmonization of crop rotation and diversified short cycle cropping patterns.

Purpose/Objectives :

- i. To increase the productivity of coastal *ghers* through year round aquaculture
- ii. To demonstrate short cycle shrimp culture system in rotation with tilapia in the farmers' *gher*.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Fisheries Research Institute**

Principal Investigator :

SYED LUTFOR RAHMAN
Chief Scientific Officer
Bangladesh Fisheries Research Institute
Brackish water Station, Paikgacha, Khulna- 9280

Project ID: 779

Title : **IMPROVEMENT OF LIVE FEED CULTURE FOR BRACKISHWATER HATCHERY OPERATION**

Sub-sector : Fisheries

Thematic area : Fish production and productivity

Goal : Promotion of qualitative and quantitative live feed culture protocol for sustainable Brackishwater and marine hatchery and nursery operations through uninterrupted supply of larval feeds for mass seed production of fish and crustacean species.

Purpose/Objectives :

- a) To up-scale the production of different microalgae (*Nannochloropsis* sp.; *Nannochlorum* and *Tetraselmis* sp.) for brackishwater and marine hatchery operations.
- b) To enhances the production of rotifers (*Brachionus* sp.) for improvement of larval rearing of fish and crustacean species..
- c) To observes the nutritive values (proximate contents and fatty acids) of microalgae and rotifers grown under different protocols.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Fisheries Research Institute**

Principal Investigator :

Nilufa Begum
Senior Scientific Officer
Bangladesh Fisheries Research Institute (BFRI)
Brackishwater Station, Paikgacha, Khulna- 9280
Bangladesh

Project ID: 817

Title : BIOCHEMICAL AND MOLECULAR ASSAY FOR DETECTION OF VIBRIO SPP AT SHRIMP AND SHRIMP FARMS IN BANGLADESH.

Sub-sector : Fisheries

Thematic area : Fish health management

Goal : The core goal is to develop an effective molecular diagnostic tool of shrimp vibriosis at shrimp and shrimp farms in Bangladesh. For which it would be possible to detect vibriosis rapidly and will give a suggestion for using a specific and effective antibiotic among shrimp farmers to minimize major economic loss.

Purpose/Objectives :

1. To identify and characterize *Vibrio spp* of shrimp in respective areas of Bangladesh
2. To develop an effective molecular diagnostic tool against the *Vibrio spp*
3. To select effective antibiotic against vibriosis

Duration : May 2017 to September 2018

Implementing Agency : **National Institute of Biotechnology (NIB)**

Principal Investigator :

Muhammad Shahdat Hossain
Scientific Officer
Fisheries Biotechnology Division
National Institute of Biotechnology (NIB)
Ganakbari, Savar, Dhaka-1349, Bangladesh

Project ID: 823

Title : **RESIDUAL ASSESSMENT OF HAZARDOUS PESTICIDES AND ANTIBIOTICS IN SHRIMP/PRAWN FARMING SYSTEMS OF SOUTH-WEST BANGLADESH WITH ITS TRACEABILITY IDENTIFICATION AND RISK QUANTIFICATION ON HUMAN HEALTH**

Sub-sector : Fisheries

Thematic area : Fish Safety and Quality

Goal :

- To aware the farmers and consumers about the bioaccumulation characteristics of hazardous pesticides and antibiotics in shrimp/prawn as well as its harmful effect on human health
- To build-up awareness on safe usages of pesticides and antibiotics

Purpose/Objectives :

- To scrutinize the available pesticides, antibiotics and other aqua-chemicals from existing shrimp/prawn farms of Khulna, Bagerhat and Shatkhira region for knowing its present extent through baseline survey
- To determine the residual concentration of hazardous pesticides and antibiotics in shrimp/prawn body and its probable source identification
- To assess the impacts of pesticides and antibiotics residues on human health through its risk quantification

Duration : July/2017 to September/2018

Implementing Agency : **Bangladesh Fisheries Research Institute**

Principal Investigator :

Md. Ariful Islam
Scientific Officer
Bangladesh Fisheries Research Institute
Shrimp Research Station, Bagerhat-9300

Project ID: 825

- Title** : **ADOPTION OF CULTURE TECHNOLOGIES OF SHORT CYCLE FISH SPECIES IN THE SEMI-ARID ZONE OF BANGLADESH**
- Sub-sector : Fisheries
- Thematic area : Fish production and productivity
- Goal : To disseminate the sustainable culture technologies of short cycle fish species in the semi-arid zone which will be possible to protect these fish from extinction in nature and ensure enhanced biodiversity.
- Objectives :
- a. To adopt the culture technologies of short cycle fish species
 - b. To disseminate the culture technologies in different part of semi-arid zone of Bangladesh
- Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Fisheries Research Institute**

Principal Investigator :

Dr. Khondaker Rashidul Hasan
SSO and Sub-station Chief
BFRI, FSS, Saidpur, Nilphamari-5310

Project ID: 827

Title : **DEVELOPMENT OF MIXED CULTURE TECHNOLOGY OF HIGH VALUED GALDA (*MACROBRACHIUM ROSENBERGII*) WITH TWO NATIVE CATFISH, SHING (*HETEROPNEUSTES FOSSILIS*) AND MAGUR (*CLARIAS BATRACHUS*) IN SOUTH-WESTERN COASTAL GHERS OF BANGLADESH.**

Sub-sector : Fisheries

Thematic area : Fish Production and Productivity

Goal :

- Development of mixed culture technology of prawn, shing and magur
- Demonstration the overall mixed culture activities to the farmers around the gher vicinity

Purpose/Objectives :

- To adopt the mixed culture technique of Prawn (*M. rosenbergii*) and Catfish (*H. fossilis* and *C. batrachus*,).
- To determine the production performance and survival rate of mixed culture practice.
- To assess the water quality parameters of gher ecosystem.
- To investigate the economic potentiality of these culture practices.

Duration : April/2017 to September/2018

Implementing Agency : **Bangladesh Fisheries Research Institute**

Principal Investigator :

Dr. Khan Kamal Uddin Ahmed
Chief Scientific Officer
Shrimp Research Station
BFRI, Bagerhat-9300



Fig: Technology of high value of Galda (*Macrobrachium rosenbergii*) with Two Native Catfish, Shing (*Heteropneustes fossilis*) and Magur (*Clarias batrachus*) Shing and Magur.

Project ID: 833

Title : **PRODUCTION ENHANCEMENT OF CARPS AND TILAPIA IN CREEKS OF CHITTAGONG HILL DISTRICTS**

Sub-sector : Fisheries

Thematic area : Fish production & Productivity

Goal : To enhance the widespread adoption of mixed culture technology across the hilly areas

Purpose/Objectives:

- To popularize fish production technology in the creeks of Chittagong Hill Districts
- To increase fish production in the Chittagong Hill Districts area
- To provide alternative livelihood to the fishers during fishing ban in Kaptai Lake

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Fisheries Research Institute**

Principal Investigator :

Md. Abul Bashar
Senior Scientific Officer
Riverine Sub-station, BFRI, Rangamati-4500

Project ID: 328

Title : **THE NUTRITIONAL ANALYSIS AND POPULARIZATION OF MINOR FRUITS TO RURAL AND URBAN COMMUNITIES OF BANGLADESH**

Sub-sector : Food and Nutrition

Thematic area : Food production, consumption and human nutrition.

Goal : Diversification of dietary habits and improvement of human nutrition as well as lifestyle of rural and urban people.

Purpose/Objectives :

- i) To determine the vitamins, macro and micro nutrient of minor fruits.
- ii) To document the bioactive compounds as well as phytochemicals of minor fruits.
- iii) To promote the nutritional health of the rural and urban people through raising awareness on the nutritive value of minor fruits in dietary diversity.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Institute**

Principal Investigator :

Dr. Mohammad Mainuddin Molla
Senior Scientific Officer (Food Technology)
Regional Agricultural Research Station (RARS)
BARI, Akbarpur, Moulvibazar.

Project ID: 521

Title : **VERTICAL FARMING: THE FUTURE SOLUTIONS FOR ORGANIC VEGETABLES PRODUCTION IN URBAN AREA.**

Sub-sector : Food and Nutrition

Thematic area : Food Production, Consumption and Human Nutrition

Goal : Improve the quality of life of the urban people through the organic and chemical pesticide free vegetable production by using the vertical space

Purpose/Objectives :

- a. Increase the availability of organic and chemical pesticide free vegetables all the year round
- b. To ensure the nutrition security by consuming the fresh organic vegetables
- c. Using the vertical space for vegetable production in urban areas
- d. Find out the suitable vegetables and soil media for the vertical agriculture
- e. To increase the land use efficiency
- f. To improve the organic farming industry

Duration : April 2017 to September 2018

Implementing Agency : **Sylhet Agricultural University (SAU), Sylhet-3100**

Principal Investigator :

Dr. Md. Fuad Mondal
Assistant Professor
Department of Entomology
Faculty of Agriculture
Sylhet Agricultural University (SAU), Sylhet-3100.

Project ID: 654

Title : **SMALL SCALE FARMING OF GUINEAFOWLS AND TURKEYS IN BANGLADESH- A TOOL FOR POVERTY REDUCTION.**

Sub-sector : Food and nutrient security

Thematic area : Livestock Production and Productivity

Goal : Poverty reduction through small scale rearing of guineafowls and turkeys

Purpose/Objectives :

- (i) To observe the meat and egg production performances of guineafowls and turkeys in complete confinement rearing system
- (ii) To observe the growth performance of guineafowls and turkeys under small scale farming in semi-scavenging system
- (iii) To analyze the economic feasibility of small scale guineafowl and turkey rearing for poverty reduction

Duration : July, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh 2202**

Principal Investigator :

Dr. Shubash Chandra Das
Professor
Department of Poultry Science
Bangladesh Agricultural University
Mymensingh 2202, Bangladesh

Project ID: 719

Title : **PRODUCTION OF LOW CHOLESTEROL HEALTHY MUTTON BY USING NATURAL HERBS**

Sub-sector : Feed and Nutrition

Thematic area : Food production, Consumption and Human Nutrition

Goal : Safe and quality sheep production using natural herbs

Purpose/Objectives :

a) To efficacy test of medicinal herbs on mutton cholesterol

b) To identify the antioxidant level of mutton

Duration : Start: June 2017 End : Sept. 2018

Implementing Agency : **Bangladesh Rice Research Institute.**

Principal Investigator :

Professor Dr. Mohammad Al-Mamun
Department of Animal Nutrition
Bangladesh Agricultural University (BAU), Mymensingh-2202.

Project ID: 647

Title : **FLOATING BED FODDER CULTIVATION IN SUBMERGED AND FLOODED AREAS IN SYLHET DISTRICT: A TOOL FOR CLIMATE RESILIENT LIVESTOCK PRODUCTION.**

Sub-sector : Climate change
Thematic area : Feed and Nutrition

Goal : To ensure climate resilient fodder production in water logged areas.

Purpose/Objectives :

- To accustom farmers in cultivating floating bed fodder in lean period in low cost
- To ensure year round plan for feed the animal
- To uplift the production status of cattle and improve the socio-economic condition of small holders near haor area.

Duration : April, 2017 to September, 2018

Implementing Agency : **Sylhet Agricultural University, Sylhet 3100**

Principal Investigator :

Dr. Mohammad Mehedi Hasan Khan
Professor and Chairman
Department of Biochemistry and Chemistry
Dean, Faculty of Biotechnology and Genetic Engineering
Sylhet Agricultural University, Sylhet 3100

Project ID: 638

Title : **QUALITATIVE ASSESSMENT OF BOTTLED DRINKING WATER AND EVALUATION OF PESTICIDES RESIDUE AT RAW, WASHED AND COOKED VEGETABLES**

Sub-sector : Food and Nutrition

Thematic Area : Food Safety and quality, hazardous and risk

Goal : The overall goal to achieve the quality status of bottled drinking water available in Bangladesh market and to estimate the left over residue in the vegetables processing at raw, washed and cooked samples and develop guidelines to mitigate the problems.

Purpose/Objectives : There are two components of the project and the overall objectives are as follows:

- i. Evaluation of microbial, chemical and biochemical assessment of different types of bottled/jar drinking water in Bangladesh market (*component-1*)
- ii. To determine the residue level of pesticide at market, washed and cooked samples of major indigenous vegetables (*component - 2*)
- iii. Development of communicable materials for wide awareness building for pesticide and healthy water for public health (*component 1 & 2*)

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Council**

Principal Investigator :

Dr. Md. Monirul Islam
Director (Nutrition)
BARC, Farmgate, Dhaka
Phone: 02-9112815
E-mail: dmmislam@yahoo.com

Project ID: 532

Title : **DEVELOPMENT OF COMMERCIALY FEASIBLE PROBIOTIC FOOD PRODUCTS FOR HUMAN AND FEED PRODUCTS FOR POULTRY USING NATIVE ISOLATES THROUGH BIOTECHNOLOGICAL INTERVENTIONS.**

Sub-sector : Food and Nutrition

Thematic Area : Biotechnology

Goal : i) Development of probiotic food and feed with therapeutic properties.
ii) Application of the efficacy of probiotic strains as food and feed supplement.
iii) Production of high nutritional probiotic foods considering the food safety issues and food security.

Purpose/Objectives : i) To isolate, characterize and properties studies of native probiotic isolates.
ii) To study the effects of native probiotic isolates on mice and poultry through in vivo trails.

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural Research Council**

Principal Investigator :
Dr. Khandokar Moazzem Hossain
Biotechnology and Genetics Engineering Discipline,
Khulna University
Khulna-9208

Project ID : 309

Title : DIETARY EFFECT OF HYDROPONIC SPROUTED FODDER ON TURKEY PRODUCTION IN BANGLADESH.

Sub-sector : Livestock

Thematic area : Livestock production and productivity

Goal : The ultimate goals of the sub-projects are:

- i) To introduce turkey as a promising poultry species, and its meat as an alternative protein source in Bangladesh
- ii) Poverty alleviation through small-scale turkey farming among the specific target groups
- iii) To modernize the departmental research facilities, and generate knowledge and technology through basic and applied research
- iv) Improve the professional skills and research capabilities of the faculty members.

Purpose/Objectives :

- i) To investigate the effect of dietary supplementation of hydroponic sprouted fodder on productive and reproductive performances of turkey
- ii) To know the quality and nutrient characteristics of turkey meat.
- iii) To study the economic sustainability of hydroponic sprouted fodder on turkey production in Bangladesh

Duration : July, 2017 to September, 2018

Implementing Agency: **Hajee Mohammad Danesh Science and Technology University,
Dinajpur-5200**

Principal Investigator :

Ummay Salma, PhD
Professor, Department of Animal Science and Nutrition
Hajee Mohammad Danesh Science and Technology University
Dinajpur-5200

Project ID : 313

Title : **DEVELOPMENT OF ESTRUS SYNCHRONIZATION PROTOCOLS USING HORMONES IN ANESTRUS COWS FOR IMPROVED REPRODUCTIVE PERFORMANCE.**

Sub-sector : Livestock

Thematic area : Livestock breeding and propagation, native species conservation and improvement

Goal : Improvement of reproductive performance of dairy cows for sustainable dairy farming in Bangladesh by maintaining One calf/cow per year

Purpose/Objectives:

- Observation of the prevalence of anestrus in relation to different risk factors in heifer and postpartum cows.
- Development of effective estrus synchronization protocols using hormones.
- Evaluation of the effective pregnancy diagnosis technique in cows by using different tools.

Duration : July 2017 to September 2018

Implementing Agency : **University of Rajshahi, Rajshahi-6205.**

Principal Investigator :

Professor Dr. Md. Jalal Uddin Sarder
Dept. of Veterinary & Animal Sciences
University of Rajshahi, Rajshahi-6205.

Project ID: 321

Title : **SEROPREVALENCE AND IDENTIFICATION OF ASSOCIATED RISK FACTORS OF Q FEVER (*COXIELLABURNETII*) IN RUMINANTS, AN EMERGING ZONOTIC DISEASE IN BANGLADESH.**

Sub-sector : Livestock

Thematic area : Livestock Protection

Goal : Determination of seroprevalence and identification risk factors for *Coxiellaburnetii* in ruminants (Cattle and goats) and farm workers in Bangladesh.

Objectives :

- i) Sero-prevalence of Q-fever in ruminants and farm workers by iELISA in different areas of Bangladesh.
- ii) Determination of the presence of *Coxiellaburnetii* DNA in seropositive of raw milk from ruminants and sera (both animal and human).
- iii) Identification of risk factors for Q-fever in Bangladesh.

Duration : April 2017 to September 2018

Implementing Agency : **Patuakhali Science and Technology University, Patuakhali.**

Principal Investigator:

Dr. Khondoker Jahengir Alam, DVM, MS in Pathology, PhD
Professor and Chairman
Dept. of Pathology and Parasitology
Faculty of Animal Science and Veterinary Medicine
Patuakhali Science and Technology University
Patuakhali, Bangladesh

Project ID: 349

Title : IDENTIFICATION OF THE CAUSES OF CALF MORTALITY IN BUFFALO AND THEIR MITIGATION MEASURES IN BANGLADESH.

Sub-sector : Livestock
Thematic area : Livestock protection

Goal : Increase buffalo production through control of buffalo calf mortality.

Purpose/Objectives :

- a) Isolation and identification of causative organisms associated with buffalo calf mortality in Bangladesh
- b) Identification of environmental and managemental risk factors associated with calf mortality in buffalos
- c) Development of appropriate therapeutic measures and control strategies against buffalo calf diseases

Duration : July 2017 to September 2018

Implementing Agency : **Sylhet Agricultural University**

Principal Investigator :

Professor Dr. Md. Masudur Rahman
Chairman
Department of Pathology
Faculty of Veterinary, Animal and Biomedical Sciences
Sylhet Agricultural University
Sylhet 3100, Bangladesh

Project ID: 362

Title : **PREVALENCE AND MOLECULAR CHARACTERIZATION OF SHIGA TOXIN PRODUCING *ESCHERICHIA COLI* (STEC) IN POULTRY AND THEIR PRODUCTS IN BANGLADESH.**

Sub-sector : Livestock

Thematic area : Safety, Quality Improvement and Control

Goal :

(a) Assessment of role of chickens as reservoirs of shiga toxin (Stx) and intimin (eae) producing *E. coli*.

(b). Determination of the potential public health risks of STEC strains originated from poultry and their products in Bangladesh.

Purpose/Objectives :

- a) Isolation, identification and serogrouping of *E.coli* field isolates of broiler, layers and indigenous chickens
- b) Molecular characterization of shiga toxin producing genes (*stx1* and *stx2* genes) by polymerase chain reaction and sequence analysis of the amplified genes.
- c) Determination of antibiotic sensitivity profile of the STEC isolates of broiler, layers and indigenous chickens against commonly used antimicrobial agents.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator:

Dr. Mst. Minara Khatun

Professor

Department of Microbiology and Hygiene

Bangladesh Agricultural University, Mymensingh-2202, Bangladesh.

Project ID: 367

Title : **DEVELOPMENT OF LIVE ATTENUATED DUCK PLAGUE VACCINE USING LOCAL DUCK PLAGUE VIRUS STRAINS**

Sub-sector : Livestock

Thematic area : Livestock protection

Goal : Development of a live attenuated duck plague vaccine to protect the ducks from duck plague.

Purpose/Objectives : State clearly specific objective/s (not more than 3) with target/s which are realistic and achievable.

- a) Isolation, identification and characterization of duck plague virus (DPV) from field outbreaks
- b) Development of live attenuated duck plague vaccine from local field strains
- c) Determination of efficacy of the developed vaccine

Duration : July 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator:

Professor Dr. Md. Ariful Islam
Department of Microbiology & Hygiene
Bangladesh Agricultural University, Mymensingh-2202.

Project ID: 395

Title : **GENETIC IMPROVEMENT OF INDIGENOUS CATTLE FOR BEEF PRODUCTION THROUGH CROSSING WITH BRAHMAN CATTLE BY FARMERS PARTICIPATORY BREEDING APPROACH IN BANGLADESH**

Sub-sector : Livestock (Livestock Breeding and Propagation)

Thematic area : Feed and Nutrient Security

Goal : Genetic improvement of beef production potentialities of indigenous cattle of Bangladesh.

Purpose/Objectives :

The specific objectives of this study will be:

- i. to improve the genetic potentiality of indigenous cattle for beef production by crossing with Brahman inheritance; and
- ii. to evaluate the growth performance and adaptability of Brahman crossbreds to local environment of Bangladesh.

Duration : April 2017 to September 2018.

Implementing Agency : **Bangladesh Agricultural University, Mymensingh 2202**

Principal Investigator :

Dr. Md. Azharul Hoque
Professor
Department of Animal Breeding and Genetics
Bangladesh Agricultural University
Mymensingh 2202, Bangladesh



Fig: Practice to Genetic improvement, Mymensingh

Project ID: 403

Title : **CHARACTERIZATION OF *MYCOPLASMA GALLISEPTICUM* ISOLATES FROM BANGLADESH AND THEIR USE IN PRODUCTION OF DIAGNOSTIC ANTIGEN AND DEVELOPMENT OF VACCINE CANDIDATE.**

Sub-sector : Livestock

Thematic area : *Livestock protection*

Goal : The objective of this project is to make use of conventional and modern techniques for prompt diagnosis of *Mycoplasma gallisepticum* (MG). After successful characterization of the disease agent, the research team will work to produce diagnostic antigens and vaccine using indigenous Bangladeshi MG isolates.

Purpose/Objectives :

- a. Characterization of *Mycoplasma gallisepticum* field isolates.
- b. Preparation of diagnostic antigen and development of vaccine candidate from this field strain.

Duration : July 2017 to September 2018

Implementing Agency : **Sylhet Agricultural University, Sylhet-3100, Bangladesh**

Principal Investigator :

Dr. Monira Noor
Associate Professor
Department of Pathology
Faculty of Veterinary and Animal Science
Sylhet Agricultural University
Sylhet 3100, Bangladesh

Project ID: 426

Title : **MOLECULAR CHARACTERIZATION OF *BABESIA*, *THEILERIA* AND *ANAPLASMA* ORGANISM IN LIVESTOCK IN BANGLADESH**

Sub-sector : Livestock

Thematic area : Livestock Protection

Goal : Understanding molecular epidemiology and development of effective drug and vaccine of *Babesia* and *Anaplasma* in livestock in Bangladesh

Purpose/Objectives : This project aims to identify previously known or unknown species of *Babesia*, *Theileria* and *Anaplasma* in Bangladesh. A strategy for characterization of these isolates obtained from animal and tick samples is proposed, including genotyping. The results will provide important information to veterinary and public health authorities of Bangladesh in respect of prevalence of these parasites. Furthermore, the establishment of methodologies for diagnostics and genetic characterization will aid in actions to be taken in outbreak situations.

Objective 1: Establishment of methodologies for detection of *Babesia*, *Theileria* and *Anaplasma* in Bangladesh

Objective 2: Molecular characterization and genetic analysis of *Babesia*, *Theileria* and *Anaplasma* spp. in cattle, sheep and goat in Bangladesh

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator :

Dr. Md. Shahiduzzaman
Professor and Head
Department of Parasitology
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 443

Title : **DEVELOPMENT OF AN INACTIVATED VACCINE AGAINST BOVINE MASTITIS**

Sub-sector : Livestock

Thematic area : Livestock protection.

Goal : Control of bovine mastitis.

Purpose/Objectives :

- i) To isolate and identify the microbial agents causing mastitis in cattle; Target: To know the types of microorganisms causing bovine mastitis in Bangladesh.
- ii) To develop an inactivated vaccine against bovine mastitis; Target: To reduce the economic losses caused by bovine mastitis in Bangladesh.

Duration : June, 2017 to September, 2018

Implementing Agency : **Hajee Mohammad Danesh Science and Technology University
Dinajpur-5200**

Principal Investigator :

Dr. Mir Rowshan Akter
Associate Professor
Department of Microbiology
Hajee Mohammad Danesh Science and Technology University
Dinajpur-5200.

Project ID: 448

Title : MONITORING AND SURVEILLANCE OF DUCK DISEASES IN HAKALUKI AND TANGUARHAOR AND DEVELOPMENT OF SUITABLE VACCINATION MODELS AND OTHER PREVENTIVE STRATEGIES

Sub-sector : Livestock.

Thematic area : Livestock protection.

Goal : Monitoring of the duck diseases in Hakaluki and Tanguarhaor and develop a GIS based database of the duck diseases to identify the challenges of duck farming in these haor areas and the development of strategic plans concerning duck disease and their prevention options.

Purpose/Objectives :

i) To develop a database of existing infectious and non-infectious diseases of ducks in household and commercially raised in selected areas of Hakaluki and Tanguar haor and their risk factors

ii) Monitoring duck diseases through active surveillance and GIS mapping and other epidemiological tools for development of duck disease model

iii) To identify the challenges of duck farming in haor areas and development of strategic plans concerning duck disease and their prevention through vaccination, and anthelmintics therapy.

Duration : May, 2017 to September, 2018.

Implementing Agency : **Chittagong Veterinary and Animal Sciences University
Zakir Hossain Road, Khulshi, Chittagong-4225**

Principal Investigator :

DR. Md. Shafiqul Islam
Assistant Professor
Department of Pathology and Parasitology
Chittagong Veterinary and Animal Sciences University
Zakir Hossain Road, Khulshi, Chittagong-4225

Project ID: 533

Title : **ESTABLISHMENT OF SUITABLE FRACTURE MANAGEMENT TECHNIQUES IN DIFFERENT ANIMALS (CATTLE, GOAT, DOG, CAT) AT SAHIDUL ALAM QUADERY TEACHING VETERINARY HOSPITAL (SAQTVH) IN CHITTAGONG**

Sub-sector : Livestock
Thematic area : Livestock Protection

Goal : The goal of this study is to establish an easy, economic and field based suitable fracture management technique in livestock and pet animals and also to develop the skills of the professionals related to veterinary sector.

Objectives :

- a) To study the incidence of long bone fracture in different animals (cattle, goat, dog, cat).
- b) To establish the suitable fracture management technique by evaluating the preoperative and postoperative analysis/outcome of the patients.

Duration : April-2017 to September-2018

Implementing Agency : **Chittagong Veterinary and Animal Sciences University (CVASU) Khulshi, Chittagong-4225, Bangladesh.**

Principal investigator :

Prof. Dr. Bhajan Chandra Das
Department of Medicine and Surgery
Faculty of Veterinary Medicine
CVASU, Khulshi, Chittagong-4225

Project ID: 557

- Title** : **BENCHMARKING COST OF MILK PRODUCTION IN TYPICAL DAIRY FARMS IN SELECTED REGIONS OF BANGLADESH: IMPLICATIONS FOR MILK MARKET PRICE AND LIVELIHOOD IMPROVEMENT POLICY**
- Sub-sector** : Livestock
Thematic area : Processing, preservation and marketing of livestock products
- Goal** : The goal of this project is to provide all required information to develop an excel based tool (for cost modeling) to benchmark different types of dairy farms on the basis of cost of milk production only (an indicator of the competitiveness) in two regions after the end of the project (September 2018).
- Purpose/Objectives** : The project aims at estimation of cost of milk production only (COMPO) within overall agricultural enterprises where the farmers are tied with the same inputs for crops, milk, and meat and beef production:
- i. To estimate the “cost of milk production only” and total cost of milk production and benchmark the dairy farms with different farming systems and regional basis.
 - ii. To determine the underlying factors that causes the variation in cost of milk production
 - iii. To analyze the link among milk production cost, market price, and livelihood improvement policy
- Duration** : May, 2017 to September, 2018
- Implementing Agency** : **Bangladesh Agricultural University, Mymensingh-2202**
- Principal Investigator** :
- Dr. Mohammad Mohi Uddin
Assistant Professor
Department of Animal Nutrition
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 603

Title : **SUBSTANTIAL DEVELOPMENT OF GENETIC POTENTIAL FOR IMPROVED PRODUCTIVITY IN CATTLE THROUGH MANIPULATIVE REPRODUCTION TECHNOLOGY.**

Sub-sector : Livestock

Thematic area : Livestock production and productivity

Goal : To increase livestock production through sex selective offspring production with genetic development

Purpose/Objectives :

1. To examine socio-economical impact of genetic improvement of cattle via conventional Artificial Insemination (AI) program in some selective areas of Bangladesh.

1.1. To determine the factors affecting the adoption of AI using different bull semen by farmers

1.2. To study the factors affecting production of male and female offspring after conventional AI

1.3. To study the reproductive efficiency of heifers and cows born after AIs well as productivity and profitability of cattle farms.

2. To implement the manipulative reproduction techniques such as semen processing, estrus synchronization and timed artificial insemination (TAI) at the farm level for the production of sex selective offspring to speed up the genetic improvement of economic traits of cattle

2.1. To optimize cost effective production of high quality sperm to improve fertility with sex selective offspring

2.2. To establish proper synchronization protocol for timed artificial insemination.

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh-2202**

Principal Investigator:

Dr. Nasrin Sultana Juyena
Professor
Department of Surgery and Obstetrics
Faculty of Veterinary Science
Bangladesh Agricultural University, Mymensingh-2202

Project ID: 607

Title : **MINING NOBEL PROBIOTICS FROM RED JUNGLEFOWL (GALLUS GALLUS) AS THE ALTERNATIVES TO ANTIBIOTICS FOR THE SAFE POULTRY PRODUCTION.**

Sub-sector : Livestock

Thematic area : Livestock Protection

Goal : Developing chicken probiotics.

Purpose/Objectives : The objectives of this research project are as follows:

- a. Isolation of lactic acid bacteria (LAB) from the gastrointestinal (GI) tract of Red Junglefowl (RJF).
- b. Screening of the LAB for probiotic potential.
- c. Molecular characterization of the LAB having probiotic potential and searching for bacteriocin producing genes in probiotic strains.

Duration : April 2017 to September, 2018

Implementing Agency : **Bangabandhu Sheikh Mujibur Rahman Agricultural University**

Principal Investigator :

DR. Mueena Jahan
Assistant Professor
Department of Microbiology and Public Health
Faculty of Veterinary Medicine and Animal Science
Bangabandhu Sheikh Mujibur Rahman Agricultural University
Gazipur-1706 Bangladesh

Project ID: 659

Title : **ASSESSMENT OF THE IMPACT OF CLIMATE CHANGE ON ARTHROPOD VECTORS THOSE TRANSMITTING VECTOR BORNE DISEASES IN BANGLADESH**

Sub-sector : Livestock

Thematic area : Climate change adaptation

Goal : The ultimate goal of the project isto predict the future pattern of vector borne disease occurrences due to climate change; and to develop early warning system and sustainable control measures against vectors and vector borne diseases (VBD's) in Bangladesh.

Purpose/Objectives :

i.) Objective 1: Recognize the change of climate variables in Bangladesh by meteorological data.

Target:To recognise the trend of climate change.

ii.) Objective 2: Identify the arthropod vectors, and to determine their distribution in Bangladesh.

Target: To know the present status of vectors in Bangladesh.

iii.) Objective 3: Assess the relationship between climate change and vectors in Bangladesh.

Target: To analyse the impact of climate change on disease vectors in Bangladesh.

Duration : July, 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh.**

Principal Investigator :

Dr. Thahsin Farjana

Professor

Department of Parasitology

Faculty of Veterinary Science

Bangladesh Agricultural University- Mymensingh.

Project ID: 661

Title : **DEVELOPMENT OF LOW-COST TECHNOLOGY FOR MAKING PROCESSED CHEESE.**

Sub-sector : Livestock.

Thematic area : Livestock production and productivity.

Goal : Establish a cost-effective technology of indigenous variety of processed cheese through reducing the production cost by 30%.

Purpose/Objectives :

1. Development of a cost-effective technology for milking processed cheese to get a better value added dairy product
Patentable technology of a processed cheese for the industrv
2. Specification of appropriate parameters - raw materials, composition, physical properties, organoleptic attributes, microbial standards, shelf-life, labelling, etc. - of processed cheese for the market of Bansladesh-Standard for locally made processed cheese.
3. Popularization of processed cheese and its manufacturing making technology among consumers and manufacturers- Spread of information on processed cheese and cheese making technology through leaflets

Duration : July 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh.**

Principal Investigator :

Dr. Raihan Habib
Professor
Department of Dairy Science Faculty of Animal Husbandry
Bangladesh Agricultural University Mymensingh-2202

Project ID: 694

Title : ASSESSMENT OF EFFECTIVENESS OF AVIAN INFLUENZA VACCINATION IN COMMERCIAL LAYER BIRDS IN BANGLADESH.

Sub-sector : Livestock

Thematic area : Livestock protection

Goal : The ultimate goal is the containment of avian influenza (AI) in commercial layer birds in Bangladesh.

Purpose/Objectives :

- i.to measure the antibody titre against AI in commercial layer birds
- ii.to differentiate infected from vaccinated birds in terms of immune response through ELISA-based DIVA strategy
- iii.to assess the immune escaped AI virus (AIV) shedding in AI vaccinated flocks

Duration : April 2017 to September 2018.

Implementing Agency : **Bangladesh Agricultural University, Mymensingh**

Principal Investigator :

Dr. Md. Taohidul Islam
Professor, Department of Medicine
Faculty of Veterinary Science
Bangladesh Agricultural University, Mymensingh.

Project ID: 722

Title : **A FIELD STUDY ON SURVIVABILITY OF VITRIFIED EMBRYOS IN BANGLADESHI NATIVE SHEEP**

Sub-sector : Livestock

Thematic area : Livestock production and productivity

Goal : Increase livestock production through genetic improvement.

Purpose/Objectives :

(i) To study the survivability of transferred vitrified embryo in farmers field

(ii) To create awareness on sheep farm management and application of assisted reproductive technologies in sheep farms

Duration : April, 2017 to 30 September, 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh, 2202**

Principal Investigator :

Dr. Farida Yeasmin Bari
Professor
Department of Surgery and Obstetrics
Faculty of Veterinary Science
Bangladesh Agricultural University, Mymensingh, 2202

Project ID: 781

Title : **ASSESSMENT OF METHANE EMISSION IN DAIRY PRODUCTION SYSTEMS BASED ON EXISTING FEED RESOURCES THROUGH GLEAM MODEL UNDER DIFFERENT CLIMATIC ZONES OF BANGLADESH AND THEIR MITIGATION OPTIONS.**

Sub-sector : livestock

Thematic area : Climate change adaptation, Feed & Nutrition and Livestock Protection

Goal : Development of dairy feeding system modeling for reducing enteric methane and intensify the productivity

Objectives:

- I. To assess the existing feed resources based dairy (cattle & buffaloes) production feeding systems in different regions of Bangladesh
- II. To calculate the enteric methane emission from dairy animal based on existing feeding practices available in different regions of Bangladesh through GLEAM model
- III. To develop existing feed resources based suitable feeding practices/ methods and to demonstrate selected feeding interventions to mitigate enteric emission and environmental pollution from dairy animals under different regions of Bangladesh

Duration : April, 2017 to September, 2018

Implementing Agency : **Bangladesh Livestock Research Institute**

Principal Investigator :

Dr. N.R. Sarker
Principal Scientific Officer & Project Director
Fodder Research and Development project
Bangladesh Livestock Research Institute
Savar, Dhaka-1341 Bangladesh.

Project ID: 788

Title : **DEVELOPMENT OF COST EFFECTIVE COMPLETE PELLETED FEED AND ITS UTILIZATION FOR COMMERCIAL GOAT AND SHEEP PRODUCTION**

Sub-sector : Livestock

Thematic area : Feed and Nutrition

Goal : Development of cost effective complete pelleted feed for the commercial sheep and goat production

Purpose/Objectives:

- a) To develop cost effective commercial goat and sheep pellet using crop residues and locally available agro-industrial by products
- b) On station and on farm testing of developed pelleted feed and economic impact analysis

Duration : April, 2017; to September, 2018

Implementing Agency : **Bangladesh Livestock Research Institute**

Principal Investigator :

Dr. Sadek Ahmed
Senior Scientific Officer
Goat and Sheep Production Research Division
Bangladesh Livestock Research Institute, Savar, Dhaka-1341.

Project ID: 820

Title : **DNA BARCODING OF COMMON NATIVE LIVESTOCK & POULTRY AND CROSSBREED ANIMALS IN BANGLADESH: POTENTIAL USES IN CONSERVATION FOR INCREASING PRODUCTION.**

Sub-sector : Livestock

Thematic area : Livestock Production (Livestock breeding and propagation, Native species conservation and improvement).

Goal : The goal of DNA barcoding project is to create a barcode reference library for common livestock and poultry available in Bangladesh that will help in patenting, species/breed identification and to set priorities for the conservation of local livestock and poultry genetic resources.

Purpose/Objectives :

- a) Construction of a DNA barcoding database for common livestock and poultry available in Bangladesh for providing the molecular basis to support decisions and set priorities for the conservation of local livestock and poultry genetic resources.
- b) To clarify genetic relationships and breeding history of domestic breeds, crossbreeds (hybrids), and their wild relatives.
- c) To determine breed traceability within some species (e.g., buffaloes, goats, sheep, chickens, and ducks) that will aid in patenting our genetic resources.

Duration : April, 2017 to September, 2018

Implementing Agency : **National Institute of Biotechnology (NIB)**

Principal Investigator:

Dr. Md. Abdul Alim
Senior Scientific Officer
Animal Biotechnology Division
National Institute of Biotechnology (NIB)
Ganakbari, Ashulia, Savar, Dhaka- 1349, Bangladesh

Project ID: 556

Title : **DEVELOPMENT AND EVALUATION OF FORMALIN KILLED INACTIVATED EGG DROP SYNDROME VIRUS VACCINE USING LOCAL ISOLATES**

Sub-sector : Livestock

Thematic area : Livestock protection

Goal : The goal of the present research project is to develop formalin killed EDS-76 vaccine to prevent EDS-76 disease to increase egg production in commercial layer farms. The vaccine will be inexpensive and foreign currency will be saved. ultimately farmers and our nations will be benefitted.

Purpose/Objectives :

- 1.Development of formalin killed oil adjuvanated EDS vaccine and alum adsorbed EDS vaccine.
- 2.Determination of protective efficacy of experimental vaccine against EDS-76 virus in layer birds under experimental conditions.
- 3.Application of vaccine at commercial layer farms.

Duration : April 2017 to September, 2018

Implementing Agency : **Bangladesh Agricultural University,Mymensingh**

Principal Investigator :

Dr. Marzia Rahman
Professor
Department of Microbiology and Hygiene
Bangladesh Agricultural University
Mymensingh

Project ID: 643

Title : DEVELOPMENT OF TRIVALENT FOOT AND MOUTH DISEASE (FMD) VIRAL VACCINE SEEDS; REGAINING FMD FREE STATUS OF LIVESTOCK IN BANGLADESH

Sub-sector : Livestock

Thematic area : Livestock protection

Goal : FMD free livestock production in Bangladesh

Purpose/Objectives :

- a. To characterize the FMD viral Topotypes (Serotype O, A and Asia 1) from repository/ field outbreaks
- b. To isolate the FMD viral Topotypes through propagation on BHK cell line
- c. To inactivate the FMD viruses by using Binary ethyleneimine (BEI)
- d. To evaluate immune-efficacy of the vaccine (BAU/BARC/Khura) in guinea pig and cattle model
- e. Handed over vaccine seed (BAU/BARC/Khura) to the Department of Livestock Services, Ministry of livestock and fisheries, Bangladesh

Duration : April 2017 to September 2018

Implementing Agency : **Bangladesh Agricultural University, Mymensingh**

Principal Investigator :

Dr. Md. Abu Hadi Noor Ali Khan,
Professor,
Department of Pathology,
Faculty of Veterinary Science,
Bangladesh Agricultural University, Mymensingh

5.3. Program Based Research Grant (PBRG) Research Project

The second window of NATP-2 research investment is institutional program based research grant (PBRG) including research on cross cutting issues. NARIs has made considerable success in technology generation but could do much more if enough financial supports provided to strategic inter-disciplinary research on particular facets of demand led areas. To this effect, the designed institutional program based research grants (PBRGs) of NARIs will be conducive and effective approach. PBRG will make stronger footing with team building holistic research culture for achieving desired output for commodities and production practices. Most importantly, coordinated PBRG program amongst NARIs will widen scopes in integrating multiple organizations for jointly combating national agricultural problems and strengthening their research and research management capability apart from effective and proper resource uses in national perspectives.

PBRG programs will be coordinated involving at least two research providers: coordination can be inter- institutional or it can be interdisciplinary within the institute .In case of inter-institutional coordinated program, either BARC or one of the participatory organizations will coordinate. National Agricultural Research Institutes (NARIs), Public University, Private Research Providers and International Research Centers with Co-financing arrangement will be considered for PBRG program. NARIs will get priority for implementation of PBRG programs. Non-NARI research providers must have adequate technical manpower and physical facilities for conducting the proposed research. International centers under co-financing arrangement can participate in PBRG program in collaboration with national organizations. Under NATP-2, 33 PBRG research proposals will be undertaken for technology generation, and PBRG research proposal will get up to USD 500000 (about BDT 387.5 lakh) depending on the size, nature and importance of the proposal.

The duration of the PBRG sub-project will be maximum a period of 4 (Four) years or less i.e up to June 2021. It must complete the field / lab research activities within June 2020 of the implementing component and provide draft Project Completion Report (PCR) along with necessary data & information to the Coordination Component within December 2020. The Coordination Component must submit the final PCR to the PIU-BARC,NATP-2 within June 2021. It may be mentioned here that all activities of PBRG sub-project to be completed no later than one year prior to NATP-2 closing date in order to allow enough time to adequately disseminate the research results.

The PBRG research proposals are being selected on research priority basis using calls for proposals and subjected them to rigorous review by the peer reviewers before being selected for funding. Out of targeted 33 (Thirty three) PBRG sub-projects, 22 (Twenty two) research proposals have approved by the Executive Council (EC) of BARC. The rest 20 nos PBRG sub-projects are being reviewed by the peer reviewers for selection. Reviewed and revised research proposals will be processed for approval of EC, BARC. After required formalities, the approved PBRG sub-projects will be offered for funding.

Table. List of PBRG Sub-projects:

SI #	P. ID	Sub-project Title	Name of the Coordinator & Principal Investigator (PI)	Implementing organization	Proposed budget (Tk)
01	001	Up scaling of solar pump for smallholder irrigation and household appliances in the central coastal region of Bangladesh	Dr. Sultan Ahmmed, MD (cc), NRM Division (Co.)	BARC	2,95,00,000.00
			Dr. Mohammed Ayub Hossian, PSO (PI)	BARI	
			Dr. A. B. M. Zahid Hossain, SSO(PI)	BRRRI	
01	002	Ground water resources management for sustainable crop production in northwest hydrological region of Bangladesh	Dr. Sultan Ahmmed, Member Director (cc), NRM Division (Co.)	BARC	3,84,71,231.00
			Dr. Abeda Khatun, CSO (PI)	BARI	
			Dr. Md. Tawfiqul Islam, PSO(PI)	BRRRI	
			Dr. M. Hossain Ali, PSO (PI)	BINA	
03	064	Design and development of fertilizer deep placement mechanism for existing rice transplanter	Dr. Md. Ansar Ali, Director (Admin) (Co.)	BRRRI	1,10,00,000.00
			Dr. Md. Anwar Hossain, SSO (PI)	BRRRI	
			Dr. Md. Mozammel Haque, SSO(PI)	BRRRI	
04	072	Germplasm conservation and farm productivity enhancement through the interaction of shade trees and tea based agroforestry system to mitigate the climate change	Dr. Mohammad Shahjahan, CSO ,Forest Unit,NRM Division (Co.)	BARC	2,38,00,000.00
			Dr. A. F. M. Saiful Islam, Professor(PI)	Sylhet Agricultural University	
			Dr. Md. Abdul Aziz, SSO (PI)	BTRI	
05	074	Exploration, Identification, Characterization, Multiplication and <i>Ex-situ</i> Conservation of Endangered Forest Genetic Resources including Medicinal plants of Bangladesh	Dr. Mohammad Shahjahan, CSO ,Forest Unit, NRM Division (Co.)	BARC	2,71,61,506.00
			Dr. Md. Habibur Rahman, Professor (PI)	BAU	
			Dr. Rafiqul Haider(PI)	BFRI (Forest)	
			Dr. Mohammed Kamal Hossain, Professor(PI)	University of Chittagong.	
06	077	Up-liftment of Farmers Livelihood Specially Women and Enrichment	Dr. Mohammad Shahjahan, CSO ,Forest Unit,NRM Division (Co.)	BARC	2,90,10,356.00

SI #	P. ID	Sub-project Title	Name of the Coordinator & Principal Investigator (PI)	Implementing organization	Proposed budget (Tk)
		of Environment through Improved Agroforestry Practices in Char Land Ecosystem of Bangladesh	Dr. G.M. Mujibur Rahman, Professor (PI)	BAU	
			Dr. Md. Alamgir Hossain	BARI	
			Dr. Hasneen Jahan, Professor (PI)	BAU	
07	061	Integrated Farming Systems Research and Development for Farmers Livelihood Improvement of Plain land Eco-system	Dr. Paresh Chandra Golder, MD ,P & E Division (Co.)	BARC	37000000.00
			Dr. ASM Mahbubur Rahman Khan, CSO (PI)	BARI	
			F M Moinuddin, CSO (PI)	BRRRI	
			Md. Shahidul Islam, SSO (PI)	BFRI	
08	096	Farm Productivity Improvement through Intervention of Improved Agricultural Technologies in Char land Eco-System	Dr. Paresh Chandra Golder, MD ,P & E Division (Co.)	BARC	3,70,00,000.00
			Dr. Md. Kamrul Hasan, PSO (PI)	BARI	
			Dr. Md. Raisul Haider, CSO(PI)	BINA	
			Dr. Md. Jahangir Alam, PSO (PI)	BSRI	
			Dr. Md. Abdul Jalil, PSO(PI)	BLRI	
09	098	Climate Resilient Participatory Farming Systems Research and Development of the Coastal Ecosystem of Bangladesh	Dr. Paresh Chandra Golder, MD, P & E Division (Co.)	BARC	36000000.00
			Dr. M. Akkas Ali, PSO(PI)	BARI	
			Dr. Mohammad Ibrahim, PSO (PI)	BRRRI	
			Dr. Md. Munjurul Islam, PSO(PI)	BINA	
10	021	Cost and Return Analysis of selected crops in Bangladesh	Dr. A. S. M. Anwarul Huq, MD, AERS Division (Co.)	BARC	38750000.00
			Dr. Md. Abdur Rashid, PSO (PI)	BARI	
			Md. Syful Islam, SO (PI)	BINA	
11	070	Economic Viability and Production Efficiency of Rice: A Macro Level Study in Bangladesh	Director, Administration & Common Service (Co.)	BRRRI	24999610.00
			Dr. Md. Abu Bakr Siddique, CSO (PI)	BRRRI	
			Dr. Md. Taj Uddin, Professor(PI)	BAU	
12	137	Development of whole genome sequence database of Black	Dr. Shah Md. Ziqrul Hoq Chowdhury, MD ,Livestock Division (Co.)	BARC	19028900.00

SI #	P. ID	Sub-project Title	Name of the Coordinator & Principal Investigator (PI)	Implementing organization	Proposed budget (Tk)
		Bengal goat to accelerate generic upgradation through complete characterization of economic important traits	Dr. AMAM Zonaed Siddiki, Professor (PI)	CVASU	
			Dr. Abul Bashar Mir Md. Khademul Islam, Associate Professor (PI)	University of Dhaka	
13	029	Up-scaling of mud crab aquaculture in Bangladesh: Adoption of innovative techniques from seed production to fattening and health management	Dr. Kabir Ikramul Haque, MD , Fisheries Division (Co.)	BARC	26254768.00
			Dr. Md. Latiful Islam, SSO (PI)	BFRI	
			Dr. Abul Farah Md. Hasanuzzaman, Associate Professor (PI)	Khulna University	
14	030	Investigation and characterization of viral and bacterial diseases in highly consumed fin fishes and Shrimp in Bangladesh and development of their vaccines and validation	Dr. Kabir Ikramul Haque, MD, Fisheries Division (Co.)	BARC	27874504.00
			Md. Shirajum Monir, SSO (PI)	BFRI	
			Dr. Md. Alimul Islam, Professor (PI)	BAU	
15	031	Development of <i>in-situ</i> Breeding Technology of <i>Macrobrachium rosenbergii</i> and Adoption of Sustainable Eco-Friendly Culture of Shrimp/Prawn	Dr. Kabir Ikramul Haque, MD , Fisheries Division (Co.)	BARC	27763193.00
			Dr. Khan Kamal Uddin Ahmed, CSO (PI)	BFRI	
			Dr. Khandaker Anisul Haq, Professor (PI)	Khulna University	
16	036	Improvement of existing fattening technology of fin fish, carp and high valued SIS through good aquaculture practices (GAP) in different agro-ecosystem	Dr. Kabir Ikramul Haque, MD, Fisheries Division (Co.)	BARC	37998612.00
			Dr. Md. Akhtar Hossain, Professor (PI)	University of Rajshahi	
			Md. Jahangir Alam, Assistant Professor (PI)	PSTU	
17	037	Post-harvest Losses, Supply and Value Chain Analysis of Fisheries Sub-sector in Bangladesh	Dr. Kabir Ikramul Haque, MD , Fisheries Division (Co.)	BARC	37703559.00
			Dr. Md. Akhtaruzzaman Khan, Professor (PI)	BAU	
			Dr. Md. Mamun Or Rashid,	PSTU	

SI #	P. ID	Sub-project Title	Name of the Coordinator & Principal Investigator (PI)	Implementing organization	Proposed budget (Tk)
			Professor (PI)		
18	007	Value addition and standardization of nutritional level in selected food items from poultry origin	Dr. Md. Monirul Islam, Director, Nutrition Unit (Co.)	BARC	37991643.00
			Dr. Swapon Kumar Fouzder, Assistant Professor (PI)	PSTU	
			Dr. Mst. Afroza Khatun, Professor(PI)	HSTU	
19	103	Contaminants and adulteration in food chain and their prevention through improved postharvest practices	Dr. Md. Monirul Islam, Director, Nutrition Unit (Co.)	BARC	34000000.00
			Dr. Miar Uddin, CSO (PI)	BARI	
			Dr. Md. Enamul Hoq, PSO (PI)	BFRI	
20	011	A food-based initiative to improving nutrition for household food security in Bangladesh	Dr. Md. Monirul Islam, Director, Nutrition Unit (Co.)	Nutrition Unit, BARC	38046600.00
			Md. Abul Hossain	NSTU	
			Dr. Md. Abdul Jalil, PSO	BLRI	
21	134	Determination of Critical Limit of Plant Nutrients for Major Crops	Dr. M. A. Satter, CSO , Soil Unit,NRM Division (Co.)	BARC	34575589.00
			Dr. Nirmal Chandra Shil, PSO (PI)	BARI	
			D. Aminul Islam, PSO (PI)	BRRRI	
			Dr. Md. Habibur Rahman, SSO(PI)	BINA	
			Dr. Md. Anwarul Abedin, Professor (PI)	BAU	
22	135	Improvement of soil health and crop productivity in climate vulnerable and polluted areas through organic amendenets	Dr. M. A. Satter, CSO , Soil Unit,NRM Division (Co.)	BARC	37182383.00
			Dr. Sohela Akhter, PSO (PI)	BARI	
			Dr. Umme Aminur Nahar, PSO(PI)	BRRRI	
			Dr. Belal Hossain, SSO (PI)	BINA	
			Dr. Md. Rafiqul Islam (PI)	BAU	
			Dr. GKM Mustafizur Rahman (PI)	BSMRAU	
			Dr. Alok Kumar Paul, Professor (PI)	SAU	

5.4. Monitoring and Evaluation of the Project

The PIU-BARC, NATP-2 has already developed Desk and Field monitoring format for monitoring the awarded CRG sub- projects. The implementation progress of the awarded research proposals are being regularly monitored by the PIU-BARC, NATP-2 and Technical division of BARC against the agreed milestones of the awarded sub-projects. Moreover all the research projects are monitored by internal monitoring team founded by respective institute and central monitoring team formed by BARC. Almost all the Principal Investigators (PIs) of the recipient CRG research proposals have already submitted their First Quarter Progress Report. The progress of almost all the awarded sub-projects are seems to be satisfactory.

5.5. Organized Orientation Workshop on the Implementation Procedure of CRG Sub-projects

The PIU-BARC, NATP-2 has organized one day long four Orientation Workshops on Implementation Procedure of CRG Sub-projects for the Principal Investigators (PIs) of the recipient CRG sub-projects. The Orientation Workshops were held on 14/06/2017, 15/06/2017,17/06/2017 and 18/06/2017 , respectively comprising 42 (Forty two) participants in each batch of workshop. In total 168 (One hundred sixty eight) PIs have been trained on the Implementation Procedure of CRG sub-projects for smooth running of the awarded sub-projects activities.

5.6. Consideration in Handling Environmental and Social Safeguard Issues

NATP-2 is designed to support sustainable production practices of crops, fisheries and livestock with environment friendly and climate smart innovative technologies, and thus, it is not expected to have any adverse impacts on the environment. However, considering the safeguard policy triggered by the NATP-2 project (Environmental Assessment, Pest Management and Indigenous People), under PIU-BARC, all the research proposals of CRG and PBRG sub-projects are being addressed (i) an environmental screening matrix on bio-diversity (Flora, Fauna, Genetic diversity, Hybrids), soil quality (Organic matter, Chemical fertilizer use, Soil salinity, Fertility status, Microbial activity, Heavy metal contamination, Water quality), Agro-chemicals (Pesticide use, IPM, Pest infestation, Bio-pesticides, Health hazard) and pollution (Soil, Water, Air) and (ii) a self screening checklist on environmental safeguard .

NATP-2 is not allowed to have any adverse social impacts as it is build on the achievements of the previous project (NATP-1) to adequately address Gender and Social Inclusion. NATP-2 activities may have special impacts on women or can enhance benefits to them and other vulnerable groups. All sub-projects of CRG and PBRG are being followed the guidelines provided in the Gender Inclusion Framework (GIF) and maintain the requisite consultation process and documentation. Moreover, no adverse impacts on Indigenous Peoples are expected as the sub-projects are also being operated in the areas where Indigenous Peoples live. However, the research proposals of CRG and PBRG are being maintained a self-screening checklist on social safeguard. These will be helpful to consider the environmental and social safeguard issues.

5.7. Human Resource Development (HRD) Program

Human resources are the vital force of national development. A nation is said developed in accordance with the development of its human resources. The agricultural development depends on its sustainable technology generation in all sub-sectors by the adoption of scientific knowledge in view of food and nutrition security and their uses by the end users. Thus agricultural manpower development is essential and more emphasis needs to be given to the research scientists. It is essential to develop research scientists in such a way that they can face the future research challenges in all sectors of agriculture. To overcome challenges and to achieve the national goal, highly skilled and competent scientific manpower is essential for generating and transferring technologies at farmers level. As such, efforts must be made to raise the skilled scientific personnel who can strive to produce the additional amount of food and other essential agricultural products requires for an increasing population.

a. In-country and Foreign Ph. D Programs

Project funding for the Doctoral program (PhD) studies will be mainly targeted for outstanding medium-level NARS scientists. As per DPP of NATP-2, 140 (One hundred forty) Doctoral programs are allocated/ targeted for implementation at home and abroad. Among the 140 Ph. D programs, 80 (Eighty) Ph.D programs are allocated for in-country and the rest 60 Ph.D are allocated for abroad. Project funding for doctoral studies are being targeted at outstanding medium level NARI scientists and a limited number of mid-career civil servants from DAE, DLS and DOF. Ph.D candidates are being selected following Government rules and criteria on the competition basis. The preferences have been given to crop agricultural sciences, fisheries, livestock, agricultural engineering, agricultural economics and related agricultural subjects as need may be felt.

Table. Institute wise list of Tentative allocated Ph. D programs

A.				
SL#	Name of Institute	No. of allocated Ph.D		
		In-country	Foreign	Total
A. Research Organization				
1.	Bangladesh Agricultural Research Council (BARC)	01	-	01
2.	Bangladesh Agricultural Research Institute (BARI)	17	18	35
3.	Bangladesh Rice Research Institute (BRRI)	08	10	18
4.	Bangladesh Institute of Nuclear Agriculture (BINA)	05	05	10
5.	Bangladesh Jute Research Institute (BJRI)	04	04	08
6.	Bangladesh Sugarcrop Research Institute (BSRI)	03	04	07
7.	Bangladesh Tea Research Institute (BTRI)	02	01	03
8.	Soil Resources Development Institute (SRDI)	04	04	08
9.	Bangladesh Sericulture Research & Training Institute (BSRTI)	03	-	04
10.	Bangladesh Fisheries Research Institute (BFRI)	06	05	11
11.	Bangladesh Livestock Research Institute (BLRI)	03	04	07

12.	Bangladesh Forest Research Institute (BFRI)	03	02	05
13.	Cotton Development Board (CDB)	01	01	02
14.	Ministry of Agriculture	00	02	
	Total	60	60	120
B. Extension Organization				
15.	Department of Agricultural Extension (DAE)	10	-	10
16.	Department of Fisheries (DoF)	05	-	05
17.	Department of Livestock Services (DLS)	05	-	05
	Total	20	-	20
	Grand Total (A+B)	80	60	140

N.B: The above breakup of PhD slots for research organizations is tentative.

b. National Training

According to the work plan of FY2017-18, PIU-BARC undertakes 20 skill development local training programs on different area like project financial management, procurement, project management & development, administration and other need based areas. Scheduled programs are under implementation. National training will be on foundation, accounts and fiduciary, ICT & MIS, procurement, executive



Photo: Participants in the Training Session on "Budget and Financial Reporting" held at Bangladesh Institute of Management, Dhaka.



Photo: Participants in Training Session on "Monitoring and Impact Assessment" held at Bangladesh Institute of Management, Dhaka.

training for senior level scientists and officers. A short training program titled "Budget and Financial Reporting" has been organized from 18/11/2017 to 19/11/2017 and "Monitoring and Impact Assessment" has been organized from 24/11/2017 to 26/11/2017 at Bangladesh Institute of Management (BIM), Dhaka for the BARC and NATP-2 Officials. A total of 30 participants/ trainees attended the training program.

c. Implementation of local workshop, seminar etc:

As per annual work plan of this fiscal year, PIU-BARC plans 10 nos. of local workshops/seminars on different subjects. Scheduled program are under implementation.

d. Implementation of foreign training:

As per annual work plan of this fiscal year, PIU-BARC plans to organize all events for foreign training on different subject. Scheduled program are under process for implementation.

e. Implementation of foreign workshop, seminar, meeting, conference & study visit etc:

As per annual work plan of FY 2017-18, PIU-BARC will organize all events for foreign workshop, seminar, meeting, conference, study visit, etc on different areas. Scheduled program are under process for implementation.

5.8 Procurement Progress

Procurement under PIU-BARC of NATP-2 was planned in accordance with the PPR 2008 as well as World Bank's Guidelines. Government's Public Procurement Regulations 2008 was followed as envisaged in Project Appraisal Document.

Procurement Plan for goods, works and consultant's services was prepared according to GoB and Bank's applicable guidelines. Packages included in the procurement plan were based on Year-wise Financial and Physical Target Plan of PIU-BARC embodied in Development Project Proposal (DPP) of NATP-2. The procurement plan was approved by the HOPE. All packages were uploaded in the STEP (Systematin Tracking of Exchanges in Procurement).

Formal structured Tender Opening Committee (TOC) and Tender Evaluation Committee (TEC) were constituted as per provisions of PPR on the other hand, PEC was constituted for procuring the services under PIU-BARC.

Standard Tender Documents of World Bank and of CPTU were used as applicable. Tender Notices were published in the national dailies and website of BARC as well. At the same time they were also alerted about consequences of corrupt practices (fraud and corruption, collusion, coercion, etc.).

A summary of procurement progress of goods, works & services according to approved procurement plan is presented below:

Package No.	Item	Status
Goods		
GD/PIU - BARC/03	Supply of Stationery & consumables	Goods Delivered
GD/PIU - BARC/35	Repair and Maintenance of Air conditioner of BARC	Completed
GD/PIU-BARC-02 (SD/PIU-BARC-22)	Hiring of Vehicle	Contract signed
Works		
WD/PIU - BARC/06a	Repair and Maintenance of Admin Building	Completed

Package No.	Item	Status
Services		
SD/PIU-BARC/04(01)	Research Management Specialist	Joined
SD/PIU-BARC/06(03)	Training & Communication Specialist	Joined
SD/PIU-BARC/02(04)	Manager (Financial Management)	Joined
SD/PIU-BARC/04(05)	Procurement Specialist	Joined
SD/PIU-BARC/12a	Technical Assistance- Short term Consultant (Fisheries)	Joined
SD/PIU-BARC/07(06)	Assistant Manager (Administration)	Will be joined
SD/PIU-BARC/08(07)	Assistant Manager (Accounts)	Will be joined
SD/PIU-BARC/23	Service and Maintenance of Lift at Admin Building, BARC	Contract signed

A. Selection of Consultants

According to DPP provision, out of 09 core national consultants 04 consultants [Research Management Specialist, Training & Communication Specialist, and Manager (Financial Specialist) and Procurement Specialist] has joined in PIU-BARC and 02 core national consultants will be joined very soon. One short term consultant also joined in PIU-BARC in Fisheries area as a Technical Assistance. One Environmental & Social Safeguard Specialist has assigned from BARC as interim measure. Rest 03 national consultant (Monitoring & Evaluation Specialist, Assistant ICT Specialist and Environmental & Social Safeguard Specialist) will be processed soon.

b. Recruitment of Core Contractual Staffs

According to DPP provision, out 18 no. of core contractual staff in different position, 16 nos. of staff recruitment has completed by open competition.

5.9. Financial

The cost of PIU-BARC as per Development Project Proposal (DPP) is shown below:

Cost of PIU-BARC under NATP: Phase-2

Sources	Amount in mill. USD	% of Total
World Bank +IFAD+USAID	50.36	96.91 %
GOB (including in kinds)	1.61	3.09 %
Total	51.97	100 %

Financial Progress (million USD)

Sources of Fund	Fund received	Expenditure	Percentage (according to fund received)
GoB	0.20	0.14	72.52
USAID	1.78	1.62	
IDA	0.66	0.21	
IFAD	0.09	0.01	
Total RPA	2.53	1.84	
Grand Total	2.73	1.98	

6.0. Problems/Constrains

- Duration of the fund utilization of Competitive Research Grants (CRGs) is too short i.e. upto September, 2018. It will be very difficult to utilize the allocated fund during this short period as well as achieve the fruitful results. Hence, the USAID fund utilization period should be expected up to June 2019, so that, total fund could be utilize and result could be achieved.
- The fund disbursement process- experience from NATP-1, once fund disbursed to the Principal Investigators (PIs) of sub-projects it will be consider as expenditure for PIU and final expenditure would be calculated at the end of sub-project, not for every SoE submission to The World Bank.
- Need to increase the existing ceiling amount of IDA, IFAD and USAID for smooth project management.