Project ID: 715

Competitive Research Grant

Sub-Project Completion Report

on

Developing Mobile APPS for Enhancing Rice Productivity

Project Duration
May 2017 to September 2018

Agricultural Statistics Division
Bangladesh Rice Research Institute (BRRI)

Submitted to

Submitted to
Project Implementation Unit-BARC, NATP 2
Bangladesh Agricultural Research Council
Farmgate, Dhaka-1215

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Bangladesh Agricultural Research Council (BARC)
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Bangladesh

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Bangladesh

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Printed by: [Name of press with full address]

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Acronyms

a2i	Access to Information
BRRI	Bangladesh Rice Research Institute
BARC	Bangladesh Agricultural Research Council
DB	Database Management
ICT	Information and Communication Technology
MIS	Management Information System
MoICT	Ministry of Information and Communication Technology
NPF	National Portal Framework
PIU	Project Implementation Unit
SDG	Sustainable Development Goal
SMART	Specific, Measurable, Attainable, Relevant, Time based
VAT	Value Added Tax
WAN	Wide Area Network

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Executive Summary

The fundamental building of a Digital Bangladesh includes establishing and promoting e-Governance.So enhancing Agricultural Technology through innovations by National Agricultural Technology Project (NATP) is needed for innovative agricultural technologies and strengthening agricultural research institutions (NARIs) under the National Agricultural Research System (NARS).The National ICT Policy-2015 of Bangladesh states that ICT is one of the most important tools to achieve economic prosperity of a country through improving the management and efficiency in every sphere of life. As a result, Bangladesh Rice Research Institute (BRRI) took initiative with the help of NATP to develop Mobile App for enhancing rice productivity as well as agricultural productivity for innovative farmers, extension workres, researchers etc. The project has coverd by developing a mobile app and rice database within seventeen month funded by NATP: Phase II. Thus ICT plays as a tool for information generation and dissemination, where its outputs basically service oriented in nature.

CRG Sub-Project Completion Report (PCR)

A. Sub-project Description

1. **Title of the CRG sub-project: Developing Mobile APPS for Enhancing Rice Productivity**

2. **Implementing Organization** : **Bangladesh Rice Research Institute (BRRI)**

3. **Name and full address with phone, cell and E-mail of PI/Co-PI):**

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b) Md. Mahfuz Bin Wahab, Programmer, ICT Cell,
Agricultural Statistics Division, BRRI, Gazipur-1701.
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E-mail: skysony1988@yahoo.com

4. **Sub-project budget (Tk)** : **4.1 Total:Tk. 24,98,000/-** (Twenty Four Lakh Ninety Eight Thousand only)
4.2 Revised (if any): N/A

5. **Duration** : **5.1 Start date (based on LoA signed)** : 17 May 2017

5.2 End Date : 30 September 2018

6. **Justification of undertaking the sub-project:**

According to National ICT Policies 2009 and 2015 identifies that agricultural productivity and research development is increasing through ICT-enabled services. So, ICT is important tools to achieve economic prosperity through mobile apps, useful rice database and innovations. The dissemination of innovative approaches is essential for embracing modern ICT-based agricultural extension to speed up agricultural technology. As part of the digital renaissance, it is necessary to bring new technology for increasing agricultural productivity for sustainable development (E-Government Survey, 2018).

As a research institute, BRRI could be the prime source for the creation of agricultural knowledge and information through technological innovation. The present vulnerability of agriculture require more concerted research efforts to develop appropriate technological solution of major production problems the Bangladesh agriculture is currently facing. BRRI, being one of the largest agricultural research institutes of the country need to play even more important role in this context. So it is essential to strengthen ICT in the research efforts which in turn are largely depended on internal and global linkages for rapid information sharing.

7. **Sub-project Goal:**

- Enhancement of BRRI's e-governance through developing mobile application and rice database.

8. Sub-project Objective (s):

- To introduce and capacity building of BRRI employee in association of SMART agriculture through ICT.
- To develop mobile app and rice database for researcher, extension worker, farmer etc.
- To improve rice research technology through ICT innovations.

9. Implementing location (s) : BRRI head quarter (HQ) and all regional stations (R/S)

10. Methodology in brief:

BRRI, being the important crop research institute of the country need to play even more important role with co-ordinate way & strengthening the research efforts through ICT which in turn is largely depended on internal and global linkages for rapid information sharing. To make research more responsive and meaningful, rice database, mobile apps etc. should establish to meet up the demand of time. As per a statistics in 2012, some 1.2 billion people across the world are using mobile apps and increasing every year with a 29.8% growth (Annual Report: 2014-2015, MoICT).

Hence, establishment of database on different agricultural issues with a view to enhance the agricultural technology transfer process through ICT initiatives. With the favorable policy environment, BRRI is well suited to start effectively using ICT through various ICT initiatives and innovations in agriculture that is 'e-Agriculture". It is also important to increase capacity building in association of precision agriculture through high quality and dynamic skill development systems. It is an urgent need to develop the both on-line and of-line ICT facility for all researcher, extension worker and farmer to provide easy access through mobile app and rice database development. (Perspective Plan of Bangladesh 2010-2021).

The Institute has acknowledged the importance of ICT and the need of the scientist to be connected on-line. Although the Institute has earned credits for the excellence in research and sincere effort towards the implementation of appropriate technologies, enough resources is yet to the developed to meet the requirement of this institution. The new ICT revolution has made Internet as the center for every type of information, and in various cases this is becoming the only source of information. If BRRI fails to connect itself with these information sources, it apparently fall behind the rest of the world.

Thus it is an urgent need to develop mobile applications and various rice database facilities for all scientists and extension workers to provide easy access and create an environment of good research. This facility provided by developing various web base database and mobile application etc. which cover eleven R/S and HQ.

Government of Bangladesh has recently emphasized to adopt e-governance For all its institutions. Establishment of e-governance can enhance the pace and quality of work with transparency. Development of infrastructure, automation of work through multi user system software such as personal, financial, project and data hank management information and training of manpower is necessary for e-governance.

Application of modem ICT amenities has recently paved the newer area of research in agriculture like SMART way through e-agriculture. To make research more responsive and meaningful, the state-of- the-art MIS, Web

base various application as well as mobile application should be developed at BRRI to meet up the demand of time.

These interlinked between HQ and eleven regional stations. It has also interlinked between BRRI and Ministry of Agriculture (MoA) through multi user system software. Therefore information exchange between MoA and BRRI is easier. The ultimate goal is to increase productivity of crops using environment friendly, SMART and ICT supported precision agricultural practices.

11. Results and Discussion:

- Focus on significant improvement of science and technology base for increasing productivity and efficiency of BRRI employee through capacity building initiatives.
- Able to generate a broadly consistent, useful and dynamic rice database. As well as it will develop a dynamic mobile app also.
- Ensure innovative and strategic use of ICT to promote “e-Agriculture”.
- Strengthen and capacity building of BRRI in e-governance in association of SMART agriculture.

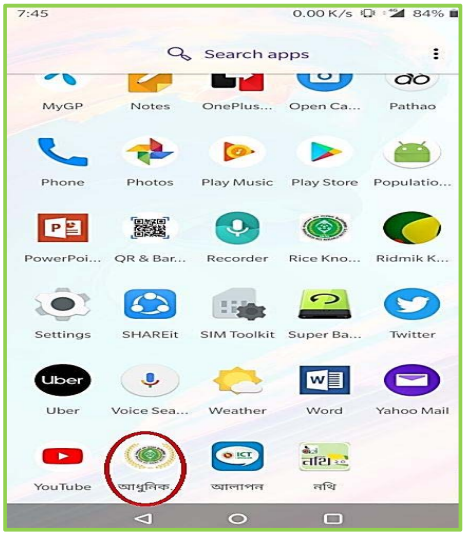
12. Research Highlight/findings:

- Developed a dynamic mobile application;
- Generated a broadly consistent, useful and dynamic rice database;
- Promoting “e-Agriculture” through strategic use of ICT;

“Modern Rice Nursing (আধুনিক ধানের পরিচর্যা**)” Mobile App:**

This Modern Rice Nursing “আধুনিক ধানের পরিচর্যা”mobile app has been hosting at Google Play Store. It is available at Android based smart phone. So, anyone can download this app from Google Play Store and then can be used through Android base mobile in online. The apps could also be shared with other Android phones using SHAREit without internet connection. The entire contents of this app are in Bengali language.

Modern Rice Nursing (আধুনিক ধানের পরিচর্যা) app has six menu options including “Push Notification” namely (i) Season base disease and insect management of rice(মৌসুমভিত্তিক ধানের রোগবালাই ও পোকামাকড় দমণ ব্যবস্থাপনা), (ii) Advance alert on disease and insect of rice(ধানের রোগবালাই ও পোকামাকড়ের আগাম সতর্কতা), (iii) Weather’s alert and tasks(আবহাওয়ার সতর্কতা ও করণীয়), (iv) Management of rice cultivation(আধুনিক ধানের চাষ), (v) Innovation (উদ্ভাবন) and (vi) Communication (যোগাযোগ) (Figure 3).



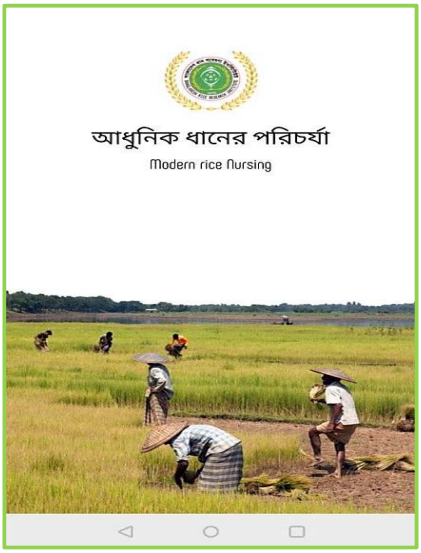


Fig. 3. Options of Modern rice nursing App

Fig. 4. Options of Modern rice nursing App

Leaflet of Modern Rice Nursing (আধুনিক ধানের পরিচর্যা) **Mobile App:**

মোবাইল অ্যাপস
"আধুনিক ধানের পরিচর্যা"
[Modern Rice Nursing]

রচনা ও সম্পাদনায়

- ড. মোঃ ইসমাইল হোসেন
- মোঃ মাহফুজ বিন ওয়াহাব

বাংলাদেশ ধান গবেষণা ইনস্টিটিউট
গাজীপুর-১৭০১

অ্যাপস পরিচিতিঃ

আধুনিক ধানের পরিচর্যা (Modern Rice Nursing) একটি ডায়নামিক মোবাইল অ্যাপ্লিকেশনভিত্তিক জ্ঞান ভান্ডার। ব্রির উদ্ভাবিত ধানের জাতসমূহের চাষাবাদ প্রযুক্তির তথ্য দিয়ে তৈরী অ্যাপসটি মূলতঃ ধানের রোগবালাই ও পোকামাকড় দমন ব্যবস্থাপনার বিভিন্ন প্রযুক্তি বিষয়ক একটি মোবাইল অ্যাপ্লিকেশন। রোগবালাই ও পোকামাকড় দমন ব্যবস্থাপনার সর্বশেষ উদ্ভাবন ও তথ্য সংযোজন করে অ্যাপ্লিকেশনটি তৈরি করা হয়েছে।

অ্যাপসটির মাধ্যমে ধান চাষের রোগবালাই ও পোকামাকড় দমন ব্যবস্থাপনার প্রযুক্তি সর্ম্পকে বিস্তারিত ধারণা পাওয়া যাবে। পাশাপাশি 'আধুনিক ধান চাষ' বইটির সর্বশেষ সংস্করণের পিডিএফ ভার্সন এবং উক্ত বইয়ে ধানের জাতগুলোর উন্নত চাষাবাদ পদ্ধতি, সার ও পানি ব্যবস্থাপনা, রোগবালাই ও পোকামাকড় দমন ব্যবস্থাপনা, বীজ উৎপাদন ও সংরক্ষন এবং কৃষি যন্ত্রপাতিসহ ধানের সকল বিষয়গুলোর সর্ম্পকে বিস্তারিত তথ্য সংগ্রহ করা যাবে। অ্যাপসটি একটি শক্তিশালী মাধ্যম হিসাবে ধান চাষের প্রয়োজনীয় তথ্য ও প্রযুক্তি দেশের সকল কৃষক, গবেষক, বিজ্ঞানী, কৃষি সম্প্রসারণকর্মী, ছাত্র, শিক্ষক ও অন্যান্য ব্যবহারকারীদের নিকট পৌঁছে দিতে গুরুত্বপুর্ণ ভুমিকা পালন করবে। এছাড়া অ্যাপসটিতে ইনোভেশন ও যোগাযোগ নামক দুইটি আলাদা মেনু আছে। 'ইনোভেশন' মেনুতে ব্রি'র ইনোভেশন টিমের সদস্যদের বিস্তারিত তথ্য ও ব্রি'র সর্বশেষ ইনোভেশন তথ্যসমূহ রয়েছে। 'যোগাযোগ' মেনুতে ব্যবহারকারী যেকোন সমস্যার তথ্য পুরণ করে 'প্রবলেম সাবমিট' উক্ত সমস্যার সমাধান প্রদান করা যাবে। এছাড়া বিভিন্ন সমস্যা প্রেরণের সুবিধার্থে 'পুশ নোটিফিকেশন' নামক বাটন অন্তর্ভুক্ত করা হয়েছে।

উদ্দেশ্যঃ

- কৃষক ও কৃষি সম্প্রসারণ কর্মীদের ধান উৎপাদন বিষয়ক আধুনিক প্রযুক্তি ও হালনাগাদ তথ্যসম্বলিত 'আধুনিক ধান চাষ' বইটি সহজে, দ্রুত ও বিনামূল্যে পৌঁছে দেয়া।
- উদ্ভাবিত ধান, আধুনিক ধানের চাষাবাদ পদ্ধতি ও কৃষি যন্ত্রপাতির প্রযুক্তিসমূহের তথ্য বিনামূল্যে, স্বল্প সময়ে ও সহজে কৃষকের দোরগোড়ায় পৌঁছানো।
- গবেষকদের প্রয়োজনীয় তথ্যের যোগান দেয়া।
- ছাত্র-শিক্ষকদের ধান চাষের সঠিক তথ্য সরবরাহ করা।
- আধুনিক প্রযুক্তি ব্যবহারের মাধ্যমে ধানের উৎপাদন বৃদ্ধি করা এবং
- ব্রি'র উদ্ভাবিত প্রযুক্তিসমূহের তথ্য স্বল্প সময়ে ও সহজে কৃষকের দোরগোড়ায় পৌঁছানো।

ব্যবহার পদ্ধতিঃ

এই অ্যাপসটি **"আধুনিক ধানের পরিচর্যা (Modern Rice Nursing)"** নামে Google Play Store হতে Android base mobile-এ ডাউনলোড করে অনলাইনে ব্যবহার করা যাবে। iPhone-ব্যবহারকারীরা যাতে iStore থেকে ডাউনলোড করতে পারেন সে প্রক্রিয়া চলমান রয়েছে। এছাড়াও এই অ্যাপসটি Android স্মার্টফোনের SHAREit এর মাধ্যমে অন্যান্য মোবাইলে ইন্টারনেট সংযোগ ছাড়াও বিতরণ করা যাবে।

প্রকাশনায়

কৃষি পরিসংখ্যান বিভাগ
বাংলাদেশ ধান গবেষণা ইনস্টিটিউট
গাজীপুর-১৭০১

প্রকাশ নং ও প্রকাশকাল

প্রকাশ নং-২৪৫, সেপ্টেম্বর, ২০১৮

অর্থায়নে

পিআইইউ ,বিএনারসি এনএটিপি, কেন্দ্র ,২
বাংলাদেশ কৃষি গবেষণা কাউন্সিল, ফার্মগেট, ঢাকা

বিস্তারিত তথ্যের জন্য যোগাযোগ করুন

আইসিটি সেল, কৃষি পরিসংখ্যান বিভাগ
বাংলাদেশ ধান গবেষণা ইনস্টিটিউট (ব্রি)
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ফোনঃ ৮৮-০২-৪৯২৭২০৫৩
ফাক্সঃ ৮৮-০২-৪৯২৭২০০০
ওয়েবসাইটঃ www.brri.gov.bd
অ্যাপসঃ https://play.google.com/store/apps

Training Workshopand Seminar on Mobile App at BRRI:

Modern Rice Nursing (আধুনিক ধানের পরিচর্যা)Mobile App

B. Implementation Position

1. Procurement:

Description of equipment&capital items	PP Target		Achievement		Remarks
	Phy (#)	Fin (Tk)	Phy (#)	Fin (Tk)	
(a) Office equipment	4,95,000	4,95,000	4,95,000	4,95,000	
(b) Lab &field equipment	8,85,000			8,42,250	
(c) Other capital items	-	-	-	-	

2. Establishment/renovation facilities:

Description of Facilities	Newly established		Upgraded/refurbished		Remarks
	PP Target	Achievement	PP Target	Achievement	
Mobile app development	yes	yes	-	-	
Database development	yes	yes	-	-	

3. Training/study tour/ seminar/workshop/conference organized:

Description	Number of participant			Duration (Days/weeks/ months)	Remarks
	Male	Female	Total		
(a) Training	31	22	53	Day long Training on Mobile Apps– 01	
(b)Workshop/Seminar	37	06	43	Day long workshop/seminar-02	

C. Financial and physical progress

Fig in Tk.

Items of expenditure/activities	Total approved budget	Fund received	Actual expenditure	Balance/unspent	Physical progress (%)	Reasons for deviation
A. Contractual staff salary	1,76,000	1,76,000	1,76,000	0	100	-
B. Field research/lab expenses and supplies	8,85,000	8,42,250	8,42,250	0	100	-
C. Operating expenses	3,05,000	2,49,296	2,49,296	0	100	-
D. Vehicle hire and fuel, oil & maintenance	1,60,000	1,28,865	1,28,865	0	100	-
E. Training/workshop/ seminar etc.	2,10,000	2,02970	2,02970	0	100	-
F. Publications and printing	1,70,000	49,275	49,275	0	100	-
G. Miscellaneous	97,000	93,207	93,207	0	100	-
H. Capital expenses	4,95,000	4,95,000	4,95,000	0	100	-

D. Achievement of Sub-project by objectives: (Tangible form)

Specific objectives of the sub-project	Major technical activities performed in respect of the set objectives	Output(i.e. product obtained, visible, measurable)	Outcome(short term effect of the research)
Develop mobile app	Mobile app developed	Measurable and visible	Dynamic mobile app developed
Develop rice database	Rice database developed	Measurable and visible	Rice database developed

E. Materials Development/Publication made under the Sub-project:

Publication	Number of publication		Remarks (e.g. paper title, name of journal, conference name, etc.)
	Under preparation	Completed & published	
Technology bulletin/ booklet/leaflet/flyer etc.	-	Completed	ধান চাষে আধুনিক ব্যবস্থাপনা লিফলেট
Journal publication	-	-	-
Information development	-	-	-
Other publications, if any	-	-	-

F. Technology/Knowledge generation/Policy Support (as applied):

i. **Generation of technology (Commodity & Non-commodity)**

1. Mobile Application
2. Rice Database

ii. **Generation of new knowledge that help in developing more technology in future**

1. Mobile Application
2. Rice Database

iii. **Technology transferred that help increased agricultural productivity and farmers' income**

Technology transferred through dynamic mobile application and rice database for helping to increase agricultural productivity and farmer's income

iv. **Policy Support**

N/A

G. Information regarding Desk and Field Monitoring:

i) Desk Monitoring (description & output of consultation meeting, monitoring workshops/seminars etc.):

1. Progress Review Workshop-17.04.2018
2. Monitoring Workshop-16.05.2018
3. Annual Progress Review Workshop-17.09.2018

ii) Field Monitoring (time& No. of visit, team visit and output):

Team Visit	Time	No. of Visit	Output
Technical Division/Unit, BARC	13.02.2017	01	
PIU-BARC, NATP-2	13.02.2017	01	
Internal Monitoring	14.03.2018	01	
Others Visitors (if any)	-	-	

I. Lesson Learned (if any):

i) Understanding a successful project monitoring and auditing;
ii) Project management process improving technique;
iii) Vendor and stakeholder relationship management;

J. Challenges (if any):

i) Timely delivery of fund
ii) Fund disbursement process make disturbance to continue the project
iii) Cheque transfer proceduredestroys time when it transferred from DG's account to Project account.

Signature of the Principal Investigator	**Counter signature of the Head of the Organization/authorized representative**
Date:	Date:
Seal	Seal

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