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# Ensuring Desirable Agricultural Services to Farmers' Doorstep Digitally in Time through Quick Agriculture & Information Service (QAIS) System/Krishoker Digital Thikana

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## Abstract

The paper aims at presenting an innovative system of technology transfer or extension system that based on ICT based technique and provides information from different research organization to farmers' doorstep. A pilot project was implemented at Belkuchi upazila of Sirajganj district. Through this project, agricultural services extended to farmers' doorstep in digital way *i.e.* by the use of ICT. After implementation, farmers can get their agricultural services from four categories of stakeholders (alternative service partners) who live nearer to rural areas. Four categories of stakeholders were UDC entrepreneur, NGO representatives, fertilizer & seed dealers/traders and advanced farmers. The service partners provide agriculture and information services using Quick Agriculture & Information System (QAIS) software which is mostly renowned as "*Krishoker Digital Thikana*". Farmers and interested people can also get the information using QAIS software through own android mobile phone. Thus, farmers can get accurate agriculture and information services quickly at doorstep through GO-NGO partnership using ICTs. Finally, "The quick transfer of up-to-date, research based agricultural technologies to farmers' door without or minimum cost and visit results in higher and sustainable production of crops which ultimately increases food security and improves the livelihood of farmers, their families and country. The proposed system will assist the government to provide services and accessibility of proper digital contents for not only the farmers but also the researchers and other peoples who are interested in this sector.

***Keywords:*** *QAIS, Krishoker Digital Thikana, service to farmers' doorstep*

## Introduction

Agriculture remains the largest employment sector of the country by far and 47.5% of the population is directly engaged in agriculture and around 70% depends on agriculture to some extend for their livelihood (Miah, 2015). At the same time, around 16.33% of the total GDP of the country comes from the agricultural sector (Bangladesh Economic Review, 2014). However, majority of the farmers of the country still lack the knowledge on modern agricultural practices. Farmers need to access ICT and take information of agriculture and associated issues that put them in better position in economic activities. So, it is very important to provide the farmers with the modern ICT facilities as soon as possible (Kashem, et. al., 2010). According to the statement of the Bill & Melinda Gates Foundation, "If you look at the countries that have succeeded in their economic development, all of them except the oil producers have made agriculture a key component". So, agriculture is the key component of our country. While the country's population is growing at the rate of 1.43 percent per year, demographic es and increased urbanization have caused cultivated area to decline at a rate of 1 percent per year. As cropping intensity has

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approached its limit (about 175 percent now), growth will need to come from intensification of cereal production, diversification into high-value crop, modern agricultural practices and value addition in the agro-processing sector including storage, processing and marketing. This will require reforming the agricultural research and extension systems and financial and other regulations.

Belkuchi is an upazila under Sirajganj district and stands on the bank of the Jamuna river. Forty percent of this upazila lies under chars of Jamuna. People of these vast areas are devoid of different types of facilities as characterized by poor communication system, non-availability of electricity and internet connection. In most cases farmers of these areas receive their extension services from Sub Assistant Agriculture Officers (SAAO) and Upazila Agriculture Office which is far from their villages. There are poor number SAAOs working at the field level, especially in the remote char areas. Moreover, they have no accommodation to live at the locality (known as block). Therefore, farmers need 7-8 days to get a desired service under the existing system. Also they have to visit several times to meet the concerned SAAO and upazila office to receive their services. After idea generation, farmers can get their agricultural services from four categories of stakeholders (service partner) who live nearer to their home.

Farmers rely on research and extension systems to improve their know-how, efficiency, productivity, profitability, and contribution to the benefit of their livelihoods. In return, the research and extension organizations came to appreciate the important role of farmers, both in disseminating technology and through effective feedback mechanisms. However, the lack of a close working relationship between national agricultural research and extension organizations with farmers is one of the most challenging institutional problems the Ministry of Agriculture is facing. When a strong connection is established and maintained between all three key partners (researcher – extension – farmers), their joint activities can lead to increased and sustained productivity, increased income and well-being of farm people, and the promotion of national food security and economic growth. Concepts of Quick Agriculture & Information System (QAIS) have applicability in providing a sustainable, effective process for transferring research based technologies to the farmers. In the present situation it is difficult to transfer the most relevant, existing technologies to farmers who live in the remote rural areas. Therefore the goal of this project is to promote continuous improvement in crop cultivation by "quick transfer of up-to-date, research based agricultural technologies to farmers' doorstep without or with minimum cost and visit results in higher and sustainable production of crops which ultimately increases food security and improves the livelihood of farmers, their families and country." To obtain greater impact from the research based agro-technological information, technologies should be disseminated to the farmers through extension agents of GOs, NGOs and private sectors. This project provides the technical knowledge to enable the extension community for quick and effective responses to the needs of the farming communities.

Therefore, the purposes of the project were:

- Collection of content, software preparation and validation of content;
- Providing agro-technological knowledge to enable the extension agents/

community of GOs, NGOs and the private sectors; and

- Digitization of information service centres for quick and effective response to the farming community.

## Methodology

A pilot project on an innovative idea was implemented at two unions of Belkuchi upazila of Sirajganj district. Project duration was from July 2014 to December 2014 (six months). A GO-NGO partnership was formed by five categories of partners (called as service partner). Partners were SAAO, UDC entrepreneur, NGO representatives, fertilizer and seed dealers and advanced farmers. The categories were fixed up on the basis of age, education and profession. Apart from the SAAOs, the other four categories of partners live nearer to farmers' households. To help the partners providing agriculture and information services Quick Agriculture & Information System (QAIS) software was prepared which is mostly renowned as "*Krishoker Digital Thikana*". QAIS software was prepared by the modern technologies of different research organizations that include production technologies, insect control, disease control, improved technologies and miscellaneous information. Design and development of software was done on the basis of farmers' need. It works both offline and online version which is applicable for desktop and android mobile/smart phones. The person who has no internet connection can use offline version. Thus, farmers can get accurate agriculture and information services quickly at doorstep through GO-NGO partnership through using ICT.

## Results & Discussion

**Effect of Training to Capacity building of the partners:** Although SAAO are capable to provide agriculture and information services to some extent, they have no experience providing services using ICT. The other partners have no capacity to provide accurate services to the farmers. So, a training program was arranged for capacity building of the partners.

From the Table 1 we see that young educated persons effectively learned from training than those of older and less educated persons. Otherwise SAAO, UDC entrepreneurs, NGO and student farmer representatives are more effective than older farmer, fertilizer dealers and retailer. After receiving training they becomes more or less capable to provide services using software and ICT devices.

Table 1 Participants perceived effect of training

| Characteristics dimensions | Participants' opinion | | Remarks |
|---|---|---|---|
| | More effective | Less effective | |
| Age | 20 - 40 yrs | Above 40 yrs | Training duration should be increased |
| Education | Educated person | Less educated person | |
| Dealer/Retailer/ Farmer/ Student/SAAO/ Uddokta/ NGO representatives | SAAO/ Entrepreneur (Uddokta)/ NGO/student | Farmer/Dealer/ Retailer | |

**Role of partnership to provide services to farmers' doorstep**

Generally SAAOs provide agriculture and information services to the farmers. Three SAAOs are posted for each union. Considering the total number of farm households in the area this number is not sufficient. On the other hand, they have no accommodation to stay at block level. So it is not possible to serve farmers' doorstep in time. In this case, alternative partners can play a vital role to provide services at farmers' doorstep quickly.

Table 2 Effect of Partnership on providing services to farmers' doorstep

| Partners type | Number of partners | No. of service receiver | No. of aware people | Remarks |
|---|---|---|---|---|
| SAAO | 3 | 1,500 | 4,000 | Total service receiver 5,000 and aware people 15,000 |
| UDC entrepreneurs | 2 | 300 | 1,500 | |
| NGO representatives | 2 | 500 | 1,500 | |
| fertilizer dealer or retailer | 3 | 700 | 2,000 | |
| Advanced farmers | 14 | 2,000 | 6,000 | |

From the Table 2 we see that, SAAOs served 1500 farmers directly and brought 4,000 people under awareness building during six months. On the other hand, four categories of partners served 3,500 farmers directly and brought 11,000 people under awareness building in the same period. Therefore, a huge number of farm household members were served to their doorstep under this partnership programme.

**Effect of QAIS on Partners to provide quality services:**

There are many books and other documents to help partners providing services. Every institution has a website including their technologies. But there are no suitable documents which can serve all purposes of farmers at a time. QAIS software is prepared in a way that all modern technologies of different research organizations are presented in a single website. The range of information covered production technologies, insect control, disease control, improved practices, and miscellaneous information. Partners provide services using QAIS through an android mobile phone which is the easiest to any other documents. It can serve all purposes of farmers at a time.

Table 3 Effect of QAIS on Partners to provide quality services

| Items of software | Traditional method | Using QAIS software | | |
|---|---|---|---|---|
| Production technology | Verbally, books etc. | Information | Picture | Video |
| Insect management | do | Information | Picture | Video |
| Disease management | do | Information | Picture | Video |
| Modern technologies | do | Information | Picture | Video |
| Important rules, forms, contact numbers of DAE personnel etc. | do | Information | - | - |

From the Table 3 we see that, normally SAAOs provide service to the farmers verbally with exchanging their views. Sometimes confusing information from different sources misguide farmers. After development of QAIS software partners can provide services comparing their problem with pictures and videos. As a result they can provide quality services to the farmers.

**Effect of QAIS on Types of Services:**
Normally farmers are not interested in getting services from extension personnel due to communication gap, time constraint, lack of proper suggestion etc. They contact pesticide and fertilizer traders for receiving necessary farm information. So different categories of farm stakeholders are included in the QAIS system. As a result getting different types of services from partners are increasing day by day.

Table 4 Effect of QAIS on Partners to provide quality services

| Type | No. of service receiver | Remarks |
|---|---|---|
| Crop variety | 300 | Cereal crops, oil crops, pulse crops, cash crops, spice crops, fruit crops and vegetables |
| Sowing/transplanting | 400 | |
| Other technologies | 50 | |
| Insect management | 1,500 | |
| Disease management | 1,000 | |
| Modern production technologies | 500 | |
| Soil fertility management | 100 | |
| Fertilizer management | 1,000 | |
| Irrigation | 100 | |
| Miscellaneous | 50 | |

From the Table 4 we see that, crop variety, sowing/transplanting, intercultural technology, modern technology, soil management, irrigation management and miscellaneous services are received by farmers along with insect and disease management.

**Comparison between QAIS and other traditional services**
Near about 5,000 people received services from partners directly within six months. They were interviewed on quality of services under across different dimensions. The major trend of their perception on extension services as provided by different services are presented in the Table 5.

From the Table 5 we see that, most of the service receiver found the QAIS very good. They were also satisfied due to receiving service with less time, low cost and less harassment.

Table 5 Comparison between traditional extension service and service through QAIS

| Dimension/items | UAO Office/SAAO | QAIS system |
|---|---|---|
| Time of service | 1-8 days | 0-1 days |
| Cost per service | 600-1800 Tk. | 0-600 Tk. |
| Visit needed | 1-3 times | 0-1 times |
| Satisfactory level | Low satisfactory | Satisfactory |
| Comments on quality | Not so good | Very good |
| Accuracy of service | Less accurate | More accurate |

**Recognition on software innovation:**

- Farmers' appreciation and reception
- Success stories published in newspapers
- Appreciation from Upazila Parishad and administration
- Recognition from DAE authority: DG, DD, DTO, ADDs
- Secretary, Ministry of Agriculture
- A2i project of the Prime Minister Office
- Copyright Office, Dhaka

## Conclusion

Through QAIS system the farmers are benefitted in Belkuchi upazila. They are satisfied in getting necessary information regarding crop production techniques, pest management, modern technologies etc. In addition, service providers can deliver their services more efficiently, easily and timely with accuracy. This software should be disseminated to all other parts of the country.

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## References

Kashem, M.A., M.A. Faroque, G. M. F. Ahmed and S.E. Bilkis. 2010. The Complementary Roles of Information and Communication Technology in Bangladesh Agriculture. *J. Sci. Foundation*, 8(1&2): 161-169.

Miah, H. 2015. Agriculture Sector Development Strategy: background paper for preparation of 7th Five Year Plan. *J. Sci. Foundation*, 8(1&2): 161-169.