Chapter 7
Technology Application in Agri-tourism

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Abstract Agri-tourism is a form of tourism that is rapidly gaining popularity in so many countries by providing producers an immense opportunity to generate more income and an approach for direct marketing to customers. Since Bangladesh is an agricultural country with fertile land and 70% people of this country are dependent on agriculture, it has huge potential for agriculture based tourism. Agri-tourism can be a tool where selling point and comparative advantage can lie for the tourism industry in Bangladesh as it is one of the three revenue generating sectors (industry, agriculture, service). More than half of the population is engaged in agriculture, specifically in the rural area and the businesses find it difficult to market themselves to the potential visitors due to the absence of adaptation with advanced technology. The chapter deals to ascertain its current use of technology and future aptitude in agri-tourism business of Bangladesh and substantiate why agricultural attractions need a key to technology (devices, software's, android apps, etc.) for tourists so that they would be able to discover new destinations, plan their vacations, learn about food production and farming as well as for the farmers regarding modern agricultural operations.

Keywords Agri-tourism · Agriculture · Farming · Technology

Introduction

Bangladesh, a country of South Asia, is largely dependent on its agriculture as it is one of the most significant key indicators of the national income. Annual growth of GDP by agriculture and forestry sector in 2018–19 was 3.15% and by fishing in 2018–19 was 6.21% (Bangladesh Bureau of Statistics, 2019). Sustainable agriculture is possible with the application of technology as it inspires the use of new methods with greater production of crops.

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Agri-tourism is the tourism activities of the farm that supports eco-tourism and very much environment friendly. Information Communication Technology (ICT) initiates the justifiable process of utilizing natural resources and ensures economic, environmental and social benefits of the rural community. Mobile and internet technologies enable both parties including farmers and tourists, by ensuring accessible information. It works as the distributor of the product information among farmers, tourists, suppliers (Mpiti & de la Harpe, 2015). This chapter is all about the technologies that are in use of Bangladesh's agri-tourism so that it may draw the attention of all patrons to increase their contributions in the enlargement of the sector, introduce more technologies and minimize the obstacles for running an effective agri-tourism industry.

The Concept of Agri-tourism

Agri-tourism means the tourism activities in farmland or in any agricultural land where people tend to visit, gather to know about agrarian operations. Generally, agri-tourism activities are run by small scale enterprises where special self-service is included (Embacher, 1994). It links up agricultural production and tourism businesses where the farmers can enjoy both profits from selling crops and from tourism deeds like farm stay, farm tour (The National Agricultural Law Center, 2020).

Agri-tourism activities take place in a good manner in the rural zone of a country with a significant portion of the land. Although rural tourism and agri-tourism are interlinked, there is a slight difference between them. Rural tourism covers a nature based large area, countryside, rustic lifestyle, culture, food production, sightseeing holiday, rural environment, tourism and hospitality amenities (Fagioli et al., 2014; McGehee & Kim, 2004); where agri-tourism is a part of rural tourism (Wilson et al., 2001). In agri-tourism, agriculture and farming procedures are the foremost precedencies but it offers on-farm attractions and overnight lodgings (McGehee & Kim, 2004). Tourists are experiencing this as a source of excitement and learning the process of food preparation and animal rising (Wikitravel, 2020). Some examples of agri-tourism activities are cultivating crops, horticulture based actions, cutting fruits and vegetables, winery tours, fishing, dairy cattle, honey hunting, agronomy crafts, preparation of jelly and cheese, horseback riding, tour to animal husbandry, visit farmer's market, tour to agri-related museums, recreational activities, bed and breakfast, short term accommodations, etc. Likewise, agri-tourism tours are educational, recreational, participated tour in agriculture, self-harvesting (Tew & Barbieri, 2012). Instead of this, it also includes the offer of providing freshly cooked meals and agricultural farms often patronizes this.

Tourism grounded on agricultural wealth contributes to the reduction of negative impacts on the environment and increases the preservation and conservation of natural resources (Barbieri, 2013; Gold et al., 2009). Sometimes, agri-tourism is seen as a form of sustainable tourism (Barbieri, 2013), because this sways on the socioculture, economy and environment. It creates the opportunity for the rural

community to be self-dependent, represents the culture to the travelers, preserving the landscapes and habitats in an organic way. From the economic side, farmers and their family are earning, they are contributing to the local economy. Most of the harvests and foodstuffs that are produced from agri-tourism are organic, that's why the environment is facing less pollution. Moreover, crops and livestock are protected in a sustainable manner.

An agri-tourism system model is developed by McGehee (2007), where it is demonstrated that farm families are providing crops, agriproducts and services to agritourists and DMO plays a significant role to intensify the competence of information transactions between these two parties. Furthermore, DMO can ensure the execution of more facilities for agritourists. Stakeholders must do need assessment, communicate effectively and may influence to adopt new technologies in their agricultural method. Service providers have more capability to retain new customers to turn into potential repeat customers. But within this agricultural framework, there are some obstacles like improper communication, unsustainable application of technology, lack of knowledge among farmers, etc. that inhibit the whole agri-tourism development of the zone. All parties of this agri-tourism system should be active in the dropping of these obstacles.

Phillip et al. (2010), acknowledged the typology of agri-tourism, where five types of farms are identified (see Fig. 7.1). Nonworking farm is basic rural tourism in which agricultural heritage and imagery are the priorities. Whereas, in working farm with a passive contact to agri-tourism, agricultural bond with tourism is not that much strong due to the perspective of noticing it as a source of earning. In working farm (indirect contact), tourists are attached indirectly and agricultural commodities get significances. On-site food processing is an example of this type of farm. Working farm (direct contact- staged) is that type where agritourists have a direct attachment with the activities where the relationship between agriculture and tourism have functioned at synchronized breaks. Working farm (direct contact-authentic) is the last type of agri-tourism and here agritourists involve physically in authentic farm based tasks of agri-tourism setting, donate in farm economy by establishing labor intensive nature.
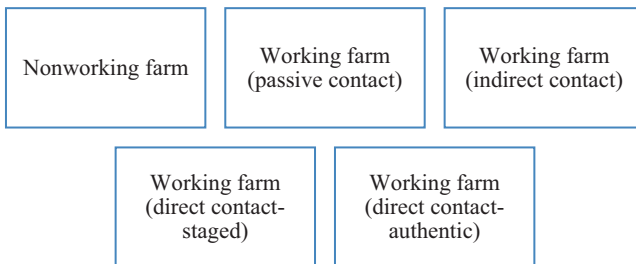

Fig. 7.1 Types of agri-tourism. (Source: Phillip et al. 2010)

Practice of Technology in Agri-tourism

Modern agriculture is more dependent on the utilization of technology than before. Agribusinesses are now relying more on different types of technology including automated irrigation, satellite photography, robot, drone, biotech and others (Wikipedia, 2020). Instead of these technologies, farmers are using electrical conductivity sensing, GPS technology, artificial intelligence, drying technology, GIS software, planting and harvesting technology, flow pumps, livestock farming, farm automation, Nitrogen modeling, RFID technology, reapers, blockchain, fertilizer drills, soil preparation. Tourism is also boosting up with the utilization of technology and innovation in its different fields on the planet. Agri-tourism is getting familiar to the tourism world and few use of technologies are perceived now. As agri-tourism mostly relies on the environment, technology should acclimate with nature. In this section, the technologies that are rapidly used in agri-tourism is defined.

Internet of Things (IoT) is the most common technologies used in agriculture nowadays as it is very much inexpensive, easy to function. This technology depends on nanotechnology, wireless networks, remote monitoring, radio frequency, sensor (Zhao et al., 2010). IoT contributes to the measurement of agriculture greenhouse production; uses agricultural sensors for enhanced product distribution; introduces smart farming by which farmers can get any solutions to their farm based queries and get several information like weather, soil, pressure, field study; improves the cattle healthiness; agricultural drones (IOT Solutions World Congress, 2020). Not only that but also the agri-tourism farms are using Web 2.0 technology and developing their websites with the good content, graphic designs, advertisements, tourists' accessibility, tour pricing, pictures and videos of the farm and contact address which is only possible due to the advancement of the internet (Havlícek et al., 2013). For young entrepreneurs, it is also recommended to go for Web Content Management (WCM), Search Engine Optimization (SEO), agri-tourism portal, non agri-tourism portal (Havlícek et al., 2009). By this, farmers are reaching to their target market and tourists are well informed with the farms before their travel so that they can plan for their future travel.

Rich et al. (2011), determined the importance of arranging webinars or online educational programs for the folks involved and interested in agri-tourism. These programs can be like meetings, video conferencing, workshops, seminar, etc. The purpose of the program is to develop the idea about how to start agri-tourism business, what locations are suitable, what are the demands of agritourists, what are the rudimentary difficulties, what strategies may solve these snags, what techniques are needed to follow, what technologies' adoption will create competitive advantage, etc. Basically, this use of technology (webinar) is appreciable because it is cost effective, time saving, source of effective communication with experts, connecting more geographically diverse audiences from the whole world.

The expansion of Information Technology (IT) opens the door for agri-tourism stakeholders to ensure their job is done by reducing the manufacturing and

communication price, having abundant information in hand (Mpiti & de la Harpe, 2015). Farmers are acquiring their knowledge from online and finding out the lacking of their previous methods. They can ensure sustainable farming as they are well-educated about the pros and cons. The interconnected communication belongs among suppliers, personnel, tourists and additional stakeholders. The farmers are now designing their plan and producing agri-tourism packages, finding out about potential customers.

Information Communication Technology (ICT) has a noteworthy role in the production of agriculture based activities (Pote, 2008). Regular and day by day innovation have taken agriculture into an established place. For example, a revolutionary invention is the blockchain technology used in agriculture and food supply chains by shortening the distribution channel with the reduction of untrusted parties (Kamilaris et al., 2019). It increases the efficiency of supply chain management, reduces waste, care environment, secure food, support farmers by mobile payments and reduced transaction fee, aware tourists by ensuring safe production of food which influences their travel decision. Another important application of technology in agriculture which may contribute to the agri-tourism field is particle films. This technology is based on Kaolin, which requires the facts of light physics, plant and insect behavior, mineral with the ultimate goal of achieving plant protection, pest control, qualified crops (Glenn & Puterka, 2005). This results in good and fresh production of food which inspires the agritourists to involve in having fresh and organic food. One of the most recognized agri-tourism technology is green waste-water technology of Norway (Paruch et al., 2019). The overall treatment of waste-water was introduced for the facilitation of the tourist zone by controlling the environmental pollution, using for the assistance of the surroundings, generating energy, using as composts. With the purpose of inaugurating the on-site water refining structure, three purification biofilter technologies are implemented including integrated infiltration, integrated trickling, separate trickling; aseptic tank; a filter bed (Paruch et al., 2019). The overall evaluation of the treatment is conducted on chemical and microbiological analyses. The complete procedure is so much ecology friendly that it ensures the desired environment for tourists to travel and earn knowledge about the farm. In addition, agrarians are applying agriculture conservation technology (Warriner & Moul, 1992) that helps farmers to increase water infiltration, upsurge the nutrient level, protect irrigation water, reduce soil erosion and pollution, save the moisturizer of the land, etc. This technology subsidizes to the whole land conservation and biodiversity management that inspires travelers to visit here for enjoying the scenic beauty, fresh air, organic food, wildlife. Precision Agriculture (PA) is a technology that shifts the use of farming technology into sustainable farming as this method observers' agricultural practices electronically and in detail (Aubert et al., 2012). Moreover, it sustainably runs farming practices and assists farmers to take decision based on science. Most of the technologies are also used in incubation, land preparation, soil conservation, agricultural training, online banking.

Rural agri-tourism farmers are mostly relying on the use of TV, radio, computers, internet, smartphones, cameras (Mpiti & de la Harpe, 2015). Nonetheless, all

pastoral societies are not well developed for supporting network infrastructure, have not well supplied internet service, farmers are educated enough and have financial insufficiency. In this case, "farmer back to farmer" (Rhoades & Booth, 1982) is introduced to solve farmers' technology related problems which include four stages including diagnosis, research, testing and adaptation, farmer evaluation. Abdullah and Samah (2013) evidenced that the adoption of technology by farmers is influenced by education. A fruitful program planning with the involvement of all stakeholders can encourage the farmers to be accustomed to innovative technologies.

Most of the agritourists are adults and visit farms in groups, with families or as an organization. They are dependent on the internet for having trustworthy information. The level of satisfaction of agritourists is determined by the attractions of the agri-tourism farm, services, facilities, personal rewards. They have an intention to satisfy the push and pull factors of motivation (Leo et al., 2020). Agritourists have demand to increase a wide range of activities in the farm and technology facilitated pre-travel, during travel and post travel. In this manner, service providers of agri-tourism business need to serve them in a suitable way to fulfill their level of expectation. But unfortunately, less attention has been paid to the agri-tourism and agritourist loyalty (Leo et al., 2020). Technological revolution reduces the distance among host to customer. Internet based research, online survey will help to identify the needs of the agritourists.

Bangladesh's Agriculture and Status of Agri-tourism

Bangladesh is an agriculture based country and it is one of the highest employment sectors (63%) and adds 19.6% to national GDP (Nations Encyclopedia, 2020). In the 2016–17 Labor Force Survey, it is seen that 24693000 people are involved in agriculture whereas in service, the number is 23711000 (Bangladesh Bureau of Statistics, 2019). Rice, wheat, jute, tea is produced a lot and conquered in the export market for this. Additionally, the country is famous for the production of different types of cereals, fibers, fruits, oilseeds, spices, pulses, sugarcane, vegetables, horti-culture, irrigation, animal farming and fishing. In Table 7.1, the value of the major crops of Bangladesh is summarized where the contribution is increasing year after year.

Instead of this, animal farming generated BDTk 136,958 million, horticulture generated BDTk 8584 million and fishing produced BDTk 743580 million in the year of 2014–15 (Bangladesh Bureau of Statistics, 2019). The country is constantly in the leading list of the world in food grain production as around 70.63% land of the country are used for agricultural activities (DataBD, 2020). There are also so many institutions in Bangladesh, that are doing research and carrying out several activities to encourage the agricultural aspiration among the young generation of the country. The major institutions are- Bangladesh Agricultural University (BAU), Bangladesh Agricultural Development Corporation (BADC), Bangladesh Agricultural Research Council (BARC), Bangladesh Institute of Nuclear Agriculture,

Table 7.1 Distribution of weights of value addition of different crops in Bangladesh

Name of the Crops	2016–17		2017–18		2018–19	
	Value added[a]	Weights (%)	Value added	Weights (%)	Value added	Weights (%)
Cereals	401,514	57.64	429,051	59.67	457,262	62.80
Paddy	388,998	55.84	416,626	57.94	415,064	57.01
Vegetables	67,980	9.76	68,613	9.54	67,204	9.23
Fruits	61,290	8.80	61,369	8.54	64,683	8.88
Spices	41,406	5.94	44,310	6.16	45,918	6.31
Oilseeds	31,014	4.45	21,344	2.97	25,897	3.56
Fibers	22,990	3.30	24,768	3.44	23,907	3.28
Beverages	26,409	3.79	20,618	2.87	23,260	3.19
Pulses	9256	1.33	9477	1.32	10,030	1.38
Sugarcane	8653	1.24	8653	1.20	8961	1.23
Other Crops	950	0.14	952	0.13	994	0.14

Source: Bangladesh Bureau of Statistics 2019
[a]Represented values are in Million Taka

Bangabandhu Sheikh Mujibur Rahman Agricultural University, SAARC Agricultural Centre and many more. Along with that Ministry of Agriculture, Department of Agricultural Extension provide farming related support by forming policies, laws and regulations.

The government of Bangladesh is very much supportive to bring out ground-breaking innovations in this prosperous sector. The government encourages both public and private sector investment for the development of this most promising sector (The Financial Express, 2020). This also suggested that a change in current agricultural policy is needed with giving importance to food's nutritional value and an unrestricted environment opened for all.

Regrettably, most of the farmers of Bangladesh do not belong into well to do family. Their overall income sometimes is not sufficient enough to run a family. Due to climate change and disasters like flood, cyclone, earthquake; these families stay in catastrophe as their crops are ruined and flooded. Few CSOs and NGOs are working to upkeep the farmers' community by credit, training about the sustainable agricultural methods and precautionary measures to take during climate change, continuous study and research, techniques for food security, available technologies, agribusiness strategies. In this case, agri-tourism can be a tool of developing the condition of the farmers though all farmers of the country are not well recognized and aware of the concept of agri-tourism. This tourism reigns in the tea estates of the hilly districts of Bangladesh and earning huge profit. For example- Sylhet is famous for the production of authentic tea and is the highest exporter in the country. Agritourists visit the district's tea estates, learn about the production of different kinds of teas, engage in other recreational activities, visit museum. Accommodation, transportation facilities are very much strong over here. Lots of hotels, motel, resorts are established near the tea estates. But, in the other agricultural fields, the establishment of agri-tourism is very less or none at all. Creation of awareness is important

here to solve the problem. A SWOT analysis of Bangladesh's agri-tourism sector is presented in Fig. 7.2, so that the current situation of the sector can be noticed at a glance.

Bangladesh has the potentiality to grab the agri-tourism market as it attracts the agritourists from all over the world to visit farms, participate in the activities, have handcrafted gifts, enjoy the agricultural tasks, learn about the farming methods (Dhaka Tribune, 2020). By agri-tourism, agricultural resources can be utilized for tourism purposes. It will help to reduce poverty and apply sustainable and eco-friendly farming procedures. Agri-tourism can attract foreign and domestic travelers and offer to engage themselves in tourism and hospitality activities. In Bangladesh, most of the agritourists are independent and self-motivated. Most of the agri-tourism farms do not have proper accommodation systems. For that reason, tourists tend to stay at hotels and then visit the farm which is time consuming as well as expensive. Young and educated farmers can decorate their land by additionally providing staying opportunities near the land or may offer homestays. Government and private organizations should invest in these businesses to support their plan by founding modern transportation facilities, communication conveniences, technological facilities, supply of utilities, training regarding organic food production. They may get a return on their investment in an annual basis. So, in this way, the farmers will get a chance to earn more from different parts of their tourism activities, selling organic crops to the local and international market. With that, the agri-tourism business will help the whole tourism industry to contribute more to the GDP.

STRENGTHS	WEAKNESSES
- Natural resources, flora, fauna, animals' husbandry, fisheries - Nice weather - Additional source of income - New jobs - Community development - Increasing use of technology - Development of different dimensions of agri-tourism like agri-eco, farm based, agri-heritage based, etc.	- Slow progression - Less tourism infrastructure in rural zone - Less participation of female - Less connectivity - Lack of financial support from the stakeholders - Lack of education and awareness - Unconscious about different uses of technology
OPPORTUNITIES	THREATS
- Interest among skilled people - Building of new strategies to start agri-tourism business - More use of technology in agriculture and farming - Growing amount of governmental support - Infrastructural development for supporting tourism components - Training among farmers to learn about using technologies and modern farming - More promotion - Expansion of online marketing	- Climate change - Competition - Demand for imported products - Environmental pollution

Fig. 7.2 SWOT analysis of Bangladesh's agri-tourism. (Source: The author 2020)

Agri-tourism is also important for preserving heritage as it inspires to combine with eco-tourism and intend people to live in the natural environment. Village development is also possible with agri-tourism acts. It emboldens the participation of the local community so that, the whole community can be benefitted and more employment sources can be created from farming, agribusiness running, local guide who helps the visitors to visit the surroundings. It works as a source of creating additional income earning. Also, it creates the inquisitiveness among children, young people and adults to learn about local agriculture and their uniqueness. Lots of medias are now promoting consciousness about this combination of agriculture and tourism among Bengali people, nature friendly life style.

Technology's Usage in Agri-tourism of Bangladesh

Bangladesh as a developing country is welcoming to the new technologies in the field of agri-tourism. Although it is challenging as most of the farmers belong near the poverty line and do not cognizant enough about the use of technology, there is a possibility of improving the condition of farmers by identifying the success strategies in agri-tourism. It is more useful by applying technological tools which may work as helping hand for farmers and tourists both.

Widespread use of the internet provides flexibility in accomplishing guest-host communication. But still, most of the agri-tourism farms of Bangladesh do not have proper and updated website. Even if they have, they do not maintain it in a strong way like it is not eye-catchy, does not respond quickly. A well maintained website with visual excellence can attract potential customers, include cost effective advertising, support intensifying the market. Quality maintained websites increases sales efficiency and are very responsive to answer the queries of agritourists (Król, 2019).

Farmers of Bangladesh have access to the use of mobile phones because its price is comparatively affordable in comparison with other technological tools. Ministry of Agriculture introduces new "Agricultural Information Service (AIS)" app that suggests farmers plan and manage for agricultural based products like livestock, fisheries, etc. There is another app named "Krishikotha" which works as a monthly agricultural magazine of Bangladesh. 'BARI application' is the app where the agriculturalists can reveal their queries, know about new technologies, crop management, etc. Again, Department of Agricultural Extension introduced three apps in association with Access to Information (a2i). The first one is- "Krishaker Janala" app that suggests agronomists about a particular crop, usage pattern, give answers to their queries, identify the problems in harvesting. Secondly, "Krishaker Digital Thikana" which incorporates several technologies and information about crop productivity and crop diseases. Thirdly, "Balaynashok Nirdeshika" app which suggests farmers to identify suitable pesticides. These apps are accessible in Google Play store and are simply downloaded by the farmers of Bangladesh in their mobiles. In the future, mobile based Agricultural Market Information Service (AMIS) will be developed so that farmers will be able to gather information on agricultural market

(Islam & Grönlund, 2011). Information symmetries due to this availability of data, helping farmers to know more about market, price, crops, harvesting method, climate, insecticides, transportation and others.

In cooperation with Bangladesh Rice Research Institute, the Ministry of Agriculture introduced Bangladesh Rice Knowledge Bank that helps farmers with modern paddy cultivation (Ministry of Agriculture, 2020). Another important invention is the use of technology in floating agriculture and dug well activities. There are few submerged areas in the country that are covered with aquatic weeds and hyacinth. These zones are now piled up by making beds in a scientific way for producing various vegetables and spices in a floating manner (Ministry of Agriculture, 2020). Through dug well, the balance of nature and environment is maintained. Agricultural Information Service guided the use of e-agriculture including granular crop, vegetable crop, tuber crop, pulses, fruit and flower cultivation, fisheries, livestock, hill crops. Bangladesh Agricultural Research Institute (2020) is very active in the production of different crops by using technologies especially the production of crops, pulses, nuts, vegetables, flowers. The online reporting system is launched by the Department of Agricultural Extension that gives day to day updates about rainfall, pesticides, level of cars (Department of Agricultural Extension, 2020).

Few agri-tourism farmers are now using blockchain technology where they have a digital identity that enabled their transaction and credit taking system (The Financial Express, 2019). Agricultural practices of the country are data driven in most of the cases. These processes help farmers to take a decision and provide value added services to the tourists. Genetically Modified Organisms (GMO) are also used by Bangladeshi agriculturalists which declines the cost of food production, maintains the quality of food and nutrition. Easy access to technology, social media and information help farmers to be conscious about the current market and gain a fair price without the involvement of intermediaries (The Financial Express, 2019). The overall bonding with other agronomists, customers, tourists, traders becomes feasible by this direct way of communication. Again, modern technology introduces farm machineries which are effective for completing tasks more easily by farmers but the high costs of these machines are often is not affordable for poor farmers. The government is helping them but more support is also needed from private sectors.

Technological tools are working as a decision support system in Bangladesh (The Financial Express, 2019). IT devices and soil sensors support farmers to know about the geographical location of farms, weather reports, soil productiveness, tourists demand. The development of these devices just reduces the functional cost and increases the whole productivity for a long time. Both public and private universities, mobile companies, stakeholders and government are very much conscious in this case to form data assemble and distribution system. For instance, SmartKrishi developed by Misfit Technologies Ltd with the purpose of maintaining food security with smart devices for increasing milk productivity in the dairy cattle (Misfit Technologies, 2020).

Geographical Information Systems (GIS) is now widely used in the agriculture as well as in agri-tourism businesses of Bangladesh. Lots of products that are made from agriculture related businesses are often not sold to needy customers due to the

lack of convenient communication. GIS enables the way of vending more agri-tourism products, inspires travelers by giving a preview about natures, crops, wild-life, harvesting, flora, fauna, cultural heritage, geo-demographic features, tourist safety, administration tasks (Dhaka Tribune, 2020).

Traditional ways of connecting with tourists were really very expensive. Promotional efforts of big budget often go in ruin just due to its not knowing the output. It could not assure that it had reached out to their potential targeted customers. Nowadays, websites of agri-tourism farms are now promoting sustainable tourism practices which ensure more feasibility in nature. The resilience and analytics are needed to be considered now in Bangladesh.

Most of the digital apps that are available in the tourism market of Bangladesh are not quick and updated especially in the agri-tourism cases. Bangladesh needs to customize mobile apps for travelers where they can communicate directly with farmers. It often works as a profitable online marketing tool and increases the viability of the business. These applications have pictures and videos of the place which will motivate more to travel. Tourists can see the forecast of the weather before their trip plan, book their favorite agri-tourism destinations even staying at home, book travel tickets, book hotels or resorts. Moreover, it will abridge the complexity of completing transactions. The added attractions, promotional offers, tour packages are necessary to include in this.

Social media are also contributing to attracting tourists and creating enthusiastic tourist experience by agri-tourism. Few Bangladeshi farms are very active on Facebook who are creating groups for agritourists and posting status about their new services. Young generation spends a large amount of time on social media and these lucrative offers are often grabbed by them. So the role of this technology pays a lot in cost friendly tourism marketing.

Bangladesh is now applying Web 2.0 technology in a diverse field of tourism and hospitality sector for accomplishing customers' demand in priority. IT has changed their way of travel patterns where they are playing different roles such as co-producers, co-marketers, co-designers, co-distributors (Kaewkitipong & Rotchanakitumnuai, 2012). It is true even in the case of Bangladeshi agritourists. They are co-producers when they are busy in making a weblog and may adjust corrections with agri-travel package. When they are giving reviews and share experience in an online site, they are influencing other travelers and helping farms to reach more tourists which turns their role into co-marketers. These tourists are cooperating with others to design their trip through Web 2.0 technology and becoming co-designers. Even they can be intangible distributors as they are informing about their purchased deals from the farm. Web 2.0 technology definitely comforts the farmers by doing their publicity, communicational, other activities in the supply process and is used in the entire tourist life cycle.

Bangladesh has a prospectus of establishing accommodation, food and beverage, transportation, recreation facilities in agri-tourism destinations. In the cases where, farmers do not have the capability of establishing proper accommodation, they can start opening homestay like Airbnb. The recreation facilities should also consider tourists' visiting to the farmers' market, know about where they are getting food or

know about animals' husbandry, educational experience, preparation of fresh foods in the restaurants though the procedures of going food farm to table directly, singing, dancing, camping, picking fruits and vegetables. These regular offers will be updated and posted online. More infrastructure is needed in the agricultural zone but it should not hamper the agricultural production, environment, nature, soil and land.

However, Global Distribution System (GDS), Global Positioning System (GPS), Internet of Things (IoT), augmented reality; etc. are randomly used in agri-tourism. But for proper maintenance of agriculture and tourism in Bangladesh, the following suggestions are needed to be considered. First, finding out the suitable technologies for Bangladesh through research and innovation. In some cases, Bangladesh can rely on other considerable technologies from outside of the country. Second, for the promotion of agri-tourism, agricultural festivals and events are needed to be organized. Here, technology can work effectively by doing promotional jobs and let people know about it. Third, recognise the cost of technology, information and encourage the stakeholders to find out the sources of financial incentives. Fourth, agri-tourism farms can encourage both domestic and foreign investment for developing technological infrastructure. Fifth, more technological connectivity with the outer world is required. Rural community is developed by communication technology which leads to sustainable development. Sixth, the researchers need to ascertain the gap between having available technology and the barriers of having advanced technologies. Seventh, technological training should be enhanced which may increase the number of skilled manpower. Farmers' primary education regarding their agriculture field need to be ensured. Eighth, mutual understanding among farmers can initiate the use of costly technologies which is difficult to adopt by a single farmer. Ninth, websites and online marketing activities should be proactive as well as strategic so that it can meet demands and welcome new travelers for a further visit. Tenth and finally, government and private organizations should work together and embolden this new initiative by up warding new use of technologies and focusing on other tourism components' development because it can generate a huge amount of profit that may contribute to the GDP of Bangladesh.

Conclusion

As Bangladesh's economy largely relies on agriculture, agri-tourism phenomena can be the mechanism of the whole development of the community. That's why agri-tourism offerings can be designed with the innovation of technology though there are problems associated with the development of ICT in Bangladesh. This chapter highlights the picture of the current agri-tourism's progression with technology and the weak sides in adopting technology. In the final section, there are some remedy techniques that are added to identify the solutions. Technology's role in this tourism business is so important that it can work as a realistic solution by the betterment of Bangladeshi farmer's families and successfully running business. Moreover,

it will help to increase convenient tourist facilities. With proper initiative and design of the perfect agri-tourism model, it can be strappingly efficacious in the agriculture and tourism fields.

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