CAPACITY OF THE SUB-ASSISTANT AGRICULTURE OFFICERS (SAAOs) OF GAZIPUR DISTRICT

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CERTIFICATE

This is to certify that the thesis entitled, **"Capacity of the Sub Assistant Agriculture Officers (SAAOs) of Gazipur District"** submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka in partial fulfilment of the requirements for the degree of **Master of Science (MS) in Agricultural Extension and Information System**, embodies the result of a piece of bona-fide research work conducted by **MD. RISUL ISLAM SABBIR, Registration no. 19-10298** under my supervision and guidance. No part of this thesis has been submitted for any other degree or diploma.

I also affirm that any assistance or source of information obtained during the course of this study was dully acknowledged by him.

Dated: December, 2021

Dhaka, Bangladesh

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DEDICATED
TO MY
BELOVED FATHER AND MOTHER

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The Author

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ABBREVIATIONS

BBS	Bangladesh Bureau of Statistics
GDP	Gross Domestic Product
DAE	Department of Agricultural Extension
et al.	All Others
USA	United States of America
FAO	Food and Agriculture Organization
HYV	High Yielding Varieties
GoB	Government of Bangladesh
MoA	Ministry of Agriculture
UN	The United Nations
MoYS	Ministry of Youth and Sports
MoP	Muriate of Potash
BADC	Bangladesh Agricultural Development Corporation
SAAO	Sub Assistant Agriculture Officer
SAU	Sher-e-Bangla Agricultural University
SPSS	Statistical Package for Social Sciences
BRRI	Bangladesh Rice Research Institute
BER	Bangladesh Economic Review
EFTE	European Federation for Transport and Environment

Capacity of the Sub-Assistant Agriculture Officers (SAAOs) of Gazipur District

by

Md. Risul Islam Sabbir

Abstract

The current study was primarily intended to examine the capacity of the Sub Assistant Agriculture Officers (SAAOs) of the Department of Agricultural Extension (DAE) and to determine the correlations between each of the SAAOs selected characteristics and their capacity. Age, academic achievement, service length, job facilities, mass media contact, and farmers' problem awareness were the selected characteristics of the SAAOs. All the five upazilas of Gazipur district were chosen as the locale of the study and data were collected from 98 SAAOs, of those five upazilas. The data were gathered by the researcher himself through personal contact with a well-structured interview schedule. The capacity of the SAAOs was assessed by their respective supervisor (AEO) and three farmers from the relevant block of the concerned SAAOs. Finally, capacity of a SAAO was finally measured by the average of supervisor and farmers' rating. Majority (56.1%) of the SAAOs had medium capacity and 33.7% and 10.2% had low and high capacity. Thus, overwhelming majority (89.8%) of the SAAOs had low to medium capacity to perform their duties. From spearman's rank correlation, it was found that there were significant correlation between service length, job facilities, mass media contact and farmers' problem awareness of the SAAOs with their capacity. From the findings, it may be concluded that SAAOs having more service length, job facilities, mass media contact and farmers' problem awareness had more capacity to provide necessary agricultural advisory services to the farmers.

Keywords: SAAOs, Selected characteristics, Capacity.

CHAPTER 1
INTRODUCTION

1.1 General Background

Bangladesh is predominantly an agrarian country (Rezwan, 2005). Bangladesh is a country where agriculture sector plays a vital role in accelerating the economic growth (BER, 2017).

Sub Assistant Agriculture Officers (SAAOs) play an important role in technology transfer since they are extension workers that interact directly with farmers and educate them productivity advice (Raihan, 2011). The extension strategy is built on strong collaboration between farm families and extension personnel. Because of the close connection with farmers, SAAOs must be adept in listing, hearing, encouraging, sharing, facilitating, and linking.

The Department of Agricultural Extension's (DAE) success is dependent on its relationships with farmers and extension agents. Farmers often make contact with the Department at the field level through the SAAO. Although farmers communicate with the Department through the media, personal interaction between Sub Assistant Agriculture Officers and farmers fosters productive partnerships for successful extension. This means that the expansion strategy will be heavily reliant on SAAOs. The SAAOs visit farms and residences, organize demonstrations, and convene meetings to identify farmers' problems and requirements through assessing farmers' information needs. SAAOs distribute technology from research institutions to farmers, gather farmers' problems at the field level, and transmit the information to the higher levels. The SAAOs' primary responsibility is to carry out the DAE's plan of action to assist farmers (DAE, 2016).

Farmers must obtain knowledge about new technologies in order to boost agricultural productivity (Kashem *et al*. 1992). SAAO normally works in a

specific region (block for around 900 farm households) at Union under the Upazila Agricultural Office (UAO). They are the person in charge of agricultural information transmission at the Block level, and they have the ability to guide the agricultural growth of that location. In fact, assessing SAAO capacity in Bangladesh is important to the country's agricultural growth. Such, implementing field programs of DAE of farmers level, helping farmer in every way by being present in the field at all-time, finding out the problems of the farmers by staying with them and to providing possible solutions, taking realistic steps in solving farmer problem regarding their fields and horticultural crops, informing authorities after making the problems of the farmers and so on are the capacity of SAAOs. Several studies have shown that SAAO capability increases farmers' adoption to innovation. However, there is no studies on the capacity assessment of SAAO have been done. Based on these concerns, the researcher of the current study felt compelled to undertake this investigation on "Capacity of the Sub Assistant Agriculture Officers (SAAOs) of Gazipur District"

1.2 Research Questions

This study is founded on the concept that individual capacity assessment is critical to achieve an organization's desired goals. There are a variety of elements that might help or hurt when trying to assess someone's capacity. Since the SAAOs are the frontline extension workers, knowing how they are performing in the field is crucial for achieving the goals of DAE, which include raising agricultural output to raise the living standards of rural residents and the farming community in particular. The following questions were therefore important to have answered.

- What extent the Sub Assistant Agriculture Officers (SAAOs) were capable to support farmers?
- What were the features of selected characteristics of the SAAOs?

- Have any relationship exist between each of the selected characteristics of the SAAOs and their capacity?

1.3 Objectives of Research

The study's ultimate goal is to analyze the capacity of Gazipur district SAAOs. To lead the research, the following objectives were developed:

- To develop a method for measuring capacity
- To assess the capacity of the Sub Assistant Agriculture Officers (SAAOs)
- To determine and describe some selected characteristics of the Sub Assistant Agriculture Officers (SAAOs)
- To explore the relationship between each of the selected characteristics of the SAAOs and their capacity

1.4 Justification for the study

Bangladesh is an agrarian country, and farmers, who are the nation's backbone. They are mostly uneducated and conventional; they are often suspicious of new conceptualizations in agriculture, and they frequently become frustrated with new agricultural practices due to a lack of proper understanding of the relevant factors. Sub Assistant Agriculture Officers (SAAOs) are the field level front liners of Department of Agricultural Extension (DAE) who play an important role in propagating agricultural inventions or techniques among farmers. It is maintained in workshops, seminars, conferences, and meetings that the SAAOs of DAE are not serious enough in carrying out their obligations, resulting in a poor dissemination of information among farmers. This is why the spread of technology to farmers is slow. The purpose of this research was to analyze the capacity of DAE's front-line extension workers, the SAAOs. The study's findings may be useful in determining the causes for the current level of capability evaluation of SAAOs in transmitting farming technology to farmers. The study's findings have therefore opened up chances for planners'

policymakers in general, and DAE extension staff in particular, in creating extension plans and better using DAE's front line extension workers.

1.5 Assumption of the study

While conducting this research, the researcher made the following assumptions:

- The outcomes would provide a clear sign of Sub Assistant Agriculture Officer's capacity evaluation.
- The interviewees were able to provide appropriate replies to the question and answer session agenda.
- The interviewees' replies were genuine and trustworthy.
- The data obtained from the questionnaire was devoid of response bias.
- The sample of SAAOs used in this study was sufficiently skilled to answer the research questions the researcher posed.
- The workplace environments and organizational processes of the SAAOs are usually consistent across the research region.
- AEOs are well-versed in the capabilities of the SAAOs who operate in their guidance.
- The information provided by the farmers in the sample was likewise accurate.
- The averages and standard deviations of the SAAOs' capacity measures are normally and independently spread.

1.6 Limitations and scope of the study

Based on researcher's time, money, and other resources the study has the following constraints:

- It was extremely difficult to obtain reliable data since respondents did not keep written documents of their tasks, output, or revenue. As a result, the researcher was forced to rely on information provided by participants.
- SAAOs had a wide range of characteristics. However, for this study, just six Characteristics were chosen.

- The research was limited to five upazilas namely Kaliakoir, Gazipur Sadar, Sreepur, Kapasia and Kaligonj under Gazipur district.

The study's conclusions were especially relevant to five upazilas in Gazipur district. However, the results have implications for other areas of the country that have comparable characteristics to the study area. The researcher feels that the research findings has particular importance to the planners and policymakers in devising and revamping extension services, particularly for capacity evaluation of the SAAO. The findings should assist DAE staff improve the effectiveness of various types of extension personnel in general, and SAAOs in particular.

1.7 Definitions of important terms

Important words related to the research are explained and explained below:

Age: A Sub Assistant Agriculture Officer's age was defined as the number of completed years from his birth to the date of interview. It was accomplished by posing direct questions.

Academic achievement: It was defined as the academic achievement of SAAOs public examinations administered by a Board, Agricultural Training Institute (ATI), college, or other comparable body.

Service length: It refers to a person's complete tenure with the Department of Agricultural Extension (DAE) from the time they first joined to the time they were interviewed.

Job facilities: It refers to the chance offered by the Department of Agricultural Extension (DAE) to workers for more enjoyable and satisfying job. It covers transportation, travel expenses, training materials, and other expenses.

Mass Media Contact: It refers to individuals gaining access to the flow of agricultural information via various selected media channels such as radio, television, newspapers, and so on.

Farmers' problem awareness: It has been operationally characterized as respondents' cognitive behavior in seeking and becoming familiar with the most recent technological know-how about agricultural activities, knowledge of facts, and insights.

Capacity: The extent to which the participant executed his work successfully and efficiently.

CHAPTER 2

REVIEW OF LITERATURE

The current research deals with the capacity assessment of the Sub Assistant Agriculture Officers (SAAOs) of Gazipur district. An attempt has been made to comprehend the findings of past investigations. The researchers looked at a lot of information from the internet, blogs, books, journals, and other printed sources. The researchers discovered just a few papers that were indirectly related to the current investigation. As the job performance and the capacity of the Sub Assistant Agriculture officers are almost same, here some reviews of job performance are given below:

2.1 Capacity/Performance of the SAAOs

Badhan (2020) attempted to identify the characteristics that influence ICT utilization as well as their performance in agricultural extension services. A theoretical model based on Lewis *et al.* (2003) Institutional, Social, and Personal variables (I-S-P) was built to show ICT usage factors in an organizational environment. The findings demonstrated that two moderator factors, namely perceived usefulness and amount of ICT usage, had a positive significant effect on SAAO performance, accounting for 34% of the variation. Only social support had a positive significant impact and explained 17.4% of the variation when used as a predictor of perceived usefulness. While self-efficacy, inter-personal communication, and perceived innovativeness were the three predictors of ICT usage, they were all found to be positively significant and explained 44.9% of the variance.

According to Ahmed *et al.* (2018), 67.7 percent of Sub Assistant Agriculture Officers fell into the poor to medium job performance categories in terms of overall rating.

Hossain (2016) did a study on the work performance of SAAOs of the Department of Agricultural Extension sub assistant agricultural officers and discovered that 90% of the SAAOs fell into the poor to medium job performance categories. For the analysis, multiple regression was utilized. Age, service length, farmers' problem awareness, and extension media interaction were important contributors. Other characteristics, such as degree of education, job facilities, cosmopoliteness, job happiness, and problem confronting, had no effect on the job performance of SAAOs.

According to Bose *et al.* (2014), a SAAO with medium to high performance serves as a professional leader. Additional research is required to explore the other aspects involved with the appraisal of SAAOs performance as a professional leader in Bangladesh.

2.2 Relationship between Different Characteristics of SAAOs' and their Capacity/Performance

2.2.1 Age and capacity/performance

Ahmed *et al.* (2018) found a substantial and positive link between age and professional leadership performance of SAAOs in Bangladesh.

Hossain (2016) did a study on SAAO work performance and discovered a substantial association between age and SAAO performance.

Bose *et al.* (2014) discovered a substantial and favorable association between SAAO's age and professional leadership performance in Bangladesh.

Raihan (2011) did a study on SAAO work performance and observed a substantial association between age and SAAO performance.

2.2.2 Academic achievement and capacity/performance

Azad (2000) discovered a substantial link between female block supervisors' academic attainment and work performance.

Islam (1997) commented a substantial link between Block Supervisors' academic attainment and their job performance.

Salim (2006) did a study on SAAO work performance and discovered no significant association between academic attainment and job performance.

2.2.3 Service length and capacity/performance

Ahmed *et al.* (2018) discovered a non-significant and favorable link between service time and professional leadership performance of SAAOs in Bangladesh.

Hossain (2016) did a study on SAAO work performance and discovered a substantial association between service time and SAAO performance.

Bose *et al.* (2014) discovered a substantial and favorable association between SAAO service durations and professional leadership performance in Bangladesh.

Begum. T. (2007) discovered a substantial and favorable association between the duration of service and the effectiveness of Jute Development Officers as professional leaders in Bangladesh.

2.2.4 Job facilities and capacity/performance

Hossain (2016) did a research on SAAO job performance and discovered a negligible association between job facilities and SAAO performance.

Bose *et al.* (2014) discovered a substantial and favorable association between SAAOs' performance as a professional leader in Bangladesh and work facilities.

Raihan (2011) did a study on SAAO job performance and discovered a substantial association between job facilities and SAAO performance.

Begum. T. (2007) discovered a strong and favorable association between job facilities and Jute Development Officers' effectiveness as professional leaders in Bangladesh.

2.2.5 Mass media contact and capacity/performance

Hossain (2016) did a study on SAAO work performance and discovered a substantial association between media interaction and SAAO performance.

According to Bose *et al.* (2014), there was no substantial and favorable association between media engagement and SAAO's performance as a professional leader in Bangladesh.

Raihan (2011) did a study on SAAO job performance and discovered no significant association between extended contact and SAAO performance.

2.2.6 Farmers problem awareness and capacity/performance

Mahboob *et al.* (1978) discovered no significant relationship between agricultural problem awareness and job performance among Bangladeshi field extension workers, whereas Islam (1981) discovered that community problem awareness among Barangay Council Officials had a strong significant effect on job performance.

Karim (1990) discovered a link between SMOs' understanding of agricultural problems and their work performance.

2.3 Research gap

A research gap is described as a topic or area where there is missing or inadequate knowledge to establish a conclusion on a matter. Some research works tried to find out the performance of SAAOs, but no research was found to assess the capacity of SAAOs. On this consideration, attempt was taken to determine the capacity of the SAAOs of DAE.

2.4 Conceptual Framework of the Study

The conceptual framework is the researcher's understanding of how the variables in the study relate to one another. As a result, it determines the variables needed for the study investigation. It serves as the researcher's "roadmap" for furthering the inquiry. According to previous research and literature, numerous personal variables influenced respondents' usage of various technologies, but it is hard to address all of the qualities. There was no literature discovered that was directly relevant to the capacity evaluation of Sub Assistant Agriculture Officers and the relationship between the specified Sub Assistant Agriculture Officer qualities and their capability. Based on these considerations, a conceptual framework for this study was developed, with the researcher attempting to emphasize two concepts, namely selected characteristics of the Sub Assistant Agriculture Officer (age, academic achievement, service length, job facilities, mass media contact, and farmers problem awareness) as well as the focus issue (capacity of the Sub Assistant Agriculture Officer). The conceptual framework is as follows:

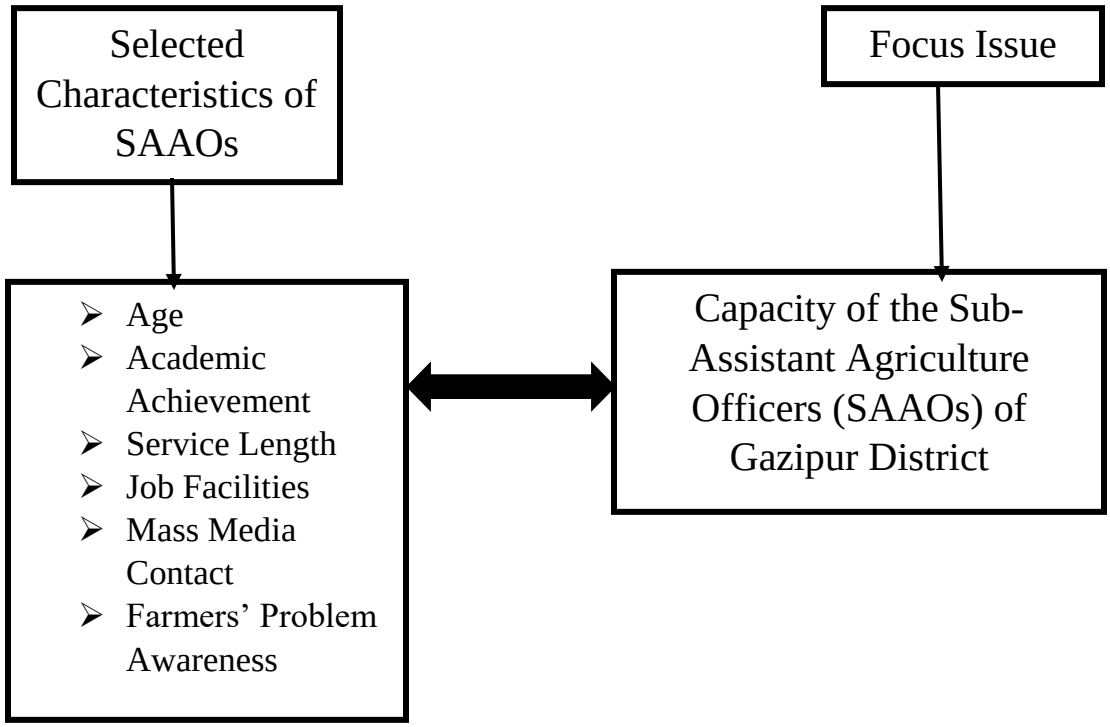

Figure 2.1 Conceptual Framework of the Study

CHAPTER 3

MATERIALS AND METHODS

Before beginning a study, the researcher must explicitly describe what kind of study design, methodologies, and processes are used in acquiring relevant and accurate data, assessing and interpreting those facts, and arriving at the proper synthesis and appropriate conclusion. This chapter discusses the operational format and comparative reflection of specific variables as well as the statistical methodologies utilized in the study.

3.1 Location of the study

Gazipur District of Bangladesh was chosen as the location for this study. Figure 3.1 depicts a map of Gazipur District region. Gazipur District has five upazilas: Kaliakoir, Gazipur Sadar, Kaligonj, Kapasia, and Sreepur. There has been no past study in this field on the capacity assessment of sub assistant agriculture officers. It was chosen as the location of the research to bring the area into focus in light of national concerns.

3.2 Population and Sampling for study

Sub Assistant Agriculture Officers (SAAOs) of DAE of Gazipur District were considered as the population of the study. During the research, 127 SAAOs were working in different blocks of the Gazipur District. By using sample size calculator, developed by Creative Research System (1984), sample size was determined as 96 with 95% confidence level and 5 as confidence interval. For reducing error, 98 SAAOs from 5 upazilas of Gazipur district were selected as the sample of the study as shown in Table 3.1.

SAAOs operate directly under the direction of the AEO. The judgment of the AEO was very crucial in assessing the capacity of SAAOs. To assess the capacity of the

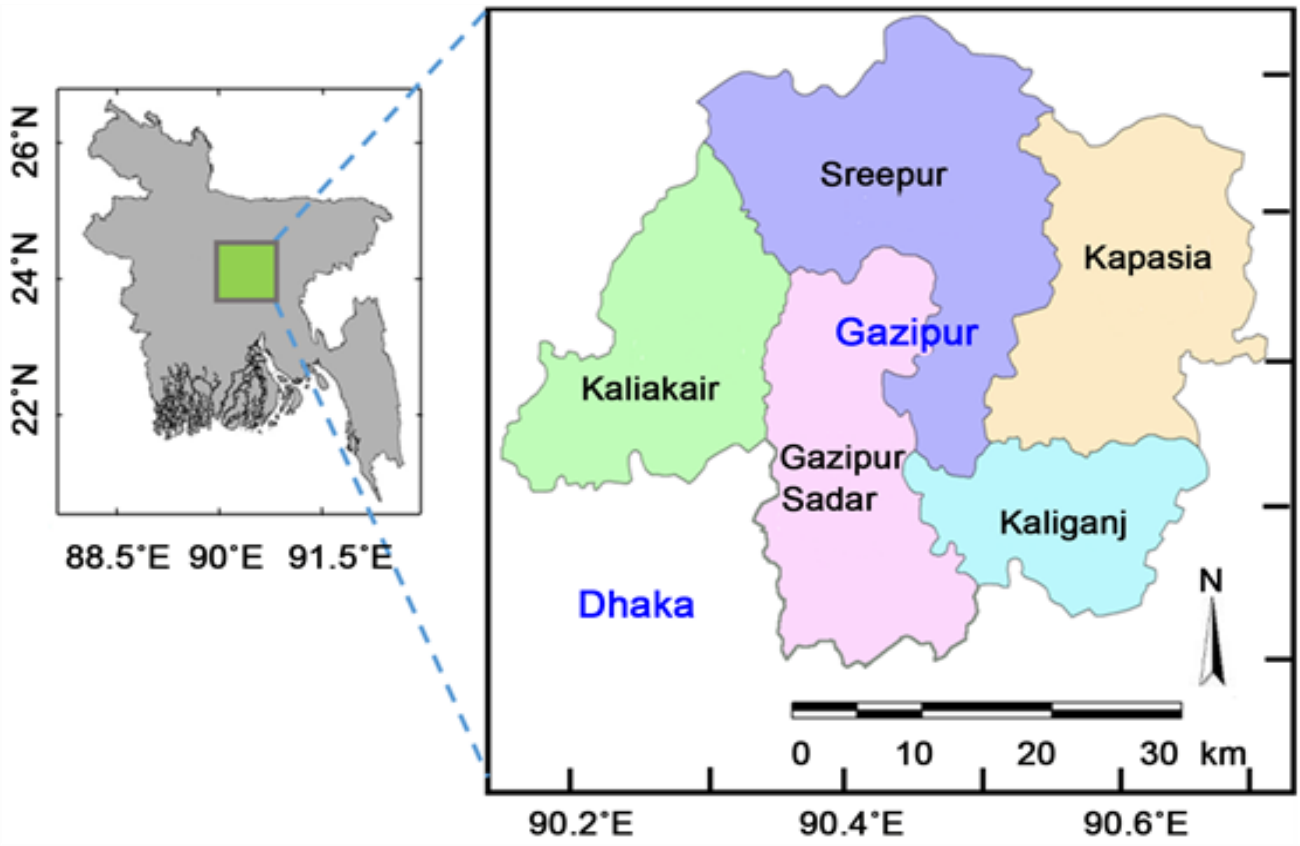

Figure 3.1: Map of Gazipur district showing study upazilas

SAAOs, their supervisors, such as Agricultural Extension Officers (AEO) of the concerned upazilas were taken into consideration. As the main work of SAAOs is with farmer at the field level. Therefore, in this research to assess the capacity of SAAOs, a total of 294 farmers were directly interviewed by taking three (3) farmers under each SAAO.

Table 3.1 Distribution of the sample SAAOs in Gazipur district

Name of the Upazila	Population Size	Sample Size (SAAOs)
Kaliakoir	**32**	**26**
Gazipur Sadar	**26**	**20**
Kaligonj	**24**	**18**
Kapasia	**21**	**15**
Sreepur	**24**	**19**
Total	**127**	**98**

3.3 Research instruments and data collection

The researcher meticulously planned an interview schedule in order to obtain data from the SAAOs. While planning the interview schedule, the study's objectives and factors were kept in mind. During the interview with SAAOs, AEOs, and farmers, the researcher took every precaution to establish a rapport with them in order to improve their cooperation and reaction to the questionnaire items on the schedule.

3.4 Variables of the study

A variable is any quantifiable trait that can take on varied or distinct values in different instances (Ezekiel and Fox, 1959). The selection and measurement of variables is critical in every scientific investigation. The researcher conducted a literature review to have a better grasp of the nature and breadth of the variables

pertinent to this study. Six (6) selected characteristics of the SAAOs such as age, academic achievement, service length, job facilities, mass media contact and farmers problem awareness were selected as the experimental variable and capacity of the SAAOs was treated as the main focus variable of the study.

3.5 Develop measuring technique for Capacity (Focus variable) of SAAOs

Sub Assistant Agriculture Officers (SAAOs) play an important role in the Department of Agricultural Extension (DAE). As battle field extension workers, they directly communicate with farmers to disseminate agricultural technology. To gain a complete assessment of their capacity, it was necessary to develop procedures for successful evaluation. Capacity of the SAAOs was the main focus variable of this study. It is better to determine this by seeing their fields of work. This technique for determining the SAAOs capacity was expected to be expensive and time consuming. In this study, initially it was planned to assess the capacity of the SAAOs by self rating (SAAO himself/herself), supervisors (AEO) rating and farmers' rating. This indicates that the capacity of the SAAOs would assessed by himself/herself, the AEO, and the farmers. A total of 20 items of capacity were chosen for assessment after thorough consultation with relevant experts. Capacity of the SAAOs on these 20 items were evaluated first by SAAOs (self), then by AEOs and farmers. This indicates that the ability of 98 SAAOs was assessed by 98 SAAOs (self), AEOs (five) from the relevant upazilas, and 294 farmers (by taking 3 farmers for each SAAO).

Each SAAO, his/her supervisor (AEO) and three (3) farmers under the jurisdiction of the SAAO were asked to indicate the capacity of the SAAO on 20 selected items as shown in the interview schedule (Appendix-A) on four alternative responses as high, medium, low and no capacity with assigning weights as 3, 2, 1 and 0 respectively.

Thus the capacity of the each SAAO could range from 0 to 60, where '0' indicated and '60' indicated highest capacity.

Capacity of an SAAO assessed by three (3) farmers added together, then divided by three (3) to get the average farmers' rating as follows:

$$C_f = \frac{f_1 + f2 + f3}{3}$$

Where,

C_f = Capacity of the SAAO as perceived by the farmers

f_1 = Capacity of the SAAO as perceived by the 1st farmers

f_2 = Capacity of the SAAO as perceived by the 2nd farmers

f_3 = Capacity of the SAAO as perceived by the 3rd farmers

There paired t-tests were calculated with the following pairs of capacity scores and following results were obtained:

Pairs of t-tests	t-value	Significant level
Capacity of the SAAOs as rated by self VS supervisor (AEO)	48.839**	0.000

Capacity of the SAAOs as rated by self VS farmers	28.792**	0.000
Capacity of the SAAOs as rated by supervisor (AEO) VS farmers	0.121	0.904

The mean scores of capacity of the SAAOs rated by self, supervisor (AEO), and farmers were 57.193, 42.551 and 42.503 respectively. From the mean, it was found that self-rating was higher than the rating by supervisors and farmers. The mean rating of supervisors and farmers were nearly same.

Value of 't' (48.839**) of the capacity of the SAAOs rated by SAAO himself/herself VS supervisor and value of 't' (28.792**) rated by himself/herself VS farmers were significant at 0.000 level. But vale of 't' (0.121) of the capacity of the SAAOs rated by the supervisor of the SAAO VS farmers were non-significant. It means that there was no significant difference of the rating of supervisor and farmers. But there were significant difference between SAAO VS supervisor and SAAO VS farmers.

It was therefore, clearly found that the self-rating was fully biased which was very logical.

From the above consideration, SAAO self-rating was eliminated and capacity of the SAAOs was determined by the average of supervisor rating and farmers rating as follows:

$$C = \frac{C_s + Cf}{2}$$

Where,

C = Capacity of the SAAO

C_s = Capacity of the SAAO rated by supervisor

C_f = Capacity of the SAAO rated by farmers

Finally, the range of capacity of the SAAOs could be 0-60, where '0' indicated no capacity and '60' indicated higher capacity.

3.6 Measurement of Experimental variables

3.6.1 Age

Age of a SAAO was calculated as the time from his or her birth date to the time of the interview and was stated in whole years. The question on this feature comes as item number one on the interview schedule (Appendix-A).

3.6.2 Academic achievement

Academic achievement of an SAAO was assessed based on his or her results in examinations administered by a Board, University, or Agricultural Training Institute (ATI). This variable is included as item number two in the interview schedule (Appendix- A). The weights were assigned as follows:

Weight	Obtained division
3	1st division
2	2nd division
1	3rd division

3.6.3 Service length

The length of service of an SAAO was defined by the number of years he or she had worked as an SAAO from the date of entry into job to the data collection period. It was calculated in whole years. This variable is shown as item 3 of the interview schedule (Appendix-A).

3.6.4 Job facilities

Job facilities of an SAAO was measured by asking 14 items of job facilities with a 4-point scale. This variable is shown as item 4 of the interview schedule (Appendix-A). The following weights have been assigned to each item:

Categories of availability	**Weight**
Easily available	3
Moderately available	2
Available with difficulties	1
Not at all available	0

Job facility score of an SAAO was calculated by adding the weight of their replies to all 14 items. Thus, job facility score of an SAAO can vary from '0' to '42,' with '0' indicating no job facility and '42' indicating highest job facility.

3.6.5 Mass media contact

Mass media contact of an SAAO was measured by the amount to which he/she had contact with agricultural information through various means of communication. Each SAAO indicates his level of contact with each of the seven specified communication medium by selecting one of the alternative four responses: "regularly," "occasionally," "rarely," and "never." This variable is

shown as item 5 of the interview schedule (Appendix-A). The following weights were given to each of the items:

Responses categories	Weight
Regularly	3
Occasionally	2
Rarely	1
Never	0

Weights on all the seven items of mass media contact of an SAAO were summed together to compute his/her mass media contact scores. Thus, mass media contact score of the SAAOs can vary from '0' to '21', where '0' indicating no mass media contact and '21' indicating highest mass media contact.

3.6.6 Farmers' problem awareness

To assess farmers' problem awareness of the SAAOs 14 item problems used as presented in question no. 6 of the interview schedule (Appendix-A). A four-point modified Likart type scale was used to measure the SAAO's replies on farmers' problem awareness. The following weights were assigned to the responses:

Responses categories	Weight
High aware	3
Aware	2
Little aware	1
Not at all aware	0

These ratings can vary from '0' to '42,' with '0' indicating no awarness and '42' indicating complete awareness on farmers' problems.

3.7 Data collection procedure

The researcher gathered data from the sample respondents face to face during the SAAOs pre-scheduled leisure hour at his/her residence or field using an interview schedule. The researcher developed the required connection with the SAAOs so that they did not hesitate throughout the interview. When a responder had difficulties comprehending a question, additional effort was made to explain it so that the SAAOs could react appropriately. For measuring capacity of each SAAO, data were collected from his/her supervisor (AEO) and three (3) farmers under his/her jurisdiction. The investigator had no major issues when collecting data, although he did receive cooperation from the respondents. Data collection began on January 10, 2021, and ended on January 31, 2021.

3.8 Statement of Hypothesis

A hypothesis is a conjectural assertion about the relationship between two or more variables that may be tested to see whether it is correct. Hypotheses are usually in declarative sentence form and are connected to variables in some manner, either generally or explicitly (Kerlinger, 1973). In general, hypotheses are classified into two types: (a) research hypotheses and (b) null hypotheses.

Research hypothesis

The researcher anticipates a probable link between the variables being researched or a difference between experimental treatments to emerge from the study hypothesis. The research hypotheses were “there were significant relationship

between each of the selected characteristics (age, academic achievement, service length, job facilities, mass media contact, and farmers' problem awareness) of the Sub Assistant Agriculture Officers and their capacity."

Null hypothesis

A null hypothesis states that there is no link between the variables under consideration. The null hypotheses were "there were no significant relationship between each of the selected characteristics (age, academic achievement, service length, job facilities, mass media contact, and farmers' problem awareness) of the Sub Assistant Agriculture Officers and their capacity."

3.9 Data processing

The following procedures were followed for data processing:

3.9.1 Compilation and coding of data

Following the end of the field survey, all interview schedules were collated, tabulated, and evaluated in accordance with the study's goals. During this procedure, each response in the interview schedule was assigned a numerical coded value. To assist tabulation, the replies to the interview schedule questions were moved to a master sheet. The categories specified by the investigator were used for tabulation.

3.9.2 Categorization of respondents

Respondents were divided into groups to describe the variables. The researcher was directed in generating categories by the nature of the data and general considerations existing on the social system. In Chapter 4, the technique for categorizing data in relation to distinct factors is thoroughly addressed while those variables are described.

3.10 Statistical analysis

The data were examined in accordance with the study objectives. Using an appropriate scoring system, qualitative data were turned into quantitative data. The

SPSS (Statistical Package for Social Sciences) Version 26 computer package was used for the analysis, and statistical metrics such as range, means, standard deviation, number, and percentage distribution were employed to characterize the variables. Spearman's rank Correlation Coefficient (ρ) was used to explain the correlations between the variables in question. Any null hypothesis was rejected at five percent (0.05) level of probability.

CHAPTER 4

RESULTS AND DISCUSSIONS

The study's findings and interpretation are reported in this Chapter in accordance with the objectives of the study. This Chapter is divided into three sections. The first section focuses on the capacity of Sub Assistant Agriculture Officers, while the second section focuses on the selected characteristics of the Sub Assistant Agriculture Officers. The third section examines the relationship between each of the selected characteristics of the Sub Assistant Agriculture Officers and their capacity.

4.1 Capacity of the Sub Assistant Agriculture Officers

Capacity scores of the Sub Assistant Agriculture Officers varied from 34.17 to 53.83 against the possibe range of 0-60, with a mean of 42.53 and a standard deviation of 3.99. The Sub Assistant Agriculture Officers were divided into three groups based on their capacity according to following procedure:

Categories	Basis of categorization
Low capacity	34.17 to 40.72 (Lower one-third of the observed range)
Medium capacity	40.73 to 47.27 (Middle one-third of the observed range)
High capacity	47.28 to 53.83 (Higher one-third of the observed range)

Distribution of the SAAOs based on their capacity is presented in table 4.1.

Table 4.1 Distribution of the Sub Assistant Agriculture Officers (SAAOs) according to their capacity

Categories	SAAOs (n=98)	
	Number	Percentage (%)
Low Capacity (34.17 to 40.72)	33	33.7
Medium Capacity (40.73 to 47.27)	55	56.1
High Capacity (47.28 to 53.83)	10	10.2
Total	98	100

Table 4.1 revealed that the majority (56.1%) of Sub Assistant Agriculture Officers were in the medium capacity group, while 33.7% and 10.2% were in the low and high capacity category. The report also indicated that overwhelming majority (89.8%) of the Sub Assistant Agriculture Officers had low to medium capacity to perform their duties.

Ahmed *et al* (2018) revealed that majority (67.7%) of the SAAOs had poor to medium performance in their job. Similar result was found in the present study. Therefore, it may be concluded that there is scope to increase the capacity of the SAAOs for providing necessary agricultural advisory services for the farmers of Bangladesh.

4.2 Features of the Selected characteristics of the Sub Assistant Agriculture Officers

The capacity of Sub Assistant Agriculture Officers is essential to agricultural productivity and meeting the country's food requirements. Individual features of Sub Assistant Agriculture Officers may be related to their capacity. This part focuses on the classification of Sub Assistant Agriculture Officers depending on the selected characteristics. Age, academic achievement, service length, job facilities, mass media contact, and farmers' problem awareness were the selected characteristics of the Sub Assistant Agriculture Officers. This section describes the selected characteristics of the Sub Assistant Agriculture Officers.

Table 4.2 shows the salient features (range, mean, standard deviation) of the selected characteristics of the Sub Assistant Agriculture Officers. For each of the Sub Assistant Agriculture Officers' characteristics, separate tables are used to analyze, describe and explain the results.

Table 4.2 Salient features of the selected characteristics of the SAAOs (n=98)

SL NO.	Individual Characteristics	Observed Range		Mean	Standard Deviation
		Minimum	Maximum		
1	Age	28.00	56.00	40.54	8.29
2	Academic Achievement	4.00	5.00	4.87	0.34
3	Service Length	3.00	47.00	14.36	8.88
4	Job Facilities	11.00	33.00	20.62	5.95
5	Mass Media Contact	5.00	18.00	12.49	3.17
6	Farmers' Problem	11.00	39.00	25.53	6.18

	Awareness				

4.2.1 Age

The age range of the Sub Assistant Agriculture Officers was 28 to 56, with an average of 40.54 and a standard deviation of 8.29. As stated in Table 4.1.1, Sub Assistant Agriculture Officers were divided into three age groups based on their age scores: young (up to 35), middle-aged (36-50), and old (above 50).

Table 4.2.1 Distribution of the SAAOs according to their age

Categories	SAAOs (n=98)	
	Number	**Percentage (%)**
Young (Up to 35)	32	32.7
Middle-aged (36-50)	49	50
Old (Above 50)	17	17.3
Total	98	100

Majority (50%) of the Sub Assistant Agriculture Officers were middle-aged, while 32.7% being young and 17.3% being old.

4.2.2 Academic achievement

The observed academic achievement score of the Sub Assistant Agriculture Officers varied from 4 to 5 with a mean of 4.87 and a standard deviation of 0.34. This shows that the SAAOs were homogenous in terms of academic achievement. The Sub Assistant Agriculture Officers were divided into two groups based on their academic success:’ medium' and 'high' academic achievement. Table 4.2.2 shows the distributions of Sub Assistant Agriculture Officers based on academic achievement.

Table 4.2.2 Distribution of the Sub Assistant Agriculture Officers (SAAOs) according to their academic achievement

Categories	SAAOs (n=98)	
	Number	Percentage (%)
Medium (4)	13	13.3
High (5)	85	86.7
Total	98	100

According to the data, the larger proportion (86.7%) of Sub Assistant Agriculture Officers had good academic accomplishment, while 13.3% had medium academic achievement.

4.2.3 Service length

Sub Assistant Agriculture Officers' service length varied from 3 to 47 years, with a mean of 14.36 and a standard deviation of 8.88. The Sub Assistant Agriculture Officers were grouped into three categories based on their service length as short, medium, and long service length. Table 4.2.3 shows the distributions of Sub Assistant Agriculture Officers based on service length.

Table 4.2.3 Distribution of the SAAOs according to their service length

Categories	SAAOs (n=98)	
	Number	Percentage (%)
Short (Up to 10)	41	42.9
Medium (11 to 20)	34	34.7
Large (Above 20)	22	22.4
Total	98	100

According to statistics in Table 4.2.3, the majority (42.9%) of the Sub Assistant Agriculture Officers were in the short service length group, while 34.7% were in

the medium service length category and rest 22.4% of Sub Assistant Agriculture Officers had a long service length. The statistics also shows that 77.6% of Sub Assistant Agriculture Officers had short to medium service lengths.

4.2.4 Job facilities

The Sub Assistant Agriculture Officers' job facilities score varied from 11 to 33 out of a potential range of 0-42, with a mean of 20.62 and a standard deviation of 5.95. Sub Assistant Agriculture Officers were divided into three groups based on their job facilities as low, medium, and high job facilities. Table 4.2.4 shows the distributions of Sub Assistant Agriculture Officers based on job facilities.

Table 4.2.4 Distribution of the SAAOs according to their job facilities

Categories	SAAOs (n=98)	
	Number	Percentage (%)
Low (Up to 14)	12	12.2
Medium (15 to 28)	71	72.5
High (Above 28)	15	15.3
Total	98	100

According to statistics in Table 4.2.4, the majority (72.5%) of the Sub Assistant Agriculture Officers were in the medium job facilities group, while 12.2% were in the poor job facilities category and rest 15.3% of Sub Assistant Agriculture Officers had high job facilities. The report also shows that 84.7% of Sub Assistant Agriculture Officers worked in jobs with low to medium job facilities.

4.2.5 Mass media contact

The Sub Assistant Agriculture Officers' mass media contact score varied from 5 to 18 out of a potential range of 0-21, with a mean of 12.49 and a standard deviation of 3.17. The Sub Assistant Agriculture Officers were divided into three groups based on their mass media contact as low, medium, and high contact. Table 4.2.5 shows the distributions of the Sub Assistant Agriculture Officers based on their mass media contact.

Table 4.2.5 Distribution of the SAAOs according to their ability to mass media contact

Categories	SAAOs (n=98)	
	Number	Percentage (%)
Low (Up to 7)	10	10.2
Medium (8 to 14)	61	62.2
High (Above 14)	27	27.6
Total	98	100

According to statistics in Table 4.2.5, the majority (62.2%) of the Sub Assistant Agriculture Officers were in the medium mass media contact group, while 10.2% were in the low mass media contact category and rest 12.2% of Sub Assistant Agriculture Officers had a high level of mass media contact. The findings also revealed that 72.4% of the Sub Assistant Agriculture Officers had low to medium mass media contact.

4.2.6 Farmers' problem awareness

The Sub Assistant Agriculture Officers' score of farmers' problem awareness varied from 11 to 39 out of a potential range of 0-42, with a mean of 25.53 and a standard deviation of 6.18. The Sub Assistant Agriculture Officers were divided

into two groups based on their farmers' problem awareness as moderate and high problem awareness. Table 4.2.6 shows the distributions of Sub Assistant Agriculture Officers based on farmers' problem awareness.

Table 4.2.6 Distribution of the SAAOs according to their ability to farmers' problem awareness

Categories	SAAOs (n=98)	
	Number	Percentage (%)
Moderate (16 to 30)	82	83.7
High (29 to 42)	16	16.3
Total	98	100

According to statistics in Table 4.2.6, the overwhelming majority (83.7%) of the Sub Assistant Agriculture Officers were in the moderate farmers' problem awareness group, while rest 16.3% were in the high farmers' problem awareness category.

4.3 Relationship between selected characteristics of the SAAOs and their capacity

To explore the relationship between each of the selected characteristics of the SAAOs with their capacity, Spearman's Rank Correlation was run as because most of the variables were measured in ordinal scale. The results of correlation test are presented in Table 4.3 and described in the next sub-sections. Inter correlation among all the variables are shown in Appendix-B.

Table 4.3 Correlation results showing the relationships of each of the selected characteristics of the SAAOs with their capacity

Focus Variable	Experimental Variables	Value of 'ρ'
Capacity of the Sub Assistant Agriculture Officers (SAAOs) of Gazipur District	Age	0.034^{NS}
	Academic achievement	-0.012
	Service length	0.220*
	Job facilities	0.875**
	Mass media contact	0.785**
	Farmers' problem awareness	0.740**

**Correlation is significant at 0.01 level (2-tailed)
*Correlation is significant at 0.05 level (2-tailed)
^{NS}Not significant

4.3.1 Relationship between age and capacity of the SAAOs

Table 4.3 shows that there was no statistically significant relationship between age and the capacity of the Sub Assistant Agriculture Officers. Hence, the null hypothesis could not be rejected.

4.3.2 Relationship between academic achievement and capacity of the SAAOs

Table 4.3 shows that there was no statistically significant relationship between academic achievement and the capacity of the Sub Assistant Agriculture Officers.

4.3.3 Relationship between service length and capacity of the SAAOs

Table 4.3 shows that statistically there was significant relationship at 0.05 level of probability between service length and the capacity of Sub Assistant Agriculture Officers. Hence, the null hypothesis could be rejected. It is quite logical that SAAOs having longer service length had higher capacity to their service.

4.3.4 Relationship between job facilities and capacity of the SAAOs

Table 4.3 shows that there was statistically significant relationship at 0.01 level of probability between job facilities and the capacity of the Sub Assistant Agriculture Officers. Hence, the null hypothesis could be rejected. The table also reveals that they have positive relationship between them. That means if the job facilities of the Sub Assistant Agriculture Officers could be increased, then their capacity would also be increased.

4.3.5 Relationship between mass media contact and capacity of the SAAOs

Table 4.3 shows that there was statistically significant relationship (at 0.01 level of probability) between mass media contact and the capacity of the Sub Assistant Agriculture Officers. Hence, the null hypothesis could be rejected. The table also reveals that they have positive relationship between them. That means, if the mass

media contact of the Sub Assistant Agriculture Officers could be increased, then their capacity would also be increased.

4.3.6 Relationship between farmers' problem awareness and capacity of the SAAOs

Table 4.3 shows that there was statistically significant relationship (at 0.01 level of probability) between farmers' problem awareness and the capacity of Sub Assistant Agriculture Officers. Hence, the null hypothesis could be rejected. The table also reveals that they have positive relationship between them. That means, if the farmers' problem awareness of the Sub Assistant Agriculture Officers increased, then their capacity will also increased.

CHAPTER 5

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of findings

5.1.1 Capacity of the Sub Assistant Agriculture Officers

The capacity scores of the Sub Assistant Agriculture Officers varied from 34.17 to 53.83 out of a potential range of 0-60, with the mean being 42.53 and standard deviation of 3.99. The majority (56.1%) of Sub Assistant Agriculture Officers were in the medium capacity group, while 33.7% and 10.2% were in the low and high capacity category respectively. The report also indicated that overwhelming majority (89.8%) of the Sub Assistant Agriculture Officers had low to medium capacity to perform their duties.

5.1.2 Selected characteristics of the Sub Assistant Agriculture Officers

Six characteristics of Sub Assistant Agriculture Officers were chosen for investigation of their capacity. The following were the findings for the specified characteristics:

Age: The age range of the Sub Assistant Agriculture Officers was 28 to 56, with an average of 40.54 and a standard deviation of 8.29. Majority (50%) of the Sub Assistant Agriculture Officers were middle-aged, while 32.7% being young and 17.3% being old.

Academic achievement: The observed academic achievement score of the Sub Assistant Agriculture Officers varied from 4 to 5 with a mean of 4.87 and a standard deviation of 0.34. According to the data, the larger proportion (86.7%) of Sub Assistant Agriculture Officers had good academic accomplishment, while 13.3% had medium academic achievement.

Service length: Sub Assistant Agriculture Officers' service length varied from 3 to 47 years, with a mean of 14.36 and a standard deviation of 8.88. According to statistics in Table 4.2.3, the majority (42.9%) of the Sub Assistant Agriculture Officers were in the short service length group, while 34.7% were in the medium service length category and rest 22.4% of Sub Assistant Agriculture Officers had a long service length. The statistics also shows that 77.6% of Sub Assistant Agriculture Officers had short to medium service lengths.

Job facilities: The Sub Assistant Agriculture Officers' job facilities score varied from 11 to 33 out of a potential range of 0-42, with a mean of 20.62 and a standard deviation of 5.95. According to statistics, the majority (72.5%) of the Sub Assistant Agriculture Officers were in the medium job facilities group, while 12.2% were in the poor job facilities category and rest 15.3% of Sub Assistant Agriculture Officers had high job facilities. The report also shows that 84.7% of Sub Assistant Agriculture Officers worked in jobs with low to medium job facilities.

Mass media contact: The Sub Assistant Agriculture Officers' mass media contact score varied from 5 to 18 out of a potential range of 0-21, with a mean of 12.49 and a standard deviation of 3.17. According to statistics, the majority (62.2%) of the Sub Assistant Agriculture Officers were in the medium mass media contact group, while 10.2% were in the low mass media contact category and rest 27.6% of Sub Assistant Agriculture Officers had a high level of mass media contact. The findings also revealed that 72.4% of the Sub Assistant Agriculture Officers had low to medium mass media contact.

Farmers' problem awareness: The Sub Assistant Agriculture Officers' score of farmers' problem awareness varied from 11 to 39 out of a potential range of 0-42, with a mean of 25.53 and a standard deviation of 6.18. According to statistics, the overwhelming majority (83.7%) of the Sub Assistant Agriculture Officers belong to the moderate farmers' problem awareness group, while rest 16.3% were in the high farmers' problem awareness category.

5.1.3 Relationships of the selected characteristics of the Sub Assistant Agriculture Officers with their capacity

Service length, job facilities, mass media contact and farmers' problem awareness of the SAAOs had significant positive relationship with their capacity. Other two (2) characteristics like age and academic achievement of the SAAOs had no significant relationship with their capacity.

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5.2 Conclusion

1. Comparing to AEOs (supervisors) and farmers, the capacity of the SAAOs were found to be high through self-evaluation. However, from the average of supervisor and farmers' rating, majority (56.1%) of the SAAOs had medium capacity, compare to 33.7% and 10.2% had low and high capacity. Again, it

was revealed that overwhelming majority (89.8%) of the SAAOs had low to medium capacity to perform their duties. Based on the above facts, it is possible to infer that there is a further scope for increasing the overall capacity of the SAAOs.

2. Among the selected characteristics of the SAAOs service length, job facilities, mass media contact and farmers' problem awareness had statistically significant relationship with their capacity. According to the study, if the service length, job facilities, mass media contact and farmers' problem awareness of the SAAOs would increase, the capacity of the SAAOs could be increased. In other words, it may be concluded that these four characteristics play important roles to increase the capacity of the SAAOs.

5.3 Recommendations

5.3.1 Recommendations for policy implications

A detailed examination of the results and conclusions yields recommendations. The following recommendations was made based on the study's results and conclusions:

1. Overwhelming majority (89.8%) of the SAAOs had low to medium capacity. Therefore, it may be recommended that capacity of the SAAOs should be increased by providing necessary supports (technological, training, motivational) by the authority (DAE).
2. Service length of the SAAOs had significant relationship with their capacity. Therefore, it may be recommended that capacity of the newly recruited SAAOs should be increased by providing necessary supports, motivational campaigning and training.

3. Job facilities of the SAAOs had significant relationship with their capacity. Therefore, it may be recommended that job facilities of the SAAOs should be increased to increase their capacity to perform their duties.
4. Mass media contact of the SAAOs had significant relationship with their capacity. Therefore, it may be recommended that necessary Information Technology (IT) devices should be provided to the SAAOs so that they could increase their mass media contact to increase their capacity.
5. Farmers' problem awareness of the SAAOs had significant relationship with their capacity. Therefore, it may be recommended that necessary trainings should be provided to the SAAOs so that they could increase their awareness on farmers' problem to increase their capacity.

5.3.2 Recommendations for further study

The following recommendations for future research might be made:

1. The current study was carried out in five upazilas of the Gazipur district. The study's findings require additional validation through similar studies in other areas of the country.
2. It is tough to investigate the capacities of Sub Assistant Agriculture Officers. The competency of Sub Assistant Agriculture Officers is not without controversy. More accurate measurement of the factors used in the study is required for future research.
3. The current study was confined to assessing the capacity of Sub Assistant Agriculture Officers. Further research is required to better understand the capacities of the various groups of employees working in the DAE.
4. The study looked into the link between six characteristics of Sub Assistant Agriculture Officers and their capacity. So it is suggested that more researches can be undertaken using different dependent and independent factors.

REFERENCE

Ahmed, A., M. E. Haque, H. Mahmud, M. A. Hossain and B. K. Biswas. 2018. Study some selected characteristics of Sub Assistant Agriculture Officers that are related to job performance. M.S. Thesis, Department of Agricultural Extension and Rural development, BSMRAU, Gazipur, Dhaka.

Azad, A. K. 2000. Job Performance and Job Satisfaction of the Female Block Supervisors under Dhaka and Mymensingh Agricultural Regions. An MS (Ag. Ext. Ed.) Thesis, Bangladesh Agricultural University, Mymensingh.

Badhan, M. S. K. 2020. Assessment of Sub-Assistant Agriculture Officers' Level of ICT Use in Relation to their Performance in Agricultural Extension Service. MS Thesis, Department of Agricultural Extension and Information System, Sher-e-Bnagla Agricultural University, Dhaka-1207.

Begum, T. 2007. Job Performance of Jute Development Officers of Integrated HYV Jute and Jute Seed Production Project. MS Thesis, Department of Agricultural Extension and Information System, Sher-e-Bnagla Agricultural University, Dhaka-1207.

BBS. 2019. Bangladesh Population Census. Bangladesh Bureau of Statistics, Ministry of Planning, Government of People's Republic of Bangladesh, Dhaka.

BER. 2017. Bangladesh Economic Review, Department of Finance, Ministry of Finance, Government of the People's Republic of Bangladesh, Dhaka.

Bose, R., M. A. Hossain, M. M. Anam, M. Hasnat, and H. Kabir. 2014. Performance of sub-assistant agricultural officer as a professional leader. International Journal of Natural and Social Sciences, (1). 41- 47.

Creative Research System. 1984. Sample size calculation. Creative Research System.

DAE. 2016. Agricultural extension manual (4th edition), Department of Agricultural Extension p.88.

Ezekiel and Fox. 1959. Methods of Correlation and Regression Analysis – Linear And Curvilinear. Wiley, New York. p. 548.

Hossain, M. N. 2016. Job performance of sub assistant agriculture officers of the Department of Agricultural Extension. MS Thesis, Department of Agricultural Extension and Information System, Sher-e-Bangla Agricultural University, Sher-e-Bangla Nagar, Dhaka-1207.

Islam, M. M. 1981. Job Performance and Job satisfaction of the Barangay Council Officials of Laguna Province, Philippines. An M.Sc. Thesis, UPLB, the Philippines.

Islam, S. A. M. S. 1997. Job performance of the Block Supervisors of Bogra district. An MS. Thesis, Department of Agricultural Extension Education. BAU, Mymensingh.

Karim, A. S. M. Z. 1990. Job performance of The Subject Matter Officers under the T & V System on Extension Work in Bangladesh. Ph.D. Thesis, Deptt. of Agril. Ext. Edu., BAU, Mymensingh.

Kashem, M. A., A. Halim and M. Z. Rahman. 1992. Farmers' Use of Communication Media in Adopting Agricultural Technologies- A Farm level Study in Bangladesh. Asia-pacific journal of Rural Development, II (1): 94-112.

Kerlinger, T. 1973. Foundation of Behavioral Research: Educational and Psychological Inquiry. New York: Holt, Richart and Winston, Inc.

Lewis, W., Argawal, R., & V., Sambamurthy. 2003. Sources of influence on belief about information technology use: an empirical study of knowledge workers. MIS Quarterly, 27(4), 657-678.

Mahboob, S. G., G. Rasul, M. S. Alam and M. M. Islam. 1978. A Study of Union Assistants in Bangladesh, Deptt.of Agricultural Extension & Teachers' Training, BAU, Mymensingh.

Raihan, M. Z. A. 2011. Job Performance of Sub Assistant Agriculture Officers (SAAOs) of Dinajpur District in Bangladesh. M.S. Thesis, Sher-e-Bangla Agricultural University, Dhaka.

Rezwan, A. A. 2005. Literacy for sustainable livelihoods: Perspective from Bangladesh. Literacy and Livelihoods: Learning for Life in a Changing World, 79.

Salim, M. A. S. 2006. Job Performance of Sub Assistant Agriculture Officers. M.S. Thesis, Sher-e-Bangla Agricultural University, Dhaka.

APPENDIX-A

English Version of the Interview Schedule Department of Agricultural Extension & Information System

Sher-e-Bangla Agricultural University Dhaka.

INTERVIEW SCHEDULE FOR A RESEARCH STUDY ON CAPACITY OF SUB ASSISTANT AGRICULTURE OFFICER (SAAOs) OF GAZIPUR DISTRICT

Serial no.....

Name of the respondent.....

Block .....Union .....Upazila..... Dist.....

1. Age

What is your age? Age…….years.

2. Academic achievement

Please indicate your academic achievement

Sl. no.	Name of examination	year of passing	Division/Class/Grade
1.	S.S.C or Equivalent		
2.	Diploma in agriculture		

3. Service Length

Mention your service length

Service length…….Years.

4. Job facilities

Please indicate by putting a tick (√) on the following working facilities that accelerate your job facilities at your working place

SI No.	Facilities	Easily available	Moderately available	Available with difficulties	Not at all available
1	Office				
2	Residence				
3	Transport				
4	Promotion				
5	Travel allowance				
6	Office stationary				
7	Office Furniture				
8	Farmer training				
9	Training materials				
10	Agricultural instrument				
11	Low cost technology				
12	Agricultural publication				
13	In service training				
14	Necessary fund				

5. Mass Media Contact

Please indicate the extent of your Communication exposure about agril. Program and publication by putting tick (√) any one of the four responses:

Sl. no.	Program/publication	Regularly	Occasionally	Rarely	Never
1.	Radio				
	a) Krishi Samachar				
	b) Sobuj Bangla				
	c) Khat Khamer				
	d) Azker Krishi				
2.	Television a) Hryday Mati o Manush (Channel i) b) Mati o Manush (BTV) c) Agricultural news from different TV channels				
3.	News paper				
4.	Krishi katha				
5.	District bulletin of DAE				
6.	Leaflet/Book let				
7.	Social media (Agril. apps, internet, website etc.				

6. Farmers problem awareness

Please indicate the extent of your awareness about the problem of the farmers by putting tick (√) in any one of the four responses:

Sl. no.	Subject	Extent of problem awareness			
		High aware	**Aware**	**Little aware**	**Not at all aware**
1	Unavailability of Agril. inputs				
2	High price of Agril. inputs				
3	Lack of quality seeds				
4	Inadequate use of organic fertilizer				
5	Decreasing of soil fertility due to intensive cultivation				
6	Lack of knowledge in selecting proper irrigation method				
7	Complexity in applying new technology				
8	Ignorance of cropping pattern				
9	Lack of food nutrition knowledge of female farmer				
10	Lack of knowledge of seed preservation				
11	Lack of co-operative attitude among the farmers				
12	Lack of knowledge for homestead gardening of the female farmers				
13	Difficulty of operating irrigation equipment due to irregular supply of electricity				
14	Use of adulterated pesticides				

7. Capacity

Please indicate the extent of your view about capacity by putting tick (√) in any of the four responses:

SI. No.	Activities	Extent of capacity			
		High	**Medium**	**Low**	**No**
1	Implementing field programs of DAE of farmers level				
2	Helping farmer in every way by being present in the field at all time				
3	Informing authorities after making the problems of the farmers				
4	Taking realistic steps in solving farmer problem regarding their fields and horticultural crops				
5	Finding out the problems of the farmers by staying with them and to providing possible solutions				
6	Preparing seasonal production planning proposal on the basis of farmers information need				
7	Helping UAO in planning suitable extension activities				
8	Making plans of fortnightly visit in accordance with the seasonal activities				
9	Implementing seasonal activities with the help of supervising officers to suggest farmers				
10	Operating different planned extension programs (demonstration, motivational training, group discussion, establishing small				

	trial plot through partnership etc.)				
11	Conducting survey on natural calamities or other issue for collecting information				
12	Collecting agricultural information of the block				
13	Providing need based motivational trainings under DAE project				
14	Networking with necessary stakeholders				
15	Performing crop cutting to measure total production				
16	Informing UAO and related other about daily condition and needs of seed, fertilizer, diesel, electricity and other input of the block				
17	Arranging meeting at the member secretary of unions agricultural committees and sending reports to the president of Upazilla Agricultural Committee				
18	Taking necessary steps in the innovation process and to increase the use of new varieties of crops				
19	Playing a role in fulfilling the information demands or needs of the farmers via e-agriculture				
20	Providing agricultural extension services to all type of farmers				

Thanks for your kind cooperation.

Signature of the Interviewee

CAPACITY OF SAAOs BY AGRICULTURE EXTENSION OFFICER (AEO)

Name of SAAO..... Block.....

Upazila.....

Please indicate the extent of your views about capacity of SAAO by putting tick (√) in any of the four responses. This views will be used only for research work.

SI. No.	Activities	Extent of capacity			
		High	Medium	Low	No
1	Implementing field programs of DAE of farmers level				
2	Helping farmer in every way by being present in the field at all time				
3	Informing authorities after making the problems of the farmers				
4	Taking realistic steps in solving farmer problem regarding their fields and horticultural crops				
5	Finding out the problems of the farmers by staying with them and to providing possible solutions				
6	Preparing seasonal production planning proposal on the basis of farmers information need				
7	Helping UAO in planning suitable extension activities				
8	Making plans of fortnightly visit in accordance with the seasonal activities				
9	Implementing seasonal activities with the help of supervising officers to suggest farmers				

10	Operating different planned extension programs (demonstration, motivational training, group discussion, establishing small trial plot through partnership etc.)				
11	Conducting survey on natural calamities or other issue for collecting information				
12	Collecting agricultural information of the block				
13	Providing need based motivational trainings under DAE project				
14	Networking with necessary stakeholders				
15	Performing crop cutting to measure total production				
16	Informing UAO and related other about daily condition and needs of seed, fertilizer, diesel, electricity and other input of the block				
17	Arranging meeting at the member secretary of unions agricultural committees and sending reports to the president of Upazilla Agricultural Committee				
18	Taking necessary steps in the innovation process and to increase the use of new varieties of crops				
19	Playing a role in fulfilling the information demands or needs of the farmers via e-agriculture				
20	Providing agricultural extension services to all type of farmers				

Thanks for your kind cooperation.

Signature of the Interviewee

CAPACITY OF SAAOs BY FARMER

Name of the SAAO.....

Name of the Farmer.....

Name of Block .....Upazila ..... .Dist. .....

SI. No.	Activities	Extent of capacity			
		High	Medium	Low	No
1	Implementing field programs of DAE of farmers level				
2	Helping farmer in every way by being present in the field at all time				
3	Informing authorities after making the problems of the farmers				
4	Taking realistic steps in solving farmer problem regarding their fields and horticultural crops				
5	Finding out the problems of the farmers by staying with them and to providing possible solutions				
6	Preparing seasonal production planning proposal on the basis of farmers information need				
7	Helping UAO in planning suitable extension activities				
8	Making plans of fortnightly visit in accordance with the seasonal activities				
9	Implementing seasonal activities with the help of supervising officers to suggest farmers				
10	Operating different planned extension				

	programs (demonstration, motivational training, group discussion, establishing small trial plot through partnership etc.)				
11	Conducting survey on natural calamities or other issue for collecting information				
12	Collecting agricultural information of the block				
13	Providing need based motivational trainings under DAE project				
14	Networking with necessary stakeholders				
15	Performing crop cutting to measure total production				
16	Informing UAO and related other about daily condition and needs of seed, fertilizer, diesel, electricity and other input of the block				
17	Arranging meeting at the member secretary of unions agricultural committees and sending reports to the president of Upazilla Agricultural Committee				
18	Taking necessary steps in the innovation process and to increase the use of new varieties of crops				
19	Playing a role in fulfilling the information demands or needs of the farmers via e-agriculture				
20	Providing agricultural extension services to all type of farmers				

Thanks for your kind cooperation.

Signature of the Interviewee

APPENDIX – B

Correlation Matrix:

Variables	X1	X2	X3	X4	X5	X6	Y
X1	-						
X2	0.141	-					
X3	0.879**	0.148	-				
X4	0.035	-0.008	0.199*	-			
X5	0.045	0.057	0.244*	0.712**	-		
X6	0.093	0.017	0.266**	0.710**	0.623**	-	
Y	0.034	-0.012	0.220*	0.875**	0.785**	0.740**	-

**Correlation is significant at 0.01 level (2-tailed)
*Correlation is significant at 0.05 level (2-tailed)

Here,

X1= Age

X2= Academic Achievement

X3=Service Length

X4= Job Facilities

X5= Mass Media Contact

X6= Farmers' Problem Awareness

Y= Capacity of the Sub Assistant Agriculture Officers (SAAOs)