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TRAINING MODULES FOR CLIMATE CHANGE ADAPTATION IN AGRICULTURE: *SUB-DISTRICT AND DISTRICT LEVEL AGRICULTURE OFFICERS OF BANGLADESH*

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Institute for Global Environmental Strategies (IGES)
2108-11 Kamiyamaguchi, Hayama, Kanagawa 240-0115, Japan
Tel: +81 468 553 720
Fax: +81 468 553 709
e-mail: iges@iges.or.jp
Website: www.iges.or.jp

Training Modules for Climate Change Adaptation in Agriculture: Sub-District and District Level Agriculture Officers of Bangladesh

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Prof. Dr. Md. Sekender Ali, Sher-e-Bangla Agricultural University; Md. Fazlul Karim, Former Director (Training), Department of Agricultural Extension; Dr. Abul Kalam Azad, Bangladesh Agricultural Research Council; and S.V.R.K. Prabhakar, Senior Policy Researcher, Institute for Global Environmental Strategies.

EXECUTIVE SUMMARY

The training modules developed from training needs assessment carried out during 2010-2011 were further pilot tested and modified. The pilot testing of training modules was carried out for two levels of agriculture extension officers i.e. district and upazila agriculture officers and Sub-Assistant Agriculture Officers operating at the village level. Pre- and post-training evaluations were carried out through structured questionnaires and the results were statistically tested using paired t-test. The pre-training evaluation of trainees revealed that half (50%) of the trainees had low knowledge and of the half (50%) had medium knowledge on climate change adaptation (CCA) (None of the trainees had high knowledge on CCA). Therefore, it may be concluded that there was a necessity to conduct training for the district and upazila Level Officers of Department of Agricultural Extension (DAE) and Lecturer of Sher-e-Bangla Agricultural University, Dhaka. The post-training evaluation revealed that most (70%) of the trainees achieved high knowledge and 30% of them achieved medium knowledge on CCA. None of the trainees had low knowledge after receiving training. Therefore, it can be concluded that the training had led to improvement in their knowledge on CCA.

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1. INTRODUCTION

Changes in rainfall, sea level and temperature have been the major impacts of climate variability and change in Bangladesh. The vulnerability to climate change in Bangladesh has been due to poor progress in development, high population density, and high dependency of large proportion of population on climate-related sectors such as agriculture that is directly impacted by changes in climate and weather. Climate change adaptation (CCA) is a problem of capacity too. Though Bangladesh has robust system of agricultural research and training, the initiatives on capacity building for climate change in agriculture sector are still at nascent stages and needs a fillip. Efforts are required for building training programmes for key stakeholder such as trainers, academicians, researchers, policy makers, development practitioners, extension providers etc. in Bangladesh in order to streamline the CCA principles and practices into development planning.

1.1 Objectives

The objectives of this project are two-fold:

- To pilot test and evaluate two training modules developed during the first phase of the project
- To modify the training modules according to the test results

2. METHODOLOGY

Training needs assessment (First phase of this project)[1]

Training needs assessment was conducted by a three-step process in the first phase of this project. A set of questionnaires developed by the Institute for Global Environmental Strategies was used for conducting training needs assessment. Data was collected from key informants such as Deputy Directors (DD), District Training Officers (DTO), Crop Production Specialists (CPS), Plant Protection Specialists (PPS), Horticulture Specialists (HS), Irrigation Specialists (IS), Upazila Agriculture Officers (UAO) and Sub-Assistant Agriculture Officers (SAAO) of the Department of Agricultural Extension (DAE). Subsequently, training modules, schedules, programs, materials and documents, reports, etc. related to different training and extension providing organizations in Bangladesh were reviewed to identify existing approaches and find gaps for improvement. After completing survey and review of related existing literature and training modules in Bangladesh, a workshop was organized at Bangladesh Agricultural Research Council training hall to finalize the draft training module on CCA. This workshop has considered the survey findings and existing training programs in the country and has identified gaps that could be addressed by the interventions taken up as a part of this project. The findings from the workshop has helped in identifying ideal skill and knowledge requirements of various government functionaries and trainers in agriculture sector and to draft a generic training module which was later tailored to suit to different specific target groups within the agriculture department.

1 For a full report of the first phase of this project, the reader is suggested to refer to its report at APN project database, http://www.apn-gcr.org/resources/archive/files/6e92ad7770b0d5a4364aeba58f9fb017.pdf

Keeping in view various natural disasters impacting Bangladesh, 25 districts were selected through selective random sampling from salinity, flood and water logging (locally known as hoar) and drought (locally known as Borendra) prone areas. Fifty (50) sub-districts (locally known as upazila) were then selected from these selected 25 districts for the study by taking two upazilas from each district. One hundred (100) Blocks were then further randomly selected from these selected 50 upazilas by taking two Blocks from each upazila. For better understanding, maps of Bangladesh showing various natural disaster prone areas are shown in Fig.1 to Fig.3.

One Deputy Director, one District Training Officer (DTO) and one Crop Production Specialist (CPS)/Plant Protection Specialists (PPS)/Horticulture Specialists (HS)/Irrigation Specialists (IS) in each district were interviewed in the study. Seventy five (75) district level Officers were interviewed that include 25 DDs, 25 DTOs and 25 CPS/PPS/HS/ISs from 25 districts. There is one upazila Agriculture Officer (UAO) in each upazila (sub-district). Thus, 50 upazila level Officers were interviewed from 50 selected upazilas. There are 15-60 block-level Sub-Assistant Agriculture Officers (SAAO) in each upazila. Two SAAOs were randomly selected from each upazila. Thus, 100 SAAOs were interviewed for the study (two from each upazila). The developed training modules were discussed in a module writing workshop organized in Bangkok, Thailand.

Pilot testing of training modules (this project)

The modules were subsequently pilot tested by prioritizing two training modules: In-service training module on climate change adaptation for district and upazila (sub-district) level agriculture officers of DAE and in-service training module on climate change adaptation for Sub-Assistant Agriculture Officers of DAE (Please see Annexure for training modules pilot tested).

Twenty trainees were trained in each pilot training program. Ten courses were discussed in the training. Pre- and post-training test evaluation was conducted by same questions. Fifty (50) objective type questions were set in the evaluation test with 3 to 4 alternative answers. Trainees were asked to choose the correct answer of the questions. One (1) score was given to each correct answer and Zero (0) was given for each wrong or no answer. Score of each individual trainee was determined by adding all the scores obtained by him/her against all the 50 questions. Same procedures were followed for pre- and post-training test. Thus, the possible range of score of pre- and post-training test was 0-50, where, 0 indicating very low knowledge and 50 indication very high knowledge on climate change adaptation. In addition to the score based evaluation, an opinion questionnaire was administered to obtain opinion of trainees on the training program and if they would prefer any modifications in it in order to make it suitable to their terms of reference.

3. TRAINING EVALUATION RESULTS

3.1 District and sub-district agriculture officers of DAE

The pilot training for in-service district and sub-district agriculture officers of DAE was attended by 20 trainees (Table 1). The details of trainees are presented below. The training was conducted for three days (11-13 November, 2012) at the conference room of Sher-e-Bangla Agricultural University, Dhaka.

TABLE 1. NUMBER OF TRAINEES WHO WERE TRAINED DURING PILOT TESTING OF TRAINING MODULES

Levels of Trainees	Number of Trainees
District Level Officers	3
Upazila (sub-district) Level Officers	15
Lecturers of SAU	2
Total	**20**

Pre-training test

The observed pre-training test scores of trainees have ranged between 18-31 against the possible range of 0-50 with the mean and standard deviation of 24.9 and 4.05 respectively. The trainees were classified into two groups based on their pre-training test scores as shown in Table 2.

TABLE 2. DISTRIBUTION OF TRAINEES BASED ON THEIR PRE-TRAINING TEST SCORE

Categories (Basis of categorization)	Distribution		Mean	Standard Deviation
	Number	Percent		
Low knowledgeable (18-25 Score)	10	50	24.9	4.05
Medium knowledgeable (26-31 Score)	10	50		
Total	20	100		

Findings in Table 2 revealed that half (50%) of the trainees had low knowledge and others had medium knowledge on climate change adaptation. None of the trainees had high knowledge on climate change adaptation. It shows that the knowledge of the trainees was comparatively lower before receiving of training on climate change adaptation vindicating the necessity to conduct training for the district and upazila Level Officers of Department of Agricultural Extension (DAE) and Lecturer of Sher-e-Bangla Agricultural University, Dhaka.

Post-training test

The observed post-training test scores of trainees were ranged from 27-49 against the possible range of 0-50 with the mean and standard deviation of 40.1 and 4.87 respectively. The trainees were classified into two groups based on their post-training test scores as shown in Table 3.

TABLE 3. DISTRIBUTION OF TRAINEES BASED ON THEIR POST-TRAINING TEST SCORE

Categories (Basis of categorization)	Distribution		Mean	Standard Deviation
	Number	Percent		
Medium knowledgeable (27-37 Score)	6	30	40.1	4.87
High knowledgeable (38-49 Score)	14	70		
Total	20	100		

Findings in Table 3 show that most (70%) of the trainees achieved high knowledge and 30% achieved medium knowledge on climate change adaptation. None of the trainees had low knowledge on climate change adaptation after receiving training. It is quite logical that the knowledge of the trainees were comparatively higher after receiving of training on climate change adaptation. Therefore, conducting training on climate change adaptation was essential for the district and upazila Level Officers of Department of Agricultural Extension (DAE) and Lecturer of Sher-e-Bangla Agricultural University, Dhaka to increase their knowledge on the related issue.

Effectiveness of training

The effectiveness of training is the difference between post-training test and pre-training test scores. Differences between post-training test and pre-training test score of each trainee were computed by deduction of pre-training test score from post-training test score. It may be explained by the following formula:

D = B - A

Where, D =Differences between post- and pre-training scores

A = pre-training test score

B = post-training test score

The observed score of differences between post- and pre-training test scores of trainees were ranged from 8-24 with the mean and standard deviation of 15.2 and 4.72 respectively. The trainees were classified into three groups based on the differences of their scores between post- and pre-training test as shown in Table 4.

TABLE 4. DISTRIBUTION OF TRAINEES BASED ON THE DIFFERENCES OF THEIR SCORES BETWEEN POST- AND PRE-TRAINING TEST

Categories (Basis of categorization)	Distribution		Mean	Standard Deviation
	Number	Percent		
Medium knowledge changed (8-12 Score)	5	25	15.2	4.72
High knowledge changed (13-24 Score)	15	75		
Total	20	100		

Table 4 shows that three-fourth (75%) of the trainees could increase their knowledge on climate change adaptation to high level and one-fourth (25%) of them could increase their knowledge at medium level. Therefore, it can be concluded that the training has helped in increasing the knowledge on climate change adaptation.

Performance of the trainees on the subject matter

Paired t-test was done with pre- and post-training scores of the trainees to determine the rate of increase of subject matter knowledge by the training. Findings revealed that the value of t was 14.403 with significance at 0.001 level of significance with 19 degree of freedom indicating that the training program has significantly influenced the knowledge of the trainees (Table 5). Similar findings were also observed in the study of Kabir et.al (1994), Baset et al. (1994) and Ali et al. (1999). The data indicated that the average score in pre-training evaluation was 24.9 and has increase to 40.1 in the post-training evaluation. Attempt was also made to find out the relationship between pre- and post-training evaluation test scores by running Pearson Product Moment Correlation. Correlation revealed that the value of 'r' was 0.452 which was significant at 0.05 level of significance with 18 degree of freedom indicating a significant positive relationship between pre- and post-training evaluation test scores of the trainees (Table 5).

TABLE 5. ACHIEVEMENT OF THE TRAINEES IN PRE- AND POST-TRAINING TEST

Mean of pre-training evaluation score	Mean of post-training evaluation score	t value	Relationship between pre- and post-training evaluation score (r value)
24.9	40.1	14.403***	0.452*

***Significant at 0.001 level,*Significant at 0.05 level

Evaluation of trainers

An evaluation sheet was supplied to the trainees to evaluate the performance of the trainers. Trainees were asked to evaluate the performance of the trainers with 5-point rating scale as 'excellent', 'good', 'satisfactory', 'poor' and 'very poor' by assigning scores as '5', '4', '3', '2' and '1' respectively. The performance of trainers of each of 10 courses was evaluated by adding all the scores obtained from all 20 trainees. Thus, the possible score of performance of the trainers ranged between 20-100, where '20' indicating very low performance and '100' indicating highest performance. But the observed range was 74 – 91 with a mean of 84.8. Trainers were classified into two groups based on their performance evaluated by trainees as shown in Table 6.

TABLE 6. DISTRIBUTION OF TRAINERS BASED ON THEIR PERFORMANCE EVALUATED BY TRAINEES

Categories	Basis of categorization	Number of Trainers	Percent of Trainers	Mean of performance score
Good	61-80 score	2	20	84.8
Excellent	81-100 score	8	80	
Total		10	100	

Findings revealed that overwhelming majority (80%) of the trainers had shown excellent performance and 20% of them good based on the performance evaluated by the trainees.

Evaluation of Training as perceived by the trainees

CONTENT OF THE TRAINING

Trainees were asked to indicate their opinion on the content of training courses with five-point scale as 'excellent', 'good', 'satisfactory', 'poor' and 'very poor'. Three-fourth (75%) of the trainees opined that the content of the training courses was excellent and 20% of them as good and 5% as fair or moderate (Table 7).

TABLE 7. DISTRIBUTION OF THE TRAINEES BASED ON THEIR OPINION ON THE CONTENT OF TRAINING COURSES

Opinion Categories	Number of Trainees	Percent of Trainees
Excellent	4	20
Good	15	75
Fair	1	05
Total	**20**	**100**

RELEVANCY OF TRAINING COURSES

At the end of the training, trainees were asked to mention 5 important training topics in climate change adaptation. Out of 20 trainees, 17 respondents have mentioned 1-5 training courses. Each citation was assigned as 1 score. The observed range of citation score was 2-12. A rank order was made on the descending order of the citation score to rate the relevancy of the training courses. Findings revealed that the topics 'Livelihood adaptation to climate change in agriculture' ranked first followed by 'Suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh' and 'Implication of meteorology for agricultural forecasting'. Rank order of other 7 courses may be seen in Table 9.

TABLE 8. COMPARATIVE RELEVANCY OF TRAINING COURSES AS PERCEIVED BY THE TRAINEES

Sl. No.	Topics	Citation Score	Rank order
1	Concept and types of climate change vulnerabilities and its regulatory framework in Bangladesh	8	5
2	Causes of climate change in Bangladesh and its physical, socio-economic and emotional impacts on agricultural sectors	5	7
3	Meteorology and weather forecasting for agriculture	10	3
4	Water resource management in Bangladesh due to climate change	9	4
5	Suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh	11	2
6	Community seed bed preparation techniques for flood and drought prone areas of Bangladesh	4	8
7	Livelihood adaptation to climate change in agriculture	12	1
8	Gender discrimination in climate change shocks	3	9
9	Rapid climate change and adaptation	7	6
10	Duties and responsibilities of community based local, upazila, district and national level officials for climate change adaptation	2	10

NON-RELEVANCY OF TRAINING COURSES

Trainees were also asked to identify the training topics which were not relevant to climate change adaptation. However, none mentioned any training topics as irrelevant indicating all the 10 training courses as related to climate change adaptation.

MOST PREFERRED TRAINING COURSES

With the aim of selecting trainers for the training on climate change adaptation for Sub-Assistant Agriculture Officers of DAE (field Level training), trainees of the present course were asked to mention training topics most preferred by them. Out of 20 trainees, 15 replied regarding this issue by mentioning 1-5 training courses most preferred by them. Each citation was assigned as 1 score. A rank order was made on the descending order of the citation score to rate the likings of the training courses. For two training topics such as 'water resource management in Bangladesh due to climate change' and 'livelihood adaptation to climate change in agriculture', the citation number was same as 4. In this case the rank order might be 5 and 6, but scientifically, it was ranked as 5.5 for both the two courses. Similarly, another two courses such as 'Community seed bed preparation techniques for flood and drought prone areas of Bangladesh' and 'Gender discrimination in climate change shocks' were ranked as 8.5 (Table 9).

TABLE 9. COMPARATIVE LIKINGS OF THE TRAINING COURSES PREFERRED BY THE TRAINEES

Sl. No.	Topics	Citation Score	Rank order
1	Concept and types of climate change vulnerabilities and its regulatory framework in Bangladesh	8	1
2	Causes of climate change in Bangladesh and its physical, socio-economic and emotional impacts on agricultural sectors	7	2
3	Meteorology and weather forecasting for agriculture	6	3
4	Water resource management in Bangladesh due to climate change	4	5.5
5	Suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh	3	7
6	Community seed bed preparation techniques for flood and drought prone areas of Bangladesh	2	8.5
7	Livelihood adaptation to climate change in agriculture	4	5.5
8	Gender discrimination in climate change shocks	2	8.5
9	Rapid climate change and adaptation	5	4
10	Duties and responsibilities of community based local, upazila, district and national level officials for climate change adaptation	1	10

Findings revealed that the topics 'concept and types of climate change vulnerabilities and its regulatory framework in Bangladesh' ranked first followed by 'causes of climate change in Bangladesh and its physical, socio-economic and emotional impacts on agricultural sectors' and 'implication of meteorology for agricultural forecasting'. Rank order of other 7 courses may be seen in Table 9. The observed range of citation score for training courses was 1-8. It means that the trainees of the present training were ready to make themselves as Trainers for all the training courses, i.e. the trainees could act as the Facilitators for the future training on climate change adaptation. But the Evaluators thought that the topic on 'implication of meteorology for agricultural forecasting' should be delivered to the trainees by the personnel of Agro-Metrology Division of Bangladesh.

TRAINING COURSES DISLIKED

Trainees were asked to mention the training topics which were disliked by them. However, none mentioned any training topics which were disliked by them indicating that all the 10 training courses of the training were preferred.

TRAINING COURSES TO BE INCLUDED IN THE TRAINING

Trainees were asked to indicate some courses which are to be included in the training on climate change adaptation. 7 out of 20 trainees replied. The courses which are to be included in the training on climate change adaptation are mentioned in Table 10.

TABLE 10. COURSES TO BE INCLUDED IN THE TRAINING ON CLIMATE CHANGE ADAPTATION WITH CITATION NUMBER

Sl. No.	Topics	No. of Citation
1.	Pest management strategy for climate change adaptation	3
2.	Adoption of suitable crop varieties for climate change adaptation in agricultural sector	1
3.	Impacts of climate change on specific crop	1
4.	High value crop cultivation and their post-harvest management	1
5.	Disaster management in agriculture sector	1
Total		7

DURATION OF TRAINING

The duration of the present training was three days. Trainees were asked to express their opinion on the duration of the training course (Table 11).

TABLE 11. DURATION OF TRAINING AS OPINED BY THE TRAINEES

Sl. No.	Description of duration	No. of Trainees	Percent of Trainees
1.	To be decreased training duration, i.e. duration training would be less than 3 days	0	0
2.	3 days duration is appropriate for training on CCA	3	15
3.	To be increase training duration as 5 days	6	30
4.	To be increase training duration as 7 days	5	25
5.	To be increase training duration as 10 days	1	05
6.	To be increase training duration as 20 day	1	05
7.	To be increase training duration as 30 days	1	05
8.	No opinion	3	15
Total		20	100

Findings revealed that majority (70%) of the trainees preferred to increase the duration of training by 5 to 30 days. Out of these 70% trainees, majority (30%) opined that the duration of training could be 5 days.

APPROPRIATE MONTH OF THE YEAR FOR CONDUCTING TRAINING

Trainees were asked to indicate the appropriate month(s) of the year for conduction training on climate change adaptation. Opinions of trainees are presented in Table 12.

TABLE 12. APPROPRIATE MONTH(S) FOR CONDUCTING TRAINING AS PERCEIVED BY THE TRAINEES

Sl. No.	Training month(s)	No. of Trainees	Percent of Trainees
1.	July	1	05
2.	July-August	1	05
3.	October	3	15
4.	October-November	3	15
5.	November	4	20
6.	November-December	4	20
7.	December-January	2	10
8.	January	2	10
Total		**20**	**100**

Overwhelming majority (90%) of the trainees preferred October to January as training months of the year.

FREQUENCY OF TRAINING

Trainees were asked to indicate the frequency of training on climate change adaptation that they desire to receive in their entire life. Trainees' opinion regarding this issue is presented in Table 13.

TABLE 13. FREQUENCIES OF TRAINING ON CCA AS DESIRED BY THE TRAINEES

Sl. No.	Frequencies of Training	No. of Trainees	Percent of Trainees
1.	One time	5	25
2.	Two times	6	30
3.	Three times	9	45
Total		20	100

Three-fourth (75%) of the trainees desired to receive training on climate change adaptation in three times. Climate change impacts are increasing in Bangladesh and as a result effects of climate change may be increased. This might be the cause for desiring two-three times training on climate change adaptation.

OPINION ABOUT TRAINING FACILITIES

Opinion on the training facilities was obtained from trainees including on aspects such as TA and DA; food and lodging; use of training materials; environment of training; and overall training facilities. Trainees were asked to rate on each of the training facilities with 5-point rating scale as 'excellent', 'good', 'moderate', 'poor' and 'very poor'. Related findings are presented in Table 14.

TA and DA: Majority (60%) of the trainees opined that the TA and DA was good and 35% and 5% opined it as excellent and moderate respectively.[2]

Food and lodging: Two-third (65%) of the respondent opined that the food and lodging of the training was good and 20%, 10% and 5% of them opined it as excellent, moderate and poor respectively.[3] However, it was necessary to provide accommodation, transportation from residential place to training venue and dinner cost to the trainees.

TABLE 14. OPINION OF THE TRAINEES ON TRAINING FACILITIES

Sl. No.	Items of facilities	Degree of facilities	No. of Trainees	Percent of Trainees
1.	TA and DA	Excellent	07	35
		Good	12	60
		Moderate	01	05
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**
2.	Food and lodging	Excellent	04	20
		Good	13	65
		Moderate	02	10
		Poor	01	05
		Very poor	00	00
		Total	**20**	**100**
3.	Use of training materials	Excellent	05	25
		Good	08	40
		Moderate	07	35
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**
4.	Environment of training place	Excellent	10	50
		Good	10	50
		Moderate	00	00
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**
5.	Overall training facilities	Excellent	07	35
		Good	11	55
		Moderate	02	10
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**

2 Trainees were selected from flood and drought prone areas, i.e. the northern part of Bangladesh 300-500 Kilometer from Sher-e-Bangla Agricultural University, Dhaka, the training venue. BDT 2000.00 was provided to the trainees as TA and BDT. 3000.00 DA (@ BDT. 1000.00/day).

3 Lunch and morning and afternoon snacks with tea were provided to the trainees. Accommodation for the trainees was arranged in Giasuddin Milky Hall of Department of Agricultural Extension (DAE) which was 2 kilometer far from Sher-e-Bangla Agricultural University, the training venue. Cost for accommodation, transportation from residential place to training venue and dinner were not provided to the trainees, those were spent by themselves.

Use of training materials: About two-third (65%) of the trainees opined that the training materials were excellent or good, 35% opined it as moderate. Detailed handout in a bound book, notebook, pen, pencil, eraser, sharpener, bag etc. was provided to the trainees. All the trainers have used multi-media projector for delivering their courses. There was a good quality screen in the training room.

Environment of training place: Half (50%) of the trainees opined that the training place was excellent and half (50%) of them as good. The training was conducted at the Vice-Chancellor's Conference room of Sher-e-Bangla Agricultural University, Dhaka. It is located at the 3rd floor of the Administrative Building of this University.

Overall training facilities: Overwhelming majority (90%) of the trainees opined that overall facilities for the training were excellent or good, only 10% of them opined as moderate.

3.2 Sub-Assistant Agriculture Officers (SAAOs) of the DAE

The pilot training for Sub-Assistant Agriculture Officers (SAAOs) of the Department of Agricultural Extension (DAE) was carried out for three days (28-30 December, 2012) at the Horticulture Center, Tebunia, Pabna. The details of trainees are presented below (Table 15).

TABLE 15. DETAILS OF TRAINEES

Districts	Name of upazilas	Number of trainees (one SAAO from one upazila)
Pabna	Utghoria, Santhia, Bera, Vangoora, Chatmohar and Pabna Sadar	6
Natore	Bagatipara, Singra and Lalpur	3
Sirajginj	Shahzadpur, Tarash, Raigonj, Ullapara, Kazipur and Sirajgong Sadar	6
Bogra	Nandigram, Shariakanda and Sonatola	3
Horticulture Center, Tebunia, Pabna		2
Total		20

Pre-training test

The pre-training test scores of trainees ranged between 06-24 against the range of 0-50 with the mean and standard deviation of 16.20 and 5.20 respectively. The trainees were classified into two groups based on their pre-training test scores as shown in Table 16.

TABLE 16. DISTRIBUTION OF TRAINEES BASED ON THEIR PRE-TRAINING SCORE

Categories (Basis of categorization)	Distribution		Mean	Standard Deviation
	Number	Percent		
Very low knowledgeable (06-16 Score)	8	40	16.20	5.20
Low knowledgeable (17-24 Score)	12	60		
Total	20	100		

Findings in Table 16 revealed that 60% of the trainees had low knowledge and 40% of them had very low knowledge on climate change adaptation. None had medium or high knowledge on climate change adaptation vindicating the need for training on climate change adaptation for the Sub-Assistant Agricultural Officers (SAAO) of Department of Agricultural Extension (DAE).

Post-training test

The post-training test scores of trainees ranged between 26-47 against the possible range of 0-50 with the mean and standard deviation of 35.35 and 6.34 respectively. The trainees were classified into two groups based on their post-training test scores as shown in Table 17.

TABLE 17. DISTRIBUTION OF TRAINEES BASED ON THEIR POST-TRAINING TEST SCORE

Categories (Basis of categorization)	Distribution		Mean	Standard Deviation
	Number	Percent		
Medium knowledgeable (26-37 Score)	11	55	35.35	6.34
High knowledgeable (38-47 Score)	9	45		
Total	20	100		

Most (55%) of the trainees achieved medium knowledge and 45% of them achieved high knowledge on climate change adaptation. None of the trainees had low knowledge on climate change adaptation after receiving training indicating the high knowledge of trainees after receiving training on climate change adaptation. Therefore, conducting training on climate change adaptation was essential for the SAAOs of the Department of Agricultural Extension (DAE) to increase their knowledge on climate change adaptation.

Effectiveness of training

Difference between post- and pre-training test score of each trainee was considered as training effectiveness and was computed by deduction pre-training test scores from post-training test scores. It may be explained by the following formula:

D = B - A

Where, D =Differences between post- and pre-training test scores

A = pre-training test score

B = post-training test score

The differences between post- and pre-training test scores of trainees ranged from 6-28 with the mean and standard deviation of 19.15 and 5.96 respectively. The trainees were classified into three groups based on the differences of their scores between post- and pre-training test as shown in Table 18.

TABLE 18. DISTRIBUTION OF TRAINEES BASED ON THE DIFFERENCES OF THEIR SCORES BETWEEN POST- AND PRE-TRAINING TEST

Categories (Basis of categorization)	Distribution		Mean	Standard Deviation
	Number	Percent		
Medium knowledge changed (6-14 Score)	3	15	19.15	5.96
High knowledge changed (15-28 Score)	17	85		
Total	20	100		

Table 18 state that majority (85%) of the trainees could increase their knowledge on climate change adaptation to high level and 15% of them to medium level. Therefore, it can be concluded that the training was successful in imparting knowledge on climate change adaptation to the local level functionaries.

Performance of the trainees on subject matter

Paired t-test was conducted with pre- and post-training scores of the trainees to determine the rate of increase of subject matter knowledge after the training. Findings revealed the value of t as 14.37 which was significant at 0.000 level of significance with 19 degree of freedom indicating that the training program has significantly influenced the trainees to increase their knowledge (Table 19). The data indicated that the average score in pre-training evaluation was 16.20 and it has increase to 35.35 in the post-training evaluation. Attempt was also made to find the relationship between pre- and post-training evaluation test scores by running Pearson Product Moment Correlation. Correlation revealed that the value of 'r' was 0.481 which was significant at 0.05 level of significance with 18 degree of freedom indicating a significant positive relationship between pre- and post-training evaluation test scores of the trainees. It again means that the trainee having more knowledge before receiving training could increase his/her knowledge at a higher rate by receiving the training and vice-versa (Table 19).

TABLE 19. ACHIEVEMENT OF THE TRAINEES IN PRE- AND POST-TRAINING TEST

Mean of pre-training evaluation score	Mean of post-training evaluation score	t value	Relationship between pre- and post-training evaluation score (r value)
16.20	35.35	14.37***	0.481*

***Significant at 0.001 level,*Significant at 0.05 level

Evaluation of trainers

An evaluation sheet was supplied to the trainees to evaluate the performance of the trainers using 5-point rating scale 'excellent', 'good', 'satisfactory', 'poor' and 'very poor' by assigning scores as '5', '4', '3', '2' and '1' respectively. The performance of trainers of each of 10 courses was evaluated by adding all the scores obtained by them form all the 20 trainees. The range of possible scores of performance could fall between 20-100, where '20' indicating very low performance and '100' indicating highest performance. The observed range was 75 – 92 with a mean of 84.0. Trainers were classified into two groups based on their performance evaluated by trainees as shown in Table 20. Findings revealed that most (70%) of the trainers were rated as excellent performance and 30% of them as good performance.

TABLE 20. DISTRIBUTION OF TRAINERS BASED ON THEIR PERFORMANCE EVALUATED BY TRAINEES

Categories	Basis of categorization	Number of Trainers	Percent of Trainers	Mean of performance score
Good	61-80 score	3	30	84.0
Excellent	81-100 score	7	70	
Total		10	100	

Evaluation of Training as perceived by the trainees

CONTENT OF THE TRAINING

Trainees were asked about the content of training courses with five-point ration scale as 'excellent', 'good', 'fair', 'poor' and 'very poor'. Fifty five percent (55%) of the trainees opined that the content of the training course was excellent compared to 30% of them perceived that the content of the training course was good and the 15% opined the content of the training courses as fair or moderate which is shown in Table 21.

TABLE 21. DISTRIBUTION OF THE TRAINEES BASED ON THEIR OPINION ON THE CONTENT OF TRAINING COURSES

Opinion Categories	Number of Trainees	Percent of Trainees
Excellent	11	55
Good	6	30
Fair	3	15
Total	**20**	**100**

RELEVANCY OF TRAINING COURSES

At the end of the training, trainees were asked to mention 5 important training topics related to climate change adaptation. Out of 20 trainees, 18 replied and each citation was assigned as 1 score. The observed range of citation score was 1-15. A rank order was made on the descending order of the citation score to rate the relevancy of the training courses. Findings revealed that the topics such as 'Implication of meteorology for agricultural forecasting' ranked first followed by 'Modern cultivation techniques of different crops in flood and drought prone areas' and 'Present status of climate change in Bangladesh and its effects on agricultural sectors'. Rank order of other 7 courses may be seen in Table 22.

TABLE 22. COMPARATIVE RELEVANCY OF TRAINING COURSES AS PERCEIVED BY THE TRAINEES

Sl. No.	Topics	Citation Score	Rank order
1	Present status of climate change in Bangladesh and its effects on agricultural sectors	8	3
2	Meteorology and weather forecasting for agriculture	15	1
3	Livelihood adaptation to climate change in agriculture	5	6
4	Water resource management in Bangladesh due to climate change	7	4
5	Cropping pattern in flood and drought prone areas of Bangladesh	6	5
6	Modern cultivation techniques of different crops in flood and drought prone areas	9	2
7	Advanced rice production technology for vulnerable areas of Bangladesh	1	10
8	Community seed bed preparation techniques in flood and drought prone area	4	7
9	Vegetable production techniques in flood, drought prone areas with special emphasis on year-round vegetable production	1	9
10	Rapid climate change and adaptation	3	

NON-RELEVANCY OF TRAINING COURSES

Trainees were asked to mention the training topics which were not related to climate change adaptation. None mentioned any training topics as irrelevant indicating all the 10 training courses as relevant to climate change adaptation.

MOST PREFERRED TRAINING COURSES

With the aim of selecting trainers for the training on climate change adaptation for the farmers, trainees were asked to identify training topics most preferred to be included in the training for farmers. Out of 20 trainees 18 have identified the most preferred topic (Table 23). Each citation was assigned as 1 score. A rank order was made on the descending order of the citation score to rate the likings of the training courses.

TABLE 23. COMPARATIVE LIKINGS OF THE TRAINING COURSES PREFERRED BY THE TRAINEES

Sl. No.	Topics	Citation Score	Rank order
1	Present status of climate change in Bangladesh and its effects on agricultural sectors	8	3
2	Meteorology and weather forecasting for agriculture	14	1
3	Livelihood adaptation to climate change in agriculture	1	10
4	Water resource management in Bangladesh due to climate change	9	2
5	Cropping pattern in flood and drought prone areas of Bangladesh	2	9
6	Modern cultivation techniques of different crops in flood and drought prone areas	7	4
7	Advanced rice production technology for vulnerable areas of Bangladesh	3	8
8	Community seed bed preparation techniques in flood and drought prone area	6	5
9	Vegetable production techniques in flood, drought prone areas with special emphasis on year-round vegetable production	4	7
10	Rapid climate change and adaptation	5	6

Findings revealed that the topics such as 'Implication of meteorology for agricultural forecasting' ranked first followed by 'water resource management in Bangladesh due to climate change' and 'present status of climate change in Bangladesh and its effects on agricultural sectors'. Rank order of other 7 courses can be seen in Table 23. The observed range of citation score for training courses was 1-14 indicating that the trainees of the present training were ready to make themselves as trainers for all the training courses, i.e. the trainees could act as the facilitators for the future training on climate change adaptation for farmers. However, the

evaluators thought that the topic on 'implication of meteorology for agricultural forecasting' should be delivered to the trainees by the personnel of Agro-Metrology Division of Bangladesh.

TRAINING COURSES DISLIKED

Trainees were asked to identify the training topics which were disliked by them. However, none mentioned any training topics disliked by them for training on climate change adaptation. It means that all the 10 training courses of the training were more or less preferred by them.

TRAINING COURSES TO BE INCLUDED IN THE TRAINING

Trainees were asked to indicate courses which are to be included in the training on climate change adaptation. Out of 20 trainees, 10 replied. The courses which are to be included in the training on climate change adaptation are presented in Table 24.

TABLE 24. COURSES TO BE INCLUDED IN THE TRAINING ON CLIMATE CHANGE ADAPTATION WITH CITATION NUMBER

Sl. No.	Topics	No. of Citation
1.	Climate change effect on human health and food security	3
2.	Climate change adaptation for livestock	2
3.	Climate change adaptation for fisheries	2
4.	Disease management due to climate change	2
5.	Climate change mitigation	1
6.	Disaster management in agriculture sector	1
7.	Hydroponic technology of crop production	1

DURATION OF TRAINING

The duration of the present training was three days. Trainees were asked to mention their opinion regarding the duration of the training course. Opinion of trainees regarding training duration is presented in Table 25.

TABLE 25. DURATION OF TRAINING AS OPINED BY THE TRAINEES

Sl. No.	Description of duration	No. of Trainees	Percent of Trainees
1.	3days duration is appropriate for training on CCA	1	05
2.	To be increase training duration as 5 days	1	05
3.	To be increase training duration as 7 days	6	30
4.	To be increase training duration as 15 days	11	55
5.	To be increase training duration as 30 days	1	05
Total		20	100

Findings revealed that most (95%) of the trainees opined to increase the duration of training which may be 5 to 30 days. But due to fund and time constraints, the evaluation team thought that the training duration may be 3-5 days.

TIME FOR CONDUCTING TRAINING

Trainees were asked to indicate the appropriate month(s) of the year for conduction training on climate change adaptation. Opinions of the trainees are presented in Table 26.

TABLE 26. APPROPRIATE MONTH(S) FOR CONDUCTING TRAINING AS PERCEIVED BY THE TRAINEES

Sl. No.	Training month(s)	No. of Trainees	Percent of Trainees
1.	October	2	10
2.	November	12	60
3.	February	2	10
4.	February-March	1	05
5.	Round the year	3	15
Total		**20**	**100**

Overwhelming majority (85%) of the trainees opined October to March as training months of the year.

FREQUENCY OF TRAINING

Trainees were asked to indicate the frequency of training on climate change adaptation that they desire to receive in their entire life. Trainees' opinion regarding this issue is presented in Table 27.

TABLE 27. FREQUENCIES OF TRAINING ON CCA AS DESIRED BY THE TRAINEES

Sl. No.	Frequencies of Training	No. of Trainees	Percent of Trainees
1.	One time	1	05
2.	Two times	2	10
3.	Three times	17	85
Total		20	100

Majority (85%) of the trainees desired to receive training on climate change adaptation in three times in their entire life. Climate change is increasing in Bangladesh and as a result, effects of climate change may be increased in various dimensions. This might be the cause for desiring two-three times training on climate change adaptation in their life.

OPINION ABOUT TRAINING FACILITIES

Attempt had been taken to collect opinion from trainees about the facilities of training such as TA and DA; food and lodging; use of training materials; environment of training; and overall training facilities. Trainees were asked to rate on each of the training facilities with 5-point rating scale as 'excellent', 'good', 'moder-

ate', 'poor' and 'very poor'. Findings regarding these issues are presented in Table 28.

TA and DA: Trainees were selected from flood and drought prone areas, i.e. the northern part of Bangladesh which was around 150 Kilometer far from Horticulture Center, Tebumia, Pabna, the training venue. BDT 500.00 was provided to the trainees as TA and BDT. 1,500.00 for DA (@BDT. 500.00/day). Majority (45%) of the trainees opined that this TA and DA was good compared to 20% and 35% of the trainees opined as excellent and moderate respectively. None were poor or very poor.

Food and lodging: Everyday lunch, dinner and morning and afternoon snack with tea were provided to the trainees. Accommodation for the trainees was arranged in the dormitory of Horticulture Center, Tebunia, Pabna. Majority proportion (45%) of the trainees opined that the food and lodging of the training was good compared to 30%, 25% of them opined as excellent and moderate respectively. None were poor or very poor.

TABLE 28. OPINION OF THE TRAINEES ON TRAINING FACILITIES

Sl. No.	Items of facilities	Degree of facilities	No. of Trainees	Percent of Trainees
1.	TA and DA	Excellent	04	20
		Good	09	45
		Moderate	07	35
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**
2.	Food and lodging	Excellent	06	30
		Good	09	45
		Moderate	05	25
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**
3.	Use of training materials	Excellent	04	20
		Good	09	45
		Moderate	07	35
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**
4.	Environment of training place	Excellent	05	25
		Good	11	55
		Moderate	04	20
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**
5.	Overall training facilities	Excellent	05	25
		Good	09	45
		Moderate	06	30
		Poor	00	00
		Very poor	00	00
		Total	**20**	**100**

Use of training materials: Detail handout in a bound book, notebook, pen, pencil, eraser, sharpener, bag etc. was provided to the trainees. Every trainer used multi-media projector for delivering their courses. There was a good quality screen in the training room. About two-third (65%) of the trainees opined that the training materials were excellent or good, 35% opined as moderate.

Environment of training place: The training was conducted at Horticulture Center, Tebunia, Pabna. Overwhelming majority (80%) of the trainees opined that the training place was excellent or good and 20% of them opined as moderate. None were poor or very poor.

Overall training facilities: Majority (70%) of the trainees opined that overall facilities of the training were excellent or good, 30% of them opined as moderate. None were poor or very poor.

4. FINAL TRAINING MODULES

After pilot testing of the training modules (original training modules are given in Annexure 1 and 2), the training modules were modified as per the feedback received from the post-training evaluation and the modified training modules are presented here. The modifications include duration of training, subject matter content and ratio of knowledge and skill areas.

4.1 Modifications Made to Training Modules

The following modifications were made on the training modules based on the evaluation conducted and discussions among the evaluators and trainees:

1. Most of the trainees of the 1st training opined that 5-day training would be more beneficial and they suggested including 5 new topics in the CCA training. However, due to time and fund constraints, the final module was prepared for 4-day training after including new 5 topics (Ref: Duration and topics to be included in the training in evaluation of 1st training).

2. Most of the trainees of the 2ndtraining opined that 15-day training would be more beneficial and they suggested including 7 new topics in the CCA training. However, after revisiting these suggestions, the evaluation team concluded that all the suggested new topics were not related to CCA in agriculture sector. Taking this into consideration of time, resources and other constraints, the final module was prepared for a 4-day training after including 5 new topics (Ref: Duration and topics to be included in the training in evaluation of 2nd training).

3. In both the training modules, the newly included topics are i) Impacts of climate change on specific crops, ii) Pest management strategy for climate change adaptation, iii) Adoption of suitable crop varieties for climate change adaptation in agricultural sector, iv) Cultivation and post-harvest management of high value crops for climate change adaptation, and v) Disaster management in agriculture sector.

4. For both trainings, fifteen (15) topics were arranged in a logical sequence from more knowledge areas to skill areas.

5. In case of 1st training, selection of training topics on CCA for the SAAOs will be done by group discussion under the supervision of monitoring team and training coordinator.

6. In case of 2nd training, bottom-up planning for climate change adaptation to reduce losses will be done by group discussion under the supervision of monitoring team and training coordinator.

7. We found that for both training modules, the optimum number of trainees would be 25 which are also cost effective.

4.2 In-service Training Module for District and Upazila (Sub-District) Agriculture Officers of DAE

1. INTRODUCTION

Department of Agricultural Extension (DAE) provides extension services for the farming community in Bangladesh. Sub-Assistant Agriculture Officers (SAAOs) are the root level workers of DAE that directly cater to the farmers. Farmers of Bangladesh are regularly affected by various types of climatic and non-climatic impacts such as floods, droughts, salinity and water logging impacting farming. SAAOs are responsible to disseminate agricultural innovations to the farmers to reduce the loss of agricultural productivity. These SAAOs receive training from district and upazila (sub-district) level officers of DAE.

For the above reasons, it is necessary to provide training to the district and upazila level Officers of DAE so that they can in turn provide training to SAAOs. This module[4]has been developed to train the mid-level (district and upazila) officials such as DD, DTO, CPS, PPS, HS, IS, UAO, AAO and AEOs with an aim to introduce them to the concepts of climate change, its impacts on farming communities and the existing institutional and community based mechanisms for climate change adaptation.

2. TARGET GROUP

Crop Production Specialist (CPS) / Plant Protection Specialist (PPS) / Horticulture Specialist (HS) of District and Upazila Agriculture Officer (UAO) / Additional Agriculture Officer (AAO) of upazila (sub-district) level of DAE from flood and drought prone areas.

Though this training module was prepared for agriculture extension staff, this module can be readily adopted for any organization that provides similar services to farming community.

1 The "Scientific Capacity Development of Trainers and Policy-Makers for Climate Change Adaptation Planning in Asia and the Pacific" project was taken as an initiative to prepare training module for developing capacity of trainers like district and upazila level officers of DAE of Bangladesh in collaboration with IGES, Japan and APAN, Bangkok.

3. ENTRY BEHAVIOUR

Age: 30-59 years

Educational Background: 4 years B. Sc. Ag. (Hons.) degree from any agricultural university

Level of knowledge and skill on the training module being conducted: There are limited meteorological courses in B. Sc. Ag. (Hons.) degree in the Agricultural Universities of Bangladesh. Upazila and district level Agricultural Officers of DAE have little knowledge and skill on climate change adaptation, but they have knowledge and skill on agricultural farming activities.

Expected skill and knowledge levels of the trainer/trainees before entering into the module: At this phase, district and upazila level officials of DAE having at least 5 years of working experience should be selected. National policy level officials of DAE, research organizations and universities and relevant experts will act as facilitators/trainers for this training.

4. GOAL AND LEARNING OBJECTIVES

GOAL: Capacity building of district and upazila level officers of DAE as trainers (training of trainers) for climate change adaptation planning

LEARNING OBJECTIVES: After receiving training, the trainees will be able to:

- Identify new cropping practices for climate change adaptation
- Train the SAAOs to minimize agricultural losses
- Train the SAAOs on climate change adaptation planning

5. IMPLEMENTATION MODALITIES

Number of batches for training: Twenty (20) batches for 10 regions of DAE in Bangladesh, i.e. two (2) in each region.

Trainers: The training can be held at Sher-e-Bangla Agricultural University, Dhaka and DAE regional Stations. National policy level officials of DAE, research organizations and universities and relevant experts will act as facilitators/trainers for this training.

Trainees: Twenty five (25) district and upazila (sub-district) level officers of DAE per batch.

Duration of training: Four (4) days

Collaboration with other organization: Facilitators/trainers from DAE,

national agricultural research institutes, universities meteorological departments etc.

Facilities available: funds for TA/DA for trainees and honorarium for trainers, evaluators and coordinator, funds for logistics, and funds for opening and closing sessions.

Facilities required: Training equipment such as multimedia projectors with computer, projection screen, UPS, sound system, camera, printer, scanner and accommodation facilities for trainees.

6 EXPECTED OUTCOMES

After receiving training, the trainees will be able to:

- Explain climate change adaptation and related issues
- Enumerate new cropping practices for climate change adaptation
- Explain the ways of minimizing agricultural losses
- Prepare plans for climate change adaptation
- Be able to conduct training to their sub-ordinates

7. EVALUATION

Pre- and post-training evaluation of the trainees on training contents should be conducted by the evaluation team. Mean difference obtained by paired t-test could be used as basis of evaluation. Feedback should be taken at the end of the training from all the trainees.

8. SESSION DETAILS

	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
1.	Participants will be able to explain the concepts and types of climate change vulnerabilities and institutional framework for climate change in Bangladesh.	Concepts and types of climate change vulnerabilities and institutional framework in Bangladesh	Lecture, video, maps and data tables followed by discussion	60 min	Maps, data tables, DVD, multimedia projector, handout, whiteboard, marker, microphone etc.	By feedback discussion	Facilitator will explain the concepts and types of climate change vulnerabilities and its regulatory framework in Bangladesh by showing related documents in video, maps and climate related data with the help of a multimedia.
2.	Participants will be able to enlist the causes of climate change and its physical and socio-economic impacts on agriculture.	Causes of climate change and its physical, socio-economic and emotional impacts on agricultural sector in Bangladesh	Lecture, video, maps and data tables followed by discussion	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	By feedback discussion	The trainer will show causes of climate change and its physical, socio-economic and emotional impacts on agriculture by pictorial presentation. He will then overview and discuss about the matter.
3.	Participants will be able to explain about agro-climatology and meteorology and climate change implication for agricultural forecasting	Principles of agro-climatology and agro-meteorology, weather and climate forecasting for agriculture	Lecture followed by discussion	60 min	DVD, multimedia projector, Microphone, handout, whiteboard, marker etc.	By feedback discussion	The trainer will provide an overview on meteorological implication for weather forecasting for agricultural followed by demonstration of forecasting tools.
4.	The trainees will be able to describe climate change implications on water resource management in Bangladesh.	Water resource management in Bangladesh; impact of climate change on water resources	Lecture, video, maps and data tables followed by discussion	60 min	Multimedia projector, DVD, handout, whiteboard with marker, microphone, poster and flash cards	By feedback discussion	The trainer will discuss water resource management in Bangladesh due to climate change with sharing previous experiences.

	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
5.	Participants will be able to describe the impacts of climate change on specific crops.	Impacts of climate change on specific crops	Lecture, video, maps and data tables followed by discussion	60 min	Multimedia projector, DVD, handout, whiteboard with marker, microphone, poster and flash cards	By feedback discussion	The trainer will discuss about the impacts of climate change on specific crops with sharing previous experiences.
6.	Trainees will be able to enumerate pest management strategies for climate change adaptation.	Pest management strategies for known climate change impacts and dealing with uncertain weather conditions	Lecture, video, maps and data tables followed by discussion	60 min	Multimedia projector, DVD, handout, whiteboard with marker, microphone, poster and flash cards	By feedback discussion	The trainer will discuss about pest management strategy for climate change adaptation after sharing previous experiences with the participants.
7.	Participants will be able to explain various strategies for livelihood adaptation to climate change in agriculture.	Livelihood adaptation to climate change in agriculture	Lecture, case study presentation, discussion and sharing of ideas	60 min	Microphone, handout, marker, whiteboard, multimedia projector etc.	Feedback discussion	The trainer provides an overview on livelihood adaptation to climate change in agriculture followed by discussion and brainstorming.
8.	Trainees will be able to describe vulnerabilities of male and female sections of the community due to climate change shocks.	Gender and climate change impacts	Lecture followed by discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will describe differential impacts of climate change on different gender groups of the society using case studies.
9.	Participants will be able to identify suitable crop varieties for climate change adaptation.	Adoption of suitable crop varieties for climate change adaptation in agricultural sector	Lecture followed by discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain the suitability of different crop varieties for adaptation to climate change.

	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
10.	The trainees will be able to enumerate suitable cropping patterns and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh.	Suitable cropping patterns and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh	Lecture, observation, video demonstration followed by exercise on forecasting	60 min	Meteorological instruments, leaflet, handout, microphone, multimedia projector etc.	By feedback discussion	The trainer will explain the suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh.
11.	Participants will be able to explain the techniques of community seed bed preparation in draught prone areas and floating seed bed preparation in flood prone areas.	Community seed bed preparation techniques for flood and drought prone areas of Bangladesh	Lecturing, case study presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia	Feedback discussion	The trainer will explain the importance of community seed bed and floating seed bed preparation followed by visual demonstration and sharing of ideas.
12.	Trainees will be aware about cultivation and post-harvest management of high value crops for climate change adaptation.	Cultivation and post-harvest management of high value crops for climate change adaptation	Presentation, discussion, brainstorming and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain about cultivation and post-harvest management of high value crops for climate change adaptation followed by sharing of ideas.
13.	Trainees will be able to explain various aspects of disaster management in agriculture sector.	Disaster management in agriculture sector	Presentation, discussion, brainstorming and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain about disaster management in agriculture sector followed by sharing of ideas.
14.	Trainees will be able to describe rapid climate change and adaptation	Rapid climate change , strategies for adaptation to rapid changes, emergency response and recovery	Presentation, discussion, brainstorming and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain rapid climate change and implications for climate change adaptation and emergency management with case studies followed by sharing of ideas.

	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
15.	Participants will be able to enlist the duties and responsibilities of community based , upazila, district and national level officials responsible for climate change adaptation.	Duties and responsibilities of community based, upazila, district and national level officials for climate change adaptation	Presentation, discussion, brainstorming and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will provide an overview on duties and responsibilities of community based, upazila, district and national level disaster managers after presentation and discuss he will arrange to sharing of ideas with the trainees.
16.	Participants will be able to select training topics on climate change adaptation for SAAOs.	Selection of training topics on CCA for the SAAOs by group discussion method	Group discussion and sharing of ideas	60 minutes	Paper, pen, signature pen etc.	Feedback observing group discussion	The training coordinator will form groups and facilitate the group discussion.

9. LIST OF TRAINING MATERIALS

Following materials are required for implementing the training: multimedia projector, projection screen, laptop computers, laser printers, scanner, digital camera, training module, poster papers, sign pens, white boards, white board markers, offset paper, printing leaflet, booklet, handout etc., microphone, books and literature related to climate change impacts and adaptation in Bangladesh.

10. FEEDBACK FORM

Structured questionnaire form should be prepared for getting feedback from the trainees.

11. SCHEDULE OF TRAINING PROGRAM

Trainees: Twenty five (25) district and upazila (sub-district) level agriculture officers for each batch

Course Coordinator:

Place: Sher-e-Bangla Agricultural University, Dhaka or Regional Stations of DAE

Duration: Four (4) days

Day	Time	Topics	Facilitators
1st day	09.00-09.30	Registration	Training Coordinator
	09.30–10.00	Pre-training evaluation test	Monitoring Team
	10.00-11.30	Inaugural session	Chairman and Guests
	11.30-12.00	Tea Break	
	12.00-13.00	Concept and types of climate change vulnerabilities and its regulatory framework in Bangladesh	1*
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Causes of climate change in Bangladesh and its physical, socio-economic and emotional impacts on agricultural sectors	2*
	15.30-16.00	Tea Break	
	16.00-17.00	Meteorology and weather forecasting for agriculture	3*

Day	Time	Topics	Facilitators
2nd day	09.00-09.30	Recapitulate of last day activities	Training Coordinator
	09.30-10.30	Water resource management in Bangladesh due to climate change	4*
	10.30-11.00	Tea Break	
	11.00-12.00	Impacts of climate change on specific crops	5*
	12.00-13.00	Pest management strategy for climate change adaptation	6*
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Livelihood adaptation to climate change in agriculture	7*
	15.30-16.00	Tea Break	
	16.00-17.00	Gender discrimination in climate change shocks	8*
3rd day	09.00-09.30	Recapitulate of last day activities	Training Coordinator
	09.30-10.30	Adoption of suitable crop varieties for climate change adaptation in agricultural sector	9*
	10.30-11.00	Tea Break	
	11.00-12.00	Suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh	10*
	12.00-13.00	Community seed bed preparation techniques for flood and drought prone areas of Bangladesh	11*
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Cultivation and post-harvest management of high value crops for climate change adaptation	12*
	15.30-16.00	Tea Break	
	16.00-17.00	Disaster management in agriculture sector	13*
4th day	09.00-09.30	Recapitulate of last day activities	Training Coordinator
	09.30-10.30	Rapid climate change and adaptation	14*
	10.30-11.00	Tea Break	
	11.00-12.00	Duties and responsibilities of community based local, upazila, district and national level officials for climate change adaptation	15*
	12.00-13.00	Selection of training topics on CCA for the SAAOs by group discussion method	Monitoring Team and Training Coordinator
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.00	Post-training test	Monitoring Team
	15.00-15.30	Feedback	Monitoring Team
	15.30-16.00	Tea Break	
	16.00-17.00	Closing	Chairman and Guests

*Trainers to be selected at the time of training. Numbers in the last column indicate number of topics.

12. IMPLEMENTATION OF THE TRAINING MODULE

Fifteen knowledge and skill areas were proposed for the 4-day training in this module. Detailed course content and delivery procedure should be developed by national level experts from DAE, different universities, research organizations under NARS and other relevant organizations. With these detailed course content and delivery procedures laid out in this module, training will have to be conducted at DAE head office or Sher-e-Bangla Agricultural University, Dhakaor Regional Stations of DAE for the mid-level (district and upazila) officers of DAE. These trained DAE officials will further train SAAOs. Selection of training topics on CCA for SAAOs will be done by group discussion under the supervision of monitoring team and training coordinator.

4.3 In-service Training Module for Sub-Assistant Agriculture Officers of DAE

1. INTRODUCTION

Department of Agricultural Extension (DAE) provides extension services for the farming community in Bangladesh. Sub-Assistant Agriculture Officers (SAAOs) are the root level workers of DAE that directly cater to the farmers. Farmers of Bangladesh are regularly affected by various types of climatic and non-climatic impacts such as floods, droughts, salinity and water logging impacting farming. SAAOs are responsible to disseminate agricultural innovations to the farmers to reduce the loss of agricultural productivity. These SAAOs receive training from district and upazila (sub-district) level Officers of DAE.

SAAOs are responsible to disseminate agricultural innovations to the farmers. For this reasons, it is necessary to provide training to the SAAOs so that they can further help farmers (the ultimate benefactors of the training program). SAAOs can further provide training to the farmers as facilitators. This module can facilitate providing training to the SAAOs at village level aiming to introduce them with the concepts of climate change, its impacts on farming communities and the existing institutional and community based mechanisms for CCA.

2. TARGET GROUP

SAAOs of DAE from flood and drought prone areas

3. ENTRY BEHAVIOUR

Age: 25-59 years

Educational Background: 4 years Agricultural Diploma from Agricultural Training Institute (ATI) after passing 10 years Secondary School Certificate examination.

Level of knowledge and skill on the training module being conducted: The SAAOs have little knowledge and skills on CCA and have good knowledge and skill on agriculture in general.

Expected skill and knowledge levels of the trainer/trainees before entering into the module: SAAOs of DAE will be the main trainers to provide training to

the farmers. First, the SAAOs should be trained by the upazila (sub-district) and district level officials having at least Bachelor of Agricultural Science (B.Sc. Ag.) degree. At this stage, SAAOs having working experience of at least 5 years should be selected. When the SAAOs will act as trainers to train the farmers, the module should be translated into Bengali.

4. GOAL AND LEARNING OBJECTIVES

GOAL: Capacity building of SAAOs as trainers for climate change adaptation planning.

LEARNING OBJECTIVES: After receiving training, the SAAOs will be able to:

- Explain various concepts of climate change adaptation (CCA)
- Identify new cropping strategies for climate change adaptation
- Create awareness among the farmers to minimize their agricultural losses
- Create awareness among the rural poor on CCA
- Provide training to the rural poor on specific aspects of CCA

5. IMPLEMENTATION MODALITIES

Number of Batches for Training: One hundred twenty eight (128) batches in 64 districts of Bangladesh, i.e. two (2) in each district.

Trainers: District and upazila (sub-district) level officers of DAE, i.e. Crop Production Specialists (CPS), Plant Protection Specialists (PPS), Horticulture Specialists (HS), Upazila Agriculture Officers (UAO), Additional Agricultural Officers (AAO) having CCA training.

Trainees: Twenty five (25) SAAOs for each batch

Duration of training: Four (4) days

Collaboration with other organization: The training will be conducted at district level office of DAE. Facilitators will be selected from previously trained personnel from the respective district. Cooperation may be needed from nearest agricultural research institutes and universities, Directorate of Livestock Services (DLS), Directorate of Fisheries (DOF) and Meteorological Department.

Facilities available: Fund for TA/DA for trainees and honorarium for trainers, evaluators and coordinator, fund for logistics, fund for organizing opening and closing session.

Facilities required: Training equipment such as multimedia projectors with computer, screen, UPS, sound system, digital camera, printer, scanner, and accommodation facilities for trainees and trainers and evaluators

6 EXPECTED OUTCOMES

After receiving training, the trainees will be able to:

- Explain CCA and related issues
- Identify new cropping practices for CCA
- Identify the ways of minimizing agricultural losses
- Prepare local plan for CCA
- Acquire skills and knowledge to be a CCA trainers for farmers

7. EVALUATION

Pre- and post-training evaluation of the trainees on training contents will be conducted by evaluation team. Mean difference obtained by paired t-test can be the basis for evaluation. Feedback will be obtained from all the trainees at the end of the training.

8. SESSION DETAILS

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Notes by module designer
1.	Participants will be able to explain the present status of climate change in Bangladesh and its impacts on agriculture sector.	Present status of climate change in Bangladesh and its impacts on agricultural sector	Lecture, videos, maps and data table followed by discussion	60 min	Maps, data tables, DVD, multimedia projector, handout, whiteboard, marker, microphone, etc.	By feedback discussion	The facilitator will explain the present status of climate change in Bangladesh and its impacts on agricultural sectors by showing related documents in video, maps and climate related data with the help of a multimedia projector followed by discussion.
2.	Participants will be able to explain about agro-climatology and meteorology and climate change implication for agricultural forecasting	Implications of climate change on meteorology and forecasting for agriculture	Lecturing, video show, data presentation and discussion	60 min	multimedia projector, DVD, handout, microphone, poster and flash cards	By feedback discussion	The trainer will provide an overview on meteorological implication for agricultural forecasting followed by showing forecasting tools.
3.	Participants will be able to make identify strategies for livelihood adaptation to climate change in agriculture	Livelihood adaptation to climate change in agriculture	Lecturing, observation, video show followed practicing forecasting	60 min	Meteorological instruments, leaflet, handout, microphone, multimedia projector etc.	By feedback discussion	The trainer will provide an overview on livelihood adaptation to climate change in agriculture. After presentation and discuss he will organize brainstorming for livelihood adaptation to climate change in agriculture.
4.	The trainees will be able to describe water resource management in Bangladesh and implications of climate change for the same	Water resource management in Bangladesh and climate change implications	Lecturing, case study presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia	Feedback discussion	The trainer will discuss water resource management in Bangladesh and climate change implications for the same through specific case studies.

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Notes by module designer
5.	Participants will be able to enlist impacts of climate change on specific crops.	Impacts of climate change on specific crops	Lecturing, video show, data presentation and discussion	60 min	multimedia projector, DVD, handout, white-board with marker, microphone, poster and flash cards	By feedback discussion	The trainer will discuss about the impacts of climate change on specific crops through sharing previous experiences.
6.	Trainees will be able to enumerate suitable pest management strategies for climate change adaptation.	Pest management strategy for climate change adaptation	Lecturing, video show, data presentation and discussion	60 min	multimedia projector, DVD, handout, white-board with marker, microphone, poster and flash cards	By feedback discussion	The trainer will discuss about pest management strategy for climate change adaptation and share previous experiences with the participants.
7.	The trainees will be able to discuss alternative cropping patterns in flood and drought prone areas of Bangladesh	Cropping pattern in flood and drought prone areas of Bangladesh	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, marker, whiteboard, multimedia projector etc.	Feedback discussion	The trainer will explain the alternative cropping patterns in flood and drought prone areas of Bangladesh.
8.	Participants will be able to identify suitable crop varieties for climate change adaptation.	Adoption of suitable crop varieties for climate change adaptation in agricultural sector	Lecturing followed by discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain the suitability of different crop varieties for adoption to climate change.
9.	Trainees will be to describe cultivation and post-harvest management of high value crops for climate change adaptation.	Cultivation and post-harvest management of high value crops for climate change adaptation	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain about cultivation and post-harvest management of high value crops for climate change adaptation followed by sharing of ideas.

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Notes by module designer
10.	Participants will be able to explain about modern cultivation techniques of different crops in saline, flood and drought prone areas.	Modern cultivation techniques of different crops in flood and drought prone areas	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will provide an overview the modern cultivation techniques on different crops in saline, flood and drought prone areas. After presentation and discuss he will arrange sharing of ideas with the trainees.
11.	Participants will be able to explain about advanced rice production technology for vulnerable areas of Bangladesh.	Advanced rice production technology for vulnerable areas of Bangladesh	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, multimedia projector etc.	Feedback discussion	The trainer will explain advanced rice production technology for vulnerable areas of Bangladesh followed by discussion and sharing of ideas.
12.	Participants will be able to explain the techniques of community seed bed preparation in flood and drought prone areas.	Community seed bed preparation techniques in flood and drought prone areas	Presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain the importance of community and floating seed bed preparation followed by visual demonstration, discussion and sharing of ideas.
13.	Participants will be able to describe the techniques of vegetable, especially year-round vegetable production in saline, flood, and drought prone areas.	Vegetable production techniques in flood, drought prone areas with special emphasis on year-round vegetable production	Presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will demonstrate the techniques of vegetable, especially year-round vegetable production in saline, flood, and drought prone areas by using specific case studies.
14.	Trainees will be able to enlist appropriate disaster management strategies in agriculture sector.	Disaster management in agriculture sector	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain about disaster management in agriculture sector followed by sharing of ideas.

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Notes by module designer
15.	Trainees will be able to describe strategies for adapting to rapid climate change.	Rapid climate change and adaptation.	Presentation, visual demonstration, discussion and sharing of ideas.	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain the concepts of rapid climate change and enumerate adaptation strategies, provide case studies followed by sharing of ideas.
16.	Participants will be able to prepare production plan to reduce losses in crop production.	Bottom-up planning for climate change adaptation to reduce crop losses	Presentation, visual demonstration, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The facilitators will help the trainees to prepare future production plan to reduce climate change related losses. Prepared plan will be present by group leaders. Combined plan will then be prepared.

9. LIST OF TRAINING MATERIALS

Following materials are required for trainers and trainees for implementing the training: multimedia projector, projection screen, laptop computers, laser printers, scanner, digital camera, training module, poster papers, sign pens, white boards, white board markers, offset paper, printing leaflet, booklet, handout etc., microphone, books and literature related to climate change impacts and adaptation in Bangladesh

10. FEEDBACK FORM

Structured feedback form should be used for getting feedback from the trainees.

11. SCHEDULE OF TRAINING PROGRAM

Trainees: Twenty five (25) Sub-Assistant Agriculture Officers of the selected districts

Course Coordinator:

Place: Respective district level station of DAE or Horticulture Center

Duration: Four (4) days

Day	Time	Topics	Facilitators
1st	09.00-09.30	Registration	Training coordinator
	09.30–10.00	Pre- and post-training	Monitoring team
	10.00-11.30	Inaugural session	Chairman and Guests
	11.30-12.00	Tea Break	
	12.00-13.00	Present status of climate change in Bangladesh and its effects on agricultural sectors	1*
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Meteorology and weather forecasting for agriculture	2*
	15.30-16.00	Tea Break	
	16.00-17.00	Livelihood adaptation to climate change in agriculture	3*

Day	Time	Topics	Facilitators
2nd	09.00-09.30	Recapitulate of last day activities	Training coordinator
	09.30-10.30	Water resource management in Bangladesh due to climate change	4*
	10.30-11.00	Tea Break	
	11.00-12.00	Impacts of climate change on specific crops	5*
	12.00-13.00	Pest management strategy for climate change adaptation	6*
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Cropping pattern in flood and drought prone areas of Bangladesh	7*
	15.30-16.00	Tea Break	
	16.00-17.00	Adoption of suitable crop varieties for climate change adaptation in agricultural sector	8*
3rd day	09.00-09.30	Recapitulate of last day activities	Training coordinator
	09.30-10.30	Cultivation and post-harvest management of high value crops for climate change adaptation	9*
	10.30-11.00	Tea Break	
	11.00-12.00	Modern cultivation techniques of different crops in flood and drought prone areas	10*
	12.00-13.00	Advanced rice production technology for vulnerable areas of Bangladesh	11*
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Community seed bed preparation techniques in flood and drought prone areas	12*
	15.30-16.00	Tea Break	
	16.00-17.00	Vegetable production techniques in flood, drought prone areas with special emphasis on year-round vegetable production	13*
4th day	09.00-09.30	Recapitulate of last day activities	Training coordinator
	09.30-10.30	Disaster management in agriculture sector	14*
	10.30-11.00	Tea Break	
	11.00-12.00	Rapid climate change and adaptation	15*
	12.00-13.00	Bottom-up planning for climate change adaptation to reduce losses	Monitoring team and training coordinator
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.00	Post-training test	Monitoring team
	15.00-15.30	Feedback	Monitoring team
	15.30-16.00	Tea Break	
	16.00-17.00	Closing	Chairman and guests

*Facilitators to be selected with consultation with relevant departments. Numbers in the last column indicate Topics Number.

12. IMPLEMENTATION OF THE TRAINING MODULE

Fifteen knowledge and skill areas were proposed for the 4-day training in this module. Detailed course content and delivery procedure will be developed by national, district and upazila level experts from DAE, different universities, research organizations under NARS and other relevant organizations. With these detailed course content and delivery procedure, training will be conducted for SAAOs. Bottom-up planning for climate change adaptation to reduce losses will be done by group discussion under the supervision of monitoring team and training coordinator.

FEEDBACK FORM FOR ASSESSING THE EFFECTIVENESS OF TRAINING

Name of the trainee: Designation:

Address:

Please make your opinion on the following issues:

1. Mention your opinion on the content of the training course:

Excellent (), good (), fair (), poor (), very poor ()

2. Mention the topics which were very relevant to the training course.

3. Mention the topics which were unnecessary for the training course.

4. Mention the topics you prefer most.

5. Mention the topics you don't prefer.

6. Mention the topics which are to be included in the training course.

7. Mention about the duration of the training:

a) Appropriate ()

b) To be increased (), the duration may be ..... days

c) To be decreased (), the duration may be ..... days

8. Mention about the appropriate month of the year for the training.
.....

9. Mention your desire for the frequency of the training in your life

One time (), two times (), three times ()

10. Mention your opinion about the trainers of the training by putting (√) tick mark in the appropriate column.

Sl. No.	Name of the trainers	Degree of fitness of the trainers				
		Excellent	Good	Moderate	Poor	Very poor
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

11. Mention your opinion about the facilities of the training by putting (√) tick mark in the appropriate column

Sl. No.	Items of facilities	Degree of facilities of the training				
		Excellent	Good	Moderate	Poor	Very poor
1.	TA, DA and Honorarium					
2.	Food and lodging					
3.	Use of training materials					
4.	Environment of the training place					
5.	Others (Specify .....)					
6.	Overall					

Signature of Trainee with date:

ANNEX: TRAINING MODULES PRIOR TO PILOT TESTING

Annex I: In-service Training Module for District and Upazila (Sub-District) Agriculture Officers of DAE

1. INTRODUCTION

Department of Agricultural Extension (DAE) is the largest extension provider for the agricultural farming community in Bangladesh. Sub-Assistant Agriculture Officers (SAAOs) are the root level workers of DAE. They work for the betterment of farmers. Rural farmers of Bangladesh are very much shocked by various types of climate change. Farmers of Bangladesh are generally faced water logging, flood, drought, salinity, etc. for their farming activities. As a result, agricultural productivity is reduced. SAAOs are responsible to disseminate agricultural innovations to the farmers to reduce the losses of agricultural productivity. These SAAOs receive training from district and upazila (sub-district) level Officers of DAE.

For the above reasons, it is necessary to provide training to the district and upazila level Officers of DAE so that they can provide training to the SAAOs. On these considerations, "Scientific Capacity Development of Trainers and Policy-Makers for Climate Change Adaptation Planning in Asia and the Pacific" project has taken an initiative to prepare training module for developing capacity of Trainers such as district and upazila level Officers of DAE of Bangladesh. This module can facilitate to train the mid-level (district and upazila) officials such as DD, DTO, CPS, PPS, HS, IS, UAO, AAO and AEOs aiming to introduce them with the concepts of climate change, its impacts on agricultural farming communities and the existing institutional and community based mechanisms for climate change adaptation.

2. TARGET GROUP

Crop Production Specialist (CPS) / Plant Protection Specialist (PPS) / Horticulture Specialist (HS) of district Level and Upazila Agriculture Officer (UAO) / Additional Agriculture Officer (AAO) of Upazila (sub-district) level of DAE from flood and drought prone area

3. ENTRY BEHAVIOUR

Age: 27-59 years

Educational Background: 4 years B. Sc. Ag. (Hons.) Degree from any Agricultural University

Level of knowledge and skill on the training module being conducted: There are limited meteorological courses in B. Sc. Ag. (Hons.) degree in the Agricultural Universities of Bangladesh. So, upazila and district level Agricultural Officers of DAE have little knowledge and skill on climate change adaptation, but they have knowledge and skill on agricultural farming activity.

Expected skill and knowledge levels of the trainer/trainees before entering into the module: In this phase, district and upazila level officials of DAE having at least

5 years working experiences should be selected. National policy level officials of DAE, research organizations and universities and relevant experts will act as facilitators/Trainers for this training.

4. GOAL AND LEARNING OBJECTIVES

GOAL: Capacity building for district and upazila level Officers of DAE as Trainers for climate change adaptation planning

LEARNING OBJECTIVES: After receiving training, the trainees will be able to:

- Update their knowledge on climate change adaptation
- Identify new cropping practices for climate change adaptation
- Create awareness among the SAAOs to minimize agricultural losses
- Create awareness among the SAAOs on climate change adaptation planning
- Provide training to the SAAOs on climate change adaptation

5. IMPLEMENTATION MODALITIES

Number of Batch for training: One (1) batch for piloting

Trainers: This training will be held at Sher-e-Bangla Agricultural University, Dhaka. National policy level officials of DAE, research organizations and universities and relevant experts will act as facilitators/Trainers for this training.

Trainees:

Post and Location of Trainees	No. of Trainees
District level: CPS/PPS/HS of Pabna, Natore, Sirajgonj and Bogra districts	04
Upazila level: Upazila Agriculture Officers/Additional Agriculture Officer of Vangura, Bera, Sathia, Chatmuhor, Atghoria under Pabna district; Bagatipara, Lalpur, Singra, Nondigram under Natore district;Ullapara, Shahzadpur, Tarash, Raigonj, Kazipur under Sirajgonj district; and Sariakandi and Sonatola under Bogra district	16
Total	20

Duration of training: Three (3) days – 11 to 13 November, 2012

Collaboration with other organization: Collaboration is needed for selecting Facilitators/Trainers from DAE, national agricultural research institutes, universities meteorological departments etc.

Facilities available:

- Fund for fixed TA/DA for Trainees and Honorarium for Trainers, Evaluators and Coordinator
- Fund for logistic
- Fund for Opening and Closing session

Facilities required: training equipment such as multimedia projectors with laptop

computer, screen, UPS, sound system, digital camera, printer, scanner and accommodation facilities for trainees.

6 EXPECTED OUTCOMES

After receiving training, the trainees will be able to:

- Explain climate change adaptation and related issues
- Identify new cropping practices for climate change adaptation
- Identify the ways of minimizing agricultural losses
- Plan for climate change adaptation
- Prepare themselves as a climate change adaptation trainers

7. EVALUATION

Pre- and post-training test of the trainees on training contents will be conducted by evaluation team. Mean difference obtained by paired t-test may be the basis of evaluation. Feedback will be taken at the end of the training from the trainees. Evaluation team will be composed of following three members:

- Prof. Dr. Md. Sekender Ali, Sher-e-Bangla Agricultural University – Convener
- Dr. Abul Kalam Azad, CSO, BARC – Member
- Kbd. Md. Fazlul Karim, Rtd. Director (Training), DAE - Member

8. SESSION DETAILS

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
1.	Participants will be able to explain the concept and types of climate change vulnerabilities and its regulatory framework in Bangladesh.	Concept and types of climate change vulnerabilities and its regulatory framework in Bangladesh	Lecturing, showing video, maps and data table followed by discussion	60 min	Maps, data table, DVD, multimedia projector, handout, whiteboard, marker, microphone, etc.	By feedback discussion	Facilitator will explain the concepts and types of climate change vulnerabilities and its regulatory framework in Bangladesh by showing related documents in video, maps and climate related data with the help of a multimedia.
2.	Participants will be able to discuss about the causes of climate change and its physical, socio-economic and emotional impacts on agriculture.	Causes of climate change in Bangladesh and its physical, socio-economic and emotional impacts on agricultural sectors	Lecturing, showing video, maps and data table followed by discussion	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	By feedback discussion	The trainer will show causes of climate change and its physical, socio-economic and emotional impacts on agriculture by pictorial presentation. He will then overview and discuss about the matter.
3.	Participants will be able to explain about agro-climatology and meteorology and climate change implication for agricultural forecasting	Implication of meteorology for agricultural forecasting	Pictorial Presentation followed by discussion	60 min	DVD, multimedia projector, Microphone, handout, whiteboard, marker, etc.	By feedback discussion	The trainer will provide an overview on meteorological implication for agricultural forecasting followed by showing forecasting tools.

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
4.	The trainees will be able to describe water resource management in Bangladesh due to climate change	Water resource management in Bangladesh due to climate change	Lecturing, video show, data presentation and discussion	60 min	multimedia projector, DVD, handout, whiteboard with marker, microphone, poster and flash cards	By feedback discussion	The trainer will discuss water resource management in Bangladesh due to climate change with sharing previous experiences.
5.	The trainees will be able to discuss the suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh.	Suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh	Lecturing, observation, video show followed practicing forecasting	60 min	Meteorological instruments, leaflet, handout, microphone, multimedia projector etc.	By feedback discussion	The trainer will explain the suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh.
6.	Participants will be able to explain the techniques of community seed bed preparation in draught prone areas and floating seed be preparation in flood prone areas.	Community seed bed preparation techniques for flood and drought prone areas of Bangladesh	Lecturing, case study presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia	Feedback discussion	The trainer will explain the importance of community seed bed preparation in draught prone areas and floating seed bed preparation in flood prone areas followed by visual demonstration and sharing of ideas.
7.	Participants will be able to make them aware on livelihood adaptation to climate change in agriculture.	Livelihood adaptation to climate change in agriculture	Lecturing, case study presentation, discussion and sharing of ideas	60 min	Microphone, handout, marker, white board, multimedia projector etc.	Feedback discussion	The trainer will provide an overview on livelihood adaptation to climate change in agriculture followed by discussion and brainstorming.

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
8.	Trainees will be able to discriminate vulnerabilities of male and female due to climate change shocks.	Gender discrimination in climate change shocks	Lecturing followed by discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will show discriminating vulnerabilities by sex due to climate change shocks including some case studies.
9.	Trainees will be able to describe rapid climate change and adaptation	Rapid climate change and adaptation	Presentation, discussion, brainstorming and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain rapid climate change and adaptation with case studies results followed by sharing of ideas.
10.	Participants will be able to list the duties and responsibilities of community based local, upazila, district and national level officials in climate change adaptation.	Duties and responsibilities of community based local, upazila, district and national level officials for climate change adaptation	Presentation, discussion, brainstorming and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will provide an overview on duties and responsibilities of community based local, upazila, district and national level disaster managers After presentation and discuss he will arrange to sharing of ideas with the trainees.
11.	Participants will be able to select training topics on climate change adaptation for SAAOs.	Selection of training topics on CCA for the SAAOs by group discussion method	Group Discussion and sharing of ideas	60 minutes	Paper, Pen, Signature pen etc.	Feedback Observing group discussion	The training coordinator will make groups by the trainees and he will make facilities for group discussion.

9. LIST OF TRAINING MATERIALS

Following materials are required for trainers and trainees for implementing the training:

multimedia projector, projection screen, laptop computers, laser printers, scanner, digital camera, training module, poster papers, sign pens, white boards, white board markers, offset paper, printing leaflet, booklet, handout etc., microphone, books and literature related to climate change impacts and adaptation in Bangladesh.

10. FEEDBACK FORM

Structured feedback form will be used for getting feedback from the trainees.

11. SCHEDULE OF TRAINING PROGRAM

Trainees: Twenty (20) district and upazila (sub-district) level Agriculture Officers of DAE by taking 04 CPS/PPS/HS from Pabna, Natore, Sirajgonj and Bogra districts and 16 UAO/AAO of Vangura, Bera, Sathia, Chatmuhor, Atghoria, Bagatipara, Lalpur, Singrha, Nondigram, Ullapara, Shahzadpur, Tarash, Raigonj, Kazipur, Sariakandi and Sonatolaupazila under these districts.

Course Coordinator: Prof. Dr. Md. Sekender Ali, SAU, Dhaka

Place: Sher-e-Bangla Agricultural University, Dhaka

Duration: 3 days (From 11 to 13 November, 2012)

Day	Time	Topics	Facilitators
1st 11 Nov. 2012	09.00-09.30	Registration	Training coordinator
	09.30–10.00	Pre-training test	Monitoring Team
	10.00-11.30	Inaugural session: Chairman: Pro-VC, SAU; Chief Guest: VC, SAU; Special Guest: Director (Field Service), DAE	
	11.30-12.00	Tea Break	
	12.00-13.00	Concept and types of climate change vulnerabilities and its regulatory framework in Bangladesh	Prof. Dr. Md. Giashuddin Miah, Treasurer, BSMRAU
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Causes of climate change in Bangladesh and its physical, socio-economic and emotional impacts on agricultural sectors	Mr. Md. Forhad Hossain, SAU
	15.30-16.00	Tea Break	
	16.00-17.00	Meteorology and weather forecasting for agriculture	Mr. Md. Shameem Hasan Bhuiyan, Agro-Metrology Division, Dhaka

Day	Time	Topics	Facilitators
2nd 12 Nov. 2012	09.00-09.30	Recapitulate of last day activities	Training coordinator
	09.30-10.30	Water resource management in Bangladesh due to climate change	Prof. A.M.M. Samsuzzaman, SAU, Dhaka
	10.30-11.00	Tea Break	
	11.00-12.00	Suitable cropping pattern and appropriate cultivation techniques of different crops for flood and drought prone areas of Bangladesh	Prof. Dr. Parimal Kanti Biswas, SAU, Dhaka
	12.00-13.00	Community seed bed preparation techniques for flood and drought prone areas of Bangladesh	Dr. Abu Wali Raghib Hassan, DAE
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Livelihood adaptation to climate change in agriculture	Dr. Ragib Hasan, DAE
	15.30-16.00	Tea Break	
	16.00-17.00	Gender discrimination in climate change shocks	Prof. Dr. Md. Sekender Ali, SAU, Dhaka
3rd 13 Nov. 2012	09.00-09.30	Recapitulate of last day activities	Training coordinator
	09.30-10.30	Rapid climate change and adaptation	Mr. Sanjib Kumar Saha, CDMP
	10.30-11.00	Tea Break	
	11.00-12.00	Duties and responsibilities of community based local, upazila, district and national level officials for climate change adaptation	Mr. Sanjib Kumar Saha, CDMP
	12.00-13.00	Selection of training topics on CCA for the SAAOs by group discussion method	Monitoring Team and Training coordinator
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.00	Post-training test	Monitoring Team
	15.00-15.30	Feedback	Monitoring Team
	15.30-16.00	Tea Break	
	16.00-17.00	Closing: Chairman: Treasurer, SAU; Chief Guest: DG, DAE; Special Guest: Director (Training), DAE	

12. IMPLEMENTATION OF THE TRAINING MODULE

Ten knowledge and skill areas are proposed for the 3-day training in this module. Detailed course content and delivery procedure will be developed by national level experts from DAE, different universities, research organizations under NARS and other relevant organizations. With these detailed course content and delivery procedure, training will be conducted at DAE head office or Sher-e-Bangla Agricultural University, Dhakafor the Mid-level (district and upazila) officers of DAE. They will then act as facilitators for the training of SAAOs.

Annex II: In-service Training Module for Sub-Assistant Agriculture Officers of DAE

1. INTRODUCTION

Department of Agricultural Extension (DAE) is the largest extension provider for the agricultural farming community in Bangladesh. Sub-Assistant Agriculture Officers (SAAOs) are the root level workers of DAE. They work for the betterment of farmers. Rural farmers of Bangladesh are very much affected by various types of climate change. Farmers of Bangladesh are generally faced water logging, flood, drought, salinity, etc. for their farming activities. As a result, agricultural productivity is reduced.

SAAOs are responsible to disseminate agricultural innovations to the farmers to reduce the losses of agricultural productivity. For this reasons, it is necessary to provide training to the SAAOs so that they make themselves able to help the farmers to reduce their agricultural losses. SAAOs can further provide training to the farmers as facilitators. On these considerations, "Scientific Capacity Development of Trainers and Policy-Makers for climate change adaptation Planning in Asia and the Pacific" project has taken an initiative to prepare training module for developing capacity of Trainers such as SAAOs of Bangladesh.

This module can facilitate to provide training to the SAAOs at root level aiming to introduce them with the concepts of climate change, its impacts on agricultural farming communities and the existing institutional and community based mechanisms for CCA.

2. TARGET GROUP

SAAOs of DAE from flood and drought prone area

3. ENTRY BEHAVIOUR

Age: 25-59 years

Educational Background: 4 years Agricultural Diploma from Agricultural Training Institute (ATI) after passing 10 years Secondary School Certificate examination

Level of knowledge and skill on the training module being conducted: The SAAOs have little knowledge and skill on CCA and have good knowledge and skill on agriculture in general.

Expected skill and knowledge levels of the trainer/trainees before entering into the module: SAAOs of DAE will be the main trainers to provide training to the farmers. First, the SAAOs should be trained by the upazila (sub-district) and district Level officials having at least Bachelor of Agricultural Science (B.Sc. Ag.) degree. At this stage, SAAOs having working experience of at least 5 years should be selected. When the SAAOs will act as trainers to train the farmers, the module should be translated into Bengali.

4. GOAL AND LEARNING OBJECTIVES

GOAL: Capacity building for SAAOs as Trainers for climate change adaptation planning

LEARNING OBJECTIVES: After receiving training, the SAAOs will be able to:

- Explain various concepts of climate change adaptation (CCA)
- Identify new cropping practices for CCA
- Create awareness among the farmers to minimize their agricultural losses
- Create awareness among the rural poor on CCA planning
- Provide training to the rural poor on CCA

5. IMPLEMENTATION MODALITIES

Number of Batch for training: One (1) Batch for piloting

Trainers: Kbd. Md. Roushon Alam, UAO, Chatmohor, Pabna; Kbd. Subrata Kumar Sarker, UAO, Singra, Natore; Kbd. Md. Arshed Ali, PPS, Sirajgonj, Kbd. Md. Abdullah Al Mahmud, AEO, Bagatipara, Natore; Kbd. Md. Mizanur Rahman, UAO, Tarash, Sirajgonj; Kbd. S.M. Mostafizur Rahman, CPS, Natore; Kbd. Md. Zulfiquer Haider, CPS, Pabna; Kbd. Sontosh Chandra Chanda, UAO, Kazipur, Sirajginj and Mr. Md. Shameem Hasan Bhuiyan, Agro Met Division, Dhaka

Trainees: Twenty (20) SAAOs from flood and drought prone areas such as Bagatipara, Lalpur and Singra under Natoredistrict; Ullapara, Shahzadpur, Tarash, Raigonj, Kazipur and Sadar under Sirajgonjdistrict; Sariakandi, Sonatola and Nandigram under Bogradistrict; and Vangura, Bera, Sathia, Chatmuhor, Atghoria, Sadar and Tebunia Horticulture Center under Pabna district.

Duration of training: Three (3) days: 28 - 30 December, 2012

Collaboration with other organization: The training will be conducted at Horticulture Center, Tebunia, Pabna. Facilitators will be selected from previously trained Personnel. Cooperation may be needed from nearer stations of agricultural research institutes and universities, Directorate of Livestock Services (DLS), Directorate of Fisheries (DOF), Meteorological Departments etc.

Facilities available: Fixed fund for TA/DA for Trainees and Honorarium for Trainers, Evaluators and Coordinator, funds for logistics, funds for Opening and Closing sessions.

Facilities required: Training equipment such as multimedia projectors with laptop computer, screen, UPS, high capacity sound system, digital camera, printer, scanner and accommodation facilities for Trainees and Trainers and Evaluators.

6 EXPECTED OUTCOMES

After receiving training, the trainees will be able to:

- Explain CCA and related issues
- Identify new cropping practices for CCA
- Identify the ways of minimizing agricultural losses
- Plan for CCA
- Acquire skills and knowledge to be a CCA trainers

7. EVALUATION

Pre-training and post-training test of the trainees on training contents will be conducted by evaluation team. Mean difference obtained by paired t-test may be the basis of evaluation. Feedback will be taken at the end of the training from the trainees. Evaluation team will be composed of following three members: Prof. Dr. Md. Sekender Ali, Sher-e-Bangla Agricultural University – Convener; Dr. Abul Kalam Azad, CSO, BARC – Member; and Kbd. Md. Fazlul Karim, Rtd. Director (Training), DAE – Member.

8. SESSION DETAILS

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
1	Participants will be able to explain the present status of climate change in Bangladesh and its effects on agricultural sectors.	Present status of climate change in Bangladesh and its effects on agricultural sectors	Lecturing, showing video maps and data table followed by discussion	60 min	Maps, data table, DVD, multimedia projector, handout, whiteboard, marker, microphone, etc.	By feedback discussion	Facilitator will explain the present status of climate change in Bangladesh and its effects on agricultural sectors by showing related documents in video, maps and climate related data with the help of a multimedia. Then he will discuss the matter with the participants.
2	Participants will be able to explain about agro-climatology and meteorology and climate change implication for agricultural forecasting.	Implication of meteorology for agricultural forecasting	Lecturing, video show, data presentation and discussion	60 min	multimedia projector, DVD, handout, microphone, poster and flash cards	By feedback discussion	The trainer will provide an overview on meteorological implication for agricultural forecasting followed by showing forecasting tools.
3	Participants will be able to make themselves aware on livelihood adaptation to climate change in agriculture.	Livelihood adaptation to climate change in agriculture	Lecturing, observation, video show followed practicing forecasting	60 min	Meteorological instruments, leaflet, handout, microphone, multimedia projector etc.	By feedback discussion	The trainer will provide an overview on livelihood adaptation to climate change in agriculture. After presentation and discuss he will arrange brainstorming for livelihood adaptation to climate change in agriculture.
4	The trainees will be able to describe water resource management in Bangladesh due to climate change.	Water resource management in Bangladesh due to climate change	Lecturing, case study presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia	Feedback discussion	The trainer will discuss water resource management in Bangladesh due to climate change with sharing previous experiences.

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
5	The trainees will be able to discuss the cropping pattern in flood and drought prone areas of Bangladesh.	Cropping pattern in flood and drought prone areas of Bangladesh	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, marker, whiteboard, multimedia projector etc.	Feedback discussion	The trainer will explain the cropping pattern in flood and drought prone areas of Bangladesh.
6	Participants will be able to explain about modern cultivation techniques of different crops in saline, flood and drought prone areas.	Modern cultivation techniques of different crops in flood and drought prone areas	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will provide an overview the modern cultivation techniques of different crops in saline, flood and drought prone areas. After presentation and discuss he will arrange sharing of ideas with the trainees.
7	Participants will be able to explain about advanced rice production Technology for vulnerable areas of Bangladesh.	Advanced rice production technology for vulnerable areas of Bangladesh	Presentation, discussion, brainstorming and sharing of ideas	60 min	Microphone, handout, multimedia projector etc.	Feedback discussion	The trainer will explain advanced rice production technology for vulnerable areas of Bangladesh followed by discussion and sharing of ideas.
8	Participants will be able to explain the techniques of community seed bed preparation in flood and drought prone areas.	Community seed bed preparation techniques in flood and drought prone areas	Presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain the importance of floating seed bed preparation for flood prone areas community seed bed preparation for drought prone areas followed by visual demonstration, discussion and sharing of ideas.

SN.	Enabling objectives	Contents	Methods / Activities	Duration (min./ hr.)	Resources used	Methods of learning evaluation	Note by module designer
9	Participants will be able to describe the techniques of vegetable, specially year-round vegetable production in saline, flood, drought prone areas	Vegetable production techniques in flood, drought prone areas with special emphasis on year-round vegetable production	Presentation, discussion and sharing of ideas	60 min	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will demonstrate the techniques of vegetable, especially year-round vegetable production in saline, flood, and drought prone areas by using multimedia.
10	Trainees will be able to describe rapid climate change and adaptation to the same	Rapid climate change and adaptation	Presentation, visual demonstration, discussion and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The trainer will explain rapid climate change and adaptation with case studies results followed by sharing of ideas.
11	Participants will be able to prepare production plan to reduce climate change losses	Bottom-up planning for climate change adaptation to reduce losses	Presentation, visual demonstration, discussion and sharing of ideas	60 minutes	Microphone, handout, whiteboard, marker, multimedia projector etc.	Feedback discussion	The facilitators will help the trainees to prepare future production plan to reduce climate change losses. Prepared plan will be present by group leaders. Combined plan will then be prepared.

9. LIST OF TRAINING MATERIALS

Following materials are required for trainers and trainees for implementing the training:

multimedia projector, projection screen, laptop computers, laser printers, scanner, digital camera, training module, poster papers, sign pens, white boards, white board markers, offset paper, printing leaflet, booklet, handout etc., micro-phone, books and literature related to climate change impacts and adaptation in Bangladesh

10. FEEDBACK FORM

Structured feedback form will be used for getting feedback from the trainees.

11. SCHEDULE OF TRAINING PROGRAM

Trainees: Twenty (20) Sub-Assistant Agriculture Officers of the selected districts

Course Coordinator: Prof. Dr. Md. Sekender Ali, SAU, Dhaka

Place: Horticulture Center, Tebunia, Pabna

Duration: 3 days (From 28 to 30 December, 2012)

Day	Time	Topics	Facilitators
28 Dec 2012	09.00-09.30	Registration	Training coordinator
	09.30–10.00	Pre-training test	Monitoring Team
	10.00-11.30	Inaugural session: Chairman: Horticulturist, Tebunia Hort. Center Guests: VC, SAU and/or DG/Director/AD/DD, DAE	
	11.30-12.00	Tea Break	
	12.00-13.00	Present status of climate change in Bangladesh and its effects on agricultural sectors	Kbd. Md. Roushon Alam, UAO, Chatmohor, Pabna
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Meteorology and weather forecast-ing for agriculture	Mr. Md. Shameem Hasan Bhuiyan, Agro Met Divi-sion, Dhaka
	15.30-16.00	Tea Break	
	16.00-17.00	Livelihood adaptation to climate change in agriculture	Kbd. Subrata Kumar Sark-er, UAO, Singra, Natore

Day	Time	Topics	Facilitators
29 Dec 2012	09.00-09.30	Recapitulate of last day activities	Training Coordinator
	09.30-10.30	Water resource management in Bangladesh due to climate change	Kbd. Md. Arshed Ali PPS, Sirajgonj
	10.30-11.00	Tea Break	
	11.00-12.00	Cropping pattern in flood and drought prone areas of Bangladesh	Kbd. Md. Abdullah Al Mahmud, AEO, Bagatipara, Natore
	12.00-13.00	Modern cultivation techniques of different crops in flood and drought prone areas	Kbd. Md. Mizanur Rahman UAO, Tarash, Sirajgonj
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.30	Advanced rice production technology for vulnerable areas of Bangladesh	Kbd. S.M. Mostafizur Rahman, CPS, Natore
	15.30-16.00	Tea Break	
	16.00-17.00	Community seed bed preparation techniques in flood and drought prone areas	Kbd. Md. Zulfiquer Haider, CPS, Pabna
30 Dec 2012	09.00-09.30	Recapitulate of last day activities	Training coordinator
	09.30-10.30	Vegetable production techniques in flood, drought prone areas with special emphasis on year-round vegetable production	Kbd. Sontosh Chandra Chanda, UAO, Kazipur, Sirajginj
	10.30-11.00	Tea Break	
	11.00-12.00	Rapid climate change and adaptation	Mr. Md. Shameem Hasan Bhuiyan, Agro Met Division, Dhaka
	12.00-13.00	Bottom-up planning for climate change adaptation to reduce losses	Monitoring Team and Training Coordinator
	13.00-14.30	Lunch and Prayer Break	
	14.30-15.00	Post-training test	Monitoring team
	15.00-15.30	Feedback	Monitoring team
	15.30-16.00	Tea Break	
	16.00-17.00	Closing: Chairman: Horticulturist, Tebunia Hort. Center Guests: VC, SAU and/or DG/Director/AD/DD, DAE	

12. IMPLEMENTATION OF THE TRAINING MODULE

Ten knowledge and skill areas are proposed for the 3-day training in this module. Detailed course content and delivery procedure will be developed by the selected Trainers which will be supplied to the trainees. With these detailed course content and delivery procedure, training will be conducted for SAAOs.

Annexure III: Feedback Form for assessing the effectiveness of training

Name of the trainee:

Designation:

Address:

Please make your opinion on the following issues:

1. Mention your opinion on the content of the training course:

Excellent (), good (), fair (), poor (), very poor ()

2. Mention the topics which were very relevant to the training course.

3. Mention the topics which were unnecessary for the training course.

4. Mention the topics you prefer most.

5. Mention the topics you don't prefer.

6. Mention the topics which are to be included in the training course.

7. Mention about the duration of the training

a) Appropriate ()

b) To be increased (), the duration may be ..... days

c) To be decreased (), the duration may be ..... days

8. Mention about the appropriate month of the year for the training.
.....

9. Mention your desire for the frequency of the training in your life

One time (), two times (), three times ()

10. Mention your opinion about the trainers of the training by putting (√) tick mark in the appropriate column.

Sl. No.	Name of the trainers	Degree of fitness of the trainers				
		Excellent	Good	Moderate	Poor	Very poor
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

11. Mention your opinion about the facilities of the training by putting (√) tick mark in the appropriate column.

Sl. No.	Items of facilities	Degree of fitness of the trainers				
		Excellent	Good	Moderate	Poor	Very poor
1.	TA, DA and honorarium					
2.	Food and lodging					
3.	Use of training materials					
4.	Environment of the training place					
5.	Others (Specify .....)					
6.						

Signature of trainee with date:

Asia Pacific Adaptation Network (APAN)
IGES Bangkok Regional Centre
604 SG Tower, 6th floor
161/1 Soi Mahadlek Luang 3,
Ratchadamri Road, Pathumwan,
Bangkok 10330, Thailand
Tel: +66 (0)2 651 8794-99
Fax: +66 (0)2 651 8798
e-mail: info@asiapacificadapt.net
Website: www.asiapacificadapt.net