Good Seed Initiative (GSI) in South Asia

Survey Report:
Assessment on Additional Impact of Video Show
On
Rice Seed Post Harvest Practices

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Summary

Sustaining food grain self-sufficiency and food security for the foreseeable future, will be the major objective of Bangladesh's national food policy. In this regard, the availability of quality rice seed will inevitably play a vital role. At present, the country requires a total of 4,00,000 MT of rice seeds, against which only about 12,348 MT (2000-1) is supplied by BADC as improved seed through the formal distribution system. Formal seed system including BADC's and private seed sector's contribution is only 5% of the total requirement. The remaining 95% of its rice seed requirement, which often is not of good quality, comes through a "farmer's retained and farmer-to-farmer seed exchange" channel. Accordingly, there is a tremendous scope to improve the availability of quality rice seed to the nation's farmers. Based on our extensive field level experience with a variety of rice seed production and distribution systems in Bangladesh, we know that the best rice seed systems are centered on the needs of small farmers and that substantial improvements in seed quality will result in rapidly improving livelihoods for the rural poor who are within the command area of such a system.

The "Good Seed Initiative" intends to communicate new ideas and activities that will encourage farmer to farmer networking and sharing of concepts that identify the common interests and common knowledge needed to facilitate their interactions. The focus of GSI is on participatory learning and farmer-centered-seed systems. The activities proposed for South Asia will build on the capacities, networks and experiences of CABI, UK and their partner organizations in Bangladesh. The participatory assessment on additional impact of video show on rice post harvest practices after one full cropping cycle is an important follow-up activity of the its phase-II of GSi project in Bangladesh.

Accordingly, a study was conducted (i) To assess the improvement of farmers' practice on manual rice seed sorting; (ii) To assess the improvement of farmers' practice on rice seed floatation for quality rice seed selection; (iii) To assess the improvement of farmers' practice on rice seed drying; and (iv) To assess the improvement of farmers' practice on rice seed storage methods.

Accordingly, the farmers' participatory additional impact survey was conducted in 8 villages of 5 upazilas under the 4 districts in Northeast, Northwest and Southwest regions of Bangladesh. Out of 4 districts, 2 districts were from Northeast, 1 from each of Northwest and Southwest regions. Out of 5 upazilas, 2, 2 and 1 upazilas were from Northeast, Northwest and Southwest regions respectively. The additional impact survey was conducted at 8 villages, of which 3 villages were in each of Northeast and Southwest regions and 2 villages were in Southwest regions. The survey was conducted in selected 8 villages to assess the impact of video shows, the study was designed to use how much additional impact was achieved among the participants at each community of the 8 project villages in 4 districts of three regions.

Individual interviews for additional impact on rice seed post harvest practices were conducted in 8 villages in three regions with 200 female farmers in a given set of structured questionnaires during July-September 2006 after harvesting Boro-T. Aman cropping-cycle. Individual interviews were conducted by the project staffs and staffs from POs as per guidelines provided by the coordinator, GSI, South Asia. The collected data/information regarding rice post harvest practices was compiled in tabular form. The results were further summarized for easier interpretation of the findings.

Quality seed is the most important factor in rice production. In order to facilitate the use of quality seed at the farm level; the project undertook to promote manual rice seed sorting, rice seed floatation, rice seed drying, and secure rice seed storage practices. Many of these practices were introduced to female farmers through video shows organized at the15 target villages in the three regions during the 2005 T. Aman cropping season and follow-up rice cropping seasons. Accordingly, the additional impact study was conducted to assess the impact of the video shows on rice post harvest practices at 8 project villages in 3 regions.

About 10% female farmers are presently using the new seed sorting practices; it is, nevertheless, more that might catch on with the passage of time. Presently about 66% of the project female farmers are found to practice manual seed sorting for non-rice seed. Such large number of female farmers is practiced manual seed sorting with various non-rice crop varieties. About 39% non-project female farmers were found to practice the manual seed sorting through learning from project farmers. About 6% farmers were found to sell/exchange their manually sorted seed in the study areas.

Presently, about 5% female farmers are practiced rice seed floatation with "salt/urea water" method. None was found using the normal water method after video show. They learned that the normal water method is not as effective as the "salt water" or "urea water" method of rice seed floatation.

After the video a significantly less number of farmers were found using ground for drying of rice seed, as they believe it is not an effective practice. Majority of the female farmers are now practicing mat (49%) followed by Bamboo mat (23%), gunny bag (22%) and straw up (1%) methods for drying rice seeds. After the video all trained and motivated female farmers are now testing the rice seed dryness for storage by teeth bite.

Large changes were noticed in seed storing methods after the video show. Majority of the female farmers are now storing their rice seed in Poly bag with Gunny bag (58%). The maximal of the female farmers are now keeping their seed containers on Machan (84%), Brick (12%)and wooden box (3%). About 68% female farmers are now using preservative materials for storing their rice seed, of which 50% was with Neem leaves and 18% was with Naphthalene. After video show the female farmers were learned lot the importance of Neem leaves as well as Naphthalene for better preservation of rice seed. About 65% of the neighbor female farmers were found to use improved storage method for storing rice seed through practical learning from GSI project trained female farmers in the eight surveyed communities.

Introduction

It is well accepted that “seed” is the single most important input in any plant–based agricultural production system. Seed quality determines the upper limits of crop yield potential and therefore the productivity of all other inputs is constrained by the viability of the seed ingredient. Accordingly, improved seed can frequently make a substantial, incremental contribution to overall agricultural productivity; doing so at relatively little incremental cost.

Sustaining food grain self-sufficiency and food security for the foreseeable future, will be the major objective of Bangladesh's national food policy. In this regard, the availability of quality rice seed will inevitably play a vital role. At present, the country requires a total of 4,00,000 MT of rice seeds, against which only about 12,348 MT (2000-1) is supplied by BADC as improved seed through the formal distribution system. Formal seed system including BADC's and private seed sector's contribution is only 5% of the total requirement. The remaining 95% of its rice seed requirement, which often is not of good quality, comes through a "farmer's retained and farmer-to-farmer seed exchange" channel. Accordingly, there is a tremendous scope to improve the availability of quality rice seed to the nation's farmers. The most expedient way to assure sustainable flows of quality rice seed is through an enhanced system of farmer to farmer seed exchange; otherwise known as FARMSEED. The quality of rice seed can be further enhanced through developing rice-seed-technology skills of farmers, special emphasis should be given to the enhancement of the rice seed requirements of resource poor farmers.

Based on our extensive field level experience with a variety of rice seed production and distribution systems in Bangladesh, we know that the best rice seed systems are centered on the needs of small farmers and that substantial improvements in seed quality will result in rapidly improving livelihoods for the rural poor who are within the command area of such a system.

Participatory learning processes and local action research (LAR) can greatly accelerate a farmer's willingness to take up new ways of producing, processing, storing, and distributing/procuring quality rice seed. Farmers are fully aware of the benefits of quality seed. They simply lack access to such seed. That is the problem. Farmer awareness of good seed practices and the value attached to good seed can catalyze the development of local seed production and trading infrastructures. Such infrastructures support a stronger interaction between the informal and formal seed sectors; an interaction that draws on and enhances their comparative strengths. In the process, smallholder farmers are empowered to judge for themselves the quality of the various crop seed varieties on offer.

The practical implementation of the "Good Seed Initiative" (GSI) begins in the local context with the relevant stakeholders who have a vested interest in quality rice seed. The intension of GSI is to establish a region-wise, sharing and learning process on farmer-led informal seed supply system of various crops throughout the country. Swiss Development Cooperation (SDC) funded and coordinated CABI, UK's efforts to facilitate GSI activities globally and to initiate pilot activities at the national level in Bangladesh from 2005. This was intended to communicate GSI ideas and activities, to encourage networking and sharing of concepts, identify common interests, and knowledge and facilitate building a basis for action on farmer-led informal seed supply system for various crops including vegetables. The focus of GSI is on participatory learning and farmer-centered-seed systems, the activities proposed for South Asia will build on

the capacities, networks and experiences of CABI, UK and their partner organizations in Bangladesh.

The participatory assessment on additional impact of video show on rice post harvest practices after one full rice cropping cycle is an important follow-up activity of the its phase-II of GSi project in Bangladesh.

Purpose

To assess additional impact of video show on rice post harvest practices through a participatory survey in three regions.

Objectives

(i) To assess the improvement of farmers' practice on manual rice seed sorting;

(ii) To assess the improvement of farmers' practice on rice seed floatation for quality rice seed selection;

(iii) To assess the improvement of farmers' practice on rice seed drying;and

(iv) To assess the improvement of farmers' practice on rice seed storage methods.

Methodology

Survey sites and partners

Accordingly, the farmers' participatory additional impact survey was conducted in 8 villages of 5 upazilas under the 4 districts in Northeast, Northwest and Southwest regions of Bangladesh. Out of 4 districts, 2 districts were from Northeast, 1 from each of Northwest and Southwest regions. Out of 5 upazilas, 2, 2 and 1 upazilas were from Northeast, Northwest and Southwest regions respectively. The additional impact survey was conducted at 8 villages, of which 3 villages were in each of Northeast and Southwest regions and 2 villages were in Southwest regions. During selection of each village from 15 project villages, the pre-decided a set of criteria was followed by the project staffs and the staff of Partner Organizations (POs). Additional impact survey was conducted in selected 8 villages to assess the impact of video shows, the study was designed to use how much additional impact was achieved among the participants at each community of the 8 project villages in 4 districts of three regions. The project locations are show in the map (Fig 1). Region wise districts, upazilas and villages are provided in the following Table 1:

Table 1: Survey Locations in 3 regions

Region	District	Upazila	Village	Respondent: Female farmers (Nr)
Northeast	Moulvibazar	Srimangal	North Kalapur	25
	Habiganj	Chunarughat	Paikpara	25
			Tarashul	25
Northwest	Natore	Baraigram	Goalpha	25
			Rathuria	25
		Gurudashpur	Sadhupara	25
Southwest	Jhenaidah	Sadar	Paka	25
			Kastosagra	25
Total				**200**

A total of 9 members of the AAS partnership network were involved in conducting the additional impact survey in three working regions, of which 4, 4 and 1 partner organizations (POs) were from the Northeast, Northwest and Southwest regions respectively. A region wise list of POs is given in following Table 2:

Table 2: Region wise list of involved partner organizations (POs)

Region	Partner Organizations (POs)	#
Northeast	PSUS, SABA, BASA, Mac-Bangladesh	4
Northwest	KGUK, EKK, BESASH, BOSS	4
Southwest	Chetona	1
	Total	**9**

Individual interviews

Individual interviews for additional impact on rice seed post harvest practices were conducted in 8 villages in three regions with 200 female farmers in a given set of structured questionnaires during July-September 2006 after harvesting Boro-T. Aman cropping-cycle. This set of structured questionnaires was developed in the planning workshop GSI at seed health lab, RDA, Bogra during 9-10 December 2006. Individual interviews were conducted by the project staffs and staffs from POs as per guidelines provided by the coordinator, GSI, South Asia.

Data analysis and compilation

The collected data/information regarding rice post harvest practices was compiled in tabular form. The results were further summarized for easier interpretation of the findings.

Key moments

During individual interviews, the enumerators collected farmers' innovative knowledge and methods for rice seed post harvest practice on the basis of their comments/suggestions at key moments. Such farmers' knowledge and practices were collected during the individual interviews in each village. The list and brief description of the farmers' innovative knowledge and practices once documented, was submitted to the coordinator, GSI, South Asia.

Limitations

1. Most of the female respondents were reluctant to spend time with project assigned interviewers in three regions. This is because, as members (both male & female) of resource poor farm families, they are always busy with their daily workload and have little time for idle chit-chat that yields no immediate output.

2. The members of some groups asked for compensation for their time spared for the survey. But this was avoided through various means and motivation from the project staffs and staffs from POs.

Findings

Quality seed is the most important factor in rice production. In order to facilitate the use of quality seed at the farm level; the project undertook to promote manual rice seed sorting, rice seed floatation, rice seed drying, and secure rice seed storage practices. Many of these practices were introduced to female farmers through video shows organized at the15 target villages in the three regions during the 2005 T. Aman cropping season and follow-up rice cropping seasons. Accordingly, the additional impact study was conducted to assess the impact of the video shows on rice post harvest practices at 8 project villages in Northeast, Northwest and Southwest regions of Bangladesh. The compiled additional impacts on rice post harvest practices are provided in Annex I.

The following section presents the overall results, based on the survey and its consolidated data regarding the impacts made on the practice of female farmers after the videos emphasizing those particular rice post harvest practices were shown.

Impact on rice seed sorting

Practice on manual rice seed sorting: Before video shows, female farmers generally were not practicing "manual rice seed sorting". After the videos, however, there were only about 1% female farmers to practice "manual seed sorting". While about 10% female farmers are presently using the new seed sorting practices; it is, nevertheless, more that might catch on with the passage of time. The change on the practices of manual rice seed sorting is shown in the following Table 3:

Table 3: Change of farmers' practices on manual rice seed sorting

Practices of manual seed sorting (%)		
Pre-Intervention (Pre-Intv.)	**Post-Intervention (Post-Intv.)**	**Additional Impact Assessment (AIA)**
0	1	10

Practice on manual seed sorting for non-rice: Presently about 66% of the project female farmers are found to practice manual seed sorting for non-rice seed (Table 4). Such large number of female farmers is practiced manual seed sorting with various non-rice crop varieties. This might be due to handling of small quantity of seeds of various non-rice crops. They might have been practicing such manual seed sorting practice with non-rice crops since long time.

Table 4: Farmers' practice on manual seed sorting for non-rice crops

Practices of manual seed sorting for non-rice crops (%)		
Pre-Intv.	**Post-Intv.**	**AIA**
NA	NA	66

NA= Not Applicable

Adoption of manual seed sorting: About 39% non-project female farmers were found to practice the manual seed sorting through learning from project farmers (Table 5).

Table 5: Non-project farmers' practice manual seed sorting

Adoption of manual seed sorting (%)		
Pre-Intv.	**Post-Intv.**	**AIA**
NA	NA	39

Sell/exchange of manually sorted seed: About 6% farmers were found to sell/exchange their manually sorted seed in the study areas (Table 6).

Table 6: Status of sell/exchange of manually sorted seed

Intervention	Sell/exchange of manually sorted seed (%)
Pre	NA
Post	NA
AIA	6

Impacts on rice seed floatation

Among the practices before video shows, 15% of the female farmers used normal water for rice seed floatation, but after the video only a single percent of farmers were found using the salt water method. Presently, about 5% female farmers are practiced rice seed floatation with "salt/urea water" method. None was found using the normal water method after video show. They learned that the normal water method is not as effective as the "salt water" or "urea water" method of rice seed floatation. Farmers' practice on rice seed floatation with normal water and salt/urea water solution provided in the following Table 7:

Table 7: Practice on rice seed floatation with normal water, salt/urea solution

Type of Water	Pre-Intv.	Post-Intv.	AIA
Normal water (%)	15	0	0
Salt/urea water (%)	0	1	5

Impact on rice seed drying

Rice seed drying method: Nevertheless, large changes were noticed in the practices on rice seed drying methods. Before videos, the highest number of farmer's was found to drying the rice seed on the ground (71%) followed in order by Mat (24) and Bamboo mat (7%). After the video a significantly less number of farmers were found using ground for drying of rice seed, as they believe it is not an effective practice. Thus, immediate after video shows, the largest female farmers was found to practice mat (58%) followed by Bamboo mat (36%). As alternatives majority of the female farmers are now practicing mat (49%) followed by Bamboo mat (23%), gunny bag (22%) and straw up (1%) methods for drying rice seeds. Changes in practices on rice seed drying methods for storage of rice seed is given in the following Table 8:

Table 8: Changes in practices on rice seed drying methods

Intervention	Farmers' practices on seed drying methods (%)					
	Ground	Mat	Bamboo Mat	Gunny Bag	Straw-up	Table
Pre	71	24	7	-	-	-
Post	5	58	36	-	-	-
AIA	5	49	23	22	1	-

Rice seed dryness test: Before video shows, the highest number of farmers was found to test the rice seed dryness by teeth bite (83%) followed by hand pressure (12%) and finger pressure cum ear test (2%). After the video all trained and motivated female farmers are now testing the rice seed dryness for storage by teeth bite. Farmers' innovative methods for testing the rice seed dryness are provided in the following Table 9:

Table 9: Methods of rice seed dryness testing

Intervention	Farmers' practices on rice seed dryness testing (%)		
	Teeth bite	Hand pressure	Finger pressure cum ear test
Pre	83	12	2
Post	99	00	1
AIA	100	-	-

[1] 3 respondents were not sure

Impact on rice seed storing

Rice seed storage methods: Large changes were noticed in seed storing methods after the video show. Before video shows majority of the female farmers were found to store their seed in Motka (28%), Gunny bag (27%) and Poly bag (24%) along with 9 traditional storage methods. Immediately after video the largest number of female farmers were found to store their rice seed in Poly bag (56%). As alternatives majority of the female farmers are now storing their rice seed in Poly bag with Gunny bag (58%). No change was noticed in storing rice seed in Metallic drum (7%). The changes on farmers' practices on the rice seed storing methods (Containers) are provided in the following Table 10:

Table10: Farmers' practices on rice seed storing methods

Method	Intervention (%)		
	Pre-Intv.	Post-Intv.	AIA
1. Poly bag in Gunny bag	NA	NA	58
2. Gunny bag	27	13	7
3. Painted Earthen Pot	0	3	7
4. Motka	28	11	3
5. Plastic drum	1	1	7
6. Bamboo made dol	3	2	7
7. Khutir			3
8. Metalic drum	7	7	7
9. Murir tin	2	2	4
10. Earthen pot	9	6	NA
11. Poly bag	24	56	NA
12. Can pot	1	1	NA

Placement of seed storage containers: Farmers generally knew, even before video show that it is important to keep seeds and seed storage containers high above the floor, and thus keep them away from ground moisture. Thus, before and immediately after video show all female farmers were found to keep their seed containers high above the floor. The majority of the

female farmers are now keeping their seed containers on Machan (84%), Brick (12%)and wooden box (3%). The changes on the placement of the rice seed storage containers is provided in the following Table 11:

Table11: Changes on placement of rice seed storage containers

Intervention	Placement of seed storage containers (%)				
	Floor	Machan	Brick	Wooden Box	High-up
Pre	00	-	-	-	100[1]
Post	00	-	-	-	100[1]
AIA	00	84	13	3	-

[1] High-up placement of storage containers

Preservative materials for rice seed storage: Before, video shows, only about 5% female farmers were found to use traditional preservative materials (neem and mango leaves) for preservation of rice seed. Immediate after video show, about 33% female farmers was found to use preservative materials for storing their rice seed, of which 29% was Neem leaves. About 68% female farmers are now using preservative materials for storing their rice seed, of which 50% was with Neem leaves and 18% was with Naphthalene. After video show the female farmers were learned lot the importance of Neem leaves as well as Naphthalene for better preservation rice seed. The changes on preservative materials used in storing the rice seed are provided in the following Table 12:

Table12: Trends of preservative materials used in rice seed storage.

Intervention	Use of preservative materials (%)
Pre	5% = Neem leaves (4%) and mango leaves (1%)
Post	33% = Neem leaves (29%), Bish Katali (2%), Naphthalene (1%) and Mango leaves (1%)
AIA	68% = Neem leaves (50%) and Naphthalene (18%)

Adoption of improved storage of rice seed: During additional impact assessment, about 65% of the neighbor female farmers were found to use improved storage method for storing rice seed through practical learning from GSI project trained female farmers in the eight surveyed communities (Table 13).

Table13: Users of improved storage methods of rice seed

Intervention	Users (%)
Pre	NA
Post	NA
AIA	65

Conclusion

Based on the overall result presented above it was evident that the video show has been very effective in bringing positive changes in practices of various rice seed post harvest activities. The video presentations were highly effective on rice seed post harvest practice. Nevertheless, the recommended practices were so compelling that they were a sufficient motivation to dramatically change the prevailing traditional practices. This was especially the case in the critical seed selection areas of rice seed sorting and rice seed floatation.

The greatest changes were noted in the way female farmers dried and stored their rice seeds after seeing the video shows. Among the four important rice post harvest practices, the video shows were found to be effective in changing the participating and non-participating female farmers' practice in the areas of seed drying and storing.

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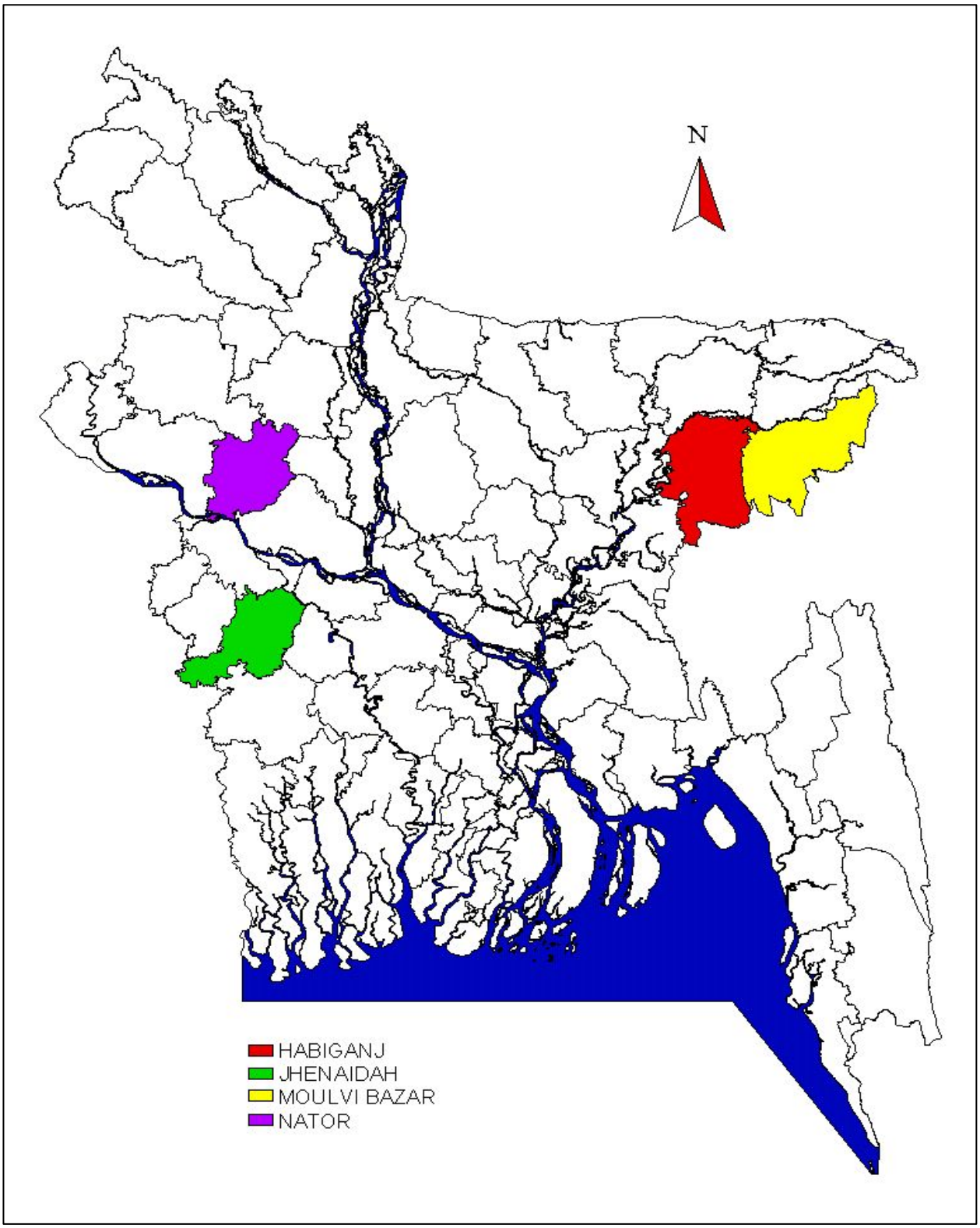
Recommendation

Farmer's demand-led video show can be arranged on sustainable "rice seed technology" at community through using group approach with cost sharing basis to improve knowledge, attitude and practice (KAP) on rice seed technology of the farmers in Bangladesh. The content of the rice seed technology video should be regularly revisited and updated as farmers' need for information evolves through time.

The similar impacts assessment can be conducted on future video shows through using participatory approach such as focus group discussion (FGD) instead of formal survey with structured questionnaire for individual interviews.

Fig.1: Location Map



Annex. I: Additional Impact Assessment of Video Show

I. a: Farmer's practice on manual seed sorting

Region	Farmers' response (%)		
	Positive	**Negative**	**Not sure**
NE	11	89	0
NW	7	93	0
SW	12	88	0
Average	**10**	**90**	**0**

NE = Northeast, **NW =** Northwest and **SW =** Southwest

I. b: Farmer's practice on manual seed sorting other than rice seed

Region	Farmers' response (%)		
	Positive	**Negative**	**Not sure**
NE	70	30	0
NW	51	49	0
SW	77	23	0
Average	**66**	**34**	**0**

I. c: Non project farmer's practice on the manual seed sorting through learning from project farmers

Region	Farmers' response (%)		
	Positive	**Negative**	**Not sure**
NE	29	71	0
NW	45	55	0
SW	44	56	0
Average	**39**	**61**	**0**

I. d: Status of sell/exchange of manually sorted seed

Region	Farmers' response (%)		
	Positive	**Negative**	**Not sure**
NE	4	96	0
NW	4	96	0
SW	9	91	0
Average	**6**	**94**	**0**

I. e: Farmer's practice on rice seed floatation with salt/urea water solution

Region	Farmers' response (%)		
	Positive	Negative	Not sure
NE	8	92	0
NW	5	95	0
SW	3	97	0
Average	**5**	**95**	**0**

I. f: Farmers' practices on rice seed drying methods

Region	Farmers' response (%)				
	Ground	Mat	Bamboo mat	Straw up	Gunny bag
NE	6	12	50	-	32
NW	4	64	9	4	19
SW	4	72	9		15
Average	**5**	**49**	**23**	**1**	**22**

I. g: Farmers' methods for testing the rice seed dryness (moisture content)

Region	Farmers' response (%)		
	Positive	Negative	Not sure
NE	100	0	0
NW	100	0	0
SW	100	0	0
Average	**100**	**0**	**0**

I. h: Farmers' practices on the methods (containers) of rice seed storing

Region	Farmers' response (%)								
	Motka	Earthen painted pot[1]	Gunny bag with polythene	Gunny bag	Plastic drum	Bamboo made dol	Khutir	Metalic drum	Morir tin
NE	1	-	60	12	6	14		4	0
NW	7	12	56	5	11	0	9	0	0
SW	0	3	59	3	3	8	-	13	12
Average	**3**	**7**	**58**	**7**	**7**	**7**	**3**	**7**	**4**

1 Gab=15% and Tar=85%

I. i: Placement of seed storage containers

Region	Farmers' response (%)			
	Machan	**Brick**	**Floor**	**Wooden box**
NE	90	10	0	-
NW	79	12	-	9
SW	83	17	-	-
Average	**84**	**13**	**0**	**3**

I. j: Farmer's practice on the traditional preservative materials for storage of rice seed

Region	Farmers' response (%)		
	Positive	**Negative**	**Not sure**
NE	62	38	0
NW	63	37	0
SW	80	20	0
Average	**68**	**32**	**0**

I. k: Adoption of improved storage of rice seed in imitation of project farmers

Region	Farmers' response (%)		
	Positive	**Negative**	**Not sure**
NE	66	34	0
NW	56	44	0
SW	73	24	3
Average	**65**	**34**	**1**