Rural Communication Services in Climate Change Adaptation among the Salinity Affected Rice Farmers in a Coastal Sub-district of Bangladesh

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INTRODUCTION

In Bangladesh, about 53% cultivable lands of coastal areas are affected by salinity problem (Haque, 2006). Hence, agricultural land use in these saline areas is very poor and is much lower than the country's average cropping intensity. Oftentimes, it results to low yield or even total yield loss. According to World Bank, the salinity of river water and soil in Bangladesh's low-lying southwest coastal region is increasing over time, and will aggravate further with sea-level rise in a changing climate.

Due to that, the government shifted to developing crops that can withstand and adapt to the harsh environment. Among these crops is the saline-tolerant rice variety (STRV). Due to the features and required farming practices by STRV, a number of which are quite different from the conventional rice varieties, it becomes vital that the farmers be properly educated and trained on planting and management of such a variety. This necessitates looking into the current rural communication services that can be tapped to strengthen the effort.

Rural communication services (RCS) refers to the provision of participatory communication processes to satisfy the demand for knowledge and information of the rural population (Torres and Tirol, 2012). It is a network-like integration of demand-driven services making use of communication strategies, methods and tools to support agricultural development programs. In the context of community-based adaptation to climate change, Communication for Development (comdev) as the method of RCS involves the systematic design and use of participatory communication processes, strategies and media to share knowledge and information among all stakeholders in a particular agro-ecological context.

METHODOLOGY

The study followed the survey research design and was conducted at Amtali upazila (Sub-district) of Barguna district, Bangladesh. Data were gathered from April 2014 to June 2014. Simple random sampling technique was used to select 83 the Salinity Affected Rice Farmers (SARF). Thirty (30) SARF were selected through snow ball method and gathered together for Social Network Analysis. Data was collected using survey interview schedule and social network mapping for the farmers. Key informant interview was conducted to gather data from the RCS providers. Data was analyzed using descriptive analysis. Descriptive statistics such as frequency counts, ranges, and percentages was used to analyze the results. Graphs and tables were support the data analysis. The SPSS software was used to analyze the data. UCINET 6 software was used to generate the social network.

RESULTS

Socio-Demographic Characteristics of Farmers

Mean Age	Gender		Average Number of Children	Education	Farming as Major Occupation	Income
	Male	Female				
41 Years	83%	17%	3 Children	Only Primary Schooling 71%	98%	(USD53 to USD106) Lower than National Average

Farm -Related Profile of Farmers

ITEM	PERCENTAGE
Ownership of Farmland	95%
Only one member of the family involved in farming	57%
More than 16 years' of farming experience	57%
Organizational Involvement	37%
Mean Size of Farmland: 1.5 Hectares Mean Year of Experience in Farming: 20 Years	

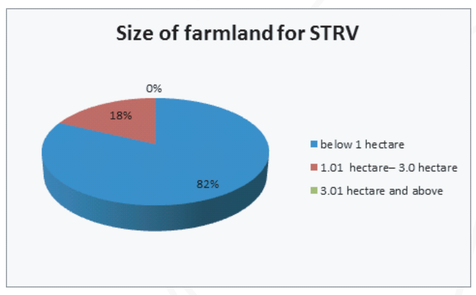
Profile of Rural Communication Service (RCS) Providers

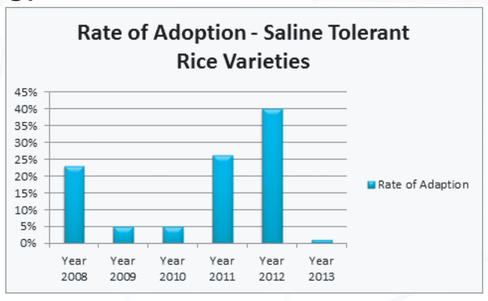
11 Rural Communication Service (RCS) were found in the study area 4 government, 4 NGOs, 2 private sector, and 1 Private-Peoples' Partnership (PPP)	
ITEM	NUMBER OF RCS PROVIDER
Clear Mandate of the organization regarding RCS	3 out of 11
Collaboration with other RCS Providers	4 out of 11
Member of Sub-district Extension Coordination Committee	2 out of 11
Budget for Communication Services	less than USD 12820 to USD 128205 a year
Communication Personnel to Provide Service	Majority had less than 10 personnel
Competence of the staffs	Moderately competent

RCS for Delivery of STRV Technology to the Affected Farmers

ITEM	PERCENTAGE
Types of Rural Communication Services sought by farmers	Training (94%)
Source of information	Govt. (79%) , NGO (66%)
Most trusted information Sources	Government and NGO
Usefulness of information	'somewhat useful'
Availability of service providers	Available (61%)
Channel used to get information	Face-to-face (82%), ICT/Mobile Phone (69%)
Frequency of contact with service providers	61% reported low contact
Send Feedback to the Service Providers	'sometime' (41 out of 83)

Farmers' Adoption of STRV Technology

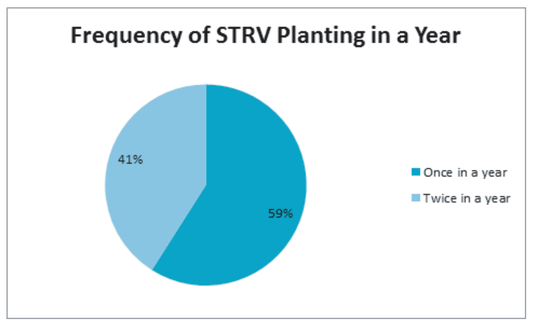




Problems encountered specific to STRV

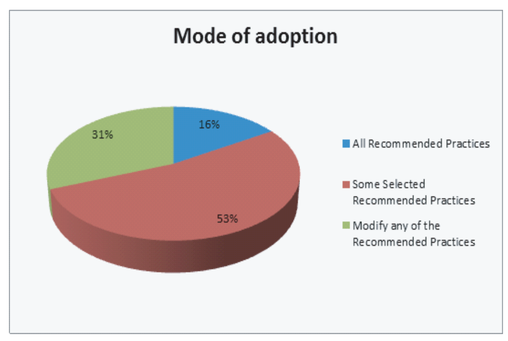
PROBLEM ENCOUNTERED	FREQUENCY (n=83)*
a. Farm inputs	
- Lack of rain or proper irrigation at tillerling stage	73
- Unavailability of saline testing equipment	35
- Lack of proper land management and technology	13
b. Biophysical	
- Shattering problem	54
- Unable to tolerate salinity at mature stage	48
- Unable to cope with higher level of salinity	34
- Losses due to natural calamities	9
c. Economic	
- Higher price and inadequate supply of inputs	42
- Less yield than other popular varieties	20
- Less profitable compared to other crops and fruits	17

***Multiple responses**



Problem encountered in adoption

CHARACTERISTICS	FREQUENCY (n=83) *
a. Economic	
Lack of capital	77
Unavailability of farm inputs	62
Lack of low interest credit facilities	46
High cost of farm inputs	29
Less profitable than other crops	24
Unavailability of marketing services	4
Lack of processing facilities	3
Poor transportation system	3
b. Social	
Lack of awareness of improved technologies	19
Conservative attitudes of farmers	9
c. Biophysical	
Small farm size land	65
Higher attack by pests/disease	27



Relationship between RCS Delivery and Adoption of STRV

Correlation between type of service provider and extent of adoption

TYPE OF RCS PROVIDER	p-value	DECISION
Government Extension	0.689	no association
NGO	0.012	with association
Media	0.101	no association
Private company	1.000	no association
Research institute	0.363	no association
Academe	-	no one answered
Relatives	0.570	no association
Other farmers	0.415	no association
Group members	-	no one answered
Dealers	0.470	no association

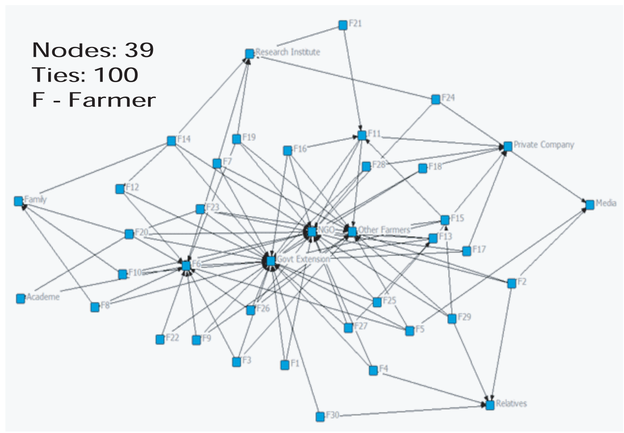
** Correlation is significant at 0.05 level*

Correlation between type of modality and extent of adoption

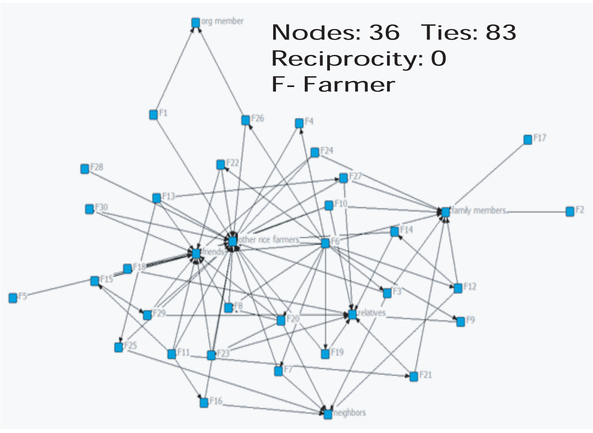
TYPE OF MODALITY	p-value	DECISION
ICT-mobile phone	-	all answered
Mass media –print, radio, TV	1.000	no association
Face-to-face	0.256	no association
Group meetings	0.017	with association

** Correlation is significant at 0.05 level*

Social Network Analysis

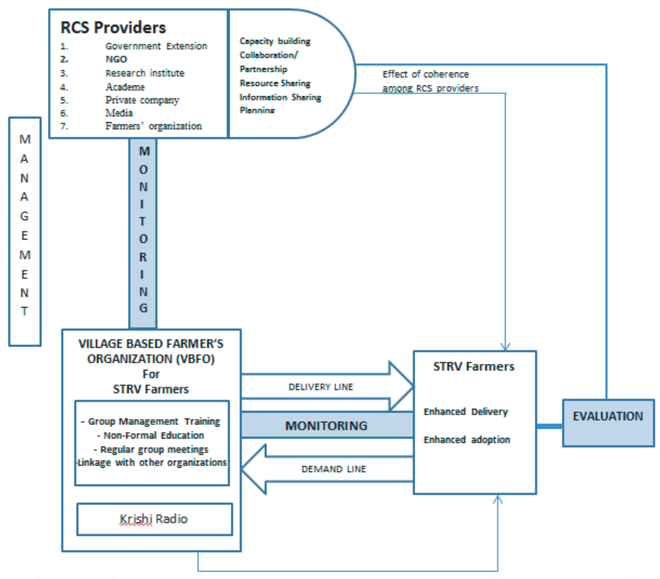


Socio-gram of information sources among the farmers



STRV farmer's information sharing network

RCS Model for Enhancing Delivery and Adoption



CONCLUSION

The government extension is the most accessed RCS provider, closely followed by NGOs. STRV farmers trust information received from both. They use the face-to-face communication channel to receive information supplemented by mobile phones. The STRV farmers find the information received from the RCS providers as somewhat useful.Problems encountered in accessing information on STRV revolve mainly on availability, i.e, the information should be available at the time they are needed most and not only sometime. Farmers also have low contact with the RCS providers they are able to send feedback to them.

STRV famers use only a small portion of their land for STRV cultivation. Majority started planting STRV in 2010-2012. They plant STRV only once a year in dry season. Majority of the STRV farmers adopt only some selected recommended practices. NGO as a service provider and use of group meeting are found to be associated positively with adoption.

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