

Video, Learning and Food Security- New Thinking for Supporting Farmer-to-Farmer Learning in Bangladesh

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Abstract

Importance of agricultural extension to eliminate poverty, vulnerability and hunger is not necessary to overemphasize. However, extension services in Bangladesh missed the opportunity to reduce poverty in a cost-effective way. This is partly due to lack of creative and innovative ways to support farmer-to-farmer learning. In this paper we present our thoughts, empirical evidences and vision about approaches of video-mediated learning to enhance household food security. Following a normative review of concepts and evidences we described a model of participatory video (PV) supported women farmers' capacity building process for homestead crop and seed production. We argued that PV has untapped potentials to enhance farmers' innovation and creativity that contributes to increased household food production and utilization. We expect that this model will contribute to our journey towards achieving a food secure rural Bangladesh. To let it happen we need to be inventive at personal and organizational level of partnerships.

Key words: *Participatory video, household food security, agricultural extension, learning, Bangladesh, smallholder*

Introduction

Sustainability, poverty and food security are great concerns in Bangladesh. Agriculture is the lifeblood of the economy and livelihoods of the majority of the population in this country. National and international policy makers have been generous by showing their enthusiasm and interests to different reforms of extension organizations, methods and tools associated to agricultural development (e.g. PRSP, 2005; World Bank, 2006; IFAD, 2006). This journey begun in early 1980s through donor funded initiative popularly known as training & visit (T&V) system. The outcome is not necessary to remind our learned colleagues who have been keeping them updated about this development

process. Inspirations of this reform came from success of T&V in some region of India having well managed research and extension system and favourable irrigated farming conditions (Anderson & Feder, 2004). We do neither want to repeat the reasons of T&V failure in Bangladesh, nor is the aim of this paper. Major of which were already discussed in several national and international symposiums and two conferences organized by the Bangladesh Agricultural Extension Society (BAES) in 1990s. It is better to refresh our understanding that 'one-size-fits-all' or linear development paradigm did not fulfil our expectation to address complex issues of poverty and hunger (Chambers, 1989;

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Probst *et al.*, 2003). We did not succeed to reach out majority of our poor, and women clients. We would not reject hypothesis that function of extension can not survive with its traditional role of communicating 'scientific' information from research station to the farmers (Rivera & Qamar, 2003). Extension organizations, change agent and development actors should critically assess and learn potentials of their roles in facilitating and enabling learning not only for their clients but also for other relevant actors, including themselves. Rephrase it differently, extension should stimulate learning not as a success of adoption but as a process that supports adaptation, collective experience, and critical reflection for poor clients and relevant actors (Sulaiman & Hall, 2002; Leeuwis & Van den Ban, 2004).

There is a saying, '*a stitch in time saves nine*'. Without procrastinate for long agricultural extension services in Bangladesh celebrated another phase of reform in 1990s. This decade observed huge inspirations and expectations about participatory and interactive extension development in 1996 that led to development of a new agricultural extension policy (NAEP). This is a milestone since when 'decentralization', 'group extension', 'demand-driven services', 'bottom-up development' and so forth became common words and phrases and underlying principle. Participatory extension methods and group learning approach such as farmers field school (FFS) and integrated pest management (IPM) school have become essentials for any projects dealing poverty, food security and sustainable agricultural development (DAE, 1999). Although participatory methodologies such as participatory learning and action research (PLAR) and FFS are effective in enabling learning between farmers, testing and

modifying technologies, and building social cohesion, scaling out learning outcomes beyond the pilot scale and reaching out to rural poor and women remains a key challenge (Braun *et al.*, 2006). Recent studies have witnessed several challenges pertaining to these methodologies and approaches in developing regions of Asia and Africa. Some challenges are related to institutional cultures that provide more stimuli for implementation in a 'manual mentality' mode rather than being creative in adaptation of the approaches to the local condition, difficulty to maintain quality of facilitation while stretching project activity along geographical scale, cost-effectiveness as per number of resource poor clients and enabling learning beyond the pilot scale (Feder *et al.*, 2004; Davis, 2006). Although much attention and donor aid it has attracted, until beginning of the 20th century perhaps only one percent of Asia's more than 200 million rice farmers have attended FFS (Way & Van Emden, 2000). Similar challenges remain to ensure both quality and quantity of services pertaining to participatory methodologies in different public sector agricultural extension project in Bangladesh (Hamid, 2004; Chowdhury, 2010).

It is important to note that poverty and hunger is still pervasive in Bangladesh. Poverty headcount data (2004-2005) shows that more than 40 percent of total population and 43.8 percent of rural population live below the poverty line in Bangladesh (FAOSTAT, 2009). Other sources (e.g. IFAD, 2007) show that 20% of the rural households are extremely poor (<1800 calories/day) and 29% of the rural population is moderately poor (1800-2100 calories/day). An essential hypothesis is that present and future agricultural extension services encounter numerous challenges to eliminate poverty and hunger.

It remains an intricate question as how to reach out rural poor and women given explicit aim of research and development in agricultural extension for increasing food security and eliminating poverty and hunger. The situation is worse for women who remain at the bottom of the development ladder despite their hard work to manage land and agriculture and maintain solidarity and reciprocity for managing natural resources (Westermann *et al.*, 2005). In Bangladesh women have less influence in decision-making about farming issues and men usually take over the economically potential farming activities (Al-amin *et al.*, 2004; Huque & Chowdhury, 2006). Staff of agricultural advisory services are mainly men, and agricultural development interventions are often male biased (Chowdhury, 2010; Van den Ban & Samanta, 2006; Magor *et al.*, 2007). As a consequence, personal networks of women are less elaborate and transaction costs to access information, technologies, services, and markets are higher for them than for men and better-off farmers.

In the last decade national and international policy makers and donor agencies have seen problem of rural poverty in developing countries as a failure of agricultural extension function. But failure is not due to function of extension rather it is due to failure of extension organization to innovate and apply this function (Qamar, 2005). P+overty elimination through rice research assistance (PETRRA) is among few projects known to national and international researchers, academicians, extension, practitioners and donor communities for innovation in rural extension in Bangladesh (Salahuddin *et al.*, 2008). Apart from being creative in innovating and applying several face-to-face extension methods (e.g. going public, participatory mapping, picture songs, family approach of training, FFS) an

important success was potential use of media to reach out rural poor and women (Van Mele *et al.*, 2005a). Local, national and international partners and farmer communities contributed to develop an approach for creative use of video in stimulating farmer-to-farmer learning. Video is not a new media used for agricultural extension activities in Bangladesh. However potential use of this media is more often remained within mass media (e.g. TV) and classroom training material in Bangladesh (DAE, 1999). PETRRA introduced video mediated learning approach in combination with participatory learning and action research (PLAR) and FFS to reach out poor men and women rapidly (Van Mele *et al.*, 2005b). Experts suggest cross-fertilization between various extension, farmer education and organizational development methods (Hagmann & Chuma, 2000, Van Mele *et al.*, 2005a). Yet, donors and main development organizations are slow in responding to criticism and emerging opportunities (Van Mele & Braun, 2005). Research and development initiatives on potential use of video and radio are valuable investments. As experts see a necessity to understand complementing role of media for supporting farmer-to-farmer learning on sustainable agricultural practices in the context of participatory extension i.e. FFS, IPM school (Bentley, 2009; Braun *et al.*, 2006).

BAES biannual conference 2010 has chosen an important topic i.e. challenges of agricultural extension services and food security in Bangladesh. We, therefore, take the opportunity to share our thoughts, and some evidences on video, farmers' learning and food security nexus with our learned colleagues. By doing so, this paper is expected to refresh our thinking on potential use of media for eliminating poverty and

hunger. Ours is a normative review of recent experience of participatory use of video in developing regions of Asia (Bangladesh) and Africa (Benin). We will proceed by elaborating concepts of participatory video and approach of video mediated farmer learning in section two. Section three presents some cases of video mediated learning that contribute to food security. Section four is about a model envisaged within a collaborative action research project. We will conclude with an outlook on video, learning and food security nexus in Bangladesh.

Enabling Farmers' Learning through Video: Approaches to Reach out Women and Rural Poor

History of video to trigger participatory process is not necessarily young. First attempt to use video as a media to empower marginalized fishing community of eastern coast of Newfoundland, Canada in 1967 drew attention of development professionals about potential of the media (Crocker, 2003). Scepticism of development professionals and donor agencies gradually declined when donor agency like food and agriculture organization (FAO) succeeded in using video to recover, preserve and produce farmers' knowledge in Peru, and Mexico in 1970s (Fraser, 1987; Ramírez, 1998). This approach is more widely known as participatory video (PV). It is a process

of articulating voices and ideas of the rural clients through a collective process of message generation, shooting and production of the final video (Table 1). In the opinion of Huber (1999), "*PV refers to a bundle of alternative applications of video technology in development projects. Its goal is to bring about social change. There is no single accepted way of doing participatory video.*" PV has two broad elements, one is the product (the finished tape or disc) and another is the process of developing the product. Mainstream PV practitioners usually (White, 2003; Lunch & Lunch, 2006) value the process over the product. Process goal is to enhance capacity of group to articulate their own problems and potentials, video as being the central media (Box 1).

Diversity of approaches is evident to use video for solving development problems. Recently Lie & Mandler (2009) have drawn this attention and proposed some functional typologies. Importantly, both process and product (film) are important as far as the quality of a production (the film) does not become an overriding concern at the expense of the interaction of the participants or vice versa (Shaw & Robertson, 1997). It is important to note the difference (Table 1) between PV and non-participatory video (training video, video developed for TV and other media).

Table 1 Comparative aspects of conventional and participatory video

Aspects	Conventional video (Documentary/training video)	Participatory video
Shooting authority	Documentary maker or director (Individual authority)	People and video facilitators/researchers together (collective authority)
Scrip writing authority	Documentary maker or director (Individual authority)	Without scrip or jointly prepared script
Decision on content	Made by the documentary maker	Made by the participants and the community
The audience	Undetermined and anonymous (mass) audience	Audience are known, usually those who are affected and linked to the massage of the video
Feedback	Hardly any, usually not the main goal	Feedback during the process and also afterwards
Process or product	Solely product oriented	Product, process or both

Source: Adapted from Mda, 1993; and Huber, 1999

Box 1 PV process in a nutshell

- Development of personal skills of the community and other interested actors to use the technology
- Identification of the facilitators who view their role as that of ‘co-learner’
- Improving relations and identifying the development problems through engaging in dialogue with the participants and using participatory tools adapted to the context
- Short video and messages prepared and filmed with and by the participants
- Daily screening of footage with the community
- Adopting a community-led learning, sharing and exchange motion
- Completed films can serves as a basis for awareness and exchange between various different target groups

Source: Lunch & Lunch (2006)

An approach to develop effective video by including farmers’ knowledge, skills and words was pioneered under the PETRRRA project in Bangladesh. It has been further refined and developed by the Africa Rice Centre as part of its rural learning system (Van Mele, 2006). In order to address problems of participatory methodologies to

scale up local innovation capacity beyond the pilot range, videos are developed while adhering to experiential learning principles. A key element is to involve farmers in content generation. Farmers and facilitators identify local knowledge and/ or innovations having regional relevance through participatory research activities.

Rural men and women play an active role in identifying ideas, principles of technologies and in preparing the script, featuring in the video and validating the final content. As the ‘zooming-in’ progresses, so starts the ‘zooming-out’ with the organization of video mediated group learning sessions in multiple villages (Figure 1). Observations to identify additional alternatives and solutions to a given problem also continue in this phase. Two phases may run in parallel and hence called ‘zooming-in zooming-out’.

As opposed to conventional PV project, the approach followed less participatory process where professionals and facilitators managed technical intricacies (operating equipment and editing) of making the video. In Bangladesh Chowdhury *et al.* (2010) defined this as scripted video and compared

with scriptless video style, where farmers were involved in managing technical intricacies as in case of conventional PV. Findings indicate that scriptless style can be effectively used for triggering self-sustaining process and building social cohesion, a necessary condition for participatory process such as farmer participatory research (FPR). Scripted video is effective in stimulating learning of farmers beyond the pilot scale (farmer-to-farmer learning) in Bangladesh. Video developed through ZIZO has been coined as farmer-to-farmer video in recent publications (e.g. Zossou *et al.*, 2009a; Van Mele, 2006). However, in this paper we will use the term scripted PV and farmer-to-farmer video interchangeably.

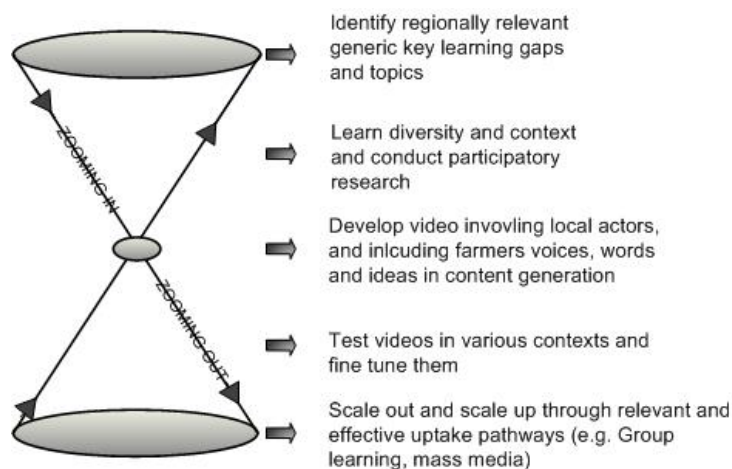


Figure 1 Zooming in zooming out: a new approach for developing video and learning tools to scale out sustainable agricultural innovations (Adapted from Van Mele, 2006 and Zossou *et al.*, 2009a)

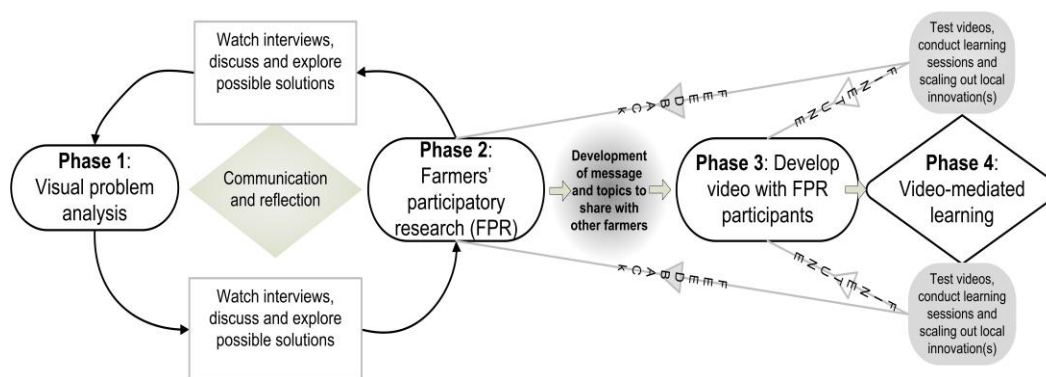


Figure 2 Phases to combine FPR with video to scale out farmers' innovation (own illustration)

Building on the earlier research, the first author developed another model to combine FPR with video mediated learning (Figure 2). Scriptless style has been used (phase 1) to trigger FPR (phase 2) in December 2008, the outcome of which was a farmers' innovated botanical pesticide. Key learning issues were identified together with farmers and a video was developed in November 2009, using scripted PV style (phase 3) as in case of farmer-to-farmer video. The video was developed incorporating motives, process and outcomes of FPR as to demonstrate farmers' innovation capacity and their ideas rather than readymade technology. Effectiveness to enable farmer learning in multiple villages in Bogra was assessed (phase 4). Part of the result will be presented in section three. Consequently, when using the learning materials to train farmers in multiple villages, additional innovations and ideas that were emerged will be added and farmers' confusion in relation to the message will be clarified (Figure 2).

Contribution of video mediated farmers learning towards food security: Evidence from Asia (Bangladesh) and Africa (Benin)

In this section we present some cases that demonstrate contribution of video-mediated farmers learning towards food security. It is important to note the concept of food security. According to the World Food Summits in 1996, 'Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life' (World Food Summit, 1996). Important elements of this concept are food availability, access and utilization. There are several indicators for understanding food security which include undernourishment, food intake, nutritional status, financial status (Migotto *et al.*, 2005), land availability, crop diversity, and crop production (Ediriweera *et al.*, 2007). Food security at household level relates to

the ability of individual households to meet daily food needs from own production, or the means to obtain food from off-farm sources (FAO, 1997). In this paper we use the concept of crop yield and crop productivity as an indicator of food security. We will present cases that demonstrate potential of video-mediated learning to trigger capacity of rural poor and women to increase their crop production using local sustainable crop farming practices. One may raise debate on potentials of sustainable crop farming practices (e.g. ecological and organic farming) to overcome food security. Without engaging into this debate we want to note some studies (e.g. Rasul & Thapa, 2004; IFAD, 2005), which indicate that sustainable crop farming practices improve local food security for smallholders in India and Bangladesh by producing diverse products at low cost compared with conventional farming.

Women farmers' capacity of local innovation of rice processing in West Africa

In Benin parboiled rice is culturally and economically important practice for rice farmers. Africa Rice Centre (formerly known as WARDA) developed series of rice and seed videos (scripted or farmer-to-farmer) which were basis of facilitating learning for about 1 million rice farmers in West Africa. The rice parboiling video aimed at promoting an improved way of parboiling to get better quality rice. This topic of regional importance was identified and improved ways of rice parboiling was developed through PLAR. Conventional parboiling includes soaking paddy overnight and boiled in the same pot with

small quantity of water. Drying is usually done on the rocks or on the ground without any precautions to avoid the parboiled rice getting mixed with sand other stones. The improved parboiling equipment consists mainly of a locally available parboiling vat that is placed on top of a large aluminium pot (Figure 3). The principle behind this improved technology is that after soaking the paddy is transferred to the vat and pre-cooked with steam, without the paddy touching the water.

Africa Rice Centre in collaboration with several local non government organizations (NGOs) conducted conventional training and video mediated group learning sessions during 2005-2007 in central Benin. Recent studies (Van Mele, 2006; Zossou *et al.*, 2009b; Zossou *et al.*, 2009a) demonstrated power of video in building capacity of rural women for local innovations.

Findings indicate that video and conventional training were equally effective in stimulating certain practices such as removing dirt from rice or washing rice. But video proved more effective than conventional training for changing behaviour about other practices (Table 2). An important aspect is that video enabled collective behavioural changes as indicated by significantly more women using improved equipment in group who received only video compared to other exposures. The results indicate that video is more effective in stimulating information sharing and mutual assistance within social network (Zossou *et al.*, 2009a). Moreover, conventional training sessions suffered from participation selection bias. Group leaders wanted to select friends and relatives as per as they concerned with per diem. What follows, resource poor women might be

ignored. Participation selection process is constrained due to conflicts of this immediate tangible benefit which might also shift actual learning goal. This is not unknown but is not explicitly addressed by development agencies. On the other hand, women had an equal chance to watch the farmer-to-farmer video, confirming the democratic character of community-based,

video-mediated learning (Zossou *et al.*, 2009a). Video mediated-learning sessions stimulate active communication (vision, hearing and practical application) as per the opinion of facilitators and women participants. Power of video was attributed to its ability in burning images in memory and combination of learning and entertainment values.

Table 1 Impact of different learning sessions on women's practices of improved rice parboiling (after one year of exposures)

Practices of improved rice parboiling	% Women practice			
	Conventional training (n=30)	Video (n=83)	Video plus training (n=13)	Information from other farmers/ colleague (n=34)
Remove dirt from rice	96.6 ^{ab}	100.0 ^b	100.0 ^{ab}	91.2 ^a
Wash rice 2 to 3 times	96.6 ^b	100.0 ^b	100.0 ^b	88.2 ^a
Dry rice on tarpaulins	60.0 ^a	98.8 ^c	100.0 ^c	79.4 ^b
Remove shoes when turning the paddy over	40.0 ^a	96.4 ^c	100.0 ^c	70.6 ^b
Use of improved equipment in group	0.0 ^a	57.8 ^c	46.2 ^{bc}	35.3 ^b

Note: Values in rows with a different letter are significantly different at the 5% level with LSD test.

Source : Cf. Zossou *et al.*, 2009a

Video stimulated women farmer's innovation capacity to use available local resources and techniques (different types of pots, bags, sticks and sticky substance e.g. cassava) of parboiling paddy with steam; and to conceal junction between pot and parboiling equipment for steam conservation (Zossou *et al.*, 2009b). Watching videos multiple times increased probability of innovating. Video is effective in explaining the principles of local technology in visual and verbal media and

in getting the message into the heads of resource poor men, women and illiterate. Women, who did not have access to improve parboiling equipment as demonstrated in the video, used other local resources that function along the principles of enhancing quality of parboiled rice.

This is important not only for effective utilization of paddy for consumption but also enhancing market value of the produce. As another follow up study (Zossou *et al.*, 2010) indicated that significantly more

women who watched the video parboiled all of their rice. Women who watched the video realized economic value parboiled rice. These women produced a median of 500 kg per cropping season as opposed to women who did not watch the video and produced 300 kg per cropping season. Significantly higher number of women (80%) in video villages started parboiling in groups compared to women in villages who did not watch the video (50%). Parboiling

activity of women attracted NGOs and local traders after public viewing of the video. They also started providing services on rice parboiling (e.g. credit), and improved their methods of packaging and marketing parboiled rice. It follows that video stimulated learning within women groups and along broader community process. This enhanced effective utilization of food (rice), and increased market value of the produce.

Stimulating local botanical pest management innovation in Bangladesh

Table 3 Botanical pest management practices of women, before (November, 2009) and after (September, 2010) different types of learning sessions

Botanical pest management practices	Botanical pest management practices (%) Women adopted according to types of learning and control group of parboiling case. Key learning messages of the video were identified though FPR on a botanical pesticide (Figure 2). The video was shown in women groups in multiple villages of Bogra district (north-western Bangladesh).				Findings indicate that learning through video has improved overall knowledge about reasons, procedures and benefits of botanical pesticide use in cultivation of vegetables such as bean and eggplant. The approach has significantly improved understanding of the principles of botanical pesticide, and changed attitude favourably (Chowdhury & Hauser, 2010). Results show that after watching the video more women started using the botanical pesticide in the field and in the seed storage with no change in control village (Table 3). There is no significant change in workshop village. Although effective in getting across			
	Video only (N=33)		Video and discussion (N=34)		Workshop (N=35)		Control (N=35)	
	Before	After	Before	After	Before	After	Before	After
1. Preparing botanical pesticide ¹	18.2	33.3	17.6 ^{aa}	44.1 ^{bb}	14.3	25.7	14.3	11.4
2. Use of botanical pesticide and ¹ plants to deter pests in the field	21.2 ^{aa}	54.5 ^{bb}	23.5 ^{aaa}	70.6 ^{bbb}	17.1	31.4	14.3	14.3
4. Application of botanicals in the ¹ seed storage	15.2 ^{aa}	45.5 ^{bb}	11.8 ^{aaa}	47.1 ^{bbb}	5.7	17.1	11.4	14.3

¹ Followed by open questions

^{a/b} Values in the same row with different letters within the same group are significantly different; double letters indicate significantly different at $p < 0.01$, and triple letters indicate significantly different at $p < 0.001$ with McNemar χ^2 test.

Source: Chowdhury & Hauser, 2010

As a part of an action research study Chowdhury & Hauser (2010) assessed learning effects of video, as in case of rice parboiling case. Key learning messages of the video were identified though FPR on a botanical pesticide (Figure 2). The video was shown in women groups in multiple villages of Bogra district (north-western Bangladesh). Findings indicate that learning through video has improved overall knowledge about reasons, procedures and benefits of botanical pesticide use in cultivation of vegetables such as bean and eggplant. The approach has significantly improved understanding of the principles of botanical pesticide, and changed attitude favourably (Chowdhury & Hauser, 2010). Results show that after watching the video more women started using the botanical pesticide in the field and in the seed storage with no change in control village (Table 3). There is no significant change in workshop village. Although effective in getting across

message conventional lectures may not be effective in stimulating reflection and understanding of principles of sustainable technologies.

Video, rice seed and food security in Bangladesh

As mentioned earlier effectiveness of video as a farmer learning tool was pioneered in Bangladesh in 2003 under the PETRRR project. CABI, UK in collaboration with Country wise Communication trained two video teams comprising staff of the Rural Development Academy (RDA) and Thengamara Mohila Sabuj Sangha (TMSS), a national non-governmental organization (NGO). Initially four videos were developed on rice seed sorting, seed flotation, drying, and storage technologies. In early 2005, the partnership was extended to engage another small NGO, the

Agricultural Advisory Service (AAS) under the project auspices known as good seed initiative (GSI). Additional three videos developed under GSI include rice seedling production, seedling care and agronomic practices in the field. Twelve districts (northwest and northeast) were chosen based on the working areas of the partners. Van Mele *et al.* (2007) analysed effectiveness of video in triggering behavioural change of 1252 women (1077 in video villages and 175 in control villages). Results show that after watching video 24% and 31% of these women started using manual seed sorting and seed flotation with salt respectively. More than 70% of the women in video villages improved their seed drying. After video intervention, 67% of women started using botanicals such as neem to deter storage as opposed to 9% before video.

Table 4 Households rice production statistics in study sites, Bangladesh, 2005-2008

Production characteristics	Video villages		t-value	Control villages		t-value
	Before	After		Before	After	
Average seed rate (kg/ha)	58.1±9.7	30.7±7.5	47.2***	55.7±9.5	54.8±9.8	2.7
Average yield (kg/ha) in Aman	3770.9±346.4	4323.1±361.7	-24.2***	3701.2±267.7	3709.5±255.3	-0.83
Average yield (kg/ha) in Boro	5414.8±506.4	6206±601.7	-32.9***	5632±497.9	5645.9±491	-1.6

***p<0.001

Source: cf. Chowdhury *et al.*, 2009

Chowdhury *et al.* (2009) conducted another impact study in villages located in northwest region. Results indicate that after the video mediated learning farmers reduced almost by half their seed rate (Table 4). In *Aman* season, the average yield increased significantly by 14% from 3.7 t/ha to 4.3 t/ha, whereas the average yield increased by 15% from 5.4t/ha to 6.2 t/ha in *Boro* season. No significant changes were observed in the control villages.

Group discussions and in-depth interviews revealed that women could produce quality seeds by applying what they learnt from the videos. The seeds they produced were bright, had less deformity, and resulted in higher demand and price in the local market compared to before watching the videos. In addition to detrimental environmental factors (less sunshine, more temperature and humidity), poor quality of rice seeds contributed to comparatively low yields in

Aman season. By applying the simple technologies presented in the videos farmers could produce and store quality seeds, which in turn contributed to yield increases

in both seasons. About 69% of the households started using their own farm seeds compared to 42% before the video intervention.

Table 5 Rice self sufficiency index (RSSI) of households in the study sites, Bangladesh, 2005-2008.

Rice Self Sufficiency Index	Video villages		t-value	Control villages		t-value
	Before	After		Before	After	
Average (%)	185.8±72	213±82.4	-23***	138.5±55.5	138.9±55.8	-1.4

***p<0.001

Source: cf. Chowdhury *et al.*, 2009

Using rice self sufficiency index (RSSI) as an indicator (please see Page *et al.*, 2009)¹ of household food security the study indicated an average of 27.2% increase of household rice self sufficiency (Table 5) in video villages. The households produced (based on double cropping) on an average 2754±1053 kg paddy in 2005 and 3157±1208 kg in 2008. On an average, rice production significantly increased by 402 kg annually in video villages. At an arbitrary price of 6 US\$ for 38 kg (1 maund) paddy the increased production contributed to an annual increase of income of 63 US\$ per household.

Rice and cereals are central to the livelihoods of most smallholders in Asia and Africa (FAO, 2004). Food crisis is attributed to rice or major cereal crisis in these countries. In Bangladesh households who have rice sufficiency are treated as food secure households. Recently ten Asian

rice growing countries including Bangladesh have faced localized food crises. Market reliance and food imports are no key solutions towards food security, as made clear by the recent food crisis. This calls for an integration of an ecological and sustainable approach towards localized food production (Dobbs, 2008). Apart from rice farming Asian nations need to diversify farming by introducing crops (vegetables and fruits) which have high market value (Swanson, 2006). PV is also effective for enabling farmer learning on environment friendly pest management practices. Environment friendly crop farming practices are more cost-effective than conventional ones. As such it may also contribute to enhance food security. However, impact on food security conditions, is yet to be reported in future studies.

¹ Rice Self - Sufficiency Index
$$\frac{\text{Actual yield (kg/ha)} \times \text{Land holding (ha)}}{\text{Annual paddy requirement (kg)}} \times 100$$

The cases presented in this paper substantiate that PV is an effective method (video as being the media) for building farmers' capacities at local and regional level. Besides being effective in stimulating farmers' learning it has potential to reach out poor and women more rapidly. As such it contributes to enhancing food production and utilization and reducing rural poverty. In what follows, research and development initiatives on potential use of video in different areas and topics of sustainable agricultural development deserve considerable attention in Bangladesh.

Fostering Women Voices through Videos in Bangladesh: An Initiative to Develop a Model of PV Supported Capacity Building Approach

In this section we describe an action research initiative for enhancing food security by enabling women farmer' learning about homestead based crop and food production. The project, named as fostering women voices through videos in Bangladesh (FWVV), is built on the doctoral study of first author in the Centre for Development Research (CDR), University of Natural Resources and Life Science (BOKU). This is a three years project of the CDR with a generous grant from the Karl Kahane Foundation (KKF). The project has been implemented in the northeast and northwest region of Bangladesh in collaboration with the Department of Agricultural Extension Education (DAEE), Bangladesh agricultural University (BAU) since 2010. DAEE works with another partner Rural Development Academy (RDA) to implement the project in the northwest.

In this project we intend to implement a model (Figure 4) develop based on the findings of the doctoral research, recent works (see section two) and a workshop held during 10 to 11 March 2010 in Bogra (Peloschek & Chowhdury, 2010). In the workshop we discussed the model with researchers and extension specialists and farmers separately. Participatory rural video centre (PV centre) is the backbone of the model. Findings of the workshop indicate that the group is to be comprised of at least six members. Management structure of the group comprises at least six persons as follows, coordinator (1), assistant coordinator (1), camera man and woman (2), script writer and editor (2). The PV centre in Kamarpara village, Sajahanpur, Bogra district has been managed by a group of rural men and women since March, 2010. Factors in selecting members included, gender (half of the members are women), interest in innovation and creativity, close relation and extended network with farming communities in the area, passion for learning, time for voluntary work. We intend to develop another centre in the northeast i.e. Mymensingh. In this model we define the team members as *PV team*. Although the project focus is on women, findings indicate that both smallholders' men and women become associates of the centre. Household is a unit where bargaining and negotiation takes place between men and women. Therefore, it is necessary to involve (either as in executive committee or as associates) both members. In this model we define associates (men and women farmers in the community) as *PV community*.

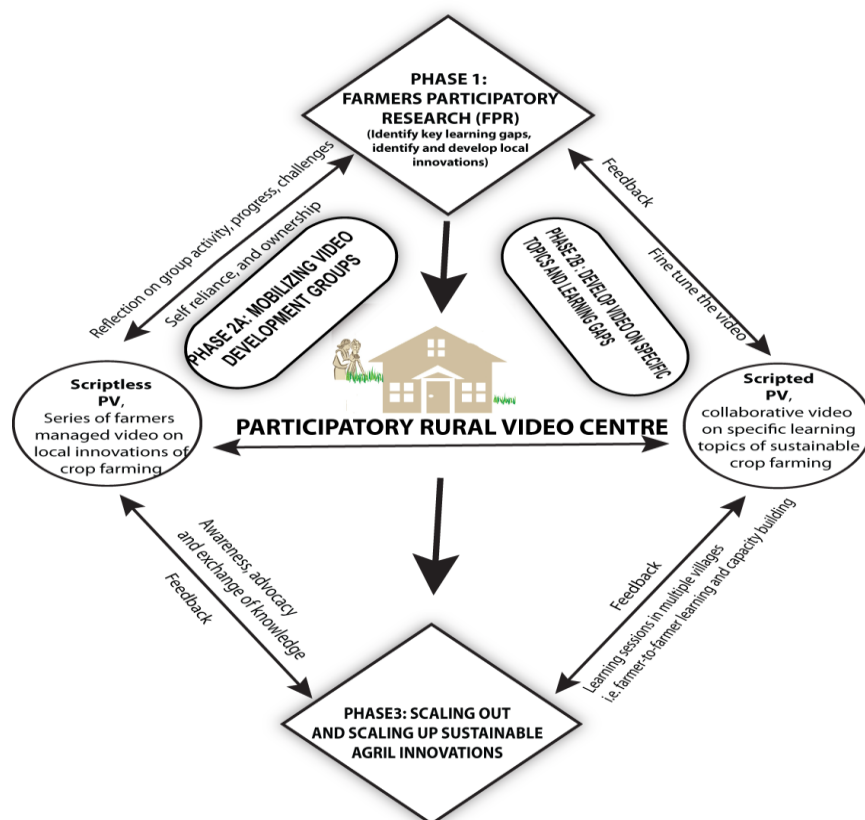


Figure 3 Model of PV supported women farmers' capacity building approach in Bangladesh
Source: Authors' illustration

The process of capacity building starts with FPR principles. PV team interacts with fellow farmers (PV community), understands local innovations and conduct relevant research. For this project we selected three major topics such as organic manure preparation through waste management, seed processing and post-harvest in homestead and ecological plant protection practices. Firstly, we selected three crops e.g. eggplant and leafy vegetables (red amaranth and Indian spinach) for crop and seed production in homestead, a food production unit within

women's domain of work. Secondly, it is necessary to understand key learning gaps and solutions in the area of organic manure production. This project concentrates on vermicompost. It is a process of utilizing various species of worms, usually red wigglers, white worms, and earthworms to create a heterogeneous mixture of compost. Vermicompost is quite feasible for homestead production. The design of a small Vermicomposting unit usually depends on where a farmer can store the vermicompost and with which materials a farmer feed the worms. Thirdly, ongoing

FPR on botanical pesticide was included as part of the project. It is important to note that as part of the ongoing doctoral research led by first author member of PV centre in Kamarapara have been conducting FPR on a botanical pesticide since last two years. The project continues to support this activity and started FPR on composting since its inception in 2010. Farmers' managed FPR was followed, where researchers only intervene to facilitate and understand principles of local innovations. In what follows, the project target is to enhance women capacity for local innovations in homestead based crop and seed production- a pathway to address household food security.

As the learning gaps are identified and key solutions are known, next phase is to develop audio-visual learning material (Phase 2b). We will follow scripted style (as in case of ZIZO) to develop video for enabling farmers' learning beyond the pilot village i.e. where PV centre located. Considering organizational network we target to organize 14 women groups in 2-3 districts both in the northeast and northwest. We conduct video training for members of PV centre in this phase (Phase 2a). Phase 2a precedes Phase 2b or run parallel. Members of the PV centre will manage series of video articulating voices, skills and innovations of rural women (and men). We identified some broad topic areas as follows

- Land rights
- Division of labour (discrimination, overburden, agriculture and reproductive health)
- Health hazards and agricultural activities (use of traditional agricultural tools)

- Local innovations of crop, production, protection, processing and marketing
- Decision making control (market information, access to market)

Where scripted PV will form the basis of farmer-to-farmer learning, scriptless PV will help to build awareness and advocacy for and within PV community. It will enable ownership and self-reliance of the PV team and PV community throughout the whole process. It is important to develop a regional and local scaling out and scaling up strategy in addition to project facilitated farmer-to-farmer learning in selected areas. One way it can be done by identifying potential actors, and organizations that have interests for incorporating the learning materials in their programmes. In the final stage of the project we intend to accomplish this task (scaling out and scaling up) by conducting research and verifying hypotheses developed on potentials of scriptless and scripted video in enhancing local seed innovation system in Bangladesh (see Chowdhury *et al.*, 2010).

Outlook

In this development theatre to eliminate poverty and hunger agricultural extension in South Asia has caught between existing bureaucracy and hierarchical institutional milieu, and existing agricultural development hurdles that require stimulus (awareness, motivations and support) for enabling different types of innovation e.g. institutional, methodological and technological (Sulaiman & Hall, 2005). This dilemma of agricultural extension service in Bangladeshi is not an exception. In the present theatre extension systems are increasingly decentralized and fragmented.

Different service providers are entering into the scene to fulfil certain gaps, such as nongovernmental organizations (NGOs) and the private sector are re-defining their roles to eliminate poverty and hunger through sustainable agricultural production. At present, policy makers and development professionals are excited about Information and communication Technologies (ICTs) for agricultural development in Bangladesh (A2I, 2010). Mere use of ICT may not guarantee effective knowledge interpretation, assimilation and application (Feng *et al.*, 2006). It may also drive attention away from creative ways of using media to support rural learning process. Apart from the institutional and technological innovations potential of media is to be explored to strengthen rural

learning and capacity of existing and emerging service providers, including farmers' organization. Inspired by recent research and development achievement of media (video) for farmers' learning that enhances food security we envisaged a model of PV mediated women farmers' capacity building process. It is not intuitive but a common sense that success of this model will depend on necessary stimulus of the actors in different scales (international and local) of project partnerships. We are confident that this model will fulfil our expectation of enhancing household food security. However, admitted to work along a small budget, we need to force ourselves to be creative and inventive both at personal, organizational and development interests of the project.

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