

Problem: Delivery of information to smallholder farmers is hampered by limited telecommunications, and related infrastructure.

Solution: Using participatory radio and video to extend reach of agricultural extension activities.

1. BACKGROUND

Small and marginal farmers often lack knowledge that could immediately improve their livelihoods. But, to educate such a vast, scattered population, two key areas need to be developed: content production and distribution.

Classical extension programs have typically followed either follow a push-based approach in which information is broadcast to farmers or a pull-based approach in which farmers pose questions to experts. These systems have shown some success in the field; however, the programs are either too general because they aim to be highly scalable (push-based) or too costly because they require experts to provide advice on an individual basis (pull-based).

Nevertheless, extension remains the focus of many government programs; India, for example, has the second largest number of extension workers in the world at over 100,000. However, these programs have challenges. Many farmers have been frequented by extension officers in the past and have become apathetic to the advice they receive. The programs are typically produced by experts of a different socioeconomic status in model conditions. Thus, farmers, who seek information from people similar to themselves, may not necessarily identify with the content in such programs.

Most existing technology solutions also fall short. There are rural PC/Internet kiosks that have sought to give farmers access to “expert systems”, but these programs have not sustained due to the prohibitive total cost of ownership, and they rarely result in absorbed knowledge by farmers. Other projects have attempted to allow farmers to interact with experts through more cost-effective mobile/SMS-based systems, but even these place an overemphasis on delivering static information rather than on building human capacities. Information does not equal absorbed knowledge or true education.

Our hope is to encourage building on the existing infrastructure and capacity through the construction of an agricultural extension ecosystem that includes not only technology but also new protocols. Many programs expect information or communication technology, such as PCs and mobiles phones, alone to deliver useful knowledge. Instead, these technologies must be placed in the context of existing efforts of governments, universities, and NGOs to build a collaborative platform that delivers end-to-end services to farming communities. The platform must not only address this issue technologically, but more importantly, socially.

2. CONCEPT

Our concept is to advocate the use of locally recorded video and audio, dispersed through “mediated instruction”, integrated with existing extension systems. Because audio-visual formats are likely preferred to mostly illiterate, visually-oriented groups, the idea is to encourage the use of audio (radio) and video (using the combination of DVD players and TVs) to reach out to farmers.

“Mediated instruction” is a particular use of video and audio in educational contexts, where a facilitator, who is not necessarily a subject matter expert, is present to pause playback, ask questions, encourage discussion, and otherwise provoke participation. It is known to be a very effective use of recorded media for education.

Finally, by building on extension systems, we take advantage of existing social networks that farmers already have. It is a known sociological phenomenon, that uptake of new ideas happens through social networks, traveling between social connections. Thus, the idea is to use content generated with local farmers as subjects as a means of advocacy. Such a system could serve as a collaborative platform for exchanging locally relevant media using a digital pipeline comprised of cost-realistic technologies. Radio and video then becomes a mechanism to capitalize on natural social dynamics to amplify a single extension worker’s ability to evangelize agricultural practices.

There are several possible ways to make progress in this idea:

Working with NGOs: An NGO’s agricultural expert can record best practices in audio or video. The NGO hires a local facilitator in the village to facilitate the screenings (audio and TV) of these shows. The facilitator is there to facilitate the meeting, record questions and to hand out materials that are talked about

in the show. The facilitator then communicates with the NGO expert to better inform him of the needs of the local village. The expert, when he visits the village, can now use her visit to better target feedback.

Working with the government: Government extension systems have widespread coverage, and can be revamped by training them on video/audio based delivery of their extension messages. A workflow as described in the previous paragraph could be followed, except the content in this case is produced by the governmental agricultural expert at the local level by visiting farmer fields. Local facilitators are still key to guarantee success of the program. The hope is that the burdened government extension system officer now finds an amplification channel to deliver relevant agricultural messages to farmers.

Encouraging content from the farmer: Although rare, there are farmers who are real experts in their profession. But, these experts are few in number and dispersed geographically; reliable traditions are often lost. Training the local farmers in the use of audio/video equipment and entrusting the equipment at the local farmers based organization as a public good and have a way for them to post the recorded cassettes to a city center for processing would help in getting information that is lost in the farmers minds.

Having agricultural universities produce content: The real experts are often at universities, with content locked up in a library. The idea here is to stimulate creation of audio/video tapes grouped by area by simply encouraging them to record their innovations offers a tangible way to encourage collaboration with the faculty and the NGO or the government extension staff through the medium of audio/video.

2. RATIONALE

Using videos as a means of communication has been in vogue for many years, but it is only recently that the costs of video production have become so low as to be affordable for smallholder agriculture extension.

For example, the Food and Agriculture Organization (FAO) of the United Nations supported a farmer-training project in Peru between 1975 and 1986 that recorded 1,000 videos of about 20 minutes in duration that reached more than 150,000 small farmers [2]. These projects and others, such as that of the Deccan Development Society in Hyderabad, India, successfully demonstrated the potential of using participatory video. However, at the time, audio-visual technologies were cost prohibitive. These costs have fallen dramatically in the last decade, and a 1996 FAO study suggested that audio-visual training activities would cost one-third to one-fifth of classical extension training [2].

A recent project called Digital Green, run by Microsoft Research India, has compared the use of video and “mediated instruction” (in which a facilitator is present at video playback to encourage discussion and answer questions among farmers) in an NGO to find that the adoption rates of good farming practices increased seven-fold by using participatory video [3].

Farm radio has pioneered the use of radio to reach out to many farmers in Africa [4].

3. EXPECTED BENEFITS OF THE PROJECT INCLUDING COMMENTS ON SUSTAINABILITY AND SCALE

The project benefits are to extend the reach of the extension system by capturing knowledge and best practices in an easily accessible form (video/audio). It allows local facilitators to become trainers without necessarily being experts of agriculture. It encourages farmers to produce content in a format that that is best suited for them to produce(audio/video). It helps in training of junior agricultural experts as they can review the content periodically to update their knowledge.

As there are nearly 800 million small-holder farming households in the world, a system that can enhance their knowledge and skills could benefit a large portion of the poorest populations in the world.

4. BENEFITS TO WOMEN SMALLHOLDERS

Radio/TV is a very accessible medium that allows participation by men and women. However, in places where TVs and radios are not widespread, a shared TV/radio would be used, and facilitators would need to exercise care to have special screenings with women present. In many cultures, having screenings at night or with mixed-gender audiences would not work due to cultural taboos; these constraints would have to be worked around. Another potential idea is to use existing social group structures, such as Self Help Group (SHGs)s, to involve women.

5. PROJECTED COSTS OF THE PROJECT

In each village, the system has two primary types of expenditures: fixed equipment costs for TV and DVD players and recurring honorariums of the facilitators. The equipment costs about US\$250 and the facilitators would be paid a maximum performance-based honorarium of US\$20-50 per month, depending on location. By working with departments of extension in state governments and NGOs, the system could

be integrated into their existing operations at minimal incremental cost. For example, a government extension officer who is only able to visit villages on a periodic basis could be supported by a more regular, local presence of a village facilitator and “virtual” experts in the video-based content.

In some cases, a village's existing infrastructure of TVs and DVD players and local village cable could be employed, but an individual's willingness to share her private TV and DVD player with her community would diminish over time. Local village cable networks could be used for a narrowcast distribution scheme; however, this latter method lacks the personal connection provided by the presence of a local facilitator.

The community might also contribute to the costs of the local facilitator to instill a sense of ownership.

6. MEASURES OF SUCCESS

Productivity: The end goal of any agriculture extension system is ultimately increased economic production for the farmer (note that this does not necessarily equal farm productivity, as oversupply can result in lower prices, with little economic benefit to the farmer).

Adoption: Productivity is difficult to measure in the short-term. One proxy for productivity is adoption of new practices by farming households, based on the premise that if good practices are being adopted, they will lead to greater productivity.

Capacity: One of the proximal aims is to build the capacities of farmers to improve the sustainability of their livelihoods. At the same time, we can measure the capacities of local organizations to produce and disseminate content. This solution provides a platform for organizations to share the triumphs and the pitfalls of their experiences. As farmers are motivated to adopt a better farming practice by observing the experiences of their peers, organizations can see that reaching the last-mile is possible through the system.

Localization of content: Another metric for success is the degree to which localized content is generated. Since the most effective content is intensively localized to geography and language, the more the overall extension ecosystem can produce localized content, the better.

7. RISKS

Content synergy: The objective of improving the sustainability of a farmer's livelihood may be shared; however, partners may have differing viewpoints on how this may be accomplished (*e.g.*, through intensive use of modern chemicals, or through natural sustainable practices). Partners should be encouraged to validate practices through participatory research. Such feedback needs to be incorporated into the system.

Accountability: Accountability is an issue that affects nearly every extension system. It is difficult to ensure that extension officers and field staff are visiting farmers and conducting demonstrations when the locations are often remote and difficult to access. Any solution must therefore provide a framework for an extension staff to be able to structure its activities.

Cost and scalability: Producing locally relevant content and distributing this content through locally-hired facilitators introduce costs that multiply with scale. These costs must be analyzed with respect to alternative models of agricultural extension. Community contributions could be used to provide farmers a sense of ownership for the shared success of the system.

References:

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