

Zooming-in, zooming-out

Developing farmer-education videos to scale up sustainable technologies

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Currently, various mainstream agricultural research and development projects use methodologies which focus on participatory learning and action research which allow people to draw their own conclusions. Undoubtedly, these have led to the development of sustainable technologies and improved management skills of farmers to solve local problems, but the question as how these processes and their outputs can be scaled-up remains prevailing.

The author presents a novel method called zooming-in, zooming-out. It starts with a broad stakeholder consultation to define learning needs of regional relevance. Only then are communities approached to get a better feel about their ideas, knowledge, innovations and the words they use in relation to the chosen topic (zooming-in). Educational videos are produced in close consultation with the end-users. Consequently, when showing the draft videos to further villages (zooming-out), more novelty is identified, and further adjustments made.

Introduction

Two case studies from Bangladesh and Benin illustrate the role of video in scaling-up sustainable rice technologies. Evidence shows that based on a few well-selected



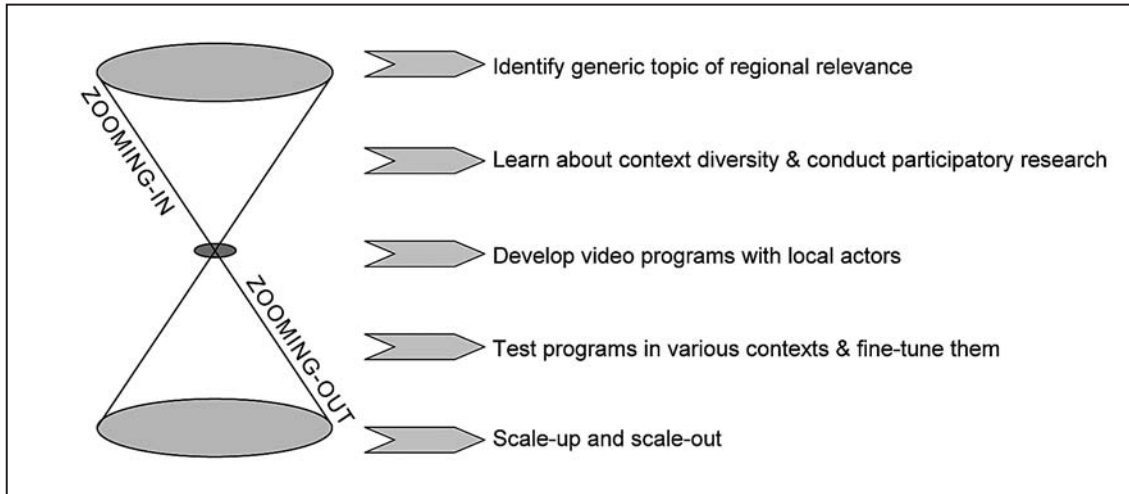
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local innovations, merged with appropriate scientific knowledge, video was able to explain underlying biological and physical principles. Facilitation increased experimentation and adaptation of sustainable technologies, but was not always a prerequisite. Apart from radio, video has been used extensively in rural development, even for topics such as soil fertility (Protz 1998). But overall, video is still under-explored as a means to stimulate co-learning and trigger agricultural innovations in rural and scientific communities alike.

Rather than scaling-up ready-made technologies, recent thinking suggests that more focus is needed on the learning than on the technologies (IIRR 2000). Little attention has been paid to developing appropriate agricultural learning content for radio and video programmes, and also the role of strategic partnerships and institutions in scaling-up has been downplayed as a relevant research domain.

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Figure 1: Zooming-in zooming-out: a new approach for scaling up sustainable innovations



The process: zooming-in zooming-out

All videos on rice seed (Bangladesh) and rice post-harvest management (Benin) covered a specific subject, addressing a need with a high regional relevance. Developing effective and efficient learning material requires considerable human input and is relatively time-consuming, so the need to start by assessing topics of high regional relevance cannot be over-emphasized. Hence, we coin an approach called zooming-in zooming-out (ZIZO) (Figure 1).

A broad multi-stakeholder consultation process helped to define learning needs of regionally relevance. This was followed by in-depth interactions with a few communities to get a better feel about their ideas, their innovations and the words they use related to the learning subject. Only after having zoomed-in, the exact content of the video was decided upon. Fine-tuning of the video programmes happened during the scaling-up or zooming-out phase.

Case study 1 – Bangladeshi seed health videos

In Bangladesh, multi-stakeholder analyses identified poor rice seed health as a nation-wide constraint, and as such became a major topic under the Poverty Elimination Through Rice Research Assistance (PETRRA) project. Building on experiences of working with farmers since 2000, the four seed health videos were developed and tested in 2002-2004².

Under PETRRA, training on seed sorting and flotation had been going on for several seasons, when the author initiated the development of discovery learning exercises with national scientists and university staff. These exercises form the core of education approaches such as farmer field schools. Based on his life-long experience, one of the senior entomologists was strongly convinced that women in the village did not know the relationship between seed moisture content and insect infestation level. However, developing this into a user-friendly discovery learning exercise, proved such a challenge that the idea was omitted at the end of the 2-day workshop. Only when a year later we started our script research for the videos on seed health, and assessed women’s knowledge in a few communities in more detail, we found out that they all knew that high seed moisture leads to high insect infestation. So what had we learnt?

Although the topic of storage insect pests and their control was highly relevant, during prior training and community interactions, scientists had not paid enough attention to unravel women’s knowledge in sufficient detail. Village women indeed did not know that with higher humidity insects lay more eggs and

² The video project was coordinated by CAB International (CABI), and implemented by the Rural Development Academy (RDA) and Thengamara Mahila Sabuj Sangha (TMSS), a national women’s NGO. For a full description of the video production process, please consult Van Mele et al. (2005).

go through their life cycle faster, but they knew about the cause-effect through experience. What we learnt by interacting more in-depth was that they did not know that air could still pass through their earthen pots after they had carefully closed the lid. Only then we understood that the subject should not be on insect life cycles and their ecology, but on porosity and how to make seed storage containers more airtight.

Once national or regional needs have been identified, use face-to-face methods to learn about local knowledge and to develop and test technologies. Based on new insights that 'seed placed on the earthen soil can absorb water', women in Bangladesh developed multipurpose seed drying tables. The video was able to capture this key concept visually, and featured a family producing their own seed drying table. The examples show how outputs from participatory research (e.g. on seed storage and seed flotation) and participatory technology development (the drying tables) were integrated with 'digestible' scientific information. The videos help to strengthen low-external input systems by injecting new ideas and providing a platform for local innovations. Storage insects and diseases are managed without chemicals, seed is dried using low-cost, locally available materials, and rather than promoting plastic drums, people learn how to make their storage container more airtight.

In 2005, the author moved to the Africa Rice Center (WARDA). After having shown the videos to rural women in The Gambia and Mali, and witnessing their response, local partners decided to translate the videos into Mandinka and Bambara, their principal local languages. Although the videos contained local innovations from another continent, the common need for good seed health along with visually strong images helped to bridge the communication gap to a large extent.

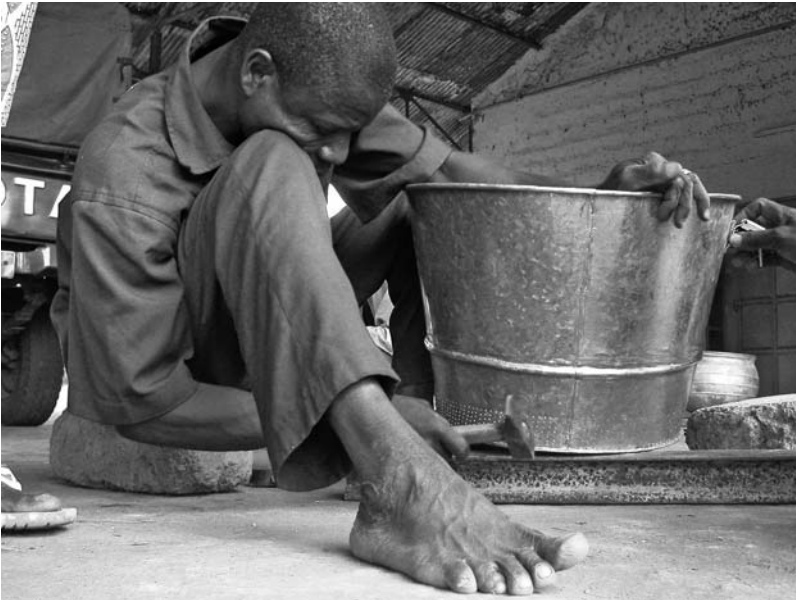
Case study 2 – West-African videos on rice post-harvest handling

To select the video topics in West Africa, in mid 2005 we embarked on a broad consultation process, through email correspondence and meetings with representatives from research institutes, NGOs and farmer organizations in Benin. Only then we held focal group



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discussions in a number of communities across the country. In West Africa, rice post-harvest handling is of regional importance: for local rice to compete with the imported product, its quality has to be improved. One way of improving quality is parboiling: presoaking rice in water after which it is steamed. In many West African countries it is a traditional process that consumes a lot of fuel and, as the bottom of the rice lies in the water during steaming, part of the rice is cooked leading to an uneven quality when milled. The interest of processing groups for a first prototype of an improved parboiler, developed in 2002 by the national research institute (INRAB), was high. In early September 2005, staff from WARDA, INRAB and the NGO Sassaka Global 2000 collected feedback on this prototype from a few communities across the country (zooming-in) and learnt that the technology still had some major shortcomings. Fine-tuning through participatory technology development (PTD) had to take place within a very short time: the rice harvesting season was approaching during which the video had to be produced. Instead of sending the comments back



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to INRAB, we organized a multistakeholder workshop, involving millers and blacksmiths from different parts of the country, and jointly adapted the model. In October 2005, the video captured the parboiler with its latest improvements. Apart from the three partner organizations involved in PTD, a second NGO called Songhai was involved in the video production. The speedy process differed from the one in Bangladesh, affecting the level at which participatory approaches were institutionalized among the partners.

Features of an effective video

Build on outputs from participatory processes

Doing research with farmers, developing technologies with them, or running farmer field schools, all contribute to building trust and to ensuring the technologies are in tune with the farming system. Although outputs from participatory work with communities often have mainly local relevance, for the production of videos aiming at farmer education, topics need to be identified that have a wider relevance and that are unlikely to have adverse effects in diverging environments. The human and social capital built during the technology development phase will subsequently facilitate a better understanding between actors when developing educational videos. Hence, people who were involved in those participatory processes should be part of the video team.

Visualize local innovations

Video gives you the guarantee that the learning subject you intend to get across will be conveyed in the same way over and over, and as such is a perfect support tool for facilitators. While making the seed health videos in Bangladesh, we learnt of a farmer who lit a candle in a seed storage pot as she closed it. This burned out the oxygen, and made the container even less insect-friendly. As this practice was highly relevant to illustrate and re-emphasize the need for airtight seed storage, we decided this innovation had to be included in the video. While showing the videos in numerous villages the following years (zooming-out), the Bangladeshi team learnt about many more local innovations, not only dealing with rice. One of the farmers in-

formed them that she stored seed in a bottle gourd. The fruit, once the flesh removed and dried, provides an airtight container that is also rat-proof and available at no cost. Not only had the team developed a trained eye and ear to spot interesting innovations, but after having seen the videos, village women were also more keen to share their ways of thinking and doing with the wider group. Tacit knowledge developed around in-house technologies, such as seed storage, is more difficult to assess because of their private nature. Our videos facilitated the discussion on such topics. As the videos are in a digital format, additional innovations can always be added along the way.

Use appropriate language and symbols

Producing videos in West Africa proved to be more challenging than in Bangladesh as the diversity of languages is vast: in one and the same village, three or more local languages may be spoken. To allow getting feedback on the rough edit from both the scientific community and end-users, the team decided to produce two versions simultaneously: one in French and one in Fon, a major language spoken in Benin. Language not only complicated the communication between the video team members and the villagers, but also increased the need to let women fully demonstrate their practices.

Getting to know the end-users is crucial to get the learning content right. While conducting script research in Bangladesh, project staff probed village women about their knowledge related to seed moisture. It seemed to be a difficult concept to communicate. For two years project staff had been training them on seed health practices, even conducting joint experiments, only now to discover that village women used very specific words to explain seed dryness; they had no words for seed moisture content.

Preparing and storing seed is largely women's work in Bangladesh. The women who appeared on-camera from Maria village in Bogra district were authentic. The fact that they had worked with rice seed all their lives no doubt helped win the sympathy of their audience. Many things influence whether or not people understand the dialect of another region. It helps if they are motivated by an interesting topic, if the speech is clear, and if there are visual clues like painted pots and drying tables. These factors need to be considered when assessing the scaling-up potential of videos that involve local communities in the production.

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Having one of the farmers sit on the earthen floor and showing his wet lungi was a memorable image and provoked hilarious laughter. Surely this is something people will talk about.

Stimulate negotiation between actors in the value chain

When researchers in Benin questioned farmers about the reasons why milled rice had such a high breakage rate, they mentioned poor milling equipment as a prime cause. Millers, on the other hand, blamed farmers for bringing in poor quality rice; apart from impurities, the paddy is often improperly dried (Houssou and Amonsou 2005).

Video helps to negotiate between actors: not only can it provide a balanced view by carefully selecting interviewees; it also allows the presentation of scientific results in a visual way. Scientific research revealed that drying in the hot sun for too long causes minute cracks in the grain, and although this is invisible for the naked eye, it is one of the main causes of high breakage during milling. The video talks about improved practices of drying paddy and refers to cracks in earthen pots or clay when dried in the scorching sun. Interviews with rice farmers, processors, millers and sellers, along with scientific information presented in a digestible form, helps the actors in the rice value chain to understand each other better.

Cultivate ownership

Creativity and flexibility is needed to better respond to different publics, to varied learning situations and to resources that can reach the broadest public (Debouvy and Weiss 2003). Video allows one to develop a broad range of short learning modules that can be assembled and adapted to locally appropriate training curricula. Videos can be easily translated, as was the case when the Bangladeshi seed health videos conquered Africa: by 2007 they were available in 15 African languages.

Build strategic partnerships

To obtain videos that are suitable for scaling-up, the teams went through a process of rigorous script research, identified local innovations, transformed scientific ideas in a digestible format, and presented this alongside local innovations and outputs from participatory research and technology development. But what is the 'context roof' or level to which scaling-up can take place within a given set of policies, markets and institutions? We learnt that a feeling of ownership

Ten rules to scale up sustainable technologies

- 1 Conduct actor analysis
- 2 Build capacity to identify and stimulate local innovations
- 3 Create early, low-budget opportunities for multiple actors to learn to work together
- 4 Don't rush participatory learning, action research and technology development
- 5 Increase the creative thinking capacity among actors
- 6 Build experiential learning principles into media programmes
- 7 Involve communication specialists, broad-based professionals with experience in learning approaches, and end-users in developing communication strategies
- 8 Opt for quality in partnerships, not quantity. Expand gradually
- 9 Ensure local ownership over technologies, extension methodologies and materials
- 10 Support institutional learning continuously

over the learning materials plays a crucial role in the consequent use of the videos. Building strategic alliances for the video production and ensuring a feeling of shared ownership over the end-product surely were keys to the success in Bangladesh, where two years after the production of the videos more than 130,000 households had seen the videos. By the end of 2006, 400,000 farmers had seen the videos through facilitated group sessions in four Asian and four African countries and an estimated 40 million farmers saw the programmes through TV broadcasts. To scale up, 'ambassadors' are needed at global, regional, national and organizational level.

Impact

In both cases the videos were used in a wide range of settings, including training-of-trainers sessions. A large number of organizations showed them to farmer groups of varied size and composition. Analyzing differences in 'adoption' helps in developing extension strategies by pinpointing for which technologies or learning modules additional facilitation is needed. Especially the videos on seed sorting and seed flotation seemed to require additional follow up by group discussion. This being said, all four videos significantly triggered changes in knowledge, irrespective of facilitation.

The translation in changed behavior may thus be only a matter of time. Future research will tell.

The videos on drying and storage triggered changes in practice, even without facilitation. Women store seed in a wide range of recipients and after having seen the video many changed to smaller and more airtight containers. Only 3% started to paint their earthen pot when videos were shown without facilitation, compared to 32% when followed up by group discussion. Irrespective of facilitation, more than 90% had learnt how to expel air from their storage container.

Facilitation has an overall positive effect on the rate of experimentation, but video used as a stand-alone method can trigger change in a community, albeit small it is, its potential to have an impact when used as mass media is huge. A good video gets its ideas into the heads of some community members, who will experiment with them. By then, the video has already played its role. Adoption and diffusion will depend on how functional and profitable the technologies are in the given context.

Although the main objective of the videos is to enhance rural people's understanding and change their behavior towards certain practices, during the production of the video the mindset of researchers and development workers also changed.

Conclusion

The zooming-in, zooming-out method presented above ensured a high relevance across regions, and suggests that scaling-up should be considered right from the start, rather than at the end of a project. Especially for those that aim at making an impact beyond the village level and project lifespan.

Empirical evidence suggests that for scaling-up through video the focus should be on the principles behind the technologies rather than on the technologies themselves. The more the underlying scientific principles presented in the videos resonated with what farmers know and do, the more video became useful as a stand-alone method. Facilitation increased the rate of experimentation, but was not always a prerequisite. Educational videos should:

- Deal with issues of national or regional importance;
- Stimulate negotiation between actors;
- Show functional technologies and their underlying principles;
- Reinforce this with a few well-selected examples of local innovations;
- Invite the viewer to try them out;
- Be attractive for intermediaries to show them to the target audience.

Learning drives innovation. Participatory processes and strategic partnerships can increase the efficiency and impact of educational videos. Alternatively, videos based on principles of participation and social inclusion can lead to attitude change among research and development actors, and to the identification of more novelty. In conclusion, more systematic assessments are needed of the extent to which video can contribute to scaling-up processes and outputs of participatory learning and action research. If we want to bring more benefits to more people more quickly, why wait?

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