

'Cellfilms' and 'Photovoice' – how visual tools can help understand farmers' adaptation to climate change

Use of mobile phones holds great promise for identifying and understanding gendered climate change adaptation strategies in rural areas of the Global South. Our authors describe the methodology and results of a case study with women, men and youth farmers in Uganda demonstrating the benefits and challenges that need to be addressed.

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Climate change is increasingly affecting rural communities and food security around the world. Research on how farmers adapt to climate change has been intensified in the last years. Many studies use quantitative research designs in order to generate statistically representative data. Qualitative methods such as focus group discussions are also relatively common in this field, but the use of visual research tools is still rare. Considering that a picture is worth a thousand words, such tools can have a considerable potential to generate new insights on climate adaptation in agriculture.

As part of a research project on climate-smart agriculture (see Box on page 49), we implemented two participatory visual research tools in Uganda: 'photovoice' and 'cellfilm'. The goal was to explore how small-scale farmers – including male, female and young farmers – adapt their farming practices to climate change.



Part of a video by farmer Nabbona Cissy Mulumba, who participated in the project.

Photovoice and cellfilms as participatory research tools

The methodology of photovoice was developed in the 1990s by Caroline Wang (University of Michigan, USA) and Mary Ann Burris (Ford Foundation), who first implemented this method in China in a women's health and development programme. The researchers gave cameras to the study participants to document their health issues and needs. Using this approach, they pursued three goals: 1) to empower people – especially women – to record and reflect on their community's strengths and challenges, 2) to promote critical consciousness about key challenges through group discussions of the photos taken, and 3) to reach policy-makers.

Another visual research method is 'cellfilm'. This term was coined in 2009 by Jonathan Dockney and Kethan Tomaselli from the University of KwaZulu-Natal, South Africa in the context of cinema/film studies and refers to short videos (films) recorded on cellphones. This concept was later popularised as

a participatory action research tool in a book edited by Katie MacEntee, with goals similar to those of photovoice: to empower people, raise awareness on critical issues and promote social change. Cellfilm follows the tradition of earlier methods that have used videos. Participatory videos were chiefly used to engage a group or community to produce a film using professional equipment in order to inform policy-makers about a community's needs. Cellfilms are different in that they are shorter, created by individuals and use the video applications of mobile phones. Since these visual research methods have not yet been widely adopted in rural and agricultural studies, we wanted to explore whether they can unravel additional insights into how farmers relate and adapt to climate change.

Spending six days with farmers

With our project collaborators from the Ugandan Ministry of Agriculture, Animal Industries and Fisheries (MAAIF) and the Africa Insti-

tute for Strategic Animal Resource Services Development (AFRISA), we conducted this study in six districts of Uganda. We stayed in each district for six days and worked with one group of women, men and youth, respectively. We conducted a first group discussion with each of these groups on climate change adaptation and also handed out the smartphones to participants. The discussion included open-ended questions about livelihoods, general agricultural activities and gender-specific activities. Subsequently, we asked if participants had experienced a change in climate during their lifetime, which signs of climate change they had observed and how they had been adapting to those changes. After these interviews, we introduced the photovoice and cellfilm approach to each group. Depending on the interest of members, we handed out 5–12 smartphones per group. After training the farmers on how to use the smartphones as cameras for taking pictures and videos, we left the smartphones with participants for two days and asked them to capture their climate-smart practices and strategies in cellfilms and pho-

tographs. On the day after handing out the smartphones, we visited participants on their farms to check if they had any questions or problems concerning the use of the phones. This visit created an opportunity to give feedback on photos and cellphilms already taken and to charge batteries of the smartphones in case they were running low and farmers had no access to electricity. The following day, our research team collected the smartphones.



Before, only my daughter knew how to use a smartphone. Now I am able, too.

We transferred the recordings from the phones to an external hard drive and selected at least one picture or cellphilms from each participant for the second group discussion, which was held on the following day. Selection criteria for the photos and cellphilms included reference to a relevant climate change-related practice and visual quality. Blurred recordings were only selected if they showed a relevant practice and no alternative of better quality was recorded. In a second round of group discussions, we reviewed and discussed the photos and cellphilms with each group using a portable and battery-operated projector. In order not to overburden the meeting, we showed a maximum of 20 photos and cellphilms. During the screening, farmers explained the climate adaptation strategies that they had documented.

Afterwards, the facilitator wrote the practices down on a flipchart paper and drew a simple picture to visualise the practices for the benefit of members with limited literacy. Using a common participatory ranking procedure, each participant received three stickers and was asked to rank the practices considered to be most important in adapting to climate change. Afterwards, the participants explained why they considered the selected practices important. On the last day, a third, joint group meeting with all participants of the three groups (male, female and youth) was conducted, in which each group presented their three to four most preferred practices. Members of other groups were encouraged to ask questions to the group presenting, and the participants engaged in lively discussions. A feedback round completed the meeting and the whole research week in the respective district (see upper Table).

Overview on research design in all districts

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 st group discussion women + handing out smartphones	1 st group discussion youth + handing out smartphones	Visiting youth	Collecting smartphones of youth	2 nd group discussion men: screening of cellphilms and photos	Joint group discussion men + women + youth
1 st group discussion men + handing out smartphones	Visiting women	Collecting smartphones of men + women	2 nd group discussion women: screening of cellphilms and photos	2 nd group discussion youth: screening of cellphilms and photos	
	Visiting men				

Practices recorded on photos and cellphilms, but not mentioned during interviews (women)

District	Bukomansimbi	Kalungu	Kiboga	Mubende	Nakasongola
Livestock	Housing for animals	Housing for animals	Treating livestock with traditional concoctions	Treating livestock with traditional concoctions	Treating livestock with traditional concoctions
		Livestock feed management		Livestock feed management	
Crop management	Agroforestry	Agroforestry	Handpicking pests	Agroforestry	Application of pesticides / herbicides
	Manual weeding	Manual weeding	Trapping pests		Intercropping
Water and soil management	Application of traditional concoctions	Intercropping			
		Planting trees			
		Pruning of bananas			
	Application of organic manure	Application of organic manure	Application of organic manure	Application of organic manure	Water harvesting
	Mulching	Mulching	Mulching	Mulching	
		Soil and water conservation structures			
Land use			Deep ploughing		
Other		Bee keeping	Bee keeping		
		Cultivating degraded land			
		Energy-saving stove			
		Income diversification			

Visualisation is beneficial, participation is empowering

The cellphilms and photos elicited additional adaptation strategies that had not been mentioned in the first set of discussion groups. The use of photos and cellphilms thus revealed additional preferred practices in use. During the discussions, women generally mentioned fewer strategies compared to men and youth, but they took an approximately equal number of photos and cellphilms recordings. The recordings thus elicited more information, especially from women. This finding indicates that al-

lowing women to take photos and cellphilms is a suitable method that allows them to express themselves.

While there was no strategy that was solely recorded on photos and cellphilms, some practices mostly came up in the recordings. For women, these practices include mulching, application of organic manure and agroforestry (see lower Table).

Overall, the number of climate change adaptation practices mentioned was larger during the Focus Group Discussions, since it takes

less time to talk about strategies during a conversation than to take photos or cellphilm of these practices. In addition, brainstorming in a group generally brings up ideas more easily than thinking about them individually. Hence, the distinctive advantage of photovoice and cellphilm can be seen in revealing additional insights into climate adaptation of farmers, and particularly women farmers, which are not easily discovered without such visual methods.

The research experience also showed that participants were very creative in how they recorded practices: some held the smartphones themselves, showed their plots and explained how they, for example, dig trenches as soil and water conservation structures; others asked a family member or friend to film them while they were digging a trench. However, some photos were not self-explanatory and required further clarifications from farmers. With their active participation in the research process, farmers not only learned to use a new tool, they were also empowered by contributing to a first analysis of their own findings during the second group discussions. Farmers' self-esteem was visibly enhanced by the opportunity to share their knowledge and experience on climate change adaptation. One woman said: "We found out that it was us who had all the information that we shared, so it was us teaching you [the research team], and we just fail to practise what we know." Participants also saw value in learning how to use a smartphone. One woman pointed out: "Before, only my daughter knew how to use a smartphone. Now I am able, too." Moreover, participants were able to teach someone else to use the smartphone and record them, because they often wanted to be seen in the photo or cellphilm themselves as demonstrating the practice.



We found out that it was us who had all the information that we shared, so it was us teaching you [the research team], and we just fail to practise what we know.

The general enthusiasm in engaging in the smartphone activity can probably be explained by the appeal of smartphones to people. The majority of farmers were eager to participate, and the enthusiasm demonstrated required the research team to request farmers to limit re-

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cordings to 20 each. Moreover, in most groups there were more volunteers than available smartphones, so we encouraged members to share phones and assist each other in recording climate adaptation practices, which they did. Collecting the smartphones back from participants did not pose any challenge. Not a single smartphone was lost, but possibly this was due to the fact that we worked with farmers' groups and the group leaders assisted in collecting the phones.

However, some farmers were sceptical about smartphones, suggesting that these devices may create controversy or even conflict within communities. As an example, one woman in a youth group stated that her parents would not approve of her using a smartphone, so she chose not to take part. Using photovoice and cellphilm needs to take local perceptions of digital devices into account and should be considered carefully in each context. In addition, the empowerment of participants might well be limited to the duration of our study, since we collected the smartphones as well as digital recordings at the end of the study.

Using visual research methods also requires researchers to reflect on the power relations between participants and scientists. If smartphone ownership in developing economies continues to increase, researchers may want to choose using participants' own devices, so that they can keep their photos and cellphilm after the study is completed.

Availability and access to electricity can pose a challenge to this research approach. Occasional power cuts in our research areas made it difficult to charge phones before distributing them and also affected the selection of cellphilm and pictures for the second meeting, since such data transfers discharge smartphone batteries rather quickly.

A final challenge was the need of a dark room for the second meeting where the recordings

were shown using a projector. These meetings were held in participants' houses or public facilities, such as schools, but in some locations, suitable rooms were hard to find.

"It is a good method to learn from friends"

In addition to having value for development practitioners and researchers, short videos taken by farmers may contribute to developing new ways of knowledge exchange among farmers, between farmers and agricultural extension workers, and between farmers and researchers. Once recorded, a cellphilm can be distributed, shared and watched independently from weather, seasons and infrastructural challenges, such as impassable roads due to flooding after heavy rains. Videos can be installed on the phone of an extension officer, who shows the video in the communities he or she works in, and they can also be shared with community members via messaging services such as WhatsApp. Innovative solutions of small-scale farmers for coping with changing climate conditions could thus be shared with a much larger community, enhancing rural development and communicating (women's!) perceptions, needs and strategies to policy-makers.

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