

Women participatory evaluation of video impact using sustainable livelihood approach

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Abstract

Parboiling is an important rice processing activity that generates income for many rural women. Using the sustainable livelihoods framework to evaluate the impact of a farmer-to-farmer video on the improved rice parboiling technology, women in Benin rated capital stocks for the baseline year (2006) and the impact year (2009) on a 0-5 scale. Women who had watched the video and those who had not, but who lived in the same villages perceived a significant improvement in four out of five livelihood capitals while processors in control villages did not perceive any significant changes. Individual and group assessments using the sustainable livelihoods approach resulted in similar results, but were important for statistical analysis and for consensus building among women, respectively. Apart from testing the sustainable livelihoods conceptual framework as a participatory impact assessment tool for video-mediated rural learning, this study shows how farmer-to-farmer training videos helped to improve multiple livelihood assets.

Keywords: Benin, impact, rice parboiling, sustainable livelihoods, video

Résumé

L'étuvage du riz est une activité post-récolte importante qui procure des revenus à de nombreuses femmes dans le monde rural. L'utilisation de l'approche des moyens d'existence durable pour évaluer l'impact de la vidéo de paysan à paysan sur l'étuvage amélioré du riz a permis aux femmes étuveuses de riz du Bénin de donner des scores allant de 0 à 5 à leurs capitaux financier, social, humain, naturel et physique pour l'année de base (2006) et l'année d'impact (2009). Les femmes qui ont suivi la vidéo et celles qui n'ont pas suivi la vidéo, mais qui résident dans les villages où la vidéo a été projetée ont perçu une amélioration significative dans quatre des cinq capitaux considérés ; alors que les femmes qui résident dans les villages

contrôles n'ont pas perçu des changements significatifs dans leurs capitaux. L'évaluation individuelle et en groupe ont conduit à des résultats similaires ; mais sont importantes respectivement pour des raisons d'analyse statistique et de consensus au sein des femmes. Mise à part le fait de tester le cadre conceptuel des moyens d'existence durable comme une approche participative d'évaluation d'impact de la vidéo comme outil d'apprentissage rural, cette étude montre comment la vidéo de paysan à paysan pourrait aider à améliorer les moyens d'existence.

Mots clés : Bénin, impact, étuvage du riz, moyens d'existence durable, vidéo

Background

Rice parboiling is an optional step of pre-cooking raw paddy with steam to enhance the nutritional value of rice and reduce the grain-breakage rate at milling (FAO, 1998). In Benin, the prevailing traditional rice parboiling method does not lead to quality rice (Diop *et al.*, 1997). The principle behind the improved rice parboiling technology is to pre-cook the paddy with steam, without touching the water. The improved rice parboiling video shows how and why to pre-cook paddy with steam using the improved technology, as well as why and how to wash the paddy, how to soak it in the hot water and how to dry it (AfricaRice, 2005). This study addresses the impact of farmer-to farmer video using the sustainable livelihoods framework that guides farmers in conceptualizing changes over time in their overall livelihood as used by Mancini *et al.* (2007) in evaluating outcomes of a cotton integrated pest management farmer field school.

Literature Summary

The traditional roles of agricultural extension, namely transferring and disseminating agricultural technologies, are proving insufficient in today's global context (Cho and Boland, 2002). To achieve sustainable agriculture, the capacity of rural people to innovate has to be strengthened (Hall *et al.*, 2001), calling for changes in the inefficient traditional public extension systems (Rivera and Zijp, 2002). Currently, new methods for interacting with smallholder farmers, such as participatory learning and action research (PLAR), farmer field schools (FFS) and local agricultural research committees (CIALs), focus on learning among farmers, testing and modifying technologies, and building social cohesion (Braun *et al.*, 2000; Bentley *et al.*, 2006). Nevertheless, triggering such changes beyond pilot phase projects remains a key challenge (Van Mele *et al.*, 2005; Bentley, 2009). A novel way of achieving this is to work in a

carefully planned way with graduates from PLAR or FFS who share their learning and innovations with their peers through video. This approach, called zooming-in zooming-out (ZIZO), merges participatory innovation development with video and results in quality farmer-to-farmer training videos that are locally appropriate and regionally relevant (Van Mele, 2006). To strengthen rural learning and linkages in the rice sector, a series of farmer-to-farmer videos was developed following the ZIZO approach. In this paper, we assess the video 'Cashing in with parboiled rice', which was developed in collaboration with rice processors in Benin who had earlier been involved in developing and testing the improved rice parboiling technology.

Study Description

The study was conducted in 2010 in five municipalities in Collines, central Benin, where rice parboiling is a tradition. A total of 144 women rice processors, divided into three groups, were randomly selected to participate in the assessment without providing them any incentive. Women in video villages who did not watch the video were included because of possible information exchanges within the village. The sustainable livelihood approach was used to appreciate the different capital assets. The respondents individually rated the capital stocks identified for the baseline year (2006) and the impact year (2009) on a 0-5 scale. A spider diagram was then drawn to visualize the five capitals with 0 value (no stock) at the centre of the diagram and the value 5 at the other extreme of the axes, corresponding to a full satisfaction. The causes of changes made visible in the diagram were listed and ranked. Just after the individual interviews, we asked the participants in each group in each village to gather and attempt to achieve a consensus on their collective capital stocks recorded in baseline year (2006) and in the impact year (2010). Any changes made visible in the diagram between the two reference years were discussed in group and causes were free listed and ranked with consensus on the poster. Groups were informed that they should reach consensus, but no specific method of doing so was imposed or proposed (Bonner *et al.*, 2007).

Table and graphs were made with the median capitals rating values to make changes visible over time for each of the three sample populations, both for individual and groups values. The Wilcoxon test was then used to determine the significant differences between the baseline and impact years. The Mann-Whitney-Wilcoxon (MWW) test was used to determine whether there is a significant difference between individual and

group's rating. Stepwise and canonical discriminant analyses were used to determine whether the three samples could be separated based on changes in all capitals simultaneously.

Research Application

The Mann–Whitney–Wilcoxon (MWW) test shows that individual assessments led to similar results ($P > 0.001$) as the group's consensus (Fig. 1). The use of the stepwise and canonical discriminant analyses showed a significant difference among the three sample populations in their capital stocks between 2006 and 2010 (Wilks' Lambda = 0.445; Canonical correlation = 0.725 and $p < 0.01$). Rice parboilers who watched the video perceived an important improvement in their human, social, financial and physical capitals ($p < 0.01$ for Wilcoxon test). Rice processors in villages where the video was shown but who did not attend the video screening also perceived changes in these human, social, financial and physical capital assets ($p < 0.01$ for Wilcoxon test), but to a lesser extent than those who had watched the video. Unlike the first two sample populations, the rice processors who lived in control villages did not perceive any change in their physical, financial, social and human capitals.

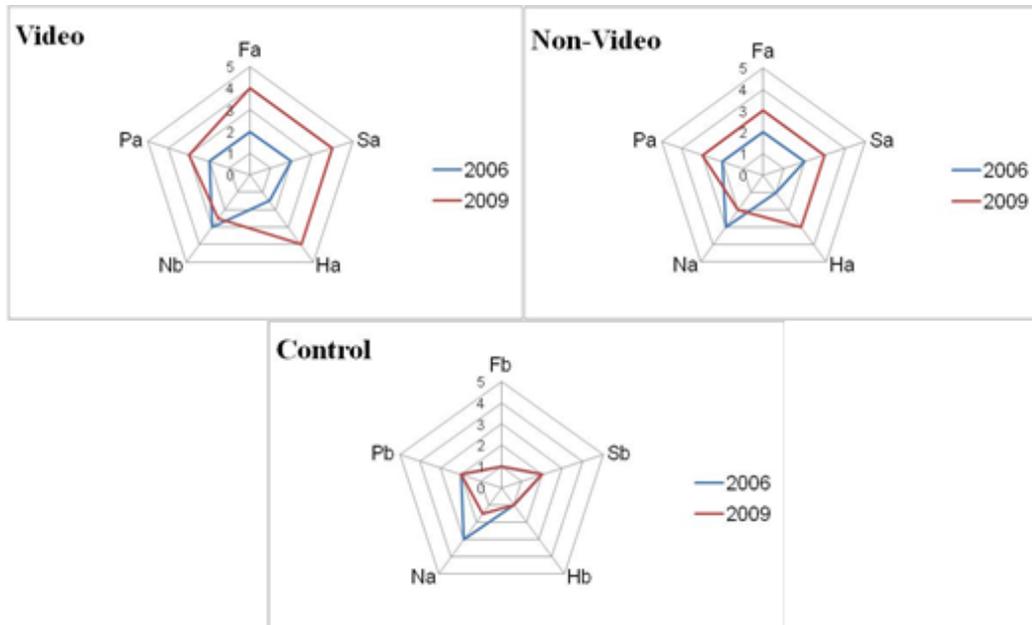
Rice processors who watched the rice parboiling video did not perceive a significant change in their natural capital while those living in the same villages who did not watch the video and those living in control villages perceived a significant decrease of the natural capital stock between 2006 and 2009. This decrease in natural capital reflected an increasing difficulty to access firewood. By watching the video, women saw an improved stove that consumes less wood (Zossou *et al.*, 2010). The use of the improved stove made those rice processors less dependent on firewood and consequently they had less of an impact on their natural wood resources.

The main causes of changes according to women in video villages are the video screening and the information exchanges within the village. This shows that farmer-to-farmer rice video has been quite effective in terms of its impact on farmer learning.

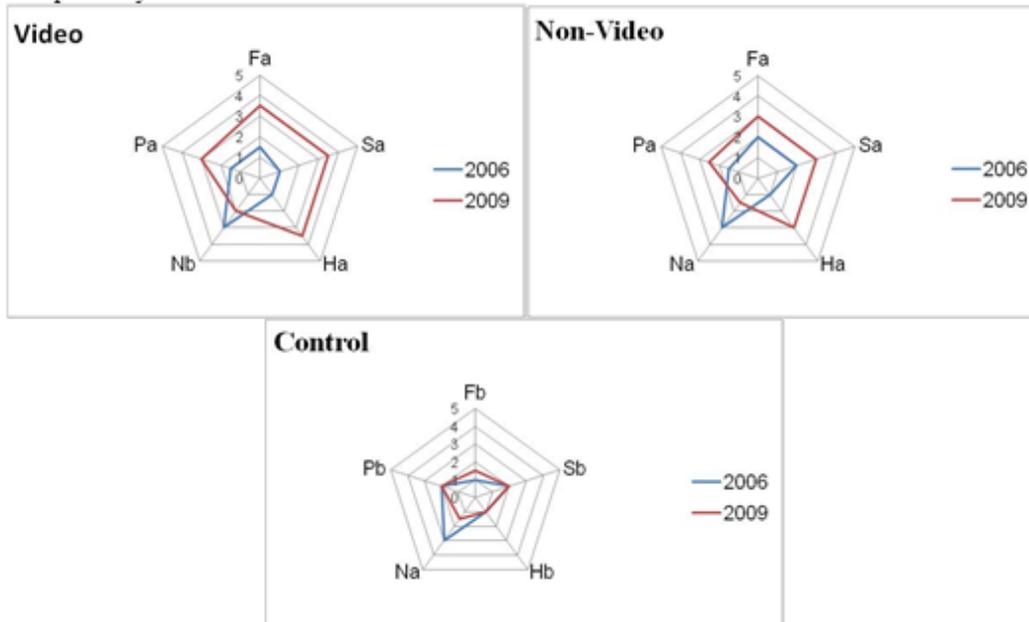
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Individual survey



Group survey



F = Financial Capital, S = Social Capital, H = Human Capital, N = Natural Capital, P = Physical Capital. a = Wilcoxon test significant ($p \leq 0.05$); b = non significant Wilcoxon test.

Figure 1. Changes in capital stocks for rice processors in central Benin between the baseline year (2006) and impact year (2009) by the three sample populations (individual and group survey).

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