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Why absence of "fihavanana" is limiting agricultural innovation process in the highlands of Madagascar?

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Abstract

Apart from institutional concern, human interaction between stakeholders merits to be considered in approaches related to development projects (DPs) that provide innovations. Combining effort, pain, and gain are aspects of solidarity and cohesion concepts that Malagasy people consider in the term "fihavanana". Paradoxically, founding principles of Malagasy "fihavanana" are opposed to innovation initiative. "Fihavanana" concept is nowadays affiliated to rural people as farmers, the beneficiaries of most DPs. In contrast, many developers who are supposed to provide positive changes to beneficiaries are from the cities and are less connected to rural culture. Nevertheless, more than a mutual understanding is required to make innovative process effective. Synergetic mobilisation of human resources is also expected. This paper aims to demonstrate that the absence of "fihavanana" between implicated agents of innovation process conducts to its failure. Outcomes from PhD dissertation based on a literature review, on multi-site trials related to the improvement of rice yield and performed as a simulation of DPs, and on a household survey in two contrasted localities in the highlands of Madagascar show that stakeholders' objectives or activities inside innovation process do not converge. Developer and beneficiary diversely act relatively to their respective capacities and interests (effort and gain), even if participative approach is included. Moreover, each implicated agent is not able to overcome alone obstacles (pain) that constrain its own achievement. This paper suggests more consideration of cultural issues when designing DPs. The current strategy of development programme largely focuses on economical issues to cope with concerns such as reducing poverty or securing food in agrarian society. Combination of "fihavanana" with the innovation process conducted in Madagascar may be helpful to improve welfare and wellbeing of local population. These concepts may be compatible if we consider that both, "fihavanana" and innovation, cover almost the same social, cultural, environmental, technical, and economical dimensions.

Key words: Agricultural research and development, human resources, behaviour, rice cropping systems, cultural concern

Introduction

Changes in Malagasy farmers' practices are expected from agricultural innovation which is an institutional-based process. Nonetheless, agricultural practices of Malagasy farmers have not significantly evolved since a century (Verin 1969) despite multiple innovation processes provided by development projects (DPs) in Madagascar for the last half century. Some authors (Gannon and Sandron, 2008; Rouveyran, ...) have stated that "fihavanana", a Malagasy mutual solidarity concept (Rarivomanantsoa, 2004), obstructs innovation initiative. Conversely to literature's statement, this study aims to demonstrate that absence of "fihavanana" between current stakeholders of DPs constrains internalization of innovation.

Conceptual frameworks

Innovation is defined as a learning process of knowledge and competences (Sander, 2005). To be effective to target agents, innovation process is inserted inside institutional structures ensuring the achievement of its established objectives with help of technical, economical and organisational subjects.

For Malagasy rural population, especially for inhabitants of the highlands of Madagascar, "fihavanana" is based on interpersonal relationships. Gathering effort, pain and gain ensures social cohesion and economical stability for the community (group).

In current DPs, involved change agents are mostly coming from cities within a graduated scholarship background whereas target agents are designated among smallholder farmers of the countryside and very often, are chosen due to their precariousness: low income or exposed to global food insecurity.

Therefore, this short paper assumes that the non integration of change agents and other external agents to the target ones into the "fihavanana" makes this concept such an opponent to the innovation process.

Material and Methods

Two contrasted sites of the Malagasy highlands where chosen to verify our hypothesis (figure 1).

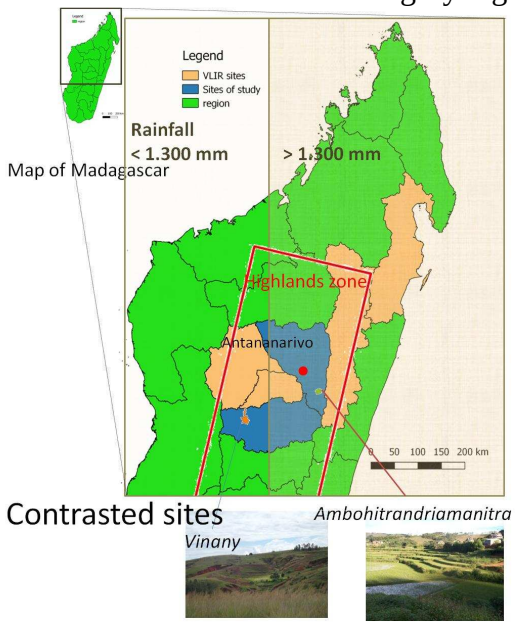

Figure 1: Locations of the study sites

Sites were different regarding to their physical characteristics such as relief, climate, dominated vegetation, and corollary to their major agricultural systems. The rural Communes of Vinany (site 1) and of Ambohitrandriamanitra (site 2) host conservative population according to their customs

and habits. They belong to the highlands zones but are particularly distant from Antananarivo, the Capital. Even though site 1 is four fold further than site 2 from the Capital, duration of trip to join site 1 by car is merely twofold more important than to join site 2 because of roughness of the road in the east side of the highlands.
Household survey was performed to characterize the structure and the functionalities of 109 farming systems from both sites and to inquiry about their past experiences in DPs. This survey precedes the simulation of a DPs based on the dissemination of a common innovative practice, applying phosphorus (P) to fertilize rice systems throughout participatory learning and action research (PLAR). Multisite trials was conducted by researchers (that stated for change agents) to make P known and internalized by farmers (target agents) in rice cropping systems. Short interaction between restrained stakeholders of the simulated project allowed participant observation that highlighted their behaviour and their perception during DPs.

Results and Discussion

Results of the survey enlarge contrast between sites throughout human characteristics. Qualitative analyses of data about farming systems highlight strategies of households showing their major interest in rice production. Households' histories show that past DPs only affect one farmer out of seven during the last twenty years in sites 1 and 2 having respectively 40 and 69 interviewees.
Despite a hundred of farmers were informed about the innovation process related to P-fertilization of rice systems, only 27 farmers were voluntaries to join the trials (partners) and 31 (including 17 previous partners), to apply the innovative practice in their own fields as users (figure 2).
Referring to the simulated PLAR's achievement, the restrained resources from the simulated project to supply partners was limiting the involvement of farmers in trials. Moreover, not all the farmers were able to afford the P mineral fertilizer and to become user. As consequence, innovation process provided by DPs cannot enrol the whole population. That hence favours individual incentive instead of a community mobilization.

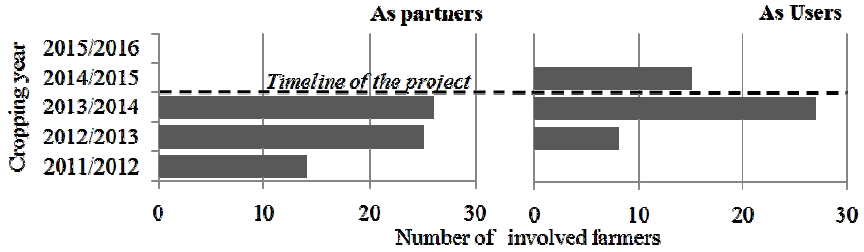

Figure 2: Farmers' involvement to the PLAR

Survey also states that dynamism of each population tends to struggle food insecurity. Interest of farmers to agricultural innovation is reduced, even null when we refer to their current strategy: optimizing land use to rice production, the local staple food and allocating most of their expanses to food acquirement.
Involvement of farmers in the simulated project was motivated on one hand, by their predisposition to receive (knowledge and materials provided by the project) and on the other one, by their predisposition to invest (observation of the relative advantage proposed by the innovative practice).
Even though statistical analyses established by scientists only show significant results in yield gain from the combination of organic (OM) and P fertilizer compared to the lonely treatment scheme in site 1 (figure 3), farmers of both sites notice qualitative advantages from this combined treatment in addition to relative qualitative surplus. Unfortunately, the additional positive assessment of the innovative practice was not enough to maintain users during the second year after trials.

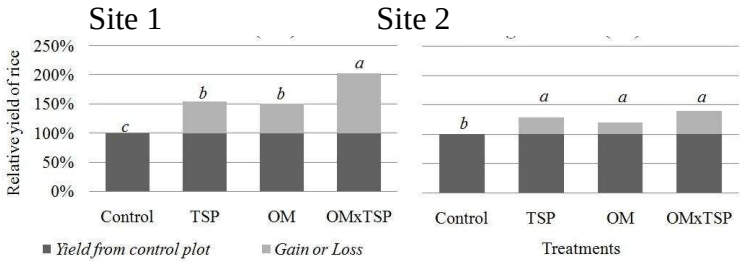

Figure 3: Relationships between treatments and rice relative yields from multisite trials

Balancing farmers' predisposition to receive with their incentive to pay depends on the impacts of innovation on the risks that farmers already face in their current activities (partners' behaviour). Managing risks associated to the innovative process justifies farmers' involvement to the innovative process. The degree of pain and the required effort that farmers can undertake are there expressed. Duration of the project matches with the intensive interaction between stakeholders. Conversely, the end of the project means end of insurance against risks and induces the progressive abandon of the new practice by previous practitioners (partners or users) (figure 2).

Even though both stakeholders admit the relative advantages from the proposed innovation, their analyses of gain differ. Effect of fertilization treatment is statistically stressed by researchers (figure 3) whereas farmers emphasize various changes induced by the innovative practice such as: less empty grain, high resilience to hazards, precocity (results of poll survey – not shown).

Conclusions and Outlook

Despite the relevance of the innovative practice, according to farmers' viewpoint (gain is obvious), the process cannot be sustained once the change agents stop their activity (combination of effort is limited in the time). Farmers are less incentive to invest after the project because they are facing alone the risks (usual or induced by innovation) that interfere with their main preoccupation: food security (pain is no more shared). Apart from technical and economical concern, leading DPs would further consider cultural issue in the future. "Fihavanana" is a Malagasy well known way of living. Unfortunately, external ways of thinking are more privileged during the interactions of stakeholders in innovation process instead of the integration of the external agent to local habits.

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