

« IMPORTANCE OF ADAPTING RURAL DEVELOPMENT PROJECTS TO LOCAL CONTEXTS »

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ABSTRACT

In recent years, pioneering projects have been programmed to ensure the resilience of rural populations. Various development activities have been initiated, but poverty persists at the rural household level. The problem that arises is therefore to know under what conditions rural development projects can bring about changes that will enable the resilience of farmers? Indeed, the success of projects must be based on a system that is derived from considerations of local contexts. The objective of this research is to analyze the impact of the adaptation of projects to local contexts on the changes perceived after the intervention of rural development projects. The analysis of survey results on a sample of 301 farmers from the rural environment of the Ankadinondry Sakay Mahasolo axis has made it possible to affirm that the changes perceived after the intervention of rural development projects depend on the level of adaptation of its actions.

Key words: *Rural environment, Projects, Change, Adaptation, Development, Resilience.*

INTRODUCTION

The success of development projects depends on the effective participation of the population, dictated by the will to solve their problems. However, the initiators of the projects obey a different logic, those of the financiers. It is therefore common, especially in rural Madagascar, to encounter failures in development projects. This situation could be caused by the inadequacy of the activities advocated by the projects to the expectations of the peasants who ignore the innovative techniques and ignore their know-how and choose to remain passive. Some differences of opinion influence their perception and should be considered in the orientation of the projects. For some, the projects can be beneficial and effectively develop their income-generating activities, thus improving their living conditions; for others, their participation results in a weak evolution of precarious socioeconomic well-being during the project phase and could become a source of new forms of poverty. It is in this context that we are interested in analyzing the conditions that allow development projects to be effective in building the resilience of rural populations.

The problematic that arises here is to: Under what conditions can rural development projects bring about changes in

the resilience of farmers?

This research is based on a survey in the form of an opinion poll among a sample of 301 individuals residing in the Ankadinondry-Sakay Mahasolo area. The data collected will be subject to various statistical tests, using the SPHINX software.

Assuming that the changes perceived after the intervention of rural development projects depend on the level of adaptation of its actions, it is necessary first to present the results of the surveys concerning the level of adaptation of each of the three types of projects present in the study area, as well as the changes they have brought about, following their interventions, according to the perception of the farmers. A cross-tabulation of the distributions of these two variables will then be carried out using the Sphinx software, in order to perform a Chi² test of independence, with a confidence interval of 95% or a margin of error of 0.05%. The value of the p-value will thus be compared with this value of α , to be able to draw a conclusion. The value of the Phi and V of Cramer will also be used, after calculation by the Sphinx software, in order to define the percentage of dependence between these two variables. If there is in this sense a dependence between the two, a Correspondence Factorial Analysis will be performed in order to better explain this dependence.

CONCEPTUAL BASES

According to the definition of **Penrose et al (2006)**, innovation is the application of technological, institutional and human resources and discoveries to production processes leading to new practices, new products and markets, new institutions and organizations with enhanced efficiency. This idea is currently conveyed by rural development projects through the popularization of improved techniques and the use of modern agricultural equipment, which are supposed to improve the living conditions of rural people. In addition, there are social actions that modify peasant practices in terms of food, hygiene, health and education. These innovations come up against a "traditional" society whose behavior is dictated by solidarity, or more precisely "Fihavanana". According to the results of research carried out by various authors, those who have studied Malagasy peasant society have pointed to phenomena of "withdrawal of the rural world", making it difficult to introduce innovation (**Kistler, 1999; Hirsh, 2000**).

Indeed, if innovative projects manage to spread even slowly in pilot communities, they often end up being abandoned in favor of traditional processes. However, rural development projects are an opportunity for farmers to obtain material and even financial goods free of charge, which, according to the results of previous surveys, is their primary motivation for participation. Their purpose does not necessarily converge, in this sense, with the purpose of the projects, which is to bring innovation for the improvement of agricultural, social and financial practices. However, it could be that despite the divergence of these projects from these expectations, farmers can still appropriate these projects by trying to benefit from them.

Referring to **Hamidou Benoit (1992)**, the major problem of international development interventions is not the inability to transform the conditions of existence (existing capital and technologies) and the difficulty of getting populations to appropriate the values and requirements of an external development model generally imposed or suggested by an aid project that sets the pace or decides on the approaches. To say that despite the divergence in actions and expectations, these projects could still be adopted by the population.

Indeed, the appreciation of the effects of rural development projects in the area would be related to the level of adaptation of the actions of these projects. Normally, actions adapted to local contexts would not generate reticence towards the beneficiaries and would encourage their involvement, which would lead to positive changes in their activities. These changes will have an impact on the effects felt by the farmers, which can then be reflected in the evolution of their living conditions. The risks here lie in the fact that the appreciation of the effects by the farmers could be divergent from the results expected by the projects, and their resilience towards its actions.

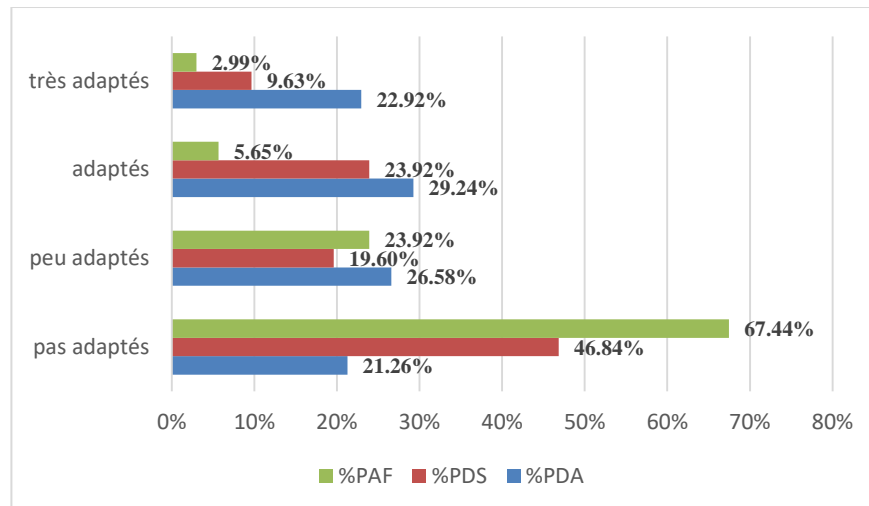
RESULTS

Before looking at the link between the level of adaptation of farmers and changes after the intervention of rural development projects, it is necessary to look successively at the level of adaptation of development actions and the changes they have brought about, according to the perception of the farmers.

1. Level of adaptation of rural development projects

Given the diversity of actions and approaches used by rural development projects in the area, farmers have their own perception of their level of adaptation.

Figure 1: Level of adaptation of the three types of projects in the area



Source: Authors, 2021

According to the figure above, agricultural and social development projects are more or less adapted to local contexts according to the opinion of the farmers surveyed. Certainly, some actions, such as the extension of improved rice-growing techniques, are not appropriate for this zone, given the difficulty in controlling water due to the lack of hydro-agricultural infrastructure, but the majority of actions are not really opposed to the socio-economic and cultural situation of the zone. On the other hand, for financial support projects, the majority of farmers, i.e. 67.44%, perceived that this type of project is not at all adapted to rural contexts in general. Thus, according to these results, we can significantly evoke that indebtedness generates a negative image at the level of society, since it is not really adapted to the mentality of the Malagasy. The interest rate and the duration of repayment also produce a problem, given the omnipresent risk of agricultural activities as well as their low profitability¹.

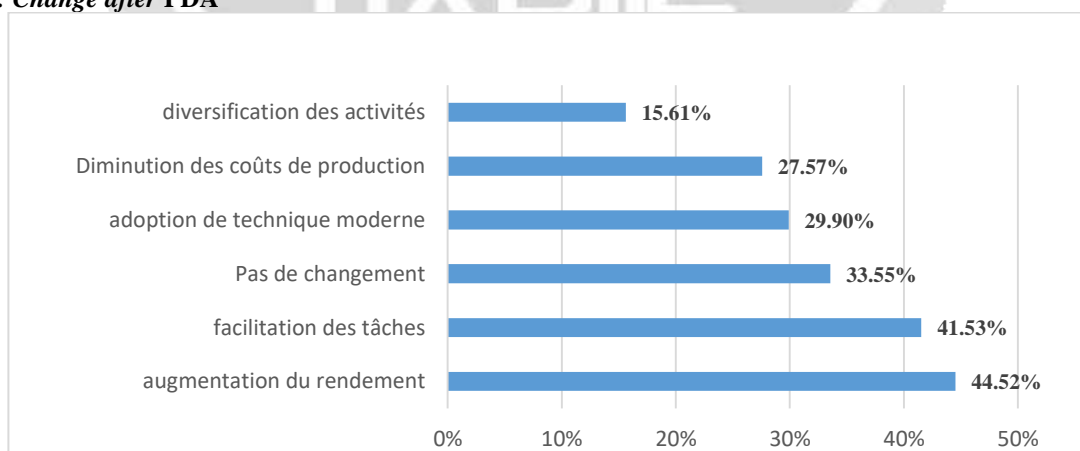
2. Change after the intervention of rural development projects

There are many changes brought about by rural development projects, and each type of project has its own specificity, given the difference in the field of intervention.

2.1 Change after the intervention of PDA

According to the perception of the farmers, the changes after the intervention of the agricultural development projects concern mainly the practices and the evolution of the yield of agricultural activities.

Figure 2: Change after PDA



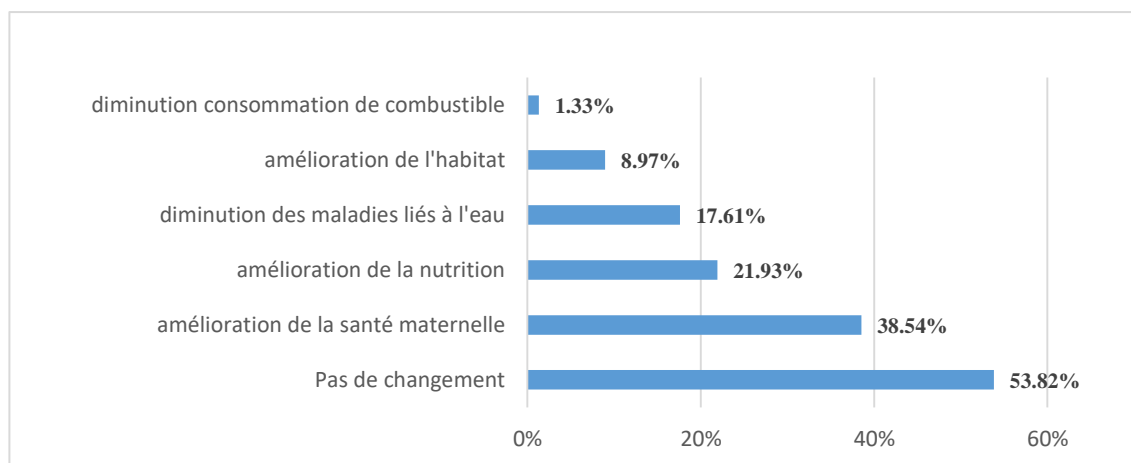
Source: Authors, 2021

¹ Le résultat du test de Chi² de conformité, avec Chi² = 54,72, ddl = 5 et 1-p = 99,99%, montre une différence très significative entre les pourcentages des chacune des modalités.

Although a number of farmers did not perceive any palpable change after the intervention of agricultural development projects (33.55%), almost half of the responses (44.52%) mentioned that these projects were able to improve the performance of their activity, especially because of obtaining agricultural materials and inputs, and also allowed them to facilitate their tasks. This information can be generalized to the entire study population, given the result of the Chi² compliance test, with Chi² = 50.83, ddl = 6 and 1-p = 99.99%, which shows a highly significant difference with the reference distribution.

2.2 Change after the intervention of PDS

As far as social development projects are concerned, the changes were mainly oriented towards the well-being of the population, which would allow them to better face the daily realities.



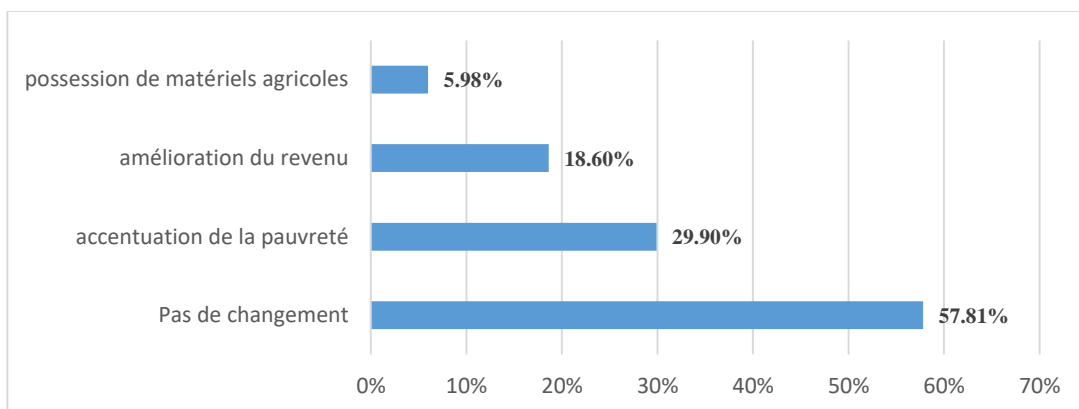
Source: Authors, 2021

In the figure above, although there are those who say that this type of project has led to an improvement in maternal health with 38.54% of responses, the majority of respondents (53.82%) have not really noticed any change. This is mainly due to the fact that these projects are not well known by the farmers and that many people were not among the targets, hence their ignorance. This information is also valid for the entire population in the study area, following the results of the Chi² compliance test, with Chi² value = 39.43, ddl = 6 and 1-p = 99.99%, which shows a significant difference with the reference distribution.

2.3 Change after the intervention of PAF

According to the survey results illustrated in the figure below, the changes after the financial support projects focus mainly on the evolution of the financial situation of households, as well as the related consequences. Regarding financial support projects, the majority of farmers (57.81%) think that these projects have not brought any palpable changes at the village level, and there are even those (29.90%) who go so far as to say that these projects have only accentuated the poverty of rural people. As with the other types of projects, after performing the Chi² test of conformity, this information also reflects the reality at the level of the entire population of the study area.

Figure 4: Change after PAF



Source: Authors, 2021

DISCUSSIONS

With regard to the hypothesis that the appreciation of changes could be generated by these projects in relation to the level of adaptation to the socio-economic and cultural context of the study area, this information will thus be verified for the three types of projects

1. Farmers' perception of change according to the level of adaptation of PDA

In order to determine whether the changes brought about and perceived by farmers after the intervention of agricultural development projects really depend on their level of adaptation to local contexts, a cross-tabulation between these two variables was carried out.

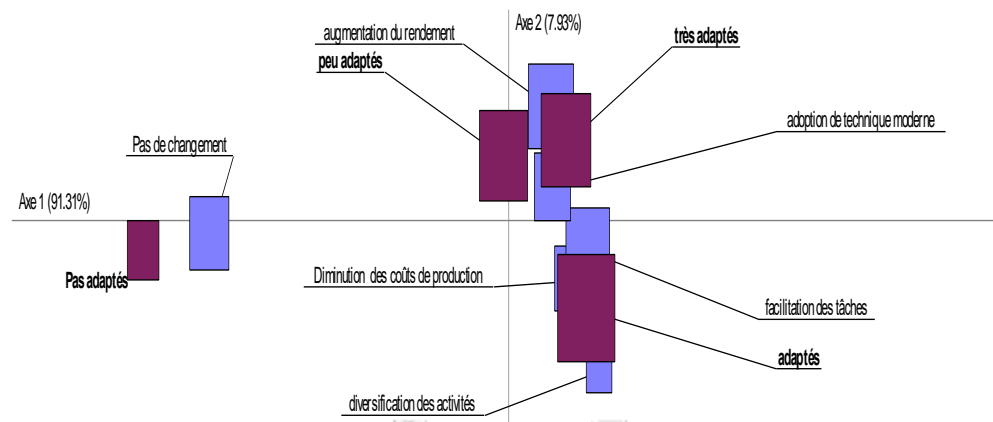
Table 1: Cross-tabulation between change after PDA intervention and their level of adaptation

Change after PDA/Level of adaptation of PDA	Not adapted	Not really adapted	Adapted	Very adapted	TOTAL
No change	49,5%	25,7%	12,9%	11,9%	100%
Decrease in production costs	4,8%	19,3%	47,0%	28,9%	100%
Facilitation of tasks	1,6%	26,4%	45,6%	26,4%	100%
diversification of activities	2,1%	17,0%	57,4%	23,4%	100%
adoption of modern techniques	5,6%	27,8%	36,7%	30,0%	100%
increase in yield	5,2%	29,1%	29,1%	36,6%	100%
TOTAL	11,9%	25,3%	35,9%	26,9%	100%

Source: Authors, 2021

After crossing the two variables, the results of the Chi² test, with a Chi² value = 192.73, a ddl = 15 and a 1-p value of 99.99%, and therefore a p-value = 0.0001 < 0.05, show that the dependence of the two characters is highly significant. A strong dependence between the changes perceived by the farmers after the agricultural development projects and their level of adaptation is then perceived. This dependence is judged to be strong at 71.34% according to the value of Cramer's Phi and V. Thus, in order to provide more precision regarding the dependency relationship between these two variables, a Correspondence Factorial Analysis is performed.

Figure 5: AFC of the intersection between change and level of adaptation of PDA



Source: Authors, 2021

The AFC carried out made it possible to explain 91.31% of the information on axis 1, and 7.93% on axis 2, which gives a total of 99.24% of the information explained. It allows us to conclude that those who said that this type of project was not adapted to local contexts did not detect any palpable change brought about by these projects. On the other hand, the respondents who said that this type of project was adapted to the local context noted an easing of tasks due to the provision of materials, thus enabling them to reduce their production costs and diversify their activities. Finally, for those who find the projects very suitable, their interventions have allowed the adoption of new techniques and thus increased yield. Of course, there are those who said that these projects were not very suitable in the area, but if the context is favorable, these interventions would also allow the adoption of new techniques and the improvement of yields.

For the PDAs, the only type of project where more than half of the population mentioned that they are adapted or even very adapted to local contexts, the changes are manifested in terms of increased yield and facilitation of tasks. Initially, their actions did not coincide with the farmers' expectations, but in the end, the farmers were able to take ownership of them and benefit from their interventions. However, while the objective of the initiators of these projects was to reduce poverty in rural areas by improving the income of the population, no farmer mentioned a positive evolution. In fact, the assessment of the level of adaptation by farmers was mainly based on obtaining free materials, inputs and training, even without any impact on their income.

2. Farmers' perception of change according to the level of adaptation of PDS

As a result of the actions of the social development projects, changes have been made that may be related to the level of adaptation of actions or approaches to local contexts.

Table 2: Cross-tabulation of changes after PDS intervention and their level of adaptation

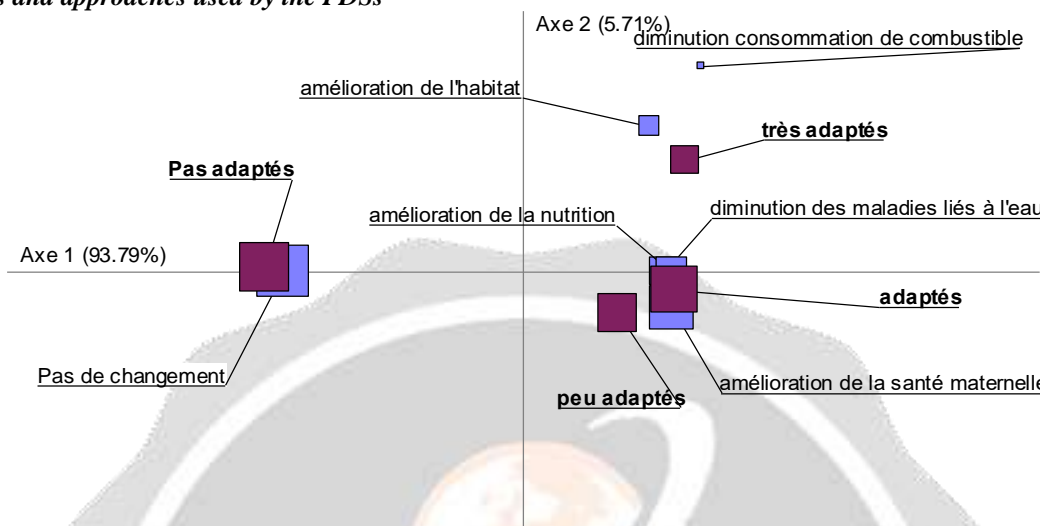
Change after SDP /Level of adaptation of SDP	Not adapted	Not really adapted	Adapted	Very adapted	TOTAL
No change	82,7%	11,1%	4,9%	1,2%	100%
Habitat improvement	11,1%	14,8%	37,0%	37,0%	100%
Decrease in water-related diseases	5,7%	30,2%	45,3%	18,9%	100%
Improved maternal health	3,4%	35,3%	46,6%	14,7%	100%
Improved nutrition	4,5%	27,3%	50,0%	18,2%	100%
Decreased fuel consumption	2,0%	24,0%	24,0%	50,0%	100%
TOTAL	34,3%	22,9%	30,4%	12,4%	100%

Source: Authors, 2021

The Chi² test carried out gives a value of Chi² = 293.56, a ddl = 15 and 1-p = 99.99%, which allows us to deduce the value of p-value = 0.0001<0.05, meaning a strong dependence between the changes brought about by social development projects and the level of adaptation of these actions and its approaches in relation to local contexts. This dependence has an intensity of 82.51%, according to the value of Phi and V of Cramer. Consequently, a

Correspondence Factorial Analysis is performed to better provide explanations on the relationships between the different modalities of the two variables studied.

Figure 6: Cross-tabulation between changes perceived by farmers at the village level and the level of adaptation of actions and approaches used by the PDSs



Source: Authors, 2021

According to the figure above, factorial axis 1 explains 93.79% of the information, while axis 2 provides 5.71% of the information, which presents a total of 99.5% of the information explained by the AFC. It thus allows us to deduce that, for social development projects, those who said that these projects are not adapted to local contexts have not encountered any palpable change at the village level. For those who did say that these projects were adapted, they were able to see improvements in nutrition and maternal health, and a decrease in water-related diseases. This information also holds true for those who found these projects to be poorly adapted, but at a lower dependency. Finally, for those who found these projects to be highly adapted, they were able to see an improvement in their housing and a decrease in fuel consumption. For the latter, the low percentage of responses is due to the fact that only a small portion of the population has been able to benefit from projects that work in the area of improved furnaces and home improvement.

For the PDSs, more than half of the population found that they did not change anything in their village. Generally, it was those who benefited from the aid who mentioned that these projects had brought about changes. However, only a third of the population found that they were adapted to the local context. As with the PDAs, the fact that they received the grants for free dictated their judgment. For the rest, the temporary intervention of these projects, without continuity and without lasting consequences, is not adapted to the area. In addition, given the negative image of modern medicine due to the predominance of traditional medicine, these projects did not really interest the farmers, given their cost and the difficulty of accessing them after they left.

3. Farmers' perception of change according to the level of adaptation of PAF

Finally, for financial support projects, a cross-reference was also made between the changes perceived by the population and the level of adaptation of these projects to local contexts.

Table 3: Cross-tabulation of changes perceived by farmers and the level of adaptation of financial support projects, in relation to the contexts in the study area

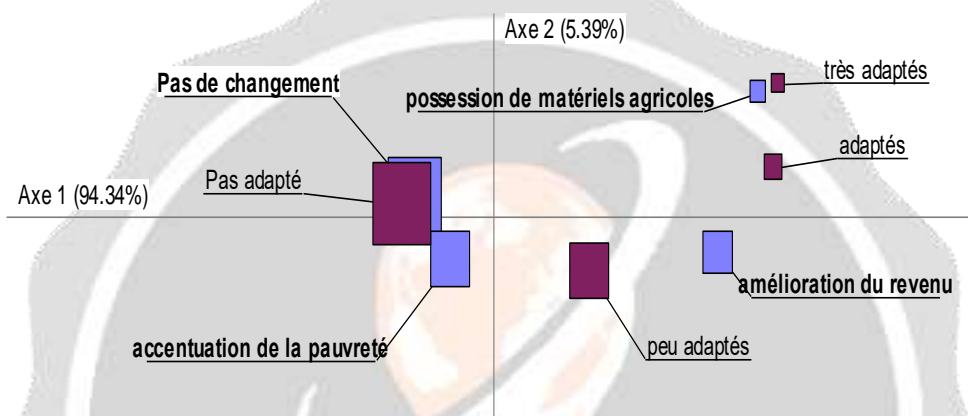
Change after PAF/Level of adaptation of PAFs	Not adapted	Not really adapted	Adapted	Very adapted	TOTAL
No change	78,2%	18,4%	1,7%	1,7%	100%

Increase in poverty	67,8%	28,9%	3,3%	0,0%	100%
Improvement in income	14,3%	55,4%	19,6%	10,7%	100%
Ownership of agricultural equipment	16,7%	38,9%	27,8%	16,7%	100%
TOTAL	61,5%	28,4%	6,5%	3,6%	100%

Source: Authors, 2021

The Chi² test of independence provides a Chi² value = 112.27, a ddl = 9 and 1-p = 99.99%, associates the p-value of 0.0001 < 0.05. It is then found a very significant dependence between the two variables. This allows us to conclude that the changes perceived after the intervention of financial support projects depend strongly on their level of adaptation to local contexts. This dependence has an intensity of 72.43%, according to the value of Cramer's Phi and V, and leads us to better explain this strong relationship through a Correspondence Factorial Analysis.

Figure 7: AFC of the intersection between changes perceived by farmers and their level of adaptation to local contexts



Source: Authors, 2021

According to the figure above, CFA allows to explain 94.34% of the information in its axis 1 and 5.3% of the information in its axis 2, defining in its whole 99.64% of the information. In relation to this analysis, it can be concluded that for those who mentioned that these projects are not adapted to local contexts, these projects, for some, have not led to any palpable change, while for others, they have rather accentuated the poverty of those who participated in them. As for the farmers who have noticed that these projects are adapted or very adapted to the intervention environment, they have noticed that these projects have allowed them to acquire agricultural materials. And finally, for the rest who think that these projects are not very adapted to the local context, these projects have contributed, albeit little, to the improvement of their income.

For the PAFs, almost 90% of the population have noted that this type of project has not changed anything in their area of intervention; there are even those who go so far as to say that they have increased their poverty. For the population, these projects are not adapted to local contexts, and are only intended for the rich and the civil servants. The interest rate is very high compared to the profitability of agriculture, the repayment period is too short compared to its cycle, and to this is added the inability of the farmers to properly manage the funds granted. Hence, those who participated in the program had repayment problems that resulted in the seizure of the little they had, equipment, land or other assets that constituted the collateral for their loan, and even in imprisonment.

According to these results, the changes brought about by the development projects that have taken place depend strongly on the level of adaptation of the actions to the local contexts. Indeed, farmers noted changes brought about by programs adapted to local contexts. The hypothesis that the changes perceived after the intervention of rural development projects depend on the level of adaptation of its actions according to the perception of the farmers is therefore verified.

CONCLUSION

In short, according to the analysis of the results of an opinion survey of a sample of 301 rural farmers, a large part of the population is considered resilient to the actions of development projects. Changes are mainly brought about by programs that are better adapted to local contexts, allowing farmers to benefit and improve their living conditions. On the other hand, it should be mentioned that financial support programs, according to the farmers, are neither

adapted to the socio-economic contexts of the area, nor beneficial for the population, and have not been able to improve the living conditions of the majority of rural people. These results confirm the dependence between the changes perceived after the intervention of rural development projects and the level of adaptation of the actions according to the perception of the farmers.

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ANNEXE

Durable assets after PDA

Durable assets after PDA	Fréq.
Non-response	24,7%
Non-existent	14,0%
Agricultural equipment	50,6%
Productive infrastructure	9,5%
High income	14,0%
New skills	31,4%
TOTAL OBS.	100%

Source: Authors, 2021

Durable assets afterPDS

Durable gains after SDP	Fréq.
Non-response	50,1%
Non-existent	8,7%
School infrastructure	12,7%
Maternal and child health	35,4%
Drinking water	6,7%
TOTAL OBS.	100%

Source: Authors, 2021

Durable assets afterPAF

Sustainable achievement after PAF	Fréq.
Non-response	46,6%
Non-existent	37,9%
Agricultural equipment	7,5%

Funds for the development of IGAs	8,2%
Skills	6,0%
TOTAL OBS.	100%

Source: Authors, 2021

