



Socioeconomic Impact of Agricultural Projects Financed by the District Development Fund: Case Study of the District of Vilankulo - Mozambique

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

According to the Constitution of the Republic of Mozambique, agriculture is recognized as the cornerstone of the country's development. However, the levels of production and productivity in this sector remain low. In response to this challenge, the Government established and implemented the District Development Fund (DDF) to provide financial support for economic activities, with a particular focus on agriculture (IBIS, 2010). Therefore, the goal of this research was to analyze the socioeconomic impact of the DDF on the beneficiary communities. To achieve this objective, semi-structured interviews of 36 beneficiaries of DDF and unsystematic observations were conducted. The results indicated that all participants reported a significant increase, six times higher than before, in their agricultural production areas. This enhancement allowed for the expansion and diversification of agricultural products. The surplus generated from the sale of these products was

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used for personal purposes, such as purchasing radios, telephones, school supplies for their children, and improving their housing conditions. Consequently, these improvements significantly enhanced the quality of life for those involved in agriculture. These findings strongly align with the objectives underlying the creation of the DDF and could serve as an exemplar for other districts within the country. In conclusion, it can be affirmed that the DDF has made significant contributions to improving the living conditions of the beneficiary population in the district of Vilankulo.

Keywords: Agriculture; financing; agricultural projects; improvement of living conditions.

1. INTRODUCTION

Microfinance is widely recognized as a significant contributor to employment and income generation worldwide [1]. The first microfinance institutions emerged in the 1970s in Bangladesh, earning it the title of "the birthplace of microcredit" as a poverty alleviation instrument [2]. In Mozambique, only 2% of families have savings [3]. Since the 1980s, various funds have been established in Mozambique to support targeted economic and social activities, such as the agrarian development and rural development fund (FFADR), the fishing development fund (FDF), the development fund for housing (DFH), the fund for the development of agricultural hydraulics (FDAH), and the credit fund for urban companies under the urban rehabilitation program (URP) [2], aligning with the development policies described by Agum et al. [4]. Microcredit gained wider scope in Mozambique in 1987 with the establishment of the agrarian credit and rural development bank (CACRDB), which aimed to promote small-scale rural businesses among specific interest groups, including former combatants and ex-miners [5]. According to De Vletter [2], the evolution of microfinance in Mozambique can be characterized by two distinct phases. The first phase witnessed the predominance of NGOs in rural areas, peaking in 1987. During this phase, international NGOs with experience in microfinance played a significant role in its promotion. The second phase witnessed a shift in focus towards urban areas, leading to a reduction in international projects and NGOs, as well as the growth of national NGOs, associations, and cooperatives. However, dynamics persist among small-scale farmers [6]. Consequently, communities benefiting from support from non-governmental organizations experience increased income in agricultural production due to small business opportunities. When capital comes in the form of loans, the income derived from agriculture is primarily reinvested in production. Conversely, financial support without reimbursement commitments tends to be used for consumption [7]. Thus, this

research aims to analyze the socioeconomic impact of projects financed by the DDF on beneficiary farmers.

2. METHODOLOGY

This research was conducted in the Vilankulo district, focusing on agricultural producers in the family sector who received financing from the DDF. The research process involved the following steps: conducting a literature review, consulting relevant documents, conducting fieldwork, and analyzing the collected data. The literature review was conducted using books and scientific articles, while documentary research involved examining normative documents and reports from the district government. The fieldwork included semi-structured interviews and observation of the beneficiaries' agricultural businesses. The study population comprised all DDF beneficiaries engaged in agricultural activities in the Vilankulo District. A sample of 35 farmers, equivalent to 10% of the population, was randomly selected using the methodology outlined by Matakala and Macucule [8]. The analysis focused on the following variables: production levels, job creation, and income. These variables were assumed to measure the socioeconomic impact of development initiatives. The interviews aimed to gather in-depth information regarding the impact of DDF-financed agricultural projects at the district level. This information encompassed various aspects, such as the expansion of production areas, employment levels, marketing of agricultural products, access to DDF financing by family sector farmers, assessment of farmers' satisfaction with DDF financing in this sector, and perspectives of farmers benefiting from DDF financing. To analyze the collected data, the Microsoft Excel program was utilized to generate tables and graphs, facilitating better visualization and interpretation of the findings.

3. RESULTS AND DISCUSSION

The case study involved a sample of 35 farmers from the family sector, with 6 of them being

female (17.1%) and 29 being male (82.9%). This suggests that the responsibility for financing agricultural projects in the District of Vilankulo lies primarily with men, despite the fact that there are more women engaged in family farming compared to men [9]. This contradicts the idea that low-income populations should have continuous and comprehensive access to these services [10]. Approximately 50% of the interviewed farmers fall between the ages of 41 and 50, indicating that they are in their economically active phase and have the potential to increase their production area and level, thereby improving their family income and living conditions. This concept aligns with the assertion made by Mosca [7] that local initiatives, such as the "7 million" investment program, can yield significant results, including easy and comprehensive access to financial resources, promotion of small entrepreneurship, job creation, income improvement, and wealth creation at the local level. Fig. 1 presents the results of the gender distribution among the interviewed farmers who received financing from the DDF.

Fig. 1 illustrates the majority of beneficiaries who received financing from the DDF for agricultural projects in the case study were male, accounting for 82.9% or around 29 beneficiaries. These male farmers display relatively higher levels of education, which is a crucial factor for project preparation and management. Their knowledge and skills enable them to assess the feasibility and viability of projects, as well as engage more actively in commercial agriculture. They also demonstrate the confidence to seek credit. On the other hand, the remaining 17.1% or 6 farmers who received DDF financing are female. These

women tend to have lower levels of education, limiting their capacity to prepare and manage projects. Many of them are primarily involved in domestic work and subsistence agriculture. Furthermore, the decision-making power in the local culture predominantly belongs to men, contributing to this discrepancy. These findings contradict the results of a study conducted by Mosca et al. [9], which highlighted those men were more engaged in economic activities such as crafts and commerce, while women were more involved in agriculture. Other authors collaborating with this article also found a higher percentage of female agricultural practitioners (74.5%) compared to males (25.5%) [11]. In rural areas, households headed by women are often at a higher risk of poverty due to their reliance on agriculture, limited sources of income, and lower levels of education, which hinder their access to paid work (INE, 2007). When considering social inequalities in Mozambique, it becomes evident that women, particularly in terms of resource access like land and finance, are often the most vulnerable group. Despite the fact that rural women work tirelessly in agricultural activities, they still face low income and productivity, heavy workloads, and poor health conditions. Various socioeconomic and cultural factors contribute to women's low income, including their lack of security regarding land ownership, the concentration of extension services targeting males, barriers to obtaining commercial credit, and other forms of discrimination (Valá, 2006). These factors ultimately trap women in a vicious cycle of low income, low productivity, high workloads, and poor health. Fig. 2 presents the results regarding the age groups of farmers benefiting from the DDF.

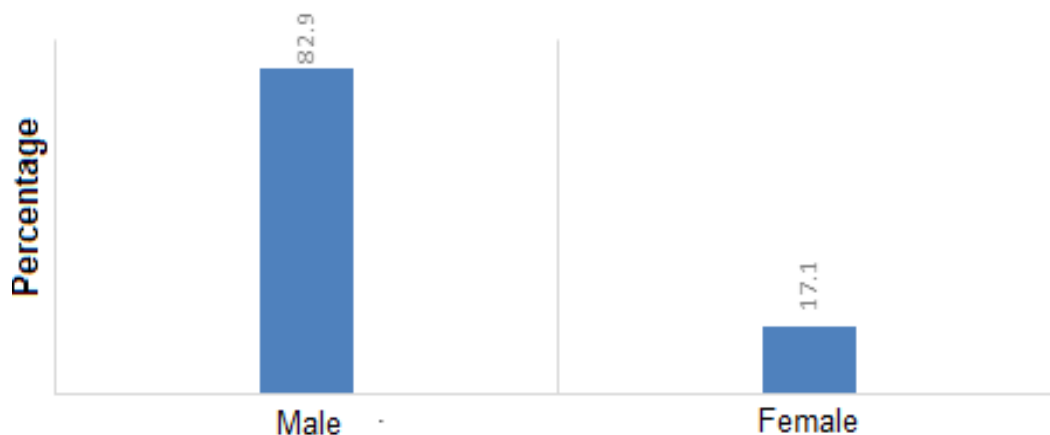


Fig. 1. Farmers interviewed by gender
 Source: Authors in the data collection

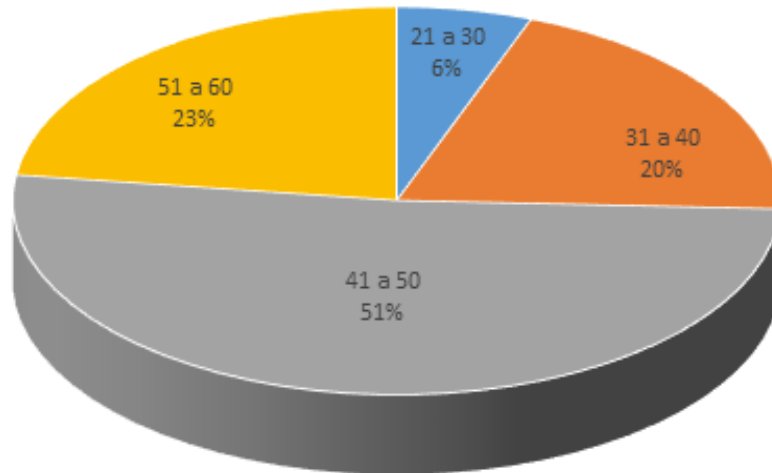


Fig. 2. Age of farmers interviewed

Source: Authors in the data collection

Fig. 2 provides an overview of the age groups of the interviewees. It reveals that from the age range of 21 to 30 years, which corresponds to 5.7% of the participants, there is a lack of interest in engaging in agriculture as the primary source of income. Consequently, this age group does not invest in preparing for or seeking financing to enhance production levels and family income. Additionally, local authorities in the neighborhoods may not fully trust their capability, as their endorsement is necessary for project approval. Furthermore, 70% of the beneficiaries fall within the age range of 31 to 50 years. As individuals grow older, their motivation to seek financing diminishes due to reduced physical strength to work with rudimentary techniques. Fig. 3 presents the distribution of education levels among the beneficiaries and their respective frequencies.

In terms of education level, only one interviewee (corresponding to 2.9%) reported not having any formal education. This lack of education poses significant challenges in the development of agricultural projects and the adoption of new techniques. Consequently, this group of farmers faces difficulties in achieving high levels of production due to their inability to apply modern farming methods. Interestingly, the majority of the interviewees (85.7% or 30 individuals) have completed primary education. This level of education is commonly found among agricultural practitioners as they often lack the skills required for urban job markets. Instead, they choose to return to rural areas where agriculture serves as an income-generating activity. In order to enhance their income, these individuals opt to

develop projects and seek financing, as indicated in Table 2. These findings are consistent with the observations made by Mosca [7], who noted that family farming in Mozambique is typically managed by individuals with limited educational backgrounds.

The interviewees in Fig. 4 are not single because they are over 18 years old, the minimum age for marriage. Of the 62.9% of interviewees, they are married and belong to an age group in which in rural areas it is almost mandatory to be married, as if that were not enough, it corresponds to an economically active age. According to the same Figure, 25.7% are divorced because they did not agree to remain married. All interviewees responded that there had been an increase in agricultural production areas. Figs. 5 and 6 illustrate the areas and their respective percentages before and after being financed with DDF of the total number of interviewees (Fig. 5), around 22.9%, before receiving DDF financing, cultivated an area between 0-2 hectares for their agricultural production. These are those considered small farmers. Cultivate between 2-4 hectares 74.3%, this percentage is medium farmers. In the list of large farmers (4-6 hectares) 2.9% was found. Carrilho et al. [12], in their work on the Role of Commercial Family Farming in Rural Development and Poverty Reduction in Mozambique, state that the area cultivated per family varies, on average, between 1.6 and 1.2 hectares (with and without the use of manual labor). -of salaried labor, respectively), which is equivalent to 0.47 and 0.39 hectares of farmland per adult.

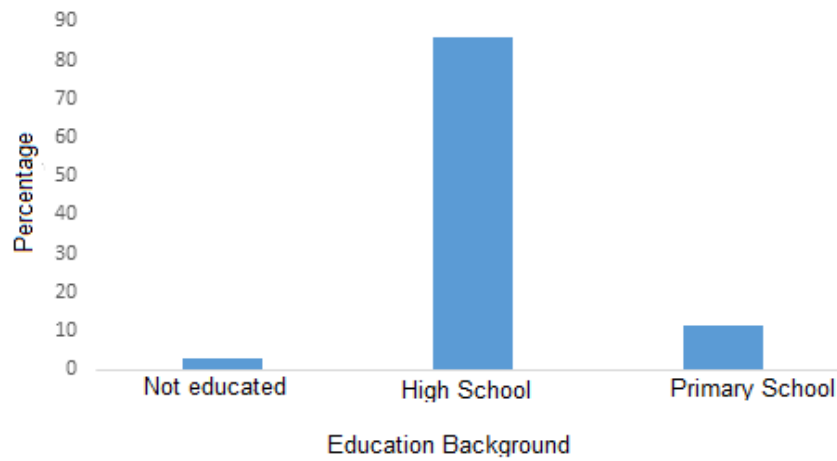


Fig. 3. Education levels and respective percentage values
 Source: Authors in the data collection

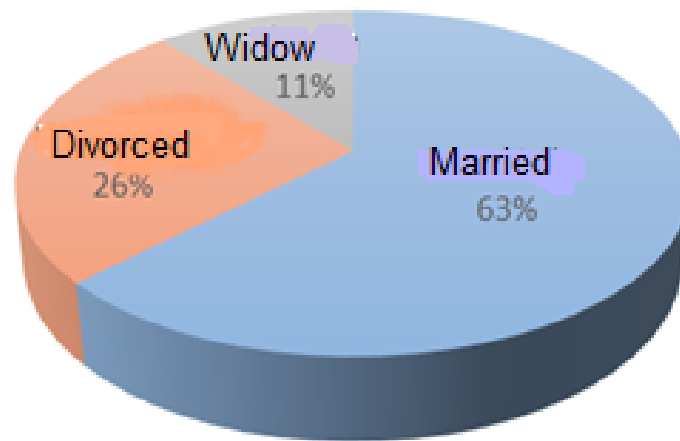


Fig. 4. Marital status versus percentage values
 Source: Authors in the data collection

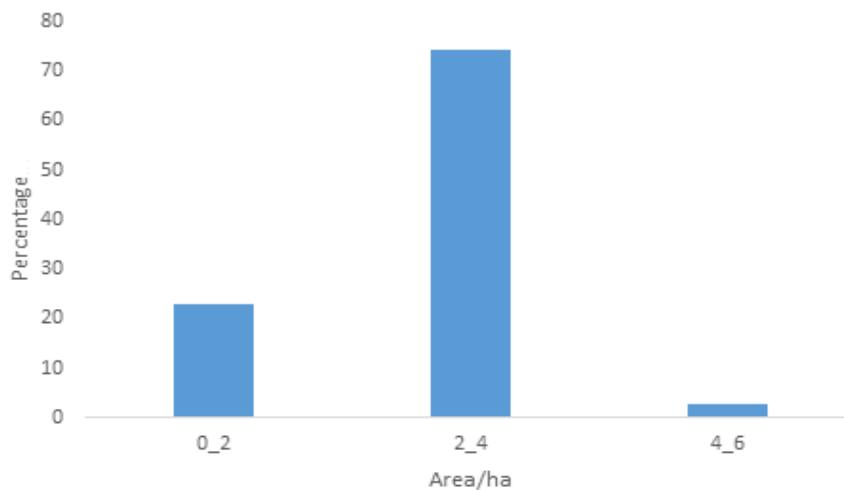


Fig. 5. Practiced area (Ha) before being financed with DDF
 Source: Authors in the data collection

According to Fig. 6, none of the interviewees reported cultivating an area between 0-2 hectares after receiving DDF financing. This is because the financing allowed them to expand their agricultural production area. The majority of respondents (62.9%) stated that they now practice their agricultural activities in an area of 2-4 hectares. With the financial support, they were able to hire workers, enabling them to increase the cultivated area. Additionally, 25.7% of the farmers indicated that they now cultivate between 4-6 hectares. These individuals expanded their farming operations by hiring more workers. The remaining 11.4% of farmers stated that they now cultivate between 6-8 hectares owing to an increase in their workforce. Comparing these findings with the Agro-Livestock Censuses (CAPs) conducted in 2000 and 2010, it is evident that there was a significant increase in the total number of farms during this period, with 612,492 additional farms recorded. Specifically, farms between 2 and 5 hectares experienced a substantial growth of 500,582 farms (a 117% increase), while farms with more than 5 hectares grew by 33,902 farms (a 42% increase). In contrast, farms with less than 2 hectares saw only a marginal increase of 3% between 2010 and 2001 [13].

Based on Fig. 7, the findings show that 14.3% of the respondents grow beans, 77.1% grow peanuts, and 8.6% grow cassava. Agricultural activity is widespread across the district, primarily conducted by the family sector, with a notable emphasis on drought-tolerant crops. The most commonly cultivated crops include corn, along with drought-tolerant varieties such as cassava (*Manihot esculenta*), sorghum (*Sorghum bicolor*), and millet (*Pennisetum glaucum*). Additionally, peanuts (*Arachis hypogaea*), Nhemba Beans (*Vigna unguiculata*), and other bean species are also grown, harvested in two seasons solely reliant on rainfall. It is worth mentioning the significant production of potatoes, which has been facilitated by the introduction of the Mahave irrigation system [14].

It was found that all interviewees reported using financing for agricultural production and the commercialization of their agricultural products. Out of the 5 interviewees, which accounts for 14.3% of the total respondents, it was observed that they utilized the financed amount not only for agricultural production and marketing but also for processing these products, particularly in the case of cowpea cultivation, where processing is necessary prior to commercialization. As

depicted in Table 1, all farmers cultivating cowpeas and peanuts confirmed having surpluses in every agricultural season, allowing them to sell a portion of their production. Conversely, cassava production was solely intended for self-consumption. The surplus of agricultural products before and after financing by the DDF is presented in Table 2.

Prior to receiving financing, cowpea production ranged from 0 to 0.5 tonnes, while peanut production ranged from 0.5 to 1 tonne. Following the provision of financing, there was a significant increase in crop production, as the beneficiaries were able to hire workers and expand their production areas, thereby facilitating the necessary cultural work. The proceeds from the sale of surplus agricultural products were utilized by all interviewed beneficiaries for various purposes, including purchasing radios, cell phones, clothing, and improving their housing conditions. Additionally, this additional income enabled them to cover expenses related to their children's education, workers' wages, and enhanced access to medical and medication assistance for their family members (Table 2). Consequently, the selling process of agricultural products is time-consuming, but it offers the opportunity for transformation or processing, thereby increasing their value. According to Mosca [15], small producers face unfavorable market structures, often characterized by an oligopsonic market structure, which hinders fair price formation. Moreover, these producers are compelled to sell their harvest immediately due to storage difficulties and the associated risks of post-harvest losses. Furthermore, limited training and information about markets and prices, coupled with minimal negotiation skills and marketing risks, exacerbate the challenges faced by small-scale farmers. Consequently, the low level of market articulation further hampers price formation, making it difficult to ascertain consistent values across different regions, years, and seasonal variations in agricultural production.

According to Fig. 8, more than 70% of the total respondents responded that they had seasonal workers, in the range of 6 to 10 workers, 29.6% of the same total had workers in the range of 11 to 15 seasonal workers before receiving the DDF financing.

Fig. 9 indicates that 74.3% of total respondents had between 11 to 15 seasonal workers and 25.7% had between 16 to 20 seasonal workers

after receiving DDF funding. These results collaborate with the results of Menete [16] in his work on the implementation of public policies to reduce poverty in Mozambique: the case of the

DDF and PSSB (2006 to 2017), which showed that there is an increase in jobs and consequently an increase in family income [17].

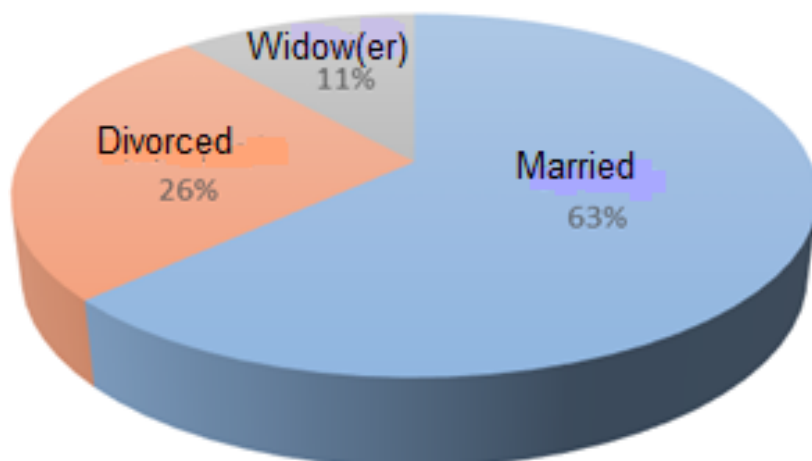


Fig. 6. Practiced area (Ha) after being financed with DDF
Source: Authors in the data collection

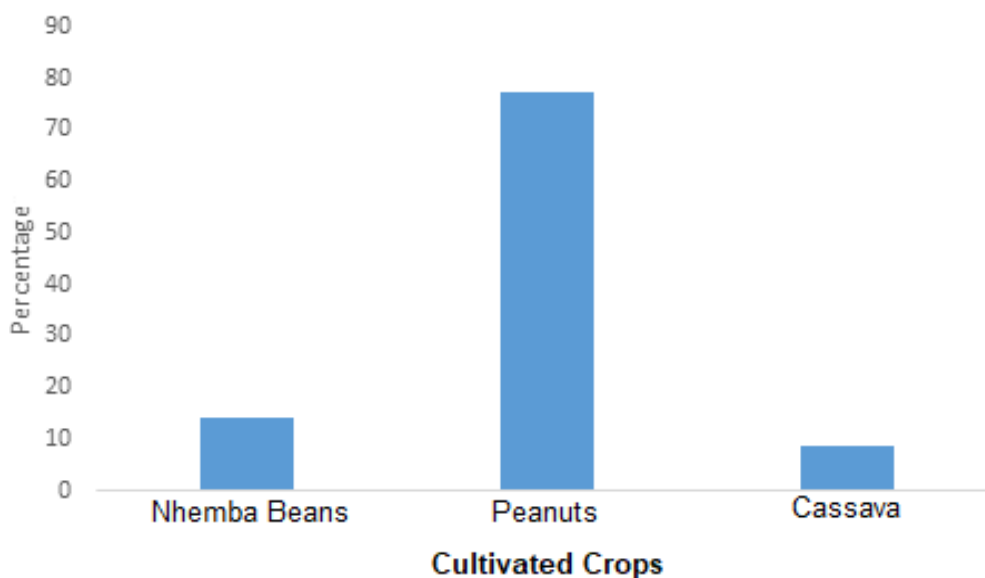


Fig. 7. Cultures practiced in the District of Vilankulo
Source: Authors in the data collection

Table 1. Activities where the financed project were applied

| | Funded area | | |
|----------------|-------------------------|------------|-----------|
| | Agricultural production | Processing | Marketing |
| Interviewees | 35 | 5 | 35 |
| Percentage (%) | 100 | 14.3 | 100 |

Source: Authors in the data collection

Table 2. Quantity of surplus product (Tons) per crop before and after DDF financing

| | Before financial | | | After financing | | |
|--------------|------------------|---------|-------|-----------------|-------|---------|
| | 0 – 0.5 | 0.5 - 1 | 0 - 2 | 2 - 4 | ----- | 22 - 24 |
| Cultures | X | | | X | | |
| Nhemba Beans | | X | | X | | |
| Peanuts | | | | X | | |
| Cassava | X | | | | | X |

Source: Authors in the data collection



Fig. 8. Seasonal workers before receiving DDF funding

Source: Authors in the data collection

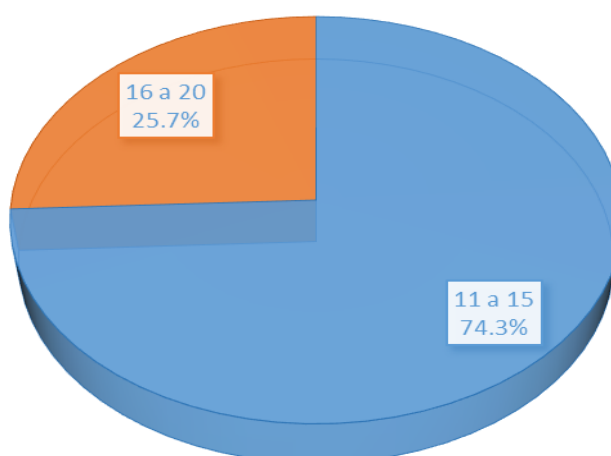


Fig. 9. Seasonal workers after receiving DDF funding

Source: Authors in the data collection

4. CONCLUSION

- The DDF has increased a significant number of users, although they shows some barriers to come through;
- Many of the beneficiaries of DDF financing are mostly married, followed by divorced and the last are widowers;
- All beneficiaries of the financing stated that they observed an increase in production areas and agricultural surpluses and consequently in monetary gains resulting from the sale of these surpluses;
- The increase in production required more employment of labor in both the

production, processing and marketing phases;

- Families were able to acquire more goods such as radios, clothing, cell phones, improve their homes and access basic services such as school for their children, medical assistance and medication.

5. RECOMMENDATION

- So that the local government can invest in similar projects to reduce poverty and social inequality.
- For academics, they can intervene with rural extension services and other work with a view to reducing aspects of low productivity and agricultural income.
- To farmers not to be afraid of local development financing to reduce malnutrition in developing countries.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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