

Research Application Summary

Lessons learned from agro-conservationist practices that contribute to neutralize the degradation of lands in Costa Rica

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Abstract

Land is a natural resource that provides us with goods and services to live sustainably. However, its degradation is affecting the livelihood and safety of 1.5 billion people globally, especially rural communities, smallholder farmers, and the very poor. The impact is not an exception in Costa Rica that has 34 hydrographic basins, a privileged country worldwide in water resources. With the ratification of the United Nations Convention to Combat Desertification and Drought (UNCCD), Costa Rica undertook measures to develop a National Action Programme (PAN) to combat and rehabilitate degraded lands in its territory. The Small Grants Programme (GEF-SGP) supported with funding to local farmers, civil society and ministries through the establishment of a strategic alliance interconnecting them to provide technical and professional support to the producers of the River Barranca basin. The methodology used in this study is based on action-participatory investigation, an inclusive research approach that seeks the full participation of people in the analysis of their own reality, to promote social transformation in favor of these people. The methodology is characterized by consultations with producers and other key local actors. Data collection tools applied are literature reviews, semi-structured interviews, focus groups, workshops and observation guide during the field phase. The synthesis of information uses descriptive statistics and then the triangulation of information obtained from the tools and finally that information is validated by primary direct actors. The initiative implemented soil conservation techniques and was able to diminish land degradation by 27,560 linear meters, surpassing 22% of originally established target. A systematization of successful agro-conservationist practices and a technical practice manual was published by UNDP to assimilate these initiatives in other basins.

Key words: Biodiversity and ecosystem, community development, Costa Rica, livelihood, local initiatives, neutrality of land degradation, soil conservation

Résumé

La terre est une ressource naturelle qui nous fournit des biens et des services pour vivre de manière durable. Cependant, sa dégradation affecte les moyens de subsistance et la sécurité de 1,5 milliard de personnes dans le monde, en particulier les communautés rurales, les petits exploitants agricoles et les très pauvres. L'impact ne fait pas exception au Costa Rica qui compte 34 bassins

hydrographiques, un pays privilégié dans le monde en matière de ressources en eau. Avec la ratification de la Convention des Nations Unies sur la lutte contre la désertification et la sécheresse (UNCCD), le Costa Rica a pris des mesures pour élaborer un programme d'action national (PAN) visant à combattre et à réhabiliter les terres dégradées sur son territoire. Le Programme de petites subventions (GEF-SGP) a soutenu financièrement les agriculteurs locaux, la société civile et les ministères par la mise en place d'une alliance stratégique les reliant afin de fournir un appui technique et professionnel aux producteurs du bassin de la rivière Barranca. La méthodologie utilisée dans cette étude est basée sur une enquête action-participative, une approche de recherche inclusive qui recherche la pleine participation des personnes à l'analyse de leur propre réalité afin de promouvoir la transformation sociale en faveur de ces personnes. La méthodologie est caractérisée par des consultations avec les producteurs et d'autres acteurs locaux clés. Les outils de collecte de données utilisés sont des revues de la littérature, des entretiens semi-structurés, des groupes de discussion, des ateliers et un guide d'observation pendant la phase de terrain. La synthèse des informations utilise des statistiques descriptives, puis la triangulation des informations obtenues à partir des outils et, enfin, cette information est validée par les principaux acteurs directs. L'initiative a mis en œuvre des techniques de conservation des sols et a permis de réduire la dégradation des sols de 27 560 mètres linéaires, dépassant 22% de l'objectif fixé à l'origine. Le PNUD a publié une systématisation des pratiques réussies en matière d'agriculture et de conservation de la nature et un manuel de pratiques techniques pour assimiler ces initiatives dans d'autres bassins.

Mots clés: Neutralité de la dégradation des terres, Initiatives locales, Biodiversité et écosystèmes, moyens de subsistance, conservation des sols, développement communautaire

Background

The Republic of Costa Rica has 34 hydrographic basins in its 51,100 km² of territory, which makes it a privileged hydrological area worldwide (Mora *et al.*, 2004). The National Action Programme (PAN) according to the Advisory Commission on Land Degradation CADETI (2004) developed technical series for the prioritization of degraded watersheds, under biophysical and socioeconomic indicators; systems that allowed the study to identify nine degraded areas that must be urgently rehabilitated namely; Jesús María, Barranca, Tárcoles, Parrita, Abangares, Drinker, Tusubres, Tempisque and Nicoya.

Livestock and agricultural crops are the principle activities carried out in this area without proper soil and water conservation techniques, according to UNDP (2018). Soil represents the most important production resource, since it supports the plants in the form of a permeable layer for the roots and is a deposit for nutrients and water, so its management requires the adoption of practices for its conservation (Edwin, 2013).

This study responds to the request from the UNDP, which is interested in systematizing the project. With sufficient positive impacts the UNDP and other key actors of the project could jointly present a proposal to the Government of Costa Rica that may consider these

local conservation initiatives in an equivalent manner to the payments for ecosystem services (PES), considering that they carry the same conservation philosophy. Currently, these payments are mostly focused on mitigation of greenhouse gas emissions, water protection for urban, rural or hydroelectric use, protection of biodiversity and scenic beauty (FONAFIFO, 2014; ONE, 2018). And, finally, it is in the interest of Small Grants Programme to document these successful projects to support the fulfillment of its mandate at a national and global level.

Methodological approach

In 2016, local organizations such as the Community Development Associations (ADI) Llano Bonito de Cirri Norte and Barranca, grouped more than 55 producers in two projects funded through the (SGP-GEF-UNDP). The ADI of Barranca participated, 34 producers, 26 men and eight women, while that of Llano Bonito de Cirri Norte participated, 21 producers, 13 men and eight women. The two ADIs received a total financing of US \$ 100,000.

The River Barranca Basin covers an area of 479.14 km², and is composed of 18 sub-basins. The main channel arises on the western slopes of Fila La Picada, the remaining main channels originate from northeast to southeast in the middle and lower part of the basin. Most of the area of the basin is distributed in San Ramón canton, Naranjo, Palmares and Esparza. According to INEC (2012), the historical projection for 2020 is that the population of this basin would be 71,629 inhabitants compared to 63,903 in 2010 and will directly depend on natural resources for their subsistence. Figure 1 shows the location of the Barranca River.

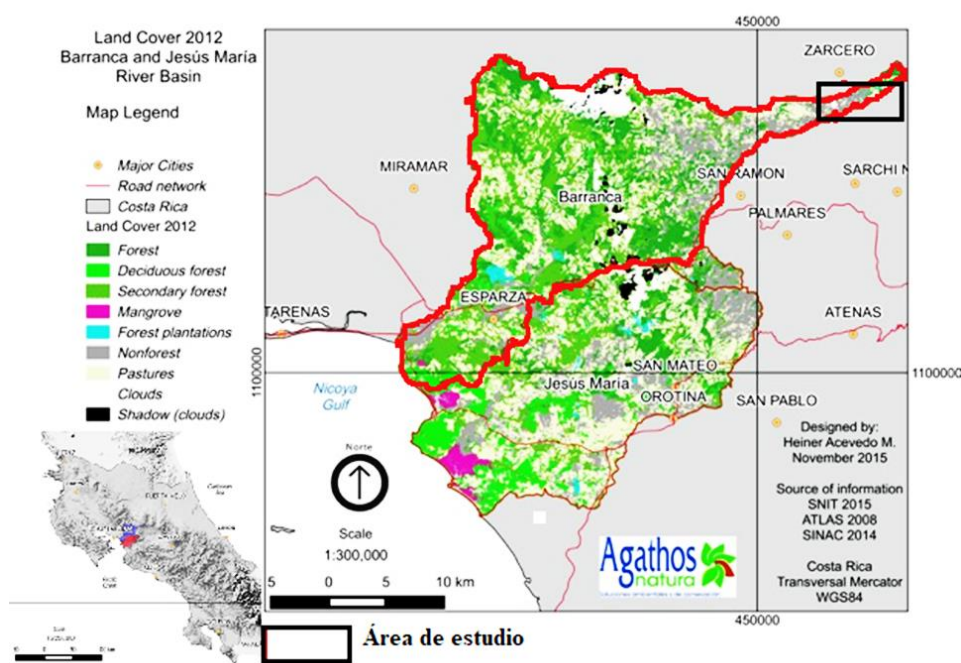


Figure 1. Location of the Barranca River Basin

The methodology is based on a participatory-action research which is an investigative approach that seeks the full participation of people in the analysis of their own reality. This helps to promote social transformation in favor of these people. It combines two processes, that is learn and act (Jara, 2012);

- Research: consisting of a reflective, systematic, controlled and critical procedure that aims to study some aspect of reality
- The action: besides being the purpose of the research, it represents a source of knowledge, while the actual accomplishment of the study is an intervention.
- Participation: where not only researchers or facilitators are involved, but also the community, considered as an active subject that contributes to knowing and transforming their reality

To achieve the objective of the study, a systematization process was designed that includes four stages. Figure 2 outlines the general scheme of the analysis.

Results and discussions

Figure 3 shows the events and milestones that happened throughout the project and that were identified during the focus group with the Board of Directors of the ADI. The upper part of the timeline are the events which impacted positively, while in the lower part are those which negatively impacted the project.

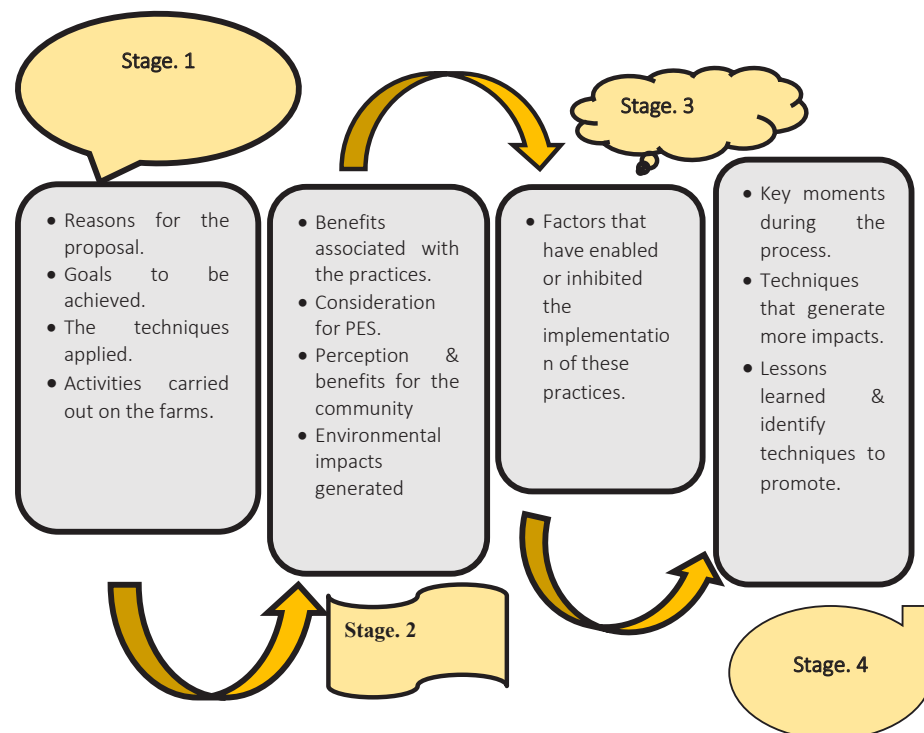
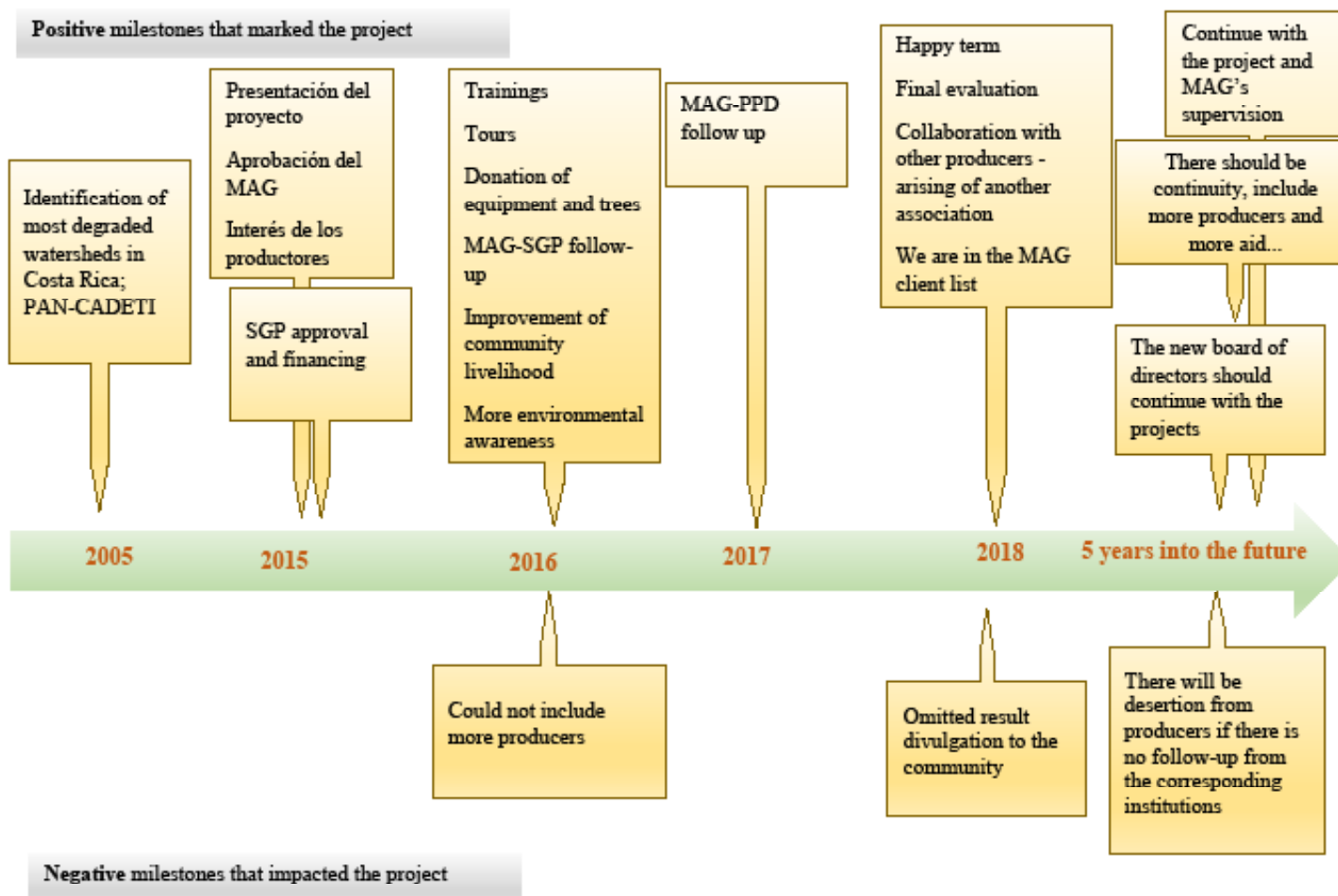


Figure 2. Sketch of the methodological process

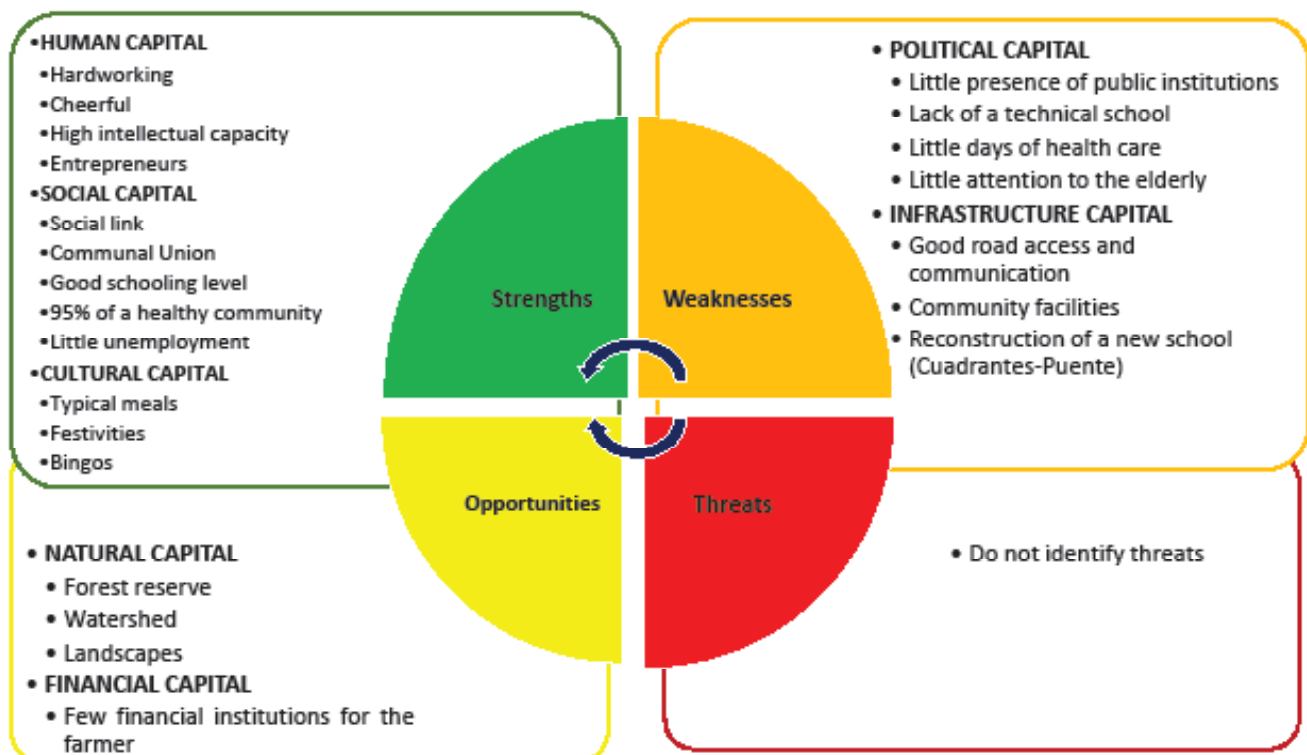


At the end of the project, the association achieved 100% compliance with the objectives set with an evaluation considered highly satisfactory. This made the producers and ADIs happy to have fulfilled the project purpose. This helped to create collaboration with other producers, leading to the creation of another association of fresh dairy, thanks to the success of the project.

The communities located in the River Barranca basin are occupied by small settlements just like other basins in Costa Rica. Most are rural communities which are engaged in productive activities such as agriculture, and small-to-medium-scale tourism. Both activities require considerable use of the resources available in communities. These resources are fundamentally vital for the development of rural existence.

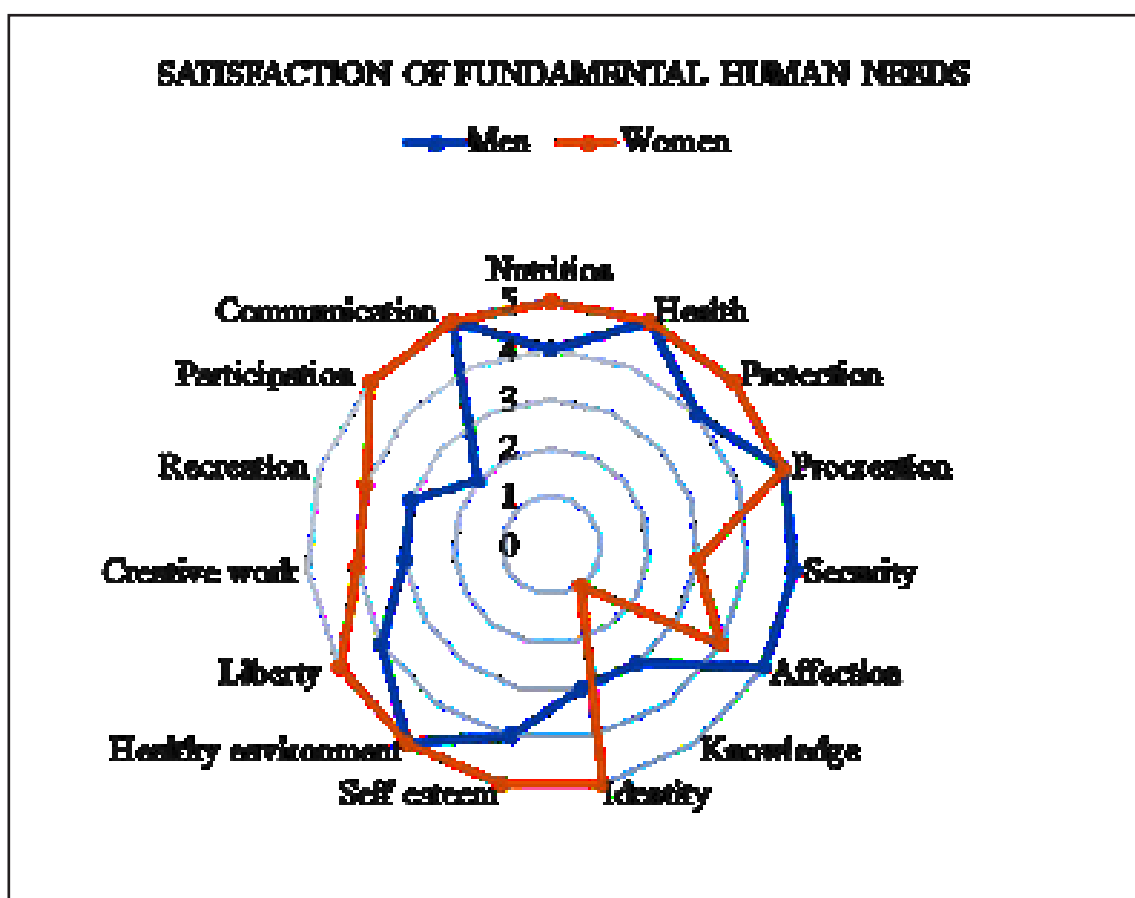
The productive livelihoods in these communities are largely dominated by coffee production. However, over time a combination system has been gradually adopted by producers, such as vegetables, dairy cattle and the planting of cypress. This arises from the instability of coffee prices at national and international level, and climate change phenomenon which has drastically reduced the profitability of coffee. For this reason, producers have diversified their sources of income to other activities.

Figure 4 provides an analysis of the capitals of the River Barranca basin. It gives the opportunities and constraints.



When analyzing the data in Figure 5, it is observed that the level of FHN of all the groups shows that women report a level of satisfaction of 52%, considering all details with the totality of combined groups. This is due to an inclusive empowerment of women's participation in leadership and decision-making in the community. Men reported 48% satisfaction level of FHN of all groups combined. This could be because men are quite busy with productive activities and struggling in diverse ways to provide food for their families.

Thanks to this project, 27,560 meters of soil conservation works have been executed over the projected goal of 21,600 meters before start of the project. In Figure 6, the indicators reached of different conservation techniques are shown.



1. Dissatisfied 2. Partially unsatisfied 3. Acceptable 4. Good satisfaction 5. Completely satisfied

Figure 5. Satisfaction of fundamental human needs (FHN)

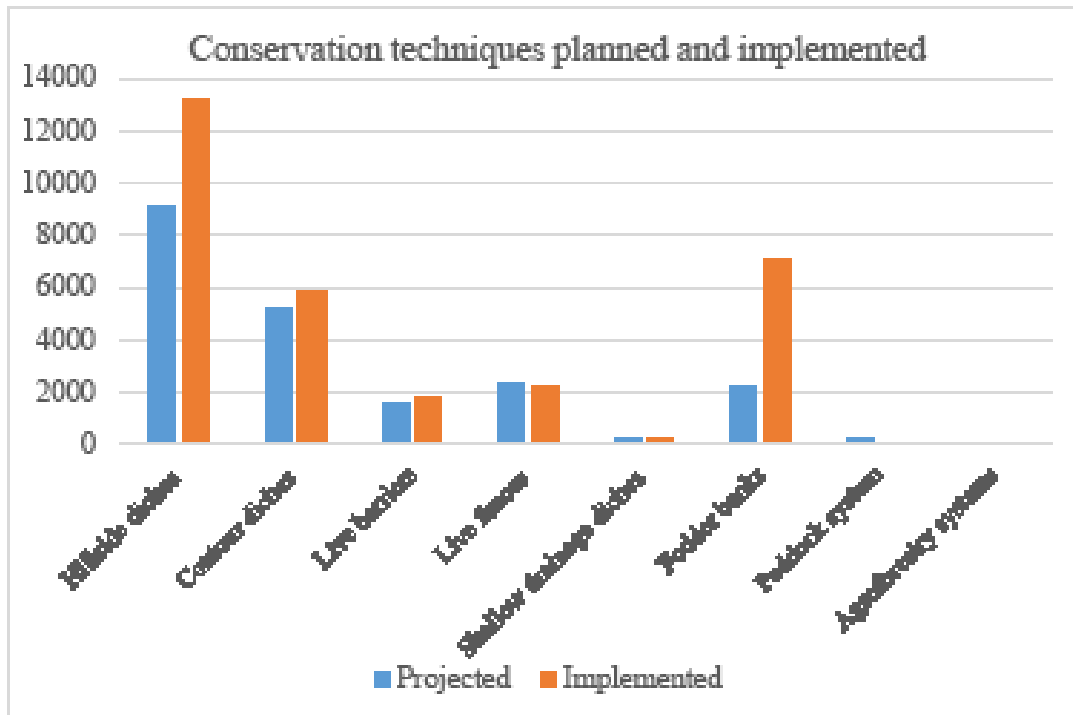


Figure 6. The conservation techniques elaborated by producers

Conclusions and recommendations

In the River Barranca basin, communities are strong in human, social and cultural capital (Figure 4). This is because they are communities with small populations and most people know each other or have a family relationship. The communities do not have any financial entity, according to the SWOT results, the financial capital corresponds to the list of threats. However, communities see it as an opportunity to take advantage of.

There was a significant participation of women and their relationship with other producers during the implementation of the initiative. It was achieved that 29% of women participated (in absolute values of 16 women). It is important to note that the project was developed under the leadership of women as residents of these associations.

It is therefore necessary to conduct a value chain analysis to promote local economies to improve their competitiveness. The productive chain refers to the production, transformation, marketing and consumption functions carried out by different actors (people, formal or informal organizations). While the value chains are oriented by demand and seek the competitiveness of the chain as a system, with a vision of economic, social and environmental sustainability. To diversify their sources of income, preferably combine agricultural production with some service simultaneously. This would allow them to take advantage of the large dominant tourism sector in the country. Also, reduce the effects of low performance caused by climate change.

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