

Evaluating farmers' management skills and social participation as part of the planning process and decision making

David Gortaire Díaz¹, Migdalia Díaz Chong², Enrique Díaz Chong³, Julio Mora Aristega⁴, Reyes Calderón Angulo⁵

¹*Master in Rural Development, Escuela Superior Politécnica del Litoral. Professor and Researcher of Universidad Técnica de Babahoyo. Babahoyo, Ecuador.*

²*Master in Teaching and Curriculum. Professor and Researcher of Universidad Técnica de Babahoyo. Babahoyo, Ecuador.*

³*PhD in Education. Professor and Researcher of Universidad Técnica de Babahoyo. Babahoyo, Ecuador.*

⁴*Master in Business Administration and Master in Teaching and Curriculum. Professor and Researcher of Universidad Técnica de Babahoyo. Babahoyo, Ecuador.*

⁵*Master in Business Administration. Professor and Researcher of Universidad Técnica de Babahoyo. Babahoyo, Ecuador.*

Abstract: This study aims to analyze farmers' management skills and participation in the decision-making process into their agricultural institutions and communities through descriptive research with the aim of supporting the main hypothesis presented at the beginning of this research. Using a questionnaire, 130 farmers were surveyed focusing on different variables into the productive, social and economic areas. We used statistical descriptive analysis to explain the main evidences. As result, we identified good farmers abilities for management and participation in the agricultural institutions and community, this supports the decision-making process and strategic planning process, regardless of their socioeconomic situation.

Keywords: Management; decision-making; participation; institutions.

1. Introduction

The participation of farmers is a vital factor for the success of environmental conservation and rehabilitation because they possess skills, technical knowledge, and organizational capacity to manage natural resources, which has allowed them to live for millennia (CEPAL, FAO, IICA, 2013).

Participation is essential to get the rural population involved in the collection of information and in the planning process. Participatory methods can be used to collect information on the activities and constraints of male and female farmers. This information can then be shared with policy makers and planners to formulate development plans that consider the interests of the rural population and promote sustainable development. Social participation is a cyclical, ascending, dynamic, complex, and articulated process in which its members organize to share responsibilities. Social participation is a process of involving individuals in commitment, cooperation, responsibility, and decision-making to achieve common goals (Chávez Carapia, 2006).

High-quality results require a good process. The idea of a process is basic for decision-making. One of the most remarkable discoveries of business thinkers from several decades ago is critical to effective results. Being smart or working hard does not ensure the quality or quantity of the result. In the absence of an effective process, the result would be a matter of luck. On the other hand, if there is an adequate process, the quality will improve. By adopting an effective process and training the people, results can be improved (Buchanan & O'Connell, 2006).

The main hypothesis of this article is determined whether farmers have adequate management skills to participate in decision-making process. This study is divided into four main chapters: i) study case introduction containing the conceptual model and justification, ii) the literature review iii) the methods used for collecting data and analysis and, iv) the results, discussion, and conclusions.

2. Literature Review

Cruz (2017) defined agricultural producer as a "natural or legal person who habitually has the agricultural exploitation of the land as the main economic activity". According to FAO (2007), the agricultural producer is the civil or legal person who makes the main decisions on the use of resources and exercises control

over the administration of the operations of the farm. You have technical and financial responsibilities and can directly assume them or delegate those related to daily work to a hired manager.

Agricultural communities, on the other hand, it is considered as a relatively new socio-economic model of food production and of organizing distribution and sales, aiming to increase the quality of food and the care given to land, plants and animals - while substantially reducing waste of food and financial risks for producers (Farfield-Sonn, 2016). The decision-making process in agricultural plantations depends on different situations since their main source of income and in some cases, food depends on the crops that are grown, which is why farmers usually have to make many decisions regarding their crops and in other cases to the same producers (FAO, 2013).

Social participation is described as “the social processes through which groups, organizations, institutions or different sectors (all social actors including the community), intervene in the identification of related problems and come together in alliance to design, implement and evaluate the solutions” (Sanabria Ramos, 2001).

In a community process, citizen participation is the key element, but this participation implies that it is the citizens themselves who decide how they want their future to be (both the most immediate and the most distant) (Martí, Pascual, & Rebollo, 2005). Therefore, in the population space, decisions are made, by consensus, on what are the priorities to be worked on based on the plan.

The acceleration of development plans and projects require adequate economic and financial resources, natural, technological, planning, the improvement of the administration, structural reforms (tax, agrarian) and the conscious and organized participation of the population. The active or passive, positive or negative role that the population plays in the formulation of plans and projects constitutes an accelerator or a brake. Consequently, without diminishing the importance of other resources, popular participation is essential for development. (Ramsay, 1970)

Therefore, according to Ramsay (1970) good plans can be drawn up with adequate financing and technical resources; however, these may fail due to a lack of decision and the willingness of the population to put them into practice. Then, it is imperative to i) Interpret social reality, that the population understands them and makes them their own and that they put them into practice and, ii) The population is the one that must conceive, execute, and take advantage of the benefits of the plans.

On the other hand, social participation in agriculture is a path to achieve sustainability, which mostly focuses on the ability to develop lifestyles and levels of consumption orientated to the preservation of the resource's stocks. It characterizes for an approach oriented to the conservation of resources and the fulfillment of the present generations' needs without compromising future generations (Borrelli, 2016).

3. Methods

The study case took place in Los Rios – Ecuador. The research is predominantly descriptive with the objective of support the central hypothesis presented in this article. Quantitative tools were used to gather data and present main results.

3.1 Design and Questionnaire

A semi-structured questionnaire was used as survey to obtain information about farmers' situation. The survey was conducted in the households of participants after they agreed on written consent. This data was obtained from a study conducted across the agriculture producers in the whole province of Los Rios. The sample was determined using a probabilistic simple random sampling. The survey's primary purpose was to investigate attitudes towards the production activity, farmers' characteristics (demographics) and management skills, 136 valid questionnaires were obtained, which were carried out randomly in 10 different cities of Los Rios.

The questionnaire had questions regarding the main indicators which are:

Table 1: Indicators for Evaluation

Indicators	Measure	Description
Management Skills:	Extension Services Management Training Accounting Records	Availability of carry an adequate management coming from external methods or self-preparation.
Social Participation:	Associativity Benefits equity Decision Making	Evaluate social participation regarding associativity, work in projects, equality and decision making.

3.2 Data Analysis

To analyze the data, we used three different methods for each one of the three core indicators. Descriptive statistics helped to study the food security indicators using tables, describing the primary information to explain appropriately the results obtained from collected data in the field. We constructed an amoeba graph in order to determine the level of social participation regarding different indexes. We also used colors to identify the risk level according to the sustainability model proposed by Sepúlveda (2008), where: red = high level, orange = critic level, yellow = unstable risk, blue = stable level and, green = adequate level.

3.3 Study Territory

Los Rios is one of the 24 provinces of Ecuador, located in the coastal region of the country. Its total population is 527,559 people, and its capital is Babahoyo (Naranjo, 2004). In this province, water is a valuable resource, water bathes its lands and makes it the most fertile area in Ecuador, and it is from that it gets its name (Los Rios in Spanish means Rivers).

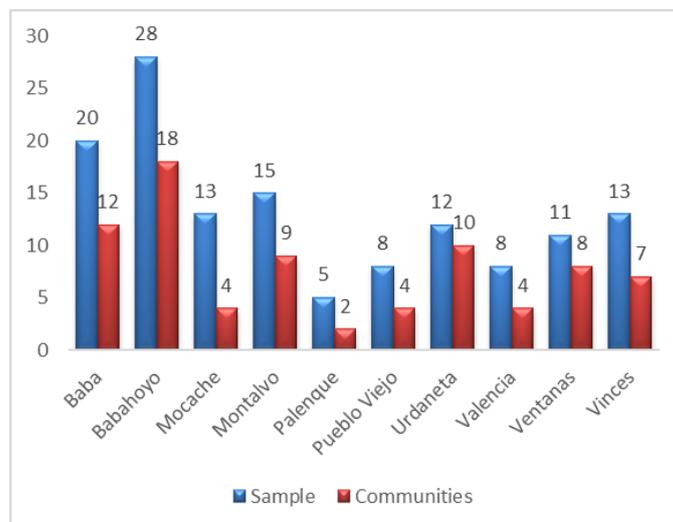


Figure 1: Sample and communities in Los Rios

The study collected data in 10 different cities of the province, where a convenience sample was reached in each one of the cities surveyed, reaching 78 rural communities, between parishes and precincts, where most small-scale agricultural producers are; better presented in Figure 1:

4. Results

The results show a quantitative and qualitative analysis using descriptive statistics to explain the results obtained from the study population. Initially, Table 2 details the main products that were mentioned by small-scale producers, indicating the products destined to sale and self-consumption, products harvested in gardens and minor products harvested. The surveyed producers own approximately from 1 to 15 hectares, with an average of 6.02 hectares, where they develop their production activities.

Table 2: Los Rios main products' harvest and destination

Mainly sale destined		Mainly self-consumption destined		Harvested in family gardens		Minor harvested crops	
Rice	58%	Orange	18%	Peppermint	6%	Oregano	4%
Cocoa	35%	Watermelon	17%	Pumpkin	5%	Passionfruit	4%
Maize	25%	Lemon	14%	Yucca	5%	Soursop	3%
Banana	19%	Mango	13%	Lemongrass	5%	Coconut	3%
Plantain	12%	Melon	8%	Beans	4%	Tangerine	3%
Soy	8%	Papaya	8%	Coriander	4%	Cherry	3%

Sugar cane	4%	Guava	8%	Aloe	3%	Tomato	3%
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Within its production, Los Ríos farmers mainly grow rice, cocoa, and corn. In addition to the products mentioned in Table 1, it was also mentioned to have family gardens and small farms, in which fruit, vegetables, and herbs products are harvested. Table 2 present the product species studying the mentioned crops as primary, secondary, and additional products and, they harvest approximately 79 products supporting the biodiversity and the food security in small-scale producers' families.

We present the top relevant crops and their destination, i) mainly destined for sale such as rice, cocoa, and corn; ii) destined for home consumption, mainly fruit species such as orange, watermelon, and mango; iii) grown in family gardens, rich in plant and herbal species and iv) smaller species such as oregano, passion fruit or coconut. Species diversification supports adequate consumption and contributes to the nutrition of farmers, in turn improving the well-being of the community and the health and safety of its inhabitants (Kennedy, Ballard, & Dop, 2011).

Instead, Table 3, collected information about the producers' income, analyzing different categories that represent: i) poverty line, ii) minimum wage, iii) basic basket of goods, iv) medium income, and v) higher incomes. In Table 4, we aimed to analyze the percentage of producers that could access to extension services, training, and accounting management, according to each income construct.

Table 3: Accounting management according to family income

Income Interval	Extension Services (Yes = 27.8%)	Technology Training (Yes = 28.8%)	Accounting Records (Yes = 71.0%)
\$1.00 – \$85	29,41%	11,76%	58,82%
\$85.00 - \$400.00	31,25%	26,56%	75,00%
\$400.00 - \$714.00	20,69%	31,03%	72,41%
\$714.00 - \$1000.00	18,75%	25,00%	50,00%
Higher than \$1000.00	42,86%	85,71%	85,71%

The extension service to small-scale producers in Los Ríos is limited, both from the public sector and academia. Farmers who declare income of more than \$1000, have obtained extension services in 42.85%, for the rest of the groups, the percentages of producers do not exceed 31.26%. On the other hand, small producers declare that less than 31.03% have received training related to technology, social networks, and the internet, in the case of the group with the highest income, 85.71% declare knowledge. While more than 50% keep records of income and expenses to control their production, even those who are in the poverty line, where 58.82% declare having income and expenses records, evidencing that accounting is not an issue of income, any economic level in farming has the possibility of carrying accounting of incomes and expenses, even when they have limited extension services and training.

Then, it is imperative to measure the accounting management criteria according to the level of education. Table 4 synthesizes this information, where producers indicated only 27.8% could access to extension services coming from public institutions or academy, and 28.8% of farmers are trained in technology services. However, 71% of the surveyed producers keep records of accounts and finance to control their income and expenses, sometimes, in not formal methods, but they make their effort to have control.

Table 4: Accounting management according to education level

Education Level	Extension Services (Yes = 27.8%)	Technology Training (Yes = 28.8%)	Accounting Records (Yes = 71.0%)
Incomplete School	33,3%	11,1%	88,9%
Complete School	25,0%	13,9%	65,7%
Incomplete High School	23,8%	23,8%	55,0%
Complete High School	29,0%	36,7%	80,6%

Incomplete College	14,3%	64,3%	78,6%
Complete College	50,0%	61,7%	66,7%
Post-graduate Program	0,0%	100,0%	100,0%

The extensions services are variable in every level of education, and it doesn't have a lineal behavior of increasing, while training is increasing according to the level of education. Only 11.1% of farmers are trained when they have incomplete school, those values are increasing, further college education has higher values, from 61% to 100%. Finally, farmers keep records independently of their level of studies. More than 55% of the farmers in each construct keep accounting records, in both, formal and informal methods.

On the other hand, we developed an amoeba graph to assess the social participation. Initially, we noticed that only the 35.2% of farmers in Los Rios belong to an agricultural association or cooperative, this is such a reduce quantity of producers that work together to create better opportunities. From this percentage of farmers, we evaluated how the participation is carried according to the surveyed producers' answers. Figure 2 present the graph where we considered the main 11 indexes to explain the social participation in this province and also Table 5 gathered this information.

Table 5:Indexes of Social participation

Indicator	Name	Index
Planning Meetings	SP1	0,79
Equally participation in decision making	SP2	0,75
Clear Rules and Standards	SP3	0,74
Household benefits	SP4	0,66
Equity in sharing benefits	SP5	0,71
Gender equality	SP6	0,79
Female legal members	SP7	0,82
Equally Socieconomic level	SP8	0,61
Create projects	SP9	0,58
Paritipating in projects decisions	SP10	0,72
Community decision making	SP11	0,67
Integrated Index		0,71

According to farmers answers, we can indicate that most of the indexes are in stable level, then it supports the participation process (when they are part of an association). Then, the associations call to farmers to adequate meeting to planning their processes (0.79), and they indicated they have equal participation in the decision-making process (0.75), which is mostly the main hypothesis of this article. On the other hand, associations presented clear rules and standards to carry on the operations (0.74), and they could get equally benefits from the associations (0.71 and 0.66) and projects coming from it. Producers also indicated there is equality in socioeconomic level (0.61) and gender (0.79), having female farmers as legal members as the only adequate level in the study (0.82). Associations are failing according to the producers in project creations (0.58) according to Agricultural activities or any other producing activity where they can participate, being this index unstable, but they can participate in the projects' decision-making (0.72) when they have them. Finally, they could participate also in the community decision making (0.67), but the level is minor to other indexes.



Figure 2:Built-in Indexes of Social Participation

In the amoeba graph in Figure 2, we integrated the indexes to look up the level of participation as a whole. As we mentioned before, in the figure we could see a stable level of social participation, close to the edge, the exceptions are SP8 and SP9, where farmers consider all the members of the association has equally economic level and the associations' ability to create projects. However, having reviewed the management skills and extension services they received, they have a well-managed process, allowing people to participate in the decision making and focusing on generating a "be part" feeling for the farmers.

5. Discussion

The participation of families in gardens in one of the factors that can increase food diversity (FAO, 2009); it is also considered the engine for the community development from an agroecological approach since it is the foundation for sustainable agriculture (Altieri, 2011).

The main objective of this study was to determine that regardless of socioeconomic factors, agricultural producers can participate in decision-making, since their knowledge is useful and considerable for their production activities. Given the results obtained, the results determined that participation is important and is well-managed between associated producers of Los Ríos.

Participation is not only achieved through contact with farmers, but on the contrary, it is one of the activities that requires the most continuity and consistency in an area, because participation is also a degree of trust, communication between producers and the degree of confidence that will vary in reaching according to regional ethnic peculiarities. (Jurenas, 2015)

The stable level of social participation could guarantee to farmers better offers in the productive sphere and with society. We can see important information in the document about how participation in the agricultural sectors of the province of Los Ríos is managed, and its analysis provides relevant information to be considered from the perspective of farmers, regardless of their socioeconomic level.

One of the limitations of this study is that the survey did not include all the cantons of Los Ríos. This can be a point for improvement. Anyhow, the arguments have high validity due to the number of responses, which allowed us to validate the information. Finally, this research provides a striking and innovative vision; it represents the first step to document part of the dietary diversity and livelihoods in the rural populations of Ecuador.

6. Conclusions

Despite the exploratory nature of this research, it is clear that in the rural areas of the Los Ríos province at the level, it has a stable participation level into their associations and community. Our research supported the hypothesis of this study: Agricultural producers of Los Ríos have appropriate stable level of participation in the

decision-making process even when their capabilities are not the best, due to the lack of extension services and the demographic conditions as income and academic level.

According to the results of the surveys, it was possible to determine that both men and women have high participation and are part of decision-making within the association and the community to which they belong, although most women expressed doubts about their power to decision within the association that they integrate, but it was evidenced women could access legally to the associations and they can participate into the planning and decision-making process (FAO, 2011).

Regarding our research question, it is determined that by the criteria of the respondents, participation in associations is important regardless of their socioeconomic level and their intervention positively influences decision-making in resource management and the actions they have an impact on the development of communities.

Future research could be essential to study better ways of accessing local markets, i.e., on the organic production side, through third-party certifications or Participatory Guarantee Systems (Cuéllar-Padilla, 2010; INFOAM, 2013; Meemken & Qaim, 2018; Pino, 2017), to increase participation in small-scale producers.

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Authors' Profile



— **David Gortaire** received a B.S. degree in International Business and M.S. degree in Rural Development from Escuela Superior Politécnica del Litoral in 2012 and 2020, respectively. During 2012-2018, he was part of SGS Group as Regional Project Manager of Central & South America, in 2018 he works for DOLE Group as Third-Party Certification Advisor. From 2017 to 2019, he held research projects as part of the International Master Program in Rural Development from ESPOL, participating in the Rural Research Center and the Public Policy Center. Since 2019, David is a full-time professor and Researcher of the Universidad Técnica de Babahoyo.



Migdalia Díaz received a B.S. degree in Education Science and a master's degree in teaching and Curriculum from Universidad Técnica de Babahoyo, in 1995 and 2008, respectively. She has complementary studies in Education Planning and Management. She has more than twenty years of experience in High Schools and University Teaching and Direction. Migdalia is a part-time Professor and Researcher of the Universidad Técnica de Babahoyo.



Enrique Díaz Chong received a B.S. degree in Education Science and a master's degree in teaching and Curriculum from University of Babahoyo in 1995 and 2004, respectively, and he has concluded his PhD in Education at the Major National University of San Marcos from Lima, Peru in 2008. He has more than 29 years of experience in teaching in High Schools and University, being Director and Vice Director in a High School. He has been trainer from the Ministry of Education in topics as Pedagogy and Didactic, Learning evaluation and Math. Currently Enrique Professor and Researcher of the Universidad Técnica de Babahoyo.



Julio Mora received a Bachelor's degree in Public Accounting and Master's in Business Administration from Universidad Técnica de Babahoyo in 2005 and 2014, respectively. He is a professor in Universidad Técnica de Babahoyo in Accounting field, since 2005. From 2018, Julio is the Director of the Languages Center in Universidad Técnica de Babahoyo. He has published more than fifty scientific articles between 2017 and 2020.



Reyes Calderon received a Bachelor's degree in Commercial Engineering and a Master's in Business Administration from Universidad Estatal de Quevedo in 2012 and 2016, respectively. Since 2018, he is an accounting teacher in the Universidad Técnica de Babahoyo. He is the manager of Ventanas Health Center since 2016. He has published management related scientific articles during the past years.