

**MINISTRY OF AGRICULTURE, LIVESTOCK,
AQUACULTURE AND FISHERIES OF THE REPUBLIC OF ECUADOR
(MAGAP)**

**THE STUDY
ON
THE PLAN OF REORGANIZATION OF
THE AGRICULTURE SUPPORTING SERVICES,
COPING WITH POVERTY ALLEVIATION
FOR RURAL PEASANT IN MOUNTAINOUS AREA
IN
THE REPUBLIC OF ECUADOR**

FINAL REPORT

SEPTEMBER 2010

JAPAN INTERNATIONAL COOPERATION AGENCY

**ORIENTAL CONSULTANTS CO., LTD.
SANYU CONSULTANTS INC.**

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PREFACE

In response to a request from the Government of the Republic of Ecuador, the Government of Japan decided to conduct a development study on “Plan of Reorganization of the Agriculture supporting services, coping with Poverty Alleviation for Rural Peasant in Mountainous Area” and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA selected and dispatched a study team headed by Mr. Takashi FUJITA of Oriental Consultants Co., Ltd. and consists of Oriental Consultants co., Ltd. and Sanyu Consultants Inc. between February, 2009 and June, 2010.

The team held discussions with the officials concerned of the Government of the Republic of Ecuador, and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of Ecuador for their close cooperation extended to the study.

September 2010

Izumi TAKASHIMA,
Deputy Vice President,
Japan International Cooperation Agency

Mr. Izumi TAKASHIMA
Deputy Vice President
Japan International Cooperation Agency
Tokyo, Japan

Transmittal Letter

It is a pleasure to deliver the Final Report of the Study of the Plan of Reorganization of the Agriculture supporting services, coping with Poverty Alleviation for Rural Peasant in Mountainous Area in the Republic of ECUADOR.

This Report contains contributions regarding the method to reduce poverty through the reorganization of the support system such as creating an institutional linkage system directed to small-scale farmers in poverty in the Study area, in which the suggestions and recommendations made by Japan International Cooperation Agency (JICA) during the conduct of the Study, as well as the discussions and comments regarding the Draft Final Report made by the concerned Institutions of the Republic of Ecuador are reflected.

The ten provinces of the Sierra, the object area of the present Study, are located in the central zone of the Andes mountain range that crosses Ecuador from North to South, and this Study is directed at the small-scale farmers in poverty that practice subsistence agriculture in zones with altitudes higher than 2,000m.

Most of the young generation has migrated to other places and there are many communities with serious poverty problems, where their subsistence is at stake. In order to improve this situation, the spirit of the Constitution that is reflected in the goal of “Good Living” (Buen Vivir in Spanish) should also be felt in the rural zone. With this purpose, the Ministry of Agriculture, Livestock and Fishery (MAGAP) has prepared the Plan of “Buen Vivir Rural” to support small-scale farmers in poverty, while the provincial and cantonal governments address the development of the plan using the Territorial Approach. As a principle, the realization of these Plans should count on the participation of all actors involved and therefore, it requires an institutional linkage system.

This Report proposes the methodology to organize the institutional linkage system among the involved entities as well as the agricultural techniques and services required for the small-scale farmers in poverty. Plans with a territorial approach have only recently been launched in Ecuador and we wish that the present Study could serve for the formulation of said plans in an effective way, for the achievement of positive results.

Finally, taking this opportunity through implementation of the Study, we would like to thank all involved for the support and collaboration provided by JICA and the Ecuadorian Institutions, especially the International Cooperation and the Secretariat of Region III of MAGAP in the Republic of Ecuador, and all officers responsible for the respective institutions who participated the Study.

Sincerely yours,

Takashi Fujita
Team Leader
Study of the Plan for the Reorganization of the Agricultural
Support Services, Coping with Poverty Alleviation for
Rural Peasants in Mountainous Areas in the Republic of
ECUADOR



Study Area

The Plan of Reorganization of the Agriculture Supporting Services, Coping with Poverty Alleviation for Rural Peasant in Mountainous Area in The Republic of Ecuador

Photograph (1)



Typical Rural Landscape in the Sierra Region
(September 2009)



Small Scale Farmers (Indigenous)
in the Sierra Region
(September 2009)



Hearing Survey in 2009



Progress Meeting of the Study
with Local Consultants
(May 2009)



Problem Analysis with Farmers in Workshop
(September 2009)



Explanation and Discussion of Interim Report
in the Meeting of the Conductor Committee
(October 2009)

The Plan of Reorganization of the Agriculture Supporting Services, Coping with Poverty Alleviation for Rural Peasant in Mountainous Area in The Republic of Ecuador
 Photograph (2)



Introduction of "Good Practice" by Related Institutions in the Second Meeting of Working Group (May 2009)



Workshop of Problem Analysis in 5th Meeting of Working Group (October 2009)



Visit to the Community Development Project by FAO (March 2010)



First Meeting of Provincial Working Group held at the Secretary Office in the Sierra Region (March 2010)



Workshop for Information sharing among the related institutions due to support Small Scale Farmers in the 6th Meeting of Working Group (April 2010)



Explanation and Discussion of Draft Final Report in the Meeting of Conductor Committee (July 2010)
 (Photo below right: Exchange of Notes)



THE STUDY
OF
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Final Report

Summary

1 Profile of the Study

1.1 Background of the Study

The good performance of natural resources and traditional product exports and the consequent foreign exchange earnings has led Ecuador to stable macroeconomic growth. However, 60 % of the population is still below the poverty line. Most of them live in rural areas engaged in small scale farming activities, especially at the Sierra region, but the production is not enough to assure their self-supply; therefore, to maintain their living conditions at a minimum level they depend on income generated by the cash remittance of relatives that have migrated to other places.

In face of this situation, the Government of Ecuador and the Ministry of Agriculture, Livestock, Aquaculture and Fishery (MAGAP) are implementing several programs related to the reduction of poverty and agricultural development in an attempt to support rural small scale farmers. However, agricultural services that were provided by public entities were privatized and as consequence, said services now have a cost, making it more difficult for small producers with limited economic capacity to access said services. Therefore, there remain many problems such as the rendering of similar services by several organizations or the lack of attention to the real needs of small scale farmers. Furthermore, many local governments in charge of agricultural services to small scale farmers do not have sufficient human or financial resources or know-how, restraining the attention to the producers' necessities in a timely and effective manner.

Intending to correct this situation, the Ecuadorian government has requested the cooperation of the Japanese Government to improve the agricultural support services at central and local levels through the Reorganization of the Supporting System to Small scale Farmers. In answer to this request, during the months of February and March 2008 a preliminary Study was conducted and once the discussions about the scope and contents of the Study were finished, the Scope of Works for the Study were agreed and signed in November 2008.

1.2 Changes in the background of the Study

Under the framework mentioned before, the Study to identify and diagnose the existing situation started in February 2009. However, the circumstances of MAGAP and local governments related to the supporting actions directed to small scale farmers dramatically changed while the Study was under the preparation stage for the second year plan (2010).

President Rafael Correa who assumed the presidency in January, 2007 promulgated the New Constitution in 2008, establishing as a priority pillar the materialization of Good Living, “Buen Vivir”. Subsequently, MAGAP settled on the “National plan for rural good living” (Plan Nacional del Buen Vivir Rural), in the framework in which, and related to the support to small scale farmers, it proposes to double productivity of basic grains produced by small scale farmers, creating the Schools of Agricultural Revolution (Escuelas de Revolución Agraria, ERA in Spanish) as one of the tools to accomplish this goal, and proceeding to hire approximately 1000 facilitators necessary in said Schools and programming the extension activities to be developed in the same, that presently is under course. The formation of facilitators, equivalent to a great number of extension agents, in spite of their little experience in the field, implies important changes in the “assumption” of the Study that mentions the “insufficient system of extension”. Furthermore, MAGAP is internally promoting the restructuring plan of the organization that foresees the inclusion of institutions such as INCCA, INAR, CARDES and INDA within MAGAP.

Presently the Plan of Territorial Ordainment is in the process of elaboration in all cantons of the national territory, under the guidance of SENPLADES, that is to be followed by the Territorial Arrangement Plan (TAP) in the provinces, taking in consideration the results of the first. TAP intends to promote territorial development efficiently through the co-management of the several existing actors of territorial development (economic development). Actually, the Plan can hardly progress without the co-management of the involved actors so what is needed is not the reorganization of the supporting entities to small scale farmers but the creation of the Co-management system for the support to small scale farmers. Besides, the advancements in the decentralization process divided the territory of Ecuador into 7 regions and the division of the 10 provinces in the Sierra region into 7 regions so that the Sub-secretariat of Sierra became the Office of the third Region.

1.3 Objective of the Study

The objectives of the present Study are the following

To elaborate the Reorganization Plan of the Supporting System to Small Rural Producers and Small Communities in the Sierra Zone, where the population in poverty is concentrated, to increase agricultural productivity, which is the main income source of small scale farmers and communities.

Strengthen the capacity of research and formulation of development plans of the Counterpart personnel.

The objectives have been changed to “Reorganization of the Supporting System” and to the “Creation of the Co-management System”, as described in “1.2 Changes in the background of the Study”.

1.4 Study Area

The Study area covers the following ten provinces of the Sierra region. (In 2007 the province of Pichincha was divided and presently there are 11 provinces).

- (1) Study through secondary sources (reports and available material) – The following ten provinces: Carchi, Imbabura, Pichincha (including the new province of Santo Domingo de los Tsáchilas), Cotopaxi, Tungurahua, Bolívar, Chimborazo, Cañar, Azuay and Loja
- (2) Field Study: four provinces namely, Cotopaxi, Tungurahua, Bolívar and Chimborazo

1.5 Period of Study

This Study had a duration from the beginning of February to the end of July 2010.

1.6 Scope of the Study

The present Study is implemented in two stages and the scope of each of the stages are shown as follows.

1st. Stage	2nd. Stage
1. Analysis of the existing situation of the agricultural supporting system to small scale farmers 2. Identification of the needs of agricultural support by small producers	3. Definition of agricultural techniques necessary for small producers in rural zones 4. Formulation of the reorganization Plan for the agricultural support system to small producers.

2 Direction of the Support to Small scale Farmers

2.1 Existing Situation of Small scale Farmers in Poverty

2.1.1 Profile of Small scale Farmers in the Sierra Region

The ten provinces of Sierra region are mainly located in the central area of the Andes, but include part of the coastal plains and tropical Amazon region. The object area of the Study covers the so-called inter-Andean subtropical climate¹, which according to agro climatic classification, corresponds to zones higher than 2,000m up to around 4,000 m high, including a part of the Paramo, which is considered the limit for farming activities; however this study does not include the tropical agricultural area whose products and cultivation methods are completely different. Characteristics of the Sierra, as well as the agriculture practiced there are presented in the following

¹ Elements of Ecuador Geography, Nelson Gómez E., P139 Pisos Climaticos

Table.

Item	Characteristics
Study Area and number of farmer families	1) The population of the Sierra is 6.38 million, representing 45 % of the total population of Ecuador and population density is 97 inhabitants per km ² , almost double the national average population density; so it can be said that the Sierra is densely populated 2) About 70 % (561,628 families) of all farmers in the country (842,882 families) is in the area of the Sierra. Farmers that are the subjects of this study (Less than 5 ha and altitude above 2,000 m) are 393,751 families, equivalent to 70 % of all farmers in the Sierra.
Land use	1) Cultivated areas are similar in the Costa and Sierra, but in the Costa permanent crops are cultivated, while in the Sierra there are vast areas of natural pasture in the <i>Paramos</i> over 3,000 m altitude."
Main agricultural activities	1) Production in the Sierra region: maize (for human consumption), frejol beans, potatoes, barley, wheat, peas , tomato, babaco, dairy and sheep. 2) Products with higher agricultural production compared to other zones: dry and soft peas, and swine, among others 3) Characteristics of agricultural activities in the Sierra: production of maize (human consumption), <i>frejol</i> beans, peas. Traditional agriculture (quinoa, chocho, melloco, medicinal herbs). Agriculture associated with animal farming.

2.1.2 Social situation of small scale farmers

A survey was conducted in August 2009, in four provinces, namely Cotopaxi, Tungurahua, Bolivar and Chimborazo, where field studies were carried out. Surveys were made in an average of 20 communities in each province, totaling 1,200 families in 80 communities distributed in twelve parroquiaes selected according to two aspects, the poverty rate and altitude, that are determinant factors for the agricultural management system, The results of the survey are the following:

- **“Minifundización” (division of land into small scale farms):** Properties have an average area of 1.96 ha, but observing the number of families, more than 70 % of small scale farmers have properties with areas below the average (<2.0 ha). In 1974, 35.1 % of small scale farmers had properties with areas less than 1.0 ha; however, in this survey (2009), this percentage reached 53 %, showing the acceleration of the *minifundizacion* process.
- **Altitude and Agriculture Income:** In zones with altitude between 2.000 - 2.500 m it is possible to obtain a certain income from farming and non-farming income is smaller. In the zones closer to the icy paramales land, at the limits of cultivation, the income of small scale farmers is very small.
- **Farming and non-farming income:** More than half of the small scale farmers surveyed were forced to search for jobs in other zones (especially the young), declaring that they carry out a “secondary activity”. For this group, non-farming income is greater than farming income. Comparing the land size, there is not much difference in income between the group that practices “exclusive dedication” to farming and the group 1 with a secondary activity in which the farming income is greater than the non-farming income, but there is a big difference between group 1 and group 2 with secondary activity (average 2,73

ha and 1.29 ha).

- **Community as the basic unit of agricultural and rural development:** Taking the example of La Moya Community (Cotopaxi), several public institutions and entities, provinces and cantons, foundations and NGOs, provide service to the community for rural and agricultural development. Farmers perceive the intensity of the relationship with these instances as “regular” for them, the link they have with the Provincial Council or municipalities is more directed to issues related with the construction and maintenance of **infrastructure** (construction and maintenance of roads, parks, bridges, community centers, schools, irrigation systems, etc.).
- In some communities, almost all male and young members have migrated searching for jobs, making it difficult to acquire new agricultural techniques or participate in the innovation of **traditional** agricultural practices. Agriculture is practically maintained by elderly producers that keep on working in the traditional way, making it impossible the acquisition of or adaptation to new technologies.
- Small scale farmers wish to benefit from the integral program of rural development, including land entitlement. In this context, the provision of comprehensive means to cover technical assistance through technological transfer, improved seeds, commercialization channels, etc. could be an incentive and a beneficial act to make the young return and settle in their communities.
- It is very important to make it clear that farmers desire a long term sustainable plan according to the local potentials and the geographical location, not a project to satisfy only temporary needs.

2.1.3 Agricultural management of small scale farmers

Agricultural management characteristics of small scale farmers are the following:

- **Agricultural management of small scale farmers is mainly based on the cultivation of temporary crops:** Small scale farmers, firstly want to assure food for the family; so, transitory crops are the best assurance of food security.
- **Importance of animal breeding for small scale farmers:** 74 % of small scale farmers breed more than 10 “cuyes”, 68% have on average one to two bovine cattle and 60% have on average one to two pigs.
- **Use of soil in high altitude zones and variations of cattle breeding:** Land is basically used for transitory crop cultivation up to 2,500m, but the higher the altitude, the more the products are reduced, mainly in zones higher than 3,800m, where the percentage of natural pasture and paramos increases. Bovine and porcine cattle are more frequent in altitudes below 3,200 m. Domestic animals are more frequent in lower altitudes and sheep are more numerous at high altitudes. Cuy is present in the entire Sierra region but is more abundant

in altitudes below 3.800 m.

Issues related to agricultural management of small scale farmers are the following:

- **Degradation by the continuous use of soil:** To give more importance to transitory crops to ensure food security causes a reduction in pasture area, very important for the original system of crop rotation, generating as a result the difficulty to maintain this rotation system. By the reduction of animal breeding activity, application of organic fertilizer (manure) was also affected. Thus, the collapse of the rotation system and the difficulty of ensuring manure are factors that lead to soil degradation.
- **Loss of traditional crops and genetic resources degradation:** Improved native products, kept by many generations are extinguishing due to the introduction of improved seeds and increase of migration. Initially, introduction of improved seed brings better yields and products have more acceptance in the market, on the other hand, they can lead to the loss of native varieties. The increase of migration is the loss of human resources (producers) that maintained the high quality of traditional products.
- **Difficulty to commercialize agricultural surplus:** In the case of basic crops (potatoes, onions, maize, etc.) mainly produced by small scale farmers, surplus is sold to middlemen that go the communities or the same farmers take products to the local markets to sell them to the middlemen. However, most of the farmers feel that the commission paid to them is too high and they feel unsatisfied.
- **Delay in the formation of agricultural producers' association, the base to structure the value chain:** In an agricultural development project, associations of small scale farmers are the base to structure a value chain, from the production to the sales of products. However, the participation rate of farmers in the associations is extremely low.

2.2 Institutional Support to Small scale Farmers

2.2.1 Existing Institutional Support to Small scale Farmers

Institutions at national level: MAGAP and related institutions such as INAR, INDA, INIAP, INCCA and BNF among others; each of these institutions have conducted the required assistance to small scale farmers in the range of their expertise.

Institution	Function
Ministry of Agriculture, Animal Farming, Aquaculture and Fisheries (MAGAP)	Planning and implementation of agricultural policies. Follow up, evaluation, agricultural production statistics. Technical Assistance to increase productivity and agricultural competitiveness. Supervision of INDA, INCCA and INAR.
National Institute of Irrigation (INAR)	Planning and implementation of the National Irrigation Plan. Construction and rehabilitation of irrigation systems. Strengthening of irrigation users' associations.
National Institute of Agrarian Development (INDA)	Entitlement and promotion of farm land properties. Management and operation of the land registration system. Intervention in conflicts related to land.
Autonomous National Institute of Agricultural Investigation (INIAP)	Agricultural technological development. Agro processing technological development. Training of experts. Production of improved seeds. Agricultural technical extension.
National Institute of Peasants Training (INCCA)	Agricultural technical extension (by contracting third parts for technical assistance).
National Bank of Promotion (BNF)	Low interest credits for the management of agricultural productive units. Subsidies for the purchase of agricultural input.

The number of assigned workers rather varies according to the province, but in year 2009 the average was 36 workers per province; of these, 18 were technical personnel and the remaining persons occupied administrative posts. Although there was a slight reduction, the number of technical personnel has not changed significantly from 2000. In theory, there would be one technician for each canton; however these cantons are very extensive and in the end, activities are restricted to priority communities or farmers organizations.

MAGAP's budget has considerably increased since 2007 under the sector policy of President Correa's administration.

Provincial Governments: The provincial governments have technical personnel for agricultural assistance; however the number of technicians differs largely according to the province. Chimborazo province, with the largest number of technical staff has twelve agriculture experts and Cotopaxi province, with the smallest number of experts has only three.

Province	Agriculture	Animal husbandry	Social Development	Others
Cotopaxi	3	0	—	3
Tungurahua	7	3	—	1
Bolívar	2	2	10	2
Chimborazo	10	2	18	0

Municipal Governments: The four provinces of Cotopaxi, Tungurahua, Bolívar and Chimborazo have in total 33 municipalities and of these, 24 municipalities answered to the survey conducted by the present Study; the results show that 16 municipalities (63 %) count on agricultural technicians and 15 municipalities (63 %) count on agricultural and animal husbandry technicians, meaning that more than half of the municipalities have an agricultural and animal husbandry technician on the

staff.

Participation of small scale farmers in projects: Population participation with the supply of labor for the execution of public works through “minga” is a traditional practice in the region, but in recent years, the population has been encouraged to participate from the stage of project formulation. The CADERS project carried out by MAGAP is one example of population participation since the formulation stage as well as in PPCH projects. Presently, both projects are formulated with the spontaneous participation of small scale farmers and participation of the population is progressing favorably.

2.2.2 The New Constitution and the Program of National Development

The new Constitution was established centered on the materialization of the “Buen Vivir” Plan and it gives special importance to the reduction of poverty and food self sufficiency, meaning improvement in the rate of self-sufficiency in food and food security.

For the materialization of the aforementioned “Good Living” in the new constitution, the National Secretariat of Planning and Development (SENPLADES) of the Ministry of the Presidency prepared in 2009 the National Development Program of “Buen Vivir 2009 – 2013”. In relation to small scale farmers in poverty, it establishes clear goals to actually improve the participation rate in producers associations, reduction of the poverty rate and increase of food production, among other things. The national territorial strategy is proposed as a strategy to achieve said objectives. This is a development program involving all actors; not only governmental institutions at national level but also the beneficiaries and the private sector, through mutual cooperation and division of roles.

New Constitution: Poverty reduction is mentioned in Title 1 of the Fundamental Principles and in the Chapter related to agriculture, food self sufficiency and the regulations to achieve the same are mentioned. The promotion to increase agricultural productivity and reforms in the sector based on the cooperation and participation of the different actors involved, starting from the farmers, is clearly specified. Regarding development at local level, it is to be achieved under the Territorial development approach through initiatives of the provincial government.

National Development Plan “Buen Vivir”: The National Development Plan points out 12 objectives and of these, 8 are related to the reduction of poverty of small scale farmers and concrete policies and goals are established for each objective. Items related to poverty reduction of small scale farmers from the viewpoint of agricultural activity are: reduction of middlemen by 20 %, a reduction of 50 % in the rate of unsatisfied basic needs (UBN) in rural zones, a reduction of 40 % in the volume of basic cereal imports, an increase of 50 % in the participation rate in farmers associations, a 27% reduction of the population with income under the poverty line, an increase to 98 % in the volume of food production in the country. It may be said that these goals should be achieved through the increase of agriculture productivity of small scale farmers or that the expected goals are directed to increase the productivity of this segment of the population.

2.2.3 Reformulation of the MAGAP Plan according to the new Constitution and the National Plan

MAGAP prepared in October 2009 the “Buen Vivir Rural” Program with familial agriculture as the motor of rural development with environmental considerations. This Plan considers the contents and actions to be carried out by MAGAP for the implementation of the National Plan. The scope of MAGAP’s actions is directed to the development of rural communities and also multi-sector actions in rural zones. Regarding the system of technical extension, the introduction of ERA, from reforms of the Farmer Field Schools (Escuela de Campo de Agricultores (ECA), in Spanish) is considered.

MAGAP Program “Buen Vivir Rural”: The objective of this Plan is to “Achieve the improvement of producers’ income and food self sufficiency through the promotion of diversified agriculture, animal farming and aquaculture reactivation, and thus contribute to the good living of communities on the coast and also the rural families”. In order to achieve the goals of this Plan, four objectives are established.

- Objective 1: Improvement of rural and coastal communities families' living conditions
- Objective 2: Conservation of biodiversity
- Objective 3: Implementation of agricultural innovation and productivity programs, expansion of storage, inclusive rural businesses, commercialization, aquiculture and fishery development
- Objective 4: Recovery of MAGAP’s competence for rural development

Results to be achieved with these four objectives are the following.

Variable	Content
Rural Services	Infrastructure, Technical Irrigation, Supportive Financial Nets, National System of Extension, Field Schools, Inter-ministerial Coordination (Electrification, Health, Housing, Education, Mobility, Communications)
Storage and Commercialization	Storage capacity in strategic places, reserve of strategic products, Mechanisms of market regulation, Inclusive businesses, Diversification of Exports and strategic substitution of imports, Promotion and marketing, Trader companies.
Associative Enterprises	Peasants enterprises, Regulation and Legalization of Producers’ Associations, Denomination and identity of Origin, Access of producing associations to public acquisitions, peasants suppliers.
Agricultural Assets	Biodiversity, Genetic Catalog, Ancestral Knowledge, New Forms of Ownership.
Integrated System of Information	System of socio-economic indicators, Development of a follow-up and evaluation system, Agricultural statistics, marketing studies of all markets for agricultural products and out-market transaction prices
Institutional Restructuring	Implementation of a management model in MAGAP, Implement of the National System of Rural Extension for the regions

Strategic Operative Plan: Two plans, four programs and two systems to achieve the results previously mentioned.

- Plan 1: “Territorial Plan for rural small scale farmers”: Improve the GINI index
- Plan 2: “National Rural Development Plan”: Achieve good living in rural zones
- Program 1: “National Program of agricultural revolution and increase of productivity”: Improve all stages of the productive chain
- Program 2: “National Program to expand food reserves and sales”: Exports and reserves of food
- Program 3: “National Program of inclusive rural trade”: participation of productive companies
- Program 4: “Program of participative technological revolution to improve animal breeding productivity at national level”
- System 1: “System of participative technological revolution”: Agricultural technical extension.
- System 2: “System of agricultural insurance”: Mitigate risks of pests and climatic hazards in productivity activities of small scale farmers.

Schools of Agrarian Revolution “Escuelas de Revolución Agraria” (ERAs, in Spanish): ECAs are the predecessors of ERAs and work at the level of agriculture producers organizations, selecting agricultural production issues faced by small scale farmers in poverty to solve them jointly with the farmers, with the support of facilitators; this system consists of learning through practical training at plot level. The expectation is that the learned techniques are to be disseminated to farmers of the surrounding areas. It is an effective extension system in which the farmer acquires techniques through real practices and allows the farmer to voluntarily progress towards other stages through facilitation. ERAs are a system for agricultural improvement that aims to include rural development in the system of ECAs.

MAGAP Restructuring Plan: By Ministerial Agreement No.067, dated February 26 of 2010, the 4 regional sub-secretariats of Costa, Sierra, Oriente and Litoral, except Galápagos were dissolved and the territory was redistributed in seven zones, assigning one sub-secretariat for each of them. At the same time, according to this ministerial agreement, the Sierra Sub-secretariat is now the Sub-secretariat of Zone 3. MAGAP, including the pertaining institutions INAR, INIAP, INCCA and INDA are in the middle of a restructuring process.

2.2.4 Regional Administration under the new Constitution

Provincial Governments: Provincial governments are presently preparing their respective Territorial Arrangement Plans and major changes have not occurred. However, some governments have created new offices for the elaboration of their Plans. The Honorable Council of Chimborazo Province has established an office for Territorial Planning with six members, the director and five experts of each sector. It is believed that future reforms of the Provincial Council are to be conducted under a territorial approach.

Canton Governments: Like the Provincial Governments, Canton Governments have not experienced major changes and some municipalities have hired professionals for the elaboration of

the Territorial Arrangement Plan. The Municipality of Colta, in Chimborazo province hired one person to be in charge of the Plan elaboration and also a consultant, as assistant. Probably, future restructuring of Canton Governments will be influenced by the Territorial Arrangement Plan.

Parroquia Governments: The function of parroquia governments has been modified in the new Constitution and Parroquia boards have been changed into parroquia governments. This change implies a budgetary increase and in the future it will allow the execution of development projects independently, although there are some limitations

2.2.5 Micro-credit

(1) Organization of problems and issues for micro-financing

Saving and credit cooperatives and Private companies: Cooperatives and NGOs carry out financial assistance required in many zones with individual strategies according to the necessities. The high requirement for credit by small scale farmers and the ease for the creation of said entities that many times are not registered in the DNC (MIES) leads to a disorganized growth of unregistered entities that can operate independently due to imperfections in the regulations.

Necessities of farmers are not limited only to the access to credit, these should be provided together with the technical assistance for commercialization and marketing of products according to the capital expenses and technical assistance; also, alliances with big companies are favorable from the perspective of assuring sales markets.

BNF: Interest rate of Microcredit is 11%, this is below the interest rate of the market, in spite of being an ordinary microcredit. BNF costs should hardly be lower than other micro-financing institutions, so the method to establish interest rates should be according to the calculations of effective cost and necessary utilities and so establish interest rates in a transparent manner.

The Micro-financing scheme is completely different from the corporative finances scheme so it is important to know the scheme deeply; however, in many cases the understanding is only superficial, capacity development of the personnel is required, including a change of mentality.

BNF has workers with knowledge in agriculture but does not count on experts in agricultural techniques. So, to attend to the needs of clients, cooperation and coordination with MAGAP is indispensable.

(2) Recommendations on micro-finance

If the BNF, who's main product is micro-finances, adopts a policy of placing itself as an agrarian bank to support small scale farmers, the low interest rate(subsidies) policy has to be reevaluated, as observed by the low performance and the feeling of the same workers, re-thinking which products should be offered and at what interest rates, as a regular micro-finance institution.

Considering the experiences and lessons learned from other micro-finance institutions around the

world, there are some problems in the scheme of credit that establishes interest rates below the cost of funds collection that are the following.

The importance of providing assistance to a project before and after the execution is frequently mentioned regarding the support to small scale farmers through micro-financing. BNF pointed out that there is a lack of understanding by MAGAP regarding products, knowledge and experience of BNF workers and that interventions that could be carried out by BNF are carried out by cooperatives instead; so this aspect should be improved. On the other hand, MAGAP pointed out BNF's lack of understanding regarding agricultural techniques, among other things.

In order to achieve a change of attitude, where the bank approaches the communities to promote the products, personnel's capacity development is necessary through the realization of seminars and raise motivation inside the institution at all levels, from the top to the base.

The present strategy of BNF to expand the net and open agencies in all cantons is satisfactory from the point of view that it will facilitate communication and mark a closer presence in rural communities². In farther communities, mobile bank operations were launched but this service counts on only two big buses (at national level), this is improper for far away rural roads with bad conditions, so improvements in this aspect are necessary.

(3) Goals of the micro-financing guidelines

- Organization of a governmental supervision system with the establishment of a supervising entity for non-regulated micro-financing institutions that have been created in a disorganized way
- Organization of an alliance system between financial entities and the technical assistance to agriculture
- Expand interventions in the Sierra region, involving micro-financing entities in relation to BOP businesses, with the alliance of companies, universities and the government. The promotion of alliances with agrarian universities is particularly recommended as they are numerous in the Sierra region, to complement the lack of personnel in MAGAP.
- Revision of the BNF role through the reform of the subsidy system and the prompt start of operations as a Second Floor Bank, not to compete with other micro-financing institutions but to occupy a representative place as a micro-financing institution. For that, personnel capacity development has to be carried out at an early stage to increase capacities and refresh the sensitiveness of the personnel.

2.3 Guidelines of Supporting Services to Small scale Farmers

Many projects of support to small scale farmers are presently being implemented in the Sierra region and they cover the whole productive chain beginning with the provision of production

² The Bank Rakyat of Indonesia (BRI) represents at world level the micro-financing institutions and has expanded the number of agencies with the same thought and presently has some 5,000 agencies at national level.

infrastructure up to commercialization, achieving certain positive results. However, although support to small scale farmers is extremely important and indispensable in the Sierra region, presently there are some supporting enterprises that are not being carried out or are insufficient. The Study Team proposes three concrete components: 1) routine service of extension, 2) articulation of projects, and 3) maintenance and improvement of soil productive capacity with the objective of improving and maintaining the agricultural productive infrastructure as a supporting mechanism to small scale farmers.

Importance of the routine service of dissemination: Analyzing the environment surrounding small scale farmers in the Sierra region, in terms of land area, poverty rates, and particularly the literacy rate of ethnic groups, it can be affirmed that they are “forgotten communities” where “forgotten farmers” of a less developed country live. In order to allow said farmers to participate in this sustainable development stream by their own initiative, they need to turn into “thinking persons”, and in the long term they have to be trained through the day to day service of extension agents, able to stay always with the small scale farmers, think together and establish a relationship of mutual trust. This is the only feasible option for development. The intervention in human development is the basic concept of the agricultural extension public service.

Routine extension services allow small scale farmers to strengthen their self-supply capacity and in different specific abilities, together with the establishment of a mutual trust relationship between farmers and extension agents. This strengthening (formation of thinking subjects) and the trust relationship constitute the indispensable foundation for the “promotion of self-sustained agricultural and regional rural development” achieving the transition: (1) from the individual (specific) to the organization (collective); (2) from private to public; (3) from direct to indirect (legislation); and , (4) from the community to the regional. In any case, it is important to be fully aware that before consolidating the first step “direct extension of specific techniques to increase food production, through direct service (visits, rounds, etc.)” it is not possible to advance to the second step (introduction of commercial crops).

Basic guidelines for the maintenance and strengthening of soil productivity and soil conservation: As a result of the continuous use of soil for agricultural activities over the years, small scale farmers presently face the following problems.

- In the Sierra region, the land of small scale farmers usually are located in zones of very steep inclination; continuous agricultural activities and practices in these lands has caused soil erosion leading to a reduction of productivity.
- Due to the small areas, new cultivation areas had to be exploited and consequently woods were reduced, making the recovery of soil productive capacity with the nutrients found in the land more difficult.
- Landslides due to the action of rain and winds have impoverished the soil.
- With the retailing of properties, soil was used in such a way that the grade of soil fertility could not be naturally recovered and it was degraded.

- Due to the characteristics of the Sierra zone climate, the velocity of organic matter decomposition in the interior of the soil is slow and recovery demands a long time.

Small scale farmers are not aware of the level of deterioration of the cultivated land productive capacity and they maintain production through the expansion of cultivation areas, without understanding the dangerous situation they are in. Regarding soil erosion, as the situation cannot be perceived by naked eyes, producers do not take any measures against it because awareness of the danger is low. Summarizing, small scale farmers lack interest and awareness concerning the implementation of measures to promote and maintain the productive capacity of cultivated land or prevent soil erosion by their own will; even less in relation to the cooperation and coordination with neighboring farms with similar problems. For this reason, awareness in relation to maintenance and improvement of soil that is the basic means of production has to be renewed, and producers with leadership are required to bring together the farmers of the region and lead them in this direction. Therefore, the implementation of routine technical assistance and awareness raising extension services have to be implemented, strengthening a relationship of trust between supporting entities and producers and their leaders so that they become aware of the importance of soil maintenance and improvement.

Necessity of articulated projects: Presently, projects of support to small scale farmers in the Sierra region are being implemented by multiple entities, including the provincial and municipal governments, MAGAP, and NGOs. However, many of them are independent and isolated interventions and there are very few examples of articulated projects. In order to increase the level of agricultural income of small scale farmers it is necessary to consider the integral development that covers all the productive chain, since an isolated project of irrigation or improved seeds distribution, for example, would have a very limited impact for the poverty reduction of farmers.

Articulated projects should be implemented in the framework of said system. As concrete examples of articulated projects, we have in an irrigation project the incorporation of components such as technical assistance for cultivation and micro-credit, etc.; for a project of distribution and commercialization, and the incorporation of technical assistance in cultivation or agricultural processing components. Another alternative to achieve positive results is the implementation of complementary projects in zones previously intervened in by isolated projects of irrigation, cultivation techniques, construction of processing plants, etc. Anyway, it is important that different entities and institutions share information about the conducted activities.

2.4 Recommendations on ERAs

According to the SWOT analysis, two types of challenges were identified for the ERAs implementation: urgent challenges and challenges with a view for the future.

✧ Urgent challenges

- The Study recommends the assignment of trainers from the provincial offices to each

canton in order to implement the policies and projects of MAGAP, thereby strengthening the link with canton and regional governments.

- The cooperative relationship between MAGAP that is presently forming facilitators, with FAO and INIAP that have experience working with the ECAs should be strengthened.
- The active intervention in the elaboration and implementation of the Territorial Arrangement Plans (TAPs) being prepared by the regional governments needs to reflect the policies proposed in the National Plan “Buen Vivir Rural”, including the National Program of Agricultural Innovation and Productivity and the ERAs in the respective TAPs.
- There are few experiences in using ECAs as a system for rural development with the introduction of improvement in them. Moreover, MAGAP has little experience accumulated in the implementation of ECAs; so the accumulation of experiences through the National Program of Agricultural Innovation and Productivity is necessary at the initial stage to expand the scope of action in time.

❖ **Challenges with a futurist vision**

- The contract period of the facilitators is three years. Considering the important contribution of one thousand new facilitators properly formed and trained in the reduction of poverty, it is necessary to look for new possibilities to use their abilities even after the contract is over, to reduce poverty and for the support of small scale farmers.
- Canton and provincial governments would assume the central role in the execution of support projects to small scale farmers. The technical extensions should be provided by an entity permanently in close contact with rural communities, and municipalities should assume the actions of the extension. Henceforth, it is necessary to study the possibility of transferring facilitators to the municipalities, once the contract is over. Necessary coordination with the municipalities should start at an early stage to speed up this transfer.
- Facilitators and trainers working in agricultural and rural development should constantly acquire new techniques and knowledge, so a system of permanent education should be established with the participation of the beneficiaries.
- Beneficiary groups of ERAs are farmers' organizations registered in MAGAP. As there are some communities not registered yet, registration procedures have to be completed.
- Each session of ERA may be carried out for a maximum of thirty persons due to operative reasons of the system. This is not a problem concerning agricultural development, but it is a problem when solving the necessities of poverty reduction or community development benefiting all members of a community. Therefore, it is necessary to see the possibility of implementing an extension system to attend to the entire community. Also, it is necessary to develop ERAs actions together with the routine extension services.

3 Basic Guidelines for the Inter-institutional Cooperation System for Small scale farmers

3.1 Basic guidelines for the support to small scale farmers

Basic guidelines for the support to small scale farmers shall be submitted to consideration prior to the understanding of the strengths and weakness both of small scale farmers in the Sierra region and the supporting institutions, described in the following chart.

Strengths of agriculture and animal husbandry of small scale farmers in poverty	Weakness of agriculture and animal husbandry of small scale farmers in poverty
<ul style="list-style-type: none"> • Traditional techniques of production. • Production of crops adapted to the Andean Region. • Work of a system of mutual help at the community level. • Possibilities of obtaining non farming income. 	<ul style="list-style-type: none"> • Decomposition of the sustainable use of soil (use of land, water, soil). • Loss of native crops and deterioration of genetic characteristics. • Difficulty to achieve fair trade for surplus production. • Delay in farmers organizations as the foundation for building the value chain • Communities in disintegration crisis.
Strengths of Supporting Entities	Weakness of Supporting Entities
<ul style="list-style-type: none"> • Provide support to small scale farmers based in the New Constitution and the National Plan “Buen Vivir”. • Develop actions in the frame of plans, programs and systems defined in the “Buen Vivir Rural”. • Promote concrete development in the frame of the respective TAP where local government would have a central role in the support to small scale farmers 	<ul style="list-style-type: none"> • Population of small scale farmers is higher in relation to the personnel and budget available in the supporting institutions, and the population is dispersed. • Inter-institutional cooperation is limited. • Actions of supporting entities do not cover all needs • Some actions of the supporting institutions should be improved in their system.

Challenges in the support to small scale farmers and basic guidelines for the solutions: In order to overcome the weakness making full use of the strengths of agricultural activities developed by small scale farmers in poverty mentioned in the previous paragraph, it is necessary to introduce the following three systems and the contents of support.

- Routine extension service:
Permanent and routine extension with priority to the facilitation function.
- Improvement of production infrastructure:
Projects oriented to the improvement of soil fertility that sustain agricultural production, although impacts are not immediately obtained.
- Articulation of projects:
Combination of projects to achieve synergy and effectiveness for the fulfillment of the expected results.

It is expected that said support actions are to be largely extended towards small scale farmers, with the necessary continuity established in such a way that individual supporting actions of organizations would hardly provide the expected results. It is necessary to achieve the coordination

and distribution of roles based on the inter-institutional harmonization in order to mitigate such situation.

3.2 Basic guidelines of the inter-institutional coordination system to small scale farmers in poverty

3.2.1 Basic conditions of the inter-institutional coordination system to small scale farmers in poverty

(1) Basic Conditions according to the Territorial Arrangement Plan (TAP)

It is defined that in the following years, regional development (particularly industrial development), is to be promoted based on the TAP and the following basic conditions are to be adopted to promote the industrial cluster around agriculture and animal husbandry of small scale farmers.

- Creation of the Agricultural Forum as foundation for the co-management system: Proposal to create the Agricultural Forum integrated by all actors in order to promote the agricultural sector. This Forum is to be the foundation of the co-management system
- Creation of the Canton Agricultural Forum: TAP proposes to promote the development of the urban-rural set. A canton is basically formed by an urban area and the rural zone surrounding it, so fulfilling this condition.
- All actors involved with the agricultural sector are participants in the Canton Agricultural Forum: All actors of the private sector (small scale farmers, associations, food processing industry, sub-sectors of marketing, distribution, commercialization, equipment and agricultural input suppliers, etc.), public sector actors (canton and provincial governments, MAGAP, etc.), research institutes (universities, etc.), NGOs and financial institutions, among others are included.
- Creation of the Provincial Agricultural Forum: the Provincial government will assume the responsibility of putting into practice the respective TAP, and as such, the Provincial Agricultural Forum will assume the function of the canton's Agricultural Forums coordinator.
- Creation of canton and provincial agricultural roundtables: Agricultural roundtables are to be created to support the process of the provincial and canton TAPs' preparation, establishment of the Agricultural Forums and the coordination between the small scale farmers supporting entities. In this sense, the basic members of the Agricultural roundtable are: MAGAP provincial office and province, the canton and parroquia governments. To these members, others institutions are to be added according to the needs of the specific challenges. Like the Agricultural Forum, the Agricultural roundtable is to be created at canton and provincial levels.

- Creation of an inter-institutional co-management system at canton level involving regional governments, MAGAP, etc.: There are few experiences with TAP in the country. Although the canton government is to assume the leadership in the implementation of the canton TAP, the executing capacity is still very limited. Therefore, at this level it is necessary to establish a co-management system among canton and provincial governments and the MAGAP.

(2) Basic conditions according to the basic guidelines for small scale farmers support

The Forum and the Roundtable are to be effectively used for the support to small scale farmers.

- Creation of the Agricultural Forum and the Agricultural roundtable as the basis for information for the routine extension service: The routine extension service that is to be provided mainly by the municipality is a channel to disseminate information and basic knowledge to all small scale farmers and to identify the development demands by this segment of the population. The Agricultural Forum and the Agricultural roundtable are to be created as the proper place for the exchange of information among facilitators and sector actors.
- Creation of the Agricultural Forum and the Agricultural roundtable as base for the establishment of a co-management system and project implementation related to the strengthening of the production infrastructure: For the implementation of soil fertility and conservation projects it is important to establish a relationship of trust between small scale farmers and support providers; this relationship is to be achieved through the routine extension service, specialized technology and financial investment implying the need of MAGAP to extend technical and financial support to provincial and canton governments. For this reason, it is proposed to use the Agricultural roundtable as a place to exchange information and conduct discussions about soil fertility and conservation projects.
- Creation of a co-management system for the articulation of projects and the creation of the Agricultural Forum and the Agricultural roundtable for its implementation: It is considered necessary to establish an inter-institutional cooperation scheme to achieve a stronger impact from the invested efforts; the use of the Agricultural Forum, involving all actors concerned with agricultural development, as well as the Agricultural Roundtable, integrated by the canton, provincial government and MAGAP representatives will be effective toward this end.

(3) Basic conditions according to the national and sector development plans

- An inter-institutional co-management system of the agricultural sector is required to be established at canton and provincial level across the whole country. Basic conditions for these effects are the following.

- Participation of MAGAP as provider of support services to small scale farmers and as the guide of the sector policies: MAGAP has to perform the double function as the guiding entity of sector policies and the executor of supporting projects to small scale farmers. It is necessary that MAGAP participates in the Agricultural Forum as well as in the Agricultural roundtable, as the leading entity of the sector policies and as the executor of supporting projects to small scale farmers.
- Initiatives of MAGAP for agricultural development (small scale farmers in poverty) in the territorial development of the country: MAGAP, as the leading entity of the sector policy, should promote the creation of forums and roundtables proposed in all provinces and cantons, establishing the creation of these as an integrating component of the agricultural sector policy.

3.2.2 Basic Plan of the Inter-institutional Coordination System for Small scale farmers

(1) Basic conditions of the co-management system and the method for its implementation

- Creation of the Agrarian Forum in cantons and provinces
- Creation of the Agrarian Roundtable in cantons and provinces

(2) Role of the Agricultural Forum and the Agricultural Roundtable

- The Agricultural Forum will be the promoter of the agrarian development in the TAP
- The Agricultural Roundtable will have the following three objectives:
 - Support in the elaboration of the TAP
 - Creation of the Agrarian Forum
 - Co-management for the support to small scale farmers

(3) Organisms integrating the Agricultural Forum and the Agricultural Roundtable

- Participants in the Agricultural Forum are all actors in the agricultural sector in agreement with the statute.
- Main members of the Canton Agrarian Roundtable would be the representatives of the provincial, canton and parroquia governments, as well as the provincial MAGAP office. In the case of the Provincial Agrarian Roundtable, parroquia representatives are excluded. Additionally, other actors would be included according to the specific objectives.

(4) Role of the Agricultural Roundtable main members

- Parroquia government: Provide information to communities and parroquiaes closer to the producers.
- Canton government: Provide agricultural and animal husbandry information at community level. Organize the Canton Agricultural Roundtable.
- Provincial government: Provide information about agricultural support projects to be implemented in a certain community as well as agricultural and animal husbandry

- information at the provincial level. Organize the Provincial Agricultural Roundtable
- Provincial office of MAGAP: Provide information about agricultural support projects of MAGAP in a certain community and agricultural and animal farming information at State level.

3.2.3 Division of Roles in Cantonal and Provincial forums and committees

It is necessary to establish the agricultural forum and agricultural strategic committee (formerly agricultural round-table) in the levels of the Canton and Province. The following shows the roles.

- Cantonal level: The forum and the committee at the cantonal level are the principal units to implement the projects for small-scale farmers, set the policy as well as develop the agricultural development plan.
- Provincial level: The forum and the committee at the provincial level address provincial agricultural development plans based on those of the cantonal level. Based on these plans, they provide technical and financial support to the projects for small-scale farmers implemented by the canton government and other actors.

3.2.4 Steps to follow for the institutional reorganization

- A) Creation of the National Office for the Promotion of Agricultural Forums and Roundtables in MAGAP headquarters
- B) Creation of the Agricultural Roundtable at provincial and canton levels
- C) Support in the elaboration of the canton and provincial TAPs by the Agricultural Roundtable
- D) Establishment of a co-management system between the different actors in the Agricultural Roundtable.
- E) Preparation for the establishment of the Agricultural Forum and Agrarian Roundtable.
- F) Creation of the Agricultural Forum and development of an Agricultural cluster with the participation of all actors

TAPs, the “National Plan Buen Vivir” and the “National Plan Buen Vivir Rural” have been put into practice across the whole country. For this reason, it is necessary to promote the process of creating the Agricultural Forums and agricultural roundtables, not only in the Sierra Zone but also across the whole country. In this context, MAGAP, as the entity responsible for the elaboration of agricultural and rural policies, should create in its headquarters the National Office for the Promotion of Agricultural Forums and Agricultural Roundtables, and at the same time incide in provincial, canton and parroquia governments through the respective provincial office of MAGAP.

3.3 Other proposals necessary for the inter-institutional cooperation system

3.3.1 Internal Management Strengthening

(1) Objective

- Improve and modify projects with the introduction of the Project Management System
- Deepen the understanding of the managers about the content of the projects

- Use it as single tool to improve the communication among the supporting entities
- Enhance the transparency of the project management

(2) Necessity

The unification of the project management system is especially important, particularly the forms to be used, as a common instrument for the project, for the establishment of a coordination system of support to small scale farmers proposed in the present Study and for the implementation of the territorial plans.

(3) Basic guidelines for the organization of the project management system

- The existing system in relation to the management of each institution is to be respected
- Adoption of a unified project profile chart in the framework of the coordination system.
- Introduction of a system that does not require much work to fill in the forms

3.3.2 Capacity strengthening of rural and agricultural development facilitators

(1) Capacity required from the development facilitators

Facilitators are promoters of the community development, who have to facilitate the development of workshops but also they are required to be capable of managing themselves with due flexibility to promote and assist the participants and take the initiative in the projects or actions for a participative development. Additionally, the capacity to coordinate development projects is fundamental. In the case of development facilitators they are required to have expertise in rural development (PRA techniques, SWOT, etc.) and the capacity to follow up the entire project. Concerning basic techniques, facilitators have to be skilled in basic and specialized techniques to direct the participating small scale farmers.

(2) Activities required for capacity development

The three capacities required (facilitation, coordination and specialization) cannot be acquired or mastered in a short time; they have to be gradually accumulated through participation in courses, practices, reflection and findings. In order for an extension agent to acquire the practical capacity, continuous training and practice, polish the knowledge through self-discipline, on-the job training (OJT) and training according to the region are required.

In the case of ERAs facilitators, this responsibility is to be assumed by ASAs technicians of the respective MAGAP provincial offices. However, since the ERAs project is to start in 2010, OJT realization is still difficult and regional training using the net of facilitators and promoters of agricultural and rural development is fundamental.

(3) Program of trainers' formation

The following three projects are considered necessary to be implemented under MAGAP initiative.

- i) Formation of agricultural and rural development facilitators: This consists of the permanent training (programmed) oriented to facilitators of rural and agricultural development working in the Sierra Zone to support small scale farmers, particularly ERAs facilitators of MAGAP, with the purpose of strengthening their abilities. In the initial phase, this activity is to be implemented between years 2010 and 2013 to maintain coherence with the “National Plan Buen Vivir”.
- ii) Creation of agricultural and rural development facilitators net: This net consists of the database of rural and agricultural development facilitators at provincial level that would be a tool for the exchange of information and techniques.
- iii) Provincial Board of rural and agricultural development facilitators: Establishment of a Provincial Board to meet once or twice a year as a place to exchange information about the best technology for rural development as well as opinions with the purpose of strengthening the practical capacity of the agricultural and rural development facilitators.

4 Plan of the Inter-Institutional Coordination System for Agricultural Support

4.1 Inter-Institutional Coordination System

The formulation of concrete procedures, the role of each institution as well as the respective responsibilities of each one within the **inter-institutional cooperation system** are proposed, directed to conform with the supporting system to small scale farmers.

4.1.1 Existing Cooperation System

The new Constitution clearly establishes the role of the central government and regional governments' institutions in relation to the national development. In relation to small scale farmers in poverty, the object of the present Study, MAGAP is in charge of the formulation of sector plans at the national level, and the implementation of projects are in the charge of regional governments. The division of roles for the development of small scale farmers is the following:

Supporting entity	Division of roles for the development of small scale farmers in poverty
MAGAP	<ul style="list-style-type: none"> • Formulation and implementation of the agricultural sector national policies and extension of the system to provinces and cantons • Implementation of rural agricultural development projects and programs at national level, already in course through the implementation of “Plan Nacional Buen Vivir Rural”. • Continuity of current functions in the provincial offices of MAGAP at national level regarding extension projects, individual projects, cooperation with other entities, etc.
Provincial Government	<ul style="list-style-type: none"> • Elaboration of the territorial arrangement plan at provincial level and support to municipalities in the elaboration of their plans. • Implementation of agricultural developments at provincial level • Support to canton governments in development projects, as the entity responsible for the territorial development
Canton Government	<ul style="list-style-type: none"> • Elaboration of territorial arrangement plan at canton level • Implementation of agricultural development at canton level
Parroquia Government	<ul style="list-style-type: none"> • Implementation of projects together with the provincial and municipal governments. Parroquia government has budgetary restrictions, so contribution is at human resources level.

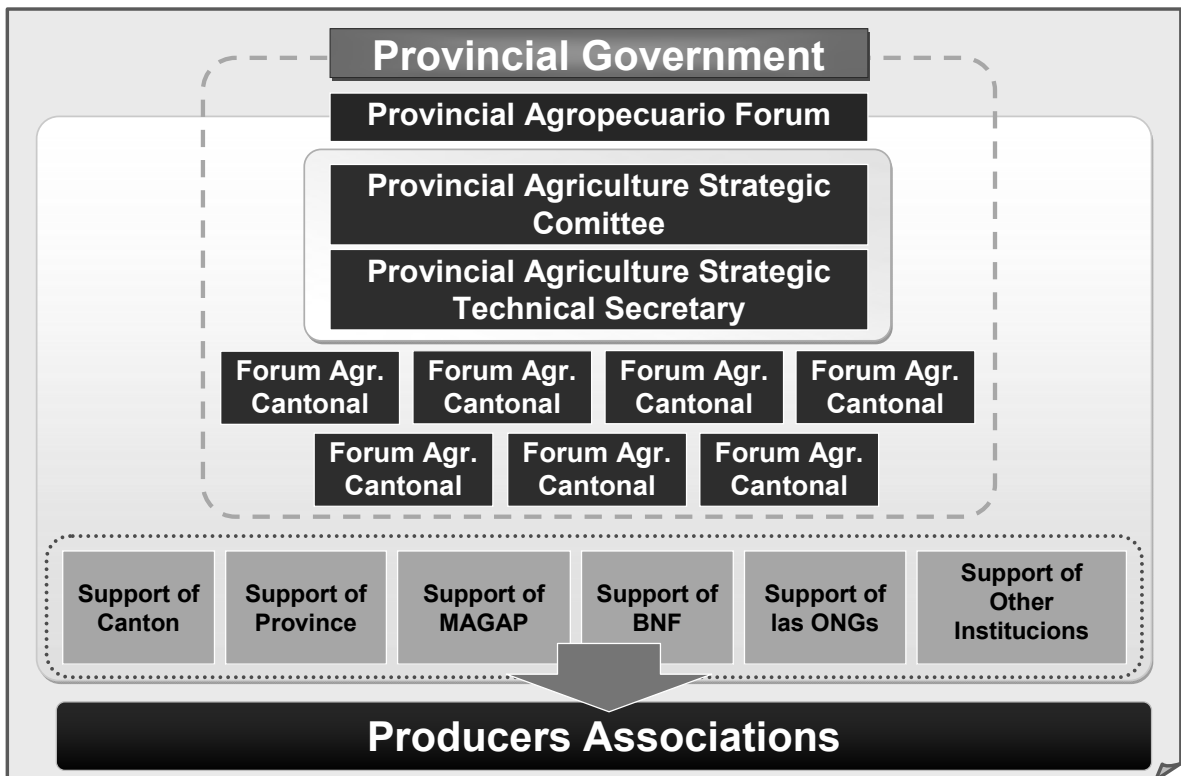
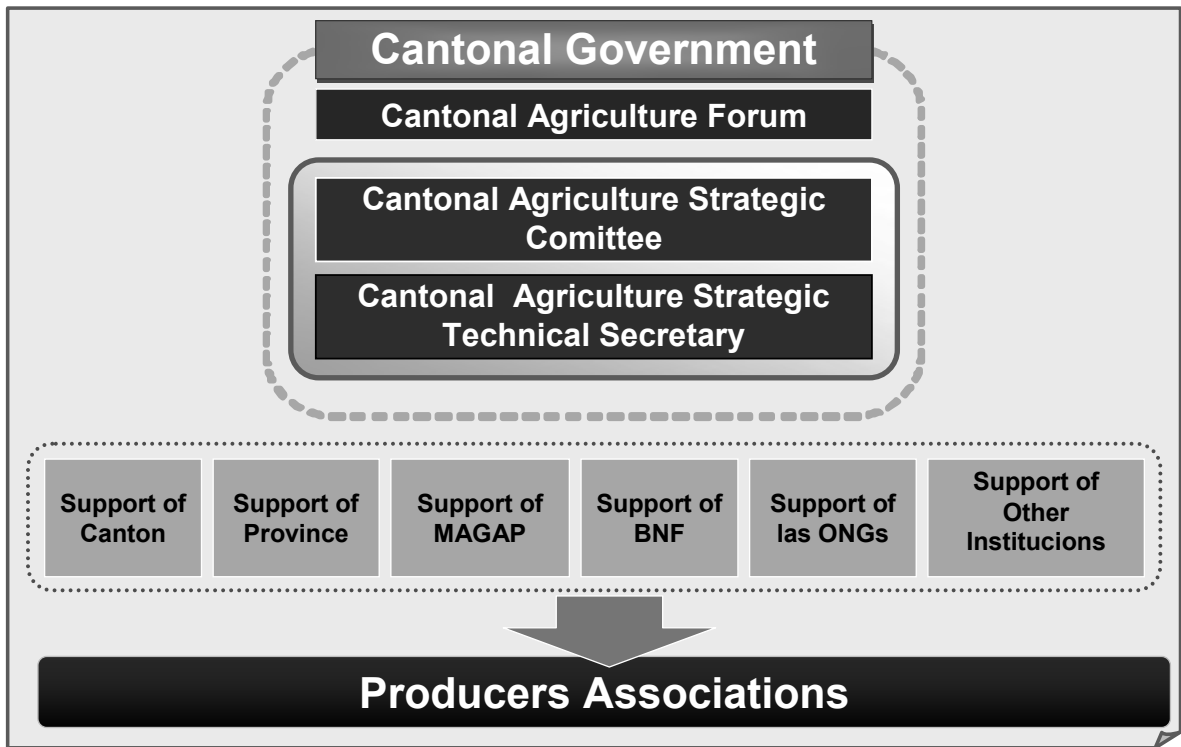
4.1.2 System of Inter-institutional Cooperation under the New Constitution

Agricultural Forums: Said forums are to be periodically conducted (once a year) to share the achieved results among the members, as well as the basic development policies and to coordinate priority issues. Both canton and provincial governments should meet in a timely manner with the different work groups or periodically issue pertinent information, providing in this way, opportunities and a place for interaction among the actors.

Strategic agricultural committee: This commission is to be created in the respective cantons and provincial roundtables in order to analyze and make decisions about basic policies of agricultural development at canton and provincial level. This commission will collaborate with canton and provincial governments in the administration of forums, together with support in the coordination and exchange of information among the forum members.

Strategic Agricultural Technical Secretariat: The objective of this secretariat is to provide technical support to the organizations that are the providers of support services.

Inter-institutional cooperation System: It is necessary to establish a system of inter-institutional cooperation for the support to small scale farmers both at canton and provincial levels; for such, the structure of said system is proposed in the following Figure.

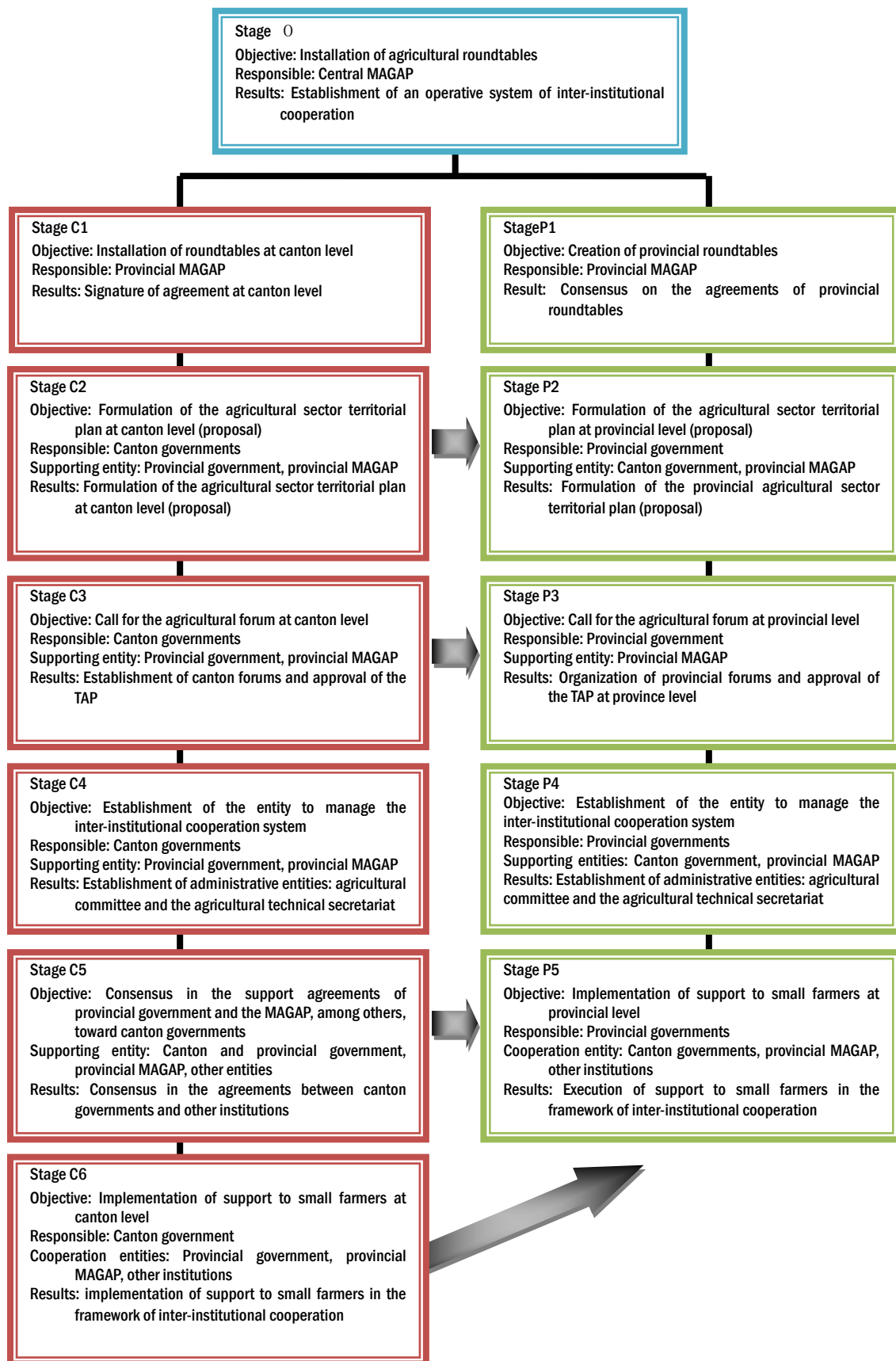


Integration of strategic agricultural committees and the strategic technical secretariats:

	Prov. Gov.	Munic. Gov.	MAGAP	Others	Notes
Canton Level					
Strategic Agricultural Committee	1	2	1	According to the needs	Provincial government and provincial office of MAGAP: responsible of municipalities
Strategic Agricultural Technical Secretariat	1	2	1		
Provincial level					
Strategic Agricultural Committee	1	By number of municipalities	1	BNF, universities, NGOs, international cooperation, etc.	Prov. Gov.: Chief of planning MAGAP: provincial director
Strategic Agricultural Technical Secretariat	3	—	3	Institutions under the MAGAP, universities, etc.	

4.1.3 System of Inter-institutional Cooperation for the support to small scale farmers

In order to form a System of Inter-institutional Cooperation for the support to small scale farmers it is important that all entities and actors involved in agriculture understand the objectives of the cooperation system as well as the importance of their participation and the benefits obtained by each institution. In order to achieve the final goal, which is the implementation of development projects through a system of cooperation, it is necessary to implement it by stages and in each one of the stages the activities and responsible actors and also the objectives and results have to be clearly defined. In the following scheme the implementation stages of the cooperation system for the support to small scale farmers as well as the objectives, involved entities and results for each stage are shown.



4.1.4 Schedule for the structure of the inter-institutional cooperation system to the implementation of support to small scale farmers

The structure of the cooperation system has an objective to support the preparation of the agricultural sector plan in the Territorial Arrangement Plan, within the policies of decentralization promoted by SENPLADES, as well as support in the execution of projects to provide assistance to small producers smoothly and efficiently, at canton and provincial levels. The present Study proposes MAGAP to reflect the agricultural sector policies in the future regional development plan, of which the TAP is part, and in this way lead the agricultural and rural regional development. For this purpose, the cooperation system has to be prepared taking into consideration the schedule of the Territorial Arrangement Plan.

SENPLADES has planned to finish the TAPs by the end of 2011, to implement the necessary budgetary measures to implement said plans from 2012 on; they are to be yearly revised to proceed with the annual planning. In order to allow projects to be implemented in year 2012 based on TAPs of cantons and provinces, they will have to be simultaneously finished by the end of 2011 (including the requirements for budgetary measures). Actually, as provincial plans have to reflect the canton plans, it is estimated that the provincial plans would be finished approximately 6 months after the finalization of the canton plans.

So, it is estimated that a certain time will be necessary for canton and provincial governments to finish the elaboration of their respective plans, as well as to create a system to assure the budget, according to the schedule; so, in order to make the elaboration of plans at national level more transparent, with harmony and efficiency, SENPLADES requires model examples of cooperation systems that have been put into practice in regions and institutions more advanced in issues of territorial plan elaboration.

To start the support to small scale farmers from 2012 on, according to the TAP, it is necessary that MAGAP installs a preparatory unit for the agricultural roundtable for the support to the elaboration of the TAP through the creation of an inter-institutional cooperation system and start discussions with cantons and provinces about this system, and in this way achieve a consensus; it is recommended to finish this process by the end of 2010. The inter-institutional cooperation system should be initially be installed at provincial level to later structure the canton inter-institutional cooperation system through conversations between the province and the cantons.

Following, the schedule of the TAP and the creation of the inter-institutional cooperation system for the support to small scale farmers is shown

Project proposes the implementation, especially of the Territorial Intervention Form and the Evaluation Sheet necessary for the modification and improvement of the Project, using the existing forms in said institutions.

4.2.2 Proposal of a Single System

Each institution has a Territorial Intervention Form or a form similar to it. However, as in some institutions the contents of the project required to modify or improve the Project are not clearly specified, the format used in the Tungurahua province is to be the standard format of each institution as it allows to describe in detail, the relationship between “activity, investment and results”. Likewise, for the Project evaluation it is necessary to specify the relationship between the impact generated among small scale farmers and the policy of the concerned entities; so, in this case, MAGAP’s format is to be the standard because it has such specifications. Following, the points to be included in the Territorial Intervention Form presently used by each institution are shown.

- **MAGAP**
Add to the Territorial Intervention Form the Activities, Investments, Results and Indicators of Results that are missing in the Territorial Intervention Form of MAGAP, by taking as an example the material of the Tungurahua provincial government.
- **Chimborazo Provincial Government**
Prepare a new Territorial Intervention Form concerning projects of the provincial government taking as reference the MAGAP document and the document of the Tungurahua provincial government, the best referring to: Activities, Investment, Results and Indicators of Results, impacts of the project and relationship with policies of other institutions, which are missing in the application forms submitted by farmers of PPCH at Chimborazo province.
- **Tungurahua Provincial Government**
Prepare a new Territorial Intervention Form for the provincial government projects using as reference the MAGAP document in issues of: government impacts and relationship with policies of other institutions, that are missing in the application form submitted by the municipal government to the Tungurahua province.

4.2.3 Execution of the Internal Management System

To this day, the Evaluation Form has not been implemented either by the provincial government or the MAGAP. Evaluation is to be conducted based on the monitoring results; such will be carried out from the results and results indicators of the project described in the Territorial Intervention Form. The project will be evaluated according to five criteria: Relevance, Efficiency, Effectiveness, Impact and Sustainability. A sample of the project evaluation sheet and the basic concept of the evaluation criteria are shown below.

4.2.4 Development of the Internal Management System

Phase	Content	Person in charge	Approval
Planning	Elaboration of Territorial Intervention Form.	Person in charge of the Project	Entity Responsible for the Project (Ex.: Planning director of the MAGAP provincial office).
Monitoring	Realization of monitoring, periodical information	Person in charge of the Project	Entity Responsible for the Project
Evaluation	Elaboration of the Evaluation Sheet.	Person in charge of the Project	Entity Responsible for the Project
Modification and Improvement	Revision of next project's content.	Person in charge of the Project	Entity Responsible for the Development (Ex.: Director of the MAGAP provincial office).

4.2.5 Development of the Internal Management System

If from now on projects are to be implemented under the system of co-management by entities to support small scale farmers, the alignment of the Territorial Intervention Form of the Internal Co-Management System and the Project evaluation sheet proposed in the present Project will be important as an “inter-institutional communication system”.

The Project Management System is a system to be efficiently and effectively modified by the operator according to the management progress. In the case of the present Project for instance, the application of the Logical Framework was put behind because of technical questions and the work it represents to the elaborator. But the implementation of the Logical Framework is indispensable to achieve a more advanced Project Management System. Besides, the progress in the organizational redesign and the decentralization suppose future changes in the circumstances surrounding the small scale farmers, a fact that also demands the need to modify the Project Management System, adjusting it to the circumstances

4.3 Plan of Capacity Strengthening of Agricultural and Rural Development Facilitators

MAGAP should implement training projects needed to strengthen the capacity of ERA's facilitators who provide direct assistance to producers (including regional development technicians of the provincial Office).

Implementation System : MAGAP should create a Unit responsible for the elaboration of the detailed program of capacity strengthening for development facilitators in the Secretariat to prepare the establishment and operation of the Roundtable. Once the detailed program is prepared and the executing entity with the respective proper budget is defined, a capacity development program for the workers is to be transferred to a proper project sub-secretariat. After the coordination in the regional sub-secretariat is finished, MAGAP provincial office is to be in charge of the program implementation, with the cooperation of the entities under MAGAP, the provincial government,

municipality governments, universities and education entities, farmers organizations, NGOs, among others.

Facilitators strengthening is comprised of the following three programs.

- 1) **Training for the formation of rural and agricultural development facilitators:** Implementation of continuous education (planned) directed to the capacity strengthening of rural and agricultural development facilitators, particularly MAGAP’s ERAs facilitators.

Training for formation takes as reference the following.

Issues to be learned and understood	Basic Capacity (Field experience up to 2 years)		Practical Capacity (Field experience up to 12 years)	
	Class	Practice	Class	Practice
Professional Capacity	Introduction to agriculture and animal husbandry, Environmental management, Methodology of rural development, etc.			
Coordination Capacity	Policies, AOP, extension methodology, PCM etc.			
Facilitation Capacity	Improvement approach, simulation of dialogues, role play, etc.			

- 2) **Agricultural and Rural Development Facilitators Net:** Preparation and use of a database necessary for the exchange of techniques and information among the agricultural and rural development facilitators at provincial level. Necessary measures are to be taken in relation to the protection of personal information at the time of preparing the database. Besides, voluntary updating of registered persons and general updating twice a year is necessary.
- 3) **Meeting of agricultural and rural development facilitators in the province:** Provide a place for the exchange of updated information about regional development and technical information as well as the exchange of information and opinions in order to strengthen practical capacity of agricultural and rural development facilitators. The meeting consists of a General Meeting, Thematic Tables and other group meetings. The General Meeting has an other group meeting. An expert will speak about common interest issues to be discussed later, the Thematic table for the expositions of specific themes and discussions and the Group Meeting for free discussion about issues proposed by the participants.

Example of expositions in the Thematic Table

- New techniques to be used in the extension: These are officially presented in the Facilitators Meeting as “New techniques for the extension promotion”, with the approval of the entities in charge of the investigation and governmental entities.
- Presentation of successful projects: Presentation of successful project activities by the facilitator in charge. Said projects are highly applicable in zones with similar socioeconomic environment.
- Development, validation and presentation of techniques in situ: As it consists in the presentation of “development, validation and presentation” activities carried out in situ,

said results can be immediately used or replicated in other projects.

5 Technology Necessary for Small scale farmers in Poverty

5.1 System of Inter-Institutional Coordination of agricultural support to small scale farmers and necessary technology for small scale farmers

The coordination system proposed in Chapter 4, “Reorganization Plan of the Agricultural Supporting System”, is based on the framework of territorial development. This system, aimed to reduce poverty should be institutionalized in the rural development of Ecuador at national level. On the other hand, the problem of poverty, especially in the rural areas of the Sierra region are aggravating; therefore it is necessary to establish the coordination system proposed for this region as soon as possible, and in order to obtain visible positive results, determine the technology required by small scale farmers and propose a model development project based on said technology

The efforts to increase income to fight against poverty start in most cases by identifying highly commercial crops, studying the trading channels, legalize organizations and strengthen them. However, in the Sierra region, before efforts to increase income are made, firstly the four problems that present a risk to destroy the productive and social base of the rural community have to be attended to.

5.2 Evaluation of the agricultural development directed to small scale farmers in poverty

The assumptions to take into account in the development model for small scale farmers are the following.

- 1) **Priority issues of the agricultural sector development plan:** Diversification of agriculture, animal husbandry and aquaculture production to “increase income of producers and food self sufficiency and in this way contribute to the good living of rural and coastal communities”.
- 2) **Importance in increasing productivity of basic crops:** In order to reduce the trend of migration related to the collapse of rural society, the increase of basic crop productivity through soil improvement, seeds and cultivation methods together with the improvement of the environmental conditions of the region is urgent.
- 3) **Introduction of intensive production management for commercialization as a triggering factor:** The introduction of intensive agricultural production directed to the market is the key to solve the agriculture problems pointed out in the Sierra region, which are the difficulties in proper commercialization of production surplus and the delay in the expansion of producers associations, which are the foundation of the value chain structure.
- 4) **Introduction and establishment of tradable crops that are easy to be applied with little input:** Properties of small scale farmers in poverty in the Sierra are mainly managed by

women. Support for tradable production with low input (technical improvement, associations, marketing) is still an important issue to increase income of small scale farmers in poverty in a very narrow social environment.

The following development models are proposed based on the arguments considered at the moment.

Model 1: Production of self-consumption food mainly + monetary income (paid jobs, diversification of low input crops)

Model 2: Commercial products mainly (intensive agriculture) + production for self-consumption

Model 3: Commercial products (intensive agriculture)

Model 4: Resettlement (new frontiers)

In model 1, one part of the production is directed to the market but income depends basically on money remittance from outside the community or on works in the same community, and additionally, low input commercial products are introduced as a way to obtain income.

Model 2 is based on the introduction of infrastructure for intensive farming (irrigation facilities, greenhouses, collective collection, roads, etc.), the introduction of technical agriculture, associations, marketing, etc.

In model 3 agriculture production is not for self-consumption; it is specialized in intensive production directed to the market and food has to be obtained elsewhere.

Model 4 is applied to cases where the production environment is unfavorable and cultivation areas are too small, besides there are limitations to obtain cash income; so, resettlement in new frontiers would be an option.

Model 3 presents an established format and model 4 is an intervention outside the frame of the supporting system to small scale farmers. Of the 4 development models, models 1 and 2 are in the framework of basic interventions directed to poverty reduction.

5.3 Course of the support to small scale farmers

Along with the advancement of the development model, the course of support required by small scale farmers is shown as follows.

- 1) Stable production of food for self-consumption and increase of productivity:** This considers sustainability and increase of production in a system of traditional agricultural production with cropping rotation and animal husbandry that are currently collapsing, and the sustainable management of soil fertility, introduction of improved seeds (participative type production, certified seeds), soil conservation and other adequate techniques.
- 2) Introduction and establishment of traditional type commercial agriculture:** Under

unfavorable conditions such as lack of irrigation facilities, difficulty of access to markets and lack of labor force, an agricultural model with the assumption of improving nutritional conditions of families and at the same time commercialize products in nearby markets and in the same parroquia.

- 3) Introduction and establishment of commercial products to be promoted for community or zone level development, prior to the introduction of a set of investments:** Development project with the application of a set of investments as a prior assumption: 1) Agricultural technological innovation towards 2) associations and 3) development of producers associations up to the establishment of businesses. The aimed goal is not only the local market but also the national and international markets.

5.4 Gender and Inter-cultural approach

In the scope of rural development, the full inclusion of women's rights with an inter-cultural approach by MAGAP in its policies and services will have not only an intrinsic value of assuring women's rights in the rural area but also, at the same time, will positively affect the impact and coverage of services. In the long term, it will contribute to equitable and sustainable rural development. In order to achieve it, it is important to implement:

- 1) Change of service providers perspectives and attitude towards women and persons of different ethnic groups, and see them as persons entitled to rights similar to men concerning production factors.;
- 2) Institutionalization of a mechanism inside MAGAP to assure the coherent and systematic incorporation of a gender approach from the perspective of rural women and inter-cultural considerations; and
- 3) Improve and modify the design of existing services and programs to be “gender-sensitive”.

5.5 Identification of Technologies and Services Necessary for Small scale farmers in Poverty

5.5.1 Farming Techniques

Concrete techniques required in the support to small scale farmers are summarized as follows.

Problems to be solved	Details
Stable production and productivity improvement of self-consumption crops	
Obtaining good quality seeds	Improvement of seed selection and conservation
	Organization of farmers' communities for the distribution of good quality seeds
Improvement of productivity on the site	Establish and introduce fertilization methods (chemical and organic fertilizers) according to the climatic conditions (altitude) and type of crops
	Improve sowing system with the introduction of the agricultural calendar
	Analyze and introduce an efficient irrigation system

Problems to be solved	Details
Develop and disseminate soil conservation technology	Awareness-raising about the benefits of ecological agriculture to introduce it
	Analyze the possibilities of introducing reduced or zero tillage on slopes
	Disseminate the proper use of machinery, especially on slopes
Introduce the integrated control of diseases and pests	Training courses and introduction of integrated pest management (IPM)
	Utilization of biological pesticide (tests and introduction)
Put into practice and follow up of home gardening for commercial crops	
Promotion of activities to improve living conditions	Promotion of home gardening
	Dissemination of recipes using vegetables
	Organization of familial and agricultural book keeping courses
Put into practice and follow up of intensive agriculture as a method to develop communities and territories.	
Introduction of commercial crops and strengthening of marketing capacities	Introduction of commercial crops with added value (organic products, medicinal herbs, native products, etc.)
	Improve processing, distribution and sales of products by better organization

The following list shows the concrete techniques to be introduced in the support to small scale farmers:

Technique for the development: Stable production of self-consumption crops and improvement of productivity
Cropping Technical Management 1: Stable production and improvement of productivity of self-consumption crops
Technique: Selection and conservation of potato seeds of traditional potatoes to increase productivity
Necessity: Low productivity of native potatoes is among others reasons, due to the inefficient method of selection and conservation of seeds. Potatoes are one of the major crops for small scale farmers and priority and relevance are very high regarding improvement of agriculture income
Observation: Small scale farmers do not know how to differentiate healthy from diseased seeds, how to store them, or how to prevent maize weevil (gorgojo) and fungi; therefore it is important to let these techniques be known to small scale farmers.
Cropping Technical Management 2: Introduction of mixed cropping of maize and frejol beans with zero or reduced Tillage
Technique: Mixed cropping of maize and frejol beans with zero or reduced tillage to conserve soil and improve income
Necessity: Mixed cropping of maize and frejol beans with zero or reduced tillage reduces expenses and at the same time increases income. Also, it has great effects in soil conservation, being a very adequate system for small scale farmers. Although it depends on the expenses for fertilizers and other factors, net benefits are so high reaching to some US\$ 1,400 as maximum per hectare (see Annex 13). It is one of the low cost agricultural techniques, sustainable and friendly for women and elderly persons.
Observation: Mixed cropping of maize and frejol beans with zero or reduced tillage is not a widespread technique, requiring some tests beforehand.
Cropping Technical Management 3: Introduction of rotation system of clover and native potatoes
Technique: Clover and potatoes share bacteria beneficial for the soil, therefore rotation of said crops is pertinent.
Necessity: The higher the altitude, the less nitrogen there is. Clover fixes nitrogen in the soil and it is forage for cattle.
Observation: It is necessary to establish potato rotation regarding the future and analyze the possibility of introducing clover associated with other products.

Cropping Technical Management 4: Introduction of green manure
Technique: Introduction of leguminous like broad beans and peas in the crop rotation and associated crop systems
Necessity: It is better if small scale farmers mix them when stems and leaves are still green and after harvesting green grains twice or thrice. Income can be obtained from the harvested products.
Observation: It is necessary to investigate the type of green manure to be introduced and how to cultivate it, because green manure cannot be used when irrigation is not available.
Cropping Technical Management 5: Integrated control of potato pests and diseases
Technique: Introduction of the integrated control of potato pests and diseases to promote ecological agriculture.
Necessity: Moth larvae cause severe damage in potato cropping. The Pest Integrated Management (PIM) will contribute to reduce the population of pests and increase crops.
Observation: Farmers will have to acquire wide knowledge and techniques such as the distinction between beneficial and harmful insects, crop control, biological control, pesticide toxicity, ways to dilute pesticides, and crop dusting timing depending on the type of pests and diseases.
Techniques for development : Introduction of traditional and commercial agricultural practices
Cropping Technical Management 6: Nutritional improvement through home gardening
Technique: Nutritional improvement of farmers families by cultivation of a wide range of vegetables and introducing them in daily cooking
Necessity: People in the rural areas of the Sierra consume an average of 1,971 kilocalories per day, not enough to supply the minimum nutritional necessities. This problem, in conjunction with a nutritional unbalance causes a chronicle dietary deficiency among the indigenous population. Therefore, the effect of home gardening to improve nutritional conditions is very high; besides, any surplus can be sold.
Observation: The way to promote home gardening depends on the availability of irrigation. At the same time, training in basic knowledge for preparation of organic fertilizer with daily waste is necessary.
Cropping Technical Management 7: Introduction of mixed cropping of raspberries and grass
Technique: Associated crops of raspberries and grass on slopes will allow obtaining high earning crops, conserve soils and assure food for cattle.
Necessity: Raspberries are more resistant to disease than strawberries and are relatively easy to grow. Besides, it can be harvested 10 months after sowing. By cultivating grass simultaneously, it is possible to contribute to soil conservation and assure cattle food. Raspberry thorns may hurt at the moment of pruning them; however INIAP is developing a new variety "Mora de Castilla" without thorns, with a yield of 20 to 30 tons per hectare and 12°brix. There is a high probability that it will substitute the traditional raspberries.
Observation: Raspberries do not tolerate many hours of transportation; therefore markets for sale have to be identified beforehand. At the same time, possibilities to form cultivation and processing zones have to be studied.

5.5.2 Management Techniques for Cattle Feeding

The following are the techniques necessary to support small scale farmers.

Stable production and productivity improvement of self-consumption crops
1. Green fodder cultivation and introduction of silage
Technique: Mitigate lack of pasture and fodder during the dry season
Necessity: Lack of fodder in the dry season is a serious problem, its solution is urgent and important to assure the stable supply of cattle fodder. Pasture grass cultivation is easy and generalized in the region, while the introduction of silage requires training. Green fodder can be launched with minimal investments. Approximately 9 m ³ of silage per each 10 animals is needed, investment for the construction is about 100US\$/1.
Observation: Introduction of silage requires seminars to motivate farmers. The crop calendar has to be studied for the introduction of fodder cultivation.

2. Efficient breeding and planned sales of cuyes
Technique: Introduce cuy breeding in cages and/or other more efficient ways of breeding and collective purchase of food by groups of farmers and sales planning
Necessity: The present supply of subsistence crops is deficient and urgent solutions are required to stabilize it. Cuyes are a much appreciated source of proteins and very important in order to assure food supply for the population. Cuy breeding is generalized and friendly for farmers.
Observation: Coordination with financial entities is required, for initial investment to purchase cages is required. Cuyes are highly commercial and profitable, but multiple breeding may cause diseases, so obtaining of technical knowledge about hygiene and sanitation is required.
Techniques for development : Introduction of traditional and commercial agricultural practices
3. Introduction of collective management installation for calf weaning (sheds)
Technique: Collective management of calves to allow a proper weaning to keep them healthy
Necessity: Breeding of healthy calves is urgent. Calves are an asset of the community, therefore it is important to keep them healthy. Training courses are required to introduce the collective management of calf breeding, instead of the traditional manner. Proper installation is required for this purpose as well so as to assure food supply for collective control; for that, knowledge and techniques have to be acquired. Likewise, economic investments are required in the beginning to build sensible installations, etc.
Observation: Awareness raising and confidence have to be generated within the community to breed calves collectively by the community. Healthy calves are highly commercial and profitable. It is important to reduce breeding costs.
4. Construction of a simple milk pail
Technique: Generate a healthy hygienic environment for milk cows allowing the farmers to constantly know the calves' state of health and provide concentrated fodder in case of necessity.
Necessity: Raw milk contamination is a serious problem and it is extremely urgent to solve it. Farmers' losses due to mammary infection are very high. Contaminated raw milk equally causes a serious problem in milk processing plants, so its solution is very important. Instead of the traditional way, the introduction of milking hygiene control is proposed, for it is not technically difficult.
Observation: Training courses are required for farmers who do not have basic knowledge of hygiene control. Likewise, initial investment is required for the construction of a milk pails and purchase of devices to easily detect mammary infection.
Development guideline: Introduction and practice of intensive agriculture with a certain investment to develop the community and territory.
5. Sperm bank of good quality animal species
Technique: Select and register high capacity domestic animals to create a sperm bank to promote artificial insemination
Necessity: This technique is urgently required to improve the capacity of domestic animals. It will allow more effective breeding and production from the economic viewpoint. Farmers are aware of the importance of artificial insemination, although they are reticent to allow the introduction of this technique. Technicians need to be trained to win the trust of farmers and to conduct awareness raising campaigns to promote artificial insemination. Initial investment is required for a simple installation for conservation of the sperm of the animals. It is very profitable due to the high demand for better species sperm.
Observation: The collaboration of farmers is necessary to select highly domesticated and capable animals, and the conduction of training courses is equally necessary for farmers to acquire knowledge in the selection of species and techniques.
6. Processing and sales of high quality cheese and efficient use of milk whey
Technique: Production of raw milk rich in fat to process high quality milk. At the same time propose the efficient use of milk whey produced during cheese processing
Necessity: Production of raw milk rich in fat to process better quality cheese. At the same time, the effective use of milk whey produced during cheese processing, that presently is used to feed pigs. Dehydrated milk whey is rich in nutritive properties and is very profitable.
Observation: Milk whey dehydration has to be investigated for this technique is not common in Ecuador.

5.5.3 Techniques of soil conservation

Soil conservation techniques for small scale farmers should be feasible to be disseminated and developed through the support of the public sector. It is necessary for each farmer to implement measures for control of hydraulic and wind erosion to maintain a proper depth of arable soil, and to maintain the ideal level of granularity in order to maintain the soil to facilitate the growth of crops. Therefore, different measures and applicable techniques are proposed in erodible farm land and non-farm land.

Plowing improvement and land preparation:	Contour sowing. Indispensable in case of furrow irrigation. Direct planting.
Division of slopes:	Building of leveled fringes following the contours (terraces).
Irrigation improvement:	Adoption of water saving irrigation types using sprinklers or by dripping.
Vegetal cover of the soil:	Increase the rate of vegetal cover of farm land with associated crops. Cover the surface of bare or fallow land with stubble (cover).
Installation of green fringes:	Creation of green fringes to prevent soil from being transported outside the plots
Erosion control inside and outside the plots:	Execution of simple works to mitigate erosion around the plots (filtration ditches, diffusion canals, lines, etc.) to control hydraulic erosion of the same.

In case of intervening not only in individual plots but also in adjacent plots and across the whole micro-watershed, erosion control works have to be executed to protect not only one plot but also the surrounding ones and the whole micro-watershed, implementing the following techniques to effectively control erosion and conserve the soil, which constitute important infrastructure of agricultural production.

Control works	Description
Filtration ditches	Excavate furrows along the contour lines 30 cm width, 30 cm depth and 3 to 5 m length, to mitigate superficial flow.
Diffusion canals	Build canals following contour lines with a gradient less than approximately 8 % with 30 cm width and 30 cm depth to redirect the superficial flow toward less erodible land. Land receiving dissipated water should be pasture or agricultural land to use water efficiently.
Terraces	Build leveled terraces following the contour lines to reduce superficial flow and transport of loose soil.
Walls	Build dikes or fences with stone, wood poles, or branches following the contour lines to stop the transport of soil in farm land, plots, housing lots, , etc.
Cover works	Cover slopes that have little vegetal cover which tends to erode with straw, branches, etc. to mitigate superficial flow.

Procedures for the implementation of soil conservation techniques: Soil conservation techniques may be: (1) soil conservation techniques applicable by farmers on their own land and in the surroundings; (2) conservation techniques of erodible land inside the properties; and, (3) techniques that contribute to the micro-watershed conservation as a whole". The concrete techniques and the implementation techniques are described as follows.

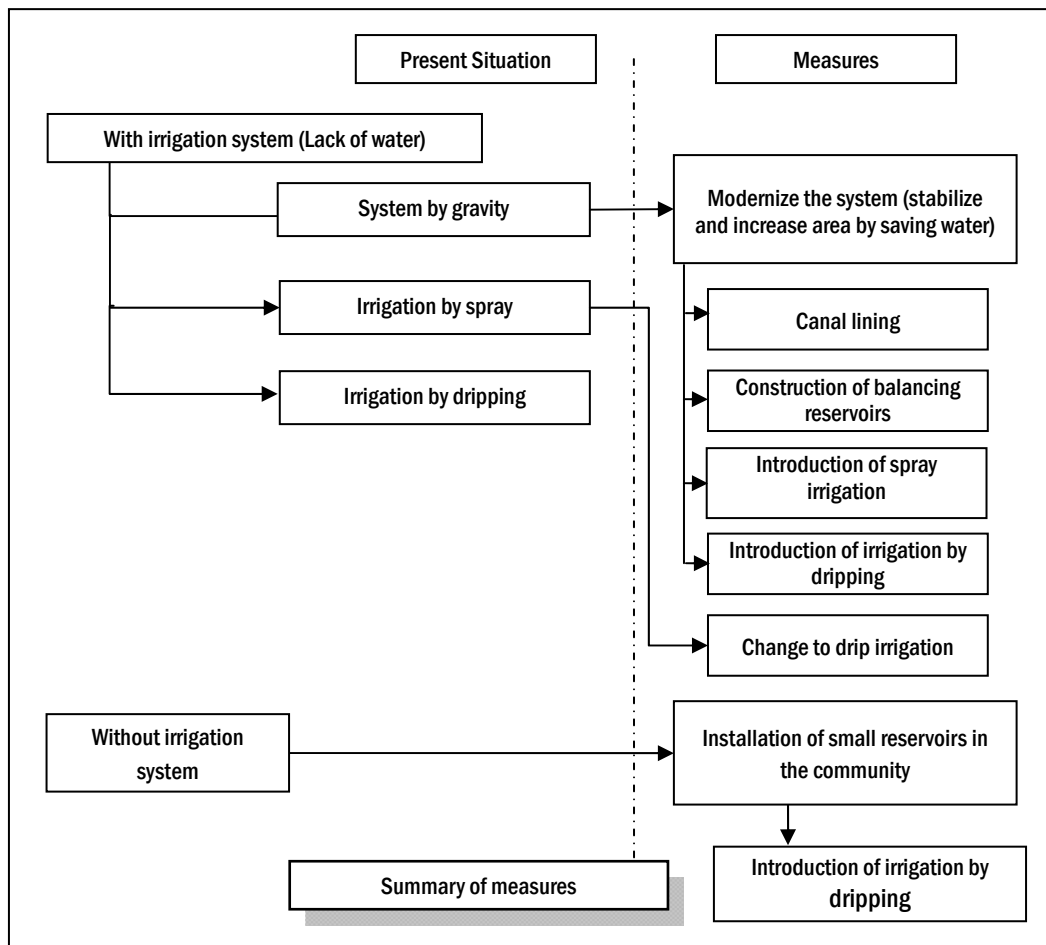
Techniques		Model	Crop land of farmers	Property of farmers	Micro watersheds
Reforestation	Windbreaks		A	B	A
	Woods to protect slopes			B	A
	Woods and protection of riversides				A
	Silvopastoral system		A	B	A
	Woods for water recharge			B	A
Protection works against erosion of soils	Dikes				A
	Terraces (terraces and small terraces)		B		B
	Walls		B	A	B
	Filtration ditches		A	B	B
	Diffusion Canals		A	A	B
	Lines			B	B
	Fences		A	A	
Improvement in plot management	Contour Plowing		A	B	
	Associated crops		A	B	
	Direct planting		B	B	
	Green manure		B	B	
	Agroforestry system		B	A	
	Silvopastoral system		B	A	
	Agrosilvopastoral system		B	A	

Observation) A: Priority technique; B: techniques convenient to be implemented according to the needs

5.5.4 Mini-irrigation

The present Project establishes three models of development to “direct small scale farmers toward reduction of poverty”. These are: “production mainly for self-supply”, “mainly commercial crops + income in cash” and “commercial crops + self-supply production”. As rainfall is scarce and the volume is unstable regarding the quantity necessary for irrigation water, it is indispensable to implement irrigation to stabilize production.

Irrigation measures can vary according to the existing irrigation system. Also, they can vary according to whether the zone has an irrigation system and abundant water or has an irrigation system but with little water available. In the first case, the challenge is technical irrigation, but the priority is lower. Techniques proposed here are directed toward the second case, meaning the zones with irrigation but little water resources. Furthermore, measures for zones without irrigation are also proposed. In the following Figure the different measures according to this classification are schematized.



Irrigation systems in dry lands can be changed over gradually, from the superficial method to sprinklers, and then to the drip system in order to save water, and to control soil erosion caused by superficial flow, and for stabilization of irrigation and expansion of irrigation area. However, before the change it is first necessary to analyze the cost benefit considering the costs implied in the adoption of new techniques. According to the results of the survey to small scale farmers, there are farmers, though not many, who have adopted the drip or spray irrigation methods; therefore, small scale farmers are prepared to introduce these techniques in a certain measure.

In the case of the system basically by gravity for the intake and water conveyance, the following techniques will allow stabilization of irrigation and expansion of area by saving water.

Canal lining: Regarding earthen canals, loss of water could be reduced by the use of concrete or pipe canals, and thus, increase the total effective volume of irrigation.

Installation of small tanks for plot irrigation: By constructing a reservoir in the canal system, the instability of the intake could be compensated for, thus increasing the general capacity of the installation and thus, increase irrigation areas.

Change of irrigation methods: The spray irrigation systems should be analyzed as possible replacements for the gravity method, and drip irrigation instead of the spray method should be analyzed.

If no system is available, a new system could be designed considering the previously mentioned guidelines as reference. However, a long time and high investments are required for the materialization of the plan, so it is necessary to design a feasible system, easy to be implemented by small scale farmers. Approximately 10 % of the irrigation sources (own basins) in Tungurahua have been constructed by the same water users, according to the survey data. It would be possible to build small community reservoirs in a depression near the community to hold rainwater and the superficial flow running in the zone.

5.5.5 Sales and Commercialization

The main techniques adjusted to follow the Development Guidelines, and concretely necessary are described as follows.

Development Guideline: : Stable production and improvement of productivity of self-consumption crops <Associations for commercialization of raw milk >
Contents of the technique: Allow farmers with one or two milking cows to daily sell a few liters of raw milk that they have that is beyond that for self-consumption. Farmers of communities capable of commercializing, even with only a small quantity of raw milk are organized into groups to commercialize milk collectively.
Necessity: An urgent solution to the situation is need for the lack of commercialization of raw milk, which exists in spite of the farmers owning milking cows. The current situation implies loosing opportunities to obtain important income in cash. Milking cows are a limited asset for small scale farmers, so their effective use would improve living conditions of farmers. Additionally, commercialization of raw milk is promising for it is a step toward the processing of dairy products.
Observations: To increase profitability it is necessary to commercialize the product at high and stable prices, besides reducing transportation costs, so it is necessary to assure many markets so that the best market may be chosen according to the circumstances. Furthermore, the criteria of hygiene management required by the buyer have to be fulfilled.

Development guideline: Introduction and establishment of hand-made products income <Process and sales of high quality cheese >
Contents of the technique: Increase profitability by improving the quality of processed cheese achieving to mark a difference in regard to other fresh cheese processing plants through diversified sales, and by increasing varieties of cheese.
Necessity: High quality cheese has a high added value, particularly mozzarella cheese used in pizza preparation, with an increasing demand due to an elevation in consumption of and demand for pizza. On the other hand, high quality cheese demand is expected to increase, so it is important to work in high quality cheese processing in order to avoid an excess of regionalized production. The achievement of high quality cheese processing will allow sales with high added value with high profitability because an increase in demand is expected.
Observations: It is very difficult to prepare good quality products by only participating in courses offered by the private sector. Regarding high quality cheese processing techniques, it is necessary to develop a practical support with the organization of courses by the municipality, formulating extension programs according to the technical level of each province.

Development Guideline: Introduction and establishment of intensive agriculture to be promoted as community and territorial development <Associations for commercialization and sales of vegetables to inter-regional markets >
<p>Contents of the technique: Achieve the commercialization and standardization of a considerable volume of quality products through organizations that allow sales to inter-regional markets. The value of the products will increase through actions to reduce production costs such as sharing the use of big machinery and production of seeds, seedlings and fertilizers inside the farmers' communities, introduction of natural methods of cultivation according to the needs of the consumer and innovations about washing and cutting of products.</p>
<p>Necessity: The constant supply of high quality vegetables will develop the brand name of the producing region thus increasing value and allowing profitable sales. In the case of exports, creation of a vegetable brand name of Ecuadorian origin will also be replicated in sales of other national agricultural products. As observed in the export of broccoli, small scale farmers developing intensive agriculture are capable of producing vegetables that meet the international standards, putting into practice the rotation of crops or reducing the application of agrochemicals when a realistic plan is presented to them.</p> <p>Promote the project by proclaiming the results of projects that have already been developed by the institutions of agricultural support , not only regarding financing but also in the field of information collection and creation of nets for development of markets</p>
<p>Observation: Concerning post-harvest treatment and commercialization, new workers are not to be employed for the same; a Management Plan is to be prepared including installations that allow farmers to dispatch their products through collection centers. Also, it is important to count on information of MAGAP and the provinces, as well as from a wide range of information sources such as commercialization and food processing associations or agricultural supporting institutions in order to prepare an effective Marketing Plan.</p>

Guidelines of Development	Other techniques considered necessary
Stable production of food for self-consumption and productivity improvement	Production of fresh cheese, associated commercialization of cuy; associated commercialization of quinoa; grain mill and vegetables
Introduction and establishment of hand-made products income	Production and sales of yogurt, processing and sales of cuy, commercialization and sales of raspberries, commercialization and sales of fruit pulp.
Introduction and establishment of intensive agriculture to be promoted as community and territorial development	Processing and sales of milk, manufacture and sales of fruit yogurt, commercialization and sales of strawberries, development of products processed from quinoa.

5.6 Model Project oriented toward poverty reduction

In order to improve the feasibility of the new co-management system, proposals of concrete projects are indispensable to make good use of technical solutions and the co-management system. Following, samples of model projects focused on soil conservation, sales and commercialization and environmental conservation are presented.

Direction of Support for Small scale farmers	Model Projects with High Priority	Executing Entities
Permanent Extension	1. Extension of simple Techniques to reduce soil erosion 2. Implementation of participatory rural development using the ERA's	- MAGAP, Provincial and Cantonal governments - ERA's
Production Base	3. Development of irrigation facilities inventory 4. Development of inventory of traditional varieties (agriculture, livestock)	- INAR and provincial government - INIAP
Articulated Projects	5. Environmental Agriculture 6. Road Stations 7. Agrosilvopastoral Projects	MAGAP, provincial and cantonal government, and related institution/organization

Model Projects and Direction of support for Small-Scale Farmers

Because no farming activity will produce satisfactory results in soil that is too degraded , special alternatives for such farm land are required, like exclusion from the Project or else combination with other projects, but first soil conservation measures would have to be introduced.

An integral agricultural development plan that ranges from production to commercialization can be implemented only after highly productive farm land is assured; this also raises small scale farmers' enthusiasm and interest, and may make it possible to stop rural fragmentation. It is expected that the Project Models mentioned below will be developed in communities that have already solved their soil degradation problems, or else will be developed as a set, together with the implementation of soil conservation measures.

Model Project 1 (Permanent Extension): Extension of simple Techniques to countermeasure against soil erosion

Title	Extension of simple techniques to countermeasure against soil erosion
Superior Goal	Preserve the soil as the basis of farming for farmers in the region Sierra
Objective	Extend simple techniques against soil erosion which can be applied by the producers themselves for the farmers in the Sierra region whose agricultural productivity decrease.
Results	<ol style="list-style-type: none"> 1. Set a management committee against soil erosion at the provincial level, and select target producers for technical transfer within the community or association of producers 2. Transfer Technical guidance to producers through theoretical and practical classes and visits to developed region. 3. Set goal of activities related to countermeasure against soil erosion within the target communities by extension recipients of technical transfer. 4. Extend the techniques to the communities and associations through the recipients of technology transfer principally in accordance with the goals of outputs, also monitor a progress of the extension.
Executing entity	Facilitators of ERA's and provincial staff of MAGAP, Responsible person of Agriculture development in the Provincial and Cantonal government. It is necessary for them to receive some support and collaboration with INIAP.
Execution period	First phase (two years) are achieved result 1 to 3 and then technical assistance and transfer in the permanent extension will continually be updated.

Model Project 2 (Permanent Extension) : Implementation of participatory sales & commercialization survey for rural development using the ERA's (Identification of Needs, Promotion of Asociation)

Title	Inventory Survey in Rural area
Superior Goal	Identify the agricultural strategy in the level of canton and province
Objective	Problems and challenges of the community and agricultural organization are identified and shared by habitants who live there.
Results	<ol style="list-style-type: none"> 1. Found and reformulate the rural organization (Community and Agricultural organization), and select leader or representative of group. 2. Elaborate the inventory list about socio-economic condition, natural condition and needs of the community. 3. Arrange problems & challenges, and its action from the view point of middle and long term together with the representative of the community and supporting institutions. 4. Develop the inventory list which should be classified into the matter olved by community itself and the matter required for government's support.
Executing entity	Facilitator and Provincial staff of MAGAP, Provincial Government, Cantonal Government
Execution period	Six months to One year

Model Project 3 (Production Base) : Inventory survey of irrigation facilities inventory in province

Title	Inventory survey of irrigation facilities inventory
Superior Goal	Stabilize agricultural production in province, through smooth and efficient execution of irrigation support.
Objective	Arrange inventory on irrigation based on the identification of the irrigable area, and utilize it for the formulation of irrigation project and its implementation.
Results	<ol style="list-style-type: none"> 1. Identify the institutions supporting irrigation projects in province and arrange inventory of its support execution conditions. 2. Develop an inventory list of contractors and suppliers of materials for the construction of facilities 3. Develop an Inventory list of water rights including number of users, quantity of flow, water resource and irrigated area, type and size of facilities target crop, land use, natural conditions and irrigation techniques. 4. Use the inventories as the basic information for planning irrigation projects in province through evaluation of irrigation potential. 5. Establish a structure to use and update the inventory in INAR and Provincial and Cantonal government, which in turn to function to manage the structure.
Executing entity	INAR, Provincial and Cantonal government INAR It is necessary for them to collaborate with SENAGUA.
Execution period	One year

Model Project 4 (Production Base): Development of inventory survey of traditional varieties (agriculture, livestock) and technique

Title	Development of inventory survey of traditional varieties (agriculture, livestock) and technique
Superior Goal	Disseminate sustainable agriculture and livestock considering the environment of the Sierra region.
Objective	Develop, evaluate and use the inventory of traditional varieties (agriculture and livestock) which adapt the agro-ecosystem of the Sierra region and have high potential of market value.
Results	<ol style="list-style-type: none"> 1. Develop an inventory of crop and animals which have been produced in the Sierra region traditionally 2. Develop an inventory of techniques and system which have been used in the cultivation and animal husbandary in the Sierra region traditionally. 3. Evaluate potential of usage, conservation and its condition about the developed inventory. 4. Establish and function a structure to update and use the inventory within the INIAP.
Main products	Potatoes, maize, quinoa, oca, melloco, mashua, tomato, babaco, llama, alpaca, fertilization methods, disease prevention, cultural practices, irrigation methods and other
Executing Entity	INIAP and provincial offices of MAGAP
Execution period	Two years

Model Project 5 (Articulated Project): Environmental Agriculture

Title	Strengthening of Organic Production and Marketing by Small scale farmers.
Superior Goal	Dissemination of organic farming to small scale farmers, as alternative of agricultural development.
Objective	Establish techniques of organic farming techniques and a Participative Certification System of organic products in the provinces of Chimborazo and Tungurahua.
Results	<ol style="list-style-type: none"> 1. Establish platform of organic farming platform at province level. 2. Appoint and develop promoters of organic agriculture Promoters. 3. Establish a Participative System of Technique Dissemination through actions of the Promoters. 4. Establish a Participative Certification System at province level. 5. Disseminate Promoters and Participative Certification System to other provinces.
Executing entity	Environmental Agricultural Table of the Province Agricultural Forum (province offices of MAGAP, province and municipalities governments, NGOs, etc.).
Execution period	Three years

Modelo Project 6 (Artilulated Project) : Road Station

Title	Road Station Project of Parroquia _____ in Chimborazo Province
Superior Goal	Activate agricultural production activities in rural.
Objective	<ol style="list-style-type: none"> 1. Build “Road Stations” along potential trunk roads which provide a space to rest and cooperation and function to send local information and to promote regional cooperation. 2. Manage sustainable “Road Stations” through participative organizations, for direct sales of small scale of production by small scale farmers and rural production
Results	<ol style="list-style-type: none"> 1. Creation of the Road Station Project Commission at province level in the Province Agricultural Forum. 2. Identification of potential “Road Stations” candidates and budget to build the same. 3. Creation of participative management organizations at parroquia level with the identification of the “Road Station” project beneficiary zones. 4. Direct sales of local products with the construction of “Road Stations”. 5. Opening of the “Road Station” with the function of rest place, issuing information and regional coordination.
Executing entity	Road Station Project Committee of the Province Agricultural Forum and corresponding municipal and parroquia governments.
Execution period	Three years

Model Project 7 (Articulated Project): Agrosilvopastril Project

Title	Agrosilvopastoral project for sustainable improvement of soil conservation at province level
Superior Goal	Maintain soil fertility as the base of agricultural activity at farmer’ s unit simultaneously conserve the soil.
Objective	Maintain and improve agricultural productivity by introducing complex of agriculture, animal husbandary and forest into the whole target area, which contributes to sustainability and improvement of soil fertility and soil conservation for small svcale farmers who are engaged in agricultural activity at the farm lands with low productivity at province level.
Results	<ol style="list-style-type: none"> 1. Establish a project implementation committee among concerned entities to identify target areas with low agricultural productivity due to soil erosion and gegradation of soil. 2. Select an organization and community in the target area to establish the project implementation system. 3. Clarify methodology and objectives to introduce crop rotation, fodder production, green manure, reforestation, animal farming, and measures against soil erosion at the short, medium and long term, and execute project based on short term objectives 4. Establish an implementation system in the medium and long term.
Executing entity	Canton government, Parroquia government, Province government, MAGAP, INIAP and related entities
Execution period	Three years After the short term project, beneficiaries will be forced to operate and maintain the project in order to achieve the middle and long term objective of the project.

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Abbreviation

Abbreviation	English
AAE	Strategic Environmental Analysis
ASA	Agriculture Service Agency
BID	Inter-American Development Bank
BNF	National Development Bank
BOP	Bottom of Pyramid
CADERS	Agricultural Competitiveness and Sustainable Rural Development Project
CEMDES	Enterprise Council for Ecuador Sustainable Development
CIAME	Ecuadorian Migrants Research and Support Center
COAC	Savings and Credit Cooperative
CODENPE	Development Council for Nationalities and Peoples of Ecuador
DAC	Development Assistance Committee
DAP	Dairy Partners America
DINSE	National Educational Service Department
DNC	National Cooperative Department
ECA	Farmers Field School
ERA	Agrarian Revolution School
ERPE	Popular Radio Schools of Ecuador
ESPA	Survey for Agricultural Area and Production
FAO	Food and Agriculture Organization of the United Nations
FEPP	Ecuadorian progressive Populous Fund
FISE	Social Investment and Emergency Fund
FUNDHABIT	Foundation for sustainable habitat in the assurance of the duties and rights of citizens
IEDECA	Institute of Ecology and Development of Andean Communities.
IEOS	Ecuadorian instituto of Sanitary Works
IERAC	Ecuadorian Institute of Reform
INAR	Irrigation National Institute
INCCA	Farmers Training National Institute
INDA	Agrarian Development National Institute
INEC	National Institute of Statistics and Censuses
INIAP	National Autonomous Institute of Agricultural Investigation
IPM	Integrated Pest Management
MAGAP	Ministry of Agriculture, Livestock, Aquaculture and Fisheries
MFI	Microfinance Institucion
MIDVI	Ministry of Housing and Urban Development
MIES	Ministry of Economic and Social Inclusion

Abbreviation	English
NBI	Unsatisfied Basic Needs
OJT	On the Job Training
PCM	Project Cycle Management
PDA	Project Design Matriz
PIDD	Project Development Investment in Chimborazo
PIO	The plan for equal opportunities in Ecuador
POA	Annual Operational Plan
POT	Territorial Arrangement Plan
PPCH	Participatory Budget in Chimborazo
PRA	Patiapatory Rapid Appraisal
PRAT	Adjustment Program and Rural Land Management
PRONACA	The National Food Processing
PRONERI	National Program for Inclusive Rural Business
SENAGUA	National Secretariat for Water
SENPLADES	National Secretariat of Planning and Development
UNA	National Storage Unit

Table of Units and Other

Superficial and Volume

km ²	:	square kilo meter
ha	:	Hectare
t	:	Ton
t/ha	:	ton per hectare
US\$/ha	:	US Dollar per hectare
US\$/t	:	US Dollar per ton
ℓ	:	Litter
ℓ/head	:	litter per head
g/100g	:	gram per hundred gram
kcal/100g	:	kilo calorie per hundred gram
mg/100g	:	milligram per hundred gram
°C	:	degree Celsius
m/sec	:	meter per second
ugo/mL.nivel	:	use of glucose oxidize per milliliter
pH	:	Hydrogen potential a measurement of level of acid

Distance and length

mm	:	Millimeter
m	:	Meter

Currency units

US\$:	US Dollar
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Regional division

Sierra	:	Andes Mountain area
Costa	:	Costal area
Oriente	:	East Amazon river basin

Administrative division

Canton	:	Canton mean the category of administrative division under the prefecture
Parroquia	:	Administrative division under the Canton

Social index

%	:	Ratio
GDP	:	Gross domestic product
UPA	:	Agriculture Production Unite

Chapter 1

Introduction

Chapter 1 Introduction

1.1 Background and Objects of the Study

1.1.1 Background of the Study

Ecuador, which has changed its macro economy stability because foreign currency has been acquired by exporting natural resources (oil and natural gas) and exporting traditional agricultural products (banana and shrimp). Otherwise, close to 60% of the nation's population living standards are still below the poverty line. Many of those destitute people live in the central SIERRA and the greater part of the people engage in small scale farming. But they can not secure self-sufficiency by farming and therefore, maintain their household economy by depending on income made by their family members working outside the region.

Before this situation existed, the Ecuadorian Government carried out various programs related to poverty alleviation measures and agricultural development. The Ministry of Agriculture, Livestock, Aquaculture and Fisheries (MAGAP) has settled on a "Policy of the Ecuadorian Agriculture 2007-2020" as a long-term policy and presented the necessity of "Improvement of unequal access for agricultural service", "Reorganization of government and non-government agricultural service", "Elaboration of the development plans for different levels of villages", and etc. as support for the small-scale farmers.

On the other hand, the Governmental agricultural service organizations have been privatized by structural adjustments, so the agricultural service has been subject to fees, this makes it difficult for the small-scale farmers without funds to access agricultural support. And, there are cases that many institutions have offered same kind of service and have not offered as-needed service in spite of the needs of the small-scale farmers. Moreover, the Ecuadorian Government has been proceeding with decentralization, as a part of this decentralization the role of the agricultural service for the small-scale farmers has been transferred from the central government to local government. But many of the local governments can not offer the agricultural service effectively because of a lack of know-how, manpower and funds. Under this circumstance, the Ecuadorian Government requested cooperation from the Japanese Government to improve agricultural service by the central and the local governments for the purpose of efficient and effective support for the small-scale farmers.

Base on this request, a preliminary study was carried out from February 2008 to March 2008 the Ecuadorian Government and the Japanese Government discussed the targeted area as well as the contents of the Study, and agreed and signed the Scope of Works (S/W) in November, 2008.

1.1.2 Change of the background of the Study

Under the above mentioned background, the Study that began from understanding the actual situation was commenced from February, 2009. However, when the Study faced the phase of

planning in the second year (2010), circumstances related to the support for the small-scale farmers by MAGAP and the local governments had drastically changed.

President Rafael Correa who assumed the presidency in January, 2007 promulgated a new constitution that focuses on the achievement of the “Good Life (Buen Vivir)” in 2008. Subsequently MAGAP settled on a “National Plan of Rural Good Life (hereinafter referred to as NPRGL)” based on the constitution in September, 2009. As regarding the support for the small-scale farmers in the Plan, it aimed to double productivity of the basic grain products by the farmers, and it was planned to found the Agrarian Revolution School (ERA’s) as a tool for accomplishment of that goal. MAGAP will employ about 1,000 facilitators who are needed for the school throughout the nation in order to execute the extension works, which has already commenced. Although the experience of the facilitators is insufficient, the appearance of a large number of them who correspond to extension workers has caused a drastic change of the prerequisite conditions of the Study that was fundamentally addressing an incomplete extension system. Also an organizational restructuring plan has been advancing in MAGAP, in which it is considering to take the affiliated institutions; Farmers Training National Institute (INCCA), Irrigation National Institute (INAR), Agricultural Competitiveness and Sustainable Rural Development Project (CARDES), and Agrarian Development National Institute (INDA) into MAGAP.

On the other hand, as part of decentralization, under the guidance of SENPLADES, the nation-wide provincial and cantonal governments are now formulating the Territorial Arrangement Plan (TAP). In that plan, it is aimed to effectively promote the regional development by partnership with the actors involved in all kinds of regional development (economic development) in the region. Thus, accompanied by advancement of the decentralization, the whole country was divided into 7 regions and the 10 provinces of the Sierra region were variously allocated to those 7 regions. At the same time, along with the decentralization, all the ministries have set about to deconcentrate the power and authority to their own regional offices, and MAGAP built the Region 3 Secretary Office transferring from the Sierra Secretary Office.

Under such situation and in such environment, the plan won’t progress any more without the cooperation of the related institutions and organizations. Therefore it is not reorganization inside the institutions supporting the small-scale farmers that is needed, but rather, it is necessary to formulate a system of institutional linkage consisting of and supported by representatives of the local and central governments and others related to rural development to promote and facilitate cooperation between them to assist the small-scale farmers on a cross-cutting basis.

1.1.3 Objects of the study

It is aimed to elaborate a plan for the reorganization of the agriculture supporting services for rural small-scale farmers in the mountainous areas of the Sierra region where the poor population is concentrated, for the purpose of improving agricultural productivity which would be the basis of

income increase for small-scale farmers and communities, and to propose means for supporting agriculture to the central and local governments acting in the Sierra region. And more, it is aimed to reinforce the ability of the counterparts to investigate the actual situation and to plan the reorganization based on their diagnosis of the situation, through the process of the Study.

As described in “1.1.2 Change of the background of the Study”, this objective has changed from reorganization of the supporting system to formulation of the previously mentioned institutional linkage system.

1.2 Study Area

The Study area contains 10 provinces in the Sierra region (In 2007, Pichincha was divided in two, there are 11 provinces now).

- (1) Targeted Study Provinces investigated through material : 10 provinces; Carchi, Imbabura, Pichincha (Including the new province of Santo Domingo de los Tsáchilas) , Cotopaxi, Tungurahua, Bolívar, Chimborazo, Cañar, Azuay, and Loja
- (2) Targeted Study Provinces investigated through field works : 4 provinces of the above 10 provinces; Cotopaxi, Tungurahua, Bolívar, and Chimborazo

1.3 Study Period and Scope of Work

The study period was 18 months from February, 2009 to August, 2010.

The Study was carried out over two years, as shown in the following.

First year	Second year
<ol style="list-style-type: none"> 1. Analysis of the actual condition of supporting system for agriculture for small-scale farmers. 2. Identification of needs of small-scale farmers for agricultural support. 	<ol style="list-style-type: none"> 3. Identification of agricultural technology needed for small-scale farmers in rural regions. 4. Formulation of plan for reorganization of agricultural supporting system for small-scale farmers.

1.4 Counterparts

In the execution of the Study, the Ministry of Agriculture, Livestock, Aquaculture and Fishery of the Republic of Ecuador (MAGAP) was the main counterpart agency, Department of International Cooperation and the Region 3 Secretary Office (formerly the Sierra secretary office) in the MAGAP coordinated mainly with the other related institutions to put them together. And, the National Autonomous Institute of Agricultural Investigation (INIAP), Farmers Training National Institute (INCCA), Irrigation National Institute (INAR), Agrarian Development National Institute (INDA), National Development Bank (BNF), Provincial Governments of Cotopaxi, Tungurahua, Bolívar and Chimborazo have taken part in the Study as counterparts.

1.5 Report

The following reports have been submitted through the Study period.

No.	Report	Contents	Submission date
1	Inception Report	Basic concept, Scope, methodology and schedule of the study	Beginning of Feb 2009
2	Progress Report	Identification of policy and system for supporting small-scale farmers in the Sierra region and Ecuador, and actual conditions of their supports.	End of Jun 2009
3	Interim Report	Identification of needs of small-scale farmers in the Sierra region and actual conditions of support for small-scale farmers.	End of Oct 2009
4	Draft Final Report	Overall study, Planning of reorganization for supporting small-scale farmers, Recommendations etc.	Middle of Jul 2010
5	Final Report	Overall study, Planning of reorganization for supporting small-scale farmers, Recommendations etc.	Oct 2010

Chapter 2

Direction of the Support to Small Scale Farmers

Chapter 2 Direction of the Support to Small-scale Farmers

2.1 Actual Situation of the Small-scale Farmers in Poverty

2.1.1 Profile of the Small-scale Farmers in the Sierra Region

This study covers the Sierra Region where the three Andean Cordilleras lap over through Ecuador from north to south. In the Sierra Region, there are 22 peaks whose heights vary from 4,000 to 6,000 m and many of the cities, including the capital Quito, are located at high altitudes

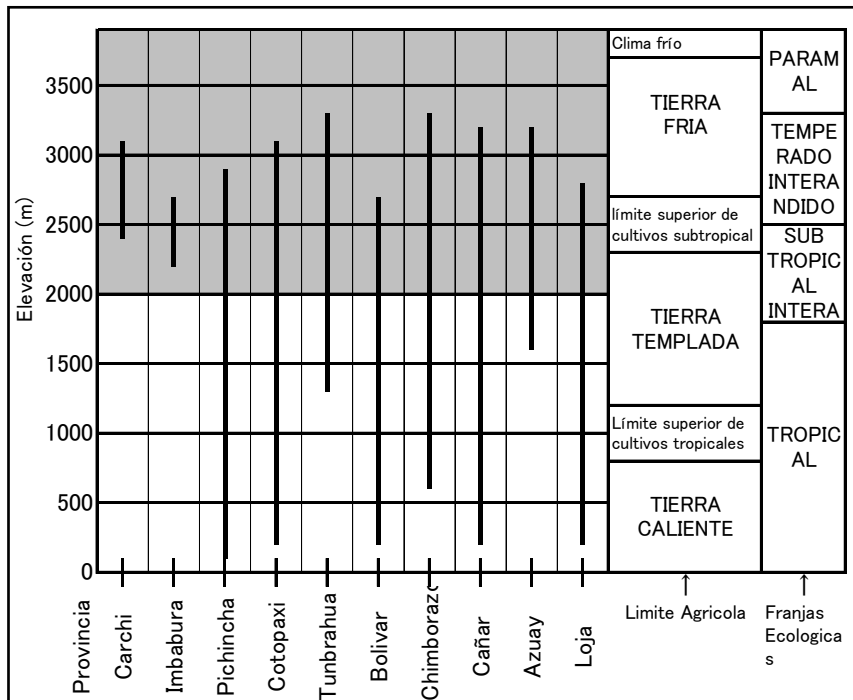


Figure 2.1.1 Distribution of Canton's Capitals by the Elevation and Agroclimate in the 10 Provinces of their Sierra

These ten provinces are mainly located in the central area of the Andes, and include part of the coastal plains and tropical Amazon region. The study area covers an area beginning at 2,000 m elevation, the so-called inter-Andean subtropical climate², and extends up to around 4,000 m elevation, a part of the Paramo, the limit of the farming, according to agro climatic classification. However this study does not include the tropical agricultural area whose products and cultivation methods are completely different (Figure 2.1.1)

The population in the Sierra region is 6.38 million inhabitants, which represents 45% of Ecuador's population of 14.2 million inhabitants³. With regard to population density, the average in Ecuador is 50 people/km² while in the Sierra region the average is 97 people/km² or nearly double, so the population density is highest in the area of the Sierra, compared to other parts of the country.

¹ Under the new Constitution, effective February 26, 2010, the Regional Secretariat of the Sierra was replaced by seven regional undersecretaries within MAGAP reorganization.

² Elementos de Geografía del Ecuador, Nelson Gómez E., P139 Pisos Climaticos

³ Population Projections 2001-2010, INEC

Table 2.1.1 Farmers Object of Study

Province	No. of Farms	Farms of <5 ha		Farms above 2000m elev.		
		No.	%	No.	%	
Total National level	842,882	535,309	63.5%			
In the Sierra Region	Total/ Mean	561,628	422,384	75.2%	492,458	87.7%
	Carchi	12,860	7,182	55.8%	12,860	100.0 %
	Imbabura	33,786	26,242	77.7%	33,786	100.0 %
	Pichincha	64,026	41,453	64.7%	48,802	76.2 %
	Total/Mean	253,523	208,501	82.2%	231,756	91.4%
	Cotopaxi	67,807	54,351	80.2%	60,263	88.9%
	Tungurahua	71,318	67,056	94.0%	69,377	97.3%
	Bolívar	32,728	18,762	57.3%	26,518	81.0%
	Chimborazo	81,670	68,332	83.7%	75,598	92.6%
	Cañar	32,175	24,999	77.7%	30,676	95.3%
	Azuay	99,632	80,178	80.5%	94,643	95.0%
Loja	65,626	33,827	51.5%	39,935	60.9%	

Source: Censo Nacional Agropecuaria 2000, INEC

The concentration of population density is also reflected in the areas of farmland. About 70% (561,628 families) of the total farmers in the country (842,882 families) are concentrated in the Sierra region, and 75.2% of farmers in the Sierra possess less than 5 ha of land and 87.7 % live in

Cantons with altitudes above 2,000 m (altitude of the location of the municipality of the Canton) (Table 2.1.1). A total of 393,751 small-scale farmers families are the subjects of the present study, representing about 70 % of the farmers throughout the Sierra region.

In the four provinces of Cotopaxi, Tungurahua, Bolívar y Chimborazo in which field studies were conducted, 82.2% of the farmers have on average less than 5 ha of land and 91.4% of farmers live at altitudes above 2,000 m, both percentages are higher than the average of all ten provinces in the Sierra region, therefore, it could be said that these four provinces more strongly reflect the characteristics of the Sierra region.

The cultivation areas in the Sierra region are similar with those of the Costa region, however the land use is different. While on the Costa, land use is mainly for permanent crops (coffee, cacao, bananas, palm oil, sugarcane, etc.), in the Sierra, by contrast, the Paramo is characteristic at altitudes above 3,000 m and the percentage of natural pastures is higher than other areas (Table 2.1.2).

Table 2.1.2 Soil Use in Ecuador 2007

Soil Use	NATIONAL		SIERRA		COSTA		ORIENTE	
	Ha	%	Ha	%	Ha	%	Ha	%
Perennial	1,219,655	10%	266,504	6%	870,707	19%	82,444	3%
Short Term or fallow	1,008,456	9%	380,212	8%	606,057	13%	22,187	1%
Idle farmland	187,014	2%	78,503	2%	101,381	2%	7,130	0%
Cultivated Pastures	3,623,893	31%	1,024,908	22%	1,707,369	37%	891,616	35%
Natural Pastures	1,373,045	12%	1,041,323	22%	248,468	5%	83,254	3%
Paramo	615,585	5%	571,907	12%	1,094	0%	42,584	2%
Forestry and Forest	3,551,174	30%	1,137,942	25%	991,233	21%	1,421,999	55%
Other Use	254,519	2%	136,233	3%	98,818	2%	19,467	1%
Total	11,833,341 (100%)		4,637,532 (39.2%)		4,625,127 (39.1%)		2,570,681 (21.7%)	

Source: Continuous Survey on Agricultural Area and Production (ESPAC) 2002-2007.

Due to the difference in altitudes, the crops of the Sierra region are different from those of the Costa and the Oriente regions. In the Sierra region, maize (soft maize for human consumption); frijol beans, potatoes, wheat, barley and dry peas are mainly grown, in terms of fruits, the tree tomato is grown, and as for vegetables, the common beans and sweet peas are grown. The Sierra region has more cattle and pigs than the Costa and the number of sheep greatly exceeds other areas (Table 2.1.3). As cultivation areas are not very large, the table does not include grains like quinoa and lupine and fruits like babaco, but these are crops are suitable to the agro-ecology of the Sierra; also raising Cuy (Guinea Pigs in English) in the Andes is an important complementary activity, especially for families who use family labor.

Table 2.1.3 Major Agricultural Cultural Products Characterizing the Sierra Region

Region	Harvested Area (ha)									Headage in Existence		
	Basic Grains						Fruits	Vegetables		Animals		
	Soft Maize	Dried Frijol (Dry Grain)	Potato	Barley	Wheat	Dried Peas (Dry Grain)	Tree Tomato	Fresh Frijol (in pod)	Fresh peas (in pod)	Cattle	Swine	Sheep
Total National	133,704	49,070	46,635	38,825	11,291	3,519	1,978	22,745	6,586	4,727,104	1,323,080	846,435
Sierra	131,434	40,967	46,501	38,721	10,874	3,439	1,870	15,092	6,586	2,348,446	872,257	827,157
Costa	1785	7,952	134	104	417	80	0	7,605	0	1,779,144	383,573	14,532
Oriente	485	151	0	0	0	0	109	0	0	599,515	67,251	4,747
Observation	More associated than alone	More associated than alone				Associated in the Sierra Region I		More associated than alone				

Source Continuous Survey on Agricultural Area and Production ESPAC2002 (ESPAC) 2002-2007

It is also important to note the following three characteristics of agriculture in the Sierra region.

- 1) Intercropping of cereals such as maize, frijol beans and peas for subsistence production is common (Figure 2.1.2).
- 2) In the Sierra region, soft maize is mainly grown for human consumption, while in the Cost region. Hard maize is grown for balanced feed for animals, the immature soft maize, known as *choclo* is consumed directly, on the other hand, matured soft maize is used in traditional dishes and sweets.

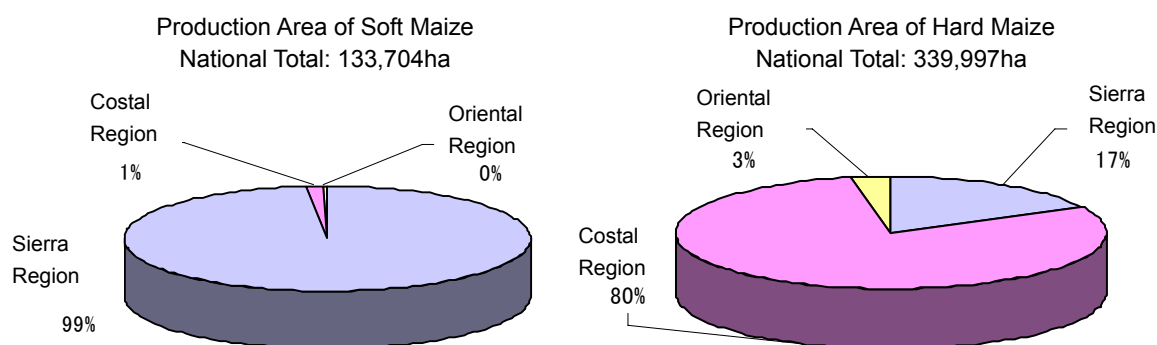


Figure 2.1.2 Production Area of the Soft Maize and Hard Maize

- 3) Cattle raising is practiced throughout the country, but with more intensity in the Sierra region, mainly as dairy cattle

The characteristics of the Sierra region as a target area of this study, as well as the agricultural situation and activities are shown in Table 2.1.4.

Table 2.1.4 Characteristics of the Agricultural Situation and activities in the Sierra Region

Items	Characteristics
Study Area and number of families	<ol style="list-style-type: none"> 1) The population of the Sierra is 6.38 million, representing 45 % of the total population of Ecuador and population density is 97 inhabitants per km², almost double the national average population density, so can be said that the Sierra is densely populated 2) About 70 % (561,628 families) of all farmers in the country (842,882 families) are in the area of the Sierra. Farmers that are the subjects of this study (Less than 5 ha and altitudes above 2,000 m) are 393 751 families, equivalent to 70 % of all farmers in the Sierra.
Land use	<ol style="list-style-type: none"> 1) The cultivated areas in the Costa and Sierra regions are similar, but in the Costa permanent crops are planted, while in the Sierra there are vast areas of natural pasture in the <i>Paramos</i> over 3,000 m altitude.
Main agricultural activities	<ol style="list-style-type: none"> 1) In the Sierra region it is common to produce; maize (for human consumption), frijol beans, potatoes, barley, wheat, peas, tree tomatoes, and babaco, and to raise dairy cows and sheep. 2) Typical agricultural products in the Sierra region produced more than other areas are soft dry peas, and pigs, among others, 3) Agricultural activities of the Sierra features: Cropping of maize, (human consumption), frijol beans, and peas. Traditional agriculture (quinoa, chocho, melloco, medicinal herbs, and agriculture associated with livestock farming)

Comparison of the characteristics of small-scale farmers in the ten provinces of the Sierra

So far, the general outline of the Sierra region compared with the other two regions such as the Costa and the Oriente has been described, but this study refers to a reorganization plan to be implemented in the ten provinces of the Sierra, so although all provinces of the Sierra show similar tendencies (Table 2.1.5) and the general characteristics in Table 2.1.4 can be applied to all ten provinces, it is also necessary to identify the characteristics of each of the provinces individually. .

Table 2.1.5 Agriculture Activities of the Object Cantons (>2,000m altitude) in the Sierra Region

Province	No. of Canton	Cantons which are located more than 2000m above sea level												
		No. of Canton	Poverty rate *3	Farmers of <5 ha *1	Women Farmers *1	Have Irrigation System *1	Principal Income is from Agriculture *1	Farming Area Ha *2	Crops Ha *2			Main agricultural activities *1		
									Perennial Crops	Pasture	Short-term Crops	Important Short-term Crops	Important Perennial Crops	No. of Cattle
Carchi	6	6	0.66	43 %	19 %	37 %	83 %	2.2	0.1	0.9	1.0	potato, maturated soft maize, green peas	tree tomato , platano, avocado, sugarcane for sugar	2.4
Imbabura	6	6	0.57	57 %	23 %	35 %	56 %	1.6	0.1	0.3	0.9	maturated soft maize, frijol bean, in-maturated soft maize	avocado, tree tomato, sugarcane for sugar	1.6
Pichincha	9	5	0.37	61 %	37 %	24 %	49 %	1.2	0.0	0.4	0.7	maturated soft maize, frijol bean, in-maturated soft maize	avocado, lemon, blackberry,	1.6
Cotopaxi	7	5	0.64	65 %	35 %	27 %	50 %	1.8	0.2	0.4	1.1	maturated soft maize, potato, barley	peach, apple, sugarcane for other use, blackberry, tree tomato	1.6
Tungurahua	9	8	0.54	87 %	29 %	57 %	72 %	1.3	0.2	0.4	0.6	potato, colored onion, immature soft maize, maturated soft maize	apple, plum, peach	1.9
Bolívar	7	4	0.67	46 %	23 %	8 %	78 %	2.2	0.2	0.6	1.3	maturated soft maize, wheat, frijol bean, immature soft maize	orange, platano, caffee, banana	2.1
Chimborazo	10	7	0.67	70 %	26 %	46 %	69 %	1.7	0.0	0.4	1.0	maturated soft maize, barley, potato	apple, peach, tree tomato, plum	2.2
Cañar	7	5	0.47	72 %	45 %	37 %	46 %	1.5	0.0	0.7	0.5	maturated soft maize, frijol bean, dry broad bean	apple, tree tomato, plum	2.8
Azuay	11	10	0.52	64 %	40 %	34 %	53 %	1.8	0.1	0.8	0.5	maturated soft maize, frijol bean, dry broad bean	Tree tomato, apple, sugarcane for other use	2.8
Loja	16	5	0.60	44 %	21 %	36 %	74 %	2.0	0.7	0.7	0.6	maturated soft maize, frijol bean, maturated hard maize	Sugarcane for other use, coffee, banana	1.9
All Sierra Region	88	61	0.57	61 %	30 %	34 %	63 %	1.7	0.2	0.6	0.8			2.1

*1. Database of the Nacional Agricultural Census 2000

*2. Continuous Survey on Agricultural Area and Production ESPAC2002

*3. Map of Poverty and Inequality in Ecuador 2006, SIISE- STMCDS ESPAC2002

However, there are some peculiarities in the ten provinces of the Sierra as shown below, so some caution must be taken on these aspects at the time of implementing the plan proposed by the study

- 1) Within the provinces of the Sierra region, there are some cantons which are located at altitudes below 2,000 m particularly in Loja, Pichincha and Bolívar
- 2) The percentage of small-scale farmers with less than 5 ha is high in the province of Tungurahua (87 %) and low in Carchi (43 %), Bolívar (46 %) and Loja (44 %). In provinces with high percentage of small-scale farmers, average areas of the properties are small and the proportion of non-agriculture income is large in the total income of farm household. On the other hand, in provinces with low percentage of small-scale farmers, areas of the properties are large and the proportion of non-agriculture income is low in the total income. At the level of small-scale farmers, there is no direct relationship between the incomes of the farmers and the size of the farming areas which show in the "Agricultural and non-Agricultural Income" (refer to page number 2-11 of this Chapter). It is assumed that this is due to the influence of other factors; altitude, amount of rainfall, irrigation infrastructure, transport, market, technical assistance, and etc.
- 3) In the province of Cañar, which has a high percentage of overseas migrants (8.32 %), the feature that stands out is the large percentage of women who work on farming.
- 4) With the exception of the province of Bolívar, the ownership rate of irrigation facilities ranges between 30 and 60%, the rate in the province of Bolívar is rather low at 8%. To address the issue of development of Bolívar province, it is first necessary to determine the factors which cause the percentage of irrigation facilities there to be so low.
- 5) From the point of view of land use, the order is usually short-term crops > grassland > perennial crops, but in the provinces of Cañar, Azuay and Loja, pasture land is larger than the area of short-term crops.

2.1.2 Social Situation of small-scale farmers

(1) Minifundization (division of land into small farms)

"From Independence to Land Reform" -In Ecuador, the land tenure structure has not changed since independence (1822). Rather, the estates system (*latifundio*) was strengthened and the indigenous people were absorbed by the large estates with continuity of an unpaid service system and payment of taxes. During this period there were formed three groups of indigenous people under the system. The first indigenous group received parcels of land *huasipungo* for self-sufficiency in food production in exchange for work on the landowner's field, and as payment received seeds and fertilizer, small scale farmers were obliged to work at such things as caring for livestock and domestic services without remuneration; this type of semi-slavery or servitude is known as " *concierto* ". The second group consisted of the so-called "indigenous released" who

worked seasonally on the farms for wages. The third group consisted of those indigenous who return to use pastureland and other facilities such as water and roads inside the estate in exchange for unpaid services rendered by them to the owner of the estate. Thus, the indigenous socio-economic universe was restricted to this small society as represented by the estate where farming is performed as a group. This situation continued until the 1960s when agrarian reform began.⁴

“Agrarian Reform”-In 1964, an agrarian reform law was enacted in Ecuador. However, the land was in an unfavorable condition and the corresponding support necessary to promote making the land productive (training, infrastructure) was not given, so that the situation deteriorated even more. Finally, they were led to the situation of *minifundization* by the transfer of land by inheritance and consequently there was an increase in the migratory movement of small scale farmers to the cities, and the makers of the agrarian reform law did not foresee the land fragmentation.

Looking at the case of the province of Chimborazo as an example. The land provided by the Ecuadorian Institute of Agrarian Reform (IERAC, presently known as INDA) had a high percentage of forest and land unfit for cultivation compared with the average land use in the province (Table 2.1.6); as a result the settlers reclaimed farm land from the forested areas with steep slopes that should have been preserved or they reclaimed land that was unfit for agriculture.

Table 2.1.6 Comparison of percentage of land provided by the IERAC and the provincial average according to the agricultural suitability of the soil in Chimborazo.

Soil use	Provincial average (%)	Land provided by IERAC (%)	difference (%)
Agricultural cultivation	17.5	2.8	-14.7
Pasture	24.3	17.3	-7.0
Forest	53.5	61.4	+7.9
Land unsuitable for cultivation	4.7	18.5	+13.8
Total	100	100	

* Instituto Ecuatoriano de Reforma Agraria

source: MAG-PRONAREG, Mapa de Uso de Suelo; Elaboración Departamento de Planificación MAG-Chimborazo

“Minifundización⁵” In the province of Chimborazo, there was an increase of 19.8 % of farmers who own land from 1 ha to 5 ha in the period 1954-1974, indicating that there was a reduction of cropland per farmer (Table 2.1.7) ." Despite the growth of small-scale properties, the cultivated land area increased by only 10.8 %. The number of farmers with 100 ha or more have decreased from 525 to 297 corresponding to a 43.3 % reduction, but the cultivated land area that they held only shrunk by 7.7%. The concentration of land has been underway.

⁴ The Education for the Indigenous in Ecuador – Trayectoria – Ebara Yumi (Universidad Teikyo), 2004. http://www.sap.hokkyodai.ac.jp/otu/e_hara-ecuador.pdf

⁵ The Agrarian Reform Law Article 66 defines small farms as those properties that do not meet any of the following conditions: 1. Employ the production capacity of peasant families, 2. Produce surplus agricultural products for the market and 3. Obención of income that allows the exchange to meet the family's basic needs.

The Change in the amount of farmers and their land property in the province of Chimborazo is as shown in the table below;

Table 2.1.7 Change in the amount of farmers and their land property in the province of Chimborazo

Year	Area per family	Families		Área	
		Total families	No. of families/ Total properties (%)	Área total	Percentage of cropland in total (%)
1954	1.0-4.9 ha	28,545	85.9	52,300	16.6
	>=100 ha	525	1.6	213,900	67.8
1974	1.0-4.9 ha	34,199	82.5	57,941	15.2
	>=100 ha	297	0.7	230,373	60.6
Change 1954-1974	1.0-4.9 ha	+5,574	+19.8	+5,641	+10.8
	>=100 ha	-228	-43.4	-16,473	-7.7

Source: Agricultura Census 1954-1974, elaboration: MAG Chimborazo –Planificación Dep.

Table 2.1.8 Change of the amount of farmers in the Andean zone

Área per property	No. small scale farmers				Change	
	1954		1974		1954-1974	
	No. family	%	No. family	%	No. family	%
=<1 ha	83,714	32.2	113,537	35.1	+29,823	+35.5
1-5 ha	128,439	49.5	138,370	42.9	+9,931	+7.7

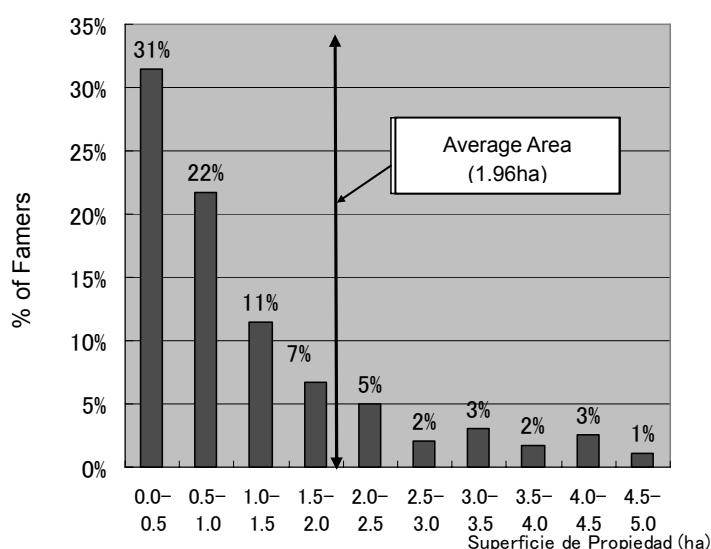
Source: the Ecuador Agrarian Reform, 1984, page 353, elaboration: CIACH=CESA

The target group of the study are the small-scale farmers (properties less than 5 ha) in the ten provinces of the Sierra. In the four provinces where field studies were conducted, Cotopaxi, Tungurahua, Bolívar and Chimborazo, in addition to the data from secondary information sources (Mainly the agricultural census 2000), in August 2009 a questionnaire survey was carried out in three *parroquias* in each province. The total twelve *parroquias* were selected according to two aspects, the poverty rate and altitude that are both crucial to the agricultural management system. For each of the twelve selected *parroquias*, communities were selected to be surveyed considering the natural and social conditions, so surveys were conducted for an average of 20 communities per province, totaling 1,200 families⁶ in 80 communities.

As a result of the survey it was found that the properties have an average area of 1.96 ha, but looking from the perspective of the number of families, the area of the properties of more than 70 % of small scale farmers is below average (<2.0 ha). In 1974, 35.1 % of small scale farmers had properties with areas less than 1.0 ha (Figure 2.1.3), however, in this survey (2009), this percentage reached 53 %, showing the acceleration of *minifundización*. While one reason that

⁶ Data were collected from 1,191 farmers.

minifundizacion altered the Land Reform was the subdivision of land by inheritance, excessive concentration of land tenure and educational opportunity promoted by globalization also count as factors. Alexander Schejtman⁷ stated the following, "Globalization and economic liberalization have been exploited mainly by companies which have access to land and great potential for export production, as a result, concentrating a profit to large and médium scale producers. Although no one can deny the positive aspects of the export dynamics, they have been persistent and alienating effects of polarization in the process of rural modernization in the region, and there is a risk that these effects will be exacerbated by the liberalization process while producers are exposed to greater competition as the public resources protect most vulnerable producers. Behind this asymmetry, there is a massive concentration of land and educational capital; combined with imperfect markets and high transaction costs."



The result of the questionnaires (1191 farmers) in Sep., 2009

Figure 2.1.3 Size of land and proportion of Small scale farmers (<5ha) in the Central Sierra

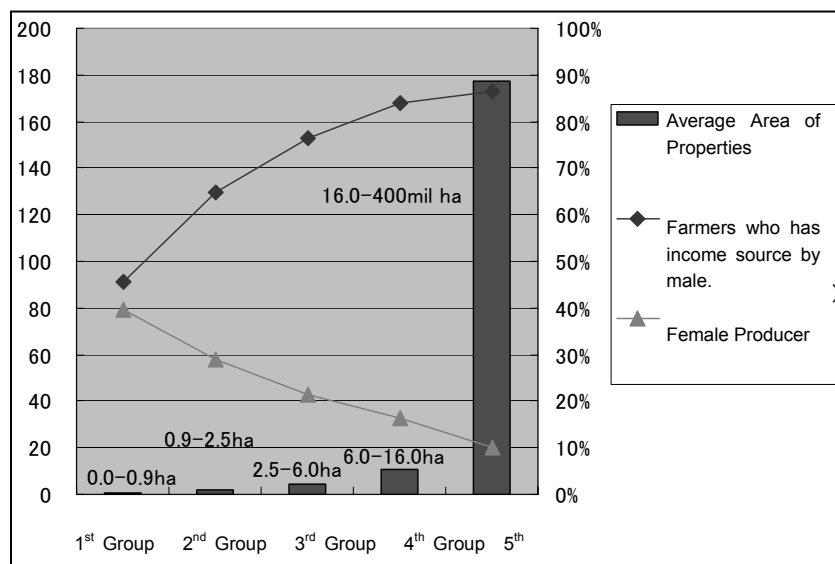
(2) Situation of small-scale farmers in the Sierra region in relation with the property size and income

— **Migration and farm management by women** — Based on data from the national agricultural census of 2000, small scale farmers in the ten provinces were divided into 5 groups each of 20% in ascending order by size of property to compare the tenure of the land, the main source of income and farm management system of each group. Comparing this information can reveal the characteristics of small scale farmers in the area of the Sierra (Figure 2.1.4). Approximately 80% of the farmers have property less than 16.0 ha in size and the remaining 20% with large properties have an average of 180 ha. About 60 % are small farms of under 5 ha (*minifundio*) and about 20 % are very small farms of less than 1 ha (*microfundio*).

Of the total of very small scale farmers (*microfundio*), less than 50 % depend only on farm

⁷ Towards a Territorial Approach for Rural Development, Discussion Paper Series Number Seventeen, P6, IPPG, April 2008

income and in about 40 % of the cases, women manage the farm land. Agricultural incomes also increase and decrease in relation to the size of the farm and also in relation to the participation of women as administrator of the farm. Thus, as a characteristic of small scale farmers in the area of the Sierra , we can say that there is a clear relationship between the size of the property, migration and management of farms by women (Figure 2.1.4).



Source: Based on agriculture census 2000

Figure 2.1.4 Characteristics of Agricultura and Livestocks Sector in the Sierra Region according to the Size of Own Land

— **Altitude and farm income** — The classification of climatic zones in Ecuador⁸ is given as follows: 2,000—2,500 m altitude: SUB TROPICAL INTER-ANDEAN, altitude between 2500-3200m: TEMPERED INTER-ANDEAN, altitude between 3200-3800m: PARAMAL COLD LAND and altitudes above 3800m: PARAMAL FROZEN LAND. The result shows that the higher the altitude, the lower the farm income and also the lower the income-earning opportunities from other sources. (Figure 2.1.5).

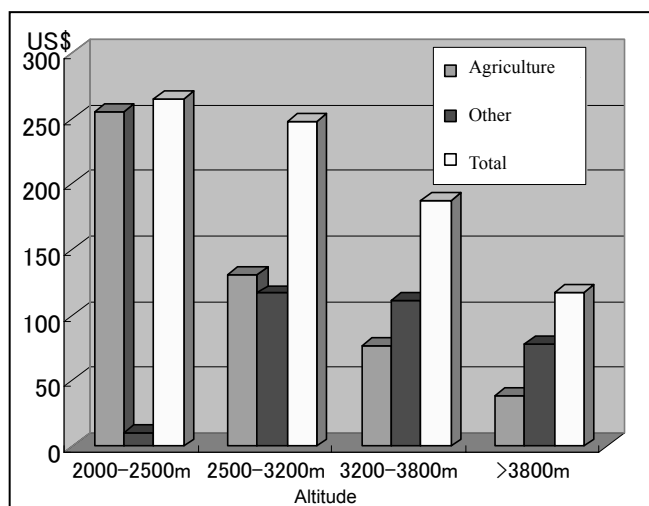
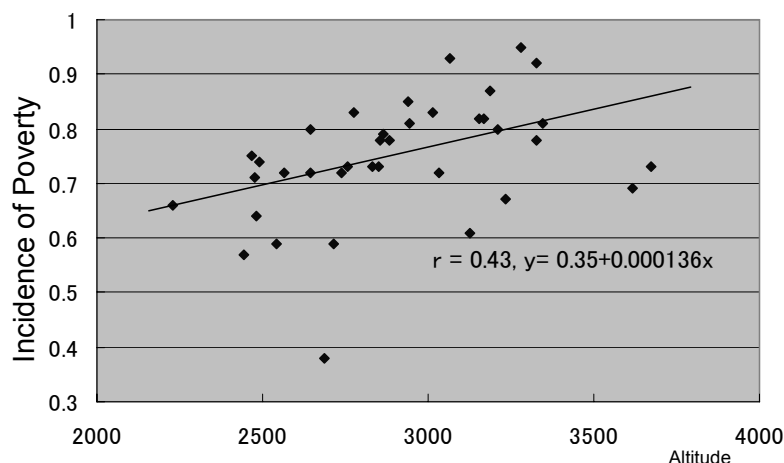


Figure 2.1.5 Altitude of Community and Source of Monthly Income

⁸ Geographical Elements of Ecuador, Nelson Gómez E, p139, 1989

In areas with altitudes between 2,000-2,500m, it is possible to obtain a certain agricultural income, so no-farm incomes are lower. In areas near paramales of frozen land, on the border of farmlands, incomes of small scale farmers are limited both from farming and non-farming activities. Similarly, taking the province of Chimborazo as an example, the higher the altitude, the higher the degree of poverty⁹. This makes it possible to observe the situation of small scale farmers who are forced to grow even in the paramales where land is unsuitable for farming (Figure 2.1.6)



Note: Rural Parroquias with more than 2,000 m and more than 500 habitantes.

Figure 2.1.6 Relation between Altitude and Incidence of Poverty of the parroquias in Chimborazo

— **Agricultural and non agricultural incomes** — The surveys have shown the existence of a large percentage of families who were engaged exclusively in agriculture.

Table 2.1.9 Classification of Farmers by Source of Income

Source of income	%	Land (Area:ha)
Only from agriculture	30.4 %	2.75
Agriculture > Others	16.6 %	2.73
Others > Agriculture	50.5 %	1.29
No income	2.4 %	0.72

Source: questionnaires to 1191 farmers in Provinces of Tungurahua, Cotopaxi, Bolívar and Chimboraza. Aug. 2009, by the Study Team, JICA.

Likewise, some answers indicate no income at all so it is possible to classify the situation of small scale farmers into four groups according to the types of sources of income, as shown in Table 2.1.9.

More than half of small scale farmers surveyed said that they are in the second group of dual income farmers (Other income > Agricultural income) and comparing the size of the land, there is not much difference between the group of full-time farmers and the first group of dual income farmers (Agricultural income > Other income), but there is a difference between the first group and the second group regarding land holdings (Average of 2.73 ha and 1.29 ha). It is important to note that the group of no income farmers has extremely small farm lands.

(3) Community as the base of agricultural and rural development

The *Minga*, a public service system of ancient pre-Inca tradition of community, is the foundation of the communities. With the passing of time, due to the migration of rural population and its consequent depopulation, *Minga* today has become a way to carry out works of social

⁹ Map of Poverty and Inequality in Ecuador, SIISE-STMCDs, 2008

infrastructure. The dynamism and participation was reduced and collective work formerly performed by the *Minga* is realized now by hiring a paid labor force or mutual provision of services. On the other hand, there are several programs and rural development projects under the "Labor Solidarity for Community Benefit" based on the traditional community spirit. (for example, "Minga for Life" in the province of Chimborazo).

This study has attempted to identify the relationship between the supporting organizations and community development as the basic units of agricultural and rural development through the participatory workshops¹⁰. By observing a particular case in the community La Moya (Cotopaxi), it is seen that several NGOs, the Development Fund and the Municipality directly involved in the community, INAR also work for the benefit of a segment of the local population (Figure.2.1.7). Many other organizations are providing support service, not at the community level but at the cantonal or *parroquial* level. For example, the BNF, establishes its base in one of the towns (provincial capital, etc.) from which it communicates with the site of intervention. However, by observing the intensity of the relationship with communities (Table .2.1.10), it is found that the Provincial Council, the municipality, MAGAP provincial office, INAR, CODENPE of the Presidency and some NGOs have a strong link with the communities. Of particular note is the need for the presence of a Savings and Credit Cooperative and its strong link in the agricultural and rural development (Although in Figure.2.1.7 we can not see this entity in the community of La Moya).

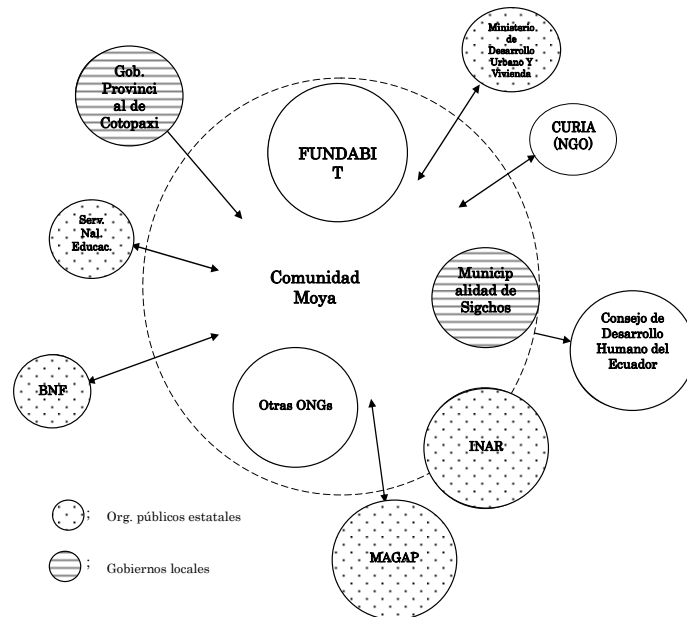


Fig. 2.1.7 Results of analysis of the supporting organizations in the community of La Moya, Cotopaxi

¹⁰ "To know the Actual Activities of the Agricultural Development and to Identify the Needs of Agricultural Support Services to the Small-scale Producers.", Foundation MARCO, October, 2009.

Table 2.1.10 Supporting Organizations in Four Communities of Tungurahua and Cotopaxi and their Activities

Organizations and institutions		Description of services	Linkage to the beneficiary communities
Provincial government		Repair of rural roads	Strong / Medium /Medium *
		Construction of irrigation canals	
Municipal government		Infrastructure (parks, bridges , community centers)	Strong/Strong /Medium
		Support for the construction (classrooms , roads)	
MAGAP	Provincial	Technical support for production	Strong / Strong / Strong
		Training	
		Agricultural Advice	
	IERAC	Land register	Medium/Medium
	INAR	Support for irrigation system	Strong
Ministry of Education	DINSE	Support for campus construction	Weak
Ministry of Economic and Social Inclusion		No support in this region	Weak
Ministry of Urban Development and Housing	IEOS	Support for the provision of drinking water	Medium
Presidency	CODENPE	Covering of water supply pipes	Strong
BNF		Agricultural loans	Weak
Savings and Credit Cooperative		Access to agricultural credit and commercial	Strong/Strong/Strong
Rural Bank		Financial services	Medium
Fund	FUNDHABIT	Support for training of women's groups	Medium
	CODENPE	Training support on the issue of gender equality	Medium
	FISE	Support for the provision of latrines	Medium
NGOs	PDA	Apoyo a la capacitación agropecuaria e infancia	Medium
	IEDECA	Technical assistance in agriculture and irrigation management , support for women's groups	Weak
	MID	Advice on agricultural products	Medium
	Diócesis	Drinking water services	Strong
	Curia Dionesana	Support for the provision of drinking water	Weak

* It has accumulated experience in three of the four communities. It expresses the closeness of the connection perceived by the inhabitants of the three communities.

Source: "To know the Activities, Current Agricultural Development ,and to Identify the Needs of Agricultural Support Services for the Small Producers", JICA Study Team, October, 2009

Various institutions and agencies at the provincial and cantonal levels, funds and NGOs are providing community service for agricultural and rural development. The New Constitution provides that the Provincial Council will assume the lead role in the process of community development. However, the perception of farmers regarding the closeness of the connection to

this instance still is not changed, the link between them and the Provincial Council or the municipalities are rather in the areas of construction and maintenance of the infrastructures (construction and maintenance of roads, plazas, bridges, community centers, schools, irrigation systems, etc.)

(4) Summary of 2.1.2 " Social situation of small scale farmers "

Many of the social problems facing small scale farmers are related to the minifundization (Segmentation of land property through inheritance of bequest and globalization) and unfavorable condition of agricultural land. The minifundization was aggravated after land reform as a result of heredity and globalization and overexploitation of marginal land (steep sloping land, paramos, cancagua soil, etc.) along with predatory agriculture have made it more difficult, so that farmers can not survive only in agricultural production, finally they were forced to seek work in other areas (mainly men and young people). The analysis has shown that daily efforts at community level are taken almost exclusively by women and the aged population. There are even almost completely depopulated communities in which its members only return for some ceremonial occasions.

Support directly targeting community development are provided mainly by NGOs and a wide variety of foundations. A large part of the central governmental and its affiliated agencies consists of activities that benefit the community as the result of their activities on the regional level, or activities based on an ascending mode (waiting the accion from community to the administration). The New Constitution states that regional governments (provincial councils and municipalities) must assume the role of community development, which are currently looked on as the entities which are in charge of only construction and maintenance of the necessary infrastructure. While several institutions are currently providing assistance to communities, the inter-institutional articulation and coordination of each integral for sustainable development of communities are still weak.

The findings of the survey report¹¹ have revealed the social situations that small scale farmers in the Sierra region face described below.

- In some communities, almost all male and young people have migrated to look for work, which has hindered the process of acquiring new agricultural techniques or innovating traditional agricultural practices in the community. Agricultural activity is practically maintained by the aged producers who still work in the traditional way, indicating the difficulty to acquire new skills or changes of the way of managing the agricultural practices.
- The small scale farmers want to benefit from the integrated rural development program that includes certification of the land. Within this context, providing comprehensive media

¹¹ "Conocer las Actividades Actuales del Desarrollo Agrícola e Identificar las Necesidades de los Servicios de Apoyo Agrícola para Los Pequeños Productoras/Productores", Fundación MARCO, Octubre, 2009.

covering technical assistance, transfer of new technologies, improved seeds, marketing channels, etc. could be an incentive and a performance benefit to the youth to return and settle in the community.

- The farmers want a sustainable, long-term consistent project which is fully conscious to the local potential and geographic location, and not a project that meets only temporary needs.

2.1.3 Agriculture of small-scale farmer

(1) Characteristics of Agriculture

The results of the questionnaires conducted in rural parroquias¹² at altitudes above 2,000 m in the four provinces, Cotopaxi, Tungurahua, Bolívar and Chimborazo(see 2.1.1.1), bring out the characteristics of the agricultural management of small-scale farmers.

1) The agriculture of small-scale farmers is mainly based on the cultivation of short-term crops:

The average area of the properties of small scale farmers is 1.96 ha. In Ecuador, the small-scale farmer is defined as the farmer who has less than 5.0 ha, however, when looking at the perspective number of farmers, more than 70 % have areas of less than 1.96 ha (Figure 2.1.3) and a greater focus will be put on these farmers to grasp the actual situation of small-scale farmers.

Table 2.1.11 Summary Profile of the surveyed farmers in four provinces in the Sierra Region

Province	Sveyed No.		Land Use (Area: Ha)				Monthly Income (US\$)					
	Communities	Farmers	Crops	Pasture	Others	Total	Farming			Migration	Others	Total
							Agriculture	Livestock	Total			
Cotopaxi	23	345	0.63	0.49	0.12	1.25	47.1	31.4	78.4	91.5	2.6	172.4
Tungurahua	17	252	0.46	1.04	0.25	1.75	62.7	61.0	123.7	159.3	18.1	301.1
Bolívar	17	249	1.64	1.95	0.07	3.65	63.4	31.2	94.5	53.7	8.9	157.1
Chimborazo	23	345	0.80	0.30	0.51	1.61	98.0	36.3	134.3	108.2	5.2	247.7
Total/Mean	80	1191	0.85	0.86	0.25	1.96	68.6	39.0	107.6	102.8	7.9	218.3

Cropping areas (0.85 ha) and pasture (0.86 ha) are balanced (Table 2.1.11), but in the case of small scale farmers with less than 2.0 ha, the cultivation area of annual crops represent 59 % (Figure.2.1.8), followed by 26% of pasture. Moreover, for farmers with areas exceeding 5 ha, pastures and annual crops represent 59 % and 25% respectively, being natural pastures (39 %) in the first. For the small scale farmers, the first priority is to ensure food for the family, thus, annual crops are the guarantee of food security.

¹² Parroquia is the smallest scale public administrative unit in Ecuador, and provides service to citizens as a local autonomous government body. They are classified into Rural Parroquia and Urban Parroquia, the former are located in rural areas in the Canton, and the latter are located in a capital of the Canton or close to the capital.

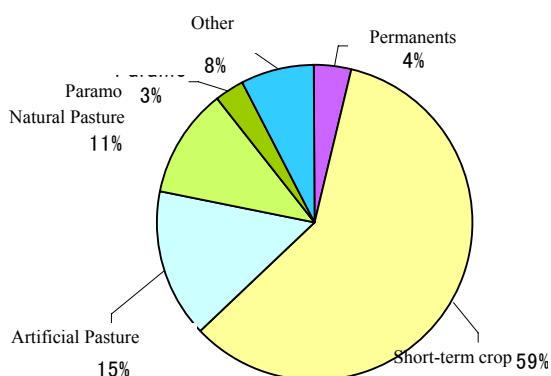


Fig. 2.1.8 Land Use of Farmers Less than 2ha

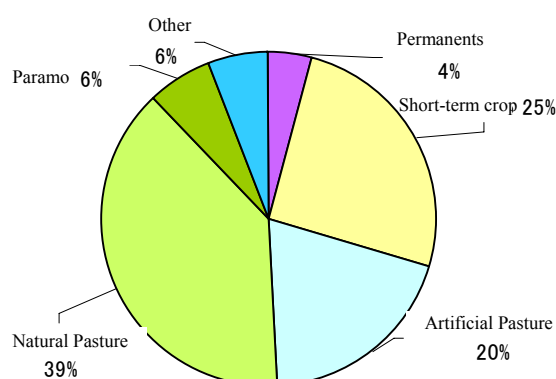


Fig. 2.1.9 Land Use of Farmers More than 5ha

2) Importance of raising animals for the small-scale farmers

The smaller the area of the property, the larger the percentage of the cultivation area of annual crops, but many of the small scale farmers with less than 2 ha raise animals (Table .2.1.12). Due to the ease of introduction, ease of sale and as a food for nutritional improvement of the family, over 70 % of small scale farmers raise more than ten cuyes. After the cuyes, small scale farmers prefer to own cattle. On average, one to two cattle per family are raised by hooking up method to pile. In the case of small scale farmers, the marketing of milk is not very important, but cattle are used as a means of transport, tilling of the land and a source of fertilizer (manure). Also they represent a good asset for the family and are only sold in urgent or special occasions such as marriages. However, in most families, raising animals is the responsibility of the women and children, and it is a concern that this may represent an additional workload for women and be an obstacle to the education opportunity of children.

Table 2.1.12 Relation between Farm Area and Animal Feeding

Classification of UPA by Farm Area		Cattle			Porcine	Ovine	Poultry	Cuy
		No. in total	No. sold /year	Milk in g /day				
% of UPAs by area	Less than 2 ha	65 %	8 %	27 %	61 %	55 %	49 %	74 %
	More than 5 ha	81 %	32 %	52 %	69 %	66 %	67 %	82 %
	Total	68 %	11 %	32 %	60 %	58 %	51 %	74 %
Liters/ UPA	Less than 2 ha	1.7	0.1	2.1	1.2	3.0	3.7	13.7
	More than 5 ha	7.2	0.8	11.9	1.7	6.0	15.1	15.8
	Total	2.4	0.2	3.3	1.2	3.6	5.0	13.3

Source: Questionnaires a 1192 UPAs in the Provinces of Tungurahua, Cotopaxi, Bolivar and Chimborazo. August 2009, by the Study Team of JICA.

3) Change of Land Use and Livestock Raising according to the AltitudeFarm Land

A questionnaire was conducted to determine the characteristics of agriculture in areas over 2,000 m altitude, but one of the communities where the questionnaire was carried out, was located at 4,150 m altitude on the marginal area for agricultural practice. With the exception of

the area of the Tropical Andes, up to 2,500 m altitude, the land is basically used for the cultivation of annual crops, but the higher the altitude, the more these crops are reduced, especially in areas of more than 3800m altitude, where the percentage of natural pastures and paramos raises (Table 2.1.13). This again points out the situation that some small scale farmers must extend agricultural practices up to the area of vulnerable natural environment, paramo.

Table 2.1.13 Classification of UPAs (<2ha) by Elevation and Land Use

Classification of UPA by altitude		Permanent or Perennial	Annual	Artificial pasture	Natural Pasture	Paramo	Others	Total
% of Land Use	2,000-2,500m	89 %	11 %	0 %	0 %	0 %	0 %	100 %
	2,500-3,200m	4 %	65 %	14 %	8 %	2 %	6 %	100 %
	3,200-3,800m	3 %	51 %	19 %	15 %	2 %	11 %	100 %
	3,800- m	0 %	45 %	7 %	25 %	19 %	3 %	100 %
	Total	4 %	59 %	15 %	11 %	3 %	8 %	100 %
Land Use (ha)	2,000-2,500m	1.07	0.13	0.00	0.00	0.00	0.00	1.19
	2,500-3,200m	0.03	0.43	0.09	0.05	0.01	0.04	0.65
	3,200-3,800m	0.02	0.34	0.13	0.10	0.01	0.07	0.66
	3,800- m	0.00	0.24	0.04	0.14	0.11	0.02	0.54
	Total	0.03	0.38	0.10	0.07	0.02	0.05	0.65

Source: Questionnaires a 1192 UPAs in the Provinces of Tungurahua, Cotopaxi, Bolívar and Chimborazo. August 2009, by the Study Team of JICA.

According to the altitude, the type of livestock also varies. Cattle and porcine are found at any altitude, but dairy cattle are more common at altitudes below 3200 m. Poultry is not so common in high altitudes and sheep are more numerous at higher altitudes. The cuy is found in every area of the Sierra, but is more abundant at altitudes below 3800 m (Table 2.1.14). From 2000 m to over 4000m altitude, raising animals is more widespread than the cultivation of annual crops which is positioned as the main agricultural activity in the agricultural activities of small scale farmers.

Table 2.1.14 Classification of UPA (<2 ha) by Altitude and Raising Animals

Classification of UPA by Altitude		Cattle			Porcine	Ovine	Poultry	Cuy
		No. TOTAL	No. sold /year	Milking /day				
% of UPA by altitude	2000-2500m	100 %	87 %	87 %	80 %	0 %	100 %	47 %
	2500-3200m	68 %	11 %	36 %	58 %	45 %	55 %	75 %
	3200-3800m	66 %	8 %	26 %	62 %	76 %	49 %	78 %
	3800- m	69 %	7 %	26 %	72 %	91 %	17 %	55 %
	Total	68 %	11 %	32 %	60 %	58 %	51 %	74 %
Liters /UPA	2000-2500m	14.1	2.3	14.3	1.7	0.0	39.7	14.3
	2500-3200m	2.5	0.2	4.2	1.3	2.2	6.2	15.5
	3200-3800m	1.7	0.1	1.7	1.1	4.2	2.6	11.2
	3800- m	2.1	0.1	2.1	1.3	13.0	0.8	4.6
	Total	2.4	0.2	3.3	1.2	3.6	5.0	13.3

Source: Questionnaires to 1192 UPAs in the Provinces of Tungurahua, Cotopaxi, Bolívar and Chimborazo. August 2009, by the Study Team of JICA.

(2) Challenges relating to farm management of small-scale farmers

1) Collapse of the sustainable land use

There is a balance between livestock and agricultural income for farmers with areas larger than 5 ha (Table 2.1.10), allowing sustainable integrated agriculture practice through rotated land use by cropping and pasture, and through the application of organic fertilizer (manure) on their cultivation fields. The Ecuadorian government defined that the small farmer in the Sierra is the farmer with less than 5 ha, and this may be a reasonable size from the point of view of sustainable agricultural practices.

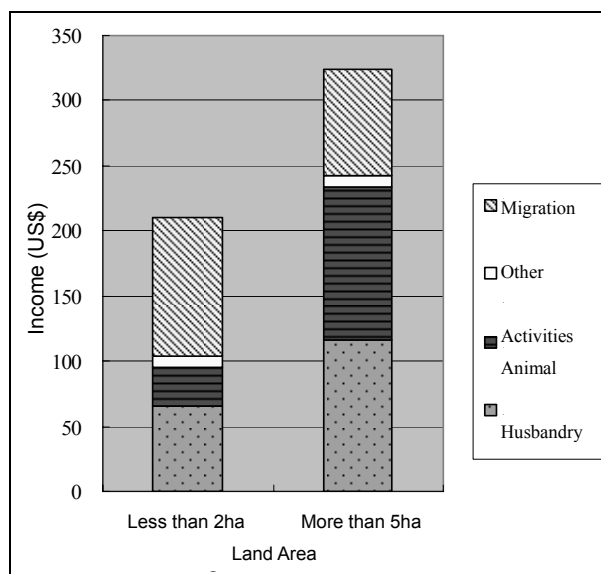


Figure 2.1.10 Land Area and Family Income

In the Andean region, there is a fairly sophisticated traditional rotation system and pasture is an important element for increasing soil organic matter¹³. Giving more importance to annual crops to ensure food security causes a reduction in the areas of pasture lands which was originally a very important crop forming part of the rotation system. This generates difficulty in maintaining this rotation system. With the reduction of livestock activities, application of organic fertilizer (manure) was also limited. Thus, the collapse of the rotation system and the difficulty of ensuring compost are factors leading to soil degradation.

In addition, with the progress of agrarian reform and population growth, land that should be preserved was used without any preventive measures, causing soil loss of the surface layer and further deteriorating soil conditions leading to the collapse of sustainable agriculture. Looking at the statistics of production of major crops in the area of the Andes, reduction in the average yield is clear in the province of Chimborazo (Table 2.1.15).

Table 2.1.15 Average yield of major crops in the Sierra Region – Comparison of the Chimborazo Province, the national average, national goal and the average in South America–

Área	Potatoes	Soft maize	Wheat	Barley
Prov. Chimborazo*1	4.0	1.9	0.4	0.6
Ecuadorian average*2	6.1	2.6	0.6	2.0
Ecuadorian goal*2	20.0	4.0	1.2	3.5
Average in South America *3	15.8	---	2.3	2.5

*1 ESPAC2002-2007

*2 Goal in year of 2013 by the Plan Nacional de Buen Vivir de, Oct. 2009,

*3 FAOSAT (year of 2008)

¹³ Agricultura Orgánica-fundamentos para la región andina, Neckar-Verlag, Villingen-Schwenningen. 2001, P310

2) Loss of traditional crops and genetic resources degradation

For the small producer, the basis of food production is for self consumption, but in case of surplus, this is marketed to obtain necessary cash. The crop cultivation also has the implication to obtain the seeds necessary for the crop production of the next year. The producers by themselves reproduce their seeds suited to local natural conditions (climate, soil), and the crops and the varieties (local varieties) have been maintained by small scale farmers for several generations, suited to the region from a comprehensive viewpoint, like climatic variations, the characteristics of food preparation, etc. Thus the small scale farmers were very good plant breeders on traditional Andean crops and maintaining of their diversities.

On the other hand, the coming of the widespread cash economy in rural areas started the production of easier varieties to be marketed, with more yielding, and little by little the agricultural diversity of the Andes is being lost. This situation could be observed according to the questionnaires conducted in the provinces of Cotopaxi and Tungurahua. There is a tendency to reduce opportunities for planting of typical Andean products such as quinoa, oca, melluco, mashua, etc. (Table 2.1.16).

Local varieties which have been improved and maintained for generations, are in danger of disappearing due to the introduction of improved varieties and the increase in migration. The introduction of improved varieties, at first brings better yielding and products having acceptance in the market, but on the other hand, can lead to loss of the native varieties. Increased migration is the loss of human resources (producers) who have maintained the quality of traditional varieties. The loss of human resources represents the rapid deterioration of traditional varieties which could only be preserved by the self seed production in the community.

Table 2.1.16 Secular Change of Annual Crops cultivated in some communities of the provinces of Cotopaxi and Tungurahua

Province	COTOPAXI (two communities)		TUNGURAHUA (two communities)	
Before (More than 20 years ago)	- Potato - <i>Barley</i> - Maize - Chocho - <i>Lentil.</i> - Quinoa	- Potato - <i>Barley.</i> - Maize - <i>Wheat</i> - <i>Peas</i>	- Potato - <i>Barley</i> - <i>Lima beans</i> - Ocas - Mellucos - Mashua	- Potato - <i>Barley</i> - <i>Lima Beans.</i> - Ocas - Mellucos. - Mashua. - <i>Garlic</i>
Now	- Potato - Maize - Chocho	- Popato - <i>Barley</i> - Maize - <i>Wheat</i>	- Potato - Maize - Kidney bean - Greenhouse Tomato	- Potato - <i>Lima beans.</i>

1. Crops listed in **bold** are of Andean origin

2. Source: Questionnaires a 1192 UPAs in the Provinces of Tungurahua, Cotopaxi, Bolívar and Chimborazo. August 2009, by the Study Team of JICA.

The introduction of improved varieties involves the application of more fertilizer and agrochemicals, and in some cases leads to fixe the cropping type, and because of a large agro-ecological diversity in the Sierra Region, in some areas (micro-watersheds) no improved

varieties could be adapted. Moreover, the introduction of improved varieties and loss of human resources (farmers) within communities, leads to various problems on the loss of ancestral knowledge and technology which are related to various factors (rotation system, integrated farming, biological and pest control) that allowed sustainable agricultural practice over time in the Sierra.

3) Difficulty in marketing of agricultural surpluses

Most small scale farmers sell their products to middlemen (Table 2.1.17). Especially in the case of staple crops produced by small scale farmers (potatoes, barley, maize, etc.), the surplus is sold to middlemen who come to the communities or the farmers themselves also bring them to local markets to sell the products to intermediaries. However, many farmers

Table 2.1.17 Percentage of farmers who sell their products to middlemen"

Provinces	% of sell to middlemen
Average of 4 provinces	80 %
Bolívar	81 %
Cotopaxi	76 %
Chimborazo	79 %
Tungurahua	85 %

Source: Agricultural Census, year of 2000

feel that the commission paid to middlemen is very high (Figure 2.1.11) and feel dissatisfied. The government is also aware of this problem and the first objective of the national development plan “Buen Vivir 2010-2013” is the “securing equality, social cohesion, and social and regional integration” which are related to the goals of the agricultural sector said “the reduction of 20 % of the commissions of middlemen by 2013”. To increase the production of staple food and to ensure satisfactory conditions for both the farmer and the consumer, adequate food supply for the country and to improve the conditions of farmers directly, MAGAP is promoting the rehabilitation of existing silos and providing comprehensive services through the National Storage Unit ,UNA.

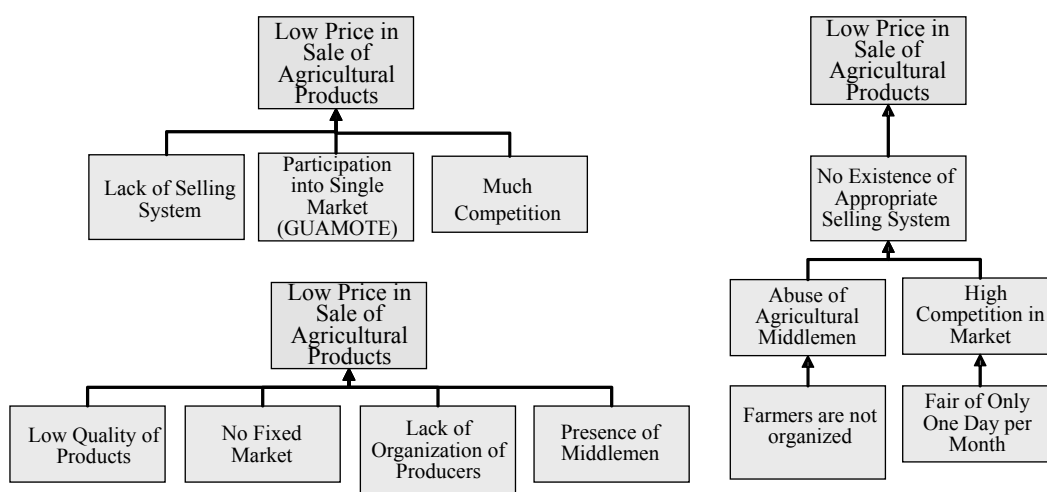


Figure 2.1.11 Problem Trees related to Low Price of the Agricultural Product Problem Analysis Workshop by the JICA Technical Cooperation Project (Plan for the Strengthening of the Sustainable Rural Development System for Poverty Reduction in the Province of Chimborazo)

4) Delay of the formation of the agricultural producers' association as the base of the structure for value chain

The development of agriculture in the community is based on the structuring of the value chain, from production to marketing. The entire process of the production base, production itself, the collection and shipment (including processing), transport and marketing (sales) form a chain. There is a difficulty in structuring the chain because the volume produced by individual small farmer is very small raising the transportation cost and also because the production is entered into without a proper analysis of marketing. Therefore, in an agricultural development project, the associative strength of small scale farmers is the basis for structuring a value chain, from production to sale. Many times the government support for agricultural development is directed to registration and legalization of the organization, so from this point of view also, the associative strength is indispensable.

Table 2.1.18 Participation rate of farmers in the community level organizations

Provinces	Participation rate in the organizations (%)
Ave. of 4 Provinces	6 %
Bolívar	3 %
Cotopaxi	7 %
Chimborazo	5 %
Tungurahua	8 %

Source: Agricultural Census, 2000

"In rural areas of Ecuador, registered and certified farmers' organizations can be divided into communes, associations and cooperatives. In the province of Chimborazo, there are close to 1,000 communities, and 784 communes and 144 associations are registered in the provincial office of MAGAP¹⁴. The communes are community organizations and in principle agricultural development activities at the community level is based on associations. Of the nearly 1,000 communities, there are only 144 associations, and if we consider the hypothesis of one association for one community, 85 % of communities do not have associations. The same situation of low participation rate of farmers in associations is also seen in the other provinces of the Sierra (Table 2.1.18).

2.2 Institutional Support to Small scale farmers

2.2.1 Existing Institutional Support to Small scale farmers

Small scale farmers in the Sierra live in communities or small villages that are the lowest level administration structure and conditions largely differ from each community. This situation is also observed in their distance from urban centers, many communities are five hours from the nearest urban center and many communities are more than five hours by car from the capital of the province. In Chimborazo Province there are 784 communities registered and there must be more

¹⁴ Organizaciones Rurales Jurídicas Año 2009, Dirección Provincia de MAGAP Chimborazo

than 1,000 communities considering the ones not registered. This is a common situation in other provinces also and there are many communities that are at the lowest institutional level regarding support to small scale farmers in poverty. On the other hand, the receptors of this support, the small scale farmers, have many problems regarding social aspects such as poverty and migration, and agricultural production aspects such as reduction of soil fertility, among others; therefore they have to face several problems that limit their development. In this context, MAGAP and provincial governments continuously provide support to small scale farmers; however, the number of persons in need largely surpass the available resources of the concerned institutions and the magnitude of problems are not easily solved and have been the determinant factors limiting the support provided up to now.

Under these conditions, coordination between provincial MAGAP, governments, provinces, local governments and concerned entities is carried out under several modalities. Of these, the most representative case occurs in Tungurahua province where an integral cooperation system between the province government of Tungurahua, the provincial MAGAP and the local governments has been established under the Tungurahua agreement. However, other provinces still do not count on this type of integral cooperation among supporting institutions involved and generally agreements are at project level, excepting some initiatives by the provincial MAGAP and the municipalities.

In 2008, the New Political Constitution of the country was promulgated and following, a new Plan of National Development for Good Living (“Buen Vivir”) was prepared based on the new Constitution. Many policies have been proposed in order to make the National Plan, “Buen Vivir”, a reality and presently several reforms such as MAGAP’s and other concerned institutions as well as the strengthening of regional governments are being carried out to allow the implementation of the National Plan.

(1) Institutions at national level (MAGAP and concerned entities)

The flow of institutional support to small scale farmers in poverty was divided up to now, in two fronts; one centered in MAGAP at central government level, and another at provincial and local government levels. MAGAP has performed an important role in the elaboration and implementation of agricultural development policies at national level. Institutions related to MAGAP are INAR, INDA, INIAP, INCCA and the BNF among others, and each of said institutions carried out the assistance required by small scale farmers in their respective fields.

Table 2.2.1 Functions of MAGAP and related institutions to the present

Institution	Function
Ministry of Agriculture, Animal Farming, Aquaculture and Fisheries (MAGAP)	Planning and implementation of agricultural development. Follow up, evaluation, agricultural production statistics. Technical Assistance to increase productivity and agricultural competitiveness. Supervision of INDA, INCCA and INAR.
National Institute of Irrigation (INAR)	Planning and implementation of the National Irrigation Plan. Construction and rehabilitation of irrigation systems. Strengthening of irrigation users' associations.
National Institute of Agrarian Development (INDA)	Entitlement and promotion of farming land properties. Management and operation of the land registration system. Intervention in conflicts related to land.
Autonomous National Institute of Agricultural Investigation (INIAP)	Agricultural technological development. Agro processing technological development. Training of experts. Production of improved seeds. Agricultural technical extension.
National Institute of Peasants Training (INCCA)	Agricultural technical extension (by contracting third parts for technical assistance).
National Development Bank (BNF)	Low interest credits for the management of agricultural productive units. Subsidies for the purchase of agricultural input.

MAGAP headquarters is in Quito and is composed of sub-secretariats such as agriculture promotion, animal farming promotion, fishery resources and regional sub-secretariats, among others, under the conduction of the MAGAP; Sierra region is under the responsibility of the Sierra Regional Sub secretariat. Under this sub-secretariat there are MAGAP offices in each of the ten provinces. Main functions of provincial MAPAP offices are the execution of MAGAP projects and programs as well as monitoring related to agricultural and aquaculture programs and projects. The number of workers assigned is different according to the province but in 2009, in average there were 36 workers in each province; of these, 18 technical personnel and the remaining occupied administrative posts. Number of technical personnel has suffered only a slight decrease since 2000.

Technical personnel of the MAGAP provincial office besides assuming the responsibility of the works mentioned above, carry out extension activities. MAGAP has a clear definition for the distribution of functions for technical personnel; thus, according to the province, technicians are in charge of cantons, or some specific fields. In Sierra region, there is in average of 18 technicians for each office, so in theory there would be one technician for each canton; however, cantons occupy very large areas and in the end, activities are restricted to determined communities or farmers organizations. (In Chimborazo province each canton has around 100 communities).

Table 2.2.2 Number of MAGAP's personnel in Provinces

		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Cotopaxi	Numero de Personal Tecnico	12	12	12	12	12	13	13	13	13	13
	Numero de Personal Administrativo	7	7	7	7	7	8	8	8	8	8
	Numero de Personal Contratado	4	4	5	5	5	5	5	5	5	5
	Numero Total de Personal	23	23	23	23	23	26	26	26	26	26
Tungurahua	Numero de Personal Tecnico						33	33	33	33	33
	Numero de Personal Administrativo						25	25	25	25	25
	Numero Total de Personal						58	58	58	58	58
Bolivar	Numero de Personal Tecnico	18	18	18	17	18	18	17	18	17	18
	Numero de Personal Administrativo	13	13	13	12	14	14	14	14	14	15
	Numero Total de Personal	31	31	31	29	32	32	31	32	31	33
Chimborazo	Numero de Personal Tecnico				21	20	29	20	28	27	20
	Numero de Personal Administrativo				24	26	20	20	18	19	28
	Numero Total de Personal				45	46	49	48	46	46	48
Carchi	Numero de Personal Tecnico	14	13	11	9	9	9	9	9	9	9
	Numero de Personal Administrativo	18	17	16	16	16	16	16	16	16	16
	Numero Total de Personal	32	30	27	25	25	25	25	25	25	25
Imbabura	Numero de Personal Tecnico	27	22	23	23	22	22	22	22	22	22
	Numero de Personal Administrativo	21	20	19	16	17	18	17	17	16	17
	Numero Total de Personal	48	42	42	39	39	40	39	39	38	39
Cañar	Numero de Personal Tecnico	13	13	9	9	9	10	9	9	9	9
	Numero de Personal Administrativo	13	13	9	8	9	11	12	11	11	11
	Numero Total de Personal	26	26	18	17	18	21	21	20	20	20
Azuay	Numero de Personal Tecnico	19	19	17	17	17	17	17	17	17	17
	Numero de Personal Administrativo	23	23	20	19	20	19	20	21	21	21
	Numero Total de Personal	42	42	37	36	37	36	37	38	38	38

Annual budget is executed in three periods. The MAGAP budget has considerably increased since 2007 under the sector policy of President Correa's administration, and observing the executed budget in 2008, it can be seen that it corresponded to US\$ 115.732.515, an increase close to 56 % in relation to the previous year. Compared to the budget of year 2000, it increased almost 12 times .

Table 2.2.3 Annual budget of MAGAP

Year	Fixed budget	Development Budget	Total
2000	6,507,160	2,331,595	8,838,755
2001	4,723,324	22,619,400	27,342,724
2002	6,683,082	14,780,000	21,463,082
2003	15,383,947	11,621,000	27,004,947
2004	13,015,509	23,770,000	36,785,509
2005	13,928,544	15,170,000	29,098,544
2006	14,591,811	21,468,810	36,060,621
2007	19,633,884	54,452,463	74,086,346
2008	58,489,841	57,242,674	115,732,516

Provincial MAGAP budgets vary according to the province and year due to the number of workers and the existence of emergency projects such as those related to the Tungurahua volcano eruption. Taking as example the Chimborazo provincial MAGAP, it shows see that in year 2001 the budget was close to US\$ 398,000 and in 2009 it increased to US\$ 826,000. This trend can be observed not only in Chimborazo province but also in all provinces in the Sierra. Regarding the projects' budget breakdown shown in the annual operative plan of the MAGAP office at Chimborazo province as an example, it shows that around US\$ 95,000 was assigned to the implementation of the National Program for Animal Farming Promotion and in the Program for Agricultural Promotion of the provincial MAGAP budgetary measures close to US \$ 62,000 were taken. The National Plan for the Agricultural Sector Promotion establishes the amount of budget and the area to be benefited for each one of the 12 points to be strengthened and a higher increase in the budget for the production of cereal, vegetables, meat and milk. However, even the highest budget for cereals is around US\$ 30,000.

Table 2.2.4 Annual Operative Plan (AOP) of MAGAP at Chimborazo Province

Activity Code	Name of activity according to catalog	Actions, Activities, Products, Programs, Plans	Annual Goal		No. of beneficiaries	Expenditure Program US\$
012	Promotion and Development of Agriculture Production					
Product 1:	National Plan of Agricultural Sector Reactivation 2008					94,872.00
Sub product 1	Cultivated and improved area of peas, chocho, broad beans, etc.	245	ha	326	5,896.00	
Sub product 2	Cultivated and improved area of vegetables (cauliflower, cabbage, lettuce, broccoli, carrot, chard, beat, onion).	635	ha	846	15,329.60	
Sub product 3	Cultivated and improved area of Cereals (Dry soft maize and green maize).	2,480	ha	3306	29,962.40	
Sub product 4	Cultivated and improved area of barley.	50	ha	66	1,179.20	
Sub product 5	Cultivated and improved area of quinoa	25	ha	33	589.60	
Sub product 6	Cultivated and improved area of Tubers (Potato).	370	ha	493	8,844.00	
Sub product 7	Cultivated and improved area of manioc.	60	ha	80	1,474.00	
Sub product 8	Cultivated and improved area of Cacao.	220	ha	293	5,896.00	
Sub product 9	Cultivated and improved area of fodder for milk and meat cattle.	519	ha	692	13,909.20	
Sub product 10	Cultivated and improved area of coffee.	110	ha	146	2,948.00	
Sub product 11	Cultivated and improved area of banana.	120	ha	160	2,948.00	
Sub product 12	Cultivated and improved area of beans.	240	ha	320	5,896.00	
Product 2:	Activities of the Province Direction Operative Plan					62,259.00
	Plan of strengthening and legalization of community, foundation, corporation and agro-productive associations.	28	Organizations	1250	3,600.00	
	Agricultural technical cooperation agreements	8	Agreement	4860	22,000.00	
	Agreement for the rescue of traditional products (FAO)	1	Agreement	750	3,871.00	
	Training plan for irrigation systems management and maintenance.	9	Systems	630	2,700.00	
	Agricultural, agro-industrial, agro-forestry and irrigation updated diagnosis.	1	Systems		300.00	
	Annual Institutional Operative Plan 2008, prepared.	1	Diagnosis		50.00	
	Follow up and evaluation of AOP report 2008, executed.	4	Plan		200.00	
	Agricultural statistics report (prices, cultivation, harvest and agro-climate).	12	Report		500.00	
	Updated reports of main crop production costs, prepared.	2	Report		1,000.00	
	Financial statements and execution of budget estimate, prepared.	12	Report		500.00	
	Elaboration and execution of contingency escape plans of the province (disasters, contingency).	1	Plan		500.00	
	Elaboration of minutes, agreements, contracts, organizations legalization, legal reports.	20	Procedures		5,000.00	
	Production and Commercialization minor species (Guaslan Farm).	2,640	Units		12,000.00	
	Training Plan Guaslan Center.	1	Plan		438.00	
	Agriculture Production in Sinancumbe Farm.	10	Ha		7,200.00	
	Elaboration of Project Profiles.	12	Profiles		2,400.00	
Remuneration					668,536.96	
Total Expenses					825,667.96	

(2) Provincial Governments

The ten provincial governments, within the area of the present Study, have legislative institutions and the executive entity is headed by the Provincial Prefect, who is a regular member of the Council and legally represents the province and the Council.

The provincial government has technical personnel for agricultural assistance, however the number of technicians differs largely according to the province. Even Chimborazo province, with

the larger number of technical staff has twelve agriculture experts and Cotopaxi province, with the smallest number of experts has only three. Calculating the proportion of technicians in relation to the number of farmer families at national level (Census of 2000, INEC), it shows that at Cotopaxi province a technician is responsible for about 2,000 families and in Chimborazo province one technician is available for 750 families.

Table 2.2.5 Number of agriculture experts (four provinces at the Study area)

Province	Agriculture	Animal husbandry	Social Development	Others
Cotopaxi	3	0	—	3
Tungurahua	7	3	—	1
Bolívar	2	2	10	2
Chimborazo	10	2	18	0

Obs.) Social development staff is not dedicated only to agrarian issues

Source : Survey conducted in the provinces

At Chimborazo province the Participative Budget (PPCH, abbreviation in Spanish) that considers the participation of the population in development projects has been in practice since 2007. PPCH projects include programs for the agricultural production chain and irrigation programs and thirty other projects for a total amount of US \$1,235,536 in the productive chain program were executed in 2008 (Average of US\$ 41,000 per project). The productive chains program considers among other things, agriculture, animal husbandry, marketing and agro-processing and handicraft projects. There were 35 projects of animal husbandry, 33 of marketing and agro-processing and 15 agricultural projects; nine out of the 33 marketing and agro-processing projects were related to milk and dairy products, therefore, projects regarding animal husbandry were the most numerous. In 2008, 35 projects related to irrigation programs with a total amount of US\$ 1,183,232 (project average US\$ 34,000) were implemented. The contents of projects consisted mostly in irrigation systems rehabilitation, canal lining and studies. There are almost no projects for new installations but canal rehabilitation and lining and improvements of intakes can increase irrigation areas. Also the Study PIID¹⁵ was launched in 2009 through the PPCH.

(3) Municipal Governments

The four provinces of Cotopaxi, Tungurahua, Bolívar and Chimborazo have in total 33 municipalities and of these, 24 municipalities answered the survey conducted by the present Study; results show that 16 municipalities (63 %) count on agricultural technicians and 15 municipalities (62 %) count on agricultural and animal husbandry technicians, meaning that more than half of the municipalities have an agricultural and animal husbandry technician in the staff.

Each municipality carries out agricultural projects and Colta municipality in Chimborazo province has implemented 120 agricultural projects during the years 2008/ 2009 for a total amount near US\$ 1,400,000. In annual terms, 60 agricultural projects were executed for a total

¹⁵ The project of irrigation systems construction of the provincial government was transferred to the World Bank Project of Development Investment 2009–2013 (PIID) in 2009. The PIID is a participative type project similar to the PPCH.

amount of US\$ 700,000. In Chimborazo province there are 10 cantons; thus as a manner of simplification, by multiplying the project cost by ten cantons, we have an amount of US\$ 7,000,000, corresponding to about 57 % of the PPCH projects' budget of the productive chains program in Chimborazo province.

Observing the availability of resources and personnel by each municipality, the potentialities seem limited; however, observing the province as a whole, the potential for the development of small scale farmers in poverty by the municipal governments is significant.

(4) Participation of small scale farmers in projects

In the agricultural projects for support to small scale farmers presently under execution, small scale farmers' participation is promoted in several manners. Population participation with the supply of labor for the execution of public works through "minga" is a traditional practice in the region, but in recent years, population has been encouraged to participate from the stage of project formulation. CADERS project carried out by MAGAP is one example of population participation since the formulation stage as well as PPCH projects. Presently, both projects are formulated with the spontaneous participation of small scale farmers and participation of the population is progressing favorably. However, only registered farmers organizations can receive CADERS support and not all organizations are registered, especially those in poverty zones, far from the provincial capital. Invitations are published in the press but small scale farmers in far away zones have no access to information and this is a pending issue in this system. The Provincial Assembly is in charge of the final decision about the implementation of PPCH projects but the system is structured in such a way that the participants' power of decision in the implementation of projects is considered at each corresponding level.

(5) CADERS

<Profile of activities > Projects directly managed by MAGAP for the support to small scale farmers groups in marketing and agro-processing of products such as milk, fruit, vegetables, maize, potatoes and rice (on the Coast). The budget of each individual project has a top of US\$ 56,000, 60 % in charge of CADERS and 40 % in charge of farmer groups (20 % in cash and 20 % in labor and implement supply). The durations are from one to two years. The proposals for the individual projects are submitted by farmers groups to the CADERS headquarters who evaluate and select the projects. The process of selection is as follows.

- 1) Invitation: Publication in the press (national circulation) twice a year.
- 2) Consultations: The project office in the province of Chimborazo receives about 50 consultations for each publication. At this opportunity, explanations about the project and information about necessary requisites are provided.
- 3) Application: During the one month application period, around 15 to 20 simple proposals

are submitted. In case there are problems with the proposals, producers are oriented by CADERS.

- 4) Selection: Evaluation is carried out considering the feasibility of projects and 3 to 4 projects are selected.

(6) PPCH in Chimborazo Province

PPCH projects were previously mentioned and the procedures for the formulation of participative projects are shown as follows.

- 1) Social promoters visit the community inviting participation in the PPCH
- 2) Each community formulates the required projects and prepares proposals (with the support of social promoters and technical staff).
- 3) Parroquia Committee
- 4) Elaboration of a list of projects required by the parroquia (technical support of the province)
- 5) Selection of the director, vice director and secretary of the parroquia committee
- 6) Canton Committee
- 7) Elaboration of a list of required projects
- 8) Determination of the projects' order of priority (with support of technicians)
- 9) Provincial Committee
 - i) Establishment of 6 sub-committees (education, environment, agriculture, production, health and public works)
 - ii) Selection of priority projects in each committee to prepare the Provincial Mandate with the final list to be submitted to the Provincial Council
 - iii) Selection of the director, sub-director and secretary of the provincial committee
- 10) Provincial Assembly
 - i) Projects are approved in order of priority by the Mandate Province
 - ii) Evaluation of the integrated implementation of similar projects in each community

2.2.2 The New Constitution and the Program of National Development

After intense discussions, the new Constitution proposed by President Correa's government was approved in July 2008. A referendum was immediately called for the new proposal and it was finally approved by popular vote with a 63.93 % of acceptance. One of the pillars of the new Constitution is to make "Good Living" ("Buen Vivir") come true. In the new constitution reduction of poverty and food self sufficiency is specially emphasized.

For the materialization of the aforementioned "Good Living" in the new constitution, the National Secretariat of Planning and Development (SENPLADES) of the Ministry of the Presidency prepared in 2009 the National Development Program of "Buen Vivir 2009 – 2013". This Program

has 12 objectives and establishes 93 policies and 132 quantifiable indicators for the achievement of said objectives. In relation to small scale farmers in poverty, it establishes clear goals to actually improve the participation rate in producers associations, reduction of the poverty rate and increase of food production, among other things. The national territorial strategy is proposed as a strategy to achieve said objectives. This is a development program involving all actors; not only governmental institutions at national level but also the beneficiaries and the private sector, through the mutual cooperation and division of roles.

By June 2010, institutions were in the process of preparing concrete programs to achieve the objectives established in the new National Program of Development, and the institutional supporting entities are being restructured as well as the respective development programs in accordance to the new Constitution. For this purpose, new regulations and laws related to the support to small scale farmers in poverty, such as the decentralization law, law of water, law of food self sufficiency, law of regional reunification, among others are being formulated or discussed in the Congress. Said projects of law are to be progressively defined.

(1) New Constitution

Poverty reduction is mentioned in Title 1 of the Fundamental Principles and in the Chapter related to agriculture, food self sufficiency and the regulations to achieve the same are mentioned. The promotion to increase agricultural productivity and reforms in the sector based on the cooperation and participation of the different actors involved, starting from the farmers is clearly specified. Regarding development at local level, it is to be achieved under the Territorial development approach through governmental initiatives of the province.

Table 2.2.6 Articles of the New Constitution related to poverty reduction and agricultural development

Title, Chapter, Section	Content
TITLE I: Constitutive Elements of the State Chapter First: Fundamental Principles	Art. 3.- Plan the National Development, eliminate poverty, promote sustainable development and equitable redistribution of resources and wealth, to promote the “good living”.
TITLE II: Rights Chapter Second: Rights of “buen vivir” Section First: Water and Alimentation	Art. 13.- Persons and collectivities have the right to the safe and permanent access to sufficient and nutritive food,; preferably produced at the local level and in correspondence to the diversity of identities and cultural traditions. The Ecuadorian State shall promote food self sufficiency.
TITLE V: Organization Territorial del Estado Chapter First: General Principle	Art. 238.- Decentralized autonomous governments shall have political, administrative and financial autonomy and shall be ruled by principles of solidarity, subsidies, inter-territorial equity, integration and citizenship participation. In no case the exercise of autonomy shall allow the secession of the national territory. Decentralized autonomous governments are constituted by parroquia boards, municipal councils, metropolitan councils, provincial councils and the regional councils.

Title, Chapter, Section	Content
<p>TITLE V: Territorial Organization of the State Chapter Second: Organization of the Territory</p>	<p>Art. 245.-The initiative for the conformation of an autonomous region shall correspond to the provincial governments that shall elaborate a project of law of regionalization proposing the territorial conformation of the new region, as well as a statute of regional autonomy.</p>
<p>TITLE VI: Development System Chapter Third: Food self sufficiency</p>	<p>Art. 281.- Food self sufficiency constitutes a strategic objective and an obligation of the State to assure that persons, communities, people and nationalities permanently achieve self-sufficiency in healthy and culturally appropriate food. For that, it is the responsibility of the State to:</p> <ol style="list-style-type: none"> 1. Promote the production and agro-alimentary and fishery transformation of small and medium productive units, and of a communitarian and social supportive economy. 2. Adopt fiscal, tributary and custom policies to protect the national agro-alimentary and fishery sector to avoid dependency in food imports. 3. Strengthen diversification and the introduction of ecologic and organic technologies in agricultural production. 4. Promote redistributive policies to allow the access of peasants to the land, water and other productive resources. 5. Establish preferential financial mechanisms for small and medium producer farmers, facilitating the acquisition of means of production. 6. Promote the preservation and recovery of agro-biodiversity and the ancestral knowledge related to it, as well as the use, conservation and free exchange of seeds. 7. Control that animals for human consumption are healthy and raised in a healthy environment. 8. Assure the development of scientific investigation and appropriate technological innovation to assure food self sufficiency. 9. Regulate rules for bio-security and use and development of biotechnology, as well as the experimentation, use and commercialization thereof. 10. Strengthen the development of producers' and consumers' organizations and nets, as well as the commercialization and distribution of food to promote equity between rural and urban areas. 11. Generate just and supportive systems for food distribution and commercialization. Impede monopoly practices and any other type of speculation with food products. 12. Provide the victims of natural or man made disasters with if the disaster put in risk their access to food. Food received from international aid should not affect either the health of the recipients or the future of local food production. 13. Prevent and protect the population from consumption of contaminated food or foods that put in risk health or of which science is not sure about their effects. 14. Acquire food and raw material for social and food programs, with priority to associative nets of small farmer producers.
<p>TITLE VI: System of Development Chapter Third: Food self sufficiency</p>	<p>Art. 282.- The State shall regulate the use and access to land that should fulfill a social or environmental function. A national fund of land, established by law, shall regulate the equitable access of peasants to land. Very large estates and land concentration are prohibited, as well as the hoarding or privatization of water and its sources The State shall regulate the use and management of irrigation water for food production, under the principles of equity, efficiency and environmental sustainability.</p>

Rights and obligations of the national and regional governments are specified in TITLE 5, Chapter 4 for each level of government, as shown in the following Table. Concerning agriculture, it could be interpreted that support to small scale farmers is to be through agricultural developments and irrigation developments centered in provincial and local governments. Actually, the State and the respective related entities have a high capacity for the formulation and execution of agrarian projects and programs; therefore, the support to small scale farmers in poverty should

be conducted based on the cooperation among said institutions and the provinces. However, according to the next Table, local governments have not been installed yet and there are few possibilities that they will be implemented in the short term; therefore for the program formulation in the present Study, they are not considered for evaluation.

Table 2.2.7 Articles of the New Constitution related with poverty reduction and agricultural development

Central Government	<ul style="list-style-type: none"> • National defense, internal protection and public order. • International relations. • Register of persons, nationalization of foreigners and migratory control. • National planning. • Economic, tributary, customs, fiscal and monetary policies, external trade and debt policies. • Education, health, social security, housing policies. • Protected natural areas and natural resources. • Natural disaster management. • Corresponded to be applicable as result of international treaties. • The radio-electric spectrum and the general regime of communication and telecommunication, ports and airports. • Energy, mineral, hydrocarbons, water resources, biodiversity and forestry resources. • Control and administration of national public companies.
Regional Governments	<ul style="list-style-type: none"> • Plan the regional development and formulate the corresponding territorial arrangement plans in an articulated manner with the national, provincial, canton and parroquia planning. • Manage the ordainment of hydrographic watersheds and propitiate the creation of watershed councils, according to the law. • Plan, regulate and control the regional and canton traffic and transportation as it is not assumed by municipalities. • Plan, construct and maintain the road system in the regional scope. • Grant legal existence, register and control the social organizations of regional nature. • Determine the investigation and innovation policies of knowledge, development and technology transfer, necessary for the regional development, in the framework of the national planning. • Promote regional productive activities. • Promote regional food self sufficiency. • Manage international cooperation for the fulfillment of their competences.
Provincial Governments	<ul style="list-style-type: none"> • Plan the provincial development and formulate the corresponding territorial arrangement plans in an articulated manner with the national, regional, canton and parroquia planning. • Plan, construct and maintain the road system in the scope of the province, not including urban zones. • Execute works in watersheds and micro-watersheds in coordination with the regional government. • Environmental management in the province. • Plan, construct, operate and maintain irrigation systems. • Promote agricultural activities. • Promote productive activities in the province. • Manage international cooperation for the fulfillment of their competences
Municipal Governments	<ul style="list-style-type: none"> • Plan the provincial development and formulate the corresponding territorial arrangement plans in an articulated manner with the national, regional, provincial and parroquia planning in order to regulate the use and occupation of urban and rural land. • Exercise control over land use and occupation in the canton. • Plan, construct and maintain urban roads. • Provide public services of water, sewage, residual water treatment, solid waste management, activities of environmental sanitation and those established by law. • Create, modify or eliminate taxes and special contributions for improvement by by-laws. • Plan, regulate and control the traffic and public transportation in the canton territory. • Plan, construct and maintain physical infrastructure of health and educational equipment, as well as public spaces for social, cultural and sports development, according to the law. • Keep, maintain and disseminate the architectural, cultural and natural assets of the canton and build public spaces for these ends.

	<ul style="list-style-type: none"> • Establish and administer the urban and rural real estate register. • Limit, regulate, authorize and control the use of beaches, riverbeds and riversides, lakes and lagoons, without prejudicing the limitations established by law. • Keep and assure the effective access of persons to the use of beaches, riversides, lakes and lagoons. • Regulate, authorize and control the exploitation of arid and stony materials, found at riverbeds, lakes, beaches and quarries. • Manage the services of fire prevention, protection, rescue and extinction. • Manage international cooperation for the fulfillment of their competences
Parroquia Governments	<ul style="list-style-type: none"> • Plan the parroquia development and the territorial arrangement plans, in coordination with the provincial and canton governments. • Plan, construct and maintain physical infrastructure of equipment and public spaces of the parroquia contained in the development plans and included in the annual participative budgets. • Plan and maintain the parroquia rural roads in coordination with the provincial government. • Promote the development of productive communitarian activities, biodiversity conservation and environmental protection. • Manage, coordinate and administer public services assigned or decentralized by other levels of the government. • Promote the organization of citizens in communities, premises and other rural settlements, with the character of grass roots territorial organizations. • Manage international cooperation for the fulfillment of their competences. • Watch over the execution of works and the quality of public services.

(2) National Development Plan “Buen Vivir”

Under president Correa's administration, the National Development Plan “Buen Vivir : 2007-2010” was prepared and in 2008, with the promulgation of the new Constitution, the New National Development Plan “Buen Vivir : 2009-2013 was formulated in accordance with the new Constitution. With the participation of the citizens, the new National Development Plan has been prepared based on the new Constitution through the evaluation of former national programs and public interventions and investments, sector policies and activity plans, territorial strategies and zonal operative programs. Policies of the agricultural sector are based in the National Program of the Agricultural Sector 2006-2016, of the MAGAP.

The new National Development Plan, compared to the former Development Plan has been modified in the following aspects.

Change in the paradigm of development

Development for the Good Living

Inclusion of new elements

Strategy of capital concentration and redistribution in the long term

Territorial strategy and territorial operative plan

Plan of Ecuador’s opening to the international world

Inter-sector Cooperation

Objectives, policies, goals and inter-institutional coordination

Planning, programming and priority of investments

Investment criteria 2009-2013

The National Development Plan points out 12 objectives and of these, 8 are related to the reduction of poverty of small scale farmers and concrete policies and goals are established for

each objective. Items related to poverty reduction of small scale farmers from the viewpoint of agricultural activity are reduction of middlemen by 20 %, reduction of 50 % in the rate of unsatisfied basic needs (UBN) in rural zones, reduction of 40 % in the volume of basic cereal imports, increase of 50 % in the participation rate at farmers associations, 27% reduction of the population with income under the poverty line, and increase the volume of food production in the country by 98 %. It may be said that these goals should be achieved through the increase of agriculture productivity of small scale farmers or that the expected goals are directed to increase the productivity of this segment of population.

Table 2.2.8 Objectives of the National Development Plan
(Agricultural sector related)

Objectives	Content
Objective 1	Promote equity, social and territorial cohesion and integration in the diversity.
Objective 2	Improve the capacities and potential of the citizens.
Objective 3	Improve the life quality of the population
Objective 4	Assure the rights of nature and promote a healthy and sustainable environment.
Objective 5	Assure sovereignty, peace and promote integration in Latin America.
Objective 6	Assure stable, fair and dignified work in its diversity of forms.
Objective 10	Assure the access to public and political participation.
Objective 11	Establish an economic, social, supportive and sustainable system.

Table 2.2.9 Goals established for each objective of the National Plan of Development (Agriculture sector related)

Objectives	Goals
Objective 1	<ul style="list-style-type: none"> • Double the participation of peasant family agriculture in agricultural exports by 2013. • Reduce the intermediation gap by 20 % by 2013.
Objective 2	<ul style="list-style-type: none"> • Assure the daily kilocalorie consumption of proteins to a minimum 260 Kcal./day by 2013. • Reduce to 3.9 % the percentage of low weight newborn babies by 2013.
Objective 3	<ul style="list-style-type: none"> • Promote healthy life practices among the population. • Provide integral attention to women and priority attention groups, with gender, generation, family, community and inter-cultural specific approaches.
Objective 4	<ul style="list-style-type: none"> • Increase the area under environmental conservation or management by 5 % by 2013. • Reduce the deforestation rate by 30 % by 2013.
Objective 5	<ul style="list-style-type: none"> • Reduce poverty by UBN in the north frontier by 25 % in urban areas and by 50 % in the rural areas by 2013. • Reduce poverty by UBN in the south frontier by 20 % in urban areas and by 50 % in the rural areas by 2013 • Reduce poverty by UBN in the center frontier by 25 % in urban areas and by 50 % in the rural areas by 2013 • Substitution of maize, soy paste, wheat and barley imports for a reduction of 40 % by 2013.
Objective 6	<ul style="list-style-type: none"> • Double the percentage of persons with active participation in producers', traders' or farmers' associations by 2013. • Reduce by 27 % the percentage of persons receiving wages under the vital minimum by 2013. • Create conditions for employment and productive reinsertion of migrant population coming back to Ecuador, and protect workers in mobility. (*This is a policy but as no goal is specified for this objective, it is mentioned here).
Objective 10	<ul style="list-style-type: none"> • Increase to 50 % the participation of people older than 18 years in organizations of the civil society by 2013.
Objective 11	<ul style="list-style-type: none"> • Reduce to 0.72 the exports concentration by product in 2013. • Obtain a 5 % increase in non-oil Industrial GNP PIB in 2013. • Deconcentration in the food commercialization market by 2013. • Increase to 98 % the national production of food in respect to the total supply by 2013. • Increase to 8.1 % the participation of investments in respect to the nominal Gross Internal Product by 2013. • Triple the percentage of households using money remission for productive activities by 2013. • Increase by 69 % the Public Bank volume of operations by 2013. • Increase by 110 % the amount of money in the Public Bank by 2013.

From now on, regional development should be conducted from the viewpoint of territorial strategy. In the territorial strategy the following 7 items are particularly relevant. The strategy plan for regional development has a plan for cantons at the first level and a second level in the provinces that collects the plans of the first level. The participation of all development actors and the strengthening of decentralization (including the capacity development of municipalities) are indispensable for the regional strategy. The territorial strategy is a development methodology different from the strategies applied up to now and is one of the issues that requires special attention for the National Plan promotion.

- Provide and strengthen a national multi-centric structure that is well articulated and complementary with human settlements.

- Promote rural good living and the food self sufficiency.
- Establish priorities and make the infrastructure for mobilization, connection and energy efficient.
- Assure the sustainability of the natural assets by the responsible and rational use of renewable and non renewable natural resources.
- Promote diversity and natural assets.
- Promote strategic and sovereign insertion in the world.
- Consolidate a decentralized, deconcentrated administration with capacity for planning and territorial management.

2.2.3 Reformulation of the MAGAP Plan according to the new Constitution and the National Plan

(1) MAGAP Plan “Buen Vivir Rural”

The objective of the Plan is to “Achieve the improvement of producers income and food self sufficiency through the promotion of diversified agriculture, animal farming and aquaculture reactivation, and thereby contribute to the good living of communities on the coast and also the rural families”. In order to achieve the goals of this Plan, four objectives have been established. Objective 4 considers the central role of MAGAP in rural development, responsible for the policies not only of the agricultural and aquaculture sector activities but also multi-sector actions in the rural zone.

Table 2.2.10 The 4 Objectives of the MAGAP National Plan “Buen Vivir Rural”

Objective	Content
Objective 1	Democracy in the access and use of land and other production factors for medium and small scale farmers to improve living conditions of rural families and communities on the coast.
Objective 2	Rescue ancestral knowledge and preserve the biodiversity to enhance the environment and incorporate them in the agriculture, animal husbandry, aquaculture and fishery development.
Objective 3	Implement programs of agricultural innovation and productivity, expansion of storage, inclusive rural businesses, commercialization, aquaculture and fishery development, to strengthen associations and technical production respecting the environment and considering values of solidarity and transparency.
Objective 4	Recover MAGAP’s competence in issues of policies, regulation, planning and follow up and evaluation of Rural Development.

The results to be achieved with these four objectives are the following.

Table 2.2.11 Results of MAGAP's National Plan for Buen Vivir Rural

Variables	Content
Rural Services	Infrastructure, Technical Irrigation, Supportive Financial Nets, National System of Extension, Field Schools, Inter-ministerial Coordination (Electrification, Health, Housing, Education, Mobility, Communications)
Storage and Commercialization	Storage capacity in strategic places, reserve of strategic products, Mechanisms of market regulation, Inclusive businesses, Diversification of Exports and strategic substitution of imports, Promotion and marketing, Trader companies.
Associative Enterprises	Peasant enterprises, Regulation and Legalization of Producers' Associations, Denomination and identity of Origin, Access of producing associations to public acquisitions, peasants' suppliers .
Agricultural Assets	Biodiversity, Genetic Catalog, Ancestral Knowledge, New Forms of Ownership.
Integrated System of Information	System of socio-economic indicators, Development of a follow-up and evaluation system of MAGAP's programs and projects, Agricultural statistics, Investigation of wholesale and retail prices in markets, collection center, poultry farms, abattoirs, peelers, industries and fairs
Institutional Restructuring	Implementation of a management model in MAGAP, Implement a national system of rural extension

A participative type of development structure is required for the MAGAP's guidelines implementation system as mentioned in the new Constitution, especially at the regional level and community level and for this purpose, the installation of committees with the participation of all involved actors is expected. The composition of members at each committee is shown in Table 2.2.11.

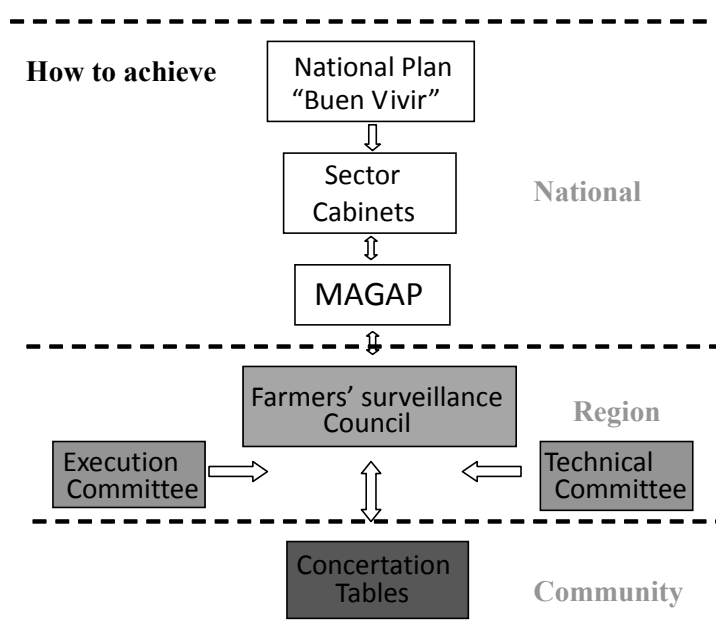


Figure 2.2.1 Implementation system for guidelines

Table 2.2.12 Structure of members at each committee

Committee	Members
Council of Peasants Board (CPB)	MAGAP, Citizens' participation board, Conference of food self sufficiency, Section Governments, Universities and Colleges, Rural Associations and Cooperative, Productive Associations.
Committee of Execution	MAGAP, Section Governments.
Technical Committee	MAGAP, Universities and Colleges, Investigation Centers.

Strategic Operative Plan

In the National Plan “Buen Vivir Rural” of MAGAP the plans, programs and systems to achieve the above mentioned results are proposed. Two plans are considered: “The territorial plan for small rural farmers” that consists of a policy with the objective of improving the GINI indicator through the supply of land to the population in poverty and to the socially vulnerable and the “National rural development plan”, that consists of policies of inclusive rural agricultural development to achieve the good living in rural zones. The program related to agriculture, the “National program of agricultural revolution and increase of productivity” aims to increase the volume of production through the improvement of the productive chain at all stages for the main products and thereby, to reduce poverty and achieve alimentary sovereignty. Likewise, the “National program to expand reserves and sales” aims at food self sufficiency and the reduction of poverty through exports and reserves of food, and the “National program of inclusive rural trade” contributes to “Buen vivir rural” through the fair and equitable participation of low income population in the value chain within productive businesses. Also, the “Program of participative technological revolution to improve animal farming productivity at the national level” aims at cattle productivity improvement through the increase of cattle production, improvement of quality, and elimination or control of cattle epidemic diseases are proposed. Regarding systems, the “System of participative technological revolution” for the agricultural technological dissemination and the “System of agrarian insurance” to mitigate risks of plagues and climatic hazards in productive activities of small scale farmers are proposed. In the “System of participative technological revolution”, reforms in the ECAs are mentioned, establishing the ERAs for dissemination activities that are to become the center of rural and agrarian development in the future.

Schools of Agrarian Revolution Agraria (ERAs, in Spanish)

ECAs are the predecessors of ERAs and work at the level of agricultural producers' organizations selecting agricultural production issues faced by small scale farmers in poverty to solve them jointly with the farmers and with the support of facilitators; this system consists of learning through practical training at farm level. The expectation is that the learned techniques are to be disseminated to farmers in the surrounding areas. It is an effective dissemination system in which the farmer acquires techniques through real practice and allows the farmer to voluntarily progress towards other stages through facilitation. ERAs are a system for agricultural improvement that aims to include rural development in the system of ECAs. The ERA system conceived by MAGAP is shown in the following scheme.

Schools of Agrarian Revolution (ERA's)

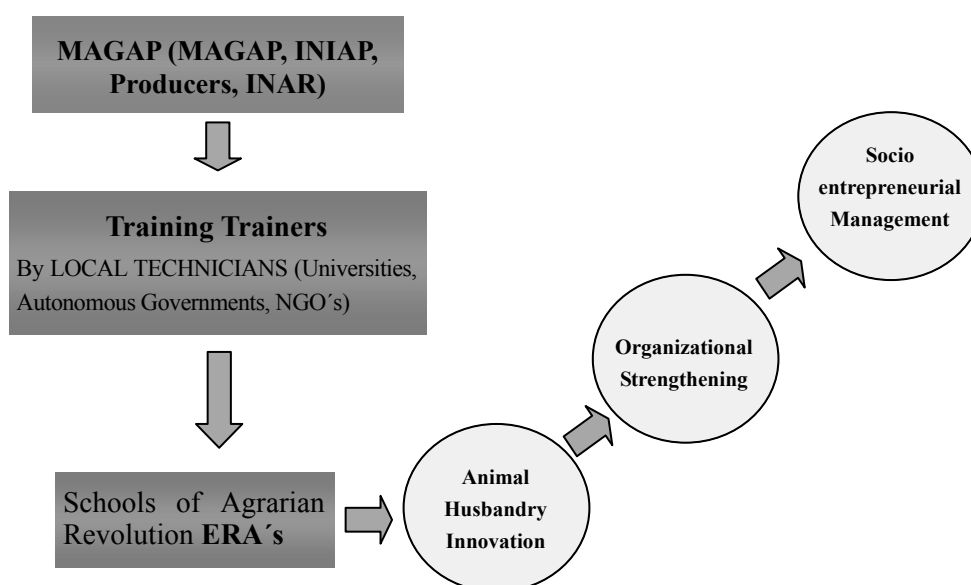


Figure 2.2.2 System of the Application Measures

Process for the activation of Schools of Agrarian Revolution (ERAs)

Table 2.2.13 System of Application Measures

Step 1 : Establishment of the group	- Initial contact, -.self-identification of participants, -Organization of the group.
Step 2: Determination of technical contents.	- Base line. -Participative diagnosis (Agriculture-animal husbandry). -Design of curricula. -Test boxes.
Step 3: Establishment of farms and animal husbandry practices.	- Formation of work groups. -Learning farm sowing and animal husbandry-Sowing of specific studies.
Step 4: Development of learning activities	- Learning sessions. -Analysis of the Agro-ecosystem (AAE). -Visit to experiments and cattle farms. -Register of expenses. -Group dynamics -Field day. -Repetition of the test boxes. - Harvest and economic evaluation.
Step 5: Graduation and follow up	- Graduation event-Follow up Plan -Support activities

Execution Plan for ERA's according to Province

Table 2.2.14 Number of ERA's by Peasant Organizations

Province	Peasant Organizations	Members	Technician/ Facilitator
Manabi	250	6199	83
El Oro	150	2241	50
Esmeraldas	120	1406	40
Los Ríos	190	2288	63
Guayas y Santa Elena	380	8400	127
Sub-total Coast	1090	20534	363
Carchi	130	1789	43
Imbabura	130	2859	43
Pichincha y Santo Domingo	280	6000	93
Cotopaxi	130	1481	43
Tungurahua	134	2948	45
Bolívar	127	2820	42
Chimborazo	180	2712	60
Cañar	120	1001	40
Azuay	150	3314	50
Loja	90	800	30
Sub-total Sierra	1471	25724	460
Morona Santiago	83	1254	28
Napo	111	2442	37
Pastaza	40	484	13
Zamora Chinchipe	68	946	23
Sucumbíos	50	660	17
Orellana	72	1342	24
Galápagos	9	198	3
Sub-total Rest of the Country	433	7326	144
Total	2994	53584	968

Activation of ERAs and Responsibilities

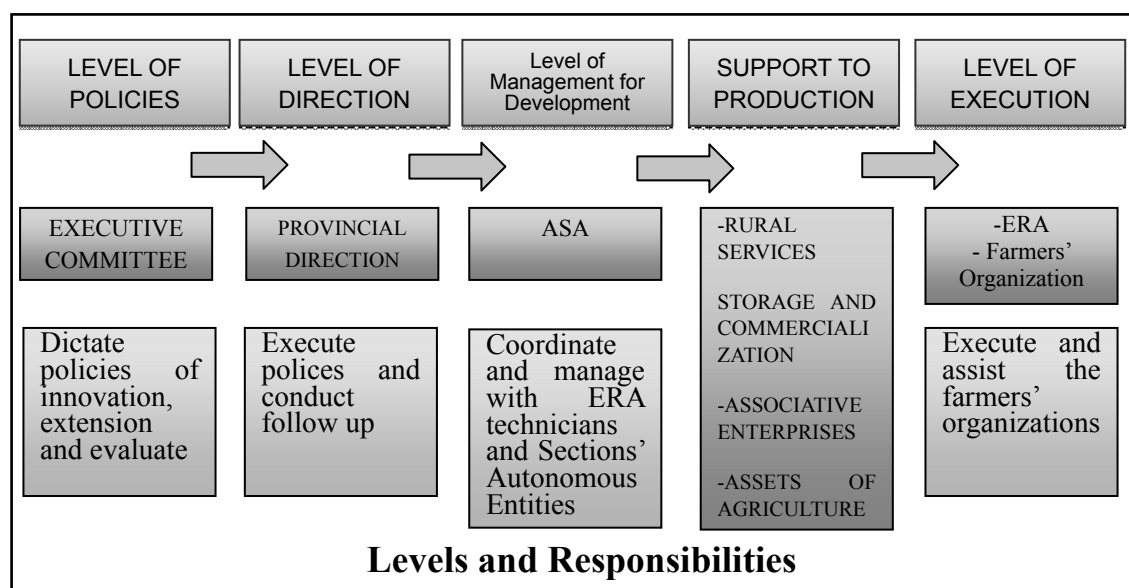


Figure 2.2.3 Activation of ERAs and Responsible Entities

(2) Restructuring Plan for MAGAP

By Ministerial Agreement No.067, dated February 26, 2010, the 4 regional sub-secretariats of Costa, Sierra, Oriente and Litoral, except Galápagos were dissolved and the territory was redistributed into seven zones, assigning one secretary to each of them. This reform has as an objective the coordination of Central Government with Local Governments by the subordination of zonal sub-secretariats to the regional governments stipulated in the constitution. According to this ministerial agreement, the Sierra Sub-secretariat is now the Zone 3 Sub-secretariat.

MAGAP, including the pertaining institutions; INAR, INCCA, and INDA, are in the middle of a restructuring process. Although by June 2010 there was no official plan for this restructuring, major changes are expected.

2.2.4 Regional Administration under the new Constitution

The new Constitution states that regional government is the main entity responsible for the implementation of agrarian development. This meshes with the respective budget increase and mechanisms of the regional governments. In relation to agrarian developments and irrigation developments, as specified in the Constitution, the administration thereof should be transferred to the local governments, starting with the provincial governments; therefore the implementation system to be used from now on should be defined urgently. However, discussions about the local administration system strengthening, actually started only in 2010 and to date (June 2010), major concrete changes are not perceived.

According to Article 245 of the Constitution, regional development plans should be prepared according to the territorial strategy that is presently under preparation. There are two levels of territorial plans, the first at local municipality level and the second at provincial government level that should collect the plans of the first level. Territorial strategy requires strengthening decentralization (especially the improvement of the municipalities' capacities) and the participation of all actors involved in the development. However, the guidelines and manuals for the elaboration of territorial plans at provincial and municipalities levels are presently being prepared by SENPLADES; therefore plans are being prepared by municipalities and provinces without an established order.

(1) Provincial Governments

Provincial governments are presently preparing their respective Territorial arrangement plans and no major changes have occurred. However, some governments have created new offices for the elaboration of their Plans. The Honorable Council of Chimborazo Province has established an office for Territorial Planning with six members, the director and five experts of each sector. It is believed that future reforms of the Provincial Council are to be conducted under a territorial approach.

(2) Cantons Governments

Like the Provincial Governments, Canton Governments have not suffered major changes and some municipalities have hired professionals for the elaboration of the Territorial arrangement plan. The Municipality of Colta, in Chimborazo province, hired one person to be in charge of the Plan elaboration and also a consultant, as assistant. Probably, future restructuring of Canton Governments will be influenced by Territorial arrangement plans.

(3) Parroquia Governments

The function of parroquia governments has been modified in the new Constitution and Parroquia boards have been changed into parroquia governments. This change implies a budgetary increase and in the future it will allow the execution of development projects independently, although there are some limitations.

Staff

Presently, the system consists of one President, one vice-president, one secretary and three individuals responsible by sector, totaling six persons. However, in most parroquia governments in the country, those posts are not full time jobs, excepting the President and the secretary. As budgetary increases are expected in the future it will be possible to hire personnel, especially experts in agriculture.

Budget

Parroquia budget is increasing and it has been significant, especially after the promulgation of the new Constitution that gives particular importance to local governments. In 2000, the budget corresponded to US\$ 4,000 per year but in 2009 it increased to US\$ 37,000. Until now, parroquia budget was established as a fixed amount in the national budget but now, distribution is proportional to the population. Also in 2010, parroquia budget increased significantly; as an example, the budget of Columbe Parroquia in Colta Canton has increased to US\$ 106,000. The total amount of budget is assigned by the national government (Ministry of Finance).

Development

Presently, parroquia governments are preparing the Parroquia Development Plan and the Territorial arrangement plan according to the new Constitution. The Territorial arrangement plan should be the base for the Territorial Plans of the municipalities and provinces. However, a date is not fixed yet for its elaboration.

2.2.5 Micro-credit

(1) Necessity of support to small scale farmers

In the survey to small scale farmers conducted by the present Study, questions were asked about the following 5 aspects as factors of low productivity: soil, water sources, agricultural technology, agricultural supporting services and commercialization. The result of the survey showed that in the issue of agricultural assistance, access to financing services occupied the fourth place (38%) in Cotopaxi province, third place in Tungurahua (47%) and fourth place in Chimborazo (48%); regarding access to training it is in the fifth place (37%) in Cotopaxi province, second place in Bolívar province (55%) and second place in Chimborazo province (65%). Hence, the impact of lack of access to financing and agricultural technical assistance for small scale farmers is evident.

According to results of the last census¹⁶, sources of access to credit by small scale farmers are the cooperatives of savings and credit, (COAC in Spanish), the BNF, and private banks, in that order. Among private banks, the participation of second floor banks, that are relatively big and have few agencies, consists in the realization of micro-financing operations providing micro-credits indirectly (two step system). There is no statistical data prior to the year 2000 census concerning credit to small scale farmers at national level but in 2008 the MIES (DNC) carried out a Study about savings and credit cooperatives at the national level¹⁷.

This Study shows that from a total of 850 thousand agricultural producing units at national level, 75.5% belongs to small scale farmers with properties smaller than 5 ha¹⁸, 29.8% of producers obtain loans from money lenders, 19.2% from savings and credit cooperatives, 11.7% from relatives, 8.1% from BNF, 6.9% from foundations and NGOs and finally 6.0% use private banks; producers use micro-credit lenders for they are closer to them, enhancing the importance of the need and reform of micro-credit systems.

(2) Present situation of financing and loan schemes directed to small scale farmers

1) Situation and Issues of Cooperatives (Saving and credit cooperatives)/NGOs

Opening saving and credit cooperatives is relatively easy and it is tending to increase. According to the report of the CDE Study previously mentioned, there was significant growth in the period 2002 - 2008, from 2,668 establishments to 5,422. Observing by regions it shows 3,229 (60.8%) in the Sierra, 1,758 (32.4%) in the coastal region, 345 (6.4%) in the Amazon and 20 (0.4%) in the archipelago, being greater in the Sierra.

According to Ecuadorian laws, cooperatives can be classified in four groups, namely; Production (630), Consumption (1,078), Savings and Credit (1,221) and Services (2,493)¹⁹.

¹⁶ Executed in year 2000

¹⁷ Dynamic of the Ecuadorian Cooperative Sector, National Direction of Cooperatives (DNC), MIE, December 2008

¹⁸ Source: Agricultural Census

¹⁹ Numbers in parenthesis show the number of cooperatives

These cooperatives can be regulated if they are registered in the DNC (MIES) or non regulated when not registered; in this case, they are not subject to this entity and therefore, they can determine their administrative strategies independently. There are 1,221 cooperatives of savings and credit operating in a disorderly way and small scale farmers that have few opportunities to access credit sometimes have difficulty in understanding the loan conditions of these micro-financing institutions, especially non regulated cooperatives, for conditions are not uniform. Among these savings and credit cooperatives (COAC), some abuse the lack of knowledge of the small scale farmers and on one hand, offer low interest rates but charge excessively for other services or request a high savings deposit; thus, actually, they practice micro-finance at excessively high costs²⁰.

Presently, the main administrative problem faced by cooperatives is the lack of capital. Some micro-finance institutions contend that due to the lack of capital it is possible to attend to only 20% of the communities²¹. With the increase of micro-finance institutions (MFI) offering micro-credit, many small scale farmers request credit from many institutions at the same time, causing negative effects in the rate of loan paybacks.

According to the Inter-American Development Bank (IDB), the main agency for the assistance to development in Latin America, that also intervenes in the support to micro-finance²², the support provided by it to other micro-finance institutions is mainly at level of private entities and in Ecuador, the assistance is directed to cooperatives and no kind of support is provided to BNF. In relation to the National Bank, a project of indirect support to micro-finance is under implementation, by improving Central Bank's system of remittance and payment in far away zones.

2) Credits for small scale farmers by BNF

BNF, together with MAGAP are affiliated institutions (support groups to small scale farmers) and have as an objective the reactivation of agriculture and attention to the financial needs of farmers. At the beginning, this support was centered in big and medium producers but presently it intervenes mainly in support to small scale farmers. One of the present objectives of the intervention is to “provide credit to small scale farmers that can not access loans at commercial banks because they are high risk and/or lack collateral”.

²⁰ To solve this problem, a law of the popular support sector formulated by a committee of popular and supportive financial institutions such as the “Rural Financial Net”, supported by Trias is being proposed

Private organizations also are trying to clarify the issue of interest rates lack of transparency with the reorganization of legislation to prevent small producers with little knowledge from suffering losses. MF Transparency (<http://www.mftransparency.org/>)

²¹ Interview with Codesarrollo

²² According to interview conducted on May 7, 2010 with Ms. Paula Auerbach, of IDB micro-finance office in Quito

Table 2.2.15 Main credit products of BNF

Sector	Period (years)
Animal husbandry credit	1 ~ 10
Transportation Credit	~ 5
Fishery Credit	1 ~ 7
Agriculture Credit	1 ~ 10
Credit for purchase of productive land	~ 15
Credit for small business sectors	2 ~ 10
Credit for acquisition of machinery	1 ~ 7
Credit for the forestry sector	6 ~ 20
Credit for second floor bank operations	Foreseen to start in May 2010
Micro Credit	~ 5
Credits of Development	~

Source: BNF homepage

As incomes are low, in many cases small scale farmers are not able to access micro-credit offered by micro-finance institutions and one of the issues for BNF is the way to increase credit for this group of small scale farmers. Micro-credit with low interest rates using subsidies like the 555 is a concrete measure of BNF to achieve the objective of “providing credit to small scale farmers that are unable to access commercial bank loans due to them being high risk and/or because they lack collateral”, as mentioned before; but 555 is not performing its role completely due to lack of coordination at the time of launching and lack of government budget.²³

Table 2.2.16 Main micro-credit products of BNF and its evolution
(Riobamba Regional)

Unit: Thousand US\$

Main Products	2007	2008	2009
555	10,565	8,306	1,595
Micro Credit	1,144	5,860	3,990
Human Development Bonus	633	955	1,633
Ordinary	14,334	34,656	30,453
Total	26,678	49,779	37,672

Source: BNF central office in Chimborazo province

BNF does not have as many agencies in rural communities as the cooperatives of savings and credit causing a problem of poor communication due to the difficulty of access. In order to sort out difficulties such as this one, the launching of second floor bank operations was planned from January 2010 to provide micro-credit through micro-financing institutions. However, as it was necessary to give priority to BNF’s recovery due to the deterioration of its financial situation and also due to political problems in the country, its implementation has been

²³ BNF micro-credits through 555 are decreasing annually from 2007 to 2009; in 2008 Micro-credits increased more than 6 times, however in 2009 it decreased as well as the CDH

postponed.

Small scale farmers point out that the main problems to use BNF are the following²⁴.

- Land Guarantee with collateral condition
- Procedures are complex and take too much time
- Request too many documents
- Application charge is discounted from the requested amount (they do not receive the total)
- Lack of technical assistance once the credit is granted
- Agencies are too far away (rises cost)

However, BNF was aware of most of the problems pointed out beforehand and actually many of them have been solved, and conditions are not too different from other micro-credit institutions now. Nonetheless, small scale farmers still have this prejudice and in conversations with BNF it was concluded that products should be better promoted to correct this wrong impression.

3) Technical Assistance of MAGAP

Financial necessities of small scale farmers obey a cycle of demands that start with the need of capital to finance the purchase of seeds and cattle, up to the financing of products commercialization such as cereal and dairy. Thus, in conjunction with MAGAP' technical assistance for the commercialization of products, programs and projects such as the Project of Agricultural Competitiveness and Sustainable Rural Development (CADERS) are being executed, to finance cooperatives and businesses established by small scale farmers and to provide capital for investments and to purchase agricultural machinery, among other things²⁵. These investments are carried out by MAGAP (CADERS) and it is possible to receive financial support together with technical assistance such as purchase of machinery and external market expansion. Both consider the importance of marketing strengthening, a sector in which MAGAP is not very strong.

Both BNF and MAGAP belong to the affiliated institution (support to small scale farmers) and have as objectives the reactivation of agriculture and the attention to the financial needs of farmers; MAGAP objective is to provide agricultural technical orientation for farmers. However, the financial assistance sector such as investments and non-disbursable aid is conducted by MAGAP and not the BNF. In order to efficiently attend to the financial needs of farmers it is necessary to organize this sector also, considering subsidies, too.

²⁴ BNF agencies, savings and credit cooperatives and direct interviews to farmers in fairs and rural communities

²⁵ The Study Team visited a cooperative for the production of fruits in Pallatanga Canton and one broccoli production company in Chimborazo Canton, both in Chimborazo province

4) Support to small scale farmers by IDB, • SNV • major private companies (alliances)

The participation of major supermarket and food commercialization chains is being promoted under the orientation of international organizations and supporting entities in business known as Bottom of Pyramid (BOP) to create value chains, since production up to the delivery of food and dairy products is included in these efforts. For small scale farmers, it is a means to leave behind poverty through the improvement of access to the market, assurance of stable sales and technical assistance.

National Program of Inclusive Rural Businesses (PRONERI, in Spanish)

This Program, sponsored by the Inter-American Development Bank (IDB) and the Netherlands Development Organization²⁶ counts on the participation of a major supermarket chain (SuperMAXI), one food chain (Pronaca) and Nestlé company, the largest company in Ecuador, besides other large local companies. These large companies provide support to the rural small producers to assure the stable supply of raw material for their products through technical assistance and investments, including micro-credit operations.²⁷

Program of Inclusive Business in Agro-industrial Chains

The Entrepreneurial Council for Sustainable Development of Ecuador (CEMDES in Spanish)²⁸, the SNV and the Swiss dairy and drink company TONI, together with the local subsidiary TONI S.A. carry out a joint program in alliance with small scale farmers. Companies have been assured the supply of high quality raw material for the development of their products while small scale farmers can sell their products at stable prices, receiving technical assistance, and in the long term generating mutual benefits in a sustainable way. In the program, this system of mutual benefits is named “Good Practices²⁹”.

Besides these programs, private companies are very interested in carrying out alliances with small dairy farmers through technical and financial assistance. For instance, the largest private company in Ecuador (Nestlé Ecuador) carries out the “Program of support to small and medium farmers” providing technical and financial support to strengthen competitiveness. Another company of the group, Dairy Partners America (DPA) has a team of experts to provide technical assistance in the development of dairy products³⁰. PRONACA has created the San Luis Foundation with the objective of supporting communities and also to implement the voluntary program “Manos a obra” (Let’s work), with a financial project named “Mano Solidaria

²⁶ <http://www.snvworld.org/en/Pages/default.aspx>

²⁷ Interview conducted on May, 7 2010 at IDB office in Quito

²⁸ CEMDES is an organization of entrepreneurs and for entrepreneur created to promote the concept of Sustainable Development from the entrepreneurial perspective and to facilitate the implementation of innovative solutions in environmental issues and social responsibility in. (<http://www.cemdes.org>)

²⁹ <http://www.tonisa.com/Web/Desktop.aspx?SiteTreeID=406>, & <http://www.inclusivebusiness.org/2007/11/toni-leche-en-e.html>

³⁰ http://www.nestle.com.ec/institucional/responsabilidad_apoyo.asp

(Supportive Hand)³¹.

(3) Problems and Issues in Organization of Micro-financing

1) Cooperatives of Savings and Credit - Private companies

Cooperatives and NGOs carry out the necessary financial assistance in several zones under individual strategies according to the necessities. The high demand for credit by small scale farmers and the ease to create entities that in many cases are not registered in the DNC (MIES) due to deficiencies in regulations, leads to disorganized growth of non-registered entities that operate independently.

As previously mentioned, there is a problem regarding the improper charge of administrative expenses by some cooperatives and presently a project to create a supervising entity is in progress, so improvements in this issue are expected. Also, there are large and solid cooperatives that are more advanced than BNF regarding technical cooperation alliances with entities such as MAGAP. The main administrative issue of cooperatives is to assure a stable source of capital supply and supporting entities, in a manner such as the Inter-American Bank of Development actively supports cooperatives.

At first, the alliance of large business companies with small scale farmers was launched, as part of the social responsibility of said companies but presently, due to a re-reading in the importance of the "Base of Pyramid Businesses", BOP, the number of companies participating is actively increasing. The needs of farmers are not limited only to the access to credit, that should be accompanied by technical assistance for the commercialization and marketing of products according to the expenses of capital and technical assistance; and alliances with large companies are very favorable from the viewpoint of assuring safe sales markets.

2) BNF

Policy of low interest rates using subsidies

BNF's micro-credit products 555 (5%), Micro-credit (11%), Human Development Bonus (5%) and ordinary loans (15%) offer interest rates much lower than the usually applied micro-credit interest rates. The reason is that they are established with subsidies from the State and said subsidies are not distributed according to the type of product but by discretion of each BNF agency regarding the type of product it is to be applied to. This is one of the reasons why zonal agencies do not promote the 555 more actively for it practically does not generate profits even with the application of the subsidy, as clearly observed in the Table of results of BNF in the Riobamba Zone, Chimborazo (The Human Development Bonus is in another category). Besides competing with the interest rates of Micro-credit, the interest rates compared to the products of the micro-financing institutions are very low; thus it may be said that in the present situation,

³¹ <http://www.pronaca.com/site/principal.jsp?arb=175>

there is a lack of incentive to promote the 555 more actively.

Table 2.2.17 Reference: Interest rates in general in Ecuador

Financial Products	Interest rate
Ordinary savings	4%
Regular savings	5 ~ 6%
Interest rates for ordinary loans	16 ~ 20%
Micro-credit	16 ~

The first objective of low interest rate products using BNF subsidies is to grant micro-credit for small scale farmers that do not have access to micro-finance or micro-credit entities. However, BNF is a bank that requires a high payback rate even for micro-credit. About 30% of small scale farmers use the services of money lenders that charge high interest rates, so it cannot be said that low interest rates by themselves will lead to loan paybacks.

If priority is to be given to loans with safe payback, 555 should be offered in the same market of the existing micro-finance entities; in this case, interest rates could be the same as the ones applied by other micro-finance entities, but it would make it difficult to justify the benefit to use State subsidies. Even more because “Microcredit”, being an ordinary micro-credit, offers interest rates of 11%, which are below the interest rates at the market. BNF costs should hardly be lower than the other micro-financing entities; thus the method to establish interest rates should be in accordance with the calculations of effective cost and necessary profits, and thus, establish the interest rates with transparency.

Development of workers' capacities

Only in recent years small scale farmers have become BNF's major clients, at the beginning, the major clients of BNF were owners of large properties. On the other hand, most workers (especially at senior level) were working at BNF before the launching of micro-finance operations, so they do not feel sufficiently motivated in this way. The micro-finance scheme is totally different from the corporative finance and it is important to know the scheme deeply; however, in many cases, understanding is apparently only superficial, and capacity development of the staff, including a change of mentality is necessary.

Cooperation of institutions related to MAGAP

BNF has workers with agricultural knowledge but in the first place it is a bank and it has no personnel specialized in agricultural techniques. Therefore, to attend to the needs of clients, cooperation and coordination with MAGAP is indispensable. However, at the present, all cooperation systems with concerned entities are based on personal knowledge of managers or based on some project. In this way, in case of transfer of personnel, this cooperation vanishes and it is necessary to start all over again. It is necessary to organize a system and a mechanism of institutional cooperation from top to bottom.

(4) Recommendations on micro-finance

The need for credit by small scale farmers is very high. In order to attend said necessities, many cooperatives were created as well as systems of financial assistance such as the generation of small scale farmers value chains by private companies, and micro-financing is in ascension. However, in this context, results of BNF related to micro-finance are not favorable (Previously mentioned).

In case the BNF, as a micro-finance institution, adopts a policy of placing itself as an agrarian bank with micro-finance as the main product to support small scale farmers, the low interest rate (subsidies) policy has to be reevaluated, as observed by the low performance and the feelings of the workers, re-thinking which products should be offered and at what interest rates.

Considering the experiences and lessons learned from other micro-finance institutions around the world, we have the following problems in the scheme of credits that establish interest rates below the cost of funds recollection.

- 1) Funds may come from clients' savings and international institutions but loans more expensive than costs lead to a reduction of the initial capital and it is necessary to look for other new sources once the primary financial source is exhausted generating sustainability problems.
- 2) Usually, even very small scale farmers have savings, and they have a potential need for financial institutions to deposit savings. For the financial institution, such deposits have the merit of supplying capital and are also a bond of trust. One of the disadvantages to be pointed out in relation to the subsidy is that it discourages awareness and efforts regarding savings³².
- 3) Some persons consider that special credits at lower rates are granted as charity. One of the necessities of the small scale farmers is to be treated in equitable conditions and they do not wish charity; in some case they avoid products under too good conditions.
- 4) The system of subsidies depends on oscillations of government policies and budget. This may cause problems regarding stability and sustainability.

The Inter-American Development Bank has the following opinions concerning BNF credit and for the moment it does not have a position to support BNF.

- 1) Small scale farmers consider that BNF's low interest rate of the micro-credit loans are money from the State so they do not feel obliged to pay back the loans.
- 2) Money alone is provided for the farmers' projects and the necessary respective understanding and required technical assistance is absent.
- 3) The financial system of the country is weakening because project payback follow up is not carried out.

³² Bolivia's Banco Sol acknowledges the importance of savings for the micro-finance and has strengthened this activity; presently 90% of the portfolio is covered by savings.

- 4) The only strength of BNF is having agencies in all major cities in the country. It is a good idea to use this strength by increasing the number of agencies at national level.
- 5) BNF was created as a bank to support large properties and most of the personnel is not trained to attend to small scale farmers. Besides, it is a public bank of the State and still maintains some old structures; they do not have a relationship of proximity and trust with small scale farmers in the communities.
- 6) BNF should not implement micro-credit in a direct way, it should support micro-finance institutions that are closer to the population. (It is more recommendable to perform the role of a second floor bank).

Still according to IDB, micro-finance was developed based on a system of group supportive responsibility, but this system also presents some difficulties regarding personal loans. It is time to change the orientation toward the system of micro-yielding to one that evaluates the payback risk based on the cash flow of the project to be financed, and thereby to attend to the needs of individual credits. To finance under this system it is necessary to better understand the project, through an evaluation of the same, requiring more proximity both with the project and the communities.

The importance of providing assistance to a project before and after the execution is frequently mentioned regarding the support to small scale farmers through micro-financing. This project proposes the establishment of a cooperation system among the related entities, by carrying out a discussion table. Projects with the cooperation of related entities were executed in the past but in most times they were based on the personal inter-relationship of managers or chiefs of zonal agencies so when transfer of personnel occurred all schemes had to be reformulated from the beginning and cooperation projects did not progress. It is important for participants to get used to sharing information with other workers of the institution in meetings and workshops.

BNF pointed out that there is a lack of understanding by MAGAP regarding products, knowledge and experience of BNF workers and that interventions that could be carried out by BNF are carried out by cooperatives instead; so this aspect should be improved. On the other hand, MAGAP pointed out BNF's lack of understanding regarding agricultural techniques, among other things.

The impression that BNF's position gives is that if they offer micro-finance products in better conditions than other micro-financing institutions, small scale farmers will naturally apply for loans. Apparently, BNF has assumed a position in which they consider that all necessary measures to clear costumers' dissatisfaction, like simplifying procedures and reducing the number of required documents were already taken; said modifications are not promoted and they consider that persons requiring credits should know about them once it is all explained in the pamphlets and advertisings. In order to achieve a change of attitude, where the bank approaches the communities to promote the product, personnel's capacity development is necessary through the realization of seminars and motivation must be raised inside the institution at all levels from the

top to the base.

The present strategy of BNF to expand the net and open agencies in all cantons is satisfactory from the point of view that it will facilitate communication and mark a closer presence in rural communities. In farther communities, mobile bank operations were launched but this service counts on only two big buses (at national level). This is insufficient for far away rural roads with bad conditions, so improvements in this aspect are necessary.

(5) Goals of the micro-financing guidelines

- Organization of a government supervision system with the establishment of a supervising entity for non-regulated micro-financing institutions that have been created in a disorganized way
- Organization of an alliance system between financial entities and the providing of technical assistance to agriculture
- Expand interventions in the Sierra region, involving micro-financing entities in relation to BOP businesses, with the alliance of companies, universities and the government. The promotion of alliances with agrarian universities to complement the lack of personnel in MAGAP is particularly recommended as they are numerous in the Sierra region.
- Revision of the BNF role through the reform of the subsidy system and the prompt start of operations as a Second Floor Bank, not to compete with other micro-financing institutions but to occupy a representative place as a micro-financing institution. Personnel capacity development and awareness raising have to be carried out at an early stage to achieve this objective.
- In case there is a wish to continue with the present subsidy system, it is at least necessary to define clearly to whom micro-credit products are to be directed and how the income and expenses are to be structured. Likewise, it should be made public why it is necessary for BNF to fix lower micro-credit interest rates compared to other institutions, why the 555 product has interest rates much lower than other banks and to whom this credit is directed. Also a subsidy scheme should be designed to allow obtaining benefits with micro-credit 555, like regular micro-credit loans, so as to allow BNF agencies to offer products to the interested persons more actively without the need to cover deficits with subsidies.
- Ecuador is one of the first countries where micro-finance operated by savings cooperatives was successful. It is necessary to make it publicly known inside and outside the country that, although BNF is a public institution that participates as a micro-credit institution in the financial market with low interest rates, its participation does not pose any risk of competition to the existing savings cooperatives; actually it complements the service of said cooperatives.
- It is necessary to reduce governmental intromission through budgets and policies and also to assure official guarantees and other necessary measures when BNF issues bonus and takes other measures so that BNF will be able to develop micro-financing in a stable and

sustainable manner.

- Although it is true that up to the moment, many schemes of subsidized micro-financing have been tested and that most of them failed, this is the opportunity for a new challenge to BNF and the Government of Ecuador since the idea is excellent. Discussion meetings have to continue with the participation of all involved participants and the failures mentioned in this report have to be taken into account as reference, and thus cultivate this ambitious initiative.

2.3 Guidelines of Supporting Services to Small scale farmers

Many projects of support to small scale farmers are presently being implemented in the Sierra region by provincial and municipal governments, MAGAP and other institutions. Said projects cover the whole productive chain from the provision of production infrastructure to commercialization the products, and are achieving certain positive results. However, although some are expected to be implemented or are not complete, the present Study has put into evidence some components for the support to small scale farmers in the Sierra that are extremely important and indispensable. The Study Team proposes three concrete components: 1) routine dissemination of knowledge, 2) articulation of projects, and 3) maintenance and improvement of soil productive capacity with the objective of improving and maintaining the agricultural productive infrastructure as a supporting mechanism to small scale farmers.

2.3.1 Importance of the routine dissemination of knowledge

There are many small scale farmers living dispersed across the vast region of the Sierra that demand agricultural technical assistance and the number of the extension agents to attend to them is too small. This is reflected in the very shallow relationship between small scale farmers and the extension agents.

Analyzing the environment surrounding small scale farmers in the Sierra region, in terms of land area, poverty rates, and particularly the literacy rate of ethnic groups, it can be affirmed that they are “forgotten communities” where “forgotten farmers” of a less developed country live. In order to allow said farmers to participate in this sustainable development stream by their own initiative, they have to turn into “thinking persons”, and in the long term they have to be trained through the day to day service of extension agents, able to stay always with the small scale farmers, think together and establish a relationship of mutual trust. This is the only feasible option for development. The intervention in human development is the basic concept of the agricultural extension public service.

Usually, the relationship between socioeconomic development and the agricultural extension has the following scheme.

- 1) Less developed country
 - ↓ Extension of specific techniques to increase food production through direct service (visits, rounds, etc.)
- 2) Country with medium development
 - ↓ Extension through demonstrations, seminars, etc. of techniques to increase productivity of commercial crops
- 3) Emergent country
 - ↓ Extension of techniques oriented to energy saving of commercial production and specialized techniques through group training, mass media communication, etc.
- 4) Developed country
 - Ambitious extension of very specialized techniques oriented towards the market demand, stressing healthy food and environmental considerations

Concerning the modalities of extension service, there are different ways, depending on the economic capacity of farmers to cover the cost of the services. From the food self sufficiency and management of local natural resources viewpoint, this service is provided by public entities in the case of developing countries, while in many developed countries, the public system disappeared or was privatized. In France, for instance, there is a large public system of extension with approximately seven thousand extension agents in each department, and the costs are covered by the same producers through taxes paid according to the amount of land (hectares).

In the specific case of Ecuador, there is a close relationship between the level of socioeconomic development in agriculture and the rural zone, and the intensity of support demanded. Following the criteria mentioned before, for production activities oriented to exports (banana, cocoa, coffee, broccoli, etc.), the required support is the type 3) “emerging country”; for agriculture oriented to the regional market inside the country, it is type 2) “country with medium development”; and , finally, for small scale farmers (with less than 5 ha) of Sierra region, the object of the present Study, the support required is the type 1) “less developed country ”, considering available land area³³, the rate of poverty³⁴, and the rate of literacy³⁵, among other factors. Therefore, Ecuador is characterized by presenting different levels of agricultural development distributed as a mosaic. Therefore, agricultural extension services for the “poverty reduction of small scale farmers in the Sierra region”, should be the “less developed country type” consisting in the “direct extension of specific techniques for the increase of food production through direct service (visits, rounds, etc.)” by public entities. Actually, specific techniques refer to the improvement of the food self-supply modality; that is, the increase of self-supply rate (food) and the stabilization of production. For that,

³³ 1,96 ha: Survey of 1192 production units in Tungurahua, Cotopaxi, Bolívar and Chimborazo Provinces. August 2009, by the JICA Study Team.

³⁴ 54 % (Sierra Region), Map of Poverty and Inequality 2006 (SIISE- STMCDS)

³⁵ Provinces with the higher rates of indigenous population are: Bolívar (40 %),Chimborazo (38 %),Cotopaxi (37 %), Carch (37 %), Imbabura (36 %) and Cañar (35 %), A profile of indigenous illiteracy and afro-Ecuadorians in Ecuador, P 6.

the first level of development has to be considered, starting with the extension in: (1) the individual (specific); (2) private; (3) direct (subsidy, donation, etc.) ; and , (4) local (communitarian). The routine extension service by extension agents covers exactly the activities from (1) to (4).

“Routine extension service”

- 1) Follow up the growth of the main crops (measurement, data recording and processing)
- 2) Visit to farms (detection of problems)
- 3) Visit to the producers houses: active service (advisement, solicitation, study, reference), passive service (receive requests)
- 4) Establishment of a human bond (relationship of trust, formation of key producers)
- 5) Detection of problems (through persons and products)

The routine extension service improves small scale farmers' capacity in self-supply and in different specific abilities, together with the establishment of a mutual trust relationship between the extension agents and the farmers. This strengthening (formation of thinking subjects) and the relationship of trust constitute the indispensable foundation for the “promotion of agricultural development and a self-sustainable rural zone” and achieving the transition: (1) from the individual (specific) to the organizational (collective); (2) from the private to the public; (3) from the direct to the indirect (legislation); and, (4) from the communitarian to the regional. In any case, it is important to take into account that before consolidating the first step “direct extension of specific techniques for the increase of food production through the direct service (visits, rounds, etc.)” it would not be feasible to progress to the second step (introduction of commercial crops).

The role of the extension agents in the public system will have more relevance as agricultural and rural zones develop, acquiring a larger dimension from the individual to the organizational, from the communitarian to the regional. In the future, the public service of extension could be privatized or assumed by private companies. Yet it is important not to forget that the public service of extension implies food security and the management of agro-environmental natural resources.

Expected requirements for extension agents:

In the following Figure the number of productive units for each of the 91 parroquias in the ten provinces of the Sierra region are indicated.

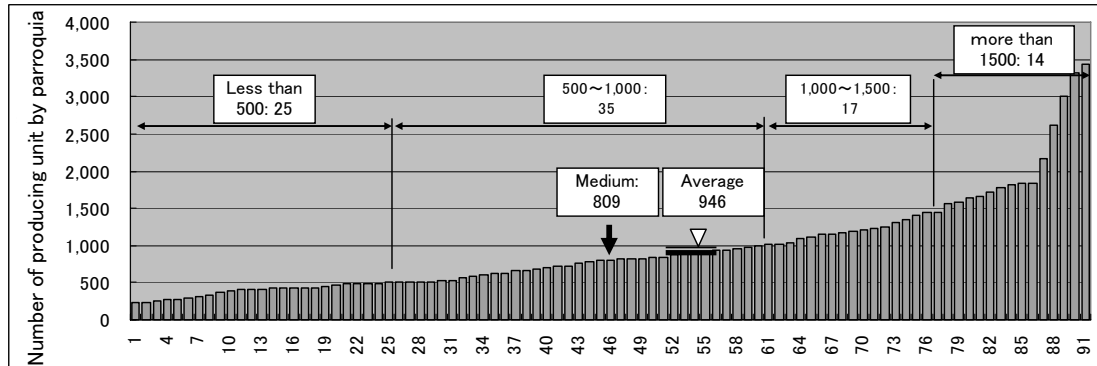


Figure 2.3.1 Number of productive units for each of the 91 parroquias in the ten provinces of the Sierra region

Parroquia sizes are very different, the smaller have less than 300 households while the larger ones have 3,500, with approximately 900 households in average. Supposing that a standard module with two experts in agriculture and one expert in cattle raising for a representative parroquia is designed and that small parroquias in the neighborhood are to be grouped as one, approximately 2,000 extension agents would be required in the Sierra region.

It would not be realistic to consider that once approximately 1,000 facilitators in the whole country are to be hired and trained; another 2,000 high quality extension agents would be assigned to the Sierra region. The most feasible way is to first center efforts in the formation of facilitators and then go on enriching and adapting the extension system to achieve in this way the quantified goal towards the future. Concerning facilitators, they should be properly trained (for details see 4-3) to answer the needs of small scale farmers.

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- (4) Policies regarding the implementation of agriculture extension systems of cooperatives –Chiba Prefecture –

2.3.2 Basic guidelines for the maintenance and strengthening of soil productivity and soil conservation

(1) Existing Problems

After the agrarian reform, from 1964 to 1972, land was distributed to Indigenous people and small scale farmers in the Sierra region. Properties were distributed to small scale farmers in units of approximately 5 ha but over the years these were fragmented due to transfers by inheritance. As said properties are in the Sierra region, not all land is useful for agriculture and presently this activity is carried out in very small areas. As a result of the continuous use of soil for agricultural activities over the years, small scale farmers presently face the following problems.

- In the Sierra region, around 80% of the land has a gradient over 25 degrees and usually the land of small scale farmers is located in zones of very steep slope; continuous agricultural practices in these lands have caused soil erosion leading to a reduction of productivity.
- Due to the small areas, new cultivation areas had to be exploited and consequently wooded areas were reduced, making the recovery of soil productive capacity with the nutrients found in the land more difficult. Also geograhly of the slope and the action of winds have impoverished the soil.
- With the subdivision of properties, soil was used in such a way that the grade of soil fertility could not be naturally recovered and therefore, it degraded.
- Due to the characteristic of climate in the Sierra zone, the decomposition rate of organic matter in the soil side is slow and its recovery demands a long time.

(2) Necessities of support to small scale farmers in the promotion of soil productivity and challenges for soil conservation

Agricultural land is a basic means of production for small scale farmers in poverty as a source of food and income. Actions of agricultural support to reduce poverty of small scale farmers should guarantee production activities through the promotion of soil productivity by preventing the reduction of soil productive capacity and promoting soil conservation to prevent erosion.

One of the main factors causing agricultural productivity reduction is a consequence of a combination among the existing agricultural productive activities and characteristics of the soil (physical-chemical and natural). Below, the issues of each problem for the “maintenance and promotion of soil productive capacity” and “soil conservation” are shown from a technical point of view.

Table 2.3.1 Problems and issues of soil degradation in the Sierra

Problems of the existing agricultural activities		Issues for soil productivity maintenance and its promotion	Issues of soil conservation
Sowing System	Monoculture reduces soil productivity	- Dissemination of rotation crops	
	Short period for rotation	- Dissemination of green manure	
Water	Irrigation by furrows in slopes cause soil erosion		- Extension of water saving irrigation methods - Extension of techniques for the cultivation in terraces on slopes
Manure	Lack of compost and organic manure in the lands		- Production and supply of compost at canton, parroquia and community levels.
Land Use	Soil hillside by the use of slopes as cultivation land	Erosion caused by using solpe as cultivation land	- Extension of cultivation techniques without plowing - Extension of green manure cultivation - Extension of mixed crops
	Soil fertility decline caused by increased usage of very narrow farm land that was brought by subdivision of lands	- Maintenance and improvement of soil productive capacity with the application of compost and organic manure	
Physical Characteristics	Hillside erosion		- Dissemination of techniques to prevent soil erosion (Filtration works, cultivation in terraces, etc.)
	Soil preparation in sowing season and the locomotion during harvest facilitates superficial erosion of soil		- Cultivation without plowing - Dissemination of vegetation cultivation as protection against winds. - Dissemination of humus utilization in land preparation
Chemical characteristics	The higher the altitude, the less acidification the soil	- Introduction of crops adequate to the soil pH - Application of organic matter proper for soils with low acidity	
	Soil with low nitrogen content	- Dissemination of crops with properties of nitrogen fixation (grain)	
	In altitudes above 2,000 m, the higher the altitude, the lower concentration of organic matter.	- Collection and application of organic matter	
Natural characteristics	Since soil micro-organisms activity decreases with increasing altitude, decomposition of organic matter slows, consequently natural recovery of soil fertility slows too.	- Production and dissemination of compost application with raw material obtained in the zone, like harvest remains - Dissemination of humus application in cultivated land - Dissemination of an adequate system of crop rotation	

(3) Basic guidelines for maintenance and promotion of soil productivity capacity and soil conservation

There are many combined problems regarding the soil that are the cause for low productivity. Besides, there is not a single measure for maintenance and promotion of soil productivity capacity and soil conservation and it is necessary to take measures according to the characteristics of the soil in each zone. Also, some measures can be implemented by each producer individually but others have to be implemented by the zone as a whole; thus, there are several issues and they should be comprehensively considered by each zone.

For instance, in the Sierra it is necessary to continuously supply nutrients to the soil and maintain its good condition through application of organic matter; however, organic matter in the region is limited and there is not an organic waste collecting system that is generated by families' daily activities to transform it into compost; furthermore, the amount of organic matter found in the soil is insufficient. On the other hand, decomposition of organic matter is slow and natural recovery of soil productive capacity takes too much time. For this reason, it is necessary to introduce an organic matter collecting system at the community and parroquia levels in order to produce compost and effectively apply this scarce organic matter for the cultivation of commercial products in small areas. In order to allow these measures to cover several aspects and issues to be implemented, adequate techniques have to be known as well as foster a change in the mentality concerning the existing agricultural management. This leads to a joint effort among all institutions concerned in the Study area.

On the other hand, small scale farmers are not aware of the cultivation land productive capacity deterioration level and they maintain production through the expansion of cultivation areas without understanding the dangerous situation they are in. Regarding soil erosion, as the situation cannot be perceived by naked eyes, producers do not take any measures against it because awareness of the danger is low. Summarizing, small scale farmers lack interest and awareness concerning the implementation of measures to promote and maintain the productive capacity of cultivated land or soil erosion by their own will; even less in relation to the cooperation and coordination with neighboring farms with similar problems. For this reason, awareness in relation to maintenance and improvement of soil that is the basic means of production has to be increased and producers with leadership are required to put together and lead producers of the region in this direction. Therefore, the implementation of routine technical assistance and awareness raising extension services have to be implemented, strengthening a relationship of trust between supporting entities and producers and their leaders, so they become aware of soil maintenance and improvement importance.

Details of referred techniques are in 5.2.1 “Techniques of agricultural management” and 5.2.2 “Soil Conservation”.

2.3.3 Necessity of articulated projects

Presently, projects of support to small scale farmers in the Sierra region are being implemented by multiple entities, including the provincial and municipal governments, MAGAP, and NGOs. However, many of the projects are independent and isolated interventions and there are very few examples of articulated projects. In order to increase the level of agricultural income of small scale farmers it is necessary to consider the integral development that covers all the productive chain, since an isolated project addressing irrigation or improved seed distribution, for example, would have a very limited impact for the poverty reduction of farmers. There are many projects such as installation of irrigation systems, collection centers, processing plants, etc. that especially require continuous technical follow up in cultivation issues, operation and maintenance of installations, distribution and commercialization, etc., for optimum results. Therefore, the intervention of executing entities is required both in structural components (infrastructure construction) and non structural components (technical assistance).

(1) Existing Situation

Although all entities and institutions are very conscious about the necessity to articulate efforts to implement projects, this idea has not been materialized yet. For instance, 46 productive chain projects have been implemented in the frame of the PPCH in Chimborazo, and of these, only nine have been interventions by more than one entity. They are: four of municipal governments, four of NGOs and one of MAGAP.

Also in a work group integrated by several relevant entities and institutions organized during the present Study, opinions heard reflected the lack or insufficiency in the promotion of articulated projects where several institutions and entities share information.

(2) Perspectives towards the future

In Chapters 3 and 4 of the present document, a system of inter-institutional cooperation for the support to small scale farmers at provincial and municipal levels is mentioned. Articulated projects should be implemented in the frame of said system. Particularly, MAGAP institutions such as INIAP, INAR, INCCA and BNF, or CADERS, which is a project executing entity, can be counted on for specialized knowledge and means of development that is lacking in provincial and municipal governments, showing the importance of involving said institutions in the system of inter-institutional cooperation. As these institutions, except the BNF, are in the middle of the reorganization process the future scheme of inter-institutional cooperation may change according to the results of the reorganization. In any case, MAGAP should plan future actions considering the possibility of becoming the single interlocutor of these institutions.

As concrete samples of articulated projects, we have the incorporation of components such as technical assistance of cultivation and micro-credit, etc. in an irrigation project, or the incorporation of technical assistance in cultivation or agricultural processing components in a

project of distribution and commercialization. Another alternative to achieve positive results is the implementation of complementary projects in zones previously intervened by isolated projects of irrigation, cultivation techniques, construction of processing plants, etc. Anyway, it is important that different entities and institutions share information about the conducted activities.

2.4 SWOT analysis about ERAs and Recommendations

In Ecuador there were extension agents until the structural adjustments proposed by the World Bank that were conducted in the decade of the eighties. However, few extension agents remain at the local offices of MAGAP today and they cannot benefit all small scale farmers in the country. Besides, MAGAP extension agents are mostly experts in certain agricultural techniques and have little ability regarding facilitation. INIAP is another institution that provides extension services but it has fewer human resources available than MAGAP as well as a reduced scope of action.

In this context, MAGAP has proposed to implement ERAs in order to carry out agricultural and rural development. ERA is an implementation tool of the National Program of Agricultural Innovation and Productivity, with the objective of achieving food self sufficiency and reduce poverty through the improvement of the productive chain of the major crops in all levels. Its predecessor is an extension system that allows participants to effectively acquire the necessary techniques to achieve higher levels with self-initiative through different schemes of facilitation. On the other hand, as the learning process has been designed to benefit small scale farmers, the management techniques of farms and production that should be improved and that were included, were mostly primitive. So, techniques required by support providers were facilitation techniques to identify imminent problems within the participative modality. In this sense, in ECAs' support facilitation techniques were more important than agricultural (or training) techniques. On the other hand, as techniques used by small scale farmers in the Sierra Zone are primitive, as indicated before, ERAs that continue to adopt the same methodology applied by ECAs, constitute tools for the transfer of effective techniques to support small scale farmers in poverty.

However, ECAs are a system of agricultural extension and in only a very few cases they have been used as a multi-sector rural development system, like the ERAs, and the problems and aspects to be improved are not very clear. In May 2010, MAGAP had approximately 300 ERAs facilitators. Some one thousand facilitators are expected to be formed in the whole country, including the 460 for the Sierra Region, who are to be assigned to the Agency of Agriculture Services (ASA, in Spanish) in each Province. ERAs facilitators are to be hired for a limited period of three years, and the situation after this period has not been defined yet. Considering that the capacity of routine extension agents are to be strengthened through real and practical actions, the thousand facilitators will be to become very valuable assets after three years of experience.

Following, the results of the SWOT analysis on the implementation of ERAs are presented.

2.4.1 Internal and external environment

The following Table shows the analysis of the internal and external environment of ERAs.

Table 2.4.1 Analysis of Internal and External Environment of ERAs

	Strengths	Weakness
Internal Environment	<ul style="list-style-type: none"> ✓ MAGAP has delegations in each province and ASAs at canton level. ✓ The formation of 460 facilitators is expected for the Sierra region in the program of formation executed by MAGAP. ✓ ERAs constitute ECA successors that have accumulated experience with international organizations such as FAO, etc. ✓ In Ecuador, INIAP provides technical extension services applying ECA methodology. ✓ MAGAP extension agents are technically trained to provide support to small scale farmers. 	<ul style="list-style-type: none"> ✓ The key to the success of ERAs is to assure the availability of facilitators. However, there are few technicians with experience and new resources have to be formed. ✓ The impact of ECAs has been detained; in many cases only at the project site (beneficiary farmers' organization) and also the disseminated techniques were too specific. ✓ ERAs are effective for rural development and beneficiaries are limited only to farmers organizations registered in MAGAP. ✓ The contract period of ERAs facilitators is three years; it ends just when facilitators have accumulated a certain grade of experience. ✓ Techniques extended to farmers by ERAs cannot be sustained without a continuous follow up.
	Opportunities	Threats
External Environment	<ul style="list-style-type: none"> ✓ ERAs constitute a development system of small scale farmers framed in the "Buen Vivir Rural". ✓ Implementation capacity of regional governments, especially cantons and parroquias is presently very limited. 	<ul style="list-style-type: none"> ✓ There is a high number of poor small scale farmers in the Sierra Zone, as well a high number of communities with this segment of population (approximately a thousand communities in Chimborazo) ✓ The New Constitution establishes that MAGAP is the leading entity of agricultural sector policies, while executing entities are the provincial, cantonal and parroquia governments. ✓ Design of canton and province TAP are not finished yet.

2.4.2 SWOT Analysis of the ERAs implementation

Scope of action using the strengths and opportunities of ERAs

Table 2.4.2 SWOT Analysis of the ERAs (Strengths – Opportunities)

Scope 1: Using strengths and opportunities		Strengths			
		System based in ECA	Application of ECA by INIAP	Formation of a high number of facilitators	Extension agents are distributed in each canton
Opportunities	ERAs are a system of extension in the frame of the National Plan - MAGAP	① Strengthen the strategic alliance with FAO concerning policies and INIAP concerning techniques in the site		② Establish a system of extension around ASAs and extend technical cooperation to canton and parroquias.	
	Executing capacity of canton and parroquias is still limited				

Scope of action to overcome threats with ERAs strengths

Table 2.4.3 SWOT Analysis of ERAs (Strengths– Threats)

Scope 2: Scope to overcome threats with the strengths		Strengths				
		System based in ECA	Application of ECA by INIAP	Formation of a high number of facilitators	Extension agents are distributed in each canton	Extension agents are trained to support small scale farmers
Threats	There is a high number of small scale farmers in poverty in the Sierra, as well as communities with this segment of population	① MAGAP plan considers assigning two facilitators to each canton. The number of available resources is not adequate to fulfill this plan, so the number of facilitators should be increased and at the same time, cooperate with INIAP and provincial, canton and parroquia governments.				
	The new Constitution appoints MAGAP as the leading authority of agriculture, fishery and rural development sector policies, while executing entities are the provincial, canton and parroquia governments			② ERAs project promoted by MAGAP should be transferred to the respective canton or regional governments in the future.		
	Design of canton and provincial TOP are not finished yet.			③ ERAs actions should be coordinated with the development plan of canton and provinces.		

Scope of actions to overcome weakness with ERAs opportunities

Table 2.4.4 SWOT analysis of ERAs (Weakness–Opportunities)

Scope 3: Scope to overcome weakness with ERAs opportunities		Weakness				
		Necessity to form new resources such as facilitators	Contract of facilitators is for three years	Only beneficiary farmers' organization learn the techniques	Techniques extended by ERAs require continuous follow up	Beneficiaries are limited to farmers organizations registered in MAGAP
Opportunities	ERAs are a system of extension in the frame of the National Plan - MAGAP	① Implementation of an OJT system together with the formation of facilitators.		② Necessity to expand actions of ERAs or establish a new supporting system to cover all small scale farmers in poverty.	③ ERAs should not be only a tool to solve specific challenges, but use its full function as a system of rural development to support farmers and communities in the long term	
	Executing capacity of canton and parroquias is still limited		④ Transfer facilitators			

Scope of action to overcome ERAs weakness

Table 2.4.5 SWOT analysis of ERAs (Weakness–Opportunities)

Scope 4: Scope to analyze and improve ERAs weakness		Weakness			
		Necessity to form new resources such as facilitators	Contract of facilitators is for three years	Only beneficiary farmers' organization learn the techniques	Techniques extended by ERAs require continuous follow up
Threats	There is a high number of small scale farmers in poverty in the Sierra, as well as communities with this segment of population	① Effectively use facilitators formed in ERAs after the end of the contract period. It is necessary to assign them to the municipalities.	② Establish a system capable of supporting all small scale farmers in poverty, making them participate in the stage of plan elaboration to reflect their needs.	③ Initially, ASAs are to be the base to establish a close contact with small scale farmers. In the future, the possibility to transfer this base to the extension of the respective municipalities.	④ Maintain a scheme of close cooperation with parroquias to know the reality of communities.
	The new Constitution appoints MAGAP as the leading authority of agriculture, fishery and rural development sector policies, while executing entities are the provincial, canton and parroquia governments				
	Design of canton and provincial TAP are not finished yet.	⑤ Provincial offices of MAGAP should actively participate in the elaboration of canton and provincial TAPs providing information about the extension system through ERAs.			

2.4.3 Recommendations about future policies of ERAs actions

According to the SWOT analysis, two types of challenges were identified for the ERAs implementation: urgent challenges and challenges with a futurist view.

(1) Urgent challenges

Revision of MAGAP's provincial offices trainers' assignments

The provincial offices of MAGAP adopt two modalities of extension agents' assignments: the first consists in the assignment of personnel by cantons and the second according to their specialty (agriculture or animal husbandry). The Study recommends the assignment of trainers to the provincial office in each canton with the purpose of implementing policies and projects of MAGAP strengthening the link with canton and regional governments.

Challenges related to the formation of facilitators

The cooperative relationship between MAGAP, that is presently forming facilitators, with FAO or INIAP that have experience working with the ECAs should be strengthened. Likewise, it is necessary to establish an On the job training (OJT) system after the launching of operations. As the assignment of facilitators was carried out in June 2010, it is extremely urgent to start the procedures to establish the OJT system.

Participation in the Regional Development Plan

The Territorial arrangement plans (TAPs) presently under elaboration and implementation by the regional governments have to reflect the policies proposed in the National Plan “Buen Vivir Rural”, including the National Program of Agricultural Innovation and Productivity and the ERAs in the respective TAPs.

Initial actions of ERAs

Although ECAs, that are predecessors of ERAs, originally constituted a methodology of participative agricultural extension, there are few experiences, not only in the country but at world level, in the use of improved ECAs as a system for rural development. Moreover, MAGAP has little experience in the implementation of ECAs; so the accumulation of experience through the National Program of Agricultural Innovation and Productivity is necessary at the initial stage, expanding the scope of action in time.

(2) Challenges with a futurist vision

Use of facilitators in the long term

The contract period of facilitators is three years. Considering the important contribution of the one thousand new facilitators properly formed and trained in the reduction of poverty, it is necessary to look for new possibilities to use their abilities even after the contract is over, to reduce poverty and to the support of small scale farmers.

Proper distribution of facilitators after the contract

The new Constitution attributes the responsibility of implementing actions for communitarian development to regional governments. Particularly, canton and provincial governments would assume the central role in the execution of supporting projects to small scale farmers. The technical extensions should be provided by an entity permanently in close contact with rural communities, and municipalities should assume the actions of the extension. Henceforth, it is necessary to study the possibility of transferring facilitators to the municipalities, once the contract is over. Necessary coordination with the municipalities should start at an early stage to speed up this transfer.

Original use of ERAs

ERAs are a participative type development system where the population takes the initiative to improve their living conditions or economic activities, through discussions and mutual consultations with the purpose of being empowered by the accumulation of experience. Consequently, it cannot be applied as a management system of programs or projects with specific objectives. However, as the high effectiveness and usefulness of technological transfer to farmers with ECAs methodology has been demonstrated, many projects have adopted the ECA modality using only the advantages. However, many times these cases lack sustainability and autonomy and do not achieve the essential objective of ECAs. Therefore, it could be proposed to initially

use ERAs as an implementation system of the National Program of Agricultural Innovation and Productivity, with the assumption of expanding the scope of action together with the strengthening of the technical level of facilitators.

Permanent education of facilitators and trainers

Facilitators and trainers working in agricultural and rural development should constantly acquire new techniques and knowledge, so a system of permanent education should be established with the participation of the beneficiaries. For more details, see Chapter 4, item 3.

ERAs Beneficiaries

Beneficiary groups of ERAs are farmers organizations registered in MAGAP, that, in the case of Chimborazo Province, presently (June 2010I) is 784 communities and 144 associations. Although there is a certain grade of duplicity in communities and associations, it can be affirmed that they cover almost all of communities in this Province. However, it is also true that there are some communities not registered yet, and registration procedures have to be completed.

Routine extension service

Although ERAs form a system capable of obtaining high effectiveness in the support to small scale farmers, each session should have a maximum of thirty persons due to operative reasons of the system. This is not a problem concerning agricultural development, but it is a problem when solving the necessities of poverty reduction or communitarian development benefiting all members of a community. Therefore, it is necessary to see the possibility of implementing an extension system to provide coverage to the entire community. Also, it is necessary to develop ERAs actions together with the routine extension services.

Chapter 3

Basic Guidelines for the Inter-institutional Cooperation System for Small Scale Farmers

Chapter 3 Basic Guidelines for the Inter-institutional Cooperation System for Small scale farmers

3.1 Basic guidelines for the support of small scale farmers

The National Plan “Buen Vivir Rural” (National Plan for Rural Good Living) proposes four development objectives related to small scale farmers in poverty, the results to be achieved in the fulfillment of said objectives, as well as the plans, programs and systems to achieve said expected results. On the other hand, each canton and province is preparing their respective Territorial Arrangement Plan (TAP) establishing the framework of the basic guidelines and agricultural development projects. In this context, the present Study proposes the tools for the support for small scale farmers to be included in the plans of the governmental institutions, based on the findings described in Chapter 2 of the present document related to the present situation of small scale farmers and the supporting entities.

3.1.1 Strengths and weakness of small scale farmers in poverty and support services providers in the Sierra Zone

There are many strengths and weakness in the small units of production in the Sierra Zone. They are vulnerable due to the modality of exploitation carried out by small scale farmers, as well as the natural conditions, such as the high altitude. Traditional forms of unit production management under a system of mutual help that were practiced over the years (strength) face today a crisis of community disintegration caused by low production and productivity in farming activities, as a consequence of the deterioration and segmentation of the production units (weakness).

So far, support to small scale farmers has been conducted through several projects achieving a certain grade of positive impacts. However, due to the fact that not all needy communities have been attended by said projects, and due to severe natural and socioeconomic conditions of small scale farmers in the Sierra Zone, support has not necessarily benefited all small scale farmers in poverty. Orientations regarding said support service have been clearly defined by the new Constitution, the National Plan for “Buen Vivir” (Good Living) 2009 – 2013 and the “Buen Vivir Rural” 2009 – 2013. Adding to these plans, there is the Territorial Arrangement Plans (TAP) under preparation by the respective cantons and provinces, which will help to better clarify the concrete actions to help small scale farmers. However, it should be taken into account that TAPs preparation would be ending by the summer of 2011 at canton level, and later at the provincial level.

A summary of the weakness and strengths of agriculture and animal husbandry developed by small scale farmers in Ecuador is presented, as well as the weaknesses and strengths of the support entities identified in Chapter 2.

Table 3.1.1 Strengths and weakness of agriculture and animal farming of small scale farmers in poverty

Strengths	Weakness
<ul style="list-style-type: none"> • Traditional techniques of production. • Production of crops adapted to the Andean Region. • Working of a system of mutual help at communitarian level. • Possibilities of obtaining non farming income. 	<ul style="list-style-type: none"> • Decomposition of the sustainable use of soil (use of land, water, soil). • Loss of native crops and deterioration of genetic characteristics. • Difficulty to achieve fair trade in surplus production. • Delay in farmers organizations as foundation for building the value chain • Communities in disintegration crisis.

Table 3.1.2 Strengths and weakness of supporting entities

Strengths	Weakness
<ul style="list-style-type: none"> • Provide support to small scale farmers based on the New Constitution and the National Plan “Buen Vivir”. • Develop actions in the framework of the plans, programs and systems defined in the “Buen Vivir Rural”. • Promote the concrete development in the framework of the respective TAP where the local government would play a central role in the support to small scale farmers. 	<ul style="list-style-type: none"> • Population of small scale farmers is larger in relation to the availability of personnel and resources of supporting entities and the population is dispersed. • Inter-institutional cooperation is limited. • Activities of supporting entities do not cover all needs. • Some actions of the supporting entities have to be improved.

3.1.2 Challenges in providing support to small scale farmers and basic guidelines for the solutions

Support provided to small scale farmers in the Sierra Zone has so far been developed through several programs and projects by different institutions. Such activities have provided a certain grade of results in the activities of small scale farmers in poverty and a greater expansion of said supporting actions is expected. Nonetheless, in order to overcome the weaknesses and make full use of the agricultural activities strengths developed by the small scale farmers in poverty mentioned in the above paragraph, it is necessary to introduce the three following systems and also the contents of the support proposed in chapter 2.

- Routine extension service:
Permanent and routine extension with priority to the facilitation function.
- Improvement of production infrastructure:
Projects oriented to the improvement of soil fertility that sustains agricultural production, although impacts are not immediate.
- Articulation of projects:
Combination of projects to achieve synergy and effectiveness for the fulfillment of the expected results (example: combination of irrigation and cultivation techniques extension).

It is expected that the said support actions are to be largely extended towards small scale farmers

with the necessary continuity established in such way that individual supporting actions of organizations would hardly provide the expected results. However, institutions supporting small scale farmers in the Sierra Zone also have weaknesses in relation to the support of small scale farmers; thus, it is necessary to achieve the coordination and distribution of roles based on inter-institutional harmonization in order to mitigate such situation. Moreover, as the TAP, presently under preparation is to be the foundation of agricultural development in the provinces and cantons, the participation of supporting institutions for small scale farmers in the TAP elaboration is very important.

3.2 Basic guidelines of the inter-institutional coordination system for small scale farmers in poverty

3.2.1 Basic conditions of the inter-institutional Linkage system for small scale farmers in poverty

The development of provinces and cantons will be promoted in the next years by including it in the Territorial Arrangement Plan (TAP) presently under elaboration based on the Development Plan already prepared. Therefore, the Inter-institutional Coordination System for small scale farmers at the provincial and canton levels to be proposed by the present Study should contribute to the implementation of the regional Territorial Arrangement Plan (TAP). In this direction, this last will consist of the main assumption to be taken into account at the time of studying the Inter-institutional Linkage System. Additionally, other previous conditions are item 3.2.1 “Basic guidelines of the inter-institutional coordination system for small scale farmers” of the present document and “Buen Vivir Rural” that is the State policy for the agricultural sector. Basic conditions considered in the reorganization according to each tool are the following.

(1) Basic Conditions according to the Territorial Arrangement Plan (TAP)

As established in the New Constitution and the National “Buen Vivir”, Ecuador regional development is to be implemented under the leadership of provincial governments through the Territorial Arrangement Plan (TAP) to be prepared at canton and province levels. It is defined that in the following years regional development (particularly industrial development), and also the reorganization process of supporting services for small scale farmers are to be promoted based in the TAP. Although this instrument has only recently begun being prepared, it is considered that the policies of industrial promotion as well as the system to support it, generally required in an ordinary TAP, are to be maintained in the TAP presently under elaboration also. Hence, in the proposal of the Inter-institutional Coordination System plan, the orientation of the ordinary TAP is to be followed adding some particularities to the Sierra Zone; in this direction, the adoption of the following basic conditions to promote the industrial cluster around agriculture and animal husbandry of small scale farmers are proposed.

- **Creation of the Agricultural Forum as foundation for the co-management system:**
 TAP proposes a development model where all actors integrating the industrial cluster assume the roles they have to perform. For this reason, the creation of the Agricultural Forum integrated by all actors involved in the promotion of the agricultural sector is proposed. This Agricultural Forum is to be the foundation of the co-management system.
- **Creation of the Canton Agricultural Forum:**
 TAP proposes to promote the development of the urban-rural set. A canton is basically formed by the urban area and the rural zone surrounding it, thus fulfilling this condition. Presently canton governments are preparing their respective TAP.
- **All actors involved with the agricultural sector are participants of the Canton Agricultural Forum:**
 All actors of the agricultural sector and the related industrial cluster are to be participants in the reorganization plan. Concretely, it will be composed of private sector actors (small scale farmers, associations, food processing industry, sub-sectors of market/distribution/commercialization, equipment and agricultural input suppliers, etc.), public sector actors (canton and provincial governments, MAGAP, etc.), research institutes (universities, etc.), NGOs and financial institutions, among others.
- **Creation of the Province Agricultural Forum:**
 The development unit defined in the TAP is the canton. However, there is a larger territory that surpasses the canton scope. Thus, the creation of an Agricultural Forum at the provincial level is also necessary. As defined by the Constitution, provincial governments will assume the responsibility of putting into practice the respective TAP, and as such, the Provincial Agricultural Forum will assume the function of the canton Agricultural Forums coordinator.
- **Creation of canton and provincial agricultural roundtables:**
 The Agricultural roundtables are to be created to support the process of the province and canton TAPs' preparation, establishment of the Agricultural Forums and the coordination between the small scale farmers supporting entities. In this sense, the basic members of the Agricultural roundtable are: the MAGAP provincial office, as governmental entity responsible for small scale farmers support, and the province, canton and parroquia governments. To these members, other institutions are to be added according to the needs of the specific challenges. Like the Agricultural Forum, the Agricultural roundtable is to be created at canton and provincial levels.
- **Creation of an inter-institutional co-management system at canton level involving regional governments, MAGAP, etc.**
 There are few experiences with TAP in the country. Although the canton government is to

assume the leadership in the implementation of the canton TAP, the executing capacity is still very limited. Therefore, at this level it is necessary to establish a co-management system among canton and provincial governments and the MAGAP.

(2) Basic conditions according to the basic guidelines of small scale farmers support

Following, the basic conditions for the Inter-institutional coordination system that allows putting into practice the three basic guidelines of support to small scale farmers mentioned in 3.1 is presented.

- **Creation of the Agricultural Forum and the Agricultural roundtable as the information basis for the routine extension service**

The routine extension service to be provided mainly by the municipality is a channel to disseminate information and basic knowledge to all small scale farmers and to identify the development demands by this segment of the population. It consists of providing to the communities the information about the developments implemented at provincial and national levels, as well as to solve basic problems together with the small scale farmers. For the rendering of this service it is necessary to know the actuation of all the actors, besides the national, provincial and canton governments' activities; and the technical backup related to agriculture and animal husbandry has to be accounted for. In other words, the routine extension service will serve as the interface among all the actors of the agricultural sector and the local small scale farmers. In this sense, the Agricultural Forum and the Agricultural roundtable are to be created as the proper space for the exchange of information among facilitators and sector actors.

Although the present Study proposes the institutionalization of the routine extension service, its materialization requires a considerable time. So, it is proposed that in the initial phase, the ERA's facilitators and the parroquia representatives will assume this responsibility because of their proximity to the small scale farmers.

- **Creation of the Agricultural Forum and the Agricultural roundtable as a base for the establishment of a co-management system and project implementation related to the strengthening of production infrastructure:**

Improvement of soil fertility and conservation are projects that do not show immediate effects, besides they imply a burden to small scale farmers as beneficiaries. For the implementation of these projects it is important to establish a relationship of trust among small scale farmers and support providers; this relationship is to be achieved through the routine extension service. Additionally, the implementation of said projects requires specialized technology and financial investment implying the need for MAGAP to extend technical and financial support to provincial and canton governments. For this reason, it is proposed to use the Agricultural roundtable as a space to exchange information and conduct discussions about soil fertility and conservation projects.

- **Creation of the co-management system for the articulation of projects and the creation of the Agricultural Forum and the Agricultural roundtable for its implementation:**

Projects presently under implementation to support small scale farmers cover all phases of the production chain beginning with the provision of productive infrastructure through to the commercialization of products. However, in many cases, specific projects are centered on the fulfillment of a specific goal and there are few comprehensive projects. For example, there are few packages of projects for irrigation canals articulated with the extension of production techniques for lucrative crops. In this sense, it is necessary to establish an inter-institutional system to achieve a stronger impact of the invested efforts. Thus, it is proposed that the Agricultural Forum integrate all involved actors in agricultural development, in addition to the Agricultural roundtable that will be integrated by the representatives of the canton and province governments and the MAGAP.

(3) Basic conditions according to the national and sector development plans

Considering the need to include the goals and activities of sector development at the state level in the TAP, a system of inter-institutional co-management for the agricultural sector at canton and provincial level across the whole country has to be established.

- **Participation of MAGAP as provider of supporting services to small scale farmers and as the guide of the sector policies:**

MAGAP has to perform a double function as the guiding entity of sector policies and the executor of supporting projects to small scale farmers. The New Constitution assigns MAGAP as the leading entity of the sector policy, while the National Plan, "Buen Vivir Rural" clearly establishes the programs to be executed by the MAGAP that are already being put into practice due to the budget assignment. In this sense, MAGAP's participation in the Agricultural Forum as well as in the Agricultural roundtable as the leading entity of the sector policies and as the executor of supporting projects to small scale farmers is necessary.

- **Initiatives of MAGAP for agricultural development (small scale farmers in poverty) in the territorial development of the country:**

TAPs are plans to be executed in each canton and province of the country. MAGAP, as the leading entity of the sector policies should be the promoter for the creation of the Agricultural Forums and the agricultural roundtables in all provinces and cantons, establishing their creation as a component of the agricultural sector policy.

3.2.2 Basic Plan of the Inter-institutional Coordination System for Small scale farmers

(1) Basic conditions of the co-management system and the method for its implementation

Creation of the Agrarian Forum at cantons and provinces
 Creation of the Agriculture Roundtable at cantons and provinces

The Inter-institutional Coordination System for Small scale farmers at regional level intends to build a framework for the creation of the supporting system for small scale farmers reflecting in the canton and province TAPs the policies of the “National Plan Buen Vivir” and the “National Plan Buen Vivir Rural”. The creation of the Agricultural Forum and the Agricultural roundtable at canton and provincial levels sustained by a co-management system is the basic condition for building up this framework. These two entities are to be the place to reflect the national sector policies in the public regional administrations, and also the place for inter-institutional co-management for the implementation of important projects to support small scale farmers, as proposed by the present Study.

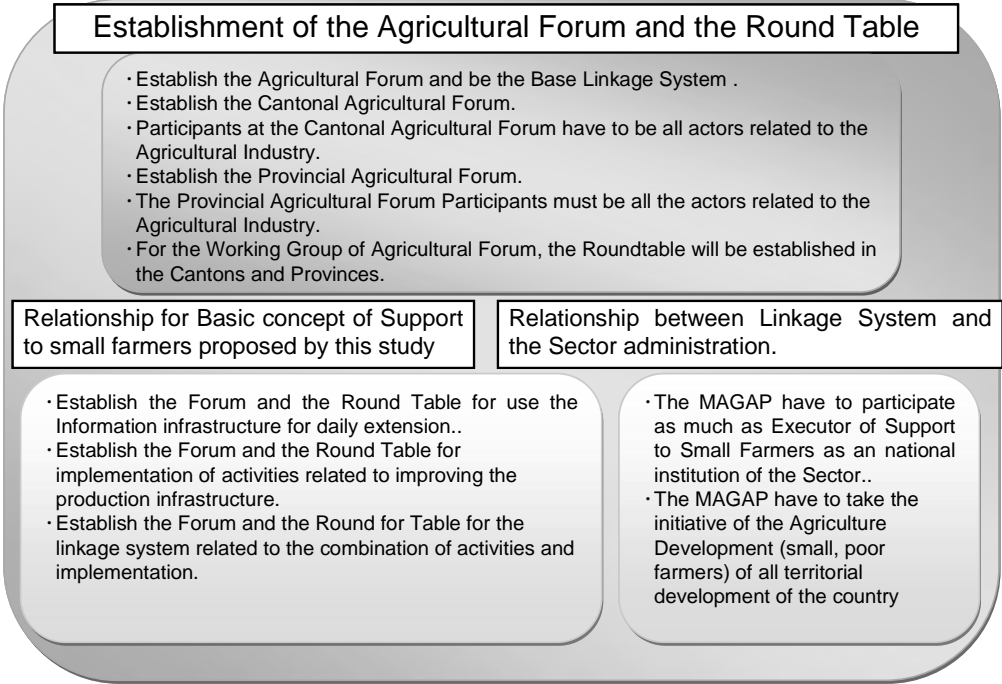


Figure 3.2.1 Basic conditions of the co-management system

(2) Role of the Agricultural Forum and the Agricultural Roundtable

- Agrarian Forum will be promoter of the agrarian development in the TOP.
- Agriculture Roundtable will have the following three objectives:
 - Support in the elaboration of the TOP
 - Creation of the Agrarian Forum
 - Co-management for the support to small scale farmers

The Agricultural Forum provides a free participation place for agricultural development, promotion of mutual understanding, exchange of opinions and the framework for the joint implementation of projects. Also, the most important role of the Agricultural Forum is to provide opportunities to strengthen the relationship among the different actors of the sector cluster, with urban consumers and entities supporting small scale farmers looking for the building and implementation of a new modality of agriculture products supply and opportunities for new trading enterprises. For example, presently, the link between urban population and small scale farmers is very weak; the Agricultural Forum will constitute an opportunity to achieve an approximation of these two extremes, directing the demand and the requirements of the urban population toward healthy and safe products from the small scale farmers, who, knowing this demand could start organic production and thus, increase their income. Moreover, with the participation of different sector actors, including distributors, processors, etc. a multiplying factor would be triggered. In this case, it is important to achieve a “win-win” situation, meaning that all actors win. Supporting entities are one more actor in this new scheme and their benefit is the possibility to improve efficiency and effectiveness in their actions. In summary, the most important function of the Agricultural Forum is to provide the opportunity of deepening mutual understanding among the involved actors, and to create a new supply system to fulfill the market demands. The difference between the canton and provincial Agricultural Forums are only in the scope of actuation, the function is the same.

The objectives of the Agricultural roundtable are three: “support to the TAP”, “establishment of the Agricultural Forums” and “co-management for the initial support to small scale farmers”. The support to TAP consists of the provision of data and basic information related to projects and programs to be implemented by the supporting institutions and related to agricultural development in order to allow canton and provincial governments to prepare the TAP. At the same time, it includes the support to the same process of plan elaboration. The Agricultural Forum would be the executing entity of the TAP agricultural component and in order to allow the participation of a greater number of actors in the actions included in the TAP, a corresponding statute is to be prepared, inviting the actors that agree with it to participate in the Agricultural Forum. On the other hand, the Agricultural roundtable has the function of carrying out the preparations for the establishment of the Agricultural Forum. Once it is established, the co-management of the support to small scale farmers would be framed in this Forum. Meanwhile, the Agricultural roundtable would be the place for information exchange and discussion between the supporting institutions for

the coordination and co-management of projects. Additionally, a part of the different activities related to the agricultural sector development would require the assistance of the supporting entities, even after the establishment of the Agricultural Forum. Particularly, small scale farmers that do not have enough technical and financial skills require to be supported in many ways to respond to the demands of the other actors. For that, regional governments and the MAGAP will have to work in a coordinated way to extend wide support to the farmers, and in this sense, the Agricultural roundtable would assume the function of coordinator. Since the Agricultural roundtable is to be integrated by members of the nucleus supporting small scale farmers, it should be maintained as a thematic agricultural roundtable once the Agricultural Forum is established.

(3) Organisms integrating the Agricultural Forum and the Agricultural Roundtable

- Participants of the Agrarian Forum are all the actors of the agrarian sector in agreement with the statute.
- Main members of the Canton Agriculture Roundtable would be the representatives of the province, canton and parroquia governments, as well as the provincial MAGAP office. In the case of the Province Agriculture Roundtable, parroquia representatives are excluded. Additionally, other actors would be included according to the specific objectives.

The Canton Agricultural Forum and the Canton Agricultural Roundtable are to be composed mainly by members indicated in the following Figure. Likewise, similar members are to integrate the Provincial Agricultural Forum and Agricultural roundtable. However, it should be remembered that presently, canton and provincial governments are in the process of elaborating the respective TAP and this process also includes the identification of agricultural actors. So, for the final selection of the Agricultural members, firstly the TAPs have to be finalized.

Main members of the Province Agricultural Roundtable are the representatives of the provincial and canton governments and the provincial office of MAGAP. Members of the Agricultural Roundtable are the representatives of the parroquia, canton and provincial governments and the provincial office of MAGAP. However, as the Agricultural Roundtable has three objectives, other members will be incorporated according to need.

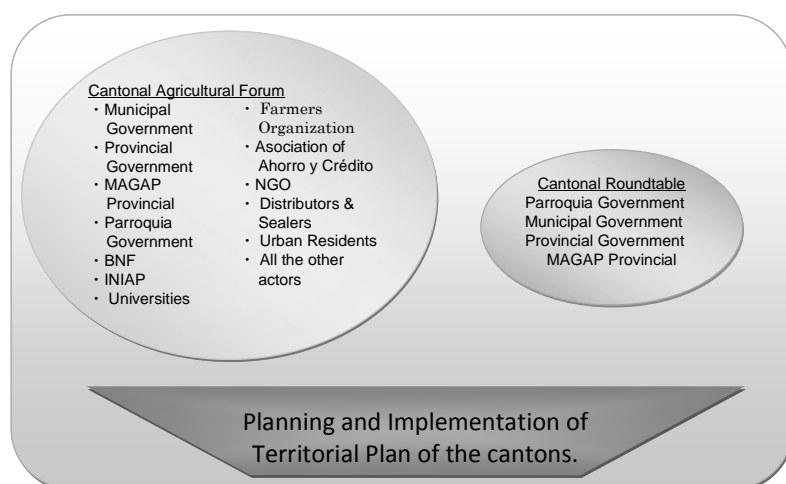


Figure 3.2.2 Organisms integrating the Canton Agrarian Forum and the Agriculture Roundtable

Possible projects that would be feasible through the Agrarian Forum
(WIN-WIN Relation – “All win”)

Farmers were informed through the Forum about the increasing demand for healthy products with good quality by the urban consumers and decided to implement a project for direct supply of organic products. Transporters and middlemen were incorporated in this project in the domiciliary delivery of products. On the other hand, during the development of the project, actors heard that urban inhabitants wanted to carry out live rural tourism to see, for instance, the food processing plants. So, a new industrial sector was generated named “live tourism” where visitors would have the opportunity to personally participate in cheese processing. With the project implementation, farmers were benefitted from the different supporting institutions concerning organic production techniques, modernization of cheese processing plants, etc.

In this scheme, not only farmers were benefitted but also the urban population, transporters, and middlemen as well as the supporting institutions in the following manner.

Farmers

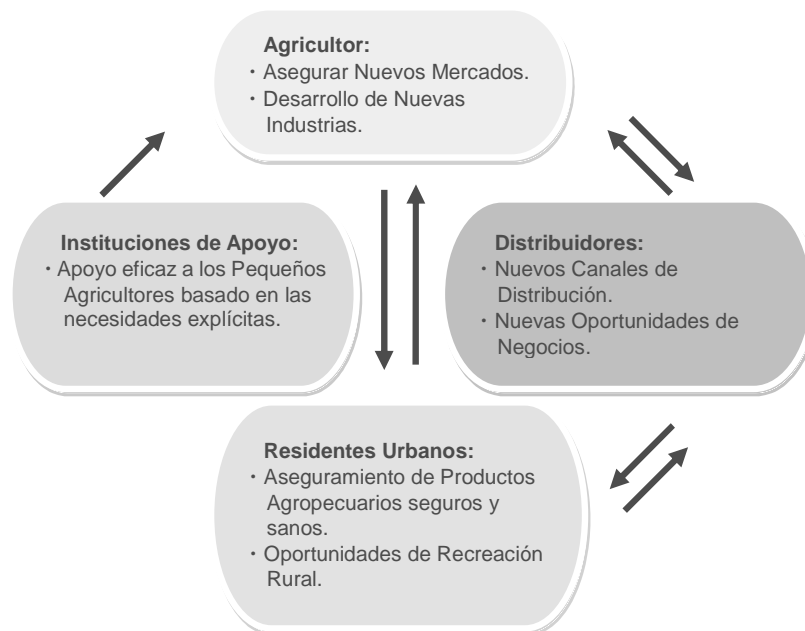
- Possibility to commercialize agricultural products with stability and higher added value.
- Opportunity to develop a new economic activity, “live tourism” through cheese processing.

Urban population

- Possibility to purchase organic agricultural products recently harvested.
- Opportunity to enjoy rural recreation through cheese processing.
- Transporters and middlemen
- Possibilities to open new commercial channels
- New commercial opportunities such as rural tourism

Supporting entities

- Possibilities to invest financial and human resources with more effectiveness



(4) Role of the Agricultural Roundtable main members

- Parroquia government: Provide information to communities and parroquias closer to the producers.
- Canton government: Provide agriculture and animal husbandry information at community level. Organize the Canton Agriculture Roundtable.
- Provincial government: Provide information about agricultural support projects to be implemented in a certain community, as well as agriculture and animal husbandry information at the provincial level. Organize the Province Agriculture Roundtable
- Provincial office of MAGAP: Provide information about agricultural support projects of MAGAP in a certain community and agriculture and animal farming information at State level.

The Agricultural Roundtable is constituted of different organizations with different administrative characteristics, and as such, the information collected during the rendering of supporting services to small scale farmers, as well as the contents of projects conducted are different. Parroquia government is the administrative entity that is closest to the community and its council is constituted of the community leaders. In this sense, it is the entity that deeply knows the reality of the small scale farmers and the communities and has more influence over them. Likewise, the other entities of the Agricultural Roundtable have different functions and activities. The Agricultural Roundtable would be the proper space to exchange institutional information of the projects executed by each one of them. Additionally, it is a place to coordinate projects (elimination of duplicity or simultaneous implementation of mutually complementary projects, etc.) and to direct technical or financial support of other entities in the project implementation.

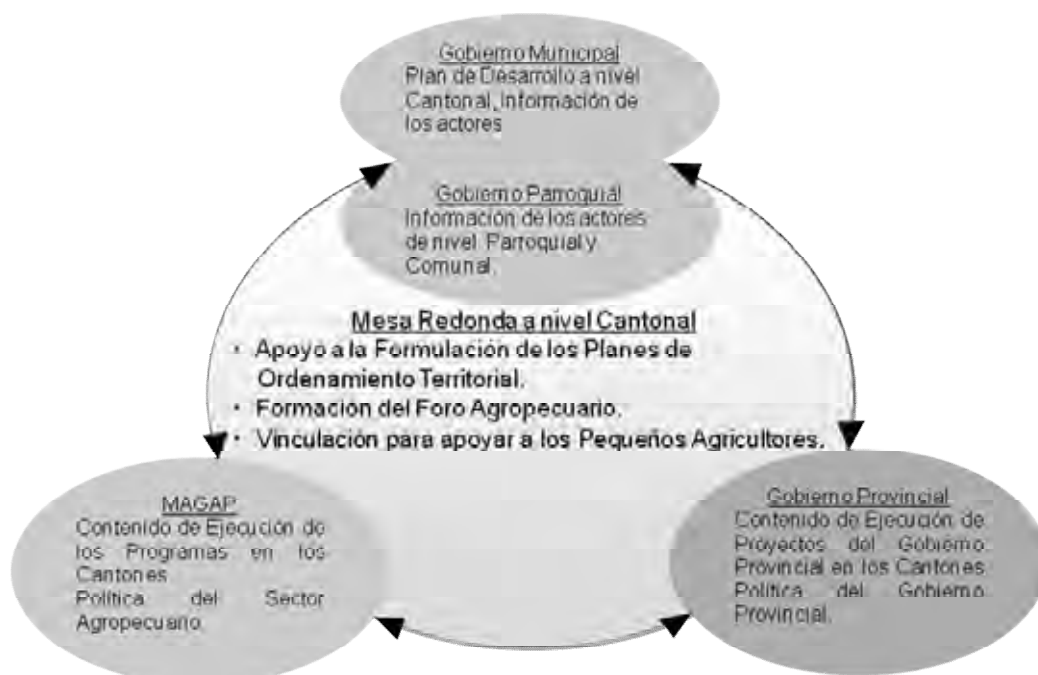


Figure 3.2.3 Role of the Canton Agricultural Roundtable and characteristics of the members

The provincial government and the provincial office of MAGAP are members of the Canton Agricultural Roundtable and, at the same time are executors of the provincial projects of agricultural development, the guiding entity of the development policies and the TAP at the provincial level, and guiding entity of the agricultural policies of the State. With this double function, said entities, by intervening in the canton projects of agricultural development are in the capacity of reflecting the sector and State policies in the same projects, and assuring the materialization of policies at said levels. Likewise, this scheme allows the good use of State and provincial policies in the canton TAP implementation. Additionally, central and provincial governments will be able to recollect concrete information from small scale farmers that are the most important factor in the implementation of policies, programs, projects and plans elaborated by the central and provincial governments through the Agricultural Forums.

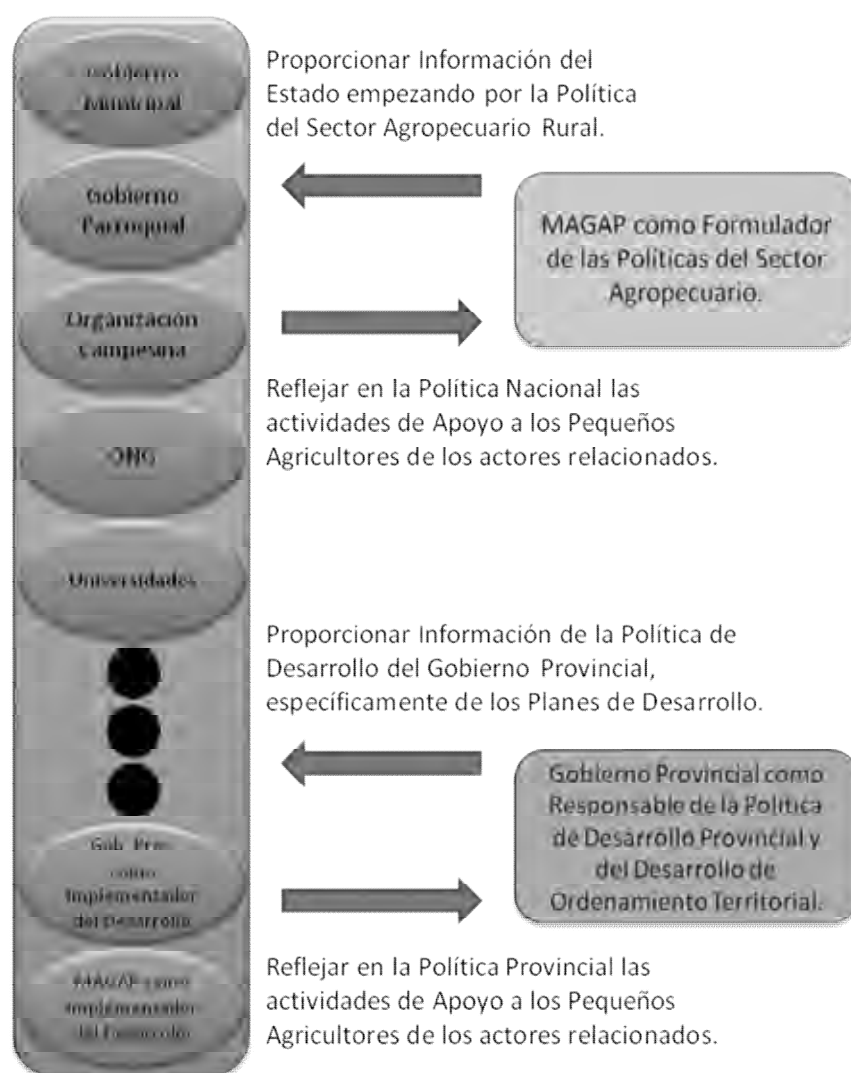


Figure 3.2.4 Relation between the Canton Agricultural Forum and Central and Provincial Governments

3.2.3 Division of Roles Cantonal and Province forums and committees

Although it is necessary to establish agricultural forum and agricultural strategic committee (formerly agricultural round-table) in the levels of Canton and Province, the followings show the each roles.

- Cantonal level: The forum and the committee in cantonal level are principal unit to implement the projects for small scale farmers, set the policy as well as develop the agricultural development plan.
- Provincial level: The forum and the committee in provincial level address provincial agricultural development plan based on ones of cantonal level. Based on these planes, they provide technical and financial support to the projects for small scale farmers implemented by canton government and actors.

3.2.4 Steps for the institutional reorganization

- A) Creation of the National Office for the Promotion of Agricultural Forums and Roundtables in MAGAP headquarters
- B) Creation of the Agricultural Roundtable at provincial and canton levels
- C) Support in the elaboration of the canton and provincial TOPs by the Agricultural Roundtable
- D) Establishment of a co-management system between the different actors in the Agricultural Roundtable.
- E) Preparation for the establishment of the Agricultural Forum and Agriculture Roundtable.
- F) Creation of the Agricultural Forum and development of an Agricultural cluster with the participation of all actors

Except in some cases, there was no co-management mechanism among institutions supporting small scale farmers for the implementation of projects in the Sierra Zone. In this sense, it is difficult to conduct highly complex coordination under a co-management system from the initial stage; this system is consolidated by the accumulation of experience over the years. As the proposed Agricultural Forum will be a platform or base for the agricultural cluster development according to the TAPs under preparation by the canton and provincial governments, the establishment of Agricultural Forums should be simultaneous with the elaboration of TAPs. On the other hand, both canton and provincial agricultural roundtables should assume the preparations for the establishment of Agricultural Forums as well as support the elaboration of the TAP agricultural component. Before the elaboration of this tool, it is necessary to build up a co-management system in the Agricultural roundtable to achieve more efficiency and effectiveness in the actions of each entity and at the same time, achieve a relationship of mutual complementation.

TAPs are being simultaneously prepared throughout the whole country. Likewise, the “National Plan Buen Vivir” and the “National Plan Buen Vivir through MAGAP” have been put into practice across the whole country. For this reason, it is necessary to promote the process of creating the Agricultural Forums and agricultural roundtables, not only in the Sierra Zone but also over the

whole country. In this context, MAGAP, as the entity responsible for the elaboration of agricultural and rural policies, should create in its headquarters the National Office for the Promotion of Agricultural Forums and Agricultural Roundtables, and at the same time influence provincial, canton and parroquia governments through the respective provincial offices of MAGAP.

3.3 Other proposals necessary for the reorganization plan

3.3.1 Internal Management Strengthening

Objectives

1. Improve and modify projects with the introduction of the Project Management System
2. Deepen the understanding of the managers about the content of the projects
3. Use it as single tool for the communication among the supporting entities
4. Enhance the transparency of the project management

(1) Objective

The plan for internal management improvement is to be implemented through the organization of the Project Management System. The Project Management System will clearly identify the relation between actions, input and results of projects at the formulation stage and with the monitoring of results it is possible to verify if results do not achieve or surpass the initial objectives, as well as the causes for it; they should be applied from the next year, with the objective of improving and modifying the projects. Moreover, the introduction of this system will allow project managers to have a deeper understanding of the executed project and unifying this System's formats to be used by all entities supporting small producers will contribute to improve the communication at the inter-institutional level as well as improve the transparency of projects.

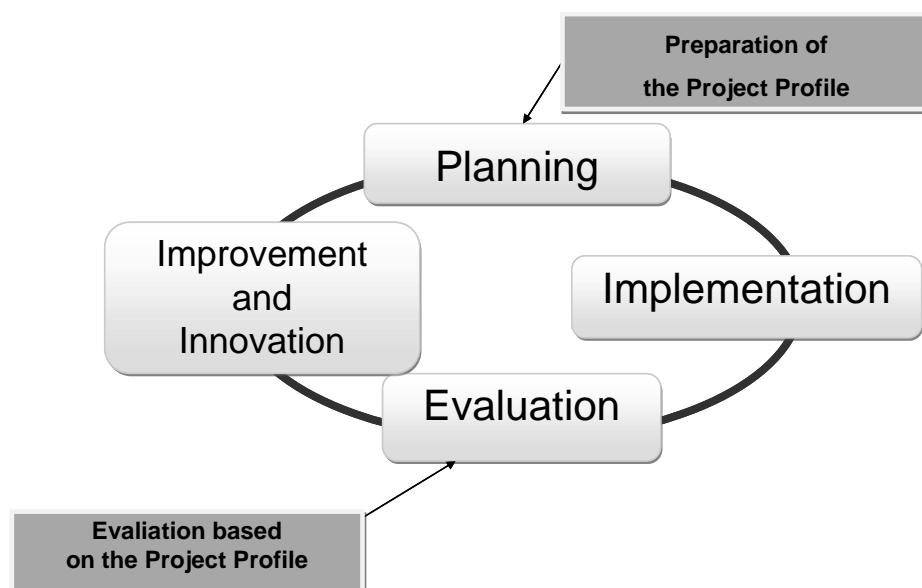


Figure 3.3.1 Project Project Cycle Management and Proposed Format

(2) Necessity

Presently, the organization of supporting small producers beneficiaries in the Sierra Zone partially apply the project management system, such as the project monitoring system based on activities executed in the programs and projects, according to the Annual Operative Plan (AOP) forms of SENPLADES, or the forms required for the subsidies application of provincial or municipality governments, in which the monitoring of results have to be mentioned. In May 2010, MAGAP published a system of project management to be applied in the future, through Ministerial resolution. However, according to some enquires, up to today, provincial MAGAP offices and the provincial governments of Chimborazo and Tungurahua still do not have a clear project management system.

It is obvious that better results are to be expected with the improvement and modification of projects; however, the unification of the project management system, particularly the forms to be used, is very important, as a single instrument for the project to establish the coordination system of support to small producers proposed in the present Study and for the implementation of the territorial plans.

(3) Basic guidelines for the organization of the project management system

Basic guidelines

1. The existing system in relation to the management of each institution is to be respected
2. Adoption of a unified project profile chart in the framework of the coordination system.
3. Introduction of a system that does not require much work to fill in the forms

Presently, the project management system is being partially implemented by each institution. It has been introduced as part of the budgetary management of the institution as a whole and in principle this system is to be respected. In relation to the project evaluation indicators, presently each institution has a system, according to their own development policies and guidelines, so the contents should be duly respected. Therefore, in the framework of the Co-management System it is necessary to clearly establish the activities, input and results as well as the results indicators to achieve the main objective that is the improvement and modifications of the projects. With this purpose, a single project profile chart to promote the mutual understanding of projects among the involved entities is proposed. Furthermore, the basic concept of the indicators is to be shown, considering item DAC 5 based in the profile chart.

The project manager of each institution is in charge of the hardest work in the administration of the project management system. In general a manager is in charge of several projects. Therefore, forms to be used in the system are to be prepared in order to require a minimum load of work to the managers.

3.3.2 Capacity strengthening of rural and agricultural development facilitators

(1) Capacity required for the development facilitators

Facilitators are promoters of the communitarian development who have to facilitate the development of workshops but also, for a participative development, they are required to be capable of managing themselves with due flexibility to promote and assist the participants and take initiatives in the projects or actions. Additionally, the capacity to coordinate development projects is fundamental. Although in specific projects the participation of experts is required, in the case of development facilitators they are required to have expertise in rural development (PRA techniques, SWOT, etc.) and the capacity to follow up the entire project. Concerning basic techniques, facilitators have to be skilled in basic and specialized techniques to direct the participant small scale farmers. Basically, the capacities required for the traditional extension trainers and the facilitators of rural and agricultural development are the same, with slight differences (Figure 3.3.2).

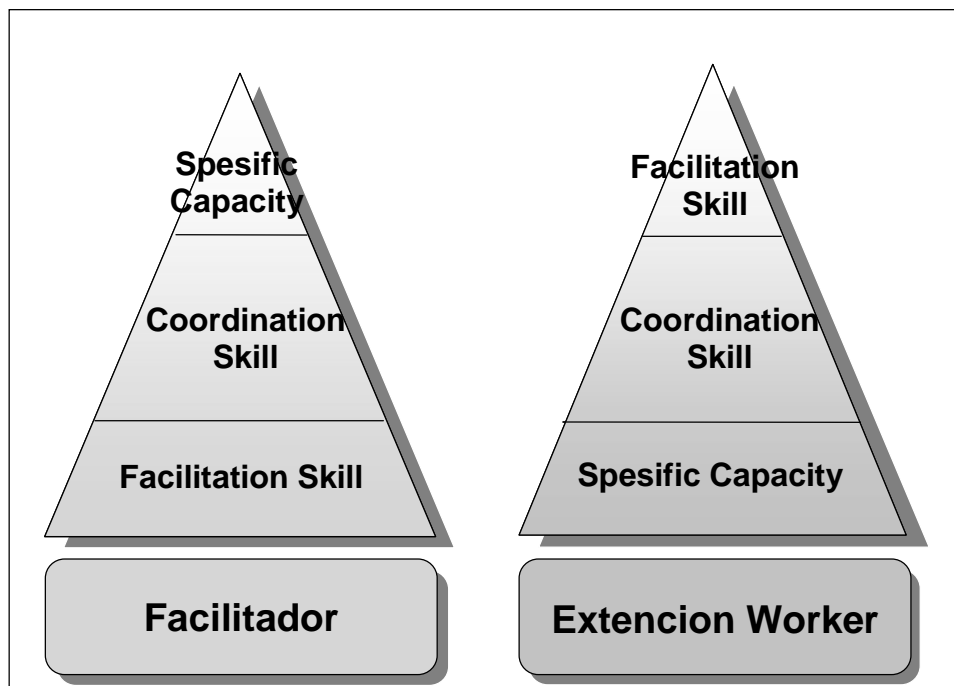


Figure 3.3.2 Comparison of Capacities Needed for the Facilitator and the Extension Agent

(2) Activities required to capacity strengthening

The three capacities required (facilitation, coordination and specialization) cannot be acquired in a short time; they have to be gradually accumulated through participation in courses, practices, reflection and findings. As shown in the example of Figure 3.3.3, “Stages of capacity development of agriculture extension agents” of Hyogo Prefecture, Japan, in order for an extension agent to acquire the practical capacity, continuous training and practice is required. Concretely in this case, for three types of permanent training up to 15 years of work are required.

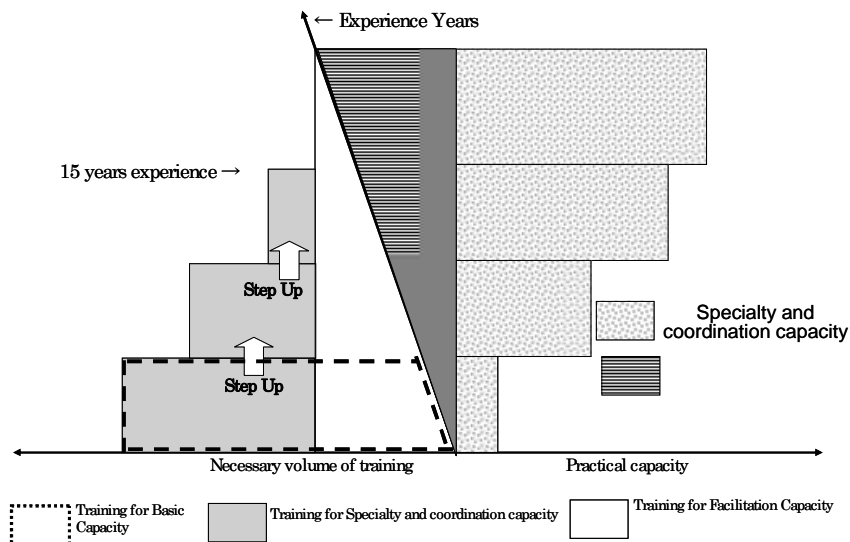


Figure 3.3.3 Steps for building necessary capacities for extension agents

Additionally, to strengthen the practical capacity it is necessary to polish the knowledge with self-discipline, on-the-job training (OJT), and training according to the regions. In the case of ERA's facilitators, this responsibility is to be assumed by ASAs technicians of the respective MAGAP provincial offices. However, since the ERA's project is to start in 2010, OJT realization is still difficult and regional training using the net of facilitators and promoters of agricultural and rural development is fundamental.

(3) Program of trainers formation

In order to form trainers, permanent training, self-discipline, OJT and training according to regions are necessary. Specifically for the reorganization plan, the following three projects should be implemented under MAGAP initiative.

- 1) Formation of agricultural and rural facilitators: This consists of permanent training (programmed) oriented to facilitators of rural and agricultural development working in the Sierra Zone to support small scale farmers, particularly ERAs facilitators of MAGAP, with the purpose of strengthening their abilities. In the initial phase, this initiative is to be implemented between years 2010 and 2013 to maintain coherence with the "National Plan Buen Vivir".
- 2) Creation of agricultural and rural development facilitators net: This net consists of the database of rural and agricultural facilitators at the provincial level and would be a tool for the exchange of information and techniques.
- 3) Provincial Board of rural and agricultural development facilitators: Establishment of a Provincial Board to meet once or twice a year as a place to exchange information about the ideal technology for rural development as well as opinions with the purpose of strengthening the practical capacity of agricultural and rural development facilitators.