

Blijde Inkomststraat 50
3000 Leuven, Belgium
t +32(0)16 31 65 80
f +32(0)16 31 65 81
info@vredeseilanden.be
www.vredeseilanden.be



Vegetable chain in Cañar, Ecuador

Sustainable Livelihood Analysis and Chain Analysis



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Chuya Mikuna Farmers' Organisation

0. Analysis of agroecological vegetable produce in Ecuador: methodology of the study and main conclusions¹

Developing countries like Ecuador have an excellent opportunity to get involved in the agribusiness of organic and agroecological production, which makes it possible for a growing number of small and medium-sized farmers to significantly increase their income. In this context, more and more farmers are growing garden produce, because this can be cultivated on small plots of land, has a short vegetative cycle and produces attractive returns. Agroecology may benefit the country in several sectors, as is shown below.

Economically

- Stimulation of exportation
- Creation of job opportunities
- Foreign exchange inflows and improvement of the producers' economies
- Creation of micro-enterprises
- Promotion of rural tourism and environment-friendly city ornament

Socially

- Decrease of farmer migration towards the cities and abroad
- Improvement of the health and living conditions of producer and consumer families because the products are non-toxic and non-pesticide
- Healthy diet for producer's families

Environmentally

- Soil recuperation and improvement
- The support programmes must stimulate reforestation plans for native plants that benefit the soils.
- Botanical, genetic study and alternative use
- Training for rational soil, natural pesticides and herbicides management
- Water conservation

It's necessary to take into account that if we do not implement correct and environment-friendly practices, the soil suitable for agriculture will be increasingly reduced, which implies social, environmental and economic problems.

The main problem is the difficulty to monitor plagues and product quality. Even if this is not impossible, it requires a more intensive follow-up on behalf of the producers, because in this case organic products like pesticides, fertilizers, etc., are not effective right away and require more attention.

INTERNATIONAL ENVIRONMENT

The internationally successful experiences with agroecological crops have been characterised by the following factors:

- producers associated with NGOs and other organisations;
- integration of elements from traditional knowledge and modern agricultural science;
- multiple-crop system integration, agroforestry and integration of agriculture and livestock, which maintain the resources and are very productive;
- soil conservation practices, such as spillways and boundary gutters, terrace crops, grass barriers and rock walls.

The major agricultural challenge in Latin America lies in the design of crop systems for mountain slopes that are productive and also reduce erosion.

¹ PRAGMA VI Analysis

METHODOLOGY

After synchronising objectives and expectations between SENDAS and PRAGMA V.I. the stages on which the investigation process is based, were defined:

1. detection and evaluation of the chain;
2. detection of relevant information;
3. value chain analysis – definition of the challenge.

In order to analyse and describe the situation of the target group with the livelihood methodology, 2 surveys were performed:

1. farm diagnosis;
2. time use – women

The sample for information gathering – surveys, was the same for both the productive chain and livelihoods. 4 surveys to 20 partners of *Chuya Mikuna* were performed. Simultaneously, 3 surveys to qualified informers and 1 survey to consumables providers were done.

This information was completed with interviews to qualified informers, production and commercialisation information from *Chuya Mikuna* – year 2008 and national statistics information.

FINDINGS AND RECOMMENDATIONS

Livelihoods²

The human capital of *Chuya Mikuna* is characterised by low education levels and significant illiteracy among the members of the organisation. Among the children there is a significant percentage of students, although 13% of the girls does not go to school.

Agricultural activities remain a female responsibility (90%), two times (40%) as much as men, who are mainly working outside the farm. Boys are an important labour force within the farm, twice as much as girls, who dedicate 100% of their labour hours to this activity.

This assistance may help women in their agricultural activities.

Both women and children are mainly dedicated to agricultural and livestock practices. The study shows the use of fertilizers produced on the farm is significant, although the lack of monetary benefit from this consumable for the male and female producers, causes most of the economic contribution of the agroecological practice to get lost. The same applies to animal rearing and everything used for self-consumption.

Another element that did not allow to perform a better analysis of the agricultural activity income contribution is the lack of clarity on behalf of the male and female producers regarding the cost of consumables for production and the sales registers.

The estimate performed on the considered production averages applied to the amounts of the *canasta básica vital* (household basket of essential goods; less goods and smaller quantity than the *canasta básica* - see below) allows us to evaluate the contribution of self-consumption that amounts to 34% of the total cost of the *canasta básica vital*. If we consider the average income of men (285 US\$) and women (43.63 US\$), households composed of a father and mother would cover the amount of the *canasta básica* (household basket of essential goods; more goods and bigger quantity than the *canasta básica vital* - see above), assuming there are no conflicts of power in the private sphere. However, in the case of households with bachelor mothers, there would be serious deficiencies to manage to cover the cost of the *canasta básica*.

It's necessary to follow up sales on the local markets. The commercialisation costs are significant in comparison with the male and female producers' averages. Even if this analysis has not been shared with the male and female members, the economic logics of the

² SENDAS Analysis

people are not only based on a financial/monetary analysis, but welfare influences decisions. Relationship-building and social contact on the markets is very important for and appreciated by the people. Nevertheless, it has to be ensured this element doesn't cause considerable losses.

Access to credit with the financial sector is important. The cooperation agreement between *Chuya Mikuna* and *Cooperativa Jardín Azuayo* allowed to create a credit line that is important for the male and female partners. It would be interesting to follow up requirements, advantages, disadvantages and the current situation of credits, both from the point of view of the financial institution and the debtors.

The credit of the *Chuya Mikuna* services centre may allow the male and female partners to produce. This mechanism may be valuable to stimulate production and guarantee delivery through the exchange of inputs for production.

The analysis of the reproduction activities was an important element and was requested by the President of the organisation. Women have a high workload because they dedicate 63% of the day to production and reproduction activities. This may be a key element, decisive for the reasons of production decrease. Community activities on their own already require 8 hours a month and represent approximately 96 days a year dedicated to this activity, 2 months of community tasks. If 90% of women are mainly performing reproduction activities, producing, harvesting and selling, it's essential to find mechanisms that allow men and youngsters to integrate more actively to farm work.

Value chain actors³

9 basic groups have been identified within the value chain, whose individual problems are becoming bottlenecks from the perspective of the whole chain. Even if there are subgroups, the problems and constraints adjust to the conditions of the group.

Main strategy.

Linking between actors through the participative alignment of goals, a definition of commitments agreed by consensus, and a compliance control system based on a integrated negotiation process. The strategic alternatives to deal with the bottlenecks found in *Chuya Mikuna's* garden produce value chain must be considered in the organisation's strategic approaches, because they need an administrative and organisational basis. The findings then become alternatives of analysis according to the interests and financial capacity of the managers. Other considerations stressed by the qualified informers are:

Environment:

- The new constitution is a step forward for agriculture because it declares food sovereignty is a right, but agricultural and ecological policies are negative because they don't stimulate alternative economic systems and because they don't know anything about agroecology, respectively.
- There seems to be a tendency to consume healthy products, without chemicals, so the growth perspective for agroecological products is good.
- External factors of high impact are: the climate, political instability and consumables quality, which directly influence the chain.
- The price of consumables is a factor of intermediate impact for the farmer members, as they may appeal to the Services Centre. In addition, a significant number of producers are self-sufficient.
- Public infrastructure presents problems that directly affect production and commercialisation. Roads are in bad conditions and communication systems do not exist or don't work.

³ PRAGMA VI findings and recommendations

- Institutions play an important and fundamental role in agriculture.
- Internal policies are decisive in agriculture, because they directly affect the farmers, products and their commercialisation.

Production

- There is no representative production of the products that are most demanded in the area (Cuenca).
- Agroecological garden produce supply is intermediate in comparison with common supply.
- We think garden produce production in the area only allows farmers to survive, because it has a 50–70% return on investment.
- We consider the producers' strength is to maintain a correct agroecological model.

Supply and sales

- There is an unsatisfied demand, mainly of agroecological production.
- There is a potential to increase local sales, because there is a growing social fabric that requires agroecological production.
- These are some of the obstacles for agroecological sales to increase: differentiated commercialisation opportunities, the economic vision of the producers, migration, lack of men in the field, producer training, restrictions due to the neoliberal economic system that put at a disadvantage small producers, and lack of stimulation of growth of socially and economically responsible fabrics.



1. Sustainable Livelihood Analysis Chuya Mikuna farmer organisation in the Province of Cañar			
Sustainable Livelihood Analysis	INDICATORS*	SOURCES	ADDITIONAL REFERENCES (Document)
VULNERABILITY CONTEXT			
Tendencies	<p>Economic tendencies In 2008 Ecuador dealt with the most intensive escalation of prices as a consequence of the dollarization. Due to its immersion into the international agribusiness sector, market laws and competitiveness, Ecuador got in the grip of the so-called international food crisis. Both the male and female producers of Chuya Mikuna and its allied organisations suffered a decrease in production last year, because of several reasons stated below. Nevertheless, subsistence economies, based on self-consumption, are in principle without any doubt less vulnerable to this crisis. As demonstrated below, consumables costs will be a determining factor in the production possibilities of these families. For example, in 2008, potatoes increased from 10 US\$/qq (qq = "quintales"; 1 "quintal" = 100 pounds) in January to 38 US\$/qq in June (Chuya Mikuna, 2008). According to the potato producer's association from Riobamba CONPAPA, this is due to the escalation in consumables prices, the consequences of the winter and the Tungurahua volcano, and the replacement of crops by pasture. When farmers are asked what has been the most important price increase, they answer it's that of consumables. However, when they are asked how many hectares have been changed into pasture, they answer it's 40 to 50% of the hectares belonging to the organisation's male and female members (Cardoso, interview, 2008). Also, when the</p>	<p>Secondary information: CEDIR - Tambo CONPAPA - Riobamba CHUYA MIKUNA - SUSCAL Several articles (2008)</p>	

	<p>agroecological producers group from Tambo is asked about the causes of the decrease in production, they mention migration has had a big effect on the replacement of crops by pasture, because lots of farmers have migrated and now their families live by remittances and only produce basic food for themselves. Others don't even produce anymore, but buy on the markets what they used to produce. The migration process also implies status changes. Changing garden produce production by pasture and becoming cattle farmers is a fundamental part of the process. Cattle raising requires less labour. On the countryside, the latter becomes scarcer and more expensive every month, especially in the province of Cañar. (Morocho, interview, 2008). During the last decades, rural women have an increasing productive and reproductive responsibility. This results in a rather complex subsistence strategy, that implies lots of requirements. This diversified subsistence strategy is a response to a series of internal and external phenomena that affect rural families in the province of Cañar.</p>		
Shocks	<p>General shocks Climate instability changed agriculture into a high risk activity. Chuya Mikuna's area of influence has been affected by excessive rain, which continued during two additional months in comparison with the normal period. For male and female producers these conditions imply that the garden produce period is reduced to 5 months with very hardened soil that makes working difficult after long winter periods.</p>		Diagnosis of area of influence

Seasonality	<p>of production: Approximately 20 varieties of garden produce are sown between May and July and harvested between July and January. Depending on the variety, potato is sown in April and May and harvested between October and January. Sweet potato, Chinese potato and cassava are sown in the low area in July and harvested after six months. Maize is sown in November (high area) and January (low area) and is harvested in August. Beans are sown in July and harvested in November. Peas are sown in April and harvested in September. Grass is sown in winter time (January-July). The sowing and harvesting periods may vary depending on the weather conditions or seasons.</p>	Interviews (Key persons)	
	<p>Food availability The male and female producers have access to several resources on their on farms. Products like maize, beans, potatoes, cassava, sweet potatoes, garden produce, eggs, chickens a.o., are produced on the farms. It should be noted that due to the weather conditions, lots of farm products are produced in average periods of 6 months. The local markets complete the diet with products from other areas and grocery stores. It's important to mention that, due to migration processes in the area, products are more expensive than in other neighboring areas.</p>		Farm diagnosis
	<p>of prices Product sales prices are stable both on the local markets and for associative sales. The farm product sales markets are the local markets with average prices of 64 US\$ cents/kilogramme. Associative sales of garden produce through Chuya Mikuna has average prices of 49 US\$ cents/kilogramme.</p>		Production, commercialisation and local market sales

	<p>of work Men who work as day laborer (18.75%) work for an average of 6 months. Builders (18.75%) and drivers (18.75%) work during the whole year. 81% of the latter work within the area and 19% outside the area. Women perform agricultural tasks during the whole year, together with reproductive tasks.</p>		Farm diagnosis
LIVELIHOOD ASSETS (broken down by gender)			
Human capital	<p>Child malnutrition rate The 2000-2004 Administration of the Municipality of Suscal performed a general study of the malnutrition rate in the area, which is approximately 43%.</p>	Secondary information: Report Municipality of Suscal /2004 INEC Interviews (Key persons)	
	<p>Food security situation 41% of agricultural production is meant for self-consumption and livestock feeding. Cattle production also contributes to the family diet with meat, milk or eggs. According to estimates performed by the technical team of the Consortium, self-consumption covers 34% of the household basket of essential goods ("canasta básica vital") (INEC, January 2009). If we apply this to the food items in the basket, the percentage increases to 54.6%.</p>		Farm diagnosis
	<p>Literacy rate Both men and women share the same degree of illiteracy: 25%. More women (75%) than men (69%) attended primary school. Secondary school attendance is not registered for women; 6% of men have attended secondary school. The majority of children over 5 years old attended primary school; 25% attended secondary school. 8% of the sample graduated. 13% of the girls have not attended school, 48% attended primary school, 35% secondary school and 4% graduated.</p>		Farm diagnosis

	<p>Access to the labour force Men who work in agriculture represent 44%. Among other activities we find day laborers, builders and drivers, 18.75% respectively. 81% of the latter work inside and 19% outside the area. Women mainly work in agriculture (90%). It should be noted that those who mention another activity (10%), basically work in a store that is located within the farm, so this work is combined with subsistence agricultural activities. 59% of the boys are studying. This group includes boys from 6 to 18 years old. The second group is composed of 22% of men between 17 and 23 years who work in agriculture. There are youngsters between 17 and 22 years old who are as day laborers (7.41%). Young men between 16 and 27 years old also work as builders. 4% works as builder in the local area and 7.47% as migrant in the United States. Girls between 5 and 17 years old are mainly studying (75%). 10% of young women between 18 and 21 years old are working in agriculture. 5% of young women of the sample migrated to Italy. Among those who are between 18 and 23 years old and who work in other activities, 10% works as domestic servant. 40% of the boys in the sample work 100% as Farm UTH, twice as much as girls (20%) who work as Farm UTH.</p>		Farm diagnosis
Natural capital	<p><u>Private property goods (gender)</u></p> <p>Access to land controlAn average of 4 plots per member is registered. 66% of the plots are legalised. 36% of the legal property of the plots is marital, 16% female, 32% shared with family members and/or other persons, 5% of others.</p> <p>Livestock quantity70% of the surveyed farmers have bovines, 80% pigs, 85% birds, 60% guinea pigs, 25% ovines and 20% equines. Birds in the first place (69%) and then bovines are mainly of own breed. Guinea pigs (92%) first and pigs (69%) in the second place are mainly bought. Not all surveyed farmers informed of their average costs per species. We can only</p>	Secondary information:Livelihood survey 2005-2006 INECInterviews (Key persons)	Farm diagnosis Farm diagnosis

	<p>mention the average of 23 US\$ for bovines and 55 US\$ for pigs, without specifying if this cost is annual or monthly. These amounts are used to buy parasite treatment products, vitamins and mineral salt. It has been very difficult to get rough estimates because this kind of costs are not always registered. A lot of farmers did not provide any information, so we cannot give any percentages. Obtaining the information of what they spent and how much was very complicated and a problem when filling out the files and surveys. That's why we proposed to register all costs of approximately 4 members this year, in order to have more realistic information. Nevertheless, we compared with producers in other areas and the information used is very similar.</p>		
	<p>Biodiversity</p> <p>Production diversification There are 224.83 hectares of agroecological crops and garden produce, 125 hectares of pasture and 6 hectares of biological corridors and/or ravines (total registers of the organisation). According to the surveyed farmers, land for food production is distributed in 5% of garden produce, 15% of cassava, 15% of potato, 9% of Chinese potato, 49% of maize, 2% of sweet potato, 2% of beans and 3% of peas.</p>		Farm diagnosis
Physical capital	<p>Income-increasing products 100% of the sample has basic tools like a machete, pick, spade and rake. 35% has a plough. 65% has plot irrigation.</p> <p>Own means of transport 53% of the production is transported by car and 23.5% is carried, by a person or a horse. 100% of those who carry the production are women. 77% of the transport is done by women. 5% of the surveyed farmers said they have a car and 2% a bicycle. 20% of the surveyed farmers owns equines, which could be considered a means of transport.</p>	<p>Secondary información: Livelihood survey 2005-2006 SIISE ESPAC INEC Interviews (Key persons)</p>	<p>Farm diagnosis Time use survey</p>

<p>Housing quality The province of Cañar has 26.76% of spacious housing (INEC, 2006). This percentage applies to the housing conditions of the members of Chuya Mikuna. The rest of the housing has an average of two rooms, one bedroom and one kitchen. There is no sewer system, 100% has a septic tank. There is drinking water in all communities except for Apangoras Alto and Apangoras Bajo. 100% of the surveyed farmers have electricity.</p>		<p>Farm diagnosis Time use survey</p>
<p>Access to services Water rights of the plots are mainly marital (40%), 18% female, male or a family member's, and 6% another person's. 7% of the plots do not have irrigation, 34% has permanent irrigation, 17% every 2 to 7 days, 21% every week, 1% in periods longer than 8 days, 20% did not define a period. There is no sewer system, 100% has septic tanks. Drinkable water is available in all communities except for Apangoras Alto and Apangoras Bajo. 100% of the surveyed farmers has electricity. Conventional telephone lines are not available in the communities nor are internet services in the households. 55% of the sample has a mobile phone. 90% of the women is in charge of payment of public services, which takes an average of 2 hours monthly.</p>		
<p>Access to transport, roadsThe secondary roads (earth roads) and the main road (Durán - Tambo / asphalted) were seriously damaged due to the winter. Lots of them were rehabilitated by the Provincial Council of Cañar. However, now the new winter has arrived, landslides and landslips are obstructing many of these roads. Many of the members from the Apangoras and San Javier communities don't have roads to access their farms, so they have to walk or travel by horse. There is no transport within the communities. The main road (Durán - Tambo) has transport between provinces and parishes and pickup services.</p>		

	<p>Access to informationIn the canton of Suscal, internet is available in a computer centre installed by the municipality, but the quality of the service is low. Radio Suscal and Radio Ingapirca reach the area of influence. Radio Ingapirca broadcasts programmes in quichua.</p>		
Financial capital	<p>Access to credit:15% of the sample says to have accessed credit with a financial institution. 100% of them did this with "Cooperativa Jardín Azuayo", which has a cooperation agreement with the Chuya Mikuna organisation. The average credit was 1,266 US\$, requested together with the husband/wife. The credit was used to pay debts (33%), to build housing (33%) and for cultivation (33%).The Chuya Mikuna Service Centre awards credit for members to be able to buy consumables and products that are sold by the organisation. According to the organisation's registers, 14% of the members have requested credit.</p>	Qualified informer interviews, sales register of Service Centre Chuya Mikuna, production register 2008 - Cuya Mikuna	Farm diagnosis Time use survey
	<p>Cash or savings 100% of the surveyed farmers did not give any information on savings cash or at a financial institutions. Nevertheless, we know some members have savings in the Cooperativa Jardín Azuayo in Suscal.</p>		
	<p>Insurance and other social protection measures The farmer's social security benefits the inhabitants of the communities of Chilchil Bajo, Chilchil la Capilla and Chontamarca. The Chilchil Bajo community and the canton of Suscal have clinics from the Ecuadorian Social Security Institute and Ministry of Health. The Kullauco, Chilchil Bajo and Chilchil la Capilla comunites have a nursery school. 10% of the surveyed women say they use them to be able to work. 5% don't because they consider their children are not well treated.</p>		Time use survey

<p>Financial flows</p>		
<p>Incoming money (average per producer) The average income considered according to non-agricultural activities is 43.63 US\$/month for women and 285 US\$/month for men, 153% more than women. Men have a higher income because of their work in activities that are better paid outside the house. 80% of women collects the development bond, which takes an average of 2.5 hours a month. The average income out of agriculture and livestock activities is 96 US\$.</p>		<p>Farm diagnosis, time use survey</p>
<p>Expenditures: On average 62% of income is used to buy food, 7% for public services, 8% of income is used for health, 11% is used for education, 12% of income is used for other general costs. It can be determined that 34% of the cost of the "canasta básica" is covered by production for self-consumption. The rest would be financed with the sale of agricultural and livestock production and with income out of non-agricultural activities.</p>		
<p>Destination of the money coming from the vegetable produce chainOn the basis of sales information from the service centres in 2008, it is estimated each producer invests 1.71 US\$/month, an average between seeds and consumables equivalent to 1.78% of the monthly income out of agricultural activities. The rest is used to complement the income of families.</p>		<p>Farm diagnosis</p>

	<p>Access to resources and related decisions For the garden produce item, women have greater control on sales and use of resources, 77% and 43% respectively. The decision by the couple on the use of resources is also considerable: 36%. Other agricultural products like Chinese potato, cassava, potato, a.o., are mainly sold by women (50%). The decision on the use of these resources is taken by the couple (67%). Products like milk and eggs are also sold by women (72%) and in 40% of the cases, either women or the couple decide on the use of these resources. Small animals are sold by men in 55% of the cases and by women in 45%. The decision on the use of these resources is taken by the family in 56% of the cases, and by men in 38%. Men mainly sell both small and big animals (50%) and the decision on the use of the resources is mainly taken by the family, who participates in 58% of the cases.</p>		
<p>Policies, institutions and processes</p>	<p><u>Social relations and processes</u></p>	<p>Focus groups</p>	
	<p>How are do producers of the chain relate with other sectors of the society? We can determine three commercialisation opportunities for the producers in the chain: sale on the farm to a local middleman, sale on the local markets and sale to the Chuya Mikuna organisation. The producers of the chain benefit from a high recognition and demand within the local area, because their agroecological quality is recognised and appreciated by the consumers. However, the contribution to associative sale decreased with 57% in comparison with the previous year, to a large extent because of the low production, that was mainly sold within the area.</p>	<p>Interviews (Key persons)</p>	
	<p>What is the status of the chain among public opinion? Local and regional consumers appreciate the agroecological quality and there is a growing demand that the local production has not been able to cover.</p>		

<p>Participacion of women in decision making Over 70% of the members of the organisation are women. They also lead the community and participate in the organisation's board. 100% of women is dedicated to community activities that take an average of 8 hours a month.</p>		Time use survey
<p>Roles of the chain actors Men dedicated to agriculture represent 44%. The majority of women are dedicated to agricultural activities: 99%. 22% of children are dedicated to agriculture, between the age of 17 and 23 years old. 10% of the boys between 18 and 21 years old work in agriculture. Young men that work 100% as Farm Human Labour Unit ("Unidad de Trabajo Humano" - UTH) are 40% of the sample, twice as much as young women (20%) who work as Farm Human Labour Unit. In agricultural practice, men are mainly responsible for ploughing (58%), followed by women (17%). Dusting is mainly done by women (47%). Weeding is mainly done by women and their sons (37%). The harvest is mainly done by women and children, 35% and 30% respectively. transport and commercialisation is mainly done by women, who participate in more than 50%. Detailed information requested for this point is included in cell C73.</p>		Farm diagnosis
<p>Analysis of policies and political processes</p>		
<p>Actors from the chain with influence on policiesAll communities have a representative, who influences the organisation through his/her participation in the board meetings.As for associative commercialisation, Chuya Mikuna forms part of the "Red Tierra y Canasta" network, where both consumers and producers can explain their needs and look for solutions together. This network is recognised on national level and has actively participated in drawing up laws related with food sovereignty and solidary economy.</p>		Farm diagnosis

	<p><u>Institutions (rules, standards and values that give expression to our attitude, rules of play)</u></p> <p>Formally Agricultural and livestock development law, MAGAP, CREA, SESA, MICIP, SRI. There is, within the organisation, a standard that allows to establish parameters to execute the male and female members' obligations and rights.</p>		
Support strategies	<p>Incoming money (average per producer) Average income considered according to non-agricultural activities is 43.63 US\$/month for women and 285 US\$/month for men, 153% more than for women. Men have a higher income thanks to work in other activities that are better paid outside the house. 80% of women collect the development bond, which takes them an average of 2.5 hours a month. <u>The average income out of agricultural activities is 96 US\$.</u></p> <p>Remittances Male migrants represent 9% of the population. They send remittances of approximately 170 US\$ a month. There are also female migrants whose remittances amount to an average of 60 US\$ a month. 20% of the surveyed members receive these remittances. Non-agricultural total income consists of 75% of remittances from men and 25% as additional income from men and/or women.</p>	Production and commercialisation information 2008 - Chuya Mikuna Organisation Interviews (Key persons)	Farm diagnosis

<p>Non-agricultural income 82% of women perform commercial activities on top of the farm work. The main activity is embroidery (36%), which generates an average of 25 US\$ a month. Doing laundry is another activity (18%), which generates an average monthly income of 25 US\$. 18% of the women work outside the farms as domestic servants and have an average monthly income of 150 US\$, or work as migrants abroad, sending 60 US\$ of monthly remittances. Men whose with commercial activities outside the farm mainly work as builders (36%), with an average monthly income of 367 US\$. Another representative group works as day laborer (27%) with an average income of 252 US\$. 9% of the surveyed farmers work as drivers, with the most important monthly average of 400 US\$. The migrants, 9%, send an average of 170 US\$ a month.</p>		
<p>Agricultural income Average monthly income out of agricultural activities is estimated at 95 US\$. Even if 15% has an income above 100 US\$, another 15% has an income under 10 US\$. There is deficiency when monetizing the contribution of consumables and products meant for self-consumption.</p>		
<p>Cultivation activities on the farm Garden produce, potato, sweet potato, cassava, maize, beans and peas are the main products grown on the farms, which generate income or are meant for self-consumption. 59% of the production was mainly commercialized in an individual way and to a lesser extent by means of associative commercialisation. The amounts generated by this production are not exactly registered, but it is estimated that, from a monetary point of view, the production sold represents 66% in comparison with 34% of the production for self-consumption.</p>		Farm diagnosis

<p>Activities with regard to the commodities of the vegetable chainThe male and female producers mainly perform ploughing with a yoke (73%), spade (12%), manually (9%), tractor (12%). After ploughing, organic fertilizers are applied on 89% of the plots. It should be noted that 45% of the surveyed farmers apply organic fertilizers produced on their farms. Unfortunately, the kind of fertilizer nor the amount are registered. Dusting is done manually. After dusting, seeds are applied to 50% of the plots and organic fertilizer to 30% of them. Weeding and harvesting is performed 100% manually.</p>		Farm diagnosis
<p>Livestock activities 70% of the surveyed farmers have bovine cattle. 58% of the surveyed farmers apply bovine health. Other practices like milking are registered in 75% of the farms. The agricultural and livestock practices are a female responsibility with 50% of participation. The bovine cattle requires more time and attention, approximately two hours.</p>		
<p>Commercial activities Commercial activities like grocery stores are registered in the case of women and sale of rejects in the case of men.</p>		Farm diagnosis
<p>Other economic activities Men who work in agriculture represent 44%. Among other activities that are registered we find day laborers, builders and drivers (18.75%). 81% of the latter works within the area and 19% outside the area. Women are mainly dedicated to agricultural activities. It should be noted that those who said they perform another activity basically own a store and/or sell embroidery, which is done within the farm together with subsistence agricultural activities.</p>		

	<p>Participation of the activities in the monthly income Based on the average income per activity we may estimate that: 62,69% is income of non-farm Human Labour Units - men. 9.6% is income of non-farm Human Labour Units - women. 21.12% is income from agricultural activities. 6.6% comes from government assistance by means of the solidarity bond.</p>		Farm diagnosis Time use survey
	<p>Sustainability of support strategies</p> <p>Family food needs 55% of food products are covered by farm production, 45% is bought. 100% of the surveyed female farmers is responsible for buying food. They use an average of 2.5 hours a week for this activity. 80% of the women prepare canned food, curd cheese and/or bread for sale and/or family consumption. This takes an average of 3 hours every two weeks.</p>		Farm diagnosis Time use survey
	<p>Level of access to services, markets, government institutions and information The organisation assists its members through the Service Centre with consumables and technical assistance with the promoters. They facilitate the award of sales space by means of agreements with the municipality of Suscal and the parish council of Ducur. It has agreements with the Cooperativa Jardín Azuayo to facilitate credit to the male and female members. For this year, it is planned to undertake actions with relevant government agencies, especially for irrigation.</p>		

<p>The fact of being listened to and to have the power to influence decisions, to control the exploitation</p> <p>The agroecological system allows male and female producers to have greater control of their production processes through the fertilizer generation, seed conservation and crop diversification. They have more commercialisation options, on the local markets or through associative sales. The monthly group and board meetings became a mechanism to explain ideas and needs.</p>		
<p>More food sovereigntyThe agroecological system strenghtens the sovereignty of male and female producers because it promotes varied cultivation and small and big animal rearing, which contribute to a healthy diet. They have more control of the production process.</p>		
<p>Higher and/or more secure income</p> <p>Associative commercialisation of Chuya Mikuna demonstrated there is a potential demand for agroecological products ((77,000 kilogrammes sold in 2008, 300% more than in 2007). This shows production of not only garden produce but also several products may be promoted (64 varieties sold by means of the organisation) and generate a considerable income.</p>		
<p>Physical welfare, health, access to more respectful, efficient and affordable health services</p> <p>As for health, 10% of the population has an ill family member and 5% of the members of Chuya Mikuna suffer from an illness. 71% of them is receiving treatment by a professional and 29% uses domestics remedies. Accompanying ill people to be treated by a professional takes women an average of 1.7 hours monthly. It should be noted that women have a considerable work load. They dedicate 15 hours to production and reproduction work a day, which is 63% of it. There is no male participation in household and care tasks.</p>		<p>Time use survey</p>

2. Vegetable chain analysis			
LHA ELEMENTS	INDICATORS	SOURCES	ADDITIONAL REFERENCES
CHAIN CONTEXT			
Chain map	No chain map		
Chain logics and power relations	<ol style="list-style-type: none"> 1. The suppliers (mainly of seeds and fertilizers): Chuya Mikuna Services Centre, self-supply and other suppliers 2. The primary producers (male and female members of the organisation) and allied producers of peer organisations 3. Supply: local middlemen, stockers, Chuya Mikuna Stocking Centre. 4. Trade: a community retailer (farmer/supplier), local retailer, (sales on the local market), retailer in the province (sells in several sectors of the area); consumer organisations (main market of associative sales). <p>With regard to the relations of Chuya Mikuna as commercializing entity, there is a weakness due to allied farmers who are informal and do not comply with quantity or price agreements. The relation with farmer members is favourable for producers because when negotiating with Chuya Mikuna they obtain better prices than through other channels. When complying with the minimum requirements they ensure sales, and vice versa, Chuya Mikuna only receives 16% of the quantity to be sold through the farmers of the project. This creates a bottleneck in supply, because production is regulating demand. In the relation of Chuya Mikuna with the market, favourable aspects for the groups of actors become clear. For example, consumer organisations linked with the "Red Tierra y Canasta" network align their goals for agroecological product production and consumption. Even if this channel is important, it's essential to reduce the risk and the dependence by increasing the quantity</p>	PRAGMA IV	Actor interviews Qualified informer interviews PRAGMA VI

	sold to other channels.		
Facilitation environment	<p>An increasing number of farmers is growing garden produce, because they can be managed on small plots of land, have a short vegetative cycle and produce attractive returns. Agroecology may benefit the country in several sectors, as demonstrated below.</p> <p><i>Economically</i></p> <ul style="list-style-type: none"> • Stimulation of exportation • Creation of job opportunities • Foreign exchange inflows and improvement of the producers' economies • Creation of micro enterprises • Promotion of rural tourism and environment friendly city ornament <p><i>Socially</i></p> <ul style="list-style-type: none"> • Decrease of farmer migration towards the cities and abroad • Improvement of the health and living conditions of producer and consumer families because the products are non toxic and non pesticide • Healthy diet for producer's families <p><i>Environmentally</i></p> <ul style="list-style-type: none"> • Soil recuperation and improvement • The support programmes must stimulate reforestation plans for native plants that benefit the soils. • Botanical, genetic study and alternative use • Training for rational soil, natural pesticides and herbicides management • Water conservation 	Secondary information PRAGMA VI	

Business Development services	<p>Chain development services:</p> <ul style="list-style-type: none"> • Primary producers that are members of Chuya Mikuna: Access to training for boys/girls, youngsters and adults through the Consortium. Establishment of the youth network. • Technical assistance through the technical assistants of the Consortiums and the male and female promoters. Consumables and seeds for agroecological production through the Service Centre with credit possibility. • Individual sales spaces on the markets of Suscal and Ducur and through associative sales with the organisation. • Support to manage actions and/or requests with public and private organisations. • Male and female producers from allied organisations: Technical support for agroecological production, internal control and stocking systems • Consumer organisations • Joint campaigns for the promotion of agroecology, responsible consumption and food sovereignty • Establishment of the youth network 	Interviews with qualified informers of the Consortium, allied organisations and the "RED TIERRA Y CANASTA" network	
	<p>Quality:</p> <p>The training processes are very popular among male and female members. The technical support of the male and female promoters is not successful as the support from technical assistants of the Consortium. The products that are sold in the Services Centre are very successful among producers.</p> <p>The allied organisations appreciate Chuya Mikuna's support to share the knowledge they have on production, control and stocking. The consumer organisations acknowledge the agroecological quality of the products, although they prefer bigger products, as is generally the case of conventional products.</p>		

Bottlenecks, obstacles and favourable strengths	<ul style="list-style-type: none"> • Suppliers: Limited offer of agroecological products. Empirical knowledge of consumables use. Unstability of self-supply. • Primary producers: The products do not comply with Chuya Mikuna's minimum requirements. The farmers do not supply to Chuya Mikuna because they want to be paid cash. • Producers of allied organisations: Non-compliance with agreements. Complicated logistics. Lack of stocking capacity. • Trade: Insufficient supply. Lack of positioning. Product seen as expensive. • Market: The price is compared with non-agroecological products. Occasional purchase by end-consumer. The orders do not reach the minimum to pay operational costs. Variable demand. 		Systematization PRAGMA VI
Production-related problems	<p>Number of square metres of main crop For vegetable produce, 28,354 square metres are registered.</p>	Interview (Key persons) Consortium SENDAS PROTOS VECO Chuya Mikuna Production and commercialisation registers Systematization PRAGMA VI	Systematization PRAGMA VI
	<p>Production system The agricultural activities are done with basic tools like machetes or picks. The biggest part of the work is done manually. The agroecological practices are performed by all male and female members. In 2008 organic certification was requested by 50 male and female members.</p>		
	<p>Production cost</p> <ul style="list-style-type: none"> • Leaves: Swiss chard, cabbage, lettuce, turnip, spinach, parsley and coriander: 8.2 dollar cents/unit - bunch • Florescences: broccoli, cauliflower: 7 dollar cents/unit • Roots: carrot, beetroot, radish: 2 dollar cents/pound • Roots and leaves: onion, spring onion: 3 dollar cents/bunch • Fruits: tomato, chili pepper, pumpkin, courgette: 22 dollar cents/pound 		

<p>Hired labour force Labour force consists of the family members. Only 5% of the population is assisted in agricultural activities. La mano de obra constituyen los miembros de la familia. Solo se registra 5% de la población que tiene asistencia en actividades agrícolas. Day's pay is 10 US\$.</p>	Farm diagnosis, time use survey
<p>Consumables Organic fertilizer (hen droppings): 2 US\$/sack. 28% of organic fertilizer is produced on the farm.</p>	Farm diagnosis, time use survey
<p>Yield: 3.41 kilogrammes per square metre of garden produce</p>	Systematization PRAGMA VI
<p>Profits The difference between the garden produce cost and sales price on local markets is 260%. Prices of associative sales are 176% higher than production costs. The average production cost is 0.18 US\$/kilogramme. Even if the sales on the local markets allows for better prices than associative sales (average of 68%), the cost of male and female producers is an average of 10.5 US\$ (transport 1 US\$ + lunch 1.5 US\$ + opportunity cost per working day 8 US\$) per working day. This implies that, in order to cover the individual commercialisation cost, a minimum of 50 units should be sold. The same 50 units sold through Chuya Mikuna generate a utility of 7.11 US\$ per male or female producer. According to the registers of local markets, a male/female producer sells an average of 85 units a week during summer. Chuya Mikuna needs every temporary stocking centre to have a minimum of 200 products in order to send a car for stocking in CAT.</p>	
<p>Sales volume In 2008 96,624.52 kilogrammes of garden produce were produced. 4% of this amount went to associative sales and 55% to sales on local markets, on the farm and/or middlemen of the community.</p>	Systematization PRAGMA VI
<p>Sales amount Average price for individual sales on local markets: 64 dollar cents/kilogramme in comparison with an average of 46 cents/kilogramme in the case of associative sales.</p>	

