



DFID Natural Resources Systems Programme

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FINAL TECHNICAL REPORT¹

ANNEXE A

R8362: Validation and communication of a community-led mechanism for livelihood improvement of remote marginalised communities in Bolivia

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Map 1 Department of Tarija, Bolivia

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Introduction

In Bolivia, as in many other developing countries, projects intended to assist improvements in the quality of life for rural people have had limited and short-term impact. In recent decades indeed the incidence of poverty in Bolivia has increased (UNDP, 2004). The situation of people and communities in the most isolated places is delicate because development projects commonly cluster near administrative centres and accessible locations (Campbell 1998). It was in this context that a previous research project (R7584, known locally as HEDECOM) sought to work with a series of poor, relatively isolated communities to help them identify what their most urgent needs were and to use the knowledge of urban-based professionals to initiate change in their use of natural resources from which it was intended that all, but in particular the poorest households might benefit. Since the organisations engaged in stimulating development in rural areas, whether local, national, NGO or GO are driven by external priorities which do not necessarily coincide with those of the communities with which they work, it is also necessary to find ways of community priorities being identified and articulated to external agencies.

One of the principal results of R7584 HEDECOM was the development of a community-led mechanism whereby the principal priorities of communities were uncovered and structured and were the basis of collaborative work between project local professionals (LPs) and the communities to improve their livelihoods through sustainable management of their natural resources.

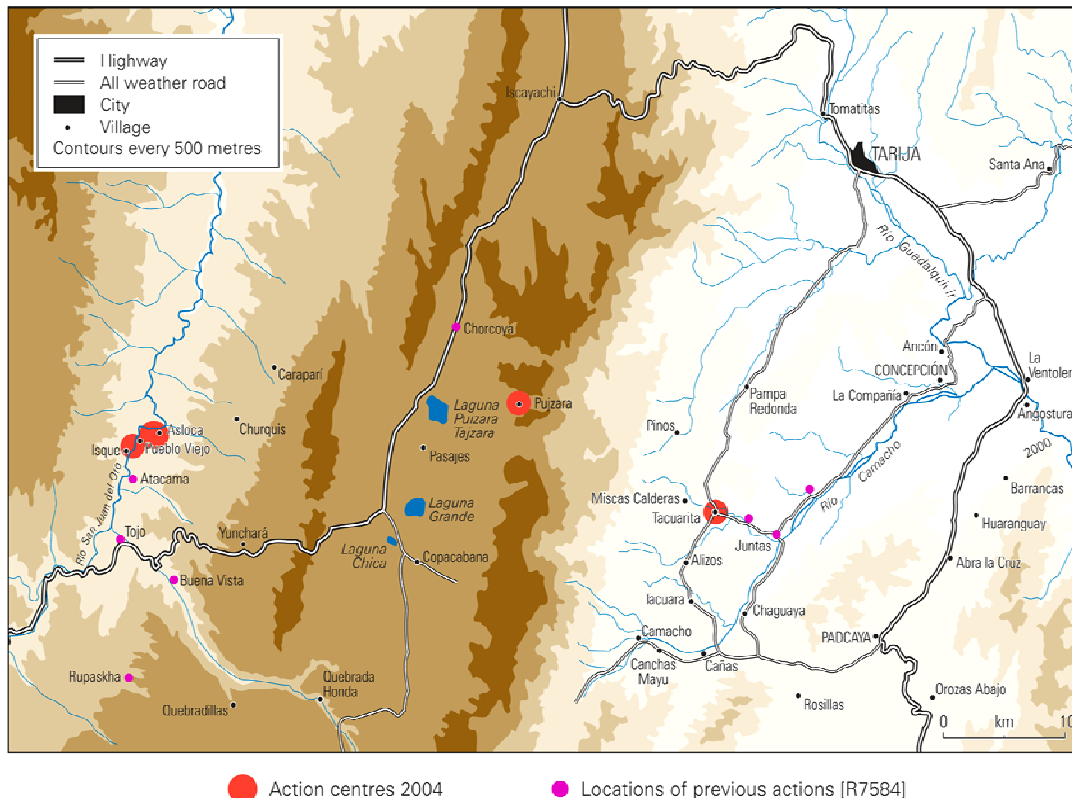
In this report the outcomes of research project R8362 VINCOSER - which was conducted in three different groups of communities in the SW Tarija, Bolivia – are examined. The present research examined the effectiveness of the previously-developed community-led mechanism developed to identify the needs and priorities of poor hillside communities. Furthermore it examined how best the Community-led mechanism could be subject to revision by organisational learning. It then assessed the extent to which it really had offered livelihood improvements for the poor through better service provision and whether new practices started during the VINCOSER project had continued to be used. Finally, this research sought to communicate to a range of regional and national organisations the value of this mechanism to enable favourable changes in the use of natural resource changes by hillside communities.

In Section 1.1 we present the findings of work in Chorcoya, Tojo and Juntas which were the target communities of the R7584 HEDECOM project. These communities will be referred to as first generation communities or 1G communities in the following text.

In Section 1.2 we present the findings obtained in Tacuarita, Pueblo Viejo and Pujara, communities which have not been previously targeted by HEDECOM, and which are referred to as “second generation communities” or “2G” communities.

The following map identifies the location of the six communities, which are briefly described below.

Map 2 *Locations of study communities, SW Tarija, Bolivia*



Juntas, Chorcoya and Tojo – 1G communities

These three communities were incorporated into research associated with the project referred to locally as HEDECOM early in 2000. They are located in three different ecological zones in SW Tarija – the valleys near to the city of Tarija, the high plateau – altiplano – of Tarija and the deep gorge of the Río San Juan del Oro which forms the western boundary of the Department of Tarija with the Department of Potosí.

The valleys of Tarija lie at about 2000 metres above sea level and border the eastern range of the Andes. Juntas is located an hour's drive SW of Tarija and is situated at the confluence of the Camacho and Alizos rivers which downstream join the Guadalquivir river to form the Río Grande de Tarija that flows eastwards across low parallel ranges of hills to join the Bermejo river in the lowlands of the Gran Chaco. **Juntas** is reached by an all-weather road from Tarija throughout most of the year and a daily bus links the community with Tarija. The road is impassable for a few hours after heavy storms. **Chorcoya** lies due west of Juntas at an altitude of about 3800 metres but separated from the valleys of Tarija by a 5000 metre high mountain range. It is traversed by a major all-weather road linking Tarija with the small mining area of Tupiza, to the west and the Argentine border at Villazón. The road is used by infrequent but regular lorries and 2-3 buses daily. The journey from Chorcoya to Tarija takes about two hours and to Villazón about four hours. The third community, **Tojo**, lies along the highway from Chorcoya but some 1100 metres lower (at 2600 m.) and only two hours from the Argentine frontier and about a day's walk on foot.

Tacuarita, Pujzara and Pueblo Viejo - 2G communities

These communities are each located within 10-12 kms. of the communities with which the team had previously worked and in two cases, Tacuarita and Pueblo Viejo, they had previously had contact with the local professionals.

Tacuarita (1900 m) and Pueblo Viejo (2550 m.) are located in the temperate valleys that border the eastern Andes while Pujzara (3700 m) is located on the part of the Altiplano – the high plateaux that characterise the Central Andes – that lies in Tarija department (Map 1). Tacuarita is crossed by an all-weather highway which enables access to the city of Tarija 1-2 hours away by the lorries which offer a daily service except when rains make the rivers impassable. Pueblo Viejo is located far from Tarija on the western boundary of the department. It is located on an all-weather road running north-south along the valley of the Río San Juan del Oro. This road links to the north with the main highway between Tarija and Potosí and the northern parts of Bolivia (2-3 hours away by infrequent vehicles), and to the south (about 9 kms.) with the major highway enabling regular access to Tarija (3-4 hours by bus or lorry) or to Villazón (1-2 hours by bus) on the frontier with Argentina. Pujzara is within sight of the main highway between Tarija and Villazón (5 kms), traversed by infrequent lorries and several daily buses and about 2 hours travel from Tarija (see Map 1).

1. The effectiveness of the CLM in improving livelihoods

1.1 Livelihood impact assessment of first generation communities

Objective

This section of the report is based on field research carried out over four months May - August 2004. It revises and summarizes the more detailed analysis in the Spanish version of this report, which should be consulted for further details (De la Fuente et al. 2005).

Its overall objective is to report livelihood changes which have been influenced by the different activities carried out under HEDECOM. An important focus of the analysis is the differentiated impact of HEDECOM's activities within the communities. This can lead to important conclusions regarding the pro-poor emphasis of the project. To achieve this, the report is structured in the following way:

1. Description of the different socio-economic strata within the three target communities; the main characteristics of each stratum and the main differences between them. In addition the components of livelihood strategies of the different socio-economic strata are outlined together with any associated problems.
2. Characterization of the practices promoted in the course of HEDECOM research -. knowledge-intensive practices, high input-dependent actions, etc.
3. Analysis of the adoption and adaptation patterns of these technologies by households in the different socio-economic strata
4. Conclusions on the contributions of HEDECOM activities to livelihood changes

Research Methods

The research was carried out in the HEDECOM target communities Juntas, Tojo and Chorcoya between May and August 2004. In each community an intensive field period of

about 20 days was undertaken by two research staff (Tania de la Fuente and Julio Sánchez) during which approximately 50% of the community households were interviewed.

Table 1. *Sampling pattern in each of the first generation communities*

		<i>Numbers participating in HEDECOM by socio-economic stratum</i>		
Community	Households interviewed	High	Middle	Low
Tojo	21	4	7	8
Chorcoya	20	5	6	0
Juntas	20	5	6	3

Semi-structured interviews with key informants, individuals and groups were carried out. Since it was important to understand the reasons why some of the community members, especially those in the lowest stratum, did not participate in the project, care was taken to select households from different socio-economic strata who were either participants or non-participants in HEDECOM. The participation rate in the communities varied. This reflected in part the level of organisation within the communities. While in Tojo most of the people from the different socio-economic strata actively participate in peasant union activities, in Juntas fewer people in the lower stratum take part, they are effectively marginalised and many live some way from the village centre where meetings are held. It should also be recognised that people in the lower stratum do not have the time or the resources to participate in such meetings - this is particularly the case of single women and the elderly. In order to obtain information on the impact of HEDECOM on households in different socio-economic strata, the research focussed on understanding the heterogeneity of responses in the target communities. Using mainly local criteria for socio-economic differences, three main strata were identified in each of the communities.

The lack of consistent baseline data from the earlier HEDECOM work regarding crop yields, livestock performance and income and because of the short research period of VINCOSER it was decided not to focus on changes in measurable variables (e.g cash, yield, etc.) but rather to concentrate more on qualitative data relating to changes instigated by HEDECOM that contributed to people's livelihood activities and strategies. Statistics collected were not intended for formal statistical analysis. Sample sizes are too small for tests of statistical significance.

We started from an initial assumption that people from different socio-economic strata would engage in different livelihood activities and may therefore have different preferences with regard to their development of livelihood assets. Our research therefore focused mainly on understanding the contributions of HEDECOM's activities to these broader livelihood changes. The contributions can be either direct (e.g. adding to income, health, food, etc.) or indirect (affecting peoples assets, activities and options, and ability to cope with shocks).

Socio-economic stratification in the three target communities

Three socio-economic strata are differentiated mainly by their capital status –human, natural and physical- and the resulting livelihood strategies (see tables 2, 3, 4 and 5). The main focus was on natural resource-based livelihood strategies, as this was the area of intervention of

HEDECOM. However, it was also important to understand the differences in non-natural resource based strategies, as they have an important impact on overall livelihood situations.

Table 2 *Human capital in different socio-economic strata*

		# Interviewed	Knowledge of current policies	Using Innovative techniques	Secondary education/ Professional training	Access to paid labour	Access to labour at home
Juntas	High	5	5	5	4	4	0
	Middle	6	4	4	4	0	6
	Low	9	0	0	0	0	9
Tojo	High	5	4	5	5	4	0
	Middle	8	1	4	1	2	5
	Low	8	2	2	0	0	6
Chorcuya	High	5	4	5	2	0	5
	Middle	9	7	7	0	0	9
	Low	6	0	1	0	0	6

- The better-off stratum is characterised by a relatively high level of human capital. People within this stratum have a good level of knowledge of existing rights and laws, they have a solid knowledge on farming methods (traditional and modern) and they have a relatively high level of formal education, which they are also achieving for their own children. As a consequence of their educational status some of them are employed within or outside the community – as teachers, local government officials or lawyers - have their own business (a shop, transport, hotel, etc.) or have settled in (or returned to) the community after following a profession and now receive a pension².

In terms of their natural resource base, they have the largest areas of cultivable land with access to irrigation. This has either been inherited or acquired over time. Cultivated areas vary within and between the communities, however, a relevant and crucial difference with other strata is their access to irrigation water, which increases the potential productivity of their land and makes them less vulnerable to drought. Whereas in Chorcuya small areas of field crops are important, in Tojo and Juntas fruit trees and grape production are additional important activities.

With regard to livestock production there are clear differences between the three communities and in all of them much of the area of land used by livestock is communally owned although some households also have small fenced areas of their own. Whereas in Chorcuya mainly sheep and goats (> 300), cattle (> 20) and llamas (> 10) are kept, in Juntas this stratum places greater emphasis on cattle including cows for the production of milk and cheese. In Tojo livestock play a less important role for this stratum. This is reflected in the number of households of the better off that have only a few sheep or goats.

In terms of physical capital the better off households have access to irrigation, which as said previously, increases their productive potential. Their houses are solid structures, of good size and often in central locations, which allow better access to all types of services.

Livelihood strategies in this stratum are based on agricultural production for home consumption and to sell and the transformation of products, which can be sold in the urban areas or to people travelling through the communities. Income is

² Some receive pensions following a prolonged period of work in Argentina

supplemented, especially in Juntas and Tojo, through the provision of local services such as transport, hiring out of cattle for ploughing, shops, etc. or through salaries obtained outside the community (including pensions). In this stratum the livelihood activities are more diversified than in other strata, which may, in turn, reduce their vulnerability to external shocks, such as climatic events or commodity prices variations.

Table 3 *Natural capital in the different socio-economic strata*

Community and socio-economic stratum		NATURAL CAPITAL					Crops in order of importance
		Livestock			Land		
		Cattle	Sheep	Goats	Irrigated	Non-irrigated	
Juntas	High	≥25	-	≥25	2.5 ha	2.5 ha	Potatoes, maize, onions, vegetables, peanuts, fodder, fruit trees
	Middle	c.20	-	c.15	2 ha	3 ha	Maize, potatoes, peas, onions, and peanuts
	Low	<3	<3	<10	¼ ha	¼ ha	Maize, potatoes, peas, onions, peanuts, amaranth, wheat
Tojo	High	-	-	-	≥ 1 ha	-	Maize, grapes, quinces, apricots, potatoes
	Middle	-	> 20	-	¼ -1 ha	-	Maize, grapes, potatoes, apricots, quinces
	Low	-	≤ 5	-	≤ ¼ ha	-	Maize, grapes
Chorcuya	High	≥20	≥300	-	2ha		Potatoes, broad beans, vegetables, garlic, chamomile, barley, onions
	Middle	5-10	100-300	-	>1 ha	Very limited	Potatoes, broad beans, vegetables, garlic, chamomile, barley, onions
	Low	1-5	20-50	-	-	¼ ha	Potatoes, vegetables

- The middle socio-economic stratum is that where most people are situated in the three communities. In terms of human capital there is a noticeably lower level of formal education, which will be perpetuated in future generations, as children work with their parents and have therefore less time to continue their education beyond the primary stage. Knowledge of existing laws and rights people within this stratum is less than in the upper stratum.

In terms of natural capital, households in this stratum have less land (0.25 - 1 ha) little of which has irrigation water. Cattle, sheep, and goats are kept, however in smaller numbers. Fewer households have fruit trees and grape vines although there are differences between villages.

The livelihood strategies of this stratum are based on a combination of crop and livestock production, largely for subsistence. Exchanges of produce takes place locally and through seasonal fairs, to acquire goods not produced locally. Only in the case of a large production surplus or an urgent need is some sold to traders or in city markets.

In households where labour is a limiting factor (e.g. female-headed households), women may go to sell food at the roadside to supplement household income. Migration is a very common phenomenon in this stratum.

Table 4 *Physical capital in the different socio-economic strata*

Community and socio-economic stratum		# interviewed	PHYSICAL CAPITAL			
			Access to services	Access to main road and public transport	Multi-room house with facilities	Others
Juntas	High	5	5	5	5	Access to team of oxen, gas cooker
	Middle	6	6	6	6	Access to ox team
	Low	9	1	0	0	
Tojo	High	5	5	5	5	2 have trucks 2 have hotels and shops
	Middle	8	5	5	4	
	Low	8	5	5	2	
Chorcuya	High	5	0	3	4	2 have trucks
	Middle	9	0	1	2	
	Low	6	0	0	0	

- The lowest stratum lacks human capital, few have formal education and many are functionally illiterate; they are not aware of existing laws and rights. These households have little available labour, as they are either female-headed households with a large number of dependent children, or elderly people or household members with other problems such as alcoholism or physical or mental handicaps.

Households in this stratum have very similar natural capital resources in the three villages. Land holdings are small (< 0.25 ha) and some are landless. In some cases this is overcome by working on land belonging to other family or community members. This stratum, as the other two strata, combines crop and livestock production. However, the numbers of animals are limited and sheep and goats are more numerous than cattle.

In terms of physical capital, these households often do not have access to irrigation, which limits their agricultural production. They live in small houses that are located away from the community centre which limits their access to services.

Livelihoods are based on farm production for their own consumption. This is often complemented by income derived from a variety of other sources. They either migrate to Tarija, the eastern lowlands or Argentina to work; they sell their labour within the community to the better-off stratum, or they sell food alongside the roads.

Table 5 Livelihood strategies in the different socio-economic strata

		# interviewed	Farming	Migration	Wage labour	Sell produce	Alt. Income*	Process produce	Craft sales	Offer service+
Juntas	High	5	5	0	0		5	3		1
	Middle	6	5	6	5	6				
	Low	9	9	0	9					
Tojo	High	5	5	1	0	2	5	3		1
	Middle	8	8	5	4	1				3
	Low	8	8	2	5					6
Chorcuya	High	5	5	1	1		3		5	2
	Middle	9	9	5	2	2			5	
	Low	6	6	4	1				5	

* Alternative sources of income include professional employment, children sending money
 + Services include selling food beside the road, having a shop or source of transport

Activities promoted in association with HEDECOM

HEDECOM focused work initially in three communities in an area where previous research had been carried out over more than ten years. Therefore considerable knowledge had been acquired about household and community needs articulated in research interviews. During the first stage of HEDECOM, workshops were organized in which community members identified areas where professional advice was needed. This work identified fruit and livestock production as key areas where outside knowledge was needed, particularly associated with increasing problems of disease. Based on these findings HEDECOM identified technical practices which could help to tackle these problems. These practices were promoted by local professionals.

The practices included:

- Fruit tree disease control and management (especially focused on grape vines and peach trees) including biological and integrated pest management practices, grafting and pruning.
- Experimentation with alternative crops, including legumes and improved varieties of local crops³
- Restoration of old terraces⁴
- Livestock health and management, including vaccination, de-worming and other practices.
- Participatory/ consultative research in livestock diseases.

The methods used to promote these practices included workshops, training sessions, practical work with individuals and groups, distribution of materials and inputs, and the distribution of flyers and other training materials, etc.

³ These practices were only introduced in one of the three communities

⁴ Idem.

A more detailed analysis of the promoted practices based on observations in the field and interviews with household members in the three communities revealed a number of common characteristics of these practices.

- Dependence on external inputs, which require a financial and logistical effort to purchase them (e.g. de-worming, pest management etc)
- Based on higher labour input (e.g. pruning and grafting, biological pest control, etc.)
- Using existing resources of households (restoration of terraces)
- Based on intensive knowledge sharing and learning process (e.g. integrated pest management, livestock breed improvement, etc.)
- Requiring social organisation for successful implementation (integrated pest management)

These characteristics are important to better understand the adoption patterns. Depending on the resource situation of the households and their livelihood strategies some of these practices will fit better than others.

Conclusions on contributions of HEDECOM activities to livelihood changes

Before we look in more detail at the adoption patterns and the implications for people's livelihoods we need to define our use of the term 'adoption'. We refer to adoption as the *successful* integration of a *new* practice into the household production system. A practice is judged successful if it remains part of the production system over a longer time, which may also include a process of adaptation of the practice. Adaptation is a very important aspect in the adoption process, as it enables individuals to make a practice fit better with existing resources and needs.

Interviews with a sample of participants in HEDECOM enabled a better understanding of who had adopted which practice and the identification of factors which affected the adoption process.

The project findings showed variations in the adoption of changes across the three strata (see Tables 6 -8). One year after the end of HEDECOM two-thirds of the households in the upper and middle strata who had initially participated continued with at least one of the promoted practices. Only one third of those in the lowest stratum who had adopted the new practices that they had learned were still using them. A number of reasons appear to have influenced the adoption or abandonment of the practices that had been promoted:

- During the last two years climatic events such as hail, drought and frost have had a negative effect on yields and production, which may have contributed to the abandonment of new practices, as their benefits could not be perceived by the people. However, in regions where these climate events are a normal part of the agro-ecosystem, the selection of practices should have been able to take these environmental problems into account, for example frost-resistant potatoes were tested in Chorcoya...
- Some of the promoted practices relied on external inputs or services which were delivered free of charge by the local professionals. This always carries the risk that people will not be willing or able to pay for these after the project withdraws.

- In some of the villages there was a clear lack of community organisation, which influenced negatively the adoption of those technologies which relied on a community-wide response, such as integrated or biological pest management. The project perhaps could either have incorporated into the work strengthening the social organisation, or, if this seemed impossible, not have promoted practices which depend on it.
- HEDECOM did not have a clear project exit strategy. The communities were not linked to other service providers, which could have given continuity to the process, nor did community members have the self-confidence to take full charge of the necessary actions. This had a negative impact on adoption rates and the diffusion of practices within the communities.

Table 6 *Adoption of new fruit production practices*

Community	Stratum	# participants	Disease treatment	Propagation	Pruning
Juntas	High	5	2	2	5
	Middle	6	1	4	2
	Low	3	0	0	0
Tojo	High	5	3	2	5
	Middle	8	4	3	8
	Low	8	1	2	3

Table 7 *Adoption of new livestock management practices*

Community and socio-economic stratum		# Participated	Number adopting any livestock management practice
Juntas	High	5	4
	Middle	6	2
	Low	0	-
Tojo	High	5	1
	Middle	7	0
	Low	8	3
Chorcuya	High	5	5
	Middle	6	4
	Low	0	-

Table 8 *Overall adoption rates in all communities*

(Number of participants adopting)

Stratum	N=	Any fruit or livestock practice
High	25	20
Middle	33	18
Low	19	6

Based on the information obtained in this research we can conclude that the adoption of the practices promoted by HEDECOM is not equally distributed across different socio-economic strata.

The three socio-economic strata showed clear differences in rates of adoption: The adoption pattern shows that the highest adoption rate took place in the high stratum and, to a lesser extent, the middle stratum. The adoption rate and the impact of the practices on livelihoods within the lowest socio-economic stratum have been very limited. Households in the better off and middle strata benefited most from the HEDECOM project. This is partly due to their better resource situation, which enables them to invest in a range of production activities, partly due to their higher ability to take risks. This tendency is well-documented in the literature on agricultural innovations in both developed and less-developed countries (Rogers 1962, Feder et al. 1982).

Secondly, some of the production areas targeted by the project had a higher adoption rate than others. The highest adoption rate was seen in practices relating to fruit tree production.

Thirdly, there were differences in adoption rate between communities. For the interventions in fruit tree production for instance we conclude that, across all strata, the adoption rate was significantly higher in Tojo, more reliant on fruit production in comparison with Juntas. This may also reflect the higher degree of community organisation in Tojo.

These findings show the importance of considering the differentiated impact of technology promotion. Very few technologies can be considered as neutral in terms of socio-economic impact and resource requirements. Without taking into account the different needs and priorities within rural communities, successful adoption of new practices will be limited. An apparent failure of the HEDECOM project was not to take into account this differentiated impact of technologies on peoples livelihood.

1.2 Trends in livelihood changes in association with recent technical actions

Introduction

During 2004, the work of local professionals [LPs] was concentrated in three communities adjacent to areas where earlier work in association with R7584 had taken place (see Map 2). In one of the communities, Tacuarita, contact had already been made and work started in 2001-2002 but in the other two areas – Pueblo Viejo and Pujzara – no previous visits had been made.

This report relates to work undertaken between March 2004 and March 2005, a period of 12 months. During this time, the mechanism of community-led articulation of needs, especially related to natural resource use, was applied by and guided the actions of local professionals in their collaboration with communities. The characteristics of the communities are described and the structure of livelihood strategies of households in different socio-economic strata. The aim of this part of the report is to present preliminary findings on the trends in livelihood changes that can be detected that are associated with the current actions of the LPs and their possible impact of households of different socio-economic status⁵.

This report is based on reporting by LPs on the stages of their work with communities and on 32 semi-structured interviews conducted individually by the LPs together with the Project Leader with about ten households in each community conducted during the week of 8 November 2004. The interviews focussed on the household's livelihood strategy, the principal threats to their livelihoods, their responses to the work of the LPs with them, their hopes for the future and their views on how the poorest in the community can best be helped (See Working Paper 05/02, Appendices 1 and 2). Important information used to complement the interview data was derived from the community workshops during which members of the community developed their vision of the direction in which they wished their community to progress in the future.

Communities and their visions

Tacuarita lies in the valley bottom drained by the Río Alizos and tributaries and the surrounding land comprises river terraces, some of which have clayey soils, frequently eroded and covered with vegetation dominated by grasses and the spiny churqui (*Acacia caven*) which provides shade, fuel wood, and fence material and whose seeds (*cholonca*) and leaves are eaten by goats. The rivers flowing from the cordillera provide water for irrigation year-round but irrigation systems tend to be rudimentary and are subject to regular destruction by seasonal floods. The water from the community of Alizos' irrigation system which reaches Campo Carreras, bordering Tacuarita, has some surplus water which is used by households with land nearby. Cattle are also taken to graze outside the community both on high pastures on nearby hills and as high as 3000 metres on the mountain sides during the dry season. Those with more than about 15-25 head of cattle also may take them during the dry season to graze several days walk away on the slopes of the parallel ranges of hills bordering the Chaco (for detailed analyses of transhumance and its ecological consequences see Fairbairn et al. 2000, Subieta 1996 and Vacaflores et al. 2003). Grazing for cattle, sheep and goats is available both in fenced areas close to dwellings and on surrounding hillsides where communal tenure allows access to all.

⁵ The team of local professionals comprised Raimundo Montaña (horticulturalist), Patricia Ruíz (veterinarian) and María Isabel Cano (support person).

In Tacuarita, the principal needs expressed in the community's vision of its future, identified by people during workshops were related to how existing projects (CARE and VINCOSER) could help them and priority was given to improved fruit trees, livestock health, forage crops, better quality maize seed, bee-keeping, quality laying hens and the planting of windbreaks. The principal hazards limiting agricultural production mentioned at community meetings and during interviews were seasonal drought, hail and frost as well as rain storms accompanied by high winds that can destroy growing maize.

Pujzara lies on the slopes of the high plateau and its extensive communal grazing land ranges in height between 3600 and 4000 metres. Rainfall is low (less than 350 mm) and crop-growing is only possible on the lower hill-slopes where frost risk is least and where some soil moisture (from springs or small-scale irrigation) allows crop growth. Drainage is towards saline lakes that lie in the centre of the shallow valley that comprises this part of the altiplano. Some areas of *bofedales* (humid spring sites) exist where year-round grazing is possible. Some grazing areas are walled or fenced but most grazing is on communal land within which households have informal priority grazing areas. Cattle are frequently taken over the mountain crest to the east to areas moistened by clouds where adequate grazing is available year-round.

The community's vision of its future is strongly influenced by the ever-present donor agencies, mainly NGOs, but at a personal and household level their vision of the future includes wanting more money invested in projects from which they personally may benefit: collective community wellbeing has a generally lower priority. One informant commented that the community was not united and individualism is rife. Many people identified very clearly their priority for getting rid of their dependence on NGOs and 'projects' in general and learning enough about how to overcome everyday problems, such as disease and other threats to crops and livestock. The principal natural hazards are droughts, which affect sheep and dramatically increase lamb mortality, and frosts affecting potatoes and broad beans.

The area with which the team worked in **Pueblo Viejo** includes the nearby small adjacent community of Asloca and also Izque on the opposite side of the Río San del Oro valley in the department of Potosí. Considerable movement of people takes place between the three communities, to attend school [in Tojo], and exchange labour but each community has its own organizational structure. The land available for making a living is morphologically similar. The floor of the valley of the San Juan river has water for irrigation available from the main river and also from some side valleys only one of which has water available all year round. The river water is sometimes highly contaminated by mining waste from mines upstream, around Tupiza, in particular following the first rains of the wet season. Hillsides to the east are covered with scrub and columnar cacti (*cardones*) that offer grazing particularly for goats – that eat foliage and seed pods – as well as sheep. Most grazing areas away from the main valley floor are communally owned.

The people of the three localities included in Pueblo Viejo agreed that their vision of the future included better services – in particular a school and a medical centre and access to drinking water – as well as better access roads to be able to cross rivers at all times. Strong priority was also given to strengthening community organization, creating a women's group (Centro de Madres) as well as a strong peasant union (*sindicato*). High priority was also given to a better understanding of plant and animal diseases, ways of processing their fruit (grapes, peaches and quinces) and of improving their production of pigs for the lively frontier market at Villazón.

Community workshops and meetings also identified two other important factors that limit the maintenance of a satisfactory quality of life in the three areas:

- Extreme climatic hazards leading to regular loss of harvests and/or livestock
- Access to sufficient cultivable land to support a household. In some areas, land belonging to absent families is unused.

Some respondents also remarked on the low levels of community cohesion expressed in variable levels of co-operation and on difficulties in communicating needs to inter-community organizations. This may also be a function of the regular absence of people for long periods while working in Tarija, Santa Cruz or, most commonly, Argentina.

Social stratification and livelihood strategies

In all the areas in which work was conducted marked differences existed in the livelihood strategies of households that occupy distinct social strata. Stratification, using community criteria, is generally associated with the number of animals owned and access to land resources. Although in all communities extensive areas of communal land occur to which all have equal access, cultivable land, in particular with water for irrigation, is of crucial importance. Those with no land, either because they still live with their parents or for other reasons may have access to other people's land which they work as sharecroppers. Criteria used in the communities for ascribing socio-economic category are summarised in the table below (Table 9).

Table 9 *Natural capital, livelihood and socio-economic status*

Locality & social-economic stratum		Livestock	Land
Tacuarita	High	≥25 cattle 20-50 sheep/goats	≥0.5 ha. with water
	Middle	20-30 cattle ≤50 sheep/goats	c.0.5 ha. with water
	Low	≤20 cattle ≤30 sheep/goats	No land with water
Pujzara	High	≥100 sheep ≥ 5 llamas ≥5 cattle	With irrigation
	Middle	50-100 sheep 0-7 llamas 2-5 cattle	Cultivated land but little water
	Low	≤40 sheep	Maybe no cultivated land with water
Pueblo Viejo	High	≥ 20 pigs 25-40 sheep & goats, 2-5 cows	1.2 ha. with water
	Middle	5-20 pigs some cattle 15-40 sheep & goats	0.2-2.5 ha. with water
	Low	0-7 pigs, 0-55 sheep, 0-2 cows	None owned to cultivate. Sometimes 0.1-0.8 ha. rented

Table 10 *Principal components of livelihood strategies*

(mentions per household)

Pujzara		Livestock		Maize & other crops		Weaving etc	Waged work		
	N=	Consumption.	Sale/exchange	Cons.	sale		here	Tarija	away
High	2	2		3	1			1	1
Middle	4	2	2	4	2	4	1	3	
Low	5	5	1	2	2	5	1	3	

Pueblo Viejo		Livestock		Fruit		Maize & other crops		Weaving wine, shop	Work here
	N=	consumption	Sale/exchange	cons.	sale	consumption	sale		
High	2	1	3		3	5		3	
Middle	4	2		4	1	5	2	3	
Low	5	5		2	1	5	3		5

Tacuarita		Livestock		Maize & other crops		Weaving etc	Waged work here
	N=	cons	sale/exch.	consumption	sale		
High	3	3	4	5			
Middle	1	2	1	3			
Low	6	3	3	9	1	1	2

For all social strata in all localities both agriculture and livestock are of prime importance for livelihoods. Many people said that it was impossible to say which was more important because it varied from one season to another and between drought and normal years. Differences between the strategies of each stratum lay not in whether or not households engaged in livestock rearing and/or agriculture but the number of livestock and the area of land available. For many households, particularly Pujzara, working for wages, whether in Argentina, or in the city of Tarija or just within the community, was an important source of cash income to buy necessities of life and to buy clothing, tools and medication. Working elsewhere for cash was mainly practised by people in the medium and lower strata but was most common among the poorer households. In respect of non-agricultural work, weaving was important for people in the middle and lower social strata in Pujzara.

It is the total stock of capitals available to each household and the security of access to them that is most important with regard to livelihood security. Thus a young household that farms a relative's land may experience comparative security and, if they have their own animals plus an assured personal network for the sale or exchange of goods, they are not necessarily less advantaged than a household with a similar area of land of their own. This is particularly true of households where one son or daughter (or grandson/grand-daughter) has stayed to care for their old folk but with the expectation that they will subsequently inherit much of their land and livestock.

Natural hazards threatening household and individual security

The uptake of technical actions developed during previous NRSP research in this region was seriously hampered by climatic events that occur periodically and jeopardise production.

Although such events occur frequently they are impossible to avoid and household strategies need resilience to withstand them.

Hail destroys both tree and field crops and is localised, rarely affecting a whole community. Households with land in widely separated localities may be better able to withstand their effects but only those with more than average land resources are likely to be in this situation. Frost is an important hazard for potatoes and broad [fava] beans and it is less localised in its occurrence than hail. Frosts are widespread and some degree of resistance to frost can be achieved by planting crop varieties that are more resistant to frost or whose cycle of growth is shorter, thereby minimising the likelihood of being affected.

Drought is the most widespread climatic hazard and often but not always occurs in association with climatic cycles related to the global circulation variations – known as the El Niño – Southern Oscillation (ENSO) effect – although it is less marked on the margins of the Andes (Preston 2000). Droughts affect the early sowing of potatoes and maize and livestock, in particular sheep one of whose lambing period coincides with the normal beginning of the wet season. Transhumant cattle (usually belonging to households with more than average numbers of animals) avoid the worst effects of drought by grazing the upper hillsides on their return from the eastern hills before returning to the lower slopes once rains have enabled pasture re-growth. Alternative sources of fodder, through silage making, storing fodder or fenced pasture land, are not common.

Although such hazards are frequently experienced in conjunction with new practices being tested, the failure of a harvest as a result of a specific climatic event is discouraging to farmers. Those households most vulnerable to these hazards are those with limited livelihood strategies, growing few crops in few places and without any or many animals. However, those with no land can move elsewhere with little hindrance. If investment of extra time in better care for fruit trees, potatoes or beans is lost as a result of a frost, hailstorm or exceptional drought, it is understandable that some farmers, especially those whose labour and cash resources are limited, feel discouraged from trying the new potato variety or careful disease control in peach trees once more.

Technical actions

Technical actions in which LPs engaged were an outcome of consultations with each community through meetings and workshops as outlined in an earlier Working Paper (De la Fuente 2004). The purpose of these was to identify actions that responded to the community's view of how it should attempt to change in order to match its vision of the future with reality and to make use of the capabilities of the local professionals in particular to address natural resource issues. Although there were similarities in the actions undertaken in each community, there were also important differences that reflected community priorities and its ecological situation. It must be recognised that, while a community workshop may develop a genuine vision of what is sought; actions may also be influenced by the known expertise of the local professionals helping the development of the community action plan.

A second issue is the extent to which actions can respond to the situations of people in very different socio-economic categories. In all communities livestock were widely kept and internal and external parasites were universally associated with commonly mentioned diseases. Thus, while the treatment might be modified to respond to the economic circumstances of the household (for instance by proposing different frequencies of treatment) this category of veterinary action was universally appropriate. The only exception was that some people with large numbers of livestock were already aware of the importance of de-worming and some practised it regularly. Project staff engaged in work with locality groups

of farmers to aid learning to identify problems and to understand that learning how to tackle them was as important as actually treating livestock. A range of actions were usually developed in order that some of them might be appropriate to the resources of each participating household.

Table 11 *Principal actions started by LPs*

Locality	Crops	Livestock
Tacuarita	Fruit tree care, grafting Vegetable growing & care Improve maize, potatoes Trees for windbreaks	Disease diagnosis & methods of treatment De-worming Formation of working groups with medicine chest
Pujzara	Quality seed potatoes Forage crops experiment, barley, alfalfa, native grains (quinoa, tarwi & cañahua)	
Pueblo Viejo	Nurseries for fruit trees and vines Fruit tree care, grafting	

It is important to note that responses relating to field crops were very speculative since the wet season/growing season had not started at the time of field interviews in November.

A review of records of interviews with community members suggested that the benefits of their experience of working with the LPs might be categorised in the following ways:

- Acquiring knowledge that would enable them to understand a particular situation – diagnosing a disease, recognising a pest affecting a specific crop, knowing which diseases/pests occurred at particular times of the year or in association with what sort of weather; knowing how to administer an injection, spray trees or plants, where and how to prune fruit trees, to graft a fruit tree shoot etc.
- Knowing what sort of treatment to use, the most suitable chemical or other intervention, how to acquire and store it and what applicator to use. This knowledge only has value when associated with an appropriate input that has to be acquired.
- Understanding the broader environmental context of actions and the need for collective action and other associated work, such as the need to de-worm domestic animals and people as well as livestock, the need to control fruit tree pests collectively to avoid the actions of some being in vain when others take no such action and pests multiply.

Technical actions addressing crucial components of the livelihoods were associated with the use of livestock and the cultivation of crops, both annual and perennial (principally grape vines or fruit trees). Actions relating to livestock comprised the identification and treatment of the most important diseases (intestinal parasites and a range of other diseases), tuition on methods of applying medication – principally injecting animals, especially for de-worming - and discussing ways of improving animal health through changes in methods of retaining animals in corrals or pens and pasture management. In Tacuarita this concerned cattle and, to a lesser extent, goats and sheep. In Chorcoya actions focussed principally but not solely on sheep and Pueblo Viejo had cattle, sheep and goats in small numbers but pig rearing was a particularly important source of income for a number of households and veterinary actions laid emphasis on the conditions for their optimal health.

Agricultural actions included the experimental cultivation of feed crops for livestock both in the valleys and on the altiplano as well as experiments with the cultivation of crop varieties that were better able to minimise risk of frost. Plant nurseries were established in Tacuarita and were being established in Pueblo Viejo to develop small trees to be grown from either seed

or cuttings for fruit production (grape vines or peaches in particular), for protection from strong winds or flooding. The principles of disease identification and treatment for fruit trees and crops were taught at workshops and illustrated leaflets embodying that information were produced and distributed.

In each community collective decisions were made about the formation of working groups through which appropriate actions would be carried out. In most cases these groups were formed by locality and each group nominated a leader who would – in the case of the veterinary medicine store – manage group resources, organise collective action where necessary and inform members absent from any workshops or meetings of useful information needed to pursue the various actions. As part of the veterinary work a store of medicines was given to each working group and members paid for the use of medicines in order to accumulate cash to replace the stock. This appeared to be working correctly.

Evaluation of technical actions

Technical actions and the development of each community's view of what it sought for its future were reported regularly by field staff. Their reports identified households participating and their basic socio-demographic characteristics. From the start households were assigned to a socio-economic stratum using locally recognised criteria. This also facilitated monitoring that households of all strata were involved in the workshops and actions.

During November 2004 visits were made to the three communities by the local professionals – Raimundo Montaña, Patricia Ruíz and María Isabel Cano –and the Project Leader. A sample of about ten households in each community were visited and interviewed in order to record their view of the work so far and to attempt to obtain their frank assessment of it. A total of 32 semi-structured interviews were conducted according to an agreed schedule (See appendices in Working Paper 5/02).

Results

- There was a positive assessment of the benefits of information transfer by LPs and a sound learning experience has been achieved by most participants that can benefit people of all social strata whatever their access to resources. Those in the lowest stratum in all three communities ranked highly the learning experience in the work with LPs. Several individuals from poorer households in each community mentioned being able to or having carried out technical veterinary actions for others for payment or non-pecuniary benefit. Typical comments on the learning were 'so great to learn'⁶, or we liked 'the way we were taught'⁷
- A tangential outcome of the strategy for helping communities to identify their collective priorities was appreciation of the benefit of the meetings to enable community members to debate matters of common interest. One commented that "the games help us feel together, this is a very 'un-together' community, we need these sorts of things"⁸.
- The strong appreciation of livestock actions and their visible results by households in each stratum in each of the communities reflected the importance of livestock in household strategies and the immediacy and visibility of results of actions. Several people interviewed mentioned their animals looking better after treatment.

⁶ 'Es tan lindo aprender'

⁷ 'la forma como nos enseñan'

⁸ 'los juegos nos unen más, es una comunidad muy separada necesitamos de esto'

- There was general confidence in likely positive outcomes of actions relating to trials on vegetables and new varieties of common crops; relatively high expectation of the results of improved fruit tree care and the establishment of nurseries through which tree quality may be improved.

An analysis of the nature of responses of households according to their socio-economic position showed interesting differences between strata (Table 14). Actions directed at livestock were most strongly valued by the better-off, who had largest numbers of animals. However the methods of learning – involving workshops, detailed explanations, sometimes laboratory analysis of diseased livestock and distribution of explanatory sheets – were strongly valued by all three strata.

Table 12 *Action content most frequently mentioned*⁹

(Number of participants adopting)

Stratum	Veterinary actions	Methods of learning	Agricultural actions	N=
A	5	3	2	10
B	9	7	10	26
C	14	12	15	41

Trends in changes in livelihoods

After twelve months' work during which good relations have been established by the LPs in all communities, positive outcomes for most actions have been noted by many of the people interviewed. These observations and expectations can be conflated to identify trends whose importance to livelihoods will vary according to the livelihood strategy of each household. The most obvious change is the improvement of the condition of livestock after de-worming and other treatment. Since livestock are an important physical capital resource, such an improvement will strengthen livelihoods.

Tendencies for livelihood changes

Some generalisations are possible on the expected directions of change by each socio-economic stratum in the communities with which LPs have worked on the basis of the November interview data and subsequent reports (Montaño and Ruíz 2004 and Ruíz 2005) Rainfall during December in the Tarija valleys and the Altiplano has been average and drought stress has diminished since the period of field work on which this report is partly based. Communities in the Río San Juan del Oro are still very short of water. The probability of normal plant and animal growth during the 12 month period is thus increased except in the Río San Juan valley.

Further trends will be observed according to the socio-economic stratum to which each household may be assigned. The best-off households have diversified livelihood strategies that enable them to benefit from the complete range of activities promoted in association with all community productive activities. They have most livestock for which de-worming and

⁹ Number of people mentioning each category of action in response to a request for comments on which collective actions farmers liked most.

other veterinary care is well justified and they all were confident of value of continuing to apply their new knowledge.

Middle-range households anticipated benefits from a wide range of activities and foresaw benefits from improving fruit production (especially Pueblo Viejo) and more effective disease control for livestock for both domestic consumption and sale (all three communities). In Pueblo Viejo, for example, households mentioned looking forward to improving production (and by implication health) of pigs, grape vines and tree fruit.

The poorer households could foresee improvements in both their production and earning capacity through use of new techniques of disease control and experimentation with forage crops, new fruit tree propagation and, in several cases, vegetable production for their own consumption and possibly for sale. It was noticeable that this category of households mentioned their appreciation of what they had learned and of the group work as well as the possibility of working for others, applying the new knowledge, as part of their view of the future.

The range of new practices ensures that activities carried out by women and men are equally benefited although in communities such as Pueblo Viejo, where women have an important role in the community, they will derive particular benefit. The better-off households may benefit disproportionately from improved management practices because of their access to a wider range of capitals and thus be more able to overcome climate hazards. Poorer households, however, should derive important benefits from lower livestock mortality and the opportunity to work for those with more livestock and cultivated land and a shortage of labour. Various middle and poor households mentioned the importance of having a surplus to trade at local fairs which retain an important role in the region.

All households interviewed, without exception, agreed that the work had focused on what were important priorities for all households. Immediate positive outcomes had been noted with respect of de-worming livestock which will obviously have a positive future impact on livelihoods of all households with livestock. Responses to a question about the likelihood of actions being continued in the longer term were all positive with regard to veterinary work and the need for a continuous programme of disease diagnosis and treatment, in particular de-worming, was recognised. Some, however, were realistic in their recognition that not all would continue with the actions but they believed than many would.

Conclusions

After such a short period of work, starting just before winter, at a time when no harvest has occurred that has been influenced by technical actions, the detection of trends in livelihood change is inevitably tentative. The generally positive experiences with initial veterinary actions among all households results in a generally positive view of the future outcomes of the work of local professionals.

An important finding of this research is the importance attached to the quality of the learning process. That this was remarked on by people from households in all strata further underlines its importance. The acquisition of knowledge that relates to several aspects of livelihoods adds to the stock of human capital and is a resource that can be used at any time and in various ways – to improve the quality of ones own physical resources and, for those whose physical resources are limited, to earn money by using such knowledge for the benefit of others.

The experience of using the community-led mechanism to elicit deep-seated community needs enabled LPs to consider what conscious and unconscious changes in the mechanism were introduced and their relative success. The importance of the ability to listen to local people, of respecting their opinions and developing a close personal relationship has enabled the acquisition of deeper insights into ways of strengthening livelihoods.

1.3 Cross-cutting analysis of findings from 1G and 2G communities

This section of the report will draw together conclusions from information obtained in the 1G and 2G communities focusing on the effectiveness of service provision for livelihood improvement of the poor through the use of the CLM for demand assessment. We will firstly describe the rationales for the identification of livelihood strategies, then we will analyse in more detail the different technical actions promoted by the project and lastly we will look at the adoption patterns and their impact on peoples' livelihoods.

Livelihood situations and strategies

The analysis of livelihood impact is based on the general assumption that people in different socio-economic strata will have different livelihood strategies and thus different preferences for livelihood changes, since their strategies are based on asset mixes with distinctive potentials and limitations. Understanding these livelihood differences will enable us to assess in qualitative terms the impact that HEDECOM's interventions obtained.

To gain a better understanding of these different livelihood situations each community different socio-economic strata were identified based largely on local criteria. This led to the identification of three main strata (high, middle and low). In both sets of communities the main criteria chosen to distinguish between strata were physical and natural assets, as well as specific livelihood coping strategies adopted by people. Differences in human capital were also important, in particular in levels of formal education, which may well be important in a household's propensity to adopt new practices. Below the main differences between these three strata are presented.

- High stratum people have most capital and are more engaged in the transformation of products, which can be either bought from other community members who are not engaged in such transformation or can be produced on-farm. Migration is least important for this stratum. Financial capital is obtained through wages, pensions and transformation of produce and service provision.
- For middle stratum households: crop production and livestock management is combined for home consumption and marketing within the community and at fairs and occasionally in towns nearby such as Tarija or Villazón. Households have fewer livestock than those in the high stratum, with more emphasis on sheep/goat production. An important component in the livelihood strategy is migration.
- Low stratum people place more emphasis on social/human capital. Wage labour within the community or in nearby communities is important. Less importance is placed on certain natural capitals. Livelihoods are based on some animals for their own consumption and a few for sale. A major focus of livestock management is on small ruminants or, on some occasions, pigs. Crops are grown for self-consumption and also for sale. Working for wages both locally and regionally is important as is some migration.

Characterisation of new practices

The practices promoted in the communities show no marked differences between the 1G and 2G communities. This may partly be because the same local professionals worked in both sets of communities. Furthermore, there were few major ecological differences between the two groups of communities. As a result of their professional background (agronomist/

veterinarian) there was probably some bias towards interventions in these fields. Another bias was in the general focus of the project towards improved natural resource management. The practices promoted included:

- Fruit tree disease control and management (especially focused on grape vines and peach trees) including biological and integrated pest management practices, grafting and pruning.
- Experimentation with alternative crops, including legumes and improved varieties of local crops¹⁰
- Restoration of old terraces¹¹
- Livestock health and management, including disease diagnosis, de-worming and other relevant practices.
- Participatory/ consultative research in livestock diseases.

Although there were similarities in the actions undertaken in each community, there were also differences that reflected community priorities and ecological situation. Considering the natural resource base and livelihood strategies outlined in Table 5 the principal actions promoted in each community are presented in Table 13 below.

Table 13 *Principal actions started by LPs*

Practices introduced	Juntas	Tojo	Chorcoya	Tacuarita	Pujzara	Pueblo Viejo
Animal health instruction, diagnosis	✓	✓	✓	✓	✓	✓
De-worming	✓	✓	✓	✓	✓	✓
Animal disease research	✓	✓	✓	✓	✓	✓
Medical chests				✓	✓	✓
Fruit tree health, care, propagation	✓	✓		✓		✓
Crop trials			✓		✓	
Shelter tree nursery				✓		
Vegetables				✓		
Reclamation of old terraces			✓			
Forage crops			✓		✓	

A more detailed analysis of the promoted practices based on observations in the field and interviews with household members of the six communities revealed a number of important characteristics which distinguishes them. This differentiation is important to better understand the adoption patterns which will be discussed in the following section.

- Dependence on external inputs, which require a financial and logistical effort to purchase (e.g. veterinary medication, etc)
- Based on higher labour input (e.g. pruning and grafting, biological pest control, etc.)

¹⁰ These practices were only introduced in one of the three 1G communities but in all the 2G communities.

¹¹ This action was confined to a single community (Chorcoya) but by 2005 had extended to seven further communities associated with action by PROMETA..

- Based on the use of existing resources of the practising households (restoration of terraces)
- Based on an intensive learning process (e.g. integrated pest management, livestock breed improvement, etc.) – creating new human capital
- Requiring a level of social organisation for successful implementation (integrated pest management and de-worming) – creating new social capital

The methods of establishing community priorities for action that corresponds to their collective vision of what was wanted for the future were applied in more detail with 2G communities. For them it was therefore possible to recognise the relative importance of other desired actions outside the scope of the work of local professionals, such as the provision of water for irrigation, the construction of bridges to guarantee access throughout the year and flood defences. This relates well to the importance attached to environmental protection in general for defence against a range of natural hazards and in the context of which any interventions with livestock and agriculture must be considered.

The methods used with both 1G and 2G communities to promote these practices included workshops, training sessions, practical work with individuals and groups, distribution of materials and inputs, and the distribution of flyers and other training materials. In the more recent work with 2G communities much more attention was given to the socio-economic level of participants in the work in order to ensure that members from each stratum were taking part. It was not feasible though to promote different actions with people from different strata and, as is mentioned later, the training of LPs does not afford them knowledge of low-cost treatments which might be more easily accepted by the poor.

Participation rates in project actions varied between communities collaborating in HEDECOM and VINCOSER and but there are marked similarities between communities in the same area (Table 14). Those communities in the Río San Juan valley have the highest rates (88 and 80 per cent), the altiplano communities have lower rates (57 and 59 per cent) while the two Tarija valley communities also have even lower rates but also considerable inter-community variation (36 and 55 per cent). However it should also be noted that the rates vary between livestock and agricultural actions and Tacuarita and Juntas are communities with homes scattered over large areas and participants tended to be those living close to the locations of most workshops.

Table 14 *Rates of participation in project actions*

Community	Total Households	Number participating	<i>Per cent</i>
Juntas	42	23	55
Tacuarita	69	25	36
Chorcuya	59	35	59
Pujzara	61	35	57
Tojo	40	35	88
Pueblo Viejo	15	12	80

In each community it proved most feasible to establish working groups by locality. In each community collective decisions were made about the formation of working groups, groups nominated leaders and it was by this means that appropriate actions were carried out. In 2G communities it was noted that participation of some people from poorer households was more enthusiastic than in open community meetings when, perhaps they felt more shy, as is mentioned later (section 2.2).

An issue which arises from work with both sets of communities is the lack of differentiation between the different socio-economic strata with respect to the technical actions developed. Taking into account the differences in livelihood assets and livelihood strategies one might expect to see more marked differences in the technologies promoted by LPs. However, it seems that the process of the CLM led to community-specific rather than stratum-specific interventions. This issue will be discussed further when we look at the adoption patterns across the different strata.

Continuation and abandonment of new practices

The information from both groups of communities shows clearly that the rates of adoption or satisfaction were not uniform across different socio-economic strata¹². The main evidence is taken from the 1G communities, since they have completed a full project cycle and project interventions had been discontinued for a year. In the case of the 2G communities the evidence is based on the initial participation rate across different strata and their degree of appreciation of different categories of interventions¹³. It is too early to draw any conclusions on adoption patterns in these communities since they are just in the stage of experimentation with new practices. The two groups of communities are thus at different stages in the adoption cycle and different measures of the impact of new practices were necessarily used.

The adoption pattern in the 1G communities shows clearly that, in general terms, the highest adoption rate took place in the high stratum, followed by the middle stratum (Table 15). The adoption rate and the impact of the practices on livelihoods within the lowest socio-economic stratum have been limited. Households of the high and middle strata benefited most from the HEDECOM project. This is partly due to their better resource situation, which enables them to invest in a range of production activities, and partly due to their greater ability to take risks.

Furthermore Tables 16 and 17 below suggest that some of the production areas targeted by the project had a more positive adoption rate of promoted practices than others. The highest adoption rate was seen in practices relating to fruit tree management (e.g. pruning) and to livestock management (research on diseases and de-worming). This applies only to the high and middle strata.

A factor that may have limited adoption of some practices was the series of climatic hazards which had affected all communities – hail and drought in the valley communities, frost and drought in the altiplano communities – but even if this did depress adoption rates it would probably not have differentially affected those of the poorest.

Table 15 *Overall adoption rates in 1G communities*

(Number of participants adopting)

Stratum	N=	Any fruit or livestock practice
High	25	20
Middle	33	18
Low	19	6

¹² For more detailed information refer to the tables included in appendix 2 of WP 05/02.

¹³ The relevant tabulation is based on answers to a question about which actions farmers had most liked.

Table 16 *Adoption of any fruit production practices, 1G communities*

Community and socio-economic stratum		# participants	# Adopters
Juntas	High	5	5
	Middle	6	4
	Low	3	0
Tojo	High	5	5
	Middle	8	8
	Low	8	3

Table 17 *Adoption of any livestock management practice*

Community and socio-economic stratum		# Participated	# Adopting any livestock management practice
Juntas	High	5	4
	Middle	6	2
	Low	3	0
Tojo	High	5	1
	Middle	7	0
	Low	8	3
Chorcoya	High	5	5
	Middle	6	4
	Low	0	-

The data presented in Tables 16 and 17 also show differences between communities. Reasons for these differences are on one hand that the relevance of certain production areas differs between villages and on the other hand the level of community organisation which varies between communities.

In the 2G communities the response to livestock actions might be expected to be most positive because the visible results of actions were rapid while crop-based work would only show results as the farming year progressed. One potentially important difference in the methods used in recent veterinary work with 2G communities was the use of medicine chests for livestock treatment, one of which was kept by each working group in every community. Livestock owners paid half of the cost of the dosage when a medicine was used and the money accumulated was used to restock the chest. When informants were asked which actions they had liked most the results were more complex (Table 12).

Although veterinary actions were most mentioned by the better-off in the high stratum, whose members have most animals, particularly large animals, agricultural actions were as important as veterinary actions to those in the middle and lower strata. The third action mentioned by very many people was those associated with learning.

An important finding of the research with 2G communities is the importance attached to the quality of the learning process. That this was remarked on by people from households in all strata further underlines its importance. The acquisition of knowledge that relates to several

aspects of livelihoods adds to the stock of human capital and is a resource that can be used at any time and in various ways – to improve the quality of ones own physical resources and, for those whose physical resources are limited, to earn money by using such knowledge for the benefit of others.

Although this emerged as an important conclusion with regard to 2G communities, it was also mentioned by 10 of the 44 households interviewed in the 1G communities who had participated in the earlier project (HEDECOM).

Conclusions

The summary table (Table 15 above) shows clearly the differences in terms of adoption between the three strata in 1G communities. The low stratum shows the lowest adoption rate, which indicates that either the technology promoted was least relevant for this group or the requirements for adopting this technology were beyond the resource capacity of the poor. It may therefore be concluded that the impact of these interventions was least on the poor. This is a common characteristic of innovation adoption in both developed and less-developed countries (Rogers 1962, Feder et al. 1982).

These findings do however show the importance of considering the differentiated impact of technology promotion. Very few technologies can be considered as neutral in terms of socio-economic impact and resource requirements. For instance, there is no evidence that the benefits accruing from the treatment of sheep or fruit tree diseases would outweigh the costs and not all households can find the cost of such actions. Without taking into account the different needs and priorities within rural communities, successful adoption of new practices will be limited. Different strata may have different needs and priorities but it remains to be proved whether it is the difference in their assets rather than the nature of the practices promoted that accounts for inter-stratum differences. Had low-input practices been strategically promoted for the poor households, it might have been possible to observe whether this resulted in a higher rate of adoption. The training of local professionals in Bolivia does, however, give limited importance to low-input actions. A relevant lesson that may be learned is that the training of LPs in all technical fields should included low-input, low-cost solutions. It can be argued that an apparent shortcoming of HEDECOM was not to take into account this differentiated impact of technologies on peoples livelihoods.

An important issue which is closely related to the process of the CLM is the positive impact on social/human capital. Especially in the lowest stratum, those interviewed emphasised how important the learning process and the working in groups has been for them. This aspect was especially highlighted in the 2G communities, where the impact of the technology adoption is too early to appreciate.

2. The development of a community-led mechanism for the articulation of community needs

The principal aim of this section of the report is to document and evaluate the process of organisational learning through which the team as a whole and the LPs learnt and modified the CLM during both projects. This is divided into two stages. In the first the CLM developed during R7584 HEDECOM was formalised through study of the records of the work as it developed and through interviews with UK-based and Bolivian team leaders. This necessitated the identification of the underlying philosophy and linking it more explicitly with the structure of the mechanism. The second stage was learning responses to the application of the systematised CLM developed by LPs during current work and their retrospective evaluation of their experience at project end.

The development of methods for identifying community priorities in the first year of Hedecom, included space and time for adjusting them to the reality of the competences of the particular LPs employed and the nature of the communities. This will include methods for collecting community-level data, identifying poor households and developing particular activities with them as well as the workshops and team work which logically reached the majority of the communities.

A secondary aim is to analyse the ways in which the mechanism was developed during R8362 VINCOSER in response to community situations and the field staff adapting the methods to better reflect their own competences. It was also necessary to take into account the seasons during which work took place, the climatic hazards that were confronted and the fitting of the model to realities of community work.

This natural and necessary development of the mechanism was recorded in the reports of the LPs. Relevant data were also contained in interviews about the HEDECOM experience that were part of the evaluation of the impact of that work (reported in the previous section of this document) by staff who had not previously worked in this area and who were thus able to assess the strengths and weaknesses of the methods used.

At the conclusion of the project the local professionals outlined the ways that they were conscious of changes in the community-led mechanism having been introduced. They also were able to highlight some unexpected features of a successful use of the suite of methods.

Finally linkages between livelihood changes and the community-led mechanism will be analysed, taking into account the differential impacts on households of different socio-economic levels.

A mechanism linking demand and supply of farming information and services

This part of the report systematizes a mechanism that links farming information and services and rural communities. It was developed by the NRSP project R7584 HEDECOM during the three-year period 2000-2003.

The design of the HEDECOM project was influenced by being associated with a decade of previous research in the same rural areas of Tarija. It sought to help in the development of ways of improving the sustainable use of natural resources that were demand-led and likely to help the poorest. The objective was to help communities to better express their needs. Over a three year period the project work with the communities attempted to start a process of

community reflection about their needs and abilities in order to generate confidence in the process of experimentation and adaptation of agricultural and livestock management practices with professionals so that communities felt that this was a response to their needs and not externally imposed. Such an objective means that local professionals have to adopt different work practices and continually verify continuing community support.

The mechanism for linking communities and local professionals

The methods developed by HEDECOM over the three years of the project's life were adapted to the needs and characteristics of each of the communities rather than just reflecting the professional expertise of field staff

The selected communities faced a variety of problems that limited the extent to which their livelihood strategies satisfied basic needs and it was therefore necessary for members of the communities to adopt and adapt new knowledge. The source of such knowledge, in this case, was the visiting local professionals. How best for the professional to make contact with farmers in order to facilitate exchange of knowledge between community members and the professionals was the most important issue which the project sought to confront. Therefore high quality communication between the farmer and the professional was seen as an end in itself. Communication was considered to be the outcome of a continuous process in which a farmer discovered, developed and became the owner of knowledge.

The mechanism developed comprises four main stages, in each of which, and in the subsequent activities, particular attention is paid to the more disadvantaged households in order that they be included and can obtain the same access to the activities of the project. Even so and, on account of the difficulties of inclusion, additional activities for such households were developed.

Development stage

The objective of this stage is to formulate a collective view of the community, taking into account their values, aspirations and shared concerns including those most marginalised in order to work towards the development of actions that can be beneficial to all.

Key actions

- Hold a workshop to formulate a community view of itself including as many community members as possible. In the workshop, people will be encouraged to reflect on their perception of the community at present and what they would wish it to be in the future. This helps define local value systems. This activity will enable a deeper understanding of the community view in the light of expressed community needs. This helps prioritisation of needs to obtain a better quality of life.
- Organise meetings between the different communities with which the project works to stimulate an exchange of views and to generate greater awareness of common problems. Meetings of communities from different ecological zones developed confidence in the value of sharing views and ways of helping one another. This may empower them sufficiently that they might take future independent collective action for common benefit.
- Form action groups in each community in different localities. Each group usually nominated one person to act as coordinator of actions. They organised actions stimulated by the project and were a forum for taking actions according to the specific needs or priorities of each group.

- Define plans in specific technical fields, such as livestock health or fruit tree care. These were developed in accordance with the community priorities previously defined and aimed to facilitate the improvement of community livelihoods.
- Identify means by which the management of such actions can be assumed by the community for sustainable use of natural resources. This was intended to avoid creating dependence on continuing outside assistance and develop ways of funding collective action.

Initial stage

The objective of this stage was to establish the differences in livelihoods that existed within the community, reflecting its social structure. These differences were recognised by stratification of the community using their own criteria. Once this stratification is recognised, the strengths and weaknesses of each of the strata are identified in community workshops.

Key actions:

- An analysis of the livelihood strategies in the community is carried out. This takes into account the different capital resources, social relations, organisations.
- The project makes use of organisations that already exist in the community. Monthly community meetings are common, organised by the peasant union or group of community leaders. The project made use of these meetings and was associated with local organisations to increase the likelihood of actions being continued in the longer term as well as to avoid duplication of actions by different organisations.
- The team of professionals organised workshops and group activities to create confidence in the team's commitment. In the course of the project, other activities were organised as an outcome of the expression of community needs. The selection of group activities varied according to the degree of togetherness of the community, the effectiveness of integration of different people in community actions and the dependency on outside agencies etc.
- A meeting was held to identify general and specific issues affecting people beyond just those associated with natural resources. No assumptions were made about issues that were likely to emerge. In these meetings a specific attempt was made to include disadvantaged or marginalised groups in order that they too identify and communicate problems that they encounter. Professionals tried not to influence the issues identified by the community to obtain a clear view of community issues. It must be recognised however that communities knew the particular expertise of the professionals and may inevitably have been influenced by this. Once the issues have been identified by the community members present, they prioritise their needs, taking into account the skills of the professionals.
- Data were collected about community knowledge with regard to different aspects of natural resources management. During this process, issues emerged that need further investigation, for example local soil classifications and, on the basis of such knowledge, the professionals could better adapt their suggestions in ways that increase the long-term sustainability of actions. During the project, various studies were carried out concerning traditional knowledge and management of soils, traditional knowledge of climate and knowledge and use of local medicinal plants.
- Regular and informal contact was maintained between the professionals and community members; the professionals visited individual homes and found time to chat to a range of people in different parts of the community. Because not everyone took an active part in the workshops and meetings, for instance on account of their social position, professionals made personal contact with some such people in order to

have a more complete view of their concerns and, thereby, of ways of help them become involved in actions.

Action stage

In this stage the objective is to develop the capacity of the professionals to offer advice and suggest possible solutions to natural resource management problems and, together with the community, decide on future actions that will permit the attainment of the objectives in line with the community's vision of itself.

Key actions

- Initiate specific technical actions, simple and low-cost where possible, by means of practical demonstrations. These actions may be either:
 - Collective, such as community or locality plant nurseries or
 - Individual, such as the construction of terraces
- Since many of the actions needed to be taken by all households, for instance to effectively control fruit tree pests, it was crucial that farmers understand the technical nature of the problem (such as the life cycle of the fruit fly).
- Flexibility was a major component of the work by professionals as well as a high degree of respect for traditional local knowledge which could stimulate appropriate adaptation of technical actions by means of local trials of new methods. An understanding of local natural resource use practices informed the actions proposed.
- Research was conducted into some livestock diseases, for accurate diagnosis and into traditional resource management to assess the best practices to be promoted. Work in the three principal communities enabled the identification of some that had not previously been tackled by external agencies, such as two common disease affecting sheep.
- The action and its timing should take account of the household's livelihood strategy, the availability of labour etc. as well as the timing in relation to the rhythm of household activities. The degree of appropriateness will also affect the extent to which it may successfully be sustained.
- Commitment to follow-up of actions is also important and offering further help and advice once the action has been started and further visits is valued by farmers. Many agencies withdraw once new actions have been started which reduces the likelihood of actions being continued by individuals and communities. HEDECOM professionals maintained contact with some communities and individuals in them even after the completion of the project.

Management stage

In the course of identification of community needs in accord with its vision of what is needed in the longer term inevitably some needs are beyond the competence of the local professionals. It is therefore necessary to help the community and its leaders recognise the need to communicate its needs to a wider audience, in particular to government and non-government organisations.

A key component of the management stage of the CLM is to assist the community present its demands in ways that facilitate other organisations make a positive response to them. It is also crucial to understand opportunities that exist to which communities can respond. The higher level of political unit to which communities are linked is the municipality. Municipalities have funding and action plans which are intended to respond to community needs. Beyond the municipal level communities may also link to departmental and even national organisations through which technical and even financial assistance may be directed.

Further actions incorporated in the mechanism directed at those with fewest resources

During the HEDECOM project, staff worked with households identified as particularly poor, offering further advice and encouraging participation in project actions. The intention was to help such households become motivated to make the effort to take part in community actions. Such households, which often were female-headed, and comprised widows or old people, are usually excluded from community activities for a variety of reasons.

- The poor seldom have free time to attend meetings and feel that their views will be ignored or are lacking in confidence to take part.
- They often live far from the centre of the community where meetings are held.
- The problems that they confront are many and varied and go beyond mere lack of access to natural resources – they often suffer from domestic violence, alcoholism etc.
- They lack social and human capital resources.
- They have a negative self-image – poor because they are born poor – and thus they feel that cannot better themselves and so become self-marginalised,

Key actions

- Identify, with the help of community leaders, the different social strata and verify these data with the views of others in the community.
- From the outset, visit some of the households with fewest resources in order to establish a close, informal relationship with them in order that they are encouraged to take part in workshops and meetings and by giving them related advice at a personal level.
- Analyse the meanings of poverty and social exclusion in community meetings to encourage reflection and a consideration of possible solutions.
- Encourage some members of poor households to acquire new knowledge, thereby increasing their human capital so that they can earn money by offering services to others in the community.
- Help to design initiatives from which they can specifically benefit.

Development of the CLM in the light of lessons learnt during further community collaboration

The experience of systematising the community-led mechanism that was an integral first stage of work with VINCOSER was in itself a learning process and the CLM which was formalised contained new ways of expressing what had been learnt during the earlier research. The field team therefore organised their work and, in particular, their reporting of it in ways that they had not previously practised. A most important modification was the change of the pro-poor focus from work with individual households identified as particularly poor to a broader focus through the use of the socio-economic strata as integral to all field work and reporting.

This part of the report reflects the oral comments made by Raimundo Montaña, Patricia Ruíz and María Isabel Cano in a meeting with Tania de la Fuente and David Preston later supplemented by written comments.

1. The use, from the start, of community-identified socio-economic strata was useful in reminding LPs to ensure that all strata were adequately represented in the working groups formed in each community.
2. The necessary work of collecting social and economic data and liaising with community leaders and organising meetings is time-consuming and also needs to be continued informally during workshops and training sessions. The assistance of

Cristina Morales during the first part of HEDECOM and of María Isabel Cano during VINCOSER was of great importance. As a matter of principal field teams should be inter-disciplinary and also should not just comprise men [or women]. Men and women communicate in different ways and a mixed team is as important as having a mixed group of community participants.

3. Work with groups within communities makes better face-to-face contact feasible and facilitates identification and verification of social strata and also encourages a wider range of people to take leadership responsibilities. Attendance at and participation in group meetings and activities may enable greater community solidarity. Households from lower strata can more easily be encouraged to join groups (when taking part openly during a community meeting might seem intimidating). Leadership qualities may be demonstrated by some of the individuals from such households and, by encouraging them to accept such responsibility, social capital is created for them.
4. The role of children as capable representatives of their household is important and comparatively young children, accustomed to being with livestock, can accept onerous responsibilities and may be able to offer leadership, particularly at a group level. They are also a valuable source of knowledge both for and of the community.
5. Work with households from the lowest stratum needs time as much as a range of activities designed to facilitate their participation.
6. The recognition of the existence of dominant leaders who may pose problems to work within the community is critical, in particular since such individuals do not readily appear to be dominant in the presence of LPs.
7. The use of the term 'mechanism' for community-led strategy development is perhaps unfortunate since it implies a mechanical process¹⁴. A crucial characteristic of the work developed during both projects has been its capacity to develop organically in response to the needs of the LPs, community members as well as the particular the climatic situation or seasonal priorities.

The most important conclusions that should be drawn from these findings which relate to future project management are the potential that exists for inclusion of women and children in work at a community level in lower level management. It is important that field teams are multi-disciplinary and comprise both men and women – this will improve the quality of communication with rural people. The flexibility of the mechanism to allow appropriate locally-specific modifications to its operation is also important.

Livelihood changes and the community-led mechanism

The community-led mechanism is a way of uncovering the deep-seated demands of communities and the households in them in ways that ensure that the voice of the community is dulled as little as possible by the beliefs and values of those who work with and for them. It is therefore a path to be followed even if the destination at its end is uncertain and subject to continual review. If the work of the LPs as facilitators allows community demands to be truthfully expressed and recorded, this is an achievement. Indicators of the relative success of such activities should thus be the views of community people of the extent that their demands have been recorded, their voices heard. This responds clearly to the project goal in the logical framework.

¹⁴ This point was also made by several participants from NGOs and GOs in the final workshop held in Tarija in February 2005.

At a second level and in relation to the purpose of this research, it is necessary to determine the extent to which livelihoods have been improved by use of the CLM. The analysis of the degree to which new practices developed and tested during HEDECOM has been presented in part 1 of this report. From this it was clear that, although households in the middle and upper socio-economic strata had adopted some of the farming practices developed with HEDECOM and were satisfied with them, fewer of the poorer households had done so. Such livelihood benefits as had accrued had thus been favoured the better-off in the communities.

Households in all strata in 2G communities – those currently co-operating with the LPs - were still in the early stages of the adoption process and were enthusiastic that they would derive benefits, and presumably improved livelihoods, from this work. They were asked specifically whether the actions of the LPs responded to community priorities: all responded positively but a few added that other actions such as flood defences were very important. This therefore demonstrates that there was a positive response to the actions but that some people were conscious of other needs to which the LPs were not directly able to respond. This demonstrates to some extent the effectiveness of the CLM as recently applied in creating awareness of a range of issues that communities wish to address, necessarily beyond those directly associated with farming.

In conclusion it is necessary to address the extent to which the CLM enables the poorest stratum of households to derive benefits from work targeting community priorities. It is clear from the contrast between responses from people in 1G and 2G communities that however much at least some poorer households feel incorporated into actions to improve their livelihoods, over time and once direct inputs from LPs have ceased, their scarce stock of capitals, in particular financial, makes continued improvements unlikely. Whether actions specifically directed at the poor, requiring lower capital inputs, would have had more lasting success is debatable and needs further research. The mechanism may make possible the identification of the specific needs of the poorest stratum of a community but it is the development of appropriate collaborative actions that may determine livelihood impact. This depends less on the mechanism as such but more on the stock of knowledge available to local professionals. If such professionals are most aware, from the nature of their professional training, of relatively costly technical solutions to common farm problems – such as crop or livestock disease - the lack of lasting impact of work with the poor should be attributed to the available technology more than the method by which community demands are revealed.

3. Communication activities and achievement

This report presents the communication plan developed and implemented between February 2004 and February 2005 as part of VINCOSER. Its overall objective is to summarise the communication related activities and outputs achieved during the life of the project. For this purpose the report is structured in the following way:

1. Design of the communication plan. This section summarises the main aspects that were considered in the design of a communication's strategy.
2. A brief description of the context in which the project and therefore communication has taken place is given
3. The communication plan, objectives, activities and results
4. Conclusions

1. Designing the communication plan

According to the NRSP guidelines a communication strategy was drafted and budgeted for at the beginning of the project. This was especially important in the context of this project, because a criticism of the previous project (R7584) was that it did not achieve a strong level of engagement with local actors. Our aim in VINCOSER was to demonstrate from the beginning the openness and willingness to engage with ongoing processes. One of the first important decisions taken by the team was to contract a local communication specialist who was knowledgeable about the present context of Bolivian rural development and policies, specifically in the technology transfer area. The main advantage of such a local specialist was the existence of established relations with local / regional actors at different levels, as well as field experience and contacts at the municipal level, farmer organisations, NGOs and other political organisations. Once the person was appointed, her task was to develop a more detailed communication plan, which contained the specific objectives, a detailed study of the context, communication products and activities. The proposal was at all times shared with and approved by all team members.

2. Background and context

The development of the communication strategy was based on the understanding of the communication context. The current work took into account the different rural development processes that have been important in Bolivia, especially in Tarija. The main purpose was to complement actions and create synergy between the new set of actors and policies dominating the rural discourse in Bolivia. As well as identifying the diverse and appropriate communication needs, uptake opportunities and suitable materials for each of the different target groups were specified.

National context

Bolivia is one of the poorest Latin American countries and the majority of the poor live in rural areas. The adoption of neo-liberal economic policies after 1985 had a major impact on the rural population, particularly with regard to agricultural extension work and the closure of IBTA – the government agency previously charged with the provision of farmer technical assistance. The impact was particularly important in the light of the stimulus given to market-oriented farm production introduced by SIBTA, an organisation created in 2000, to stimulate commercially-oriented farm production. SIBTA has sought to assist agricultural technical innovations by applying them to the specific production chains, particularly those oriented

towards overseas markets. SIBTA works through four regional foundations [FDTAs] located in different ecological areas of Bolivia – the temperate valleys, Altiplano, Chaco and Humid Tropics. Each FDTA invites tenders for projects that will apply technical innovations that correspond to demands from both farmers and the private sector.

The extent to which these demands correspond to the needs of the poor is doubtful. The reason for this lies in the principal preconditions for project proposals:

- 1 Demand groups should include at least 160 people (households)
- 2 They should have access to a minimum area of land
- 3 They should have a minimum level of knowledge of work in one of the production chains prioritized by the FDTs
- 4 They, or an associated organization, should be able to provide 15% of the costs of the project
- 5 They should constitute a legally-recognised body
- 6 SIBTA though the FDTs does not work through organisations in charge of local, municipal and departmental development

Such conditions effectively exclude the majority of Bolivian rural communities few of which (in SW Tarija) have more than 100 households, have financial resources to contribute to the project costs, seldom comprise a legally-recognised body and are accustomed to express their demands through the already established institutional system.

Farmer demand depends in large measure on their capacity to identify, articulate and prioritise their needs. Although in Bolivia through the recently-established Decentralisation and Popular Participation legislation, municipalities are charged with expressing social, economic and technical needs, in practice the majority of their development actions have been associated with infrastructural improvements which alone are unlikely to have a sustainable impact on rural poverty. The high levels of poverty and indigence in rural Bolivia limit the capacity of many communities to contribute to the development of competitive farm production chains and the formulation of agreed demands that will truly allow them access to a better quality of life. Before a community can make a widely agreed demand or present a project to SIBTA, it has to have a basic level of farming that satisfies its basic needs, including food security, access to basic services, knowledge of the wider system, etc. In this context several international organisations have supported policies that go beyond infrastructural improvements, more precisely, they are promoting local production as the main strategy for long-term poverty alleviation. This new initiative has been nationally supported through National Funds for Development, which forces municipalities to include a budget item for projects based on improved production. However this initiative has been limited for diverse factors, such as corruption, the absence of policies backing production, lack of coordination between public and private institutions, and most of all, and given the levels of poverty, the extreme difficulty of small farmers to improve their production.

Departmental level

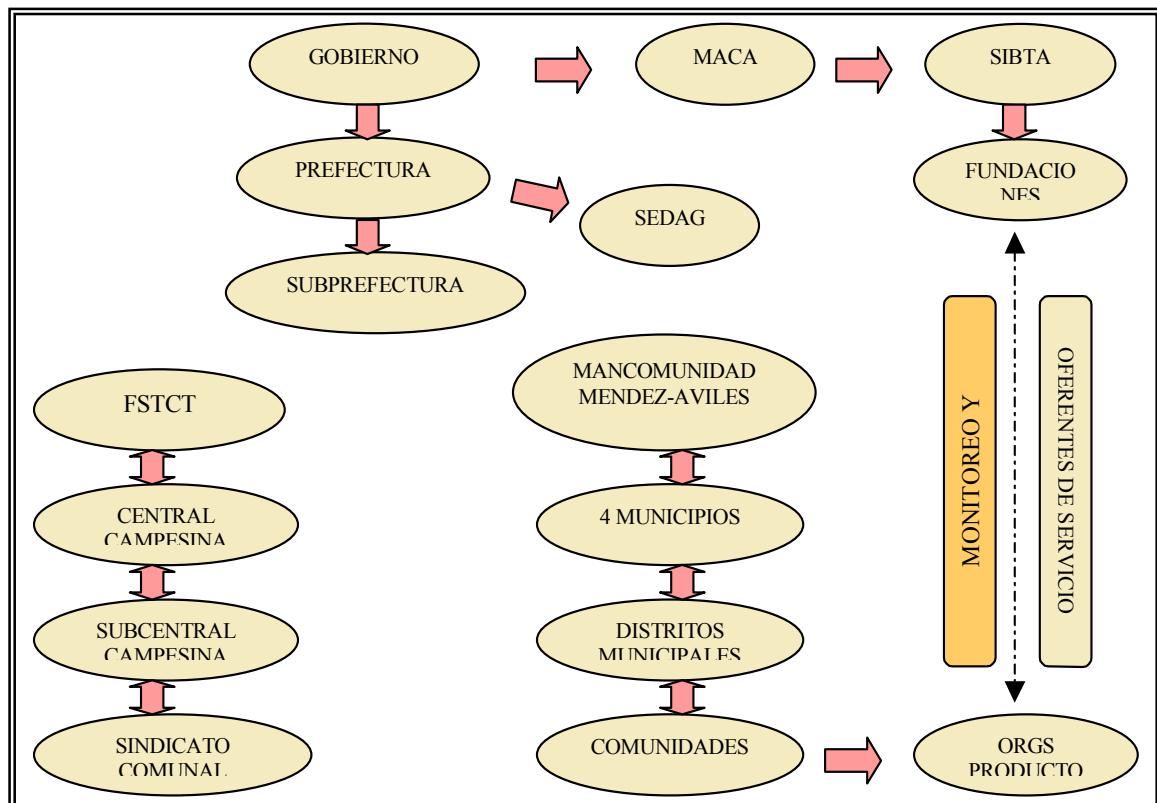
At the same time, Tarija department is part of a national process called “Jubilee 2000”. Condoning the external debt was a pre-condition for investing the given amount in poverty alleviation policies. The round tables for dialogue at the municipal and provincial level are one of the main activities of the strategy, which aims to define what is called “Ley del Dialogo 2000”, a new law that will set up the basis for Bolivia’s poverty reduction strategy. This strategy focuses on rural areas, where poverty remains important, therefore care has been given at supporting production as one of the main strategies for alleviating poverty. This new policy framework has channelled financial resources directly to the municipalities through what they call “HIPIC”.

Meanwhile, in Tarija, in the last couple of years, the main peasant union organisation Federación Sindical Única de Comunidades Campesinas de Tarija –FSUCCT- has drawn up a plan for rural development based on the principles of Identity, Equity, Dignity, and Social Justice. In this plan, farmers express their willingness to gain control over public and private institutions, so they truly respond to their needs and demands and not just to their interests. This plan acknowledges as well the union structure: unions, sub-centrales and peasant centrales, as the base for development. Its main objective is to coordinate public and private institutions so efforts and investments are channelled in the same direction according to a local vision guided by the main actors in the scene: farmers.

Other important actors with pivotal roles in the whole debate include the Mancomunidad de Héroes de la Independencia (MHI), created in 1998. The mancomunidad includes the provinces of Méndez and Avilez. The MHI was created to promote local development in its constituent municipalities, in theory it would support and link local demands to wider services –relating to infrastructure, production, marketing, training and technology transfer- in other words they would guarantee more effective and accurate actions. Currently the MHI has prioritised work in the areas of the productive economy and institutional policies.

This current policy and institutional framework allows for common ground between all types of institutions and actors. Especially it allows for the articulation of local demands to the wider services at the municipal, regional and national level. Hopefully this new structure up will allow major social control, so different responsibilities and roles are effectively executed.

Box 1. Bolivia's current institutional system



In this current framework, community demands, often related to the needs of privileged people, are articulated through the municipal development plans, which are revised every five

years, and every year through the annual operative plans. Since a municipio comprises several communities, not all community demands are responded to in the annual plans. The criteria used for selecting demands are often related to political interests. Once a demand is accepted in the annual plan the municipio is the body in charged of executing the project. Demands can also be expressed through other types of entities besides the municipio, such as NGOs. However the extent to which demands can be articulated to services at other levels depends to a large extent on the level of community organization. Another limitation in the current system is the way SIBTA operates, as it can be seen in the box. It uses direct channels for demand identification such as media etc. The interested farmers have to send their demands and service suppliers should respond to these. In this whole process some farmers are more favoured than others: furthermore in rural areas there is little access to media.

VINCOSER's approach of community-led demand

VINCOSER attempted to assist resource-poor farmers to identify and communicate local priority demands. At the community level, local demands are identified through the CLM, representing the interests of all groups within the community. As it can be seen in the communication materials, knowledge and understanding of the new political context at community level is important. Only if poor households are aware of existing laws, regulations and processes, may it be possible to link their local demands to other levels. The aim of the CLM is to support communities to identify and develop demands which are genuine and responsive to the needs of all parts of the community. Once the demands have been approved by the municipality, the Mancomunidad can act as the link between the demand and the supplier of the particular information required. Depending on the nature of the demand, the service supplier could be either a NGO or a FDTA, or any other services. In this model SIBTA is encouraged to work within the municipal and union organisations to respond to locally-expressed demands.

3. The communication plan

Objectives

The principal objective of this part of the research was that target organisations be made aware of the value of the CLM for assisting livelihood improvement through pro-poor mediated services that can enable favourable changes in NR management practices.

Stakeholder analysis

One targeted area for communicating the CLM was the Mancomunidad Municipal Héroes de la Independencia (MMHI) which comprises four municipalities: Yunchará, Uriondo, San Lorenzo and El Puente, within Avilés and Méndez provinces.

The stakeholder analysis included the following actors:

Municipal level:	Municipal governments, MMHI and the Asociación de Municipios -AMT.
Prefectural level:	Consejo Departamental, Desarrollo Productivo, Subprefecturas y SEDAG.
Social Organisations:	FSUCCT, Comités de Vigilancia, CIOEC, FONCASOL.
NGOs:	IICCA, ACLO, PROMETA.
SIBTA service suppliers:	FDTA Valles, FDTA Altiplano.

The stakeholder analysis was developed through semi-structured interviews with key

informants. In the first place it was necessary to understand each actor's objectives, discourses – what is said, what really takes place and what is hidden - and potential areas of common interest with VINCOSER. In the second place, it was necessary to analyse their knowledge, attitudes, practices and tendencies. This work was complemented with a 10 day mass media survey.

The final document classifies stakeholders with regards to their position in the rural arena, and their type of action and service, this allowed for prioritising project's alliances and agreements (see Annexe 1 Table 1).

A final complementary activity linked to SIBTA, in the stakeholder analysis was a survey of access to and knowledge of community leaders about extension services provided by SIBTA through its FDTAs. The stakeholder analysis allowed for a detailed identification of the main actors, a better understanding of the rural processes taking place in Bolivia and the type of products and strategies needed to engage with ongoing processes. The analysis showed that there is a lack of methodologies for articulating local demands. Most projects in Bolivia have worked from those articulated at the municipal level, not taking into account the heterogeneous nature of local communities, with their differentiated demands. Therefore we have emphasised the need to work at the community level, developing local capacities to identify and articulate local demands. Following the stakeholder analysis, a range of materials were developed that were aimed at NGOs, local professionals and other working at the community level.

Dissemination materials

The main dissemination materials produced by VINCOSER were:

A. Training booklets

A series of nine training booklets – for personal use as they contain exercises etc and they are written in an accessible way complemented with drawings and as part of a wider training and community planning process aimed at the development of local capacities on the identification and the articulation of local demands. The booklets can be used as training materials by NGOs and local professionals to facilitate the learning process in local communities.

The booklets, all with the title 'development from the community' respond to the identified stages of the CLM:

- Nº 1 VINCOSER's mechanism for the articulation of community lead demands
- Nº 2 Diagnoses
- Nº 3 Vision
- Nº 4 Planning
- Nº 5 Management
- Nº 6 Project development
- Nº 7 Production
- Nº 8 Agrarian services
- Nº 9 Communication

The first five booklets explain in detail the CLM's main stages as tools for developing community development processes. Following the first five booklets, number 6 and 9 will support the training with additional information and recommendations (see booklets)

B. Flip charts (Rotafolios)

A series of nine flip charts of an illustrative character was developed in conjunction with the training booklets. Each of the flip charts illustrates a corresponding booklet, aimed at synthesising and strengthening the main proposed ideas through a process of participative training.

C. Guide

The materials were accompanied with an explanatory guide (*Informe-Guía*), containing three main parts. The first one is a brief summary of the results obtained in the research regarding adoption and adaptation of NRM promoted techniques under HEDECOM. The second part is an introduction to the CLM. The final one is a general guide on the principles and use of the materials provided. The guide is meant to help local professionals to understand VINCOSER's objectives and products.

D. Video

A 12 minute video summarising the main pivotal aspects of HEDECOM and VINCOSER's proposal within the national context was prepared. It contains images from the targeted communities as well as testimonies from different actors and farmers. It is specially aimed to actors working in development processes.

E. Radio programmes

A series of 88 radio programmes of 10 minutes each were produced and daily diffused through Radio Tarija –which covers the project's area - over a period of four months. The contents focused in those areas covered by VINCOSER, especially on the main communication's objectives. The main focus was on: production and farm services, ongoing processes around '*Bolivia Productiva*' such as the round tables, linking demand with supply, and information about VINCOSER's work.

F. Final workshop

A final workshop took place in Tarija on the 15th and 16th of February 2005 giving stakeholders the opportunity to discuss the mechanism and its application elsewhere in Bolivia for the benefit of poorer communities in the context of national rural development. The video was presented and the communication materials distributed. This workshop provided the basis for further agreements between participating organisations.

The final workshop, attended by all stakeholders, allowed dialogue between them and with R8362 staff and identified more clearly how best the CLM could improve bottom-up communication of deep-seated community needs to improve the performance of development initiatives. This occasion was the basis for immediate end of project and subsequent actions.

In order to distribute the materials, two further workshops were undertaken as well as further visits to several organisations within the department and across the country. As a result of these activities, 40 professionals in charge of municipal planning in those institutions working in the MMHI have established agreements to make the best possible use of VINCOSER's materials and findings. Other public, private and social institutions have established a basic means for coordination and articulation in the MMHI always taking the community as the pivotal base. The ICCA, one of the most important social organisations for peasant training, has assumed the responsibility of continuing those processes of communal planning started by VINCOSER.

Strengthening SIBTA's efforts to increase its pro-poor impact

From the beginning contact was made with SIBTA and FIT. The communication specialist along with the main researcher attended several workshops. In these workshops VINCOSER shared its methodological proposal – the CLM - and research findings and agreed to complement SIBTA's efforts in identifying a methodology which addresses the requirements of resource-poor households..

Since SIBTA showed special interest in the proposal which aims at opening new channels through the municipality, the unions, social organisations and the MHI where supply and demand actors can interact more directly- it has incorporated such a proposal in one of the modifications made to its Operational Rules.

VINCOSER's mechanism for supply and demand articulation has been incorporated to SIBTA's compendium of methodologies, which has been published at a national level.

Linking local first and second generation communities' demands to the wider extension services

Strengthening local demands

In order to improve the links between supply and demand actors, the project organised a competition for ways of improving the quality of community demands –“Learning how to design our own initiatives”. Project profiles based on NRM initiatives, were submitted by groups of people within a community according to the following criteria: the project should include as many households from different strata as possible, it should respond to agreed local demands, and long term project sustainability should be taken into account. This activity strengthened local capacities in demand articulation. It took place in coordination with the MMHI and was mainly directed to grass roots organisations in the project's working area. From a total of seven project profiles, two were selected: improving the quality of peach management and organic potato production.

Round table debates around the wider Bolivian discourse: “Bolivia Productiva”

Following from the context described above, the Project considered it important to support wider processes taken place in Bolivia around NRM and more precisely farm production. VINCOSER in coordination with the MMHI, and other local organisations strongly supported the elaboration and publishing of the main round table results. The communication specialist complemented this document with local testimonies and some of the institutional visions that accompanied the process (See De la Fuente, T et al., 2005, Memoria Diálogo Nacional “Bolivia Productiva” – Mesas Municipales Yunchará, Uriondo, Sand Lorenzo, El Puente).

Workshops for proposal aimed at service articulation

At the end of the project three workshops took place, their main aim was to solidify a proposal for articulation of demands between community representatives and other institutions such as the MMHI. In the workshops, the CLM was presented as the main tool that can support the processes of participative planning and genuine demand articulation. Following these workshops several agreements took place between the actors that will allow them to carry on complementary activities in their field of work.

The following table summaries the activities and results achieved in project communication work:

Table 18 *Communication with stakeholders*

Actor	Activity	Results	Comments
National government agency – SIBTA through DFID FIT programme	Informed of progress of work validating the CLM during life of R8362 at regional meetings and their attendance at Final Workshop	I) Incorporation of the CLM as a component of the Operating Procedures for SIBTA’s work in the FDTAs, that is that evidence of community participation required in submissions of proposals. II) Results: Information packages passed to FIT projects 22,16,9 & 7 for appropriate use in the course of their work.	Further discussion planned on ways of collaboration through meetings of the FDTAs with the Mancomunidad Héroes de la Independencia {MHHI} not held as planned following national government change.
Regional government – Prefecture and Municipal government	Documentation on the CLM provided for further study and possible application	Municipal government links developed – through briefings held in three of four municipalities of the Mancomunidad for the field staff following senior staff participation in Final Workshop.	Further request from Municipality of Chiquiaca [in a different ecological zone] east of Tarija, part funded by PROMETA and work planned up to end of 2005 to train NGO staff in CLM use
Departmental Federation of Peasant Unions	Sub-centrales visited and workshops requested and held to develop awareness of the potential of the CLM for preparation and presentation of their needs and priorities associated with concrete funding proposals. Visits and workshops held in Tojo. Copacabana and Uriondo and contact ongoing.	Departmental Federation informed of progress and advised of ongoing work with sub-centrales	Subsequently, following workshops, one group of communities from Sub-central Copacabana has developed their own project proposal to be submitted for funding

4. Conclusions on communicating actions and outputs

VINCOSER's experiences with the implementation of the communication strategy confirmed the importance of early engagement with local actors and processes. A specific success factor was the involvement of the local communication specialist who had well developed linkages within the rural development environment in Tarija. One conclusion from this experience is the importance of appointing a local communication specialist, however, one should be aware that many personal characteristics of this specialist can finally contribute to success.

In the elaboration of the communication plan it was important to define concrete products in relation to the initial project's log frame. With regard to the first product, communicating the mechanism, several activities were developed which showed later success. For instance all the communication materials, which responded to identified gaps, were of great interest to participants in the final project workshop. The radio programmes were also successful since they diffused not just the project but other related events taking place in the rural sphere.

With regard to the second product, proposing a supply and demand linking framework that takes into account current rural development policies, the project successfully engaged with three main actors: the Mancomunidad Héroes de la Independencia, and ICCA, Instituto de Investigaciones Campesinas, and with the Federación de Campesinos, the main union body for farmers at a Departmental level. As a result of these linkages the project's proposal was shown in several SIBTA/FIT workshops, who expressed their interest in the proposal since it responded to their perceived lack of engagement with the poor as a specific target group. This interest has been confirmed by the introduction of the CLM in their operative regulatory plans.

Overall Conclusions

This research examined the effectiveness of a community-led mechanism for identifying the needs and priorities of poor hillside communities. It then sought to assess whether the use of such a mechanism could offer livelihood improvement for the poor through better service provision. In order for the mechanism to be widely used in a variety of ecological and socio-economic contexts it was also necessary to show how it could be revised by a process of organisational learning. Finally, the research sought to communicate to a range of regional and national organisations the value of this mechanism to enable favourable changes in the use of natural resources by hillside communities that would particularly benefit poorer households.

By examining the work of a previous, related project (R7584) it was possible to study and then systematise the key elements of the community-led mechanism that had been developed by it and refine it so that it could be applied in three rural communities close to those where the earlier project had worked. Field work in the three communities in which earlier work had been focussed – where field work had concluded a year earlier – made it possible to determine the extent to which new practices had continued to be used and, in particular, which socio-economic strata in the communities had derived most benefit from these changes. It was concluded that from those in the upper and middle strata, about two-thirds who had originally adopted new practices still used at least one of them. Adoption was lower among those in the low stratum and about one third of them were still using the practices that had been learned. There were few significant differences between adoption of livestock health or fruit tree health management practices and likewise few differences between the three communities. The project actions had clearly most benefited the livelihoods of the middle and upper strata. This is a frequently-reported characteristic of change adoption but it does highlight the special efforts necessary to ensure that changes proposed can benefit poorer households. It is also important that it is recognised that poverty – however defined – is not just the consequence of a lack of capitals but also of the process of social exclusion which operates as much at a community as at a regional level. Such exclusion cannot just be tackled by resource use

innovations and it is necessary that communities recognise and confront the intra-community differences in well-being.

Further work was conducted to assess the response to collaboration with the new set of communities to the revised community-led mechanism. This was inevitably hampered by the short time frame in which the work had been carried out but responses to the work were positive, especially with regard to livestock, the results of which were rapidly evident. Differences between socio-economic strata were not marked but the poor were particularly enthusiastic about the learning process associated with the work. This increase in human capital may be particularly beneficial to the poor who can use it in working for others with more capital resources. Some people in this stratum also expressed particular appreciation for the social interaction associated with work in small locality-based groups which may have increased their social capital. This accords with research findings in Bolivia and elsewhere that where social capital is of particular importance for the poor (Grootaert and Narayan 2004).

The community-led mechanism seemed efficient in eliciting the deep-seated needs of communities, including in locating needs associated with natural resource use in the context of others such as flood protection and road and bridge building. A part of the mechanism also prepared villages to use the identification of their needs as a basis for preparing well-considered development plans for submission to municipal and national government agencies to attract development funds to them. In post-project reviews of working of the mechanism, local professionals emphasised the importance of field teams being multi-disciplinary and comprising both men and women in order to improve the quality of communication with rural people and that the flexibility of the mechanism allowed appropriate locally-specific modifications to its operation.

Communicating the outcomes of the research was directed towards key stakeholders at a regional, departmental and national level. Links with peasant union organisations were developed at a departmental and municipal level and local professionals organised workshops to inform more communities of the nature and advantages in using the mechanism. Links with a departmental Mancomunidad (a federation of municipalities) and with the national government rural development organisation SIBTA were developed and the mechanism has been included in the portfolio of good practices for eliciting community needs and in the operating framework of future SIBTA work. A range of information materials – booklets, flip charts, a manual and a video allow a wider dissemination of knowledge about detailed aspects of the mechanism.

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Appendix 1

Table 1 Diagrammatic stakeholder analysis

Stakeholders	Objectives	Interest in the subject	Contribution of the product	Expected results
<p>Mancomunidad Municipal “Héroes de la Independencia”, MMHI, comprising the municipalities of Yunchará, Uriondo, San Lorenzo y El Puente</p> <p>Tarija’s Association of Municipalities, AMT</p>	<p>To promote economic development –especially related to sustainable local production</p> <p>Articulate and represent the interests of the represented municipalities</p>	<p>Special interest in a participative model for municipal management</p> <p>Special interest in a participative model for municipal management</p>	<p>Through the methodology achieve a more fluid relationship among the different municipal instances (community-district-Municipality), especially in the process of participative management</p> <p>To support their processes of participative management through the methodology .</p>	<p>Uptake of the methodology for its application in the MMHI municipalities, with the main objective of responding to communal demands</p> <p>Uptake of the methodology in the municipalities as a tool for articulating the municipality and the prefectura in order to respond to communal demands</p>
<p>Departamental Prefecture: Consejo Departamental (Consejeros de Avilés and Méndez). Subprefecturas (Avilés and Méndez). Departamental Agrarian Services, Agriculture and livestock management, SEDAG</p>	<p>Promote the departamental plan for economic and social development, as a tool for : uptake of future actions related to Tarija’s future, social control over current policies, plans and resources now in control of public institutions</p>	<p>Strengthening the process of planning and decentralisation in the department</p>	<p>Supporting the establishment of links between the prefectura, the municipalities and the communities</p> <p>A valid tool for the articulation of supply and demand agrarian services</p>	<p>Uptake of the methodology as a tool for articulating and coordinating within prefecture organisations to respond to demands related to agrarian services</p> <p>Uptake of the methodology in the municipalities as a tool for articulating the municipality and the prefectura in order to respond to communal demands</p>
<p>Farmer and social organisations:</p> <p>Federación Sindical Única de Comunidades (main Peasant Union) Campesinas de Tarija, FSUCCT, (Centrales, Subcentrales and Sindicatos de Avilés and Méndez)</p> <p>Comités de Vigilancia Municipales (Yunchará, Uriondo, San Lorenzo and El Puente).</p> <p>Cámara Integradora de Organizaciones Económicas Campesinas (CIOEC – Tarija) (main organisation for small farmer development-based organisations</p>	<p>Direct and stimulate development proposal, from the farmer’s vision, based on their social organisation and ways of living</p> <p>Representing civil society within a municipality, keeping social control over the elaboration and application of plans, programmes and projects</p> <p>Take advantage in the market so as to increase production and small peasant’s families income</p>	<p>Orientate public and private institution’s work from the farmer’s and small producers vision</p> <p>Effective implementation of a model for participative municipal planning</p> <p>Raising genuine demands and their articulation in the route: community-district-municipality Show the importance of small</p>	<p>Supporting the process of participative planning and as a tool for supply and demand articulation of agrarian services</p> <p>Supporting processes of participative planning and as a tool for the articulation of supply and demand of agrarian services</p> <p>Supporting processes of participative planning and as a tool for the articulation of supply and demand of agrarian services</p>	<p>Assessing the methodology’s application in the process of participative planning</p> <p>Make use of training materials within the methodology in any process of participative community planning</p> <p>Keeping an eye on the methodology’s application</p> <p>Using some of the package’s materials in activities of participative planning</p> <p>Keeping an eye on the methodology’s application</p>

<p>Fondo Campesino Solidario (FONCASOL) - organisation for the facilitation of credits to farmers</p>	<p>Reckon farmer's rights to low rate credits</p> <p>Support the access to low rate credits as a strategy for rural development</p>	<p>producers in the national, departmental and municipal economy</p> <p>Achieve public support in favour of small producers</p> <p>Reckon communal shared deposits as important aspects of rural development</p>	<p>The package as a tool for the analysis and elaboration of proposals around public policies facilitating rural access to low interest credits</p>	<p>Using some of the package's materials in activities of participative planning</p> <p>Using some of the package's materials for the analysis of small producers limitations and for the promotion of proposals in favour of production and access to low interest credits</p>
<p>NGOs:</p> <p>Instituto de Investigación y Capacitación Campesina, IICCA (Research Institute for Peasant Affairs)</p> <p>Fundación ACLO</p> <p>PROMETA</p>	<p>Facilitate social and economic processes within a framework of sustainable rural development directed at farmer empowerment</p> <p>Promote rural development on the basis of farmer's rights</p> <p>Preserving nature and promoting the sustainable use of natural resources at the same time as increasing people's quality of life</p>	<p>Support processes of communal planning as the main basis for municipal planning</p> <p>Support women's and men's rights equally</p> <p>To complement the training of rural reporters for the strengthening of the current communication channels</p> <p>To incorporate the environment in any development plan promoting at the same time alliances between different actors</p>	<p>Supporting processes of participative planning and as a tool for the articulation of supply and demand of agrarian services</p> <p>Having access to training materials on the areas production, planning, and communication</p> <p>Having access to training materials on the areas production, planning, and communication</p> <p>Coordinating and supporting the training of rural reporters in the project's area</p> <p>Having access to a methodological package for communal planning, demand raising and the articulation of institutional products to the wider agrarian services</p> <p>Having access to training material on production, planning and communication</p>	<p>Comparing the present methodology to the one they have been applying before</p> <p>Make use of the materials in activities of participative planning</p> <p>Use of the materials in the training of rural reporters</p> <p>Rural reporters undertake a follow up of community demands</p> <p>Use of the methodology as a tool for public and private institutional articulation</p> <p>Use of the materials in activities of environmental training and education</p>
<p>FDTAs:</p> <p>Fundación Valles</p> <p>Fundación Altiplano</p>	<p>To support rural development through technical innovation and modernisation, on the basis of prioritised productive chains and poverty alleviation</p>	<p>To promote the execution of projects based on the application of new Technologies</p> <p>To promote a market for the supply and demand of technical innovations</p>	<p>To identify possibilities for the articulation of supply and demand services through current public instances</p> <p>To support their objectives specially with regards to their poor-poor focus</p> <p>Access to a methodology for raising rural demands</p>	<p>Make use of the methodology as an instrument for the articulation of and coordination between public and private institutions at the communal, district and municipal level</p>