

Dossier 1: Background analysis



[Bolivia]

Participatory environmental governance in farming communities in the Rio Grande basin (Bolivia)

Introduction

This document is designed to help you discover the reality of Valles Cruceños, a beautiful region in Bolivia with a major potential in terms of livestock and cattle farming, water resources and tourist attractions, but one which nonetheless faces a series of challenges as it pursues regional development. This land has a series of internal and external factors that restrict its progress in terms of development, which therefore have a knock-on effect on people's wellbeing.

We shall be using this dossier to analyse the context of the Valles Cruceños region by revealing the weaknesses affecting it, the threats to which it is exposed, and the vulnerabilities caused by these circumstances. Yet at the same time we shall not be ignoring the area's strengths and opportunities, as well as the key features to be worked on in order to improve the situation.

Off we go!

Geographical location and climate

The region of Valles Cruceños is located in the westernmost area of the Department of Santa Cruz, and it is surrounded by the Andes, the Amazon rainforest and the Chaco Plain. It covers a surface area of close to 13,000 km², practically twice the size of the Basque Country, with an estimated population in 2012 of 83,000 people (approximately 45% are females), which means less than 4% of the Basque population.

The altitudes in this region range between 500 and 3,600 masl and its climate is temperate, with an average annual temperature of 22°C (with a high of 30°C and a low of 15°C). These mild temperatures drop at higher altitudes, and there can be snowfalls above 2,000 masl.

The total annual precipitation is approximately 800 mm, which is around half the amount recorded in the Basque Country. Nevertheless, the distribution of the rainfall is very uneven throughout the year because there are two clearly differentiated seasons: a dry one from June to November and a wet one from Decem-



Population of Valles Cruceños according to municipal areas

Province	Municipality	Communities	Families
Florida	Samaipata	91	5.002
	Mairana	21	1.848
	Pampa Grande	65	2.798
	Quirusillas	39	2.673
Manuel María Caballero	Comparapa	52	2.727
	Saipina	22	1.294
	Vallegrande	152	5.692
	El Trigal	25	917
	Moro Moro	56	1.798
	Postrervalle	17	759
	Pucará	34	1.119
Total		574	26.627

NB: in bold, the provincial capital

Source: Instituto de Capacitación del Oriente.



Municipality of Vallegrande

ber to May, when almost 80% of the year's rainfall is recorded.

The terrain in Valles Cruceños is rugged, being defined by a series of topographic features such as steeply sloping mountains, hills, valleys, and subtropical plains. The different altitudes in the area inform the convergence of three main biogeographical regions that are clearly differentiated: a subtropical rainforest, a humid temperate forest and a dry temperate forest, which imbue the environment with great natural wealth. The region is watered by the Río Grande, a long river that plays an important part in the local way of life as the main artery of business.

Population and culture

The population in the rural area is orchestrated into farming communities, a traditionally important form of collective organisation in the Andes, and each one of these communities is in turn made up of between 30 and

50 households. This region has around 570 scattered communities, located between 28 and 64 km from the region's three main towns, namely, Vallegrande, Pampa Grande and Comarapa.

According to data from 2015, life expectancy for women stood at 71 years, while for men it was 66, and according to data from 2016, each woman had an average of 2.9 children.

The people living in this area have two ethnic and cultural origins: Quechua, one of Bolivia's indigenous peoples, and the descendants of Spanish colonisers. Ninety percent of the people in Valles Cruceños speak only Spanish, and the remaining 10% are bilingual, expressing themselves in both Quechua and Spanish.

The Valles Cruceños region has a wealth of prehistoric art, with images dating back to different periods, with the oldest corresponding to the Archaic period (8,000-1,500 years BC), which take the form of paintings in caves, under overhangs, and on exposed rocks.



Community of Alto Seco, Vallegrande province

Basic services: roads, housing, health, education and telecommunications

The Human Development Report published by the United Nations in 2016 (with 2015 data) gives Bolivia a Human Development Index (HDI¹) of 0.674, the lowest in South America, placing it in 118th position in the global ranking out of a total of 188 countries. Although generally speaking the Department of Santa Cruz is not one of the country's poorest areas, it does record major imbalances between town and countryside, as for example in this region of Valles Cruceños.

Due to the mountainous terrain, **the access roads** have numerous bends, steep gradients, deep precipices, and hardly any tunnels. This makes travelling between towns very complicated, and a lack of maintenance also means the roads and tracks are generally in a very bad state. To make matters worse, the heavy rains in the wet season cause landslides and damage infrastructures such as bridges and tracks.

This makes it difficult to transport goods, receive medical care, study further education, or access jobs. This circumstance also has a very negative impact on the sale and marketing of the produce from farming concerns, as the expense and lengthy time taken to reach the markets means there is little margin for profit.

Households generally do not have their own means of transport, and only a handful have a motorbike or car. This means public transport is in high demand, either in the form of buses that follow scheduled routes (collective), or taxis shared among several people (express), which are obviously more expensive.

The **accommodation** in these farming communities consists of a building with one or two rooms that serve as kitchen, bedroom and granary. They are made of adobe, stone, cement or timber, with the floors generally consisting of pressed earth, with roofs of straw, tiles or calamine.² The cooking area tends to consist of two adobe bricks with two steel bars between them



Family home in a rural area

for holding the pans, using firewood that has normally been foraged and carried by the women and their daughters.

The access to drinking water has considerably improved in Valles Cruceños, as in many cases they have a mains tap, although there are still many homes without running water, so in many households they continue using natural water sources, sometimes travelling long distances and carrying a heavy weight.

Only 30% of the communities have electricity, which is usually generated by solar panels. Electricity is normally used to power the radio and charge mobile phones, as lighting in the home normally involves candles, kerosene lamps or battery-powered torches.

Most of the rural communities do not have mains sanitation, although there is a small number of families that use dry latrines.³

In some areas, the water is not fit for human consumption, which explains the high rate of gastrointestinal diseases, mainly among the youngest children.

Rubbish is also a source of infections and diseases. Urban areas have specific containers for separating out waste, but they are hardly used, so there is rubbish in the streets. The situation is worse in the countryside, where there is no proper waste management, and litter is widespread in homes, streets and fields, creating major sources of pollution.

Standards of hygiene are very poor and affect the population's health: the lack of ventilation for their makeshift wood stoves cause respiratory diseases; the lack of water and sanitation in combination with the presence of pigs and chickens in the home constitutes a source of gastrointestinal infections, as well as providing the perfect breeding-ground for insects ("vinchucas"), reptiles and rodents, which are vectors of the disease called Chagas.⁴ The impacts on health are more acute among women and girls, as they are the ones expected to do the household chores of cooking and carrying water and firewood, as well as labouring in the field with the crops or livestock.



Classroom at the local school in the Community of Rodeo Pampa (Municipality of Pampa Grande)

As regards the **health** services, the most populated communities have first-aid posts and primary care services that provide some medical specialisms such as paediatrics, gynaecology and dentistry, and they have all-terrain ambulances for emergencies. The smaller communities have a first-aid medical kit, with antiseptics, basic medicines and bandages. The hospitals are in the larger towns and they are public, although they do not always have the necessary staff, equipment or medicines. In healthcare also, women are the most vulnerable segment of the population, as they do not receive proper care for their reproductive role or for the situations of domestic violence they suffer. The government is gradually increasing their protection through medical insurances for maternal-child care and combatting domestic violence.

In terms of education, most of the communities have very basic local schools that provide primary education. The pupils in these tiny schools study the different years in the same classroom, so the teachers have to cover the different syllabuses and needs of the different levels.

Access to **education** has improved in recent years, with approximately 80% of children in primary schooling. Nevertheless, there are still worrying data: the rate of illiteracy among people aged between 15 and 24 is around 10% for women and 7% for men.

The difficulties involved in attending school (due to the poor state of the roads, the distances, or the rains) mean the rate of school absenteeism is high and there are far fewer actual school days than in the towns, which affects the schooling received. The school population in primary education is low because of the large-scale migration to the towns in search of a better standard of living. With a view to boosting school attendance and encouraging children to continue studying, as well as to end child labour, since 2006 the Bolivian government has paid the “Juancito Pinto” subsidy (200 Bolivian Bolivianos, around €30) to each child that completes the school year, which constitutes a support for households.

Continuing on to secondary education involves travelling to the larger towns. This means households need



View of the Río Grande as it flows through the community of Pampillas

to make a major cash outlay, so within the context of poverty in which most of them live and the need for help with household chores, priority is given to the schooling of boys, although this situation is gradually changing and increasingly more girls are completing their secondary education.

The education law currently in place in Bolivia is referred to as “Avelino Siñani-Elizardo Pérez” (2010), which is framed within the paradigm of “Vivir Bien”⁵ and its purpose is to reconnect education with the indigenous culture, coexistence with nature and community health, to promote productive and environmental awareness in the community. This legislation has been very well received by both the institutions and the general public, although in practice it has only a limited ability to implement these ideas.

The law calls for a boost to environmental education and gender equality, incorporating sustainable development as a mainstream approach in education, and therefore tackling issues of sustainability and inadequate environmental management. Along these lines,

schools hold “Programas Socioproductivos”,⁶ which involve interesting projects, albeit with a limited impact due to the shortage of resources available for carrying them out.

Other weaknesses identified in the school curriculum regarding environmental matters are that no attention is paid to content linked to the pupils’ immediate rural reality: way of life, customs, production systems, etc. What’s more, teachers have not been trained in environmental matters, so classroom work hardly addresses nature conservation. This situation has been slowly improving in recent years through the so-called Socio-Productive Projects - *Proyectos Socio Productivos* (PSP), which cater for the mainstreaming and articulation of environmental topics in each subject. All this means pupils are unaware of local environmental issues, and so the educational community (parents, teaching staff and pupils) do not know, defend or claim their environmental rights.

In terms of **telecommunications**, good mobile phone coverage is now provided in almost all the commu-



Cattle grazing on land affected by drought

nities by the public **telecommunications** company - Empresa Nacional de Telecomunicaciones (ENTEL), although the signal is sometimes lost in the more remote ones, where they sometimes have difficulties tuning in to the radio.

This series of shortcomings in the access to the most basic services drives families to migrate to the urban areas, where their children have better access to essential services and a higher standard of living.

Natural resources and environmental context

The ecosystems in the Río Grande basin have an enormous potential for the provision of services, and its **natural resources** include springs and water sources in the mountains, as well as forests and pastures for cattle.

The Bolivian government has shown a willingness to make sustainable development a reality, with an example of this being the 2012 passing of the “*Ley de*

la Madre Tierra y Desarrollo Integral para Vivir Bien” [Law on Mother Earth and Integral Development for Good Living]. This pioneering legislation acknowledges the importance of observing the rights of nature in order to live well in harmony and equilibrium.

In spite of this, the natural resources in Valles Cruceños are now threatened by the effects of global warming. Climate change’s greatest impact is to be found in the different pattern of rainfall: the dry seasons now extends to nine months, while the wet season has shrunk to three months, with torrential rains; and more episodes of hail and storms are now being recorded.

These alterations in the cycle and in rainfall have an impact on the performance of groundwaters and the replenishing of aquifers, with the result in the wet reason being a loss of soil and nutrients due to run-off and of plant cover due to erosion, mainly by water but also by wind.

Furthermore, the large amount of soil dissolved in the water that flows down the hillsides erodes the river



Family displaying their crop of paprika on a farm in the municipality of Pampa Grande

banks, clogs watercourses and even leads to flooding in low-lying areas. The absence of plants stops aquifers from being replenished, which leads to a fall in the water-table, significantly reducing the availability of groundwater and the level of surface waters.

This unfavourable environmental scenario is compounded by the lack of current environmental data, which means public bodies are unable to manage the situation in a due and proper manner, as without information they are unable to draw up and implement suitable plans for managing natural resources in the area.

On the one hand, there is a dearth of environmental information and a lack of knowledge among both communal organisations and local technical staff about the country's advanced and pioneering legislation on environmental matters, which together with a certain lack of political will means environmental rights are not upheld, and so the area is not therefore administered according to integral sustainability criteria.

In view of this, and although natural resources provide the platform for the development of these communities, it is clear they are being severely compromised, with this being especially apparent regarding water quality and availability, the loss of fertile soils, biodiversity, forests and pastures.

The upshot of this is that farming households have been forced to adopt strategies that are heavily dependent on outside technologies that are environmentally unsustainable, such as, for example, the overuse of phytosanitary products that are highly damaging for the environment.

It is generally argued in the communities that this is the only way of controlling pests and guaranteeing a crop. However, there is now evidence to show that pests and diseases have become more resistant, with soil quality steadily deteriorating, with compacting of the topsoil and the frequent appearance of weeds that compete with the crops.

The waters in some areas have been contaminated by the deficient practices used to clean the containers



Washing vegetables in Los Negros river, preparing them for sale (Municipality of Pampa Grande)

holding these agrochemical products and the fumigation equipment, as well as the spillage of the waters used in this process. The lack of knowledge on the techniques for handling these products increases the environmental issues involved, as the region does not have a single technical support service for providing guidance on their proper use and application, or on soil remediation techniques.

These practices put people's health at risk and pose a threat to biodiversity and natural processes, generating a large amount of plastic waste that is simply dumped in the environment. Furthermore, this process undervalues the farming population's traditional knowledge, rendering it dependent on the use of these toxic chemicals as the only growing option that guarantees results.

Other natural resources in the area that are also threatened are the indigenous crop varieties, which have been displaced by non-native species that are more profitable in the short term. This also threatens the preservation of local seeds. It should be noted, no-

netheless, that society is witnessing a slow but growing demand for organic produce.

Economic-productive context

The main source of income for the people living in Valles Cruceños is **agricultural and livestock farming**, which involves 90% of households and men and women alike. The lands are fertile and the main crops are corn, potatoes (referred to locally as *papas*), wheat, beans, vegetables and fruit, such as oranges, mandarins, lemons and strawberries (known locally as *frutilla*). The harvest is small and only guarantees subsistence, as the terrain means only 10% of the land is suitable for farming.

Irrigation is required during the dry season, although in most cases this is not possible because there are no watercourses with a sufficient flow of water and, moreover, when they do exist the traditional method of gravity or flood irrigation entails the loss of water or nutrients leaching out of the topsoil, whereby it is not



Los Negros farmers' market (Municipality of Pampa Grande)

a sustainable system. In recent years, some farming concerns have installed drip or spray systems, above all for growing papas and *frutilla*.

Livestock farming is also extremely important as a way of earning a living among people living in the countryside. The animals involved are basically cows, which provide meat and milk, which is also used to make cheeses. One of the problems of keeping livestock is the shortage of pasture for feeding the animals in the dry season, a situation that has become of even greater concern over these years in which the rainy season has been unusually short.

The access to processing facilities that could provide higher earnings is very restricted by their major lack of funds. The agrochemical products are also expensive and tend to require the household to borrow money. In addition, the transport of goods is very complex and expensive due to the poor state of the roads and the long distances to the point of sale. This leads to low levels of household income among farming families and a heavy dependence on markets and chemical

products, with the knock-on effect being selling cheap and buying expensive, which seriously restricts their saving capacity. In order to reduce risks (although also their income), it is common to co-finance the farm supplies by working *"al partío"*, a system whereby each household contributes land and labour, while investors provide seeds and other products.

The low productivity and little income from sales often requires borrowing from suppliers. This situation has prompted a desire to increase the size of plots and introduce over-exploitive farming practices that are very aggressive toward the environment and natural resources. Within this context, some of the more common practices are, for example, a technique called *chaqueo*,⁷ which involves speeding up the clearing of forestry cover through active deforestation and removal of the plant cover; the massification of crops with no mitigating measures such as contour farming⁸ or infiltration trenches;⁹ sowing in turned soil with the protective layer removed, which leads to a loss of moisture in



Active clearing of forest cover to prepare new land for crops

the soil; and finally, felling timber or exploiting forestry products with no sense of husbandry.

The intensification of livestock farming, on the one hand, has raised the height at which cattle are left to graze, and on the other hand, this overgrazing compresses the topsoil when it is trampled on by the cows, with the result being a loss of nutrients due to the runoff caused by heavy rainfall. It also has an impact on people's health, as the animal dung directly contaminates natural water sources.

The people have little technical training for dealing with these vulnerabilities, and the outcome of the circumstances described is a growing rural exodus: on a temporary basis in the case of men seeking to supplement their income, and more definitive among women with children of school age, thereby reducing the labour available for working the fields, as well as prompting the closure of local schools.

Regarding women's productive work, it is clear that men's labour is more highly valued both socially and

financially, although progress is being made and women are starting to be involved in decision-making, both within the household and in farming organisations.

An aspect that needs to be considered is that the land is privately owned and this holds back any progress toward the collective management of the area in defence of the "common good". The aquifers, springs, natural pastures and woodlands that are especially fragile from an environmental perspective are to be found on lands that belong to specific families that make their own private decisions, but these have an impact on the entire community.

Political and social organisation

Valles Cruceños is situated within the Department of Santa Cruz, which consists of three provinces: Vallegrande, Florida and Manuel María Caballero, with the provincial capitals being Vallegrande, Samaipata and Comarapa.

These three towns are governed by local authorities, which involve a leader or mayor and a number of councillors, who are democratically elected.

The people who tend to work in these local authorities have not had the opportunity to gain an education or receive proper training for the exercise of public office, the management of the municipal budget, or encouraging public engagement in decision-making, to mention just some of the competencies they are expected to develop. Hence the reason these people have a number of shortcomings that stop them from marshalling the new style of transparent, participatory and horizontal government that society now demands, as they have been reproducing their predecessors' modes of governance that are not precisely defined by these characteristics that people now value and expect.

For their part, and in turn, the farming communities are organised into another type of association referred to as Grassroots Territorial Organisations - *Organizaciones Territoriales de Base* (OTBs) and Farming Unions, whose leaders relay their demands to the local authorities so they can be considered and included in the annual municipal budget. These organisations have the remit to contribute to an improvement in the standard of living across the entire community through the sustainable management of their local natural and productive resources.

Both the OTBs and the Unions have their statutes and rules of procedure, and they draw up a communal development plan that establishes certain targets, as well as the strategies for achieving them. They have a governing board that oversees this process and manages the resources. Within these collectives, we again encounter shortcomings in terms of their understanding of administration, planning and management, as well as a lack of communication and scant coordination with the local authorities.

In addition, there are other community organisations linked to more specific ambits, for example:

- *Organizaciones Administradoras del Agua* (OAA). Each one of these water distribution organisations is responsible for managing the water available in



Natural Heritage Reserve (REPANA), legal status for protecting water sources

each community: amount, quality, distribution, and collection of the water rate from each household.

- *Asociaciones de familias productoras*. These agricultural and livestock farmers come together in associations in order to better manage their productive activities and increase their income. These associations are weak and lack the necessary technical knowledge on the sustainable management of natural and productive resources.
- The education sector is served by the *Consejos Educativos*, which are school boards involving management, teaching staff, service staff and families. These boards supervise the schooling process and oversee the search for resources to improve the equipment and infrastructure in their schools.

Despite the presence of these associative movements, the people of Valles Cruceños are not very actively involved in the processes for developing their community and have only a limited capacity for leadership.



Public diagnostics workshop in the community of Abra de Capilla

Regarding the presence and engagement of women in these political and social institutions, it is very unbalanced compared to men's involvement. This means women find it very difficult to have their requirements, interests and opinions taken into consideration. Although, as we have already said, these imbalances still exist, it should also be stressed that in recent years women have begun to hold senior positions at municipal level, which would have been unthinkable just a generation back.

These changes and advances have been possible, on the one hand, thanks to women's higher level of education and empowerment, and on the other, due to a more receptive mindset among men regarding the

need for, and importance of, women's involvement in the public sphere and they are gradually accepting their responsibility in the home.

In short, it is clear that the social and economic future of the Valles Cruceños region is exposed to a series of vulnerabilities and depends heavily on the environmental agreements and policies rolled out, as well as on the actions undertaken in all the sectors at regional level. There is a pressing need for a change in the territorial development model in order to redress the negative situation that compromises the population's wellbeing, making good and proper use of local strengths and assets and people's motivation and commitment.

Since 2003, the Bolivian NGDO Instituto de Capacitación del Oriente (ICO) and the Zabalketa Association in Gexto (Spain) having been working together to find alternative ways of building a model of local development that is sustainable, equitable and fair for the Valles Cruceños region.

An analysis of the current situation that has involved both institutions and the local population has reached the conclusion that the region's main problem is that local ecosystems are under threat and the model of production is unsustainable, which is putting both the local population's wellbeing and the environment at risk.

The delicate state of natural and productive resources in Valles Cruceños means the whole population's future depends on local authorities and institutions coming together across the board and making the right decisions in term of environmental and planning measures for the rural development the region needs.

In order to reverse this situation, ICO and Zabalketa, with the support of the Basque Government's Agency for Cooperation for Development, have designed a three-year work programme in three local towns: Comarapa, Pampa Grande, and Vallegrande. Every effort will be made in this new stage to ensure all the local players are in a position to build a management model based on criteria of eco-sustainability, catering also for socio-political and economic considerations.

Environmental legal framework in Bolivia

Ley Marco de la Madre Tierra y Desarrollo Integral para Vivir Bien (N° 300) que en su Artículo 1 establece:

“La presente Ley tiene por objeto establecer la visión y los fundamentos del desarrollo integral en armonía y equilibrio con la Madre Tierra para Vivir Bien, garantizando la continuidad de la capacidad de regeneración de los componentes y sistemas de vida de la Madre Tierra, recuperando y fortaleciendo los saberes locales y conocimientos ancestrales, en el marco de la complementariedad de derechos, obligaciones y deberes; así como los objetivos del desarrollo integral como medio para lograr el Vivir Bien, las bases para la planificación, gestión pública e inversiones y el marco institucional estratégico para su implementación.”

Ley de Medio Ambiente (N° 1333, 27/04/1992), que en su Artículo 1 establece:

“La presente Ley tiene por objeto la protección y conservación del medio ambiente y los recursos naturales, regulando las acciones del hombre con relación a la naturaleza y promoviendo el desarrollo sostenible con la finalidad de mejorar la calidad de vida de la población.”

Ley de Vida Silvestre Parques Nacionales Caza y Pesca (DL 12301, 14/03/75)

Law N° 1576 of 25/07/1994, approving and ratifying the United Nations' Framework Convention on Climate Change

Law N° 1580 of 2/07/1994, approving and ratifying the United Nations' Convention on Biological Diversity

Law N° 3760 of 07/11/2007, rising to the status of Law of the Republic the 46 articles of the United Nations' Declaration on the Rights of Indigenous Peoples, adopted at the 62nd Session of the UN General Assembly held on 13 September 2007.

Other sources of information

Centro Digital de Recursos Naturales de Bolivia: <http://cdnrnbolivia.org/recursos-biologicos-y-ecologicos.htm>

Centro de Documentación e Información Bolivia: <http://www.cedib.org/>

Instituto de Capacitación del Oriente: www.ico-bo.org

Instituto Nacional de Estadística de Bolivia: <http://www.ine.gob.bo/>

Marco Normativo Ambiental de Bolivia <https://sites.google.com/site/marconormativoambiental/bolivia>

Ministerio de Medioambiente y Agua de Bolivia: <http://www.mmaya.gob.bo/>

Municipio de Vallegrande: http://www.santacruz.gob.bo/sczturistica/vallegrande_municipio_vallegrande/3000042

Programa de Naciones Unidas para el Desarrollo - Bolivia: <http://www.bo.undp.org/content/bolivia/es/home/our-work/environmentandenergy/overview.html>

IDH¹: El índice de desarrollo humano es un indicador establecido por Naciones Unidas que mide los logros obtenidos en las dimensiones fundamentales del desarrollo humano: salud, educación y nivel de vida. Su valor se aproxima a 1 cuanto mejores sean las condiciones de vida.

HDI¹: The human development index is an indicator introduced by the United Nations to measure the achievements recorded in the key dimensions of human development: health, education and quality of life. Its value grows closer to 1 in step with a higher standard of living.

Calamine²: Another word for fibre cement or uralite. Building material consisting of a mixture of cement and asbestos used mainly in the form of corrugated sheets for roofing.

Dry latrine³: Area outside the home used as a toilet, consisting of a hole in the ground covered by a concrete slab or piece of wood in which a hole has been made for fitting a toilet bowl.

Chagas⁴: A tropical disease caused by the parasitic protozoan *Trypanosoma cruzi*. This disease is endemic in the Valles Cruceños region, being highly prevalent among the adult population, with the main vector of infection being *Triatoma infestans* ("vinchuca" or "kissing bug").

Vivir Bien⁵: Meaning "Live Well", this is a model of development promoted by the Bolivian government whose key premise is living in harmony with nature that reinstates the ancestral principles of the region's cultures and provides a series of guidelines based on respect and equilibrium for protecting life and guaranteeing the wellbeing of future generations.

Socioproductive projects⁶: In Bolivia, these are projects that school children are required to carry out within the framework of the "Avelino Siñani - Elizardo Pérez" Education Law and the *Modelo Educativo Sociocomunitario Productivo* – Productive Socio-community Education Model, with the aim being to combine the curricular content in the syllabus with actions that benefit the local community.

Chaqueos⁷: The burning of the plant cover to prepare for new crops or for changing the use of the soil and generally pushing back the boundaries of arable land.

Contour farming⁸: An agricultural practice that involves planting crops across slopes following the line of altitude, and it is recommended when the slope is more than 5%. Each furrow or crop line blocks the flow of rainwater and stops it draining away into the ground, thus reducing the loss of soil and nutrients.

Infiltration trenches⁹: An agricultural practice that involves digging a ditch to reduce the amount of runoff and collect rainwater, which means more water will filter into the soil in areas of low rainfall.

This document has been drawn up using information contained in the programme "*Gobernanza ambiental participativa en comunidades campesinas de la cuenca del Río Grande (Bolivia)*" (FOCAD PGM 2015/BA001), drafted by the Instituto de Capacitación del Oriente (ICO) and the Zabalketa Association, which has been co-funded by the Basque Government's Agency for Cooperation for Development.