ANAPURNA FARM
SUSTAINABILITY KNOWLEDGE CENTRE
a case study

Pachavita, Colombia

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# Table of Contents

Executive Summary 7  
Introduction 8  
Overview 9  
Before we start 10  

Ecological Dimension  
1. Climate change resilience 12  
2. Water supply design 18  
3. Food system 22  
4. Carbon neutral energy 26  
5. Green building guidelines 28  

Economic Dimension  
1. Global – Local economic impact 34  
2. Economic resilience 36  
3. Stakeholder’s values & right livelihood 40  
4. Social enterprise 43  
5. Business planning 46  

Social Dimension  
1. Finding a common vision 52  
2. Community governance 53  
3. Leadership 60  
4. Art and celebrations 63  
5. Bioregional analysis 64  

Worldview Dimension  
1. Worldview perspectives 68  
2. Respecting nature’s resources 70  
3. Stories of transformation 71  
4. Celebration of rituals 73  
5. Engaged spirituality 75  

Conclusions 77  
References 78
Figure 1. Location of the municipality of Pachavita, Colombia

Figure 2. Location of the municipality of Pachavita in relation to nearby cities
Figure 3. Location of the municipality of Pachavita and Annapurna Farm – Sustainable Knowledge Centre within the Bioregion of the Valle de Tenza and Garagoa river basin:

5°08’27.44”N 73°27’18.22”W
MAP OF THE BIOREGION
Fauna, crops & clothing
VALLE DE TENZA AND GARAGOA RIVER HYDROGRAPHICAL BASIN

CROPS & FAUNA FROM TROPICAL climate 950m - 2700 m
Crops: cocoa, rice, sugarcane, plantain, cassava, watermelon, pineapple, etc.
Peasants wear light, cotton clothes.

CROPS & FAUNA FROM TEMPERATE climate 1300m - 2200 m
Crops: coffee, tubers, maize, beans, bananas, solanaceae fruits, etc.
Orchids and bromelias are quite common.

CROPS & FAUNA FROM COLD climate 2200m - 2900m
Crops: apple, pear, quinoa, feijoa, wheat, oats, tubers, and vegetables.
Peasants wear woolen “ruana” and felt cap.

Figure 4. Map of the Bioregion. Fauna, crops and clothing
Top view of Annapurna Farm Sustainability Knowledge Centre. Picture taken in 2015, before starting the reforestation programs and laying the foundations of the house – office.
EXECUTIVE SUMMARY

Annapurna Farm – Sustainability Knowledge Centre (Annapurna Farm) aims to become the nerve centre of sustainable living and economic activity in the bioregion of Garagoa river hydrographical basin, located 140 kms North of Bogota in the Andes mountains of Colombia. At Annapurna Farm, we would like to share with local schools, farmers, peasant associations and the community at large, practical knowledge about conservation, reforestation and sustainability, solidarity economy and food sovereignty - in the form of workshops and trainings specifically tailored to the needs of the local people.

ECOLOGICAL OUTPUTS

The Annapurna Farm – Sustainability Knowledge Centre, with its various physical premises - the buildings, the vegetable and herb gardens, the rain water harvesting systems, the composting units, the relict forest etc., represents the idea of a live classroom, demonstrating and teaching various sustainable best practices. The programs offered at Annapurna Farm will train the local community (peasants and villagers) of the surroundings and the bioregion on:

- Forest conservation, reforestation and productivity
- Self-sufficient and optimal water management
- Restorative food production techniques leading to food sovereignty
- Awareness on renewable energy technologies
- Ancestral and affordable construction techniques: management, use and treatment of guadua (bamboo) for construction and seismic-resistant bahareque construction (earth building)

OVERARCHING OBJECTIVES

Annapurna Farm aims to achieve the following goals over the next 3 to 5 years:
1. Increase the food sovereignty of Pachavita and its rural areas around by 10% every year over the next 3 years
2. Reshape the economy of Pachavita and its rural areas to make the transition from a subsistence economy to a thriving and diversified local economy over the next 3 years
3. Over the next 3 years, increase the agro-biodiversity of Pachavita and its rural areas by 15%

MISSION

To offer capacity building programs oriented to empower rural communities of the bioregion to enable them to lead their own transition to a more resilient, sovereign, and participative community through:
- Training peasants and farmers on solidarity economy, social enterprise and diversification of the local economy with a focus on production of value added products
- Disseminating practical knowledge about sustainable best practices on water conservation, regenerative agriculture, forest conservation and reforestation, soil building and rational use of natural resources
- Creating awareness about the importance of preserving, growing and consuming native seed and agro-biodiversity in order to achieve food sovereignty
VALUES

In this endeavour, the following core values will guide the team at Annapurna Farm:
• Constant & deep listening to people’s real needs
• Compassion for all sentient beings
• Non-judgement – collaborating with local communities without judging who they are or what they do
• Foresight – always bearing in mind the long term consequences of our actions
• Transparency

VISION

Annapurna Farm – Sustainability Knowledge Centre envisions a future in which all the peasants and small farmers across Colombia will be at the forefront of sustainable best practices, and play an active role in the diversification of their local economies while always acting as guardians of natural resources, local ecosystems and regional agro-biodiversity.

INTRODUCTION

This case study presents the site analysis and the concept design of the Annapurna Farm – Sustainability Knowledge Centre, a non profit initiative based on a 3 Ha farm located 150 km South of Bogota – Colombia. This initiative started only six months ago, and is oriented to empower, socially and economically, the communities located on the watershed of the Garagoa River, a principle river in this region.

The four dimensions of sustainability have been developed in the following way:

Ecological Dimension: describes the current and future designs related to reforestation, water management, food production, energy and green construction. The idea is to turn the 3 Ha farm into a live classroom, showcasing sustainable best practices, that serve as educational spaces for Annapurna Farm’s multiple programs and trainings.

Economic Dimension: presents the objectives and a broad business plan of the Annapurna Farm – Sustainability Knowledge Centre. Additionally, some wellbeing indicators and challenges of the Centre’s program are outlined.

Social Dimension: presents the common vision of the Sustainability Knowledge Centre, proposes the gradual introduction of sociocratic structures to manage decision making and governance within the Centre, outlines a training program on leadership to local peasant farmers, and presents a map of the stakeholders.

Worldview Dimension: presents a description of the local peasant community (the target population) and interlocutors, states the project’s short and mid-term goals regarding Millennium Ecosystem Assessment and presents the project’s position regarding spirituality.

Since the target population for the coming three years will be the municipality of Pachavita, which constitutes an urban area and 9 rural areas or veredas (2,968 inhabitants). The economic, cultural and social situations described in this case study will be related to this municipality. However, most of the situations described and analysed here also reflect, to a fair degree of accuracy, the reality of the rest of the bioregion in the Garagoa river hydrographical basin. In 5 years, Annapurna Farm hopes to extend its actions and programs to cover the whole bioregion, that is to say, across 25 municipalities.
**Overview**

Colombian countryside is agonising and our bioregion does not escape from this reality. Land ownership concentrated in a few hands, free trade agreements leading to import of subsidised food that could be produced in the country, agricultural policies that only benefit agribusiness and large producers - are some of the driving forces behind an ongoing trend of de-population in the rural areas. Despite this grim panorama, 70% of the food produced to feed the country still comes from the small farmers.

After 5 decades of persistent armed conflict, Colombia has finally entered a post war period with the 2016 peace agreement between the Government and the FARC – the country’s largest guerrilla group that arose out of the deepening agrarian conflicts and failed land redistribution programs in the country in the 20th century. Many Colombians agree that the country has a historical debt towards the rural communities; resources, time and effort need to be invested in the disadvantaged rural populations to build a long-lasting peace. People want to believe that the post-war period that Colombia is witnessing will bring real opportunities for peasants and farmers, and guarantee them a stable and dignified livelihood. Not only do peasants and farmers need good agricultural policies, but they also need technical support, access to fair markets and training on conservation and sustainable practices that would allow them to improve their quality of life and be the guardians of the natural resources this country is so abundantly endowed with.

While the bioregion around the Annapurna Farm has not been at the centre of the armed conflict that ravaged the country for decades, yet it has not been a focus of any significant regional or national economic development programs. Great deal of work has to be done in order to recover the social fabric, the trust and confidence of farmers and peasant communities, and to improve their quality of life. Annapurna Farm – Sustainability Knowledge Centre is developing capacity building programs absolutely focused on the social and economic uplifting of the peasants’ and farmers’ communities in the municipality of Pachavita. Toward this end, Annapurna Farm has identified three primary lines of action: 1) food sovereignty  2) recovery, use and protection of our agro-biodiversity and  3) revitalising and strengthening of the local economy.

Annapurna Farm – Sustainability Knowledge Centre wants to convince the peasants and farmers of the bioregion that not all is lost, that our dying countryside can be recovered with simple and sustainable strategies of land management, that it is possible to give a boost to the local economy by working in associations and accessing new technologies connecting producers to end consumers and markets, and that it is important to improve local food sovereignty by growing, using and consuming local native seeds. Annapurna Farm’s goal is to become the leading organisation and the nerve centre of sustainable living and economic activity in its bioregion and beyond.

The bioregion, which is home to Annapurna Farm, has many things to offer to the country:

- **Peace** – a peaceful region where the levels of criminality are nil
- **Water** – Local *paramos* (high mountain ecosystems) have been all declared as conservation areas (over 71,000Ha), ensuring water for more than 500 thousand people distributed in 3 departments (states)
- **Agro-diversity** – the bioregion has a rich local agro-diversity of native seeds (tubers, beans, grains, roots, cereals, herbs and fruits) that have almost disappeared in many parts of the country
- **Local traditions** – Many of the local cultural traditions and knowledge are still alive
Political Administration in Colombia

The administration of the Colombian territory is highly centralised. The country is divided into Departments (the equivalent of States in some countries), which depend for many aspects on the national government, especially in the allocation of economic resources. The division by departments was made on the cultural and geographical basis. In all, there are 33 departments, and the department where Annapurna Farm is located is called Boyaca, and its capital is the city of Tunja. Each department is divided into a number of municipalities, depending on the population density. For instance, departments located in the Amazonian basin have few municipalities as they are scarcely inhabited. Boyaca is highly populated, with 123 municipalities (1.27 million people). Our municipality is called Pachavita, which has 2,968 inhabitants (451 people in the urban area and 2,517 in the rural area), that makes 37 inhabitants per sq. km. The rural area of each municipality is divided into different rural units, called veredas, which have their own local government (called the Community Action Council) that administers the maintenance of local paths and trails, the rural water supply and some agricultural programs. The economic and administrative centre of the bioregion is the town of Garagoa (16,944 inhabitants).

Brief description of the Annapurna Farm bioregion.

The bioregion is a large territory of 3,109 km², located in the South East part of Boyaca, on the eastern ranges of the Colombian Andes. And it contains 25 municipalities (192,238 inhabitants). The elevation in the bioregion ranges from 400m to 3,500m above sea level, crossing different ecosystems and climates – from tropical to temperate, cold and paramo. In Colombia, bioregional division is done following the hydrographical basins. The national government understood that rivers are the key elements that have determined social, economic and historical development of the regions. The bioregion, oftentimes called Valle de Tenza, (Valley of Tenza), is conformed by the hydrographical basins of 4 big rivers, with the banks of the Garagoa river being the centre of the bioregion. These rivers, after covering a journey of thousands of kilometres, merge into the much larger Orinoco river (in Venezuela) and subsequently in the Atlantic Ocean. Usually communities living around the river basins share the same culture and economic activities (see figure 4).

Distances:
Pachavita – Garagoa: 16 km
Pachavita – Bogota: 130 km
Pachavita – Tunja: 78 km
Annapurna Farm – Pachavita: 3 km
ECOLOGICAL DIMENSION

Climate Change Resilience
Water Supply Design
Food System
Carbon Neutral Energy
Green Building Guidelines
1. Climate Change Resilience

Effects of global climate change

Colombia is one of the countries that year after year has been witnessing the consequences of the climate variability phenomena called El Niño and La Niña. While the scientists are yet to arrive at a consensus on whether these natural phenomena are a direct consequence of global climate change, no one disputes the fact that in the country, the devastating effects of such phenomena are increasing in intensity and frequency.

In the month of December, January and February, El Niño (ENSO) – which results from the warming of superficial waters of the central equatorial Pacific, results in increase of the temperature in the Andean and Caribbean regions, reducing rainfall and humidity. Following are some of its visible effects in the bioregion as well as in the country:

- Reduction of dam levels and river flows limiting power generation – given that hydroelectric stations supply for over 60% of Colombia’s power needs; electricity and water-rationing plans can be frequent in some parts of the country during el Niño
- Increase in forest fires
- 5% decrease of the agricultural production results in an increase of food prices

On the other hand, La Niña (the cool phase of ENSO) is a phenomenon of climate variability characterized by a drop of temperature causing higher rainfalls in the Caribbean, Pacific and Andean regions which in turn results in catastrophic floods and landslides. Mitigation plan usually include: annual clearing of rivers, streams and swamps to avoid floods, reforestation of hillsides, sources and river basins to avoid landslides, and frequent monitoring of the level of rivers.

Climate change at the bioregion

While the bioregion has not been at the centre of national or regional economic development, yet levels of pollution are already visible, due to the use of unsustainable agricultural practices, deforestation and devastation of local ecosystems. The following are some of the current threats of climate change in the territory, some of which date back to several decades:

- The construction of a 12.6 sq. km dam in the 1970’s brought the a change in the microclimate of the region affecting agricultural production. The dam increased the relative humidity, bringing new crop pests and diseases. Crops that were suitable for the microclimates are now impossible to grow (e.g. citric, avocado, etc.), or grow with difficulty (apple, peach, etc.).

- Deforestation has also altered the climate. Weather patterns are now unpredictable, there has been a significant rise in temperature affecting the livelihoods of farmers, and bringing tropical diseases unseen before in the region with otherwise temperate climate (dengue, chikungunya, chagas disease and Zika virus). Similarly, rain patterns have become completely erratic, provoking longer dry seasons and floods and landslides during the rainy seasons.

- Unsustainable agricultural practices by locals, such as monoculture, land burning (practice banned by the environmental authorities) to alkalinise the soils before planting next crop, tree cutting or land overgrazing have polluted the air and water bodies, impoverished the soils and significantly reduced the biodiversity in the region.

- Water depletion. Water is an abundant resource in the bioregion, but according to the local elders, many water springs, ponds and rivulets have disappeared altogether or become completely dry during the dry season. In the future there might be water scarcity, affecting quality of the same if measures are not taken now.

These are some local ecosystems and environmental zones threatened by the increase of temperatures, draught, fire, floods and landslides (see figure 5):

**Water bodies:**
- Dam (1.196 Ha)
- Lagoons (65 Ha)
- 31 Rivers (682 km)
- 417 Streams (162 km)
- 47 Marshes (1537 km)
- 9 Swamps (280 km)
- 1.204 other small water bodies (1.562 km)

1 Atlas para el desarrollo social y ambiental. Corpochivor, 2016
MAP OF PROTECTED NATURAL AREAS AND RIVER BASINS OF OUR BIOREGION

1 cm = 2800m

Parameter of Rabanal
2900m - 3500 m
522 species of flora - 22 wetlands
Supplies water to 39 aqueducts

Parameter of Mamapacha & Bijagual
1750m - 3500 m
244 species of flora
265 species of fauna
Supplies water to 30 aqueducts

Parameter of Cristales & Castillejo
2200m - 3400 m
Supplies water to 16 aqueducts

Parameter of San Cayetano
1800m - 3000 m
86 species of flora - 172 species of birds
30 species of mammals
Supplies water to 21 aqueducts

Cuchilla Negra & Guacheneque
Tropical Rain Forests
950m - 2700 m
167 species of bird - 25 species of mammals

Figure 6. Map of strategic ecosystems and water bodies threaten by climate change
**Environmental Zones**: Conservation area 71,000 Ha
Restoration area 37,634 Ha
Recuperation area 21,189 Ha
Sustainable use area 133,231 Ha

Corpochivor, the regional environmental authority, has been working actively for the last 20 years to mitigate the effects of climate change in the region. Here are some of their main environmental programs:

• Despite private interests, this regional government agency managed to demarcate all the 6 paramos of the bioregion (high elevation ecosystems where all the country’s rivers originate) and declare them as strategic and protected conservation areas (over 71,000 Ha, 23% of the territory), banning all mining and productive activities in these ecosystems. This exemplary declaration guarantees continuous supply of water for 3 states of the country even in the dry season.

• The reforestation programs within the farms seek to plant around 1,770,000 trees every year to mitigate the annual rate of deforestation in the bioregion which is 1,250 Ha per annum. In 15 years, the agency has afforested about 17,920 Ha of timber, productive and restorative trees within agroforestry systems.

• Educational programs creating awareness on waste management, no–till farming, protection of endangered species and water conservation.

• The agency has formulated environmental management plan for over 250,000 Ha of our bioregion.

The regional environmental authorities along with the Ministry of Environment should design conservation policies that allow monetary or material incentives for reforestation and conservation, so that more peasants and farmers see reforestation as an economic alternative; farmers also need to understand that conservation and production should go hand-in-hand if they want to mitigate the effects of climate change locally.

In order to achieve zero carbon emissions within its premises, reforestation with native species (timber, productive, restorative, ornamental) has been the main activity at the Annapurna Farm–Sustainability Knowledge Centre. We have planted and taken care of 1000+ native trees and propagated 300+ pioneer species in less than three years. We have also studied different relict forests in the locality and collected seeds of species that are not in the farm. However, mortality of the reforested species is high due to increasing temperatures, lack of water in the dry season and excess of water in the rainy season, making tree planting quite challenging. In three years of reforestation the team has seen noticeable changes such as increase of bird population and improvement of water drainage in some parts of the farm, but the team understands that the pace of transformation is slow. These are some of the pioneer species propagated and major reforestation species planted:

2 The descriptions of plant species were taken form:
CORPOCHIVOR. Especies forestales representativas del sur oriente de Boyaca. Bogota - Colombia. 2014
http://www.opepa.org/index.php?option=com_content&task=sectio
n&id=10&Itemid=30
SOME OF THE PIONEER SPECIES PROPAGATED IN ANnapurna FARM

Erythina edulis
This “super food” is a 25m tall leguminous tree that fixes nitrogen in the soil, protects the water bodies and can be a pillar of soil restoration efforts. Its beans (5cm long each) have high content of protein, its pods are edible and leaves make excellent fodder. This species has a lot of economic potential

Guadua angustifolia
Called “vegetable steel”, it is a thick and high grass or bamboo (20cm x 25m high) from the hot and warm tropical regions, easy to propagate through its rhizomes. This giant grass is flexible and strong, and therefore an excellent construction material. It could also be a great source of income. It is good for soil and water conservation

Piper Aduncun
It is a shrub present in secondary forests, in shady places. It belongs to the Piperaceae family as many spices and grows up to 7m and has peppery odour. It is found around wet places and water bodies, so it is an excellent species to protect soils and for water conservation. The infusion of leaves is used to stop bleedings

Citharexylum subfawescens
It is a tree typical from the Andean tropical forests from the Vervenaceae family. Its big striking red flowers attract many birds and insects. It is a great tree for water conservation that propagates easily
Some of the major species planted in Annapurna Farm

Cedrela Odorata and Cedrela montana
In the past, South American cedars (which do not belong to the conifer family) were common in the Andean forests, but given its highly appreciated fine wood it became almost extinct. It can grow up to 30m high. In agroforestry, it is usually combined with coffee shrubs to provide shade.

Juglans neotropica
Or Andean Walnut is found in Colombia, Ecuador and Peru. It is a slow growing tree reaching at least 40m in height; it requires clayey and somewhat acidic soils. Its wood is highly appreciated. It is also combined in agroforestry with coffee shrubs and fruit trees. Its fruits are edible and its bark is used to control skin infections.

Quercus Humboldtii (Oak)
A big canopy tree that can grow up to 26m in height. It grows well in clayey soils. Its tree litter enrich the soils and the canopy is home to different birds. Its hard wood has a high commercial value and its bark contains tannins used to treat leather. Its flowers attract a variety of birds.

Alnus Acuminata
Usually found in wet places (lakes, river banks, swamps), it is usually used for reforestation purposes given its fast grow and because on its roots there are bacteria fixing nitrogen, restoring the soils. It hosts many insects and their predators (birds, bats, bigger insects). It can reach 30m in height in 20 years. Its wood is good for carving work.
Decussocarpus Rospigliosii (Colombian pine)
A big canopy tree that can grow to 40m in height. It grows well in clayey soils and requires high relative humidity (800mm-5500mm). In agroforestry it is used to protect soils and its wood has a high commercial value.

Tabebuia rosea
This tree spreads from Mexico to Equador. It reaches 35m in height, and its timber is used to fabricate furniture, flooring, tools, etc. It is usually planted as an ornamental tree, given its violet and pink flowers.

It is however important to note that the introduction of conservation and sustainable agricultural practices may not be sufficient to curb the tendencies described above, the reason being that not all causes of climate change have a local origin. Some of the effects are due to existing global trends, which are outside the control of the project. Current estimated effects of climate change in Colombia by 2050 reflect an average increase of temperature of 2.5 degrees Celsius as well as an increase in precipitations of 2.5%. This will have a significant impact in different regions of the country, and will probably mean that there will be further soil degradation and loss of organic materials in the Andean area, as well as recurrent floods, changes in plagues and illnesses and water stress all over the country.

This means that climate adaptation measures should be given particular attention. Some of these, such as the envisaged water management systems described later on or the non-destructive farming techniques, are already planned in our project. There could be the need however to introduce additional measures such as the consideration of introducing resistant species and crops (to drought; floods, high temperatures, etc). This is particularly relevant when looking at the recovery of traditional food systems, which is one of the main objectives of Annapurna Farm's project.

* Next stage of Annapurna Farm reforestation programs involve:
  - Conduct a systematic study of relict forest (function, species, size and location)
  - Conduct a systematic study of changes brought by reforestation (increase of bird and insect population, improvement of soil drainage, etc)
  - Conduct a systematic study of the effects of climate change within the bioregion
  - Maintain the annual rate of farm reforestation by 400 native species
  - Find new native species to reforest the farm
  - Create of an *arboretum* within the farm
  - Develop training programs on conservation, reforestation and productive food systems
  - Create awareness on the local population about climate change
2. **Water Supply Design**

Annapurna Farm – Sustainability Knowledge Centre is located on the Eastern Andean Cordillera in Colombia, at 1,850m above sea level. The region enjoys a temperate climate, in which the average temperature is 20ºC and average rainfall is 1,500 mm per annum. Being on the Equator, the country does not have seasons. Instead there is a dry season (December, January and February), when the temperature increases up to 28ºC. And a wet season (May, June, July, August), when the average temperature is 18ºC. In March, April, September, October and November there are moderate rains. However, these patterns are changing drastically due to deforestation and global climate change. Now the region experiences longer and hotter dry seasons and floods in the wet season.

Regarding Hydrology, all the rivers in the country originate from a unique ecosystem called the **paramo**, an Andean ecosystem belonging to the Amazonian domain (Venezuela, Colombia and Ecuador) located between an altitude range of 3,000m and 4,300m above sea level. There, the average rainfall is 3,500mm per annum (see picture 9). **Paramos** act as sponges that absorb water and release it slowly throughout the year. The dominant plant species in paramos is called **Frailejon** (Espeletia), a perennial shrub from the sunflower family whose thick trunk and hairy leaves capture water vapour from the passing clouds and release it through the roots into the soil. In Colombia, **frailejones** are an endangered species due to the destruction of paramos. In the bioregion there are 6 paramos recently declared as conservation areas (over 71,000 Ha, 23% of our territory). The nearest paramo to the Annapurna Farm is called **Cristales** (Crystals), a protected area of approximately 11,500 Ha.

Annapurna Farm does not get municipal water supply. Instead, the mountain on which the farm is located acts as a “living” sponge that, despite deforestation, absorbs water from the **paramos**, releasing it in the lower elevation lands even in the dry seasons (see figure 9). In many parts, ground water rises at the surface level, so it is common to see in the farms of the bioregion water springs, streams and channels where water flows naturally. Water springs are of utmost importance for the biodiversity of the region given that they are usually encircled by a patch of relict forest attracting birds, mammals and insects (figure 8). The problem however comes in the rainy periods, the overflow of water floods water springs and the surrounding areas, deteriorating the quality of soils. Channels and streams become rivers that flow at great speed, enhancing the risk of landslides and soil erosion. For this reason, to implement a zero-runoff water harvesting strategy in the bioregion is impossible and not advisable. It seems that the lack of forest makes more and more difficult for the soil to absorb and manage so much water. Soils are becoming increasingly clayey losing organic matter, and the grass that was planted instead (to feed cattle) is not of great help either. In order to avoid further soil damage, one of the important tasks before rainy season is to clean or dig channels and ditches to channelize the flow of rain water down the slope.

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Keeping in mind the above ecological context, the team has implemented at Annapurna Farm the following water systems:

1. Running water connection: Annapurna Farm catches water for domestic use from one of the channels that crosses the farm. This water comes from the hill right behind the farm. Water is collected in a ferro-cement tank of 1,500 L. After that, water passes through 2 filters containing stone, gravel, coal and sand, and finally it is stored into two 2,000L tanks (see figure 10) at a level higher than the house. During the dry season, the water flowing through the channel is the equivalent to a 1 inch tube, in the rainy season it swells up to 12 inches.

2. Rain water harvesting for drinking and cooking: rain water collected from the roof is caught and stored into two 1000 L tanks. The first tank has an outlet connected to the kitchen, the second tank stores water to irrigate trees planted downstream. Rainfall volume can be calculated using the following equation:

\[
\text{Roof catchment area} \times \text{Average annual rainfall} = \text{Total rain water falling in a catchment area in average year (in litres)}
\]

\[
52 \text{ m}^2 \times 1,500 \text{ mm} = 78,000 \text{ L}
\]

It is important to note that besides storing and using a few thousand litres of rainwater, the system has to let most of this water flow into the channel, given the high volume of flowing water. In a major rain event, a 1,000 L tank can be filled in 4 hours. Similarly, the rainfall volume in the farm is:

\[
30,000 \text{ m}^2 (3 \text{ Ha}) \times 1,500 \text{ mm} = 45 \text{ million L per year}
\]

The equation above does not take into account the water flowing in the channels crossing the farm.
3. Rain water harvesting for irrigation during the dry season: In August, end of the rainy season, water flowing along the channels is caught and stored in six tanks of 1,000 L each distributed throughout the farm. This water is used to irrigate trees and crops in the dry season, mainly in January and February (see figure 11).

4. Rain water harvesting for other uses: Rainwater is collected from different roofed structures and stored to provide humidity to the composting units, wash tools and make ecological fertilisers.

5. Grey water system: Since there are no conventional toilets within the farm (there are 3 composting toilets) generating black water, treatment of grey water is simple. The grey water outlets go into simple stone and gravel filters. Treated water is used to irrigate young trees.

Next stage of Annapurna Farm’s water management actions are oriented towards improving some of the problems the farm currently faces, such as soil degradation due to water overflow:

- Plant native trees: the existing water springs could help improve water drainage and therefore the quality of the soils around these areas
- Dig a pond or build a micro dam by putting a gabion wall to reduce the speed of water flowing in the channels during the raining season and therefore avoid soil erosion
- Install silt traps in the water channel to avoid sediment flowing to the rivers.
- Design training programs on rainwater harvesting, water filtration and grey water treatment systems
- Create awareness on the importance of dry toilets as an alternative to underground water pollution
- Create awareness on the local population about climate change
Figure 11. Map of the Annapurna Farm and its water supply systems
One of the fundamental components of the Annapurna Farm – Sustainability Knowledge Centre is the recovery of the local agricultural biodiversity, lost over the past five decades due to the green revolution, the lack of more comprehensive agricultural and rural oriented policies, and the loss of commercial and cultural value of these foods. The team considers that promoting the use of rare and endangered local seeds and products within the farm and implementing programs to create awareness around the local communities, could have a positive impact in the local food sovereignty and improvement of peoples’ diet.

For years, local peasants have been stuck in an economic model dominated by cattle ranching with 1 cow / 1 hectare (see figure 12), deteriorating the environment and underusing productive lands. Cattle ranching is one of the predominant economic activities in rural Colombia, given that it requires less investment and effort and probably provides a higher monetary return: people just cut down the forest or convert agricultural lands into paddocks. Peasants and farmers feel demotivated to go back to agricultural production because most of the times market prices are not enough to even meet the production costs. But through the Annapurna Farm’s capacity building programs, team wants to demonstrate that the recovery of the local agricultural biodiversity can also present a productive alternative to ranching.
This recovery work has to be done with the guidance of local elders. The team knows that in the bioregion there are many elders and families that have been growing and keeping different varieties of grains, tubers and roots, which currently might not have a commercial value but certainly have a nutritional and cultural one and are important for preserving local biodiversity.

It is also encouraging to see that despite the grim panorama described above, peasants still hold on to the culture of maize, the staple food inherited from the extinct indigenous nations. Figure 13 shows a typical planted field of maize, grown along with beans (faba and kidney), pumpkin, gourds, cassava, arracacha (Arracacia xanthorrhiza, a type of tuber) and green peas. Another intercropping model suitable for our bioregion is depicted in figure 14, in which coffee, traditionally a shade-grown plant, is farmed making the most of the shadow cast by the relict forest and recent timber reforestation. Other species associated to this intercropping can be:

- Banana and plantains trees
- Fruit trees: Sugar apple (annona squamosa), guava or champa (campomanesia lineatifolia).
- Leguminous trees: Balu (Erythrina edulis) a 15m tall tree that fixes nitrogen in the soil and propagates in poor soils; it’s 5cm long beens have high content of protein, its pods are edibles and leaves make excellent fodder. Or guama (Inga edulis), another tree presenting the same benefits of Erythrina edulis, its seeds are surrounded by a sweet and smooth flesh.
- Fruit shrubs: tree tomato (solanum betaceum) a 4m shrub that yields 10cm long fruits with high content of iron and vitamins or naranjilla (solanum quitoense).
- Vines: Passion flowers (passion fruit, sweet granadilla, wild maracuja, etc), Chayote (sechium edule).
- Endangered roots: “elephant’s ear”, jicama, taro and yacon.
- Berries: blackberry and agraz (vaccinium meridionale)
Sector and zoning analysis

Regarding permaculture principles applied in the Annapurna Farm, the team has made the following analysis:

Sector analysis: Strong winds and excessive rains are the main dangers in the farm. They come from the South, directly from the dam. As mentioned earlier, before the construction of the 12.6 sq. m dam, the temperature and relative humidity was regulated by the river crossing the valley. The dam made the region extremely humid and brought new crop diseases. Fruits that usually grow in relatively dry weather such as avocado and citric fruits in low elevations, and apple, prune and peach in high elevations now grow in our bioregion with great difficulty. For this reason, it is important to grow southeast facing screen forest and hedgerows in the farm that will act as wind breakers. The crops grown behind these natural barriers will mitigate frost and low temperatures in the rainy season (from June to August), and will provide some shade and lower temperatures in the dry season (December to March).

Another point to consider regarding water is the runoff management. As we saw in the water supply design, the rainfall volume in the farm is approximately 45 million litres per year. Additionally, in the large rainfall events, water from the aquifers can surface; this is increased by the clayey soils predominant in the farm. For this reason, it is important to not only clear and clean the existent channels and trenches each year but to dig new ones that allow for better drainage of the soils, especially in the zones where water tends to get stagnant. Another alternative is to create a small pond or dam to collect the excess of water, but more observation regarding the consequences of the reflected light, microclimate and increase of humidity has to be done.

Being located on the Equator line results in the daylight of almost the same length throughout the year, with the exception of June and July (our rainy season) when the day extends by 10 to 15 minutes more. Usually the sunrise is at 5:40 am and the sunset is at 6:15 pm (see figure 14). The length of the day is usually 12 hours, 30 minutes.

Regarding zoning, the team has divided the 3 Ha Annapurna Farm into concentric zones as well. In Zone 1, there is a dwelling – office, a herb garden and a small vegetable garden. In zone 2 there are vertical structures for vines, a larger vegetable garden, compost units, some newly planted fruit and timber trees. Zone 3 contains maize and quinoa field, and fruit, timber and native trees recently planted. In Zone 4, apart from having the running water system, it is mainly a reforested area. Zone 5 is an undeveloped area (grass and thicket) where in the future we might have beekeeping and a native timber forest.

*Next stage of Annapurna Farm’s food system programs involve:*

- Develop Zone 5 within the farm
- Strengthen maize and quinoa fields by growing more hedgerow for wind and frost protection
- Create of several terraced vegetable gardens to avoid water stagnation close to the crops
- Experiment productive food system within the relict forest
- Survey and map all the local native seeds, seed guardians and agro-diversity
- Research other intercropping models, plant associations and allelopathy within the local knowledge and experience
- Develop training programs on soil building, carbon farming, permaculture and inclusion of relict forest within the food production system
- Develop training programs on agro-biodiversity (use and protection) and food sovereignty
Figure 14. Sector and Zoning map of the Annapurna Farm
4. CARBON NEUTRAL ENERGY

With the exception of hydroelectric energy, Colombia is far behind as far as alternative energy generation technologies are concerned. Given the high availability of water and a large proportion of mountainous terrain, hydroelectric power supplies for over 60% of the country's energy needs. This is good on the one hand, but on the other hand this progress in hydroelectric power comes at high ecological and social cost, and has led to a myopic vision on part of the Government around exploring renewable energy options. Hydroelectric power generation often leads to land acquisition and displacement of farmers, destruction of river eco-systems, and changes in the micro-climatic patterns which in turn negatively impact the livelihoods of people living around the dams. This development of hydroelectric power in Colombia has also led to a stunted growth of other renewable energy technologies such as solar PV or wind power. Even worse, many of the national resources such as dams etc. have been increasingly privatised, along with provision of supply of electricity.

For instance, electricity in the bioregion is supplied by a Canadian private company, which takes power from the dam (which was privatised in 2000 and is now owned by a US corporation) and a thermal power plant (also privately owned). In order to get an electricity connection for the farm, the team has to pay for the cost of connecting the house to a nearest grid point, which in this case happens to be at 350m. Covering the cost of electric poles, wiring and labor etc. adds up to around USD 3,500 - a significant investment for the Annapurna Farm – and a cost that would normally be borne by the electricity company if it were publicly owned.

This encouraged the team to consider powering the house–office with an off-grid solar PV system. The team calculated that the basic electricity needs could be met by a 1.5kW solar PV off-grid system, which along with batteries and other components, would cost around USD 5,000. The team arrived at the size of the system based on the Annapurna Farm requirements and the average number of hours of sunlight that the region receives per day (solar irradiation). In calculating the size of the system, the team also took into account other factors that might have an impact on the efficiency of the system such as humidity, cloud cover and rain. There is no subsidy or support from the Government towards offsetting this capital cost or policies such as feed-and-tariff or net-metering as are prevalent in Europe. And given that local research in solar PV technology is extremely limited, all the key components are imported from either China, Germany, US or Canada, ultimately adding to the cost. At the prevailing cost of electricity supplied by the local company, it turns out that our Solar PV system would have a payback period of about 25 to 30 years. In the end, high upfront cost, lack of Government support, and long pay-back period for a solar PV system is encouraging the team to consider connecting to the local grid.

It is evident that the Government has a very strong role to play in encouraging the adoption of alternative renewable energy technologies, at least in the initial stages of development in a country. Thanks to the temperate climate, Annapurna Farm does not need cooling or heating. So for now, the farm’s needs of basic lighting and charging a cell phone and computers are met by 2 W solar lantern, a 40 W solar panel and a battery.

Wind and micro hydro energy have not being taken into consideration because water and wind flow is inconsistent and/or limited throughout the year.

For cooking, the energy source used is piped LP gas; the supplying company is again privately owned and the gas plant is located 500 km away. Notwithstanding the fact that Colombia has gas reserves only until 2025, there are around 300,000 new customers per year. It is important to note that recently there have been new findings of gas fields in the country but the investments in the sector are quite low due to the drop in oil prices around the world. On the other hand, since 2016, the regional environmental authority, has been implementing a program of fuel-efficient wood-burning stoves. They have estimated that a peasant family in the region uses on average 5.8 tonnes of firewood per year. This program seeks to reduce the amount of firewood by 2.4 tonnes. This is to say, a reduction of 43% of firewood (100,000 trees per year); so far they have installed 700 stoves in the rural areas. According to the government entity, this would be one of the regional contributions to keep global warming below 2 degrees Celsius. Despite the implementation of this program, using firewood in the farm is not possible, given the lack of biomass.
Next stage of Annapurna Farm’s actions regarding renewable energy involve:

- Research about the successful experiences related to bio-digesters and fuel-efficient wood-burning stoves within the region
- Investigate how efficient will be a solar kitchen given the amount of sun radiation within our elevation
- Raise funds to acquire a PV system
- Create awareness on renewable and non-renewable sources of energy amongst the locals
5. GREEN BUILDING GUIDELINES

There are many natural building techniques developed by indigenous and peasants communities that could classify as what is today called bio-construction. But in contemporary society in Colombia, mud, timber and bamboo construction is regarded as an option for those who live below poverty line, and who are unable to afford a brick and cement house – a sign of moving up the social ladder. A great deal of work has to be done in terms of recovering so much lost knowledge and expertise of using, treating and combining different natural construction materials, as well as of creating awareness that bio-construction could not only be an affordable alternative for rural settlements but could also be the key for the government affordable housing programs and to bring these techniques to the mainstream.

At the Annapurna Farm – Sustainability Knowledge Centre, the team built a house and office using the local technique called bahareque – an ancient construction technique, which utilises mud and thick bamboo called guadua (guadua angustifolia), known as "vegetable steel". Colombia is located on the Ring of Fire, a zone with one of the highest seismic activity in the world. For this reason, civil engineers here have made their contributions to improve the technique and make bahareque seismic resistant, by combining guadua with iron rods and cement. Cemented bahareque is a structural system of walls whose skeleton is built in guadua filled with cement and plastered with boards of split guadua, chicken mesh and cement or mud plaster. Some benefits of bahareque are: its structures are light and flexible, in cool weather bahareque walls allow the accumulation of heat indoors; in warm weather bahareque keeps the interior fresh. It is affordable and carbon neutral.

Here, Annapurna Farm presents some guidelines to build walls in cemented bahareque and structures (columns and beams) in timber, which is another abundant resource in the bioregion. The best guadua for construction is between 4 and 6 years old, and should contain between 10 to 20% humidity. Guadua has to be immunised against xylophages preferably with a borax based preparation. Guadua structures should not be exposed to sunlight and rain, for the UV rays can dry and fissure the material. Humidity can cause rotting.

1 To learn more about cemented bahareque, download the manual (in spanish): http://www.desenredando.org/public/libros/2002/csrvbe/guadua_lared.pdf
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1. **Foundations**: It is a symmetric grid of beams that bear the loads in a balanced manner. The intersections of beams have to be monolithic and continuous. Beams are reinforced in its entire length with iron rods. Every 60 cm there should be 1m long rod to anchor each guadua.

2. **Over foundations**: Bahareque (guadua and mud) should never be in contact with the ground, for this reason it is important to build an over foundation. For this purpose it is possible to use cement or cemented blocs. On the top of this layer it is advisable to put a layer of rubber (old tyres) to completely insulate the foundations from the guadua and timber structures above.

3. **Walls**: They are made up of a framework in which horizontal support elements (superior and inferior) are in timber (pine) and vertical elements are in guadua. The first two lower segments of each guadua are filled with mortar mixture to give them some weight and wall structures are filled with mud. There are three types of walls:
   • Structural wall with cross-braced element: they have the horizontal timber support, the vertical guaduas and an inclined cross-braced guadua. Apart from bearing the load of the building, they resist horizontal forces of wind and seismic movement. They should be located in the corners and at the end of each wall. The inclined element has to be placed in both directions.
   • Structural wall: It contains the same vertical and horizontal elements plus one simple diagonal in guadua. They are used to bear the loads and to locate windows and doors.
   • Non-structural wall: they support only their own load. Their function is only to separate the spaces within a construction.

4. **Columns, beams and joists**: Once finished with the walls, we can proceed to assemble pine or guadua columns using iron plates to isolate them from the ground. Beams and joists can be connected with metal plates bolts and notches.

5. **First floor**: After laying the structures and walls of the ground floor, it is important to hold the guadua and timber structures with a timber flooring. Afterwards the walls, columns and beams can be built following the method mentioned above.

Such bio-construction, although highly desirable, presents its own set of challenges in the tropics. Timber has to be treated every year to avoid invasion of termites. This presents a challenge because most of the chemicals available in the market that can be used to treat the wood are highly toxic. Less or non-toxic chemicals that can serve the purpose are typically very expensive and imported from Europe. Another challenge with this type of construction is the humidity. Timber, mud wall and guadua should not be exposed to the weather elements and should remain protected at all times.

※ Next stage of Annapurna Farm’s green building programs involves:
   • Construct a double accommodation and a meeting hall using bahareque, timber roof and improved earthen floor
   • Design training programs on management, natural treatment and use of guadua for construction, which is a common species but the locals forgot its management
   • Design training programs on construction on guadua and timber
   • Research other local endangered/rare construction techniques
   • Investigate natural methods to treat timber against xylophages
Technique of Seismic - Resistant Bahareque

Upper left: Cemented foundations. At every 60 cm, an iron rod stands out. Upper right: Above the main foundation lies the over foundation (cement blocks), a thin layer of rubber tube and a base of the wall framework in pine. Guadua canes will be inserted in the iron rods and blocked inside the cane inserting a metal plate. Middle left: A structural wall with cross-braced element. Middle right: Cemented bahareque allows for symmetric curved and straight walls. Walls are covered with split guadua. Left: Walls are filled with mud to give them more strength. The first two sections of each guadua are drilled and filled with cement mixture as it is visible in the diagonal guadua in the picture.
Upper left: After finishing the walls, double columns are assembled and installed over iron plates. Beams and joists are assembled with metal unions, bolts and notches. Upper right: Top view of beams and joists. Middle left: Wood flooring is a structural part as well, it holds the guadua and timber structures. Above the wood flooring, the base of the wall framework of the first floor is visible. The steel bars anchor the guaduas of the new floor and the metal plates fasten them. Middle right: Laying the guadua walls. Below left: General view of walls and roof structures. Below right: Split guadua walls are wrapped with chicken mesh. Indoor plaster is made with a mixture of mud, vegetal fibre and cow dung. Outer plaster is made in cement to protect the structures against the high level of humidity in the bioregion.

Timber Work
Upper left: primary tropical forest. Upper right: typical look of a farm combining grass fields and relict forests. Middle left: Anthuriums, a very common flowering plant in the tropical forests. Middle right: tubers are an important part of the local diet. Above: in the forefront we see a pioneer species propagated in the farm. At the back, a patch of relict forest.
ECONOMIC DIMENSION

Global - Local economic impact
Economic Resilience
Stakeholder’s Values
Social Enterprise
Business Planning
Global – Local economic impact

State of the local economy and land vocation

The bioregion, fortunately or unfortunately has not been the centre of the regional and national "development" of our country. Although being located close to the national capital, governments have paid little attention to this territory. This translates into little maintenance of the existing infrastructure and scarce job opportunities for the young population, given the fact that no big company or exploitation (mining, timber, agribusiness...) has settled here. Conversely, this slow economic growth in the region has brought relative peace and less pollution and environmental damage compared to other regions in the country.

The greatest impact of the global economy in the bioregion could be the import of cheap, subsidised food from the USA, Brasil, Canada and EU. Since 1991, when Colombia opened its economy to the global markets, the country has signed multiple free trade agreements (following the measures imposed by WTO). This has significantly diminished the Colombian agricultural sector, impacting the livelihoods of countless farmers and deteriorating the diet of the Colombian population. As a tropical country in the pre–globalisation era, Colombia was fully self-sufficient in terms of food production, but now it imports 28% of the food consumed in the country. Unfortunately, all barley, wheat and oats consumed by Colombians are imported. The same is the situation with pulses such as chickpeas and lentils, which according to the locals were also used to be grown in the bioregion.

Another impact of the global economy in this territory worth mentioning is the generation and supply of power by privatised companies. In the 1970s, a 12.6km² dam was built in the region, at that time this project led to land acquisition, displacement of farmers, destruction of river eco-systems, and change in the micro-climatic patterns which in turn negatively impacted the livelihoods of people living around the dam. For e.g., before the dam the region was famous for its citric fruits and avocados in the lower elevations and for its peaches and apples in the temperate regions, now these crops grow with great difficulty. In 2000, the dam was acquired by AES, a US corporation focused on power generation and distribution. Similarly, the company in charge of distribution and supply of electricity was privatised 8 years ago and now is owned by a Canadian corporation.

The use of imported pesticides affecting the health of communities could be another externality of the globalised economy, but since the agricultural policies in the country are so unfavourable to peasants and small farmers, in the bioregion the current agricultural production has been reduced to its minimum. Consequently, the use of the pesticides exists but in much lesser quantity compared to other regions.

In the bioregion, apart from the consumption of the subsidised foods, chemical fertilisers and some material constructions, very little is sourced from overseas. Yet, the state of the local economy is such that not even subsistence economy is taking place here. Despite that the territory was prosperous decades ago, the economic policies in Colombia have had such a bad impact on the small farmers and peasants that they practically dismantled the agricultural production. The aim of Annapurna Farm is to build a Knowledge Centre where we can showcase sustainability best practices on agriculture, water conservation etc., and where local communities can get trained on solidarity economy and find resources to transition from subsistence economy to a dynamic local economy. Similarly, the aim is to put the region on a path from the conventional economy to a restorative or regenerative one.

SWOT analysis of the Annapurna Farm – Sustainability Knowledge Centre and the bioregion

Strengths:

- There is still natural resource abundance in the Annapurna Farm and in the region: soils are relatively of good quality, there are still plenty of water sources and 32% of the bioregion has been declared as a conservation area.
- The bioregion enjoys a rich agro-diversity of native seeds (tubers, beans, grains, roots, cereals, herbs and fruits) that have almost disappeared in many parts of the country.
- Annapurna Farm is located close to 2 big cities: 140
km from the national capital (Bogota) and 80 km to the state capital (Tunja).

• Many elements of sustainability already been implemented in the Annapurna Farm – reforestation programs, rain water harvesting and management, composting units and dry toilets, sustainable building construction, etc.
• International experience and exposure of the team at the Annapurna Farm – Sustainability Knowledge Centre.

Weakness:

• Accessibility to the Annapurna Farm and the region is not easy (there are roads but little maintenance).
• Lack of internet and electricity connection at the farm, resulting in isolation.
• At the moment, the project has only few partners in the civil society and government sectors.

Opportunities:

• The bioregion is surprisingly peaceful and safe – highly desirable traits in Colombia.
• The region enjoys a mild, temperate weather, allowing for cultivation of food belonging to both warm and cold weather. The rain patterns allow the aquifers to recharge quickly.
• Annapurna Farm – Sustainability Knowledge Centre will take a leadership role in the region given that there are no similar initiatives showing sustainable best practices and training local communities on the same.
• Annapurna Farm is close to different universities located in different states, which can be the future partners of the project.
• Since the region is not at the centre of national or regional economic development, levels of pollution are low.
• Corpochivor (the regional environmental authority) is interested in supporting sustainable initiatives like the Annapurna Farm.
• Post – war government programs and agencies are providing funds to strengthen the rural areas.
• Increasing interest on sustainable practices in the civil society, government agencies and wider population.

Threats:

• The national economic policies focused on importing subsidised food from abroad and the power concentrated with the middle men who fix prices and distribute agricultural products, have ruined the local agricultural production and its processing
• Peasants, small farmers and villagers live in total disbelief and skepticism. They think that the prevailing economic trends are not possible to change. For this reason they are reluctant to form productive associations.
• Lack of economic diversity in the region.
• Shortage of manpower in the region. Young population migrates to cities looking for job opportunities.
State of the local economy and land vocation

The vocation of land is 100% agrarian, which also includes cattle ranching. 80 years ago, these lands were covered with Tropical Pre-Andean Wet Forest, but rich landlords used to give on rent “their” forests to poor peasants for a period of 7 years. The landlords allowed peasants to settle on their lands and grow food, and in return the peasants had to saw off all the fine wood and clear increasingly larger areas of forest for cattle ranching, pushing the agrarian boundary to the near extinction of the local forests. This trend went on until deforestation reached the local paramo (high mountain ecosystems), putting in jeopardy the rivers and water bodies. This economic model changed in 1960’s, when there was a basic land reform and peasants got the titles of the farms they worked on.

The current average size of a peasant landholding in the territory is 1.5 Ha. Decades ago, the bioregion used to provide food in large quantities: maize, cassava, sugar cane, coffee, chickpeas, lentils, beans, tubers, plantain, jute, vegetables and fruits would be sent to supply the needs of towns and cities like Bogota and Tunja. However, since 1990, when Colombia adopted the neoliberal model, the agrarian related policies favoured imports and decelerated local food production, facilitating the import of cheap, subsidised food, threatening peasant’s livelihoods. Another reason why farmers are not growing food crops is because oftentimes market prices do not even cover their cost of production. There is also a long chain of middle men which do not add any value but are the ones who set the prices. As a result, peasants prefer to rear cattle to be sold for meat which consumes less time, effort and money (in the region, 1 cow needs 1 Ha of land for rearing), leading to a serious degradation of the ecosystems. According to Corpochivor (the regional environmental authority), the current land vocation of the bioregion is structured in the following way: 41% grass for cattle ranching, 16% agriculture, 23% forest, 11% stubble, 8% other.

Life in the villages is usually very simple yet basic needs of the population are mostly met: there is water, gas and electricity supply, housing programs, sanitation, education, and basic health care programs covering 100% of the population. However, life in the rural areas is more difficult as government programs oftentimes focus on the urban parts, so accessibility to basic services like healthcare for the rural population can be a challenge. Although majority of the rural families in the territory own their farms, it is more and more difficult to make a livelihood from the land, and people have very limited means for consumption; so in general, the level of purchasing power is quite low. And given that there are very little job opportunities, usually young population from the rural parts migrates to cities to join the workforce. Currently most of the rural population in the bioregion is elderly (65+), and there are only few young families still living in the countryside. On the positive side, the region is very peaceful and safe, crime rates are almost (if not) nil, something rare in a country like Colombia. Probably, this is because in the bioregion there are no big landlords, and no multinational or big companies operating here. Despite difficulties, people live peacefully with what they have.

Figure 15 includes other aspects of the local economy.

These are some specific actions that the Annapurna Farm can take to contribute to the transition towards a more resilient and sustainable LOCAL economy

Help to get rid of middle men so that farmers can get better prices for their produce. In Colombia, there is now technology available (mobile applications, web sites) which does precisely that – connect farmers to end consumers or markets eliminating several layers of middle men. This will help the farmers realise better prizes for their produce and hopefully restore faith in their vocation and reduce the rate at which they are quitting farming. So we would be looking to connect groups of farmers with such technology intermediaries.

- Mapping of existing local farmers (organic and conventional), as well as cooperatives, associations, added value products, seed guardians, etc.
- Typically, technology intermediaries work with farmers associations and not with individuals. So the second step will be to train the farmers on how to organise themselves in cooperatives and associations, organised around a particular region or a particular product.
- The project is aware that a parallel yet small in size revolution is taking place with respect to organic
THE ECONOMY OF OUR BIOREGION

AGRICULTURE

The region was once self-sufficient in terms of food. But since Colombia subscribed to many free trade agreements, we now eat imported cereals (wheat, barley, rye...) and pulses (chickpeas and lentils).

Imported foods. The region was once self-sufficient in terms of food. But since Colombia subscribed to many free trade agreements, we now eat imported cereals (wheat, barley, rye...) and pulses (chickpeas and lentils).

Local production. Farmers sell a variety of fruits, maize, beans, roots, tubers and vegetables produced locally. Most of this local production does not require chemical inputs.

COFFEE PRODUCTION

COFFEE PRODUCTION. There is a small production of coffee growing organically in the forests that exist on many plots farms. Farmers sell their produce to some local brands which roast and process beans for local consumption.

All products based on maize, quinoa and sagu are sourced locally. Cheese and butter are also local ingredients.

All wheat based products represent a leakage in the local economy, because ALL wheat consumed in Colombia is imported.

BAKERIES

BAKERIES. There are many local bakeries offering traditional bread, cakes and biscuitry. They create jobs.

INDUSTRY

INDUSTRY. There is a big, privately owned poultry industry present in the region. It creates many jobs but the environmental damage might be considerable.

SUGARCANE

Sugarcane used to be the main cash crop. Farmers processed it (locally) to produce jaggery and molasses. But the mechanisation of sugarcane industry in other parts of the country made it cheaper to bring jaggery and sugar, than to produce it locally. Currently farmers grow sugar cane only for extraction of molasses. Jobs were lost and money is now leaking from the region.

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CATTLE RANCHING

CATTLE RANCHING. Since agriculture is not viable any more due to free trade agreements and bad agriculture policies, farmers switched from agriculture to cattle ranching. Rearing cows consumes less time and money, but has a serious negative environmental impact (CO2 emissions + damage soils + forest depletion) and is highly inefficient in terms of resource utilisation (1 cow needs 1 Ha). The positive side is that the region is self-sufficient in dairy and meat products. Additionally, since financing is unaffordable, farmers consider cows as fixed deposits or savings.

PROFESSIONAL WORK

PROFESSIONAL WORK. All national institutions have offices in the capital of our territory: the forest, agricultural and geographic departments, banks, civil courts, notary, commerce chamber, etc. This provides opportunities to local professionals to exercise their professions. But most of their families settle in big cities (Bogota or Tunja), so they prefer to invest on housing or education for their children in those cities rather than in the region. Money flows out of the region.

BANKS

BANKS. To keep an account in a privately or public owned bank is extremely expensive. They lend money at high interest rate and frequently farmers lose their properties to pay loans. There are no local banks. Money flows out of the community.

NATURAL RESERVES

NATURAL RESERVES. Our bioregion is ecologically well preserved. There are many private and public natural reserves across different ecosystems.

HANDICRAFTS

HANDICRAFTS There is an old tradition of basketry and canework in the region. Some artisans manage to make their livelihood selling their products in the surrounding cities. But since plastic baskets are cheaper, people are loosing interests in natural fibre baskets.

TRANSPORT

TRANSPORT. Commuting from one village to another or travelling to the rural parts is done by shared taxis and jeeps. Drivers usually own their vehicle and are associated to a transport cooperative.

Some of the traditional vocations that have disappeared are: jute string and shoe maker, farrier, adobe block maker, stone fence maker...

The knowledge of our elders seems to be useless now.
farming wherein farmers with organic practices, often un-certified, are connecting to consumers interested in healthy eating. And this trend is on the up-swing. The next logical step will be for the Annapurna Farm to introduce the farmers of the region to organic practices of cultivation and sustainable land management techniques - which could further enhance their earning potential.

- Another stage of evolution will be for the farmers to organise and start to do some level of processing (e.g. selling peach marmalade instead of raw fruit) with basic technology combined with organising and marketing capability. The next logical step will be to train the farmers in business practices of organising, technological processing, marketing and branding. As a way to motivate them and to set an example of entrepreneurship, Annapurna Farm can start a small venture within its premises. For example: processing avocado grown in the region to produce value added products like oil, cream, etc. Another example could be marketing local herbs for their medicinal use.
- Connect local innovators and entrepreneurs with each other and the larger community. For example there are a number of people processing local coffee, honey, bakery products, etc.

### Table of stakeholders

#### Current and potential relationship

<table>
<thead>
<tr>
<th>STAKEHOLDER</th>
<th>CURRENT RELATIONSHIP</th>
<th>FUTURE POTENTIAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Mayor of Pachavita</td>
<td>Have had some interactions and there is recognition of our efforts as being of value to the local community</td>
<td>Collaboration and support in-kind and in funds for Annapurna Farm's initiatives and programs (for e.g. connecting to the local electricity grid, funding an entrepreneurial venture)</td>
</tr>
<tr>
<td>Local Community (neighbours, farmers, families, villagers, etc) of Pachavita</td>
<td>Purchase local produce of food items from the community; participation in local community work</td>
<td>Increased interaction with local government (Community Action Council) and rural schools; local community as a channel to market the Annapurna Farm's projects in the region; community's active participation in the programs</td>
</tr>
<tr>
<td>Local Schools from Pachavita</td>
<td>Already volunteering to support different academic and cultural activities</td>
<td>Annapurna Farm can bring volunteers from CASA and other sustainability networks to support activities of rural schools.</td>
</tr>
<tr>
<td>160 bioregional cooperatives and associations</td>
<td>Can offer as examples of successful cooperative ventures; can be partners for us to train their member farmers etc.</td>
<td></td>
</tr>
<tr>
<td>Corpochivor (regional environmental authority)</td>
<td>Corpochivor supplies trees and organic inputs for reforestation. Provides data regarding meteorology and plant and animal species when asked. Organises frequent workshops on composting and waste management in the region when asked.</td>
<td>Can collaborate on different programs for environmental sustainability and can provide institutional support to Annapurna Farm's activities</td>
</tr>
<tr>
<td>Local individuals doing independent research on sustainable practices and agro-diversity. As well as elders, seed guardians and activists from the bioregion</td>
<td>Annapurna Farm is already identifying and contacting individuals making efforts on related topics</td>
<td>They can collaborate on the design, market and deliver of Annapurna Farm’s training programs</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Bioregional NGOs and foundations</td>
<td>Already had some interactions. There is growing interest in collaboration</td>
<td>They can support Annapurna Farm activities, particularly mediate and accompany the surveys and baseline studies</td>
</tr>
<tr>
<td>Regional Chamber of Commerce</td>
<td></td>
<td>Advise, train and support for entrepreneurial ventures; information on other regional producers</td>
</tr>
<tr>
<td>24 municipalities of the bioregion and State government</td>
<td></td>
<td>State government can provide funding to the programs. Municipal governments can become partners in future activities, when Annapurna Farm’s team spread its programs</td>
</tr>
<tr>
<td>National and Regional Universities</td>
<td></td>
<td>Possible sources of volunteers and interns to support or carry out various researches, activities and training programs</td>
</tr>
<tr>
<td>7 National Govt. Agencies</td>
<td></td>
<td>Rural Bank, SENA (national training institute), ADR (rural development agency), etc., could be key partners in procuring credit for entrepreneurial projects, for the Farm’s training activities, and implementation of local development programs</td>
</tr>
<tr>
<td>6 National NGOs</td>
<td></td>
<td>They can provide institutional support of funding. There can be mutual collaboration</td>
</tr>
<tr>
<td>CASA Colombia / CASA Latina (the Council of Sustainable Settlements of Colombia / Latin America) and Transition Network Colombia and other international movements/foundations on sustainability</td>
<td>Already are part of CASA Colombia and working actively in organising Transition Network movement in Colombia</td>
<td>Members from different sustainable communities can come to train local people on sustainable practices or experience sharing</td>
</tr>
</tbody>
</table>
3. STAKEHOLDERS’ VALUES & RIGHT LIVELIHOOD

In order to track the positive impact of the Annapurna Farm – Sustainability Knowledge Centre on the local communities, different well-being indicators must be defined:

1. The trend of young adults and families migrating to the cities to find job opportunities is being reversed, since agriculture, food production and the increasing number of local businesses provide them a stable livelihood. On the contrary, people who left the region years back are returning given the economic opportunities present in the region. This can be measured by:

   • % of increase in local young adults working on farms and number of people returning to their fields

2. There has been an increase in farmers’ real income. Rural families are now able to achieve a decent standard of living and feel satisfied. This can be measured by:

   • % of increase in number of fields cultivated
   • % of increase in food crops
   • % of reduction in unused land or land dedicated exclusively to grass for cattle ranching

3. Peasants have been taking active steps to protect the environment while improving their agricultural practices. This can be measured by:

   • % of increase in agroforestry initiatives combining conservation and organic food production
   • % of increase in afforestation within the farms

4. Peasants have improved and diversified their diet, leading to their food sovereignty. This can be measured by:

   • % of increase in fields cultivated with ancestral food crops
   • % of increase in the use and processing of ancestral food products

   These are some actions (and some well-being indicators) that the Annapurna Farm – Sustainability Knowledge Centre can undertake to help the local community to become richer

1. Annapurna Farm will provide several services but in general they can be measured by:

   • Number of people benefitting from the Annapurna Farm services
   • % of increase in people supported by the Annapurna Farm services

2. Annapurna Farm will provide network events between farmers, visitors, associations, students, consumers, etc. This can be measured by:

   • Number of people participating in network activities
   • % of increase in people participating on network activities
   • Number of people doing business due to Annapurna Farm network activities
   • % of increase in people doing business due to Annapurna Farm network activities
   • % of increase in farmers revenues after making business due to Annapurna Farm network activities
   • % of increase in farmers profit after making business due to the Annapurna Farm network activities

3. Connecting farmers to end consumers while eliminating several layers of middlemen will provide better prices for their produce, hopefully restoring faith in their vocation and reducing the rate at which they are quitting farming. Annapurna Farm will be looking to help in this matter by connecting farmers with technology intermediaries, like applications, web sites, etc. The well being indicators for that are:

   • Number of farmers making business using technology intermediaries
   • Number of farmers’ and producers’ associations using technology intermediaries
   • % of increase in number of farmers making business using technology intermediaries
   • % of increase in farmers revenues after making business using technology intermediaries
   • % of increase in farmers profit after making business using technology intermediaries

4. Making available to local communities native varieties of maize, tubers, vegetable, grains and herbs.
This can be measured by:

- Number of farmers getting and using native varieties instead of hybrid seeds
- % of increase in number of farmers getting and using native varieties instead of hybrid
- % of increase in farmers revenues after getting and using native varieties
- % of increase in farmers profit after getting and using native varieties

5. Annapurna Farm will provide several training programs and must be measured by consequent results. Indicators of training topics and support activities are:

I. General indicators:

- Number of participants by training
- Assessment average by training

II. Innovation and improvement regarding sustainable practices

- % of increase in number of farmers turning to sustainable practices
- % of increase in revenues by selling sustainable products
- % of increase in profit by selling sustainable products

III. How to organise in cooperatives and associations around a particular region or a product. Some indicators:

- Number of members in a cooperative/association by region
- Number of members in a cooperative/association by product
- Number of effective actions taken by cooperative/association by region
- Number of effective actions taken by cooperative/association by product

IV. Organic cultivation practices:

- % of increase in number of farmers turning to organic cultivation
- % of increase in revenues by selling organic products
- % of increase in profit by selling organic products

V. Organic cultivation practices will be supported by mapping of existing local organic producers, added value products, seed guardians, etc.

- Number of existing local organic producers
- Number of existing local organic cooperatives/associations
- % of increase in number of seed guardians

VI. Business practices of organising, technological processing, marketing and branding.

- Number of farmers trained in business and entrepreneurship
- Number of farmers trained in marketing
- Number of farmers trained in business practices

VII. As a way to motivate farmers to implement business practices and to set an example of entrepreneurship, a small venture within the Annapurna Farm will be started:

- Number of farmers participating in the venture
- % of increase in revenue of the venture
- % of increase in profit of the venture

Ways in which Annapurna Farm – Sustainability Knowledge Centre can cooperate as consumers/investors to make choices that support social and ecological regeneration:

Most of the food consumed within the bioregion is produced locally. Products grown in tropical climates (e.g. rice, sorghum, cocoa, watermelon, pineapple, citric, mango, etc) are brought from regions located less than 150 km away. But as producers and consumers Annapurna Farm can still do many things:

1. Annapurna Farm can create awareness of the importance of recovering the local food sovereignty by finding training and financial support for farmers who want to grow food crops that can perfectly be grown in our bioregion and that have been imported for the last 20 years e.g. cereals like rye, wheat, oats and barley can be grown in the high lands above 2500m. And pulses like lentils and chickpeas can be grown in temperate climate.

2. Once a week, the municipality of Pachavita organises the market day (mainly for vegetables, fruits, eggs and dairy products), but villagers and locals prefer to go to neighbouring villages or towns to buy their food because it seems there is more variety there. The local market can be strengthened by:
1) Marketing actions: To promote the market and invite locals to consume there.

2) Negotiating actions: The municipality should offer transport facilities to those producers living far away, so they also get the chance to sell their produce in the market and source what they need locally.

3) Mapping and disseminating a relation of local producers and their products.

3. Unite efforts with rural schools to organise a Seed Saving Festival in which: Annapurna Farm can bring back cultural traditions still useful in today’s times, invite local seed savers from the bioregion to teach the importance of growing diverse varieties of native seeds, to revive culinary specialties from the bioregion, etc.

4. As consumers, there are many ways in which Annapurna Farm can cooperate to support local social and ecological regeneration such as:
   1) Increase effort to source most of Annapurna Farm food and supplies from the locality
   2) Buy products derived from plant species provided to farmers by Annapurna Farm
   3) Buy all beverages, snacks and meals served in the training courses and events from local producers
ANAPURNA FARM – SUSTAINABILITY KNOWLEDGE CENTRE
(Environmental and Social economy consulting services)

The following is a pilot project designed to be implemented in Pachavita and its 9 rural communities (or veredas). The project will have 3 main pillars of work:

1. Increase food sovereignty
2. Reshape the local economy from a subsistence one to a thriving and diverse one
3. Increase the agro-biodiversity

Annapurna Farm – Sustainability Knowledge Centre has given itself a time-line of 3 to 5 years to fully realise these goals. However, in order to make progress on these goals, it will be crucial to receive institutional support of the Mayor and the rural communities, primarily the Presidents of The Community Action Councils. In the future, Annapurna Farm hopes to scale this program to the entire bioregion (24 municipalities).

SMART objectives corresponding to each of these goals are outlined below.

3 main goals of our social enterprise

Goal number 1
Increase the food sovereignty of the rural communities of Pachavita by 10% every year over the next 3 years

Objectives for the next 2 years:
• By Aug 2018, design and conduct a survey of the local diet, calculating the percentage of food produced within the farm, and the amount of money spent on vegetables, grains, fruits and groceries per month.
• By Mar 2019, design, market and deliver at least one capacity building program to the locals on the topics of seed saving, production and use of native food crops, permaculture, cooking and processing of local vegetables and fruits, etc., and collect feedback for further improvement of the program.
• By July 2019, design, conceptualise and organise the first edition of an annual Seed Saving Festival in Pachavita to bring back traditions still relevant in today’s times, to showcase the results of our various training programs, to promote the consumption of the endangered local herbs and agricultural products, to promote the exchange and use of native seeds for food production.

Goal number 2
Reshape the economy of the rural communities of Pachavita, to make the transition from a subsistence economy to a thriving and diversified one over the next two years. This will be achieved by increasing the number of current food crop producers by 25%, by helping them to create associations which can sell their produce to different cooperatives and digital platforms for a fair price, thereby increasing their income by at least 20%. Further, we aim to assure at least 1.5 times the basic legal income per family per month (one basic legal income in Colombia is approximately USD 243).

Objectives for the next 2 years:
• By Mar 2018, complete a mapping of the farmers, organic producers, farmers’ associations, food crops, income generated and challenges of production, within the rural communities.
• By Sept 2018, complete the design, marketing and delivery of the first capacity building program for the local farmers and community covering the topics of solidarity economy, social enterprise, use of new technologies, importance and examples of value added products and key business practices of developing an enterprise, finding customers, and selling produce through alternative channels.
• By March 2019, connect 40% of the local farmers and producers to digital platforms to sell their produce.

Goal number 3
Over the next 3 years, increase the agro-biodiversity of our rural communities by 15%.

Objectives for the next 2 years:
• By Aug 2018, complete a baseline study of the agro-biodiversity of Pachavita and surroundings (wild species, forest and water management, etc) with the help of Corpochivor (regional environmental authority), to understand the number and types of native species of herbs, shrubs, and trees prevalent
in the bioregion.

• By Aug 2018, complete a map of all the remaining relict forest within the farms and public lands, as well as the plant and animal species living or crossing there, in the rural communities.

• By Aug 2018, complete a list of all sustainable best practices implemented in the locality.

• By 2019, design, market and deliver one capacity building program to the locals on practical knowledge on sustainable living such as techniques of soil restoration, reforestation with native species, rain water harvesting, carbon farming, agro-ecology and seed saving, rational use of natural resources.

• By Jul 2019, launch a broad-based awareness campaign which includes booths on market days, hand-outs, participation and speaking during monthly community meetings, on the importance of biodiversity conservation and protection of our relict forests.

**Main challenges**

• Locals are skeptical about going back to agriculture because of the lack of financial opportunities, many of them borrowed money from banks and went into bankruptcy losing their farms due to the lack of guidance. They do not want their children to follow their steps and to end up feeling disappointed.

• Locals see with suspicions development programs coming from NGOs or foundations because in the past they believed in them and enrolled in agricultural or productive programs that did not have continuity over time due to limited funds or other reasons. Many farmers lost their produce, money, energy and time.

• The population of Pachavita and the bioregion is an ageing one, with average age being around 60. There are less and less young families living in the rural communities.

• At the moment, Annapurna Farm – Sustainability Knowledge Centre is at the stage of project design, the team needs collaborators and experts. The team needs to improve the farm’s infrastructure and raise funds.

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**Stakeholders Map**

<table>
<thead>
<tr>
<th>Name</th>
<th>Type of resource</th>
<th>Current relation with the entrepreneurship</th>
<th>Strategy to be adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local mayor of Pachavita</td>
<td>Funding and institutional and infrastructure support</td>
<td>MS</td>
<td>Present project – focus on institutional and infrastructure issues</td>
</tr>
<tr>
<td>Presidents of Community Action Councils from Pachavita</td>
<td>Logistic</td>
<td>MR</td>
<td>Present project – focus on logistic support</td>
</tr>
<tr>
<td>Local community of Pachavita</td>
<td>Collaboration and manpower</td>
<td>MS</td>
<td>Present project – focus on revenues, profit and development issues</td>
</tr>
<tr>
<td>160 Bioregional cooperatives and associations</td>
<td>Collaboration and manpower</td>
<td>N</td>
<td>Present project – focus on revenues, profit and development issues</td>
</tr>
<tr>
<td>Regional Chamber of Commerce</td>
<td>Institutional support, collaboration and advisory</td>
<td>N</td>
<td>Present project – focus on afforestation issues</td>
</tr>
<tr>
<td>Corpohivor (regional environmental authority)</td>
<td>Institutional support, collaboration</td>
<td>SS</td>
<td>Present project – specific knowledge, resources and collaborators issues</td>
</tr>
<tr>
<td>Local individuals from the bioregion doing independent research, elders, seed guardians and activists</td>
<td>Individual support, collaboration, advisory and manpower</td>
<td>SS</td>
<td>Present project – focus on individual support and capacity building</td>
</tr>
<tr>
<td>Bioregional NGO’s and foundations</td>
<td>Collaboration, funds and support</td>
<td>MS</td>
<td>Present project – focus on financial, specific knowledge, resources and collaborators issues</td>
</tr>
<tr>
<td>Entity</td>
<td>Funding and institutional and infrastructure support</td>
<td>Support</td>
<td>Project focus</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>------------------------------------------------------</td>
<td>---------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>State government</td>
<td>Present project – focus on institutional and infrastructure issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universities (internal programs)</td>
<td>Professional support</td>
<td>N</td>
<td>Present project – focus on specific knowledge</td>
</tr>
<tr>
<td>Banco Agrario (Rural Bank)</td>
<td>Funding and financial advisory</td>
<td>N</td>
<td>Present Project – focus on scope and costs</td>
</tr>
<tr>
<td>SENA (National training Institute)</td>
<td>Funding and technical training</td>
<td>N</td>
<td>Present Project – focus on scope and costs</td>
</tr>
<tr>
<td>ADR (Rural development agency)</td>
<td>Funding, financial advisory and technical training</td>
<td>N</td>
<td>Present Project – focus on scope and costs</td>
</tr>
<tr>
<td>Ministry of Home Affairs</td>
<td>Funding and financial advisory</td>
<td>N</td>
<td>Present Project – focus on scope and costs issues</td>
</tr>
<tr>
<td>GEN</td>
<td>Collaboration or funds</td>
<td>N</td>
<td>Present project – focus on institutional support and capacity building</td>
</tr>
<tr>
<td>CASA Latina &amp; CASA Colombia</td>
<td>Collaboration</td>
<td>SS</td>
<td>Present project – focus on institutional support and capacity building</td>
</tr>
<tr>
<td>Transition Network</td>
<td>Collaboration or funds</td>
<td>SS</td>
<td>Present project – focus on institutional support and capacity building</td>
</tr>
<tr>
<td>Visitors</td>
<td>Manpower</td>
<td>SS</td>
<td>Advertise project – focus on daily activities needed</td>
</tr>
</tbody>
</table>

Current relation with the entrepreneurship: N – Neutral  SS – Strong support  MS – Moderate Support SR - Strong rejection MR - Moderate rejection

Annapurna Farm will contribute towards the Ten Principles for One Planet Living with different actions and training programs in the following areas:

1. Health and happiness
- Organic cultivation practices and growing of endangered and nutritious ancestral food crops will contribute to improvements in health and happiness
- The trend of young adults migrating to the cities to find job opportunities is expected to be reversed, given that agriculture, food production, etc. will provide them a stable livelihood opportunity

2. Equity and local economy
- Helping to assure a dignified livelihood per family
- Transit from a deficient subsistence economy to a diversified, sustainable economy

3. Culture and Community
- Seed saving festival
- Connecting farmers in networks
- Making available to local communities native varieties of maize, tubers, vegetable and herbs, • Use of ancestral food

4. Land use and wildlife
- Preservation of relict forests
- Creating awareness of our agro-biodiversity
- Promoting sustainable land management

5. Sustainable water
- Water management programs

6. Local and sustainable food
- Recuperation of native food crops and promoting their use
- Diversification of food crops within the farms
- Training on carbon farming and permaculture

7. Zero waste
- Farm wastes are precious resources that farmers can transform to improve the quality of soils and yields. Farmers in this way save money and close the loop of waste
Executive Summary

Annapurna Farm intends to be a Sustainability Knowledge Centre where farmers, visitors, associations, students, consumers, etc., can network, learn sustainability best practices, work in the reshaping of the local economy and buy products showcased by various producer associations in the region. The team started this project only 6 months ago and is in the early formulation phase. The team is currently occupied in building the facilities which will conclude by end of next year. Additionally, 2018 the team will be focusing on establishing food production and garden facilities, consolidating different reforestation programs at the farm while also raising funds to prepare, design and organise the first training programs. As a result, many of the details around costs or estimate sales, to organise the core training program will become clear only next year.

As no similar effort exists in the region, the team does not see any direct competition to their work. Further, as the Annapurna Farm will be a non-profit venture, it would be looking to collaborate with other similar initiatives in the region if any. The key challenge however for the Annapurna Farm will be to make the target public see value in these services and be interested in them on a continuous basis.

Annapurna Farm will use a mix of traditional and digital marketing efforts to spread the word about the services to be offered. As most of the farmers don’t have yet internet infra-structure, the best way to do marketing will be through face-to-face meetings individually or in community events where the concerns of the local farmers can be discussed and explain the solutions Annapurna Farm could offer. Showcasing the results being achieved in food production and reforestation, for e.g., Annapurna Farm could be a good starting point to break initial resistance. Having made partnerships with civil society and government sectors can be of value too to give reliability to the Annapurna Farm products/services. Further, the team would use tools of digital marketing through a website, Facebook page and other social media inputs to reach out to university students and a wider population in the urban areas.

Annapurna Farm will be structured as a non-profit initiative, which will be looking to raise funds from various state and national level government institutions as well as development institutions and NGOs interested in the topics related to sustainability and rural development.

Main Service Offering

Annapurna Farm – Sustainability Knowledge Centre’s services will be focus primarily on the social and economic uplifting of the local communities. The Centre will design, market and deliver different events and capacity building programs to increase the productivity of local farmers, to help them understand the importance of associativity, to design strategies to generate a stable income and to increase the agro-diversity of the bioregion. Sustainable production (land and water management, conservation of biodiversity, etc), democratic participation and food sovereignty are transversal axis of the Annapurna Farm’s programs.

Annapurna Farm activities are structured around three main focal areas:

- Solidarity economy: to make the transition from a subsistence economy to a thriving and diversified one
- Food sovereignty: Recovering ancestral seeds, knowledge and tastes
- Use and conservation of local agro-biodiversity

The programs will take place in the local schools, community halls, public lands and forests or in the farm and will be delivered by consultants, volunteers and by Annapurna Farm’s team.

Target “Customers”

Annapurna Farm aims to focus on a diverse set of potential clients ranging from farmers and school students from the rural communities of Pachavita, to visitors from urban areas and universities. Understanding these different categories will help the team to not only reach these clients through relevant targeted marketing but also cater to their needs and provide to them a valuable experience through Annapurna Farm services. Following table captures the profile of each client category.
Target public | Demographic profile (age, gender, etc.) | Psychographic profile (their interests) | Wants and needs related to products/services | Marketing strategy
--- | --- | --- | --- | ---
Local community - farmers | Adults and elders of both genders | Want to earn a dignified living from their farming activities | Better productivity from the land; Reduction in cost of inputs; Easier access to markets to sell produce; Better price realization for their produce | Face-to-face meetings, community meetings and events, meetings organized by the local government, village fairs and festivals

Local school Students | Children up to the age of 18 | Want better opportunities than their parents had; Want to explore new and innovative ideas; | Services or activities which are complementary to or integrated within other school activities; | School speeches, participation in school festivals or events, experiential activities such as organizing visits to the farm

General visitors | Can be of any age; from the bioregion or those from urban areas | Interested in learning about sustainable practices related to some or all of the focus themes of the AF; interested in community work | Hands-on experience and knowledge about sustainability practices related to some or all of the focus themes of the AF; Interest in alternative lifestyles | Social media networks (Facebook / Twitter / Instagram), AF website, Word-of-mouth from those who visit the farm, WOOF (website which connects volunteers with sustainability initiatives)

University students | Young adults from the faculties of environmental sciences, natural construction, and agronomy etc. | Students interested in deeper research on the topics of sustainable farming, food sovereignty, reforestation, natural construction etc. | Hands-on experience and knowledge about sustainability practices related to some or all of the focus themes of the AF | University speeches, knowledge exchange with professors as well as govt. agencies (such as Corpochivor, SENA), the Annapurna Farm website

**Marketing**

**Unique Selling Proposition (USP)**

Given the extensive experience of the founders on the topics related to sustainability, Annapurna Farm is uniquely positioned within its bioregion to offer services related to sharing of this knowledge and best practices. Specifically, these services are uniquely developed around the following key themes around which current knowledge in the region is limited or non-existent:

- Improving food sovereignty of the bioregion through knowledge sharing about seed saving, production & use of native food crops, processing and use of local vegetables and fruits
- Reshaping the local economy through increase in food crops, creation of associations, introducing technology for processing to develop value-added products
- Increasing agro-biodiversity of the bioregion through benchmarking biodiversity, increasing awareness and ultimately leading to relevant community level action
- Further, the founders’ international experience will also allow them to bring best practices from other regions and projects around the world to the bioregion around the Annapurna Farm.

**Specific Marketing Activities**

- Design and conduct surveys on different topics related to Annapurna Farm goals e.g. survey of the local diet, doing a baseline study of the agro-biodiversity, mapping of farmers, food crops, income generated and challenges
- Frequent meetings with local community action council, with the local mayor, and with state government and other national agencies related to the environment or agriculture
- Visiting local families and elders, local schools, interacting with local NGOs, associations, and people already active in areas of interest such as seed savers and producers
- Visiting regional and state universities and
participating in relevant events

Financial Sustainability

The Annapurna Farm – Sustainability Knowledge Centre will be a non-profit initiative aiming to offer its services without making any financial surplus. It will offer services to the local farmers for a nominal voluntary contribution taking into account that the community has very limited financial means. Annapurna Farm will charge a basic participation fee to offer courses and programs to University students or visitors. However, in order to design and implement many of its programs, Annapurna Farm will aim to raise funding from a variety of stakeholders such as national agencies, state governments, development institutions and large NGOs interested in rural development and sustainability. Nevertheless, in the coming years, the team do see two possibilities for Annapurna Farm – Sustainability Knowledge Centre to generate a revenue stream in future - 1) by offering consulting services around the topics of sustainability to paying clients from the private sectors, e.g. a company interested in reducing its carbon footprint, and 2) by setting up a financially viable enterprise (such as a food processing unit) which ultimately supports the activities of Annapurna Farm from its profits.

Job Creation

We foresee Annapurna Farm – Sustainability Knowledge Centre creating part-time and full-time jobs in 3 main areas of work:

1) Operations
This will include all operational activities on the farm related to setting up of a training facility - be it construction, maintenance of the vegetable garden and other facilities at the farm. On average, the team foresee engaging 3 to 4 people in full-time capacity per month.

2) Research & Design
This will be an ongoing activity feeding into various training programs and the team foresee it being conducted mainly by students from different faculties in a part-time capacity. On average, the team foresee engaging 2 to 4 students in part-time capacity per month.

3) Training Programs
This will include hiring consultants from various streams such as permaculture, agronomy, biology, economy and social work etc., to train other trainers or directly implement training programs. The team foresee at least 2 trainers full-time and expert consultants on need basis.

Legal Structure

In Colombia there are different legal structures, but given our fundamental premise of being an non profit organisation that will receive funds from a variety of stakeholders to implement Annapurna Farm programs and offer services without making a surplus, the most suitable legal structure for such a setup would be a foundation (equal of a non profit or charity in the UK).

Resources needed and available

Resources available: funds that are invested in infrastructure within the farm, the team’s experience and connections

Resources needed: Annapurna Farm needs to raise funds to create additional infrastructure. Consultants and monetary resources to implement the programs and services

Our Team

Nathalia Rodriguez (Colombian)
Born in 1977. She made studies on visual arts in Colombia and master studies on art in public space in Switzerland. She lived in India for 8 years and worked there with Ekta Parishad, a grassroots movement struggling for a land reform in India. Since 2009 she has been visiting Auroville every year and spent 2014 volunteering in a farm dedicated to restore the soils and the native forest. She is back to her country since December 2016

Inderpreet Singh (Indian)
Born in 1977. Engineer and MBA by educational training. He has 17 years of international experience in private and public sector in the US, Switzerland, and India. Before moving to Colombia in Dec 2016, he worked as consultant with startups across agriculture, renewable energy and education sectors in India for 7 years. Prior to these experience, he worked as a consultant with the UN agencies like WHO and UNEP, promoting innovating financing mechanisms for sustainable enterprises in emerging economies.

Leonardo Prieto (Colombian)
Agronomist, he has over 30 years of experience in waste management in rural areas, vermicompost, reforestation, agroforestry systems, sustainable agriculture and agro-biodiversity. He has been working with Corpochivor, the regional forest department, for more than 10 years on environmental education programs focused on schools and peasant communities.
## Timetable for action

<table>
<thead>
<tr>
<th>Activity</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
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</thead>
<tbody>
<tr>
<td><strong>Operational</strong></td>
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<tr>
<td>Second phase of building infrastructure</td>
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<tr>
<td>Third phase of building infrastructure</td>
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<tr>
<td>Veg gardens and food forests</td>
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<td>Third phase of reforestation</td>
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<td>Fourth phase of reforestation</td>
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<tr>
<td><strong>Networking</strong></td>
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<td>Website design</td>
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<tr>
<td>Meetings with Stakeholders</td>
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<tr>
<td>Applying for seed funding SENA</td>
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<tr>
<td><strong>Goal N.1</strong></td>
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<tr>
<td>Survey on local diet</td>
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<td>Design materials for training program</td>
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<tr>
<td>Market and deliver at least one course</td>
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<tr>
<td>Design and organise a Seed saving Festival</td>
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<td>Feedback and follow-up</td>
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<tr>
<td><strong>Goal N.2</strong></td>
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<tr>
<td>Mapping of farmers, producers, crops, income, challenges</td>
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<tr>
<td>Design materials for training program</td>
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<td>Feedback and followup</td>
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<tr>
<td>Connect 40% of farmers to digital platforms</td>
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<td><strong>Goal N.3</strong></td>
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<tr>
<td>Baseline study on agroforestry and relict forests</td>
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<tr>
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<tr>
<td>Market and deliver at least one course</td>
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<tr>
<td>Awareness campaign on sustainability</td>
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<tr>
<td>Feedback and followup</td>
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</table>
Upper left: ploughing the land with oxens, a very common practice. Upper right: Rudimentary machine to press sugar cane and extract its juice. Middle left: Tubers, maize, plantain and vegetables form the basis of the local diet. Middle right: local varieties of maize. Above: Sunday market in Garagoa town.
SOCIAL DIMENSION

Finding a Common Vision
Community Governance
Leadership
Art and Celebrations
Bioregional Analysis
1 Finding a common vision

ANNAPURNA FARM
SUSTAINABILITY KNOWLEDGE CENTRE

VISION

Annapurna Farm – Suitability Knowledge Centre envisions a future in which all peasants and small farmers across Colombia will be at the forefront of sustainable best practices, and play an active role in the diversification of local economies while always protecting the natural resources, local ecosystems and agro-biodiversity.

MISSION

To create capacity building programs oriented to empower the rural communities of our bioregion to lead their own transition to a more resilient, sovereign, and participative community by:

• Training peasants and farmers on solidarity economy, social enterprise, diversification of local economy with a focus on production of value added products
• Disseminating practical knowledge about sustainable best practices on water conservation, regenerative agriculture, forest conservation and reforestation, soil building and rational use of natural resources
• Creating awareness about the importance of preserving, growing and consuming native seed and agro-biodiversity in order to achieve food sovereignty

SPECIFIC OBJECTIVES

• Completing the second phase of infrastructure at the farm related to different projects such us vermicompost units, solar energy, roofed structures for water tanks, signposts by December 2017. And the third phase (2 double accommodations, and meeting hall) by December 2018
• Creating awareness about the farm and our initiatives amongst various stakeholders such as universities, local schools, mayors, community councils, forest department and national government agencies through multiple meetings (at least 1 per month) until June 2018
• Raising funds from different Government and Rural Development Agencies to start capacity building programs by June 2018
• Conducting different mappings, surveys and baseline studies on related topics by April 2018
• Designing training programs and related material by January 2019
• Marketing and delivering training programs on the topics related by March 2019
Annapurna Farm – Sustainability Knowledge Centre, a non-profit initiative, was started by its founders Nathalia Rodriguez (Colombian) and Inderpreet Singh (Indian), in January 2017. Soon they were joined by Leonardo Prieto (Colombian) – an environmentalist, to work on the early formulation phase of the project: completing the next phase of infrastructure building, meeting potential partners and stakeholders, and identifying agencies and institutions to apply for funding, etc. Soon the team will start the legal process of creating a foundation in order to be able to raise funds. At the moment the questions of decision making or conflict management are not an issue, given the small size of the team. However, the team is considering to adopt sociocracy as a model of self-governance because it allows the social structure, regardless of its size, to evolve, to self-correct and self-organise more effectively than other models of governance. Sociocracy is more inclusive regarding equal distribution of power, it is transparent and proposes more effective feedback cycles.

These are the 7 principles of Sociocracy:

1. Decision making by consent: From the Latin “consentire”, consent means to be sensible to the connection (to something), to “be in harmony”. When people “are in harmony”, they have commitment and take responsibility. The method of consent is a highly disciplined decision-making process that helps organisations stay focused and move swiftly through examining an issue to make decisions. Decisions are made when there are no remaining “paramount objections”, that is, when there is informed consent from all participants. Objections must be reasoned and argued and based on the ability of the objector to work productively toward the goals of the organisation. Generally, objections are highly valued so as to hear concerns of each stakeholder. This process is sometimes called “objection harvesting”. The decision is made when it is “good enough” to be tested, experimented, reviewed and improved over time.

2. Equivalence: No particular role, position or function has dominant influence in the decision making process over any other, and everyone is on an equal footing.

3. Accountability: Respond when something is needed, do what you agreed to and take ownership for the course of the organisation.

4. Continuous Improvement: Evolution is more sustainable and effective than revolution. Change incrementally to accommodate steady empirical learning.

5. Transparency: All information is available to everyone in the organisation. Additional relevant information is constantly updated and old information is archived for reference.

6. Effectiveness: Devote time only to what brings you closer towards achieving your objectives.

7. Empiricism: Test all assumptions through experiments and continuous revision. All theoretical knowledge about a system is provisory and highly dependent on the context (be it a group, organisation, a cultural background...) only constant observation, feedback and modification of a system will allow for a resilient structure in times of crises.

Currently, sociocracy is being applied in many ecovillages in Latin America and in CASA Latina (the Council of Sustainable Settlement of Latin America). It is also being taught in few rural/peasant communities across the country.
Governance model in the case of a Community–Supported Agriculture Program

The team of Annapurna Farm will have different meetings to discuss and make decisions about its training programs and events (e.g. designing surveys, marketing of activities, meeting farmers and producers, etc). Consultants, educators and students interested in working with us will also join the meetings. This will be the first opportunity for us to apply the sociocratic methodology.

In the near future, Annapurna Farm will work closely with local farmers and producers willing to be part of an association and to participate in the training programs on associativity, new technologies connecting farmers to markets, basic food processing, and business practices, etc. On the other hand, Annapurna Farm will gather a small group of consumers from the nearest cities interested in sustainable and healthy living. They will subscribe to a community-assisted agriculture program to buy the produce directly from the farmers and for a fair price. This could give a boost to the local economy, hoping that this will result in the farmers getting a fair and stable income. In this scenario, it is necessary to think about a governance method to manage and make decisions within the farmers’ association and the community of consumers. Annapurna Farm will gradually introduce sociocratic structures and will train farmers and associates on its benefits.

What membership protocol to implement with the farmers’ association and consumers?

Regarding farmers, the idea is to help them to create and strengthen their association, which in the future will deal directly with consumers. In order to create stability, farmers will commit to gradually improve their agricultural practices and move from monoculture and the use of chemical pesticides and fertilisers to adopt more sustainable practices of a diversified crop-base and use of natural inputs. For this, farmers will attend training courses in Annapurna Farm on organic food production, and sustainable practices, putting into practice what they learn in the courses. Associates would pay a small fee to be members of the association in order to benefit from different services: capacity building courses, technical assistance on organic food production and the right to sell their produce for a better price to the community-assisted agriculture program. It will be Annapurna’s work to show them the return on investment that they can get from working more sustainably.

On the other hand, the members of the community-assisted agriculture program would want to express their needs and financial limitations to the farmers’ association. It will be in the farmer’s interest to take into account the consumers’ questions and feedbacks as much as possible in order to keep the program alive. It will be important that both parties develop trust and knowledge, and treat each other as equals. So most probably consumers would be part of the decision-making process in the farmers’ association. But the ideal scenario will be that farmers as well as subscribers create a single cooperative/association after building confidence.

A core group of consumers and farmers could independently run the program and make decisions about marketing, distribution, administration, and community organisation, etc. Sociocratic structures and principles that can be fully implemented include: organising in circles, double links and election of roles by consent. In this scenario, Annapurna Farm would stop leading this process, allowing the farmer’s and consumers’ association/cooperative to take leadership of the program. Annapurna farm would sporadically accompany few meetings as an observer/facilitator, but will continue with its training programs.

Governance model within Annapurna Farm – Sustainability Knowledge Centre

How to make decisions within a larger panel of stakeholders?

Apart from the team of Annapurna Farm – Sustainability Knowledge Centre, the local farmers and communities, stakeholders from the academic, private and public spheres may have a role in the development of activities and programs of the Centre. When the panel of stakeholders is larger, it seems important to define a more detailed methodology for the decision-making process in order to be efficient. Depending on the subject discussed, the decisions can have different degree of importance, while the stakeholders’ mode of participation can vary. For our scenario, we have listed the following subjects for decision making:
1. Foundation management
2. Farm Administration
3. Institutional and technical support
4. Partnership
5. Fundraising - grants, loans and endorsements
6. Design of surveys, mapping and baseline researches
7. Design of material for training programs
8. Marketing of programs and activities
9. Training programs
10. Internships on sustainable living
11. Ecosystem service assessment
12. Organisation of festivals and events
13. Exchange of experiences with other institutions

Stakeholders
1. Annapurna Sustainability Knowledge Centre Team
2. Consultants, volunteers and researchers
3. Regional Universities
4. Local schools
5. Local families, farmers and producers’ associations
6. Local NGOs
7. Local Mayor
8. Regional Environmental Authority (Corpochivor)
9. National network of Sustainable communities
10. National NGOs
11. Government agencies providing funding
12. Government agencies providing technical and institutional support

The team is also well aware that since sociocracy has been the adopted governance methodology, constant training on this and other methodologies (such as non-violent communication) is necessary given that many of Annapurna Farm’s activities involve participation of different local stakeholders (be it local families, farmers, NGOs and producers associations) and outsiders (interns, students, consultants, volunteers, etc). The team also sees the importance of gradually introducing some sociocratic principles and structures to the Community Action Council (the local rural government), so neighbours slowly get familiar with alternative forms of governance. The team knows that introducing new ideas and models is not easy and are not always welcome in conservative setups like rural areas and villages, because this can pose a challenge to prevailing local power structures and leaders. We hope that with patience and persistence it is possible to slowly make a positive impact on the local and municipal government.

On the other hand, when working with regional and national stakeholders (e.g. national agencies, state government, big NGOs) who are not aware of sociocratic methodologies, we will use more conventional decision-making process.

The table below suggests the role of the stakeholders in the decision-making process for each of the 13 subjects that can need decisions to be made.

<table>
<thead>
<tr>
<th>Decisions about:</th>
<th>STAKEHOLDERS</th>
<th>How to decide?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation management</td>
<td>1 2 3 4 5 6 7 8 9 10 11 12</td>
<td>Consent</td>
</tr>
<tr>
<td>Foundation – Procurement</td>
<td>AC AP</td>
<td>Consent</td>
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<tr>
<td>Foundation – Communication</td>
<td>AC AP</td>
<td>Consent</td>
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<tr>
<td>Foundation – Regulations</td>
<td>AC AP</td>
<td>Consent</td>
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<tr>
<td>Foundation – Human resources</td>
<td>AC AP</td>
<td>Consent</td>
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<tr>
<td>Farm Administration – Finances</td>
<td>AC AP</td>
<td>Consent</td>
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<td>Category</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Farm Administration – Agriculture</td>
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<td>AP</td>
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<tr>
<td>Farm Administration – Reforestation</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Institutional &amp; technical support</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Partnership</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Grants, loans and endorsements</td>
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<tr>
<td>Internships on sustainable living</td>
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<td>AP</td>
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<tr>
<td>Ecosystem service assessment</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Social enterprise &amp; associateship</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Design and conduct surveys</td>
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<td>AP</td>
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<tr>
<td>Design of materials for trainings courses</td>
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<tr>
<td>Marketing of programs &amp; activities</td>
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<tr>
<td>Training programs – solidarity economy</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Training programs – food sovereignty</td>
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<td>AP</td>
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<tr>
<td>Training programs – agro-biodiversity</td>
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<tr>
<td>Training programs – sustainable practices</td>
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<td>AP</td>
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<tr>
<td>Training programs – permaculture</td>
<td>AC</td>
<td>AP</td>
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<tr>
<td>Conceptualisation and organisation of a seed saving festival</td>
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<td>AP</td>
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<tr>
<td>Exchange knowledge &amp; experience with other organisations</td>
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<td>AP</td>
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</table>

AP = Approve   AC = Accountable   PA = Participate   IN = Informed   BE = beneficiary
What are the meeting characteristics for working with a larger panel of stakeholders within the Annapurna Farm SKC?

Following the sociocratic methodology and in order to set up good meetings the team will need:

A moderator elected by members (who will have voice and vote, like any other member)
A guardian of notes who writes a minute including the agenda, decisions made, next steps and conclusions, etc., of each meeting

A typical meeting will follow this structure:
Check in / discussion of administrative topics / discussion of central issues / check out

A meeting for decision making by consent will typically have the following structure:

Presentation of the proposal
Clarifying questions about the proposal. The moderator verifies that everybody understands the proposal and answers questions
Round of first impressions. Members express briefly their thoughts and feelings
Consent to proposal. Members give or deny their consent to the proposal. Objections must be reasoned
Working objections and improving the proposal
Second round of consent
Celebration when the proposal is approved

The characteristics of the meeting for each subject that needs decisions to be made are displayed below:

<table>
<thead>
<tr>
<th>MEETING CHARACTERISTIC</th>
<th>Decisions about:</th>
<th>Meetings</th>
<th>Meeting Basic Agreements</th>
<th>To ensure participation and inclusiveness</th>
<th>Group decision communication</th>
<th>Conflict Management Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farms Administration – Reforestation</td>
<td>S 1</td>
<td></td>
<td>Decisions about implementing reforestation programs within the farm.</td>
<td>Sociocracy Non-violent communication</td>
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</tr>
<tr>
<td>Farm Administration – Agriculture</td>
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<td>Decisions about agro-ecology &amp; permaculture techniques to be used at the farm.</td>
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<td>Farm Administration – Finances</td>
<td>W 1</td>
<td></td>
<td>Decisions about expenses, maintenance, payments</td>
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<td>D 1</td>
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<tr>
<td>Foundation - Regulations</td>
<td>W 2</td>
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<td>Decisions about laws, regulations, fines, etc.</td>
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<tr>
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<td>W 2</td>
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<td>Decisions about contracting and making acquisitions of materials and equipments.</td>
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<td>Decisions about alliances and collaborations with other stakeholders and institutions</td>
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<td>E/V/I</td>
<td>Problem Solving/ Collaborating</td>
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<td>Grants, loans and endorsements</td>
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<td>2</td>
<td>Decisions about applications to grants, loans and endorsements.</td>
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<td>Decisions about how to start an association / social enterprise with local producers</td>
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<td>Problem Solving/ Collaborating</td>
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<td>Design and conduct surveys</td>
<td>W</td>
<td>2</td>
<td>Decisions about conceptualising, designing and conducting surveys, mappings and studies.</td>
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<td>V/E/M</td>
<td>Problem Solving/ Collaborating</td>
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<td>Design of materials for trainings programs</td>
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<td>Decisions about contents of the training courses</td>
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<td>Problem Solving/ Collaborating</td>
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<td>Marketing of training programs &amp; activities</td>
<td>W</td>
<td>2</td>
<td>Decisions about methods to promote and create awareness about our programs</td>
<td>Sociocracy Non-violent communication</td>
<td>M/W/V</td>
<td>Problem Solving/ Collaborating</td>
</tr>
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<td>Training programs - solidarity economy</td>
<td>W</td>
<td>2</td>
<td>Decisions about implementing solidarity economy and social enterprise trainings.</td>
<td>Sociocracy Non-violent communication</td>
<td>M/E</td>
<td>Problem Solving/ Collaborating</td>
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<tr>
<td>Training programs - food sovereignty</td>
<td>W</td>
<td>2</td>
<td>Decisions about implementing seed saving knowledge training.</td>
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<td>M/E</td>
<td>Problem Solving/ Collaborating</td>
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<td>Training programs - agro-biodiversity</td>
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<td>Problem Solving/ Collaborating</td>
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<td>Decisions about carbon farming, water management, reforestation and conservation trainings</td>
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<td>M/E</td>
<td>Problem Solving/ Collaborating</td>
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<td>Problem Solving/ Collaborating</td>
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<td>Decisions about conceptualising and organising a seed saving festival</td>
<td>Sociocracy Non-violent communication</td>
<td>M/E/V</td>
<td>Problem Solving/ Collaborating</td>
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<tr>
<td>Exchanging knowledge &amp; experience</td>
<td>S</td>
<td>2</td>
<td>Decisions about sharing learning with and from other organisations</td>
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<td>E/I</td>
<td>Problem Solving/ Collaborating</td>
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Meeting communication: E - E-mail  W - Written messages  I - Internet portal  V - Verbal  M - Minutes
Leadership includes essentially four types of roles that range from personal behaviour, to optimal interaction with others and the ability to strategically understand the environment. The members of Annapurna Farm – Sustainability Knowledge Centre team have developed over the years different and complementary leadership roles and skills; some members have strong relationship and systemic thinking skills, while others are more strategic thinkers. But the team concurs on the fact that inner work is fundamental to developing the "I" and relationship skills, irrespective of the nature of the technique or method used. They also believe that the implementation and practice of sociocratic methodologies within the farm and foundation activities, such as organisation by circles, rotation of power and roles, permanent feedback, transparency, double linking, etc., will offer countless opportunities to strengthen the "I", relational and strategic skills.

As stated earlier, activities of the Annapurna Farm – Sustainability Knowledge Centre cannot evolve if outsiders and especially local stakeholders are not introduced to some sociocratic and non-violent communication principals and practices. Similarly, the programs will never be effective and sustainable in the long term if the target population (neighbours, local families, farmers and producers’ associations) do not have the chance to become leaders of their own communities and their evolutive process. To this end, the team of Annapurna Farm has worked out some guidelines and tips to train locals on leadership and the four types of skills. This sounds simple, but it is important to bear in mind that rural communities have suffered exclusion and ostracism for generations, many of the community members did not receive schooling and others might have low self-esteem. And for most of them, citizenship, democratic participation, leadership, ethics, etc., are vague or rare notions. So, a first phase of the training will be for the wider community, and will have to start with some preliminary questions:

Leadership doesn’t signify to follow a particular person endowed with charisma or certain skills - it is a role that anyone can embody from time to time and depending on circumstances. Any big idea or project requires the collaboration between people and organisations. On some level, everyone has ideas and projects, and everyone is leading him/herself and others. Leadership requires qualities such as assertiveness, adaptability, intelligence, conscientiousness and more.

- What is leadership?
- Leadership and well-being. Why is it important to take leadership which seeks the well-being of the whole community? Are the current economic and social models having a positive impact on our communities?
- Compassion, clarity and creativity are the core pillars of leadership. Why is it important to understand people’s feelings and needs and show genuine concern for others, in order to strengthen our community? Why is it important to find alternative and different solutions to our daily problems?
- Sustainable development consists of environmental, economic and social dimensions. Are we committed to take ownership of our biodiversity and local ecosystems? Why is it necessary to be ready to renounce some individual and community aspirations in order to achieve sustainable development?
- Followers value trust and common good
- A leader should be aware of what she/he is inspiring among community members
- Anyone has the innate potential to lead his/her own community. Why is it important to rotate power and roles within communities?
- Leadership requires self-awareness to develop emotional intelligence. Why is self-care important? How to know one-self and learn to handle one’s own emotions? What is non-violent communication?
- Democratic citizenship. What is citizenship and how to develop active citizenship? Why do we have the duty to re-take the ownership of the public sphere and the commons?

A second phase of training would be dedicated to leadership skills development to become better leaders, and will focus on local community leaders: Community Action Councils, board members of producers associations, local NGOs, school students, school teachers, etc.
**“I” skills**

The way a leader behaves in different situations, enabling him or her to choose or create the mood, attitude, inner state, etc., more appropriate to each case.

**Be Passionate.** This is one of the most important leadership skills. Would you look to someone for guidance and leadership if they did not truly care about the goals of the group? Of course not! Great leaders are not just focused on getting group members to finish tasks; they have a genuine passion and enthusiasm for the projects they work on. Start by thinking of what makes you feel passionate.

**Know and utilise your strengths and gifts.** You have unique gifts and natural leadership skills that you were born with and personal strengths you’ve developed over your lifetime. Realising and utilising these gifts and strengths will assist you in becoming a formidable leader.

**Live in accordance with your morals and values.** Making choices and taking actions aligned with your morals and values is key to authentic leadership. People sense integrity and will naturally respect your opinion and leadership.

**Take Initiatives.** Go above and beyond at your current position to lead the way. The more initiatives you take, the more you are learning. Learning more and taking on more responsibility can help you move into a leadership role in your environment.

**Be disciplined.** Discipline is required in order to execute the goal. Even if you have a vision or a good idea, it’s useless without discipline. Discipline means abiding by the commitments needed to execute the plan that you have thought. To be a good leader, you need to be self-disciplined and make sure others on your team are as well.

**Be willing to admit and learn from failures and weaknesses.** No one is perfect, and everyone has made mistakes in their lives. The most successful leaders know that the key to success is not in avoiding mistakes, but in learning from them. As a strong leader, you must also be able to communicate your weaknesses to your team, so that you and your team can appoint someone who excels at that particular task or activity.

**Relationship skills**

The capacity to understand, communicate with and motivate other people, acknowledging and honouring differences. Be aware of the influence that people have on other people's behaviours and attitudes, and intervene in a way that brings more awareness to the group.

**Motivate others to greatness.** Leadership is about motivating, not controlling. A true leader should positively influence people. Know what people need and want. In case of a loss of motivation, talk to them, ask what’s going on, and share your personal stories to encourage them to get involved. Also, the greatest leaders recognise each person's greatest value. Look beyond the obvious and see others with insight and compassion.

**Handling Conflicts.** Leaders have to know how to handle difficult people and resolve conflicts. Talk to people in private to understand the needs and look for solutions that address the needs in different ways. Leaders have to be honest and straight to the point. This requires a lot of courage. Always listen to people's side of the story before you reach a conclusion.

**Be a Follower.** Leaders should learn to recognise the value of team members, learn from them and encourage other team members to learn from them.

**Serve as a role model.** The best leaders walk the walk and talk the talk. If you want to become a better leader, work on modelling the qualities that you would like to see in your team members.

**Maintain a positive attitude.** No one respects a grumpy or negative person. With a positive attitude, you are looking at the bright side of life and people are naturally attracted to you when you have a positive attitude.

**Improve communication skills.** Work on non-violent communication techniques and deep listening. Having great leadership skills includes you being able to clearly communicate the community/project vision, goals, and expectations to others. This includes your ability to listen to what other people are consciously or unconsciously communicating and receiving feedback from others and get a sense of what team members like about the projects they work on.
Strategic thinking skill:
The capacity to define and achieve specific vision objectives and goals that everybody can support. It also refers to the capacity to find or develop the resources needed to support group work and achieve its goals. Creativity is crucial for the success of any endeavour.

Have a clear vision. Take the time to share your vision, mission and goals with your group. Your job as a leader is to provide a clear path that your team can follow. Your team also must understand why the goals you have set are valuable to them. Take the time to explain to them, in detail, why and how your vision will not only improve the community/project, but how it will benefit them in return. Include your team in your strategic planning sessions and ask for feedback.

Set definitive goals and follow concrete action plans. You have to know where your destination is before you can map out a plan to get there. To improve your leadership skills, first set specific life goals with appropriate timelines. Design your goals by moving backwards from the end of your life to the present week. Then, formulate action plans you can commit to that will get you to where you want to be.

Know how to delegate. Delegate work and let your co-workers feel empowered. If you do this, they will feel more involved and have more opportunity to develop new skills. Also, delegating will allow you to better concentrate on the goals you need to achieve yourself. If you are a project leader, you are still responsible for the work in the end. This is why it is important to oversee the project when delegating.

Ensure that you have the necessary resources to achieve the goals. List the resources needed whether material, time or skills to achieve the goals. Evaluate the missing resources that you have to acquire to be successful and make a plan to acquire them.

Systemic thinking skills:
The capacity to identify and understand the general context wherein the group develops their activities, from the most immediate environment to the greater social system. They are also a capacity to understand and create the appropriate structures to help the group achieve their goals and realise their vision.

Be a critical thinker. Good leaders are able to foresee potential problems before they happen. They can then develop ways to prevent the problems from happening. Good leaders are also aware of potential opportunities and take advantage of them to benefit the company and employees.

Constant Learning. When things are changing rapidly, it is important to constantly learn and challenge yourself to adjust the structure that will enable the team to perform. For that you have to be receptive to everyone’s perceptions and information from around the world and beyond.

Observe and analyse. A good leader needs to understand the environments and systems in which he operates. It is thus important to observe the groups, and members from different perspectives and to analyse the causes and effects of phenomena.
The members of Annapurna Farm – Sustainability Knowledge Centre cultivate the discipline of **Vipassana** meditation. This is one of the ancient meditation techniques from India, discovered by Siddharta Gautama the Buddha 2500 years ago.

Vipassana is a way of self-transformation through self-observation. It focuses on the deep interconnection between mind and body, which can be experienced directly by disciplined attention to the physical sensations that form the life of the body, and that continuously interconnect and condition the life of the mind. It is this observation-based, self-exploratory journey to the common root of mind and body that dissolves mental impurity, resulting in a balanced mind full of love and compassion.

The scientific laws that operate one’s thoughts, feelings, judgements and sensations become clear. Through direct experience, the nature of how one grows or regresses, how one produces suffering or frees oneself from suffering is understood. Life becomes characterised by increased awareness, non-delusion, self-control and peace.

We make an effort to follow the Code of Discipline, precepts, and adapt our life and schedules to our daily practice (two hours a day), being this activity the priority in our lives. This way of life leaves little scope for rituals. However, this does not mean that we do not celebrate in our own, inner and silent ways the miracle of being alive, the unique chance to be on this planet to make progress and become better beings, the gift of beauty and the generosity of nature.

We place special attention to the cultivation of beauty in our surroundings. So far we have been dedicating most of our time in the farm planting trees, pruning the old ones, creating flower and vegetable gardens, clearing the corners from stubble and creating pathways. For us, cultivation of beauty also means to feel nature’s aspiration for love manifested through flowers, to feel the vigour in which trees raise from the ground, against gravity, to manifest their intense aspiration for light and happiness. Sri Aurobindo, a great Indian philosopher said: Beauty is the special divine Manifestation in the physical as Truth is in the mind, Love in the heart, Power in the vital. Supramental beauty is the highest divine beauty manifesting in Matter.

We perform few celebrations from the local culture (mentioned in the worldview dimension) which celebrate the abundance and generosity of nature and strengthen the social ties within the community. For instance, the practices of “water sowing”, praying for a prosperous year before sowing maize (the first crop of the year), sharing a meal with all construction labourers before laying the foundations of a new construction or the celebration of the Carnival of Maize, are some of the local rituals we participate in.

Finally, we participate in the annual meeting of sustainable communities and ecovillages called “Llamado de la Montaña” (Call of the Mountain) organised by CASA Colombia (the Colombian Council of Sustainable Settlements). There, hundreds of people, organisations and communities get together for 6 days to collaborate with the hosts in the preparation of small actions to strengthen and scale up the national network. The aim is to inspire, learn, co-create and make a positive impact on the hosts’ bioregion. There, we perform rituals of different sort to celebrate life and nature, we listen to and learn from our living elders (Afro-descendants, natives and peasants)

https://llamadodelamontaña.org

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1 https://www.dhamma.org/en-US/about/vipassana
5. BIOREGIONAL ANALYSIS

Being Annapurna Farm – Sustainability Knowledge Centre a young organisation, still in formation phase, its current area of influence is the municipality of Pachavita and its 9 rural communities. The following analysis describes the situation of Pachavita, but these realities are also very much reflected in the rest of the bioregion.

**Scale**

Personal relationships are still close, intimate and cordial. People know each other very well, they even know their friends’ and neighbours’ ancestors. The community members make an effort to take care of each other. For instance, peasants and villagers share their produce with neighbours, relatives and friends or keep an eye on the oldest members (80+) of the community who are usually sick, unwell or find difficult to grow food for themselves (there is large population above 65). Similarly, people make an effort to participate in the Community Action Council meetings and meetings organised by the mayor because they understand that the decisions made there will have a direct impact on them.

Annapurna Farm wants to strengthen the relationships with the local community through its Sustainable Knowledge Centre in three main ways:

1. The team sees the immediate community as the primary beneficiaries of Annapurna Farm’s programs on solidarity economy and sustainability.
2. Annapurna Farm supports “The Carnival of Maize” (largely described in worldview dimension), an initiative exclusively led by the rural schools of Pachavita focused on recovering local ancestral knowledge.
3. Annapurna Farm wants to support the monthly meeting of the Community Action Council and find a way to create a program on facilitation and leadership skills.

**Economy**

As stated in the economic dimension, the economy of the bioregion needs to be reshaped. Although the vocation of land is 100% agrarian, only 16% of the land is dedicated to produce food. Given the unfriendly agricultural policies, the monopoly of the middlemen in setting the prices and little incentives offered by the government, locals prefer to convert their farms into paddocks for cattle ranching, which require minimum effort and risk. This has brought the local productivity to a state of deadlock. Additionally, amongst the locals prevails the mentality of exploitation over conservation. Many neighbours have questioned Annapurna Farm’s inclination to plant native trees, and see this activity as useless.

This dimension is one of the main scopes of action of Annapurna Farm Sustainability Knowledge Centre. The project wants to contribute to the stabilisation of the means of production and generation of income, at least in the immediate surrounding through the following actions:

1. Creation of capacity building programs on associativity, community participation, use of new technologies to eliminate middlemen from the chain, etc.
2. Creation of training programs on sustainable management of lands, forests and natural resources.
3. Start a sustainable business within the farm to set an example of entrepreneurship.
4. Rebuild the network of farmers and producers’ associations of the bioregion.

**Polity**

This is the most complicated aspect, because in a country where there is a long tradition of use of repressive power and where power has been monopolised in a few hands, decentralisation and horizontal power structures are still rare. Once groups or individuals manage to enter into the circles of power they tend to cling indefinitely. Although in the region there are no large landowners and the phenomenon of chieftainship (so dominant in other parts of the country) has disappeared, power is still kept in few hands. In addition, the political involvement of the local community is scarce, limiting their participation to the municipal and national elections. Only few peasants are working actively for the social and political empowerment of their communities.

Despite that democratic leadership is not our main field of action, there is no doubt that in the near future the team will have to think of ways to accompany and train locals on democratic leadership if the project wants the local community and the bioregion to become more harmonious and inclusive. Basic training on non-violent conflict resolution, emotional intelligence management, respect of human rights, political leadership are a must. Annapurna Farm can undertake the following actions at
1. The team can introduce the members of the Community Action Council to some basic notions of Sociocracy and help them to optimise time and energy in their meetings, facilitate participation and decision making process.

2. Annapurna Farm can find within the national network of sustainable communities someone who can train the community on development of interpersonal skills or non-violent conflict resolution.

Society:
“A society based on collaboration and exchange, cooperation and mutual benefit, and where the fittest is the one that helps the most”, this is the team dearest dream but there is a long way to go before local communities reach this point... Annapurna Farm envisions a community which takes its fate into their own hands, which is no more at the mercy of political or economic interests, which knows better what will be best for the bioregion, which actively protects biodiversity, which has autonomous thinking...

Networking
Within the bioregion there are several scattered fragments of networks integrated by individuals, NGOs and farmers, producers and tourist associations; some of them receiving financial support from State or National government agencies. Annapurna Farm’s programs and activities aims not only to strengthen the local communities (the municipality of Pachavita and its 9 veredas), but also to spread its actions and ideas to the bioregion. The team believes that the potential partners and stakeholders they want to bring into play –such as national NGOs and movements dedicated to promote sustainable living namely: GEN - CASA Latina –Council of Sustainable Settlements of Latin America, Transition Colombia, World Conscious Pact, World Changers, Comun Terra, etc., will have a positive impact in the bioregion. Additionally, they would like to attract the attention of other National Associations and Government agencies that could help in the rural development of the bioregion.

The stakeholder mind map (see figure 12) is divided into three fields. The centric one represents Annapurna Farm’s current field of action (the local community, the village, and its veredas). The middle one includes Annapurna Farm’s potential partners and stakeholders within the bioregion –The Forest Department (CorPOCHIVOR), local NGOs doing similar work, the other 24 municipalities, individuals researching related topics and farmers and producers’ associations. The third field includes national and state Universities that could partner with Annapurna Farm, as well as National NGOs the team wants to bring to the region, the national and international network of sustainable communities (mentioned above), as well as State and National government agencies that can fund the projects or provide institutional support.
Some villages from the “Valle de Tenza” bioregion. Upper left: Central square of Pachavita. Upper right: a typical house in adobe, village of Sutatenza. Middle left: Central square of Garagoa town. Middle right: a street in Garagoa. Above: Central square of Tenza
Worldview Perspectives
Respecting Nature's Resources
Stories of Transformation
Celebration of Rituals
Engaged Spirituality
The Campesinos: a need to acknowledge and rediscover the local peasant culture

Although the word peasant is derogatory in English, this is not the case with campesino, the equivalent of peasant in Spanish. The label ‘campesino’ in Colombia (and possibly in Latin America) is used with a lot of pride by them because a whole culture, folklore and economy have evolved around these rural communities. Peasant culture in Colombia varies from one region to another blending indigenous, European and African elements in different proportions. In the bioregion (and state called Boyaca), campesinos are the main ethnic and social group, descendants of the extinct Muisca nation. They still preserve some Muisca words and traditions and have developed their own syncretic believes, celebrations, way of dressing, diet, music, oral traditions, etc. They are proud of their ethnic origin, their attachment to the land and their economic activities (mainly farming and handicraft).

90% of the people inhabiting the bioregion are peasants and villagers, for this reason ALL the Annapurna Farm’s programs are exclusively focused on the economic and social strengthening of these communities. Annapurna Farm wants to share with them practical wisdom and knowledge on sustainable land-water management, forest conservation and reforestation, carbon farming, solidarity economy, associateship and sustainable business practices. The team also wants to create awareness about the local agro-biodiversity (grow and use of native seed and crops) and the importance of protecting the local common wealth (local ecosystems, living traditions, public lands, etc).

This will be done through a variety of events, training programs and workshops adapted to the audience, be it school children, university students, farmers, families, local associations, municipality officials or members of the local community.

In order to implement Annapurna Farm events and activities the team will have to interact with an array of interlocutors. Some of them will provide institutional, technical and financial support.

- Peasants and local communities

With the 2016 peace agreement between the Government and the FARC (country’s largest guerrilla group), Colombia has entered a post war period. Many people in the county agree that Colombia has a historical debt with the rural communities; resources, time and effort need to be invested in the disadvantaged rural populations to build a long-lasting peace. Not only do these peasants and farmers need good agricultural policies that guarantee them a dignified livelihood in the rural areas, but they also need training on conservation and sustainable practices that would allow them to improve their quality of life and be the guardians of the natural resources this country is so abundantly endowed with. They need to see the value of nature conservation and realise that this activity can go hand in hand with productivity. To approach these local communities the team has to understand their historical issues, difficulties, skepticism and fears.

The team would like to highlight from the social sector their physical and moral strength to stand the brunt of violence and their optimism and hard-working attitude. Annapurna Farm envisions a peasant/farmer community aware and proud of their social values and exerting their cultural sovereignty. The team also hopes that social and ethnic diversity stoppe being considered an encumbrance or burden by the elite and powerful sectors. They have to understand the value of this country lies in its cultural, social, ethnic and natural diversity.
• **Professionals and consultants**

Annapurna Farm needs the support and collaboration of consultants from different fields such as education, ecology, permaculture, biology, economy, nutrition, agronomy, architecture, etc., in order to design baseline studies and surveys and design, market and deliver all its capacity building programs and events. The team can hire consultants from the bioregion or from the nearest cities (Tunja and Bogota).

These professionals can bring new ideas and provide an impulse to the work of local seed guardians, independent researchers, activists and individuals interested in the community wellbeing. On the other hand, the team expects they get a hands-on experience useful for their careers.

• **University students and conservation agencies**

The team believes that Colombian students need to gain hands on experience and interact with the ground realities if they genuinely want to make a positive impact on society. For this reason, Annapurna Farm wants to be a leading center in its bioregion where students, interns and professional volunteers can develop their research, surveys, experiments and internships on sustainable living, ecosystem service assessment, reforestation, hydrology, soil building, food sovereignty, social enterprise, etc. The team has to develop short, mid, and long term goals that allow them and the interns and researchers to assess the positive impact of our sustainable practices, events and training programs.

Students and interns can bring creativity, innovation and vitality to the region. In return the Annapurna Farm can offer them the possibility to interact with new social realities.

• **Government agencies and institutions**

Annapurna Farm needs the financial and institutional support of local government institutions (mayor office, regional environmental authority, environmental committees, schools, etc), regional institutions (surrounding mayor offices, and the state government and its agencies) and national government agencies (Ministry of Home Affairs, Ministry of Environment, Rural Bank, Agency of Rural Development, National Training Institute, etc). For this, the team needs to develop a strong quantitative approach to convey the benefits of their projects in concrete numbers, e.g. number of peasants trained, number of students engaged, increase in income of farmers through cooperative / associative activities etc. The unfortunate truth of Colombian government is that it is all permeated with corruption (from the national to state and municipal levels). Everybody knows that if government development programs in the rural areas have not been effective so far, it is not due to the lack of monetary resources, but due to the rampant corruption. Colombians hope that the resources used in the past to combat the insurgency, will be now used to clean the government institutions from corruption and will be spent on the uplifting of the most vulnerable social sectors. Additionally, the team is well aware that although the local mayor and the local government have shown some curiosity about Annapurna Farm initiatives, the project might also face resistance. Annapurna Farm will have to dedicate extra time to explain and train the local officers on related topics (sustainability, solidarity economy, etc) in order to gain their support and endorsement.

The team would like to highlight that in the recent years there has been a political renovation in Colombia. New independent parties have gain access to political offices (in legislative power and administration). This is the case of the state government (Boyaca) which belongs to the Colombian Green Party. People expect that more changes of this nature will come to oxygenate national and regional politics.

• **Alternative urban crowd**

In big cities, there is a growing interest in topics like sustainable living, revival of peasant culture and traditions, forest conservation, etc. People belonging to this category are mainly a small but growing sector of youngsters who would like to care for nature but do not know how or where to start, and would like to reconnect with ancestral traditions and often would like to start an inner quest. Many urban people nowadays wear and carry different symbols of campesino and indigenous cultures —e.g. *mochila* (an indigenous shoulder bag made in jute, wool or cotton), *ruana* (a peasant woollen cape) or a *poncho* (a cotton cape), traditional hats, etc.— as a sign of acknowledgement and pride of the Colombian cultural diversity.
2. RESPECTING NATURE’S RESOURCES

All the programs of Annapurna Farm – Sustainability Knowledge Centre (water management, compost units, reforestation, food systems, etc) are oriented towards understanding the positive impact that a small 3 Ha farm can have in the protection and increase of biodiversity of the rural surroundings, while remaining productive. The team sees the farm as a “living” classroom, a conservation lab and green corridors for many insects, birds and small mammals between different relict forest and protected natural reserves. The project wants to understand and promote the use of many multipurpose plant species such as leguminous trees, which are soil and water restorer, a source of nutrition for humans, can be cattle fodder and consequently have economic potential.

Regarding the Millennium Ecosystem Assessment, the following are some of the farm’s short and mid goals:

1. Provisioning services

Food and Fibres
- To identify rare and endangered local agricultural products (herbs, tubers, beans, vegetables, grains and fruits), procure their seeds and plant them to understand their biological cycle, and subsequently, promote their use and consumption within the local community
- To produce 20% of food consumed in the year (within the farm) and increase the production by 5% every year
- To identify and include the use of local edible herbs within the diet

Biochemicals and natural medicines
- To Identify local elders and women who grow and use local medicinal herbs and create spaces where they can share they knowledge with our communities
- To make alliance with local plant healers that can teach and share their knowledge with the local communities
- To do systematic experimentation with biocides using local knowledge and recipes

Fresh water
- To do systematic observation of the running water, rainwater and grey water systems to maximise their capacity and improve their deficiencies
- To reforest the water springs devoid of vegetation
- To plant more tree species that protect ground water reserves

2. Regulating services

Biodiversity conservation
- To increase the number of birds, insects and minor mammals within the surrounding areas by reforesting the farm with native trees offering food to wild animals
- To create within the farm an arboretum or a sample of native species (trees, bushes, herbs, etc)
- To identify rare plant species (restorative, ornamental, productive, etc) present in the bioregion, procure their seeds and propagate them within the farm and surroundings

Water regulation
- To control runoff, flooding and aquifer recharge by reforesting the remaining parts of the farm with native species, digging extra channels and ditches to drain soils as well as increasing the water storage capacity of our systems

Erosion control
- To reduce erosion by reforesting the slopes and correcting the impoverished soils with organic compost

Pollination
- To increase plant biodiversity to attract pollinators

4. Cultural systems

Knowledge System and Educational Values
- To recover traditional knowledge related to plant use and agro-biodiversity with the help of local children, women, elders and local seed savers, independent researchers and activists
- To spread the knowledge and use of foods mentioned above
- To promote the consumption of local maize and revive all the ancient traditions around this staple food

Social relations
- To actively participate in the local community activities such as: community work, Action Council meetings, celebrations, etc
- To strengthen the links with the rural schools
- To introduce some principles of sociocracy and democratic participation to the local government

Cultural heritage values
- To promote the appropriation of our commons such as biodiversity, natural reserves, the local network of ancient trails, celebrations, living traditions, etc.
3. Stories of Transformation

The old stories

*Mamapacha* or Ms. Francisca was a rich and important woman who used to dwell at the foothills of a mountain called by her name. She used to live with small and strange creatures called *mohanes* (a sort of dwarf). In the dry season, she asked her creatures to go to the town and abduct a beautiful girl, and in a supernatural ceremony she offered the girl’s essence to the nature in the form of water, feeding lakes, swamps and rivers. According to the legend, when insensible humans cut down the forest or hunted animals, Mamapacha manifested herself in the form of thunderstorms, flooding the rivers on which her mohanes descended playing bizarre music.

This is one of the old folktales that still survives in our bioregion. Although Mamapacha is a local symbol of nature conservation that evokes the spirit of the mother earth – *Pachamama*, the fact is that the ancient values and worldview belonging to the *Muisca* nation have vanished along with them. The Muiscas were the largest indigenous group, which became extinct two centuries ago, and that inhabited eastern range of the Colombian Andes. Like many other native nations in America, they also regarded maize as a gift from the gods and as the very raw material of which human beings were made. Today, only few traits of the Muisca

The present

The local populations (mainly mixed-raced peasant, craftsmen and working class) have suffered decades (if not centuries) of abandonment and exclusion, and the current economic policies have resulted in a complete ruin of peasants’ livelihood. So for most of them, their primary focus nowadays is survival, pure survival, gone are the days in which communities really cared about being in harmony with the “whole”. Annapurna Farm believes that in order to build a lasting peace in the current post war period in the country, Colombians need to focus on the upliftment of our rural communities. Peasants and farmers need good agricultural policies that would allow them a dignified livelihood in the rural areas. They need access to education, health care and opportunities to develop their potential. Only after improving their quality of life and ensuring an income, they can gradually adopt more sustainable agricultural practices and ways of living, and become guardians of natural resources and leaders of conservation. This is the firm belief of the Annapurna Farm – Sustainability Knowledge Centre.

Through Annapurna Farm’s sustainable way of living and its programs on solidarity economy, reforestation and productivity, sustainable practices and food sovereignty, the team wants to revitalise the local economy, help rebuild the social fabric and turn the bioregion into a model of sustainability.

These are some of the material changes we want to promote in our bioregion in the mid-term:
Recovery of native seeds and agro-biodiversity to achieve food sovereignty

- Revival of local forms of solidarity such as lent hand, community work, farming in partnership and are strengthening of the local social fabric
- More awareness on the importance of water, forest and soil conservation. Peasants need to understand that conservation can go hand-in-hand with production
- Gradual introduction of more sustainable techniques of food production and land management
- Strengthening of the existing farmers’ associations and local markets

Changes we would like to see due to the indirect, positive effect of Annapurna Farm programs

- Revival of the local economic activity, respectful of the environment, in which there will be diversification of sectors, products and services
- Reversal of the demographic trends in which young adults who migrate to the cities chose to come back. Resulting in more children and young families staying in the region
- The bioregion will be recognised for its biodiversity and its people will be recognised as leaders on best sustainable practices

Our Inner believes

Beyond this thirst for social justice and social action, there is something that neither politics nor economy can provide, it is something that the rational mind and intellect with its ego, morals and religion cannot grant, because they have their own limits. It is the realisation of one’s divine essence and the realisation of the Divine Truth within oneself and the rest of the creation. In other words, it is the aspiration to consciously take the next step of evolution of the spirit. We firmly believe in the importance of inner work to perfect ourselves if we want to survive as a species. In this quest for perfection and realisation of the Divine Consciousness it is essential:

To gradually turn one’s attention from the surface (life, mind and body) to look inwards,
To work sincerely in the purification and transformation of all parts of one’s being,
To be at the service of greater realities than the ego and
To pursue greater beauty and harmony.

This is the personal quest that we are on and which embodies the spirit of the Annapurna Farm. However, it is not something that we plan to or even can teach at the farm, for only the spiritual Masters, who have risen to a higher consciousness, can inspire and communicate this to others.

Our silent and deepest aspirations rise towards the light as the trees rise toward the sky. Will we be able to manifest and materialise this aspiration in our lifetime? Will our aspiration bring noticeable changes in our locality? We do not have the answers.

The changes we see in the world today are intellectual, moral, physical in their ideal and intention: the spiritual revolution waits for its hour and shows up meanwhile its waves here and there. Until it comes the sense of the others cannot be understood and till then all interpretations of present happenings and forecast on man’s future are vain things. For its nature, power, event are that which will determine the next cycle of our humanity.

Sri Aurobindo
Annapurna Farm – Sustainability Knowledge Centre is located within the ancient territory of the Muiscas – the largest indigenous nation before the Spanish colonisation of what we call today Colombia. Centuries of colonisation of the country and the region brought along miscegenation, syncretism with catholic religion and new cultural, social and economic models. It also provoked the extermination of most of the indigenous nations and brought new forms of violence. The 20th century completely immersed the region into the Western culture, while the few remnants of the Muisca tradition disappeared or were ostracised because they were considered symbols of backwardness. And the Catholic religion became the pervasive worldview in the territory (and in most of the country); nowadays there are no local traditional rites of passage (apart from the catholic sacraments) surviving in the bioregion. Despite the uniformity brought by westernisation, there are still few elements from the ancient cultures visible in today’s peasant societies.

Some of the traditions listed below do not necessarily imply rituals per se, but they are meaningful symbols of the local tradition and history which continue to survive in our otherwise westernised culture. Given the nature of Annapurna Farm’s project, working and perpetuating them will be crucial for the team to achieve their goals.

The first element worth mentioning is the importance that maize continues to have as staple food in the local culture. Maize was considered by the indigenous nations as the very raw material of human beings, as a golden gift from the gods to relive the misery endured by the Muiscas. It was Bochica, a wise man who came from the stars, brought civilisation to the Muiscas and taught them to cultivate maize; he taught not only agriculture but also pottery, spinning of cotton to weave fabrics, and moral values. Today, maize cultivation has strong social and economic relevance in the region. Right after the first rains of the year (usually around Easter), peasants prepare the land for cultivation of maize. Families and neighbours get together to pray for a prosperous year and sow maize grains. Usually expenses and manual work to cultivate maize are shared, and so is the harvest (after six months in temperate regions and four months in warm regions). This crop inaugurates the yearly agricultural calendar, because all crop plantings follow after the planting of maize. Although one could not say that peasants are 100% self-sufficient in maize, each family cultivates at least one or two small fields that will provide them with maize for six months. With maize, people prepare alcoholic drinks (chicha), the bread for breakfast (arepa), cakes and biscuits, sweet dishes, soups and salads that are daily consumed by the locals.

All rural primary schools from Pachavita celebrate the Carnival of Maize in October (the month of the harvest), led exclusively by children. They research, with the help of the elders, different maize related living traditions such as gastronomy, associated rituals, handicrafts (the traditional uses of corn husk, corn silk and corn cob), oral traditions, dances, life style and agricultural practices. They also conduct a research on different types of traditional, creole, endemic and archaic varieties of maize, along with their growing cycle and uses. Each rural school organises a colourful parade showing the result of their research, in which children and elders participate together. The main message of this celebration is the fundamental importance of growing local varieties of maize to improve the diet and achieve food sovereignty. This is the second year that Annapurna Farm will participate in this carnival because the team sees the importance of assimilating and supporting the local heritage.

There are other local traditions related to the maize culture, for instance, maize bread and biscuit baking. Each farm has a clay oven and every weekend families, relatives and neighbours get together to bake bread for the week. It is a moment of sharing not only a piece of bread, but a word and a pleasant moment with the community. Women usually knead the dough and make bread. Men usually grind maize and light up the fire.

For generations, many local seed guardians have been keeping traditional varieties of maize. Some of them are regional or national activists who are working actively to preserve and promote the use of these local varieties. They teach the cultural or culinary use of each variety, their soil and nutrition requirements.
Annapurna Farm sees the promotion of cultivation and consumption of maize as one of the key points to achieve one of its goals, which is food sovereignty at least in the surrounding rural areas. For this reason: 1) In the farm, maize is planted year after year in partnership with the neighbours, 2) Annapurna Farm has been supporting the carnival of maize and is looking to unite forces with rural schools to start a Seed Saving Festival in the locality, 3) For the festival, the team has to identify all the seed savers of the bioregion and invite them to collaborate with them, and 4) The team has to map all the women and families processing and producing maize derivate products and design strategies to marketing and selling their products within the region.

Within the bioregion, there used to be another indigenous nation, neighbouring the Muiscas, called Teguas. They were specialists in herb planting and their use for medicinal purposes. Although they also, like the Muiscas, did not survive as an ethnic group, their knowledge was passed on to some of their descendants. Different herb healers, herbalists, massage therapists and midwives go from village to village of the bioregion offering their rituals, knowledge and experience. They cure with homemade remedies, beverages, and prayers. The general belief in the region is that the traditional medicine gives better results than the conventional western medicine, additionally it is affordable and healthier given the lack of use of pharmacology. Ironically, today the term “tegua” is a pejorative term used in Colombia to refer to a healer or a medicine practitioner who does not have a license.

Pre-hispanic societies, groups and chiefdoms were immersed within a huge network of trails that interconnected them with each other, and allowed a long chain of commercial and cultural exchange from the Andean ranges to the Caribbean Coast. This network of ancient trails was the vein through which the Spanish colonisation penetrated and expanded its civilisation and its political and economic control; the trails also provided the vital force for trade and commercial exchange in the republican years after independence. Merchandises for export (coffee, indigo, rubber, cinchona bark, cotton, tobacco etc.) circulated, and many foreign ideas, news and machines penetrated the hinterland through these networks; these rural paths are in fact a common heritage that accounts for the mobility and human exchange in our nation. Today, the network of trails is in disuse, after the evolution of roads and faster ways of transportation; some trails have disappeared or are in bad shape. In the bioregion there are hundreds of trails connecting villages with each other, connecting the villages to cities and towns or connecting them to the rural areas. A few of them are used for different Catholic pilgrimages, peasants also make full use of some others to go from one village to another, given that public transport (shared taxis and buses) in the region is deficient. Although walking on the trails does not represent a proper ritual, to walk on them brings back to us our history and offers a way to revive our cultural heritage.

Annapurna Farm team is interested in collaborating with and inviting the local “Teguas”, descendants of that ancient culture, to teach, spread and promote the cultivation and use of local herbs among our communities, as a way to improve the locals’ health and quality of life.

Another beautiful tradition in the bioregion is the water sowing. In a municipality located a few kilometres away from the farm, there is a holy water crypt. It is a water spring located in the basement of a Catholic church, and people believe that its waters have miraculous and healing powers. But its most important feature is that people believe if it is sown with faith in a farm or field devoid of water, in some years water will spring up naturally. For this reason, villagers and peasants go to the crypt to fetch water in a wooden flask and “sow” it in a field where water can possibly come out. The holy water is shared with neighbours and relatives and is sowed by the family. Water sowing is an ancestral ritual that acknowledges the sacredness of water, source of life without which plants, animal and humans cannot survive.

Water sowing is the cornerstone to explain the locals, in their own terms, the importance of water and forest conservation and management. Different activities such us pilgrimages, collecting testimonies, community water sowing, etc., can be done to create awareness.

Treking on the local trails is one of the team’s favourite activities. The local and state governments have recovered more than 10 interpretative trails such as the trail of the “Teguas” (to explain the Tegua culture), the trail of coffee and sugarcane farms, Trail of Mampacha (trail to the paramo of the same name), trail of Santa Maria (crossing a tropical rain forest), the trail of “basketry” (trail that explains this tradition), etc. Annapurna Farm wants to promote the use of these trails through our activities and events.
Peasant population in the bioregion is deeply religious; they comply with all the Catholic sacraments and celebrate with fervour all the religious celebrations of the Catholic calendar. Peasants seek refuge in religion because historically they have been at the mercy of structural violence (poverty, injustice, lack of opportunities...) and have had little support from authorities (government, legal system...) and institutions. Team members of the Annapurna Farm – Sustainability Knowledge Centre does not intend to change their religious faith or impose their spiritual beliefs over the local community. Instead, the farm’s team wants to manifest their deep respect for peoples’ beliefs, for nature and all sentient beings through their way of living, their daily actions, their conscious presence and their strong commitment to cultivate their inner-self. The team wants to focus their engaged action to the promotion of sustainable rural development and the social and economic inclusion of local peasant population. The team believes that peasants in general should also get the same opportunities to develop their full potential.

Before trying to identify the transition of the bioregion to a planetary era, peasants and villagers need first to meet their material needs; they need to secure a dignified livelihood. As a society, they need to learn interpersonal skills and techniques on non-violent conflict resolution. As citizens, they need get empowered to find ways to increase their democratic inclusion. As human beings, they have to revolutionise their approach to nature, they need to adopt sustainable practices and become stewards of our biodiversity in their full right. So, we have a long way to go before thinking of a spiritual evolution of local people. However, Annapurna Farm – Sustainability Knowledge Centre is taking the first humble steps to help the local communities to achieve their economic and social empowerment and to create awareness about caring and respecting our home.

We firmly believe that our committed social action and our interest to cultivate inner and outer beauty will certainly have a positive impact in the region.

5. Engaged Spirituality

These are some values and qualities the team wants to cultivate to strengthen their engaged action:

**Sincerity:**
It means more than mere honesty. It means that you mean what you say, feel what you profess is earnest in your will.

**Surrender:**
It means to consecrate everything in oneself to the Divine, to offer all one is and has, not to insist on one’s ideas, desires, habits, etc., but to allow the divine Truth to replace them by its knowledge, will and action everywhere.

**Care for material things:**
Material things are not to be despised – without them there can be no manifestation in the material world. Detachment from difficulties: ...Obstacles are part of the Nature and they have to be overcome... not by giving them their full force; it can be rather done by learning to stand back from them and to refuse to be carried away... It is the light within that you have to make room for.

**Humility:**
Perhaps one could say that it is to be aware of the relativity of what has been done compared with what is still to be done – and also to be conscious of one being nothing without the Divine Grace.

**Patience and perseverance:**
One who has not the courage to face patiently and firmly life and its difficulties will never be able to go through the still greater inner difficulties of the saddhana. The very first lesson is to face life and its trials with a quiet mind, a firm courage and an entire reliance on the Divine.

1. All quotes are from “Selected Letters of Sri Aurobindo”. Compiled by Sri Aurobindo Ashram Archives and Research Library
Upper left and right: scenes from the Carnival of Maize, Pachavita 2015. Middle left: Trail from Garagoa to Tenza. Middle right and above: scenes from the celebration of Saint Isidore, the saint of peasants, Garagoa 2015.
CONCLUSIONS

Annapurna Farm – Sustainability Knowledge Centre aims to be the nerve centre of sustainability in the bioregion of Valle de Tenza and beyond. It will achieve this goal by organising a variety of training programs for the locals through which the team will share practical, actionable knowledge on the themes of sustainable land management, solidarity economy, and food sovereignty. While a globalised economic system promotes the idea of "progress" at the cost of the environment, the Annapurna team believes that economic prosperity can be complementary to environmental sustainability. In fact, for impoverished communities, economic wellbeing is a prerequisite in order to achieve environmental sustainability. With this as the central theme and guiding thought, the team aims to disseminate through its training programs practical ideas to achieve a thriving local economy within the context of a bio-region in which the natural resources are managed sustainably. More specifically the programs will focus on the following dimensions:

**Ecologic dimension.** In order to improve the life quality of rural communities, it is important to implement within the bioregion sustainable practices such as afforestation, water management, regenerative farming, etc. We want to highlight that recovering, protecting and using agro-biodiversity is essential for the well-being of all: it is good for the planet, good to improve people’s diet and good for the local economy.

**Economic dimension.** Rural communities want true economic equity. They want to ensure a fair and sustainable livelihood for them and their families. For this, they need to adopt long-term vision and sustainable business practices, in order to overcome the deficient model of subsistence economy prevailing in the peasant world. But they cannot do it alone, they need the attention and support of government agencies and civil society organisations.

**Social dimension.** It is important to train peasant communities on human rights, non-violent communication, leadership and methods of self-governance, so they will have the chance to lead their own communities and processes. In this matter, sustainable living networks and movements can make a significant contribution.

**Worldview dimension.** Deep respect for the peasant communities, their believes, ethos and worldview is essential in order to develop valuable and successful community work with them, supporting peoples’ celebrations, festivals and traditions is a way to encourage high self-esteem, and foster leadership qualities in general.

We, the Annapurna Farm team, invite you to be a collaborator in achieving these goals.
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