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# PoA Practible Insight

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An overview of the first Gold Standard VER PoA

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Zürich, 2010

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# 1 The Qori Q'oncha Programme

## 1.1 Facts and Figures

<b>Programme location</b>	<b>Perú</b>
Regions of VPA1 (2008/2009)	Ancash, Cuzco, La Libertad
Programme Standard	Gold Standard VER
Programme Type	Energy Efficiency
Emission Reductions (VPA1)	168'291tCO <sub>2</sub> -eq. (over 7 years)
Programme Activities	Efficient cook stove implementation
Number of cookstove constructed	29'069
Programme Start	September 2008

## 1.2 Introduction

The Qori Q'oncha energy efficiency Project in Perú, is worldwide the first voluntary Gold Standard „Programme of Activity“. The project's aim is on the implementation of efficient cook stoves in the poor mountainous regions of the Andes in Perú. Its objective is to improve life conditions of the people, reduce CO2 emissions and fight against deforestation. In the first VPA the cook stoves have been implemented in the three different project regions La Libertad, Cusco and Ancash.

For the future an increase of about 260 000 new implemented stoves is expected and an expansion of the project in several regions. Contracts with new project developers for the next VPAs have already been signed until 2012. The forecasted plans for the VPAs are:



Figure 1-1: Overview over the three Project regions: Ancash, Cusco, La Libertad

VPA's	Cook stoves planned/built	Cook stoves expected
VPA1 (2008-2010)	30'000	40'000
VPA2 (2011)	52'000	60'000
VPA3 (2011)	100'000	100'000
VPA4 (2012)	27'000	27'000
<b>TOTAL</b>	<b>209'000</b>	<b>227'000</b>

### 1.2.1 The Project Country

Peru is located on the west coast of South America. Its geography varies from the arid plains of the Pacific coast to the peaks of the Andes Mountains and the tropical forests of the Amazon Basin. Its main economic activities include agriculture, fishing, mining, and manufacturing. Even though Peru has recently had some years of good economic growth, its fast-developing urban economy has not led to environmental improvements of technology. The rural areas are strongly affected by the degradation and deforestation of tropical and mountainous forests. The country is considered to be the 3rd most vulnerable country to climate change. Peru has numerous tropical glaciers that are currently rapidly melting and are expected to disappear within a century. Moreover, desertification will soon be putting the poorest inhabitants of the country in danger, including those in mountainous Andes region. Deforestation is threatening the biomass reserves of the country. Apart from ecological problems, the poorest part of the Peruvian population has largely been marginalized by economic growth. Many families live below the poverty line and their access to basic needs like drinking water, electricity, balanced nutrition and medicine are very low.

### 1.2.2 The situation in the project region

Indigenous people of Peru are living in rural and often remote areas of the country. They usually work in agriculture in order to be self-sufficient. These families have been cooking their meals on the ground in the house over a naked flame for ages, producing a lot of health-hazardous smoke. The kitchen usually has been an insanitary, unpleasant environment that was constantly filled with heavy smoke. As a result, acute respiratory illnesses such as asthma or lung cancer and eye diseases have been a huge problem for women and children. Additionally, this traditional form of cooking requires vast amounts of firewood which puts pressure on the local forests and thus is a major contributor to climate change.



Figure 1-2: Women in front of her inefficient cook stove without chimney

### 1.2.3 Improved efficient cook-stoves

The efficient cook stove design is based on improved heat storage and includes a chimney for smoke removal. The specific stove models vary from region to region as the stove models depend on the presence and nature of local materials. Some characteristics that are in common for all improved cook stoves under the Qori Q'oncha Programme are:

- Isolating materials are used, in order to optimize heat efficiency.
- The technology design of cook stoves respects the basic physics rules, in order to optimize internal combustion and practical use of the stoves.
- The cook stoves have a chimney that draws the toxic smokes outside the house. This reduces smoke emissions and improves the indoor air quality, and thus improves the health condition of women and children.

The stoves are mainly built with Adobe bricks. Adobe is a natural building material made from sand, clay and water, with some kind of fibrous or organic material, which is shaped into bricks and dried in the sun. Adobe bricks are extremely durable and have been in use by indigenous people of the Andean region of South America for several thousand years.

As the cook stove implementation is accompanied by strong capacity building on hygienic and sanitary issues, many families clean and reorganize their cooking environment and thus the Programme Activities lead to an improvement of hygienic standards. Living becomes more comfortable and the meals become a part of the social life.



Figure 1-3: Women in front of her efficient cook stove

Figure 1-4: Efficient cook stove 3 month after implementation

### 1.3 Co – Benefits

Since the Qori Q'oncha Programme is conducted with Gold Standard, the programme contributes considerably to sustainable development in the region, focusing not only on environmental but also on social and economical benefits. The cook stove implementation accomplishes the following benefits:

- Reduction in use and demand of non-renewable firewood. This protects the local forest and leads to reduction of CO<sub>2</sub> emissions.
- Reduction or elimination of smoke in the kitchen due to cook stoves with chimneys. This improves the indoor air quality and has a positive impact on the respiratory health of the people, especially the women and children.
- Reduction of time spent for collecting firewood and therefore more time available to spend with the family or to work.
- Reduction of money spent on firewood and therefore more money available to spend for alimentation or sanitary products.
- Reduction of soil erosion and advancement of biodiversity.
- Reduction of particulate matter, methane and nitrogen oxide emissions
- Capacity and awareness building in environmental and health issues.

### 1.4 The implementation of the project

Due to missing finance and lacking knowledge, too little has been done in the past for improving the unsatisfying health condition in the families' houses and to protect the forest. However, some local NGOs as well as development cooperation organizations like the German GTZ have been working with efficient stoves since many years in the country. Most of these efforts rely on donation schemes and are implemented on a small-scale level without having a long term monitoring plan. Hence, still much more has to be done in order to let the efficient cook stove become the common kitchen technology in rural areas. As the application of efficient cook stoves leads to greenhouse gas emission reductions, the carbon market

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offers a perfect opportunity for project funding. The use of these extra finances enables an enlargement of the project size and comprehensive Programme Activities, which in turn assures the projects outcome in the long term. The Gold Standard Cook Stove Methodology is designed as an ideal instrument to upscale existing projects while strengthening the monitoring and sustainability aspects.

## 2 Programme of Activity<sup>1</sup>

The Qori Q'oncha Programme is the first implemented Programme of Activity in the Voluntary Market. According to the information of Gold Standard, Voluntary Carbon Standard and VER+ the Qori Q'oncha Programme is so far the only validated VPoA.

### 2.1 What is a PoA

The Programme of Activity was introduced in 2005, during the first meeting of the parties of the Kyoto Protocol. The first registered Programme was in July 2009 in Mexico. The new modality of the so called "PoAs" evolved to strengthen the position of small-scale projects on the market. With the "Programme of Activity" a new opportunity for small-scale projects was created and an answer found for the broad problem of project failure due to small size. The implementation of small scale projects was often hindered, because the transaction costs were too high compared to the low volume of emission reductions. The result was the exclusion of many small scale projects from the Carbon Market.

"Programme of Activity" is a new modality, which offers more flexibility in terms of project timeline, project boundaries and project size. This flexibility is achieved thanks to a new structure in the project organization, precisely on the operational level. Thus the "Programme of Activity" operates not only on one level but on two: At the Programme level (PoA) and at the Programme of Activity level (VPA). This is the main difference between a "Programme of Activity" and a conventional emission reduction project.

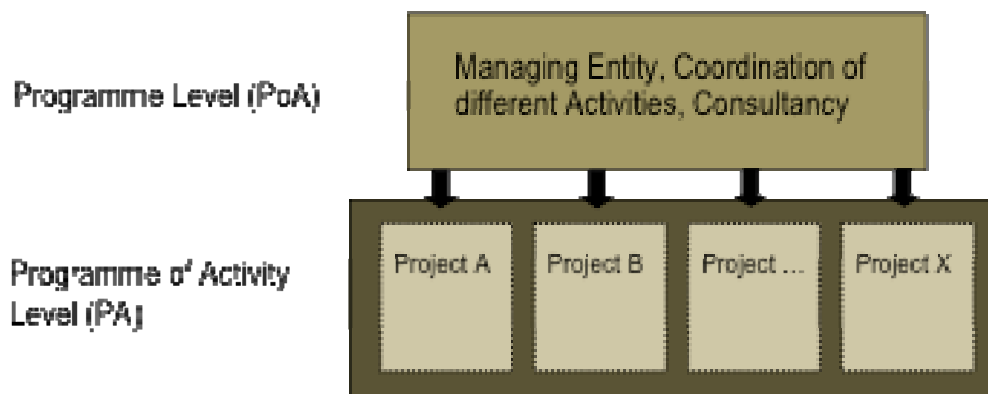


Table 2-1: Structure of a PoA – Programme of Activity. PA: Programme Activity can be a CDM or a VER Programme Activity.

A PoA is structured into two levels: The superior programme level (PoA) and the subordinate Programme of Activity level (PA).

<sup>1</sup> Chapter 2 relates to the following sources: PoA Blueprint Book : Guidebook for PoA coordinators under CDM/JI (2009). Primer on CDM Programme of Activities (2009). PoA Rules and Guidance - Annex F. The Gold Standard (2009). Annex 38 : Guidance on the registration of project activities under a programme of activities as a single CDM project activity (Version 02.1)..

### **2.1.1 Programme level (PoA)**

The managing entity can be a private or public company located either within or outside the country. Its function is to provide the framework, to coordinate the different Programme Activities and to communicate with the Designated Operational Entity and the Executive Board on all matters. It is also the responsibility of the managing entity to ensure that the emission reductions are not double counted. The programme level is like an umbrella that spans the different Programme Activities. Under the umbrella of one programme level various individual emission reduction projects can be implemented.

### **2.1.2 Programme of Activity level (PA)**

On this level, the specific emission reductions are actually conducted by those that participate in the programme. On the Programme Activity level, an unlimited number of emission reduction projects can take place. Every VPA is identical to a traditional stand-alone VER project. Among themselves, the projects are completely independent.

The big benefit of this new structure results in the possibility to have various projects run under the same programme level. This leads to a reduction of the administration costs in the long term and gives the chance to develop small-scale projects that could not have been reached with the conventional Voluntary Project mechanisms.

### **2.1.3 Administrative effort**

One of the biggest conveniences of this new modality is the fact, that after the first Programme Activity registration, the individual project concept has already been validated and a mayor part of the regulatory risk has already been taken care of by the Managing Entity. The subsequent Programme Activities do not need to go through the entire registration process again, but only need to go through consistency checking. Therefore they profit from higher security and lower transaction costs.

In a PoA, administrative effort and project costs can be reduced in the long term. But one has to take into consideration that the validation and registration process of the first Programme Activity of a PoA is more time consuming and more complex than in a regular CDM project. The advantages of such a scheme appear only after further Programme Activities.

## **2.2 Requirements for a VPoA**

### **2.2.1 Size**

The size of a Programme of Activity is infinite. In a Programme of Activity, the size limitations are given on the Project Level, which means that every Programme Activity counts as common VER Project and is restricted to its rules. For a Small Scale Project Activity 60'000 tCo2/y and for a Large Scale Project Activity there are no limitations. The size of the total Programme of Activity depends on the number of Projects Activity and is therefore infinite.

### **2.2.2 Technology**

A Programme of Activity is especially suitable for technologies used for small scale projects, such as residential lighting, fuel switching, efficient cook stoves, upgrading or replacing small to medium size boilers, small landfills, water treatment systems, small hydropower stations, reforestation and others.

### 2.2.3 Boundary

The Gold Standard PoA Rules and Guidance – Annex F (2009) defines the boundary for the PoA as the geographical area (e.g. municipality, region within a country, country or several countries) within which all VPAs included in the PoA will be implemented, taking into consideration all applicable national and/or sectoral policies and regulations of each host country within that chosen boundary.

### 2.2.4 Methodology

According to Gold Standard PoA Rules and Guidance – Annex F (2009) the Gold Standard allows voluntary PoAs to use more than one methodology without prior approval. All methodologies must be introduced in the PoA-DD together with a justification of their use.

### 2.2.5 Duration

For the Gold Standard, the duration of a PoA is limited to 28 years or 60 years for A/R project activities. Every single Project Activity running under a PoA has the regular 7 to 10 years duration time. The managing entity can add a VPA to the registered Programme at any time during the PoA.

### 2.2.6 Retroactive registration

To retroactively register a VPoA under Gold Standard all VPA's that have already been operational, under construction or implementation at the time of first submission have to accomplish a pre-feasibility assessment. If the result of the assessment is positive, a retroactive registration is possible.

### 2.2.7 Retroactive crediting

A VPoA submitted for Gold Standard registration can receive credits for emission reduction realized up to a maximum of two years before Gold Standard registration.

## 2.3 PoA versus Bundling

Before the modality of PoAs has been launched, there have been attempts to promote the origination and the grouping of small-scale projects with the so called "Bundling". "Bundling" is defined as bringing together several CDM project activities to form one single CDM project.

The main difference between a bundled activity and a Programme of Activity is:

A bundle has a predefined, fixed structure.

No activities can be added after the registration.

The given size limit for small-scale methodologies under CDM, apply on the level of the whole bundle and not only on the level of an individual Programme Activity (PA).

These restrictions do not apply to PoAs. Therefore, a PoA offers a lot more flexibility. Basically, bundling was designed for individual project sponsors that deal with a limited number of known similar activities whereas a PoA was made for programmes that deal with a large number of different entities to undertake one certain type of activity.

Because bundling requires every single project to be identified and qualified before registration, the regulatory risk is not reduced before the registration and the uncertainty for the participants is identical as in a regular VER Project.

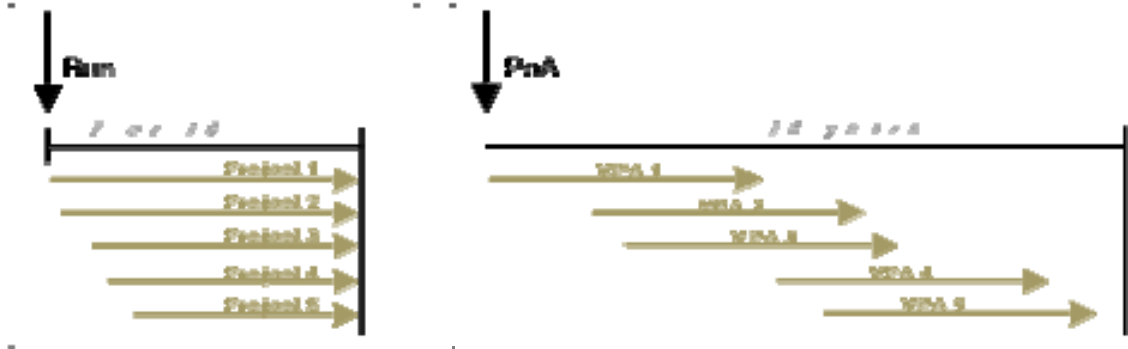


Table 2-2: Project action in a bundle project. All activities must be identified and qualified before registration. The duration time of 7 or 10 years starts with beginning of first project.

Table 2-3: Project action in a PoA. An unlimited number of CPAs can be added to the registered programme at any time during the PoA.

### 3 Qori Q'oncha: Organisation and Actors

The Qori Q'oncha Programme is carried out by the two institutions myclimate in Switzerland and Microsol in Perú. Microsol is the project owner and developer, where myclimate supports the development of the carbon process, the sourcing of new local project participants (LPPs) and acts as credit buyer. The VPA1 is implemented by three LPPs:

- ITYF, "Sembrando"
- "ADRA Perú"
- "ProPerú"
- Further partners will be added in future VPAs.

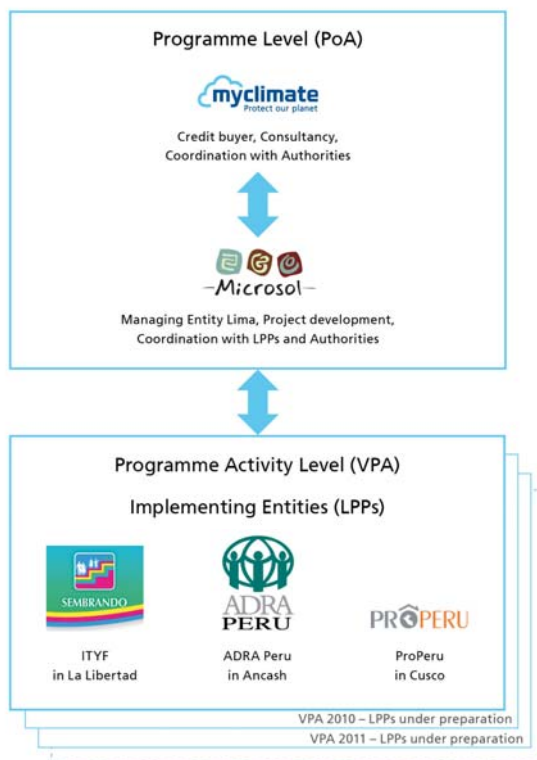


Table 3-1: Organization of the Qori Q'oncha Programme of Activity.

#### 3.1 Managing entities

##### 3.1.1 myclimate

myclimate is a Swiss non-profit foundation, dedicated to climate protection. It is among the world leaders when it comes to high quality, voluntary carbon offsetting measures. myclimate has projects in 37 countries all over the world and a profound knowledge and a lot of experiences in carbon offset project

development. Besides the project development, myclimate sets up carbon assessments and contributes to the awareness to the climate change and climate protection.

Function and Responsibilities: myclimate supports the development of the Qori Q'oncha Programme. It buys the emission reduction credits from microsol and sells and retires them to its worldwide clients. myclimate supports the carbon market related processes, revises the mayor documents and is in contact with the carbon market actors like the DOE and the Gold Standard. Further it is involved in all matters of the non-Peruvian side of the project organization especially the Gold Standard registration, validation, verification and VER generation.

### 3.1.2 Microsol

Microsol is a French, Peruvian-based social enterprise that acts as the managing entity of the programme. A part from adjusting the project activities to carbon market rules and its processes, Microsol does capacity building to its partners on carbon and stove diffusion. Microsol writes the PoA-Design Document, the VPA-Design Documents the monitoring reports and coordinates with DOEs and the Gold Standard.

Function and Responsibilities: Microsol is the owner and the developer of the programme and acts as the managing entity of the Qori Q'oncha Programme in Perú. It works closely with the local project partners and is the link between the local partners and myclimate. Microsol adjusts the project activities to carbon market rules and its processes, writes carbon market related documents and coordinates informative meetings, monitoring activities and the main stakeholder consultation on the PoA level.

## 3.2 Local Project Partners

Function and Responsibilities: The Local Project Partners are responsible for the cook stove implementation in the current region. They inform about project activities in the communities, are responsible for the capacity building, the efficient cook stove construction and carry out local stakeholder consultations, Kitchen Tests and Kitchen Surveys. The LPPs are in charge of supplying the needed data to Microsol and inform in case of difficulties. They are the link between the beneficiaries and Microsol.

### 3.2.1 Sembrando

"Sembrando" is part of the "Work and Family Institute", an independent, private NGO with the goal of poverty reduction in the High - Andean regions which have hardly any access to facilities and usually can not profit from the economic growth of the country. The "Instituto Trabajo y Familia" (ITYF) implemented the "Sembrando" Programme in these populations to link and strengthen the existing social capital in Perú. The Programme started in August 2006 and ever since it has reached more than 10'000 families per year. "Sembrando" is responsible for the cook stove implementation in the region of La Libertad. So far "Sembrando" is the biggest LLP with 24 000 implemented efficient cook stoves in its Programme Activity.

### 3.2.2 ADRA Perú

ADRA Perú is the Peruvian branch of the international NGO ADRA that has actions in over 120 countries worldwide. Its projects are focused on sustainable development in regions with extreme poverty. ADRA Perú is responsible for the cook stove implementation in the region of Ancash. So far ADRA Perú has implemented 3000 efficient cook stoves in its Programme Activity.

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### 3.2.3 ProPerú

ProPerú is part of the NGO named ProWorld, which has its teams in Peru, Belize, Mexico, India, Thailand, Brazil and Ghana. Its projects help assess and execute projects to ensure sustainable and valuable development. ProPerú is responsible for the cook stove implementation in the region of Cuzco. ProPerú is the smallest LPP of the three and so far has implemented 2000 efficient cook stoves in its Programme Activity.

## 4 Technical Description

### 4.1 Cluster definition

The first VPA in the Qori Q'oncha Programme consists of the three Clusters La Libertad, Ancash and Cuzco. One clusters for each LLP is needed, because each LPP works with its own cook stove model has its own diffusion strategy and works in regions with different conditions. An additional study was made if a further division in a cluster itself is needed. This was found as unnecessary. The programme clusters remain therefore:

- Cluster I: La Libertad
- Cluster II: Ancash
- Cluster III: Cuzco

### 4.2 Emission Reduction Calculation

The emission reductions calculations of every cluster are carried out with the Kitchen Test and Kitchen Surveys. The calculated are based on a comparison of the average fuel consumption before and after the project implementation. The LPP's measure the fuel consumption of the families with the above named Kitchen Survey and Kitchen Test. Firewood fuel is considered as the major fuel, other fuel fractions are null so that only firewood fuel is included in the measurement. Out of the results an expert statistical analyses is conducted to define the final values. The statistical default values are predefined in the methodology. The emission reduction calculation has to be done for each cluster separately, as the conditions differ from cluster to cluster. The addition of all clusters results is the total programme emission reductions.

#### 4.2.1 Kitchen Surveys

The Kitchen Survey is a questionnaire used for the evaluation of the baseline and the project scenario. It generates qualitative information based on the estimations and statements of the families. The questionnaire mainly contains questions about the stove and fuel use and about the cooking habits of the family during the year. The Survey also contains questions about health issues and opinions of the family about the cook stove.

#### 4.2.2 Kitchen Tests

The Kitchen Test is also a questionnaire used for the evaluation of the baseline and the project scenario but in opposition to the Kitchen Survey, the test is based on measures and weights and generates quantitative information. The date is collected on a three-day or weekly period. The Local Project Partners visit the families to calculate the weight of the firewood piles used in the households. The result of the Kitchen Test is in Kilograms.

### 4.3 Project Leakage

Leakage is defined as additional greenhouse gas emissions, which are caused by the project activity and therefore have to be considered for the final emission reduction calculation.

In the applied Gold Standard Methodology, the following six types of leakage have to be considered.

L<sub>1</sub>: Increasing consumption of GHG emitting fuels by the project population consecutively to the project activities (rebound effect).

- These emissions are already included in the Kitchen Tests and can be considered as L<sub>1</sub> = 0.

L<sub>2</sub>: Increasing use of Greenhouse gas emitting fuels outside the project boundary

- It is very unlikely that Qori Q'oncha project activities would lead to a decrease of fuel price, as the market size is very small. Nevertheless, alternative wood consumption would be used for production of wood products, such as furniture. As in the fabrication of pieces of furniture carbon is not released but fixed, even an increase of furniture production would not lead to an increase of Greenhouse gas emission and L<sub>2</sub> can be considered as L<sub>2</sub> = 0.

L<sub>3</sub>: Purchase of the improved stove by population whose baseline is less Greenhouse gas emitting than the emissions linked to the use of improved stove.

- In Peru, the alternative cleaner stove models are expensive LPG stoves. Unless gas prices would increase significantly, a switch back from gas to wood is very unlikely to happen, because it is considered to be very inconvenient. Whenever it would occur anyway, the emissions would be covered in the evolving baseline. L<sub>3</sub> can be considered as L<sub>3</sub> = 0

L<sub>4</sub>: Adoption of a new device or practice specifically dedicated to heating, caused by the project activities.

- These emissions are already included in the Kitchen Tests and can therefore be considered as L<sub>4</sub> = 0.

L<sub>5</sub>: Reuse of old stoves inside or outside the boundary

- As traditional stoves can not be moved around, there can be no reuse of old cook stoves outside the project boundary. Inside the project boundary, there is the possibility of reuse of stoves, as not all households destroy their old cook stove. In case of reuse, the emissions are included in Kitchen Tests and can therefore be considered as L<sub>5</sub> = 0.

L<sub>6</sub>: Significant emissions linked to stove transport or fuel transport.

- As the cook stove construction is based on local materials, transportation and its emission is generally little. But nevertheless some specific spare parts, like the chimney or cooking surface have to be transported to the project regions. The emissions of these transports are being considered in every cluster as L<sub>6</sub>.

## 4.4 Non-Renewable Biomass Fraction

To calculate the emission reductions conducted by the programme, the non renewable biomass fraction (NRB) is needed. The amount of non-renewable biomass drawn from the fuel collection area (A) is quantified as:

$$NRB = H - MAI$$

NRB: Non-renewable biomass is the non-renewing biomass or excess harvest over and above re-growth, which is the amount of woody biomass removed with attendant CO<sub>2</sub> emissions, which are not absorbed by re-growth.

H: Harvest is the annual harvest of woody biomass, including forest clearance, timber extraction and consumption of wood-fuels, drawn from fuel collection area A.

MAI: Mean annual increment is the sum of mean annual increments of wood species, or „re-growth“ in area A.

The mean annual increment rate is based on data from Agrorural (Programme for productive development in rural areas). For the whole region of La Libertad as well as for some provinces in Ancash and Cuzco there

was not any data available. The missing information was found by using information of the closest district with available data, always taking in consideration a conservative approach.

The harvest data is based on data for the Forest Inventory (INRENA).

Most of the calculation was made on the community/district level, which is the most precise level. If data was not available at this level, it was estimated or interpolated from provincial departmental or regional level.

The NRB- Fraction calculation show, that between 71-75% of wood is non-renewable in the Project regions. The results are:

Department	NRB Fraction
Cuzco	71.5%
Ancash	71.7%
La Libertad	75.0%

Discussion: The forest conditions in the project regions vary strongly. There are areas with sufficient wood for firewood consumption and areas with too little firewood to supply its inhabitants with its needs. Furthermore, in some regions deforestation is mainly caused by industrial wood production and not primarily because of firewood consumption. The situation also depends on the altitude of the communities, since in very high regions there are only few shrubs for firewood available. The fact that some project regions mainly rely on fast growing eucalyptus is negligible, as eucalyptus forests are also vulnerable to deforestation. Furthermore, there are many projects regions with other forest formations such as pino, palto, tara, ceibo, quinal, retama etc.

The calculation of the exact NRB - Fraction is complex and very challenging because the data are very poor on national level. In addition, the right of the families to use the forest change constantly and it is impossible to have an overview of its users. This makes the examination even more difficult. Yet Microsol is working on this issue searching for a more exact technique to define the NRB-Fraction.

Even though the calculated NRB-Fraction is inaccurate, there are many reliable sources proving that the forest surface in the project regions has decreased clearly in the last years and deforestation is a problem that has to be countered.

## 4.5 Annual Emission Reduction per Stove

To get the annual emission reductions accomplished by the Project Activity per year, the annual project scenario emissions and the annual leakage have to be subtracted from the annual baseline scenario emissions.

$$ER_y = \sum BE_{i, y} - \sum PE_{i, y} - \sum LE_{i, y}$$

For the emission calculations, the amount of used firewood has to be multiplied by the Non - Renewable Biomass Fraction and by the Emission Factor of wood. Furthermore the amount of alternative fuel use has to be considered and multiplied by the Emission Factor of alternative fuel sources.

As described above Leakage  $L_6$  has to be considered in the emission calculation. The transport emissions are calculated by multiplying the amount of used fuel by the Net Calorific Value, the Emission Factor and the

Density of the appropriate motor gasoline. Also transport distance, average fuel use and the number of vehicles are considered.

$$\sum BE_{i,y} = \sum (X_{nr,b} * B_{b,l,y} * EF_{b,l,bio.CO2} + B_{b,l,y} * EF_{b,l,bo.nonCO2})$$

$$\sum PE_{i,y} = \sum (X_{nr,b} * B_{p,j,y} * EF_{b,l,bio.CO2} + B_{p,j,y} * EF_{b,l,y} * EF_{b,l,bio.nonCO2})$$

$$\sum LE_{i,y} = L_6$$

According to the Kitchen Test and Kitchen Survey, the average daily differences of firewood between the baseline and the project scenario are (in kg per day per stove):

**Average fuel wood savings per cluster:**

	ADRA	ProPerú	Sembrando
<b>kg<sub>wood</sub>/day/stove</b>	0.89	3.12	2.51
<b>t<sub>wood</sub>/year/stove</b>	0.324	1.138	0.916

Using the lower bound of a 90% confidential interval for the baseline consumption and the upper bound for the project consumption and considering the Non-Renewable Biomass Fraction, Emission Factor and Leakage in the calculation, the final result for the emission reduction is:

**Emission Reductions per cluster:**

	ADRA	ProPerú	Sembrando
<b>tCO<sub>2</sub>eq/year/stove</b>	x	1.16	0.97

Discussion: The result of the emission reductions of the ADRA Cluster is zero for the first monitoring period because no significant reduction of fuel wood consumption could be shown. With 0.89 kg, the daily difference in firewood consumption between the baseline scenario and the project scenario is very small compared with the savings in ProPerú and Sembrando. With the application of the statistical intervals and boundaries given in the methodology the difference can not be considered as significant anymore. The reasons for the small savings are currently under discussion and should be cleared for the next monitoring period. With 1.16 and 0.97 tons pre years, the values of Pro Perú and Sembrando seem plausible and they lay within the normal range of emission reductions from efficient cook stoves which is between 1 – 3 tons per year per stove.

### 4.5.1 Conservative Approach

For a carbon offset project it is very important that the amount of calculated emission reductions is not higher than the reduction actually achieved by the project. To assure this, the emission reduction calculation has to be done in a conservative way. This means that of all possible scenarios, the scenario with the least number of emission reductions has to be chosen.

In the Qori Q'oncha Project conservative calculation is achieved in following ways:

- The emission of fuel transportation is not included and consequently the calculated baseline emissions are smaller than usual.

- The emission reductions are not considered until the first day of the following month after the cook stove construction.
- In the calculation of the firewood collection area the distance data is used as a radio and not as perimeter. Therefore the estimated size of the firewood collection area is almost 10 times larger and thus the calculated NRB Fraction smaller.

A 90% confidence interval is used for the calculation of firewood savings.

## 4.6 Gold Standard Assessment

The Gold Standard Foundation is a Swiss non-profit organization that operates a certification scheme for premium carbon credit. The Gold Standard label certifies high-quality carbon offset projects that focus on a long-term sustainable development in the project region. Gold Standard projects are characterized by transparency and equality for all market participants. It is internationally recognized as the leading indicator of quality in carbon markets.

As a Gold Standard Programme of Activity, the Qori Q'oncha Programme has to comply with the Gold Standard project rules to demonstrate sustainable development. Apart from a profound stakeholder consultation the Gold Standard requires a Do-no-harm assessment and a Sustainable Development Matrix. These assessments are an additional clarification of the consequences of the Programme Activities on living conditions and environment.

### 4.6.1 Do-no-harm Assessment

The Do-no-harm Assessment examines the impacts on both social and environmental circumstances in the project regions. The following consequences are controlled:

- Human rights: Human right abuses, involuntary resettlement and removal of cultural heritage.
- Labour Standards: Work environment, child labour and freedom of association.
- Environmental protection: Involvement of critical natural habitat.
- Anti-corruption: Complicity in corruption.

The objective of the Do-no-harm Assessment is to avoid any bad impact by the PoA, which is analyzed with the help of a questionnaire. In order to answer these questions, both the specific situation of the project and the national regulations and laws have to be considered.

The Do-no-harm assessment has to be carried out by every LPP and its result has to be presented in the monitoring report.

### 4.6.2 Sustainable Development Matrix

The Sustainable Development (SD) Matrix is a tool that helps the project developers to check that their projects are designed to make significant contributions to long-term sustainable development. It controls the projects impact on environmental issues such as air, water and soil quality, income generation or possible technology transfer.

The SD Matrix considers statements and opinions of the stakeholder consultation as well as from a feedback round and assures that everyone can take part in the evaluation of the project.

## 4.7 Additionality

The Qori Q'oncha Programme was reviewed on the basis of the UNFCCC „Tool for the Demonstration and Assessment of Additionality“ as required by the Gold Standard methodology.

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The most important arguments for the additionality are:

- The PoA makes no use of public funding but of private funding
- The LLPs have considered carbon credits from the beginning
- The use of carbon funding for project activities can be demonstrated
- The volume of cook stove diffusion is higher than 500 stoves
- Project activity includes multi thematic capacity building

Discussion: Due to the fact that the cook stove costs are very low in comparison to the entire project costs there are controversies regarding the additionality of the project. Nevertheless, it is clear for any stove diffusion specialist that the major part of the projects costs are not due to the product itself but to general coordination, logistics, sensitization and capacity building activities.

As a matter of fact, the implementation of the Qori Q'oncha Programme needs an immensely great effort since the project regions are very hardly accessible, the communities are wide spread and there are many families involved. Thus, the administrative and logistic project expenses are extremely high. The complexity of such projects in remote regions are also the reason why common national development programmes do not reach these regions and therefore they are excluded from common development aid.

Experiences have shown that very strong capacity building activities are needed to achieve the project's outcome in the long term. Furthermore, intensive controlling is indispensable. The communities have to be visited constantly by supervisors who communicate with the families, clarify if the cook stoves are functioning and reinforce sensitization and capacity building.

The mentioned facts justify the use of extra finances from carbon credits and the programme can therefore be considered additional. The comparison of cook stove material costs (2.74 Euros, excluding construction) per carbon credit (20 Euros) might surprise and the amount of money going to the beneficiaries might seem little. The problem is that capacity building activities such as awareness raising are generally hard to comprehend and cannot be expressed monetarily. This makes the comprehension of its necessity more difficult. Nevertheless, the barrier analysis allows the consideration of these aspects that would not be considered in a typical financial barrier analysis. That is why such an analysis has been chosen for Qori Q'oncha. However this is the common practice for stove diffusion projects presented in the carbon market.

## 5 Emission Reductions

The Qori Q'oncha Voluntary Emissions Reduction Purchase Agreement (VERPA) was signed in February 2008 between myclimate and Microsol. The project has completed validation in September 2010 and Registration with Gold Standard in November 2010. At the moment the project is going through the first verification with TÜV Nord. The first emission reductions will be generated retroactively for the years 2008-2010 and are expected in late spring 2011.

Below the expected emission reductions for the project as written in the VPA1 (2008/2009) are listed. The first VPA crediting period lasts 7 years.

### 5.1 Number of cook stoves implemented

So far 29'069 cook stoves have been constructed in the programme, which is 770 units more than planned in the VPA-DD calculation.

Local Project Partner	Region	Provinces	Expected number of cook stoves
ADRA Perú	Ancash	9 Provinces	2997
ProPerú	Cusco	4 Provinces	1975
Sembrando	La Libertad	3 Provinces	24097
<b>Total:</b>			<b>29069</b>

Table 5-1: Number of cook stoves actually implemented efficient cook stoves in Programme Activities.

## 6 Monitoring

The monitoring plan of Qori Q'oncha is based on the Gold Standard cook stove methodology „Methodology for Improved Cook stoves and Kitchen Regimes – V.01“. This Methodology gives clear instructions about the evaluation that has to be done for the monitoring.

### 6.1 Monitoring Activities

A monitoring period lasts one year and has to be performed for each cluster separately. Therefore, a VPA has seven monitoring periods.

The following activities have to be carried in the monitoring:

- **A final list** of the families participating in the programme has to be edited. This list has to be updated constantly and it is the basis for the total emission reduction calculation. Furthermore, it is used for identifying stove owners for applying monitoring surveys and contains information about the cook stove beneficiary and the survey results.
  
- **Periodically monitoring:** Every second year a general update of cluster differentiation is carried out using the same methodology as for initial emission reduction measurement combining qualitative Kitchen Surveys and quantitative Kitchen Tests. In addition, the periodically monitoring also includes:
  - Control leakage
  - Re-asses NRB
  - Check Gold Standard Sustainable Development and ‘Do No Harm’ mitigation parameters.
  - The result of the periodically monitoring is a monitoring report.
  
- **Continuously monitoring:** During the whole project lifetime the cluster evolution is continuously monitored with a smaller sample. Every three months an adapted qualitative kitchen surveys has to be conducted in each cluster with 25 randomly or representatively selected families. This adapted survey is similar to the Kitchen Survey but with less questions.
- If continuously monitoring Kitchen Surveys show unexpected results that could have a consequence on emission reductions, Kitchen Tests have to be conducted.

### 6.2 Verification

The external verification by a third party of the PoA is done by a random selection of one VPA in which a given number of spot checks has to be conducted in all clusters. The results are compared with the results given in the monitoring report.

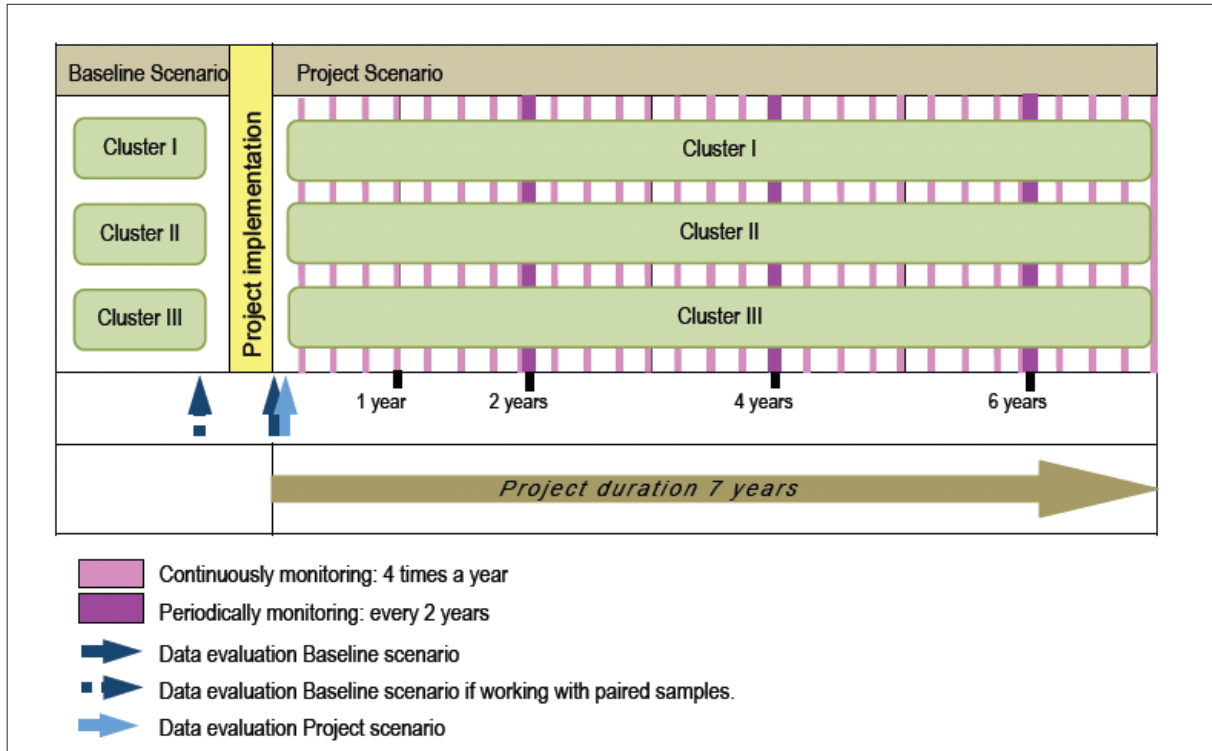


Figure 6-1: Overview over Monitoring of Qori Q'oncha

Apart from the monitoring provisions regulated by the methodology in a PoA, the communities are visited constantly by the responsible supervisors. Therefore the inspection of cook stove use goes beyond the compulsory monitoring activities and there is a constant checking of the projects' quality. Thus, the selection of capable supervisors is very important for a successful implementation.

## 7 Money flow through carbon financing

In a PoA the money flow is more complex than in a regular VER-Project because more authorities are part of the process. However the goal of the PoA is to lower transaction costs in the long term compared to the approach of multiple projects.

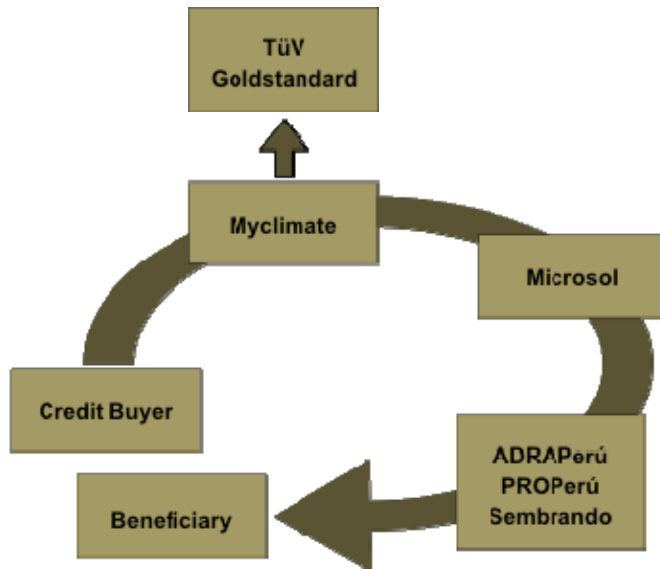


Figure 2: Flow of carbon money in Qori Q'oncha Project.

- **Credit Buyer:** People who compensate their carbon emission with a carbon offset project. The credit buyer gets a proof of destruction of the certificate of the emission reduction. It is not possible to resell the credits as the credits are not traded but only decommissioned.
- **myclimate** is the link between the credit buyer and the project activities and supports the development. myclimate takes out 20% of the selling price for administration, marketing and sales.
- **Auditor (TÜV Nord), Gold Standard:** The Auditor and the Gold Standard are paid by myclimate for validation, verification, and issuance of the credits.
- **Microsol:** As project developer in Lima, project owner and managing entity, Microsol is the link between myclimate and the implementing organizations (LPPs) and coordinates the whole programme structure in the country. Microsol buys the credits from the LPPs and sells them to myclimate by taking out a small commission for its work.
- **Local Project Partner:** Local organizations who implement the project in its region. This includes the construction of the stoves and capacity building. Carbon finance enables maintenance, monitoring and eventually up scaling of the project in a long term.
- **Beneficiary:** Families who benefit from the Project Activities. They contribute themselves in the construction of the stove, get instructions, profit from a cleaner kitchen, capacity building about health and hygiene, follow up activities as well as complementary activities when possible.

## 8 Experiences and Outlook

### 8.1 Lessons learned, Problems and Challenges

#### 8.1.1 Gold Standard Pre-Feasibility Assessment delays

The Prefeasibility Assessment PFA at the Gold Standard is a procedure to check the eligibility of a project or fragments of it before the regular project start. Qori Q'oncha had to apply for a PFA due to the inclusion of so called retroactive credits, meaning the inclusion of emission reduction generated by already constructed stoves in 2008 before the submission of the programme to the Gold Standard in 2009. To demonstrate the additionality of these stoves, we had to prove that they only had been constructed because of the outlook for carbon finance in the future. In addition Draft Design Documents had to be submitted.

The whole procedure of this PFA took six month instead of the planned three month, because of Gold Standard delays (PFA have low priority at the Gold Standard) but also due to Qori Q'oncha's complex structure and the inclusion of the third LPP Sembrando at this time. Looking back it can be considered in a carbon perspective that retroactivity should not have been used for saving time in the process.

#### 8.1.2 Missing PoA guidelines in the beginning

When myclimate and Microsol decided to develop Qori Q'oncha as a PoA in early 2009 the PoA procedures on the Gold Standard side haven't been implemented fully yet. However, first PoAs under the CDM have been in progress. Having no clear guidelines on the Gold Standard side made the whole development complicated and unclear. The new PoA Rules and Guidance – Annex F of the Gold Standard Toolkit was released on 23 November 2009 and replaced the old incomplete document Annex F of the GSv2.1 Toolkit. Today several PoAs are listed in the Gold Standard Registry and under development.

#### 8.1.3 Validation delays

The validation of the Qori Q'oncha PoA took 11 month. This is three times longer than initially planned. Several reasons forced this delay:

- Sembrando: As mentioned already in 8.1.1 Sembrando our biggest LPP joined Qori Q'oncha in autumn 2009 during the setup of the validation. This multiplied the size of the first VPA by a factor 5 and increased the workload and the complexity for the validation.
- Additional three Local Stakeholder Consultations (LSC): An outcome of the PFA was that we not only had to perform a LSC on PoA Level in Lima but also on VPA- Cluster Level in each project region. This resulted in the organization and performance of three additional events in early 2010.
- 4 clarification rounds: The complexity and the pioneer character of Qori Q'oncha was not only a challenge for Microsol and myclimate but also for the DOE and the Gold Standard. After the preliminary validation findings in December 2009 we had to go through four clarification rounds to clarify all requests.
- Technical review: Instead of the good response time of BRTÜV who did the validation on site, the technical review at the headquarter of TÜV NORD in Germany was slow and took another 2.5 month.

#### 8.1.4 Registration

Despite delays in validation, the Registration passed in a good way (5 month) thanks to high priority and good collaboration with the Gold Standard. The registration date is 14 November 2010. The final work for registration of the first Gold Standard PoA was finished in January 2011.

### 8.1.5 Loss of 2008 credits

Retroactive credits are only eligible under the Gold Standard for 2 years before registration. Because of delays as described above only emission reductions from 14 November 2008 on can be issued.

## 8.2 Multiplication potential in Peru

The multiplication potential of efficient cook stoves in Perú is big. The Peruvian government calculates with over 2 million families that are still cooking with inefficient cook stoves in Perú. At the moment the government is very active in promoting efficient cook stoves and in 2009 the national programme: „Medio million de cocinas mejoradas por un Perú sin humo“ was launched. Several actors are aware about the potential of efficient cook stove implementation and compete for the rights to do so. Among all actors Microsol is so far the organization that actually does have most experience in carbon presentation of efficient cook stoves in Perú and therefore acts as the main interlocutor for this subject allowing strengthening projects developer's project ideas.

## 8.3 Next steps/Expectations

At the moment Microsol with the support of myclimate is concluding agreements with new Local Project Partners for implementing more cook stoves in the next VPAs. Microsol is in contact with the following regional governments and other institutions like NGOs:

- |            |                |
|------------|----------------|
| – Cuzco    | – Cajamarca    |
| – Tacna    | – Huánuco      |
| – Moguegua | – Pasco        |
| – Arequipa | – Junín        |
| – Tumbes   | – Huancavelica |
| – Piura    | – Ayacucho     |

We assume an increase of implemented cook stoves between 50'000 to 100'000 for the year 2012. This would mean a triplication of the project size and numbers of generated emission reduction credits. Although this number is no more than a rough estimation it can be assumed the project will grow in the future.

## 8.4 Conclusion

How the programm looks like today one cannot conclude if the PoA was the right approach for Qori Q'oncha or not. The stoves built so far could have been combined also under one standard project. If the programmatic approach will be successful depends mainly on future activities meaning on the success of finding more partners and willing LPPs gathering Qori Q'oncha. With Qori Q'oncha we hope to have developed a platform, where new additional efficient stove projects can be included and developed in a more efficient way compared to the development of various standard projects starting from the bottom.

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This should lead to reduced workload and reduced transaction costs. Although the initial effort was huge, we expect to have it paid back with coming VPAs. As outlined in the previous chapter 8.3 the outlook is promising and we believe to reach the goal of having at least two more VPAs in the next years.

Further more Qori Q'oncha with its pioneer character raised all our programmatic knowledge and capacity and lays the ground for similar activities in other countries open for all clean domestic technologies. Time will tell if, besides this huge contribution to the carbon market community, Qori Q'oncha helps in massive successful diffusion of efficient stoves for unprivileged Peruvian families.