



Lao People Democratic Republic
Peace Independence Democracy Unity Prosperity

Ministry of Agriculture and Forestry

Programme of Capitalisation in Support of Rural Development Policy (PCADR)

Boloven Application Point (PAB)

SUPPORT PROGRAM ON THE ESTABLISHMENT OF GEOGRAPHICAL INDICATIONS IN LAOS

FEASIBILITY STUDY ON BOLOVENS COFFEES

B. Sallée
With participation of PEIG team
(Cirad-INAO-LCG)

June 2007



1. Product description

1.1 Name of the product(s)

Bolovens Coffee (Café des Bolovens)

1.2 Product type

Agricultural product: coffee

1.3 Characteristics of the products

For geographical indication approach, in the view to classifying the product under the label Bolovens coffee, 7 products could be brought together: 3 green coffees, export type, and 4 roasted coffees:

- Coffee 1. Fully washed green coffee from *Coffea arabica*,
- Coffee 2. Roasted coffee (ground coffee or whole bean) from Coffee 1,
- Coffee 3. Washed green coffee from *Coffea canephora*
- Coffee 4. Roasted coffee (ground coffee or whole bean) from Coffee 3,
- Coffee 5. Dry process green coffee from *Coffea canephora*,
- Coffee 6. Roasted coffee (ground coffee or whole bean) from Coffee 5
- Coffee 7. Roasted coffee (ground coffee or whole bean) blended of 2, 4 and/or 6

All Robusta coffees mentioned above are particularly unique in the world as no country except Laos grows *Coffea canephora* at these altitudes and latitude (600 to 1400m above sea level at 15°North). These conditions provide very special flavour to the coffee cup: this point was confirmed in 2006 and 2007 by a study on characterization of Bolovens coffees.

For the unroasted coffees (1, 3 and 5) their characteristics are as follow :

Table 1: Characteristics of Bolovens green coffees, for a possible GI registration

<i>Characteristics</i>	Fully washed Arabica	Washed Robusta	Dry process Robusta
<i>Cultivation area</i>	Bolovens plateau 15°N above 900m	Bolovens Plateau 15°N above 800m ¹ (High altitude Robusta unique in the world)	
<i>Cultivation system</i>	Shading, organic fertilizing, organic management ² .	Natural shading, low density (900 to 2000 trees/ha) Organic fertilization; soil and fertility preservation	
<i>Harvest</i>	Manual, 100% red cherries (5% of green cherries tolerance)		
<i>Process</i>	Fully washed process with natural fermentation or mechanic demucilaginating and soaking		Dry process
<i>Drying</i>	100% solar drying on racks in thin layers to obtain dry parchment coffee at 12% RH		Solar drying (100%) in thin layers to obtain dry coffee cherries at 12% RH
<i>Colour</i>	Blue green	Blue green	Beige, brown
<i>Grain aspect</i>	Long	Round, small	Round, small
<i>Grain size</i>	100 % above screen 16 (>90% for Catimor, about 75% pour Typica and 70% for Robusta)		
<i>Defects</i>	Less than 5 (SCAA or ISO standards)		
<i>Presentation</i>	New jute bags labelled with exporter's logo and GI logo if it is established)		
<i>Flavour</i>	See the table of roasted coffee		

For roasted coffees, the characteristics are as follow:

Table 2 : Characteristics of Bolovens roasted coffees for a possible GI registration.

<i>Characteristics</i>	Fully washed roasted Arabica	Washed roasted Robusta	Dry process roasted Robusta
<i>Raw material</i>	100% pure coffee. Green coffee comes exclusively from the coffee types described in Table 1		
<i>Roasting</i>	Preferentially "Medium Roast". But can be chosen by roaster.		
<i>Packaging</i>	Package able to preserve freshness (three layers type with unidirectional valve)		
<i>Flavour</i>	Altitude Arabica, light, acid, aromatic, with fruity flavour	Mild Robusta coffee, good body with a good balance between acidity and bitterness. Acidity present, fruity flavour sometimes.	Mild Robusta coffee, good body with a good balance between acidity and bitterness. Acidity and body typical of dry process.
<i>Organoleptic defects</i>	Without any defect present or allowed.		

The last roasted coffee (n°7 in the list) is a blend of above-mentioned roasted coffees. This is the result of the blending made by roasters based upon the customers' taste.

These description do not correspond to currently commercialised coffee both in domestic and international markets, these are characteristics of coffees that are commercialised in small scale in "niche" markets with high added value. A possible registration under GI label will be based upon these high quality products.

For reminder, the commercialised coffees are generally the following:

- Coffee 1. Dry process Robusta (called FAQ ; Fair Average Quality) at an average of 12 to 15 000 tons per year.
- Coffee 2. Fully washed Arabica which is on increase, from 2 000 to 2500 tons in 2006/2007
- Coffee 3. Traditional roasted Robusta coffee that is not pure,
- Coffee 4. Coffee 4: Arabica roasted coffee and blends Arabica/Robusta, European style, pure coffee.

¹ This limit of altitude will be determined in 2007 with the results of a scientific study about influence of altitude on Robusta quality.

² For *Coffea arabica*, There are two cultivation systems in function of variety (see below)

Table 3: Characteristics of Bolovens green coffees that are generally commercialised.

<i>Characteristics</i>	Fully washed Arabica	Dry process Robusta, FAQ
<i>Cultivation area</i>	Bolovens Plateau 15°N from 600 to 1400 m	Bolovens plateau 15°N from 500 to 1400m
<i>Growing system</i>	Shading, combined fertilisation, intensive management, “Costa Rica” type.	Natural shading, low density (900 to 2000 trees/ha), no fertilisation or organic amendment. Management “picking” type.
<i>Harvest</i>	Manual, 10 to 20% of immature cherries (green)	Manual, strip picking, 30 to 70% of green cherries
<i>Process</i>	Wet process with natural fermentation or mechanic demucilaginating	Dry process
<i>Drying</i>	On racks in thin layers. Product obtained: parchment coffee at 12-15 % RH	On the bare ground, tarpaulins or tables. Product obtained: dried cherries 15-23% RH or green coffee same humidity
<i>Colour</i>	Blue green	Beige, brown, nor homogenous, many defects, sometimes whitened
<i>Grain aspects</i>	Long	Round, small
<i>Grain size</i>	No selection or selection to specific demand of customers	
<i>Physical defects</i>	In general <20 (about 10% of the weight on the export lots)	Many defects. About 25-30% of the weight in the FAQ
<i>Flavour</i>	Acid coffee, balanced with body and fruity taste. Sometimes some defects of “green”.	Mild coffee with many defects: soil, rio taste, mouldy, astringent, fermented. The quality depends on defects selection.

The difference with coffees that are likely to be granted GI label comes mainly from the cares and selection criteria during the coffee process from cherries to green coffee. The currently commercialised coffees correspond to the importers and traders demand for middle-quality coffees sold at low price.

For the roasted coffee sold on national market, two types are differentiated as follow:

Table 4: Characteristics of roasted coffees on national lao market.

<i>Characteristics</i>	Traditional coffees	“European” style coffees
<i>Raw material</i>	FAQ Robusta coffee or sorting defects plus palm sugar, margarine, rice alcohol, rice, sesame.	Arabica and Robusta export type and sometimes some sorting defects.
<i>Preparation/blending</i>	Very rarely pure coffee. Many palm sugar (50%). Recipe based on roaster.	100% pure coffee. Pure Arabica and blend of Arabica with Robusta
<i>Roasting</i>	Very roasted even burned	Middle to very strong roasting (French to Italian)
<i>Grinding</i>	Fine	Sold in whole beans or ground (middle)
<i>Packaging</i>	Simple cellophane, very little information	In general, three layers package with unidirectional valve. In general, nice packaging and complete information
<i>Flavour</i>	Intense odour, very low acidity, strong, bitter, sweet, global quality from very bad to average	Sometimes, good balance between body, acidity and bitterness. Global quality from very low to average
<i>Organoleptic defects</i>	Extremely burned. Ground taste and metal liked taste. Sourness, Rio taste and fermented.	Pure Arabica: very strong wood flavour, Blend : strong chemical taste and burned and astringent taste.
<i>Price</i>	12 000 to 60 000 kips/kg Average 15-18 000 kips ³ /kg.	120 to 160 000 kips/kg

³ In June 2007, 1 US\$ = 9 600 Lao kips.

1.4 Growing, processing and roasting system

1.4.1. Arabica cultivating system

Two cultivating systems are used on Bolovens plateau based on the varieties that grow: “Typica” system and “dwarf variety” system (referring to Catimor). The “dwarf system” is a recent system (introduced in early 90’) and is significantly increasing thus replacing the old Typica and *Coffea canephora* plantations. The Typica system is an old one (planted from 1920 to 1950) and is decreasing.

Table 5: Characteristics of Arabica growing system on Bolovens Plateau

	Typica system	“Dwarf variety” system
<i>Variety (cultivar)</i>	Typica	Catimor (lines obtained from Portugal and Costa Rica)
<i>Age of plantations</i>	More than 50 years	Less than 15 years
<i>Type of plants</i>	Seedlings picked under existing coffee trees. Rarely nursery.	Seeds (research centre or existing plantations) and nursery in plastic bags
<i>Previous cultivation</i>	After slash and burn system.	Generally on old robusta coffee plantation.
<i>Density of plantation</i>	Low 900 to 1200 trees per ha. 1 111 trees (3x3m) is the most frequent	High in general 2x1m, 5 000 coffee trees/ha
<i>Plantation</i>	Old. Without visible lining. Agro-forest type. High trees with multiples trunks.	Homogenous with lining and staking well marked lines. One trunk dwarf shrubs.
<i>Association</i>	Fruit trees and useful trees for shading	Vegetables, rice, annual cultivation at young stage
<i>Pruning system</i>	Free growth with regenerating of some axes after the harvest	Top pruning and regenerating (on-going and not well understood))
<i>Fences</i>	None	Fence to prevent animal; from getting in (cattle in particular)
<i>Fertilisation</i>	Without or cattle passing through	Organic or combined mineral/organic
<i>Type of system</i>	Picking system	Intensive system (variation of Latin-American systems)
<i>Annual labour out harvest</i>	About 30DW for weeding	About 110DW/ha
<i>Yield</i>	< 150 kg of green coffee/ha	600 to 1 500 kg of green coffee/ha
<i>System Dynamic</i>	Under elimination and replacement. Subsistence is only due to JCFC ⁴ market	On rapid increase. The area should increase by three in the next five years

1.4.2. Coffea canephora cultivating system

The *Coffea canephora* cultivating system is old. It was introduced in the 50’s. It substituted the Typica system that was affected, a) by cryptogamic disease (rust due to *Hemileia vastratix*) b) by the disorganisation of the Arabica commercialization chain during the Second World War and c) by strong frosts.

The robusta system is the most widely spread on Bolovens Plateau. This system is present in 90% of producers’ production systems on the Plateau. (for about 40% for Arabica). It is located from 400 to 1400 m in altitude. Under 700m, it is very affected by the lengthening of dry season. Above 1 200 m, the risks of frost are high.

This is a low intensive and few productive system. The characteristics are the following:

⁴ Jhai Coffee Farmers Cooperative (see part 6)

Table 6: Characteristics of *Coffea canephora* cultivating system on Bolovens Plateau.

	Canephor Coffee system
<i>Variety (cultivar)</i>	Seeds introduced from Africa and Vietnam in 1940-50.
<i>Age of plantations</i>	10 to 50 years
<i>Type of plants</i>	Seedlings harvested under existing coffee trees. Rare tree nursery in beds or bags.
<i>Previous cultivations</i>	Log time ago after slash and burn or by replacing the Typica coffee plantations
<i>Shading</i>	Natural, forest trees, fruit trees, heterogeneous.
<i>Density of plantation</i>	Low 900 to 2000 trees per ha. 1 111 trees (3x3m) is the most frequent.
<i>Association</i>	Fruit trees and useful trees for shading. Food for cattles and penning in the night.
<i>Pruning</i>	Free growth with regenerating of some axes after the harvest
<i>Fences</i>	None
<i>Fertilisation</i>	Without or bovine passing through (and penning)
<i>Type of system</i>	Picking system
<i>Annual labour out harvest</i>	About 50DW for weeding
<i>Yield</i>	From 100 to 500 kg of green coffee/ha following the altitude and years. Strong bi-yearly system
<i>System Dynamic</i>	Under replacement in uplands (altitude above 900m)

1.4.3 Wet process for *Coffea arabica* and *canephora*.

The Arabica coffee is almost exclusively transformed by wet process with a system that has been introduced at late 1990 by PDRPB⁵ Project and followed by most of producers. The only variation introduced in early 2000 was the substitution of the natural fermentation by a mechanical demucilaginating.

The system is the following:

Table 7: Wet process system on Bolovens Plateau

<i>Operation</i>	<i>Product obtained</i>	<i>Theoretical yield</i>
Reception	95% red cherries	100 kg
Selection by floating	First quality red cherries	97 kg
Mechanical pulping	Humid parchment coffee with mucilage	54 kg
Fermentation or mechanical demucilaginating.	Humid parchment coffee	45 kg
Washing	Washed humid parchment coffee	45 kg
Drying on racks	Dry parchment coffee at 12-15% RH	23 kg

This system has been adopted in some cases for the Robusta coffee based on the exportation demands for particular orders. Samples of *Coffea canephora* that were wet processed in 2006 and 2007 demonstrate unique and very original organoleptic characteristics. This is a product that is likely to receive GI label.

One of big advantages of adopting the wet process for Arabica and Robusta coffees is the obligations to realize meticulous harvest because the green cherries can not be pulped easily. And the percentage of ripe red cherries is proportional with the quality of the coffee obtained.

⁵ Projet de Développement Rural du Plateau des Bolovens, Bolovens Plateau Rural Development Project.

1.4.4. Dry process for *Coffea canephora*

Almost the whole quantity of Robusta is treated with dry process after the harvest with the following process:

Table 8: Robusta coffee dry process on Bolovens Plateau

<i>Operation</i>	<i>Product obtained</i>	<i>Theoretical yield</i>
Reception	30-50% red cherries	100 kg
Drying on bare ground, tarpaulins, tables or concreted areas.	15-23 % RH Dried cherries	42 kg (if 12% RH which is the international standard)
Hulling in modified rice-huller	15-20% RH green coffee	22 kg (if 12% RH)

Not much attention is paid to the dry process of Robusta coffee because it is sold at the same price no matter what the quality is (however, coffees that are too humid or too mouldy are sold with penalty).

In around 50% of the cases, the producers sell dry cherries to middle men or wholesalers. The remaining cases, they hull the dry cherries in a small workshop equipped with modified rice huller. In these cases, they sell green coffee to wholesalers or directly to exporters.

1.4.5. Preparation of exportation lots.

Currently, only one exporter has necessary equipment for a good preparation of the exportation lots. This preparation system needs to be adopted for coffees to be registered as Geographical Indication.

Table 9: Preparation of Robusta and Arabica exportation lots: comparison between a GI type system and the current one.

<i>Geographical Indication system</i>	<i>Traditional system</i>
Reception	Reception
Pre cleaning (pieces of metal and foreign things)	Drying
Removing stones	
Hulling	Hulling
Polishing	
Grading by size	
Gravity sorting	
Colorimetric sorting	
Manual selection of defects	Manual selection of defects
Weighing and bagging	Weighing and bagging

1.4.6. Roasting

For traditional coffees, (see Table 4 page 4) the roasting takes place after the blending (sugar, rice, etc.) in hand-made drums for quite long time (minimum 1 hour) without any control of the temperature.

Then, the coffee is cooled with the use of fan, ground and put into simple plastic or cellophane bags.

For "European style" coffees, they are roasted in Italian styled roasters, cooled, ground, or kept in whole bean, and put into three layers with unidirectional valve bags. Only this type of packaging is able to preserve the freshness of the roasted coffee.

2. Geographic area

2.1. Production area

The production area is the area called Bolovens Plateau. It is located in the extreme southern part of Laos, 30 km from the Border with Cambodia (as for the far southern point), 80 km from the Vietnam border (as for the far eastern point) and 50 km from Thai border (as for the far western point). It is surrounded by the alluvial plains of Mekong River (west), Sedone River (north) and Sekong (east, south-east)

The centre of the Plateau is situated at 15°9' north in latitude and 105°51' in longitude.

At the administrative level, the Bolovens Plateau covers three provinces: Champassack that covers the biggest part; Saravan and then Sekong. In Champassack province, there are 2 main districts producing coffee: Paksong and Batieng; In Saravan, there is one main district: Laongam and in Sekong, one: Thateng.

From the ecological point of view, the plateau is subdivided into 3 slightly concentric parts that correspond to high lands (above 900 m), transition areas (500 to 900m) and the piedmont areas (200 to 500m). The coffee mainly grows in the first two areas. For the future GI registration the altitude delimitation will be oriented by the study on the characteristics of the coffee (Arabica and Robusta). In this study, a research was conducted on the influence of the altitude on organoleptic quality of the two species. The Arabica area is like to be located above an altitude of 800/900/1000m and there is no element for the Robusta area, for the moment.

2.2. Map of production area

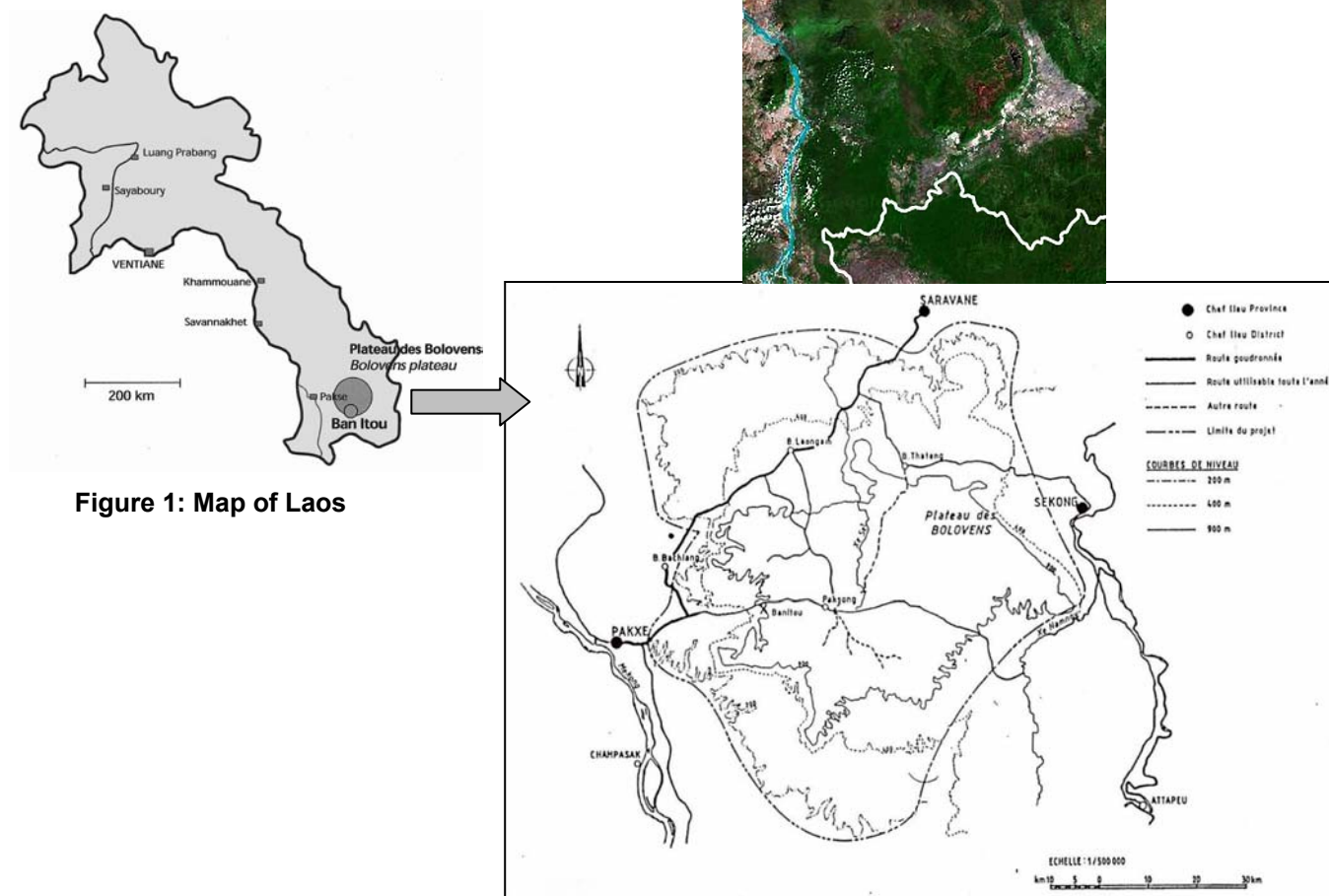


Figure 2: Map of Bolovens Plateau (with 3 level curves)

2.3. Quantitative data on production area

The Bolovens Plateau with its largest extension (from 200m) covers 8200 km² (Grimaud and Meaux, 1999). A study on Bolovens Plateau Coffee estimates that the area to be used for coffee growing is 4 800km² (Duris *et al.* 2002)

It is estimated that there are 27 000 families producing coffee for 134 000 inhabitants (Duris *et al.*, 2002). These data have probably increased.

Cultivated area (in ha) is:

Table 10: Coffee cultivated areas on Bolovens Plateau

<i>Arabica</i>	<i>Canephora</i>	<i>Liberica</i>	<i>Source</i>
840 ha	34 360 ha	300 ha	PDRPB, 1999
9 000 ha of which : 4 450 in production 4 150 young plantations 400 abandoned (old) And around 3 000 ha in nurseries.	43 000 ha of which: 38 000 in production 5 000 abandoned	300 ha in general associated with Robusta	PAB, 2007 estimations

The number of exporters registered is 19, five of which are very active. They are all located around Pakse city.

There are 8 companies that deals with “European style” roasting and 15 with traditional one. The traditional roasters are located in Pakse (except one) and the “European style” roasters are either in Pakse or Vientiane.

3. History and reputation

3.1. History of the production and products

Introduced around 1920 by the French administration, the *Coffea arabica* Var Typica has been extended to Paksong area in the altitude between 800 and 1200 m. The extension began with the completion of the Pakse-Paksong road (it was gravelled in 1920 and tarred in 1948) and the installation of a Coffee research and extension station at km 42 village. (ban Lak 42) in 1930 (Ducourtieux, 1991)

At the beginning (1920-40), the coffee grew in small plantations of 1 to 10 ha by French colonists who generally did not come from France: soldiers after their military time, retired administrative employers, etc. They were no capitalist planters like in Vietnam

The Coffee growing was also promoted in the Plateau villages especially around km42. The technician of the station were in charge of extension and the seedlings were given for free of charge. The other more remote villages gradually began planting coffee with seeds collected on the first plants.

From 1920 to 1940-50, the coffee plantation extended up to 5 000 ha (Iram, 2003). The coffee trade was dominated, from Pakse, by some big traders who shared among themselves the market and

avoided all kinds of competition. They impose the wet process method (manually) for the transformation of Typica and sold very high quality coffee mainly to France.

From 1945 to 1975, the Bolovens Plateau witnessed turmoil in the history of Laos. Due to the increasing confrontation, many colonists–planters left the country. The disorganisation of the agricultural services as well as the difficulties of trade, linked to the lack of security, led the farmers to choose food crops. In early 1950, an epidemic of coffee leaf rust threatened the Arabica coffee. The Robusta coffee, introduced by Pakse urban investors into their plantation, rapidly supplanted the original Typica coffee. It is resistant to the coffee leaf rust, and required less labour force and was processed by dry method (less labour force was required). In late 1960, the coffee plantation area comprised one third of *C. canephora* (Robusta) and two thirds of *C. arabica*.

However, the production of coffee declined due to the war (1956-70) and the American bombing (from 1970-71). The villagers were scattered and evacuated to refugee camps in Pakse.

The resumption of coffee activities began after the 1974 cease fire and continued after the refugee camps was closed in 1976. The reoccupation of the plateau was boosted by the collectivisation process. The new government of Lao PDR reorganised the villages by transforming them into production cooperatives (1981-1984) and then into commercialisation units (1981-1993). The coffee production was limited due to the state system of commercialisation that permit only little profit.

From 1990, the commercialization is liberalized (1993) and the leap in world coffee price (1994) coupled with kips devaluation boosted the coffee plantation and attracted an increasing number of migrate farmers and capitalist investors. The Robusta production increased from 5 400 tons of dry cherries⁶ in 1990 to 9 300 tons in 1995 then 13 600 tons in 1997 and 20 000 tons in 2001 (Sofreco, 2002). The extension took place only with *C. canephora*, in all altitudes. In 2000, the Arabica area stood for only 2.4% of the plantation. (see Table 10 page 9)

The Robusta coffee planted in altitude in Laos is very appreciated by the roasters for its mildness and overall quality. It is often used for quality blends Robusta with Arabica.

From 1990/91, the Government played a role in boosting coffee production by carrying out two projects : LUAPD⁷ (1991-95) and PDRPB⁸ (1997-2002). These two projects have boosted the Arabica plantation using intensive model based on “dwarf variety - high density- cyclical pruning”. This system was rapidly and unanimously adopted by the producers without any variation. These projects also use and promote the wet process for Arabica. The dwarf variety used is Catimor, a variety that resists to coffee leaf rust and came from the Caturra dwarf variety hybridized with the Timor Hybrid (5th to 6th generation). The choice was made due the bad experience of Typica disappearance caused by this cryptogamic disease.

This Arabica coffee produced since early XXI century, has rapidly gained a good reputation for his quality and is commercialised in specialty niche markets.

The “dwarf variety” model has attracted the producers and, today, the area extension is very significant. The extension takes place at the cost of *Coffea canephora* plantations. It is supposed that by ten years Laos will produce more Arabica than Robusta.

Two other dynamics should be noted.

Firstly, it is the appearance of good quality roasted coffee brands in late 1990; raw material of export type, good quality and attractive packaging, 100% pure coffee. The customers are tourists, foreigners and Lao belonging to medium-high class.

Secondly, is the commercialisation of “3 in 1” ready-to-drink instant coffees (instant coffee + cream + sugar) that attracts rapidly the Lao and Thai customers.

⁶ One ton of dry cherries gives around 520 kg of green coffee.

⁷ Lao Upland Agricultural Development Project

⁸ Projet de Développement Rural du Plateau des Bolovens, Bolovens Plateau Rural Development Project.

3.2. Use of name

The Arabica coffees and blends Arabica/Robusta, commercialised in national markets, use different names and geographical origins : Lao coffee, Bolovens Coffee, Paksong Coffee, Pakxong, etc. For the reputation at the national and international scales (especially for Thailand), the origin of Bolovens Plateau is often mentioned. (See picture at the end of the document)

For the coffee, aimed at export, the origin of Bolovens Plateau is used as reference to the quality for stakeholders downstream (importers, brokers, roasters).

3.3. Reputation

In general, Laos has a very good and exotic image in importing countries. Lao coffee is appreciated by big number of “connoisseurs”.

The reputation of the original Typica Arabica coffee was recognised in France. This reputation is in process of restoration with the exportations of Typica coffee to a roaster in the west coast of the United States, “Thanksgiving Coffee”, which is specialised in niche markets:

“The secret of Lao coffee:

Known to the French as “the Champagne of Coffee. “Arabica is one of the most rare and distinct coffees in the world”

And

“After trying hundreds of coffees from all over the world, the Café Lao light roast was the only one that was simply consistently good. I have my brother hooked on the same coffee...Must be something genetic. We really appreciate the fact that the producers are paid a reasonable amount for their work. As long as you continue to brew it, it will continue to use it”- Tony Normand Fayetteville, North Carolina”

See <http://test.thanksgivingcoffee.com/cafelao/index>

Current Arabica coffee has also excellent reputation. The French company Verlet commercialises (was commercializing !?) Arabica coffee of Laos in a series called “*café de terroir*” : “Having some flavour of black chocolate, a slight “boisé” taste, a little malted point and final taste of liquorice, this coffee is the 1st washed coffee of Laos”

(see http://bdpa.fr/spip/MG/pdf/S.story_BDPA_Laos_Bolovenss.pdf and http://tapagecafe.com/cafes_et05#.php#cp04)

Coffees from Ban Katouat and Ban Vangnao villages are also sold to Japan’s markets, being one of the most demanding in terms of quality.

“It is the first time that Lao coffee has been sold to Japan and it’s all because of the high quality coffee that the Katouat farmers produce. Katouat coffee production group leader Somboune Saybaokeo says local farmers are now committed to producing high quality coffee using the skills they have learned through the project. These skills have included everything from cherry selection, pulping, fermenting, washing and drying through milling, grading and storing. They have learned roasting and tasting techniques to test the coffee quality and with our support, this year opened a coffee tasting centre in the village”

(see http://oxfam.org.au/oxfamnews/december_2006/dignity-in-a-coffee-cup/html)

The dry processed Lao Robustas are also very requested but almost impossible to found. The washed Robusta coffees begin becoming more and more demanding on niche markets.

All initiatives show the coffees of Bolovens Plateau, through registration as GI, can gain good reputation on markets that require high quality product

4. Coffee production and marketing chain

4.1. Data on production and exportation

The coffee production units of Bolovens Plateau are about 27 000 units. One unit corresponds to a family. There are very few large farms (about 20) one of which covers 300 ha and belongs to Dao Heuang Company, the main coffee exporter of Laos

In general, farms are family-based using very few wage-earned labour forces. Above 900m, the producers are highly dependant on coffee incomes.

A recent study shows that 84% of the “houses”⁹ are dependant on coffee at more than 50% of total incomes and, for 34%, coffee is the only source of revenue (see Figure 3)

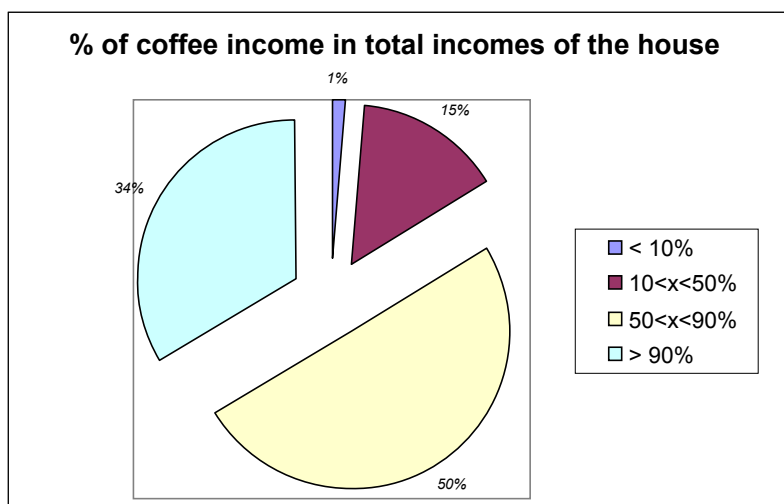


Figure 3: Estimation of dependency on coffee for the families of Bolovens Plateau.

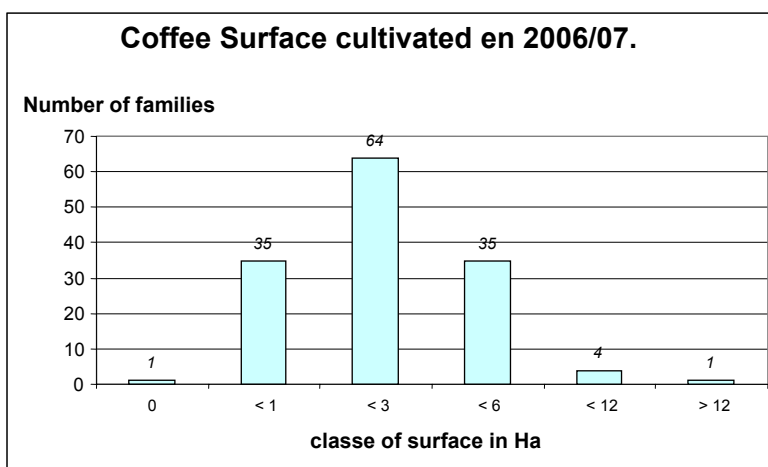


Figure 4: Area of coffee cultivated per family.

⁹ A “house” is the unit in a village. A “house” can have more than one family. In average there is 1.1 family/house.

The cultivated area per family is low. 71% of producers exploit less than 3 ha (Arabica plus Robusta)

The study conducted in 2007 for 140 houses in the high lands of the Bolovens Plateau, also show the following results for the production:

Table 11: Data on coffee production in 140 “houses” in upland Bolovens plateau

<i>Parameters</i>	<i>Results</i>
Harvested Arabica in 2005 (Oct-Dec)	82.8 ha for 76 households
Average yield Arabica in 2005	479 kg of green coffee/ha
Harvested Arabica in 2006 (Oct-Dec)	89,4 has for 90 families in which : 79 ha for Catimor 10,1 ha for Typica 0,3 ha for other varieties
Average yield in 2006	565 kg of green coffee/ha
Has of arabica recently planted	83,9 ha
Plants of Arabica in nursery	520 000 for a potential area of 130 ha
Harvested Robusta in 2006 (Jan-Feb)	264 ha for 130 houses
Average yield Robusta in 2006	293 kg of green coffee
Harvested Robusta in 2007 (Jan-Feb)	259 ha for 130 houses
Average yield Robusta in 2007	549 kg of green coffee
Robusta young plants in nursery	8 600 for a potential area of 8 ha

Data in Table 11 confirm results already presented:

- - Significant increase of area for Arabica
- - Improving of Arabica yielding with intensive system
- - Significant increase of Arabica area expected for the five next years (large number of plants in nurseries)
- - Stagnation of Robusta area
- - Significant bi-yearly yield in Robusta due to climatic problems.

For the exportation of green coffee, volumes are as follow:

Table 12: Data on exportation of green coffee per civil year

<i>Civil years</i>	<i>Robusta (tons)</i>	<i>Arabica (tons)</i>	<i>Liberica (tons)</i>	<i>Total (tons)</i>
1995	8320	149	nd	8 320
1996	7320	192	nd	7 515
1997	13 000	312	nd	13 312
1998	13 800	296	nd	14 096
1999	14 000	195	nd	14 195
2000	nd	nd	nd	19 743
2001	nd	nd	nd	22 634
2002	nd	nd	nd	19 207
2003	13 591	294	126	14 011
2004	20 615	2 494	473	23 507
2005	6 077	2 255	246	8 578
2006	5 488	1 278	99	6 865
2007 (only 3 months)	8 278	880	0	9 158

2004 and 2005 were marked by a particularly tough and long drought and no rains that usually fall at the beginning of the year characterising the specificity of the Plateau. The result was that there

was poor production in 2005 and 2006. 2007 should reach the volume recorded in 2004 or even more.

In order to have data on the production, national consumption volume and exported volumes as finished products (roasted coffee and instant coffee) should be added

4.2. Data on markets, demands, marketing chains

For national markets, the general characteristics are the following:

- Volume : 500 to 1000 tons of green coffee/year
- It is not a traditional drink for Lao people; the consumers are urban Laos, foreigners and Laos living in production areas.
- High segmentation of the market (different products for different customers in different places of selling and consumption):
 - The traditional coffee “Café Lao” (generally blended)
 - “European” style coffee (pure coffee)
 - Instant coffees (3 in 1 coffee, Nescafe, etc)
- Short marketing chain (very few middlemen)

For the so-called traditional coffee (see also Table 4 page 4) the marketing chain is as follows :

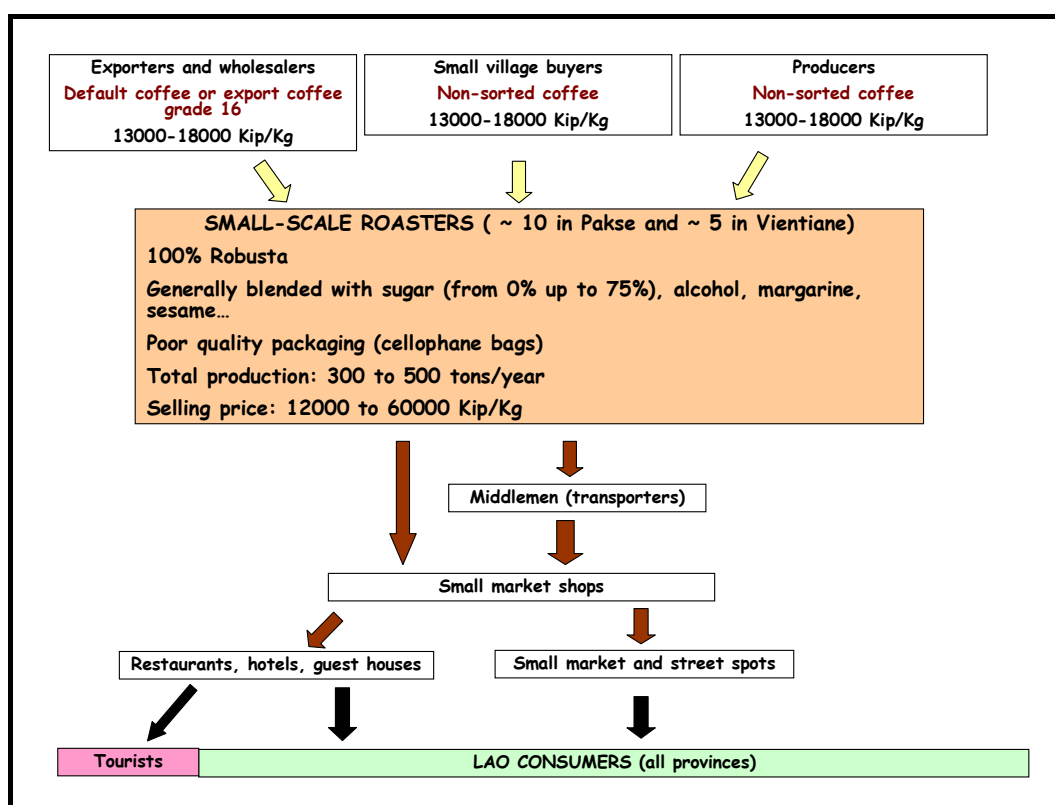


Figure 5: Marketing chain for traditional roasted coffee in national market (PAB, 2007)

For the “European style” roasted coffee, the marketing chain is as follows (see Figure 6 page 15) :

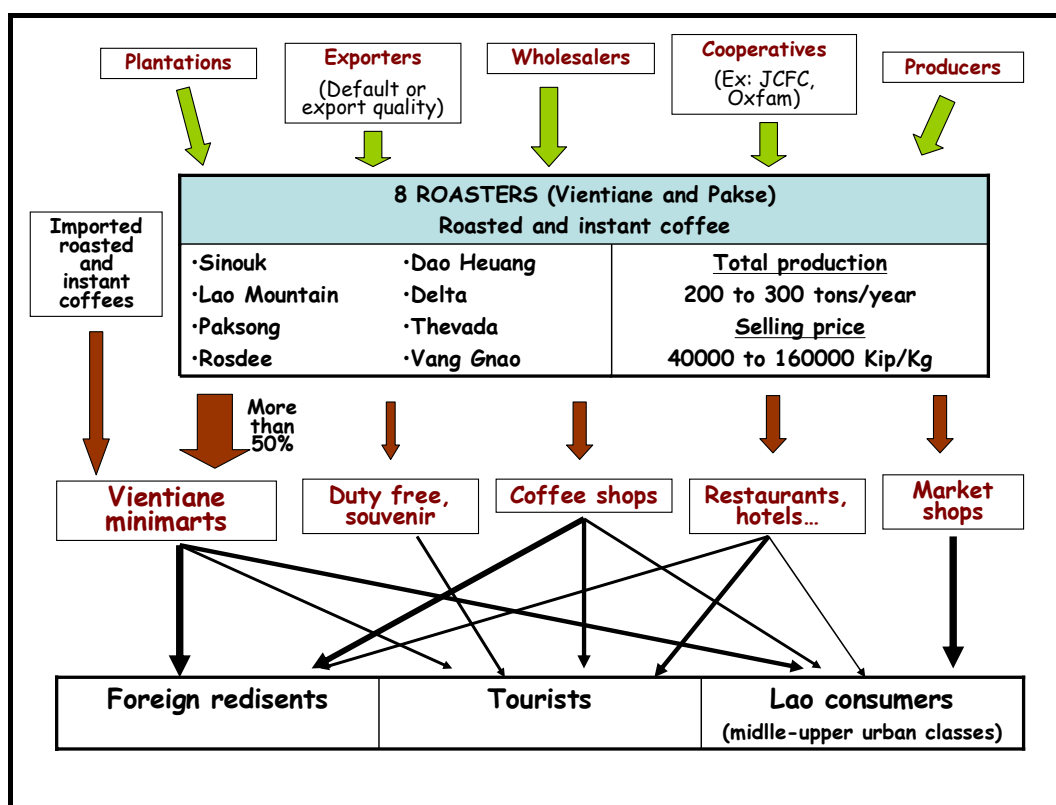


Figure 6: Marketing chain for “European style” roasted coffee in national market (PAB, 2007)

To be complete, the instant coffee chain that is currently exported as green coffee then imported as instant coffee to Laos for packaging should be added. Only two companies have initiated this new market, Sinouk and Dao Heuang companies. Dao Heuang Company produces successfully since few time “3 in 1” coffee packages. Sugar and powdered milk are also imported. The company exports already made coffee : 12 580 kg in 2006, 18 520 kg for the first three months of 2007.

For “export” markets of green coffee, the characteristics of marketing chains are the following :

Table 13: Main characteristics of export markets of Bolovens coffee

Type of markets	Chain	Characteristics
Washed Arabica	The producer sells cherries or coffee parchment to intermediates and exporters. Exporter export or sell to a local agent of a trader	Price of New York market less 60\$/ton. Especially Asian buyers (Taiwan, Japan, Malaysia, Vietnam, Thailand)
FAQ Robusta	The producer sells dry cherries to intermediates or green coffee to wholesalers and exporters The exporters dry, pack and sell generally to a local agent of a trader	Price at London market less 170\$/t. European buyers (Poland, Italy, Belgium, France, etc) et regional (Thailand, Korea, Hong Kong)
High quality Washed Arabica	Organized producers sell high quality coffees to roasters of the Fair Trade network. 3 groups of important producers : Katouat, Vang Gnao and Jhai Coffee Farmer Cooperative (JCFC)	Oxfam Australia and Jhai Foundation work with groups of producers. Market in Japan, Australia, New Zealand. New markets in France. Minimum guaranteed price of fair trade market: 2 730 \$/t
Fair Trade high quality washed Typica	The producers sell cherries to JCFC. They receive money in advance for the next harvest. JCFC export directly to the roaster “Thanksgiving”.	Niche market only with Typica Minimum guaranteed price of fair trade market : 2 730 \$/t
Washed Robusta	The producers sell coffee parchment to exporters	New market. Price at London market : more 200 to 600 \$ /ton Many countries are interested.

The coffee production and marketing chain rapidly evolves. Since the end of 1990s', the chain presented in Figure 7 has changed. Producers groups appear, many individual producers sell directly green coffee to wholesalers and exporters (at least 50% against 5% in Figure 7, thanks to the transport generalisation with tuk tuk, and other communication means like mobile phone) the role of middlemen has decreased, the exporters export larger volume directly and new chains based on the quality have appeared (washed Arabica, fair trade Arabica, washed Robusta)

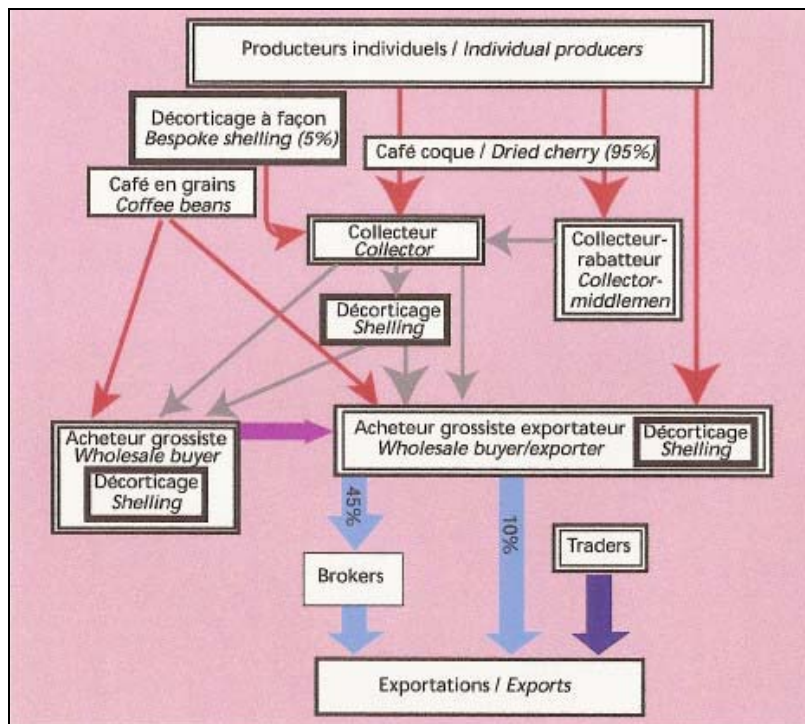


Figure 7: Diagram of coffee chain in 1999 (Duris et al, 2002)

However, the middlemen remain important especially in selling/credit system in advance. About 40% of the coffee is sold by producers between May-June and the harvest. The buyer/middleman of the village borrows money (from proper funds or advanced funds from wholesalers and exporters) in exchange of future yield. The price of coffee will be negotiated at the moment (50% of the previous harvest) or upon delivery (with 5% monthly interest). This generalised system in the area of the Bolovens plateau drags the quality to the bottom. The transactions take place only for coffee quantity. This system of credit by users represents an obstacle for the development of GI.

5. Relation between the product and geographical area

The agro-ecological conditions of Bolovens Plateau provide unique characteristics to produced coffees.

In particular, as it was mentioned, Robusta coffee produced in Bolovens Plateau is unique in the world as no country produces this product at these altitudes.

Arabica is produced in **uplands of the Plateau** (above 900-1000 m). This area stands for basaltic underground with red and black soils. Its relief is the same as the one of the plateau with slightly undulating with some high points as Phou Thevada (old volcano near Paksong). The natural vegetation is composed of primary dense forest, secondary clear forest, hydromorphical grassland and *Imperata* savannah. Coffee is present on red soil, ferralitic soils results of ferratization of basaltic mother rock. The clay flocculation produces red soils with very suitable agronomic characteristics. These are deep soils that retain water and maintain the coffee plant in good

condition during dry season. In the North and South of Paksong, coffee plants are planted on black soils that come directly from basaltic mother rock.

In this area, the average annual temperature is 25°C. In winter (December to February) the night temperature around Paksong drops to 5°C or less. There are often periods of frost with a significant mortality of young unshaded coffee plants.

The rainfall is the highest in Laos with 3 300 mm spread out to 7 months of rainy season (April to October). During the first two months of dry season (November and December), besides cool weather, a strong haze is present (fog and drizzle) that reduces the effect of dry season.

During the first months of the year, January to April, sporadic rains are recorded which cause coffee flowerings.

All agro-climatic conditions enable to have the best quality for Arabica coffee. For Robusta, these are unique conditions.

Unfortunately, some climate changes are observed. Since the colonial era, the average temperature increased by 0,8°C and rainfall significantly decreased (minus 700mm from June to September). However, the most concerned aspect for Arabica and Robusta is the fact that dry season becomes longer, from 2 months to 3.5 months. The very poor harvests recorded in 2005 and 2006 were due to this phenomenon. The causes are due to the global warming but especially to the local massive deforestation.

Robusta coffee is produced in upland and middle land. This area is also a basaltic underground but does not have any black soils. The natural vegetation is typical of transition between rain forest and semi-dry forest of low lands. Here, rice is largely cultivated based on slash and burn practices. In this area, the cold winter periods are less marked and rainfall is less significant. The dry season lasts for more than 4 months. *Coffea canephora* is suffering from the drought it is difficult to grow it without irrigation at a level below 600m.

These agro-climatic conditions linked to altitude and latitude¹⁰ with monsoon climate and basaltic soils provide a strong typicity to the coffees produced on the Bolovens Plateau.

The skills of the producers for delicate and traditional wet process (first used for Typica) enable to preserve the potential of coffee flavour.

The typicity of the coffee on Bolovens Plateau is very strong and is totally linked to the geographical origins.

6. Organisation of producers and stakeholders

The primary stakeholders of the Bolovens coffee chain are : producers, middlemen, exporters and roasters.

The secondary stakeholders are: the Ministry of Agriculture and Forestry (MAF), the Ministry of Commerce and Industry and the provincial and district authorities. The important secondary protagonists in other countries-producers: banks and credit institutions, input or machine suppliers, research centres and agricultural services, etc., have few influence on the coffee chain of Bolovens Plateau.

¹⁰ 15°North. It is commonly admitted in coffee that one degree of latitude corresponds roughly to 50 m of altitude.

The **coffee chain** begins to be organised based on the model applied by many countries-producers. Under the prominent impetus given by the MAF, a Coffee Working Group (CWG¹¹) has been created since April 2006 with the aim of achieving in 2007 the creation of National Council of Lao Coffee (NCLC¹²) that will be in charge of the general policy to be applied for coffee sector. The future NCLC will undertake three main roles:

- a) advice the Government for the implementation of coffee sector development strategy,
- b) represent the country as coffee producer abroad (in international and regional forums, fairs and expositions, etc.) and within the country (visits, representation, expositions, etc)
- c) control the national laws on coffee

The CWG, representative of all stakeholders of the coffee chain was created for :

- a) Submitting proposals to the Government for the creation of the “National Council for Lao Coffee”, its representativeness, rules, powers, budget, etc.
- b) Conducting a participatory diagnostic that will be used as foundation for the future NCLC in order to develop its short-, middle- and long-term strategies.

The CWG is composed of 16 members:

- The Minister of Agriculture and Forestry (or its representative), Chairman of the CWG
- 4 representatives of the producers
- 3 representatives of the exporters and roasters
- 1 representative of the National Chamber of Commerce and Industry
- 1 representative of the Ministry of Commerce and Industry
- 1 representative of the Agency for Science, Technology and Environment (STEA)
- 1 representative of the Provincial Authority of Champassak
- 1 representative of the Provincial Authority of Saravane
- 1 representative of the Agriculture Department of the MAF
- 1 representative of the Central Unit of PCADR
- 1 representative of the PAB (will be the permanent secretary of the CWG)

The NCLC, the future inter-professional organisation which is the only one in Laos, will be capable to set up and manage the GI

The **producers** are less or not organised. The experience of the collectivisation in the 1980' has left bad memories. However, since a decade, faced to the necessity of organisation for small producers, several groups have appeared:

- JCFC, Jhai Coffee Farmers Cooperative that brings together about 500 members and export directly high quality Typica coffee to the USA.
- The groups of Ban Katouat and Ban Vang Gnao producers who are exporting directly the washed high quality Arabica to Japan, and also are roasting and selling quality coffees on the national market. They are assisted by Oxfam Australia.
- 51 Groups of Producers, promoted by the PAB, which begins to be organised for production and commercialisation of quality coffee but also for the diversification of incomes generated by livestock. In 51 villages, 31 coffee collective wet process centres are under construction based on high quality criteria. It is expected that 3 500 tons of Arabica cherries will be processed in 2007 and 500 tons of Robusta cherries in early 2008.
- The AGCP, the Association of Groups of Coffee Producers from Bolovens Plateau is under establishment. This is a second level association that should comprise at the beginning 55 members for a total number of 2 700 families-coffee producers. Its role is :
 - Represent coffee producers of the geographical area of Bolovens Plateau in the government within the coordination authority of the coffee chain at the national and international levels and in all national and international activities related to coffee.

¹¹ Known as GTC for its abbreviation in French (GTC = Groupe de Travail Café)

¹² Known as CNCL for its abbreviation in French (CNCL = Conseil Natonal du Café Lao)

- Support its members in all aspects related to coffee production.
- Support its members in all aspects related to the coffee commercialisation.

The **exporters and roasters** are associated in the Association of Lao Coffee (ALC). This association brings together 19 exporters and 9 roasters. Some of its members are also coffee producers. It is under the supervision of the Ministry of Commerce and Industry. It seems that it is compulsory to be members of the ALC in order to be able to export green or processed coffees. The ALC has the objective of improving the coffee trade under all forms. The ALC is very active and recognised at the national and international levels. Two of its members are very active and are the initiators of the noticeable changes in the commercialisation chain and image of Lao coffee: Sinouk and Dao Heuang companies.

7. SWOT analysis for GI registration

All coffee chain stakeholders presented in this document and in chapter 6 support the GI process of Bolovens coffee. The concept is easily appropriate by them as Bolovens coffee has been for long time source of pride of many producers and exporters.

The advantages of GI approach are clearly defined by these actors of the coffee chain. However, many difficulties are also identified by them. synthesize these aspects :

Table 14: Strengths, Weaknesses, Opportunities and Threats of GI approach for Bolovens coffee

Strengths	<p>Highly marked typicity of coffees Robusta is unique in the world Strong reputation of coffees at national and international levels Very good image of Laos. Emotional and exotic touch in consumers countries Coffee production with organic management Good control by producers of coffee wet process Existence of coffee quality chains thanks to fair trade markets International coffee market interested by “origins” and “terroir” coffees. Good image of “European style” roasted coffee Advanced of coffee chain structuring Strong support of the Government for the development of quality coffee chain Training of 22 judges in coffee expertise (2006 and 2007) Many interested financing institution in developing quality coffee chain: AFD (France), JICA (Japan), New Zealand Government, Oxfam Australia, Jhai Foundation. Swedish NGO, etc.</p>
Weaknesses	<p>Current low quality Robusta coffee production (FAQ) Generalisation of bad dry process for Robusta (particularly drying with thick layers directly on ground) Organoleptic defects present in national traditional roasted coffee and European style ones. Credit/usurer system based on volume and not on quality Lack of exportation standards Lack of official quality control lab Recent structuring of the coffee chain and organisations of coffee producers Cost of collective actions for relatively reduced volumes.</p>
Opportunities	<p>Improving the overall image of Lao coffee Niche market for washed Robusta “Gourmet” market for washed Arabica Development of sales on fair trade market (strong demand) Possibility of “organic” certification Reducing the strong penalty applied to Lao Robusta</p>
Threats	<p>Climate changes, notably the lengthening of dry season Dominant position of some protagonists of the coffee chain Use of the name by other national and/or regional coffees (Vietnam?) Shortage of labour force for coffee cultivation and harvest</p>

The name of the product for GI registration project does not reach a consensus. The Bolovens coffee is often referred to. However, some protagonists would prefer the name of *café du Laos* (Lao coffee) for an international recognition in comparison with the name Bolovens, which is unknown or little known abroad. Some have mentioned Paksong Coffee but it will be delicate to reduce the production area to only one district. An agreement needs to be reached.

In conclusion, the Geographical Indications project for Bolovens Coffee has many advantages. The economical and symbolic valuing of Coffee produced in Bolovens Plateau has potential important margins. The Robusta coffee that is unique in the world, searched but rarely found, should be valued. The producers and transformers are ready to adopt the GI approach. However, they should overcome many difficulties together.

8. BIBLIOGRAPHY AND INTERVIEWED PERSONS

Ducourtieux (O.), 1991. Le Plateau des Bolovens: étude du système agraire de la région de Paksong (Sud Laos). Mémoire de D.A.A. Ina-Pg, Paris, 163 p.

Babin (P.), 1998. Etude des systèmes agraires des terres hautes du Plateau des Bolovens. Mémoire de mastère Ina-Pg, 106p.

PDRPB, 1999. La filière café sur le plateau des Bolovens. 63p.

Grimaud (J.), Meaux (M.H.), 1999. Diversité des situations agraires de la zone basse du plateau des Bolovens, sud Laos. Mémoire de D.A.A. CNEARC/ESAT, Montpellier, 105 p et annexes.

Duris (D.), Bonnal (P.), Pilecki (A.), 2002. Filières du café au Laos et stratégies paysannes. Plantation Recherche Développement, Cirad, France, mai 2002, p. 60-74.

SOFRECO, 2002. Etude de faisabilité de la phase II du Projet de Développement Rural du Plateau des Bolovens. Clichy, France, étude et annexes, 198 p.

IRAM, 2003. Etude de Faisabilité du Programme de capitalisation en appui au développement rural : Point d'Application des Bolovens. Paris, 193 p.

PAB, 2006. Rapport semestriel d'activités : 2^{ème} semestre 2005. PAB, Paksé, Laos , 51 p.

PAB, 2006. Rapport semestriel d'activités : 1^{er} semestre 2006. PAB, Paksé, Laos , 92 p.

Ribeyre (F.), 2006. Formation à la qualité du café et appui à la caractérisation du potentiel de qualité des cafés des Bolovens. Cirad, Montpellier, France. Rapport 56 p ; et annexes 83 p.

PAB, 2007. Rapport semestriel d'activités : 2^{ème} semestre 2006. PAB, Paksé, Laos , 98 p.

Perraud (C.), 2007. Caractérisation des produits et organisation des opérateurs, rapport de mission du 27 février au 6 mars 2007. Cirad-INAO-LCG, Montpellier, France, 16 p.

Gouin (S.), 2007. Rapport de mission au Laos : « Programme d'Etablissement des Indications Géographiques (PEIG) au Laos », du 4 au 14 avril 2007. Agro-campus Rennes, France, 44 p.

Interviewed Persons :

<i>Name</i>	<i>Origin/company</i>	<i>Function</i>
M.. Sinouk Sisombath	Sinouk et ACL	President
M. Viengkham	ACL	Director
M. Mee	Noble Coffee	Local agent of the trader
M. Phouphet.	Mê Tee	Roaster representative
M. Somboune	Ban Katouat	President of producers group
M. Khamoun	Ban Vang Gnao	President of producers group
7000 Producers and 51 presidents	51 villages	Producers participating in PAB
M. Bounliep Chounthavong	PAB	Director of PAB
M. Amphaivanh Chanthasack	UDOMSAB	Exportation company director
Mme Leuang Litdang	Dao Heuang	President
M. Ariya Dengkayaphichith	JCFC	General Manager
PAFO	Champassak	Provincial Agriculture and Forestry Office
PAFO	Saravane	Provincial Agriculture and Forestry Office
DAFO	Paksong	District Agriculture and Forestry Office
PAFO	Laongam	District Agriculture and Forestry Office
Mini marts	Vientiane	Owners and/or manager
Coffee shops	Vientiane and Paksé	Owners and/or manager

9. ILLUSTRATIONS



Plantation of *Coffea canephora*



Plantation of *C. arabica* dwarf variety



Manual pulping in Vang Gnao



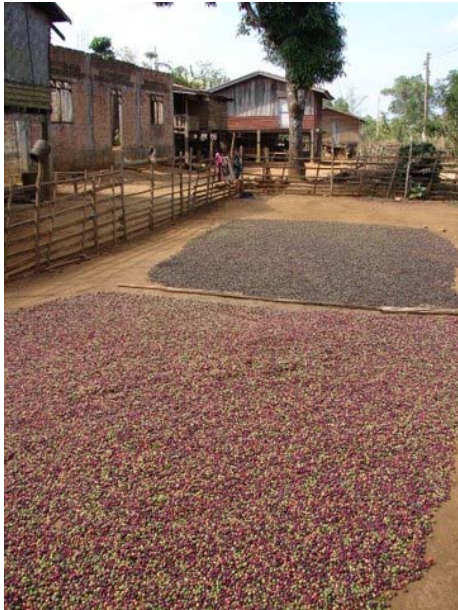
Pulping and washing in JCFC cooperative



Construction of a collective centre for wet process coffee



Robusta drying on tables



Robusta drying on the ground



Logo of Ban Katouat export coffee to Japan



Training session for coffee sensorial analysis



Traditional roasting of lao coffee



Traditional coffee Mé Tee



European style coffee of Lao Mountain Coffee Origin « Bolovens Plateau » is mentioned



European style coffee of Sinouk brand
Name is « café Lao »



Roasted coffee with the name
« Pakxong »



Factory of Dao Heuang company perfectly equiped for good preparation of exportation lots.



Meeting of 39 villages production groups representatives to create the Bolovens Plateau Coffee Producers Groups Association