Phongsaly Tea Mountain Study Report

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EXECUTIVE SUMMARY

Key findings from the Phongsaly tea mountain assessment are as follows:

a. Phongsaly district possess the most developed and intensive tea production in Laos with some 1,362 Ha currently under cultivation and plans to increase this to 1,862 Ha by 2014.

b. The district posses both ancient varietals, traditionally cultivated for hundreds of years and modern varietals, imported from Yunnan cultivated in a more intensive manner. Modern style production commenced in 1997 as a result of Chinese investment and grew rapidly over the next decade. Tea cultivation has been strongly promoted locally both as an opium substitute and as a means of poverty eradication. Tea from ancient tea trees commands a significant price premium with farmers increasingly cultivating this varietal rather than imported types as a result.

c. All cultivation is organic with strong local government support for, and enforcement of, such cultivation practices. The organic nature of Phongsaly teas is a positive selling point in Yunnan, widely recognized with some evidence of a price margin as a result.

d. There are three major tea processing factories in Phongsaly district with other local investors also planning to establish processing operations. In general, factories operate a form of contract farming providing farmers with tea seedlings in exchange for exclusive purchase rights. This does not appear to have depressed prices with prices generally following Yunnan levels. One companies use of on-credit fresh leaf purchase is widely disapproved of.

e. Tea farmers and processors were heavily impacted as a result of the Pu-erh tea market price correction in 2008 with farm-gate prices declining by some 100%. While the industry has proven resilient with tea processors diversifying production into green and black teas, farmer incomes from tea are now at subsistence levels, many farmers have ceased tea picking and overall production volumes are now significantly lower than at the price peak in 2007/8.

f. Price declines have generated a clear need to improve tea garden productivity that have to date been substantially lower than Chinese equivalents. In large part this is due to local cultivation practices which involve relatively high density (about 35,000 plants per ha) planting on often steep slopes without actions to a) prevent top soil loss, b) improve water retention, c) replace nitrogen losses, d) shade tea trees or e) effective bush shaping and pruning. The result of the above and price declines has been to result in a low picking rate (kgs of fresh leaf picked per hour) and resultant low returns to labour. This has pushed tea production in the district to a marginal status and a subsistence activity.

g. Processing companies typically buy direct from cultivating villages, when however they do not arrive to buy farmers will home process tea to *mao cha* (rough tea) and a local bamboo tube pu-erh type compressed tea. Despite the significance of the sector to Phongsaly district, home processing to Mao cha is generally poor with high levels of smoke contamination. This is reducing the value of such teas by an estimated 50%.

h. District plans are to increase the tea cultivated area by some 37% over the next five years, however increasing yields and in particular returns to labour from tea cultivation appears to be perhaps more critical. This requires 1) better land preparation for new and existing cultivation; 2) in-fill planting to increase plant density; 3) soil fertility and water retention improvement; 4) use of shade trees and 5) improved pruning/bush shaping techniques to make picking easier. These techniques should increase yields, make picking easier and thereby improve returns to labour.

i. Assuming that organic cultivation practices are maintained, the provision of technical support in improved organic cultivation is required, this is likely to involve a) use of legume ground covers to replace lost nitrogen, reduce top soil loss, increase water retention, reduce weeding labour requirements; b) use of shade trees within tea gardens to increase shoot production, improve water retention, and through cutting of branches soil mulching and quality improvement. Use of EM fertilizers are locally reported to have substantially increased yields and further trials are perhaps warranted.

1. INTRODUCTION

This study is one of four undertaken on a range of different tea production or potential production zones in Northern Laos. Sites for these studies were selected as a result of tea quality assessments undertaken with only sites of high quality teas selected. Within this sample set, study sites were selected to represent a range of conditions from a) sites with well established tea industries to b) those without any significant commercial activity at present. The specific objectives of the studies were:

a. To provide detailed assessments of both wild and cultivated tea resources in selected tea zones covering a tea resource description and quantification, including location, extent of resource, density of tea trees and community access.

b. To assess the number of households currently (or potentially) able to benefit from collection and processing of tea and the degree to which this will affect their livelihood with consideration given to issues of gender and ethnicity.

c. To assess whether any formal regulations, or local practices, such as allocation of concessions are likely to limit villagers control over ancient tea resources; and to understand the key players in the tea sector in Phongsaly district.

The field assessment in Phongsaly was undertaken between 19-27 July 2010 by a team comprising of staff from NAFRI, NAFES, PSL DAFO, CARE Feasibility and Design Study, and a local consultant with support from the Phongsaly PAFO. A one day planning meeting was held in Phongsaly prior to field visits to test methodologies, train team members, select target villages, and undertake logistic arrangements. Focus group discussions, and key informant interviews together with visits to the tea gardens, and tea processing factories was used to understand issues at village, factory, and local government's levels.

The study was undertaken in two main tea production zones (Koman and Phoufa) covering 50% of tea production areas of Phongsaly District. Ten villages were visited these being close of 50% of all villages within these zones. Three main tea processing factories, local *mao cha* collectors, and government organizations Phongsaly PAFO, DAFO, district Governor Office, etc. were interviewed by the team. The study was undertaken during the wet season making access difficult. In interviews with tea processing factories issues such as capital, prices, volumes and margins were either sensitive or confidential and as such some of the information presented should be seen as indicative only.

DISTRICT OVERVIEW

Phongsaly district has a total area of 3,182 km^2 with borders in northeast with Dian bian province of Vietnam (25.4 km), southeast with Samphan district (77.8 km), west with Boun neua district (59.3 km), north with Nyot Ou district (50.8 km), and south with Boun tai district (25.2 km). The topography is predominantly steep dissected hill country, with elevations ranging from 300 masl in deep valley floors up to 2,000 masl on mountainous ridges. About 95% of the total area is highly mountainous and is subdivided into nine Kumban (development zones), containing some 74 villages, 4,279 households with a total population of 21,791 (2010).

Village lands are extensive averaging some 71 Ha per HH in the district as a whole and ranging from a low of 7.9 ha/HH in the districts central Kumban up to 236 Ha/HH Va Tai Kumban. The district is home to seven ethnic groups; Phounoy (55%), Akhar (17%), Hor (11%), Laoseng (9%), Hmong (4%), Tai Leu (3%), and Lao Loum (2%).

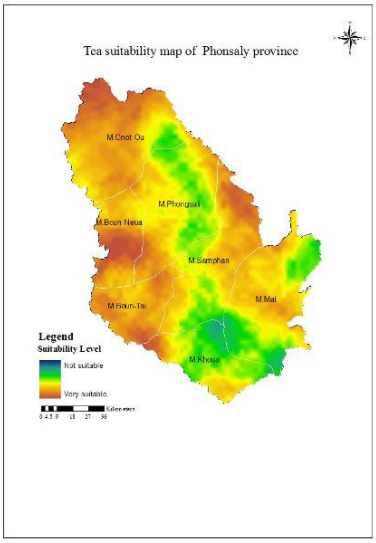
Tea is the most important crop in the district as shown below (2009 data).

Table 1: Major cash crops of Phongsaly District

Major crops	Maize	Cardamom	Galangal	Sesame	Tea
Area (ha)	690	336	175	105	1,362
Production (MT's)	2,346	104	336	115	597
Value (USD)	415,242	1,040,000	672,000	346,150	1,791,000

Tea is cultivated typically on steep slopes (ranging from 15%-45%) at altitudes ranging from 1200-1400 masl. Some 1,862 ha of land has been allocated to tea production with some 1,362 ha currently cultivated. Local government aims to have some 0.42 ha (15,000 seedlings) of tea per labourer with 20% of sales to the domestic market and 80% exported to China.

Much of Phongsaly province is highly suitable for tea cultivation, with Nyout Ou district in particular having excellent conditions in this regard.



Poverty remains endemic in Phongsaly district with a 2007 study[1] stating;

> "*in upland areas, 65% of households are below the poverty line… Since 1998, under international pressure, opium poppy eradication has impoverished villages. The average poppy cash income per family was 80 US$ per year... In addition, with injunctions against slash and burn shifting cultivation and hunting, additional pressures have been put on traditional livelihoods".*

By the end of 2010, average per capita incomes are reported to be USD 467. Some 28.38% of villages remain classified as poor.

STUDY SITES

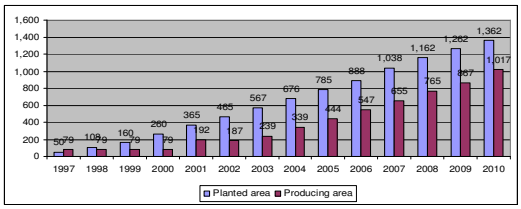
As of 2010, Phongsaly district has 1,362 ha of tea gardens located primarily in Kormen, Phoufa, Km 18, and Phonekeo zones. Within these some 30% of tea is in Phoufa zone (the district and provincial centre), 24% in Phonekeo zone, 22% in Km 18 zone, and 19% in Kormen zone.

Phoufa zone is where tea cultivation was first promoted and is most developed with some 409 ha under cultivation. This area is also home to all three tea processing factories. The study team visited 6 of the 10 villages within this zone. Kormen zone is well-known for 400 year ancient tea trees and consists of 7 villages with some 79 ha of ancient tea and 175 ha of modern cultivated tea gardens, the team visited 4 of these villages.

PRODUCTION

Phongsaly district has the most developed tea sector nationally contributing some 60% to total national production. Modern smallholder tea production was initiated in 1997 with total areas under cultivation and harvested rising progressively to date as shown in figure.

Figure 1: Phongsaly tea cultivated areas (97-10)



A tea cooperative was established in Ban Sailom within Phoufa zone in 1970 on 15 ha using seeds from ancient varietals in Ban Komen. This cooperative was re-organised as a state owned farm in 1989 and then later

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privatized with tea farmers now owned by villagers.

With the goal of poverty eradication, smallholder tea cultivation was actively promoted by Provincial authorities through actions of a Chinese investment company (Phoufa Tea Factory) in 1997 and other forms of investment. Initial planted areas of 50 ha across 23 villages in 1997 have since grown to 1,362 ha across 32 villages by 2010 representing an increase of some 100 Ha per annum. On average, tea cultivating households have one Ha of tea gardens.

Table 2: Tea garden ownership, Phongsaly District.

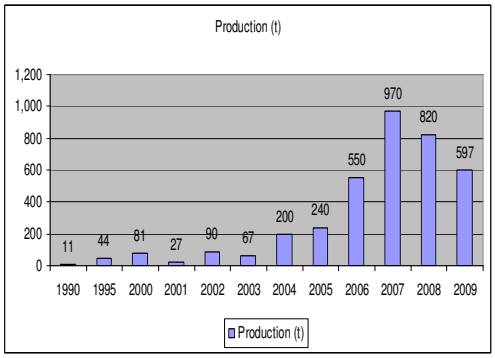
Kumban / zone name	# of villages with tea	Total # of HH's	# of HH's cultivating tea	% total households cultivating tea	Total tea area (ha)	Average area of tea garden (ha) / HH
Phoufa (Phongsaly)	13	1,156	504	44%	409	0.8
Kormen	7	391	227	58%	254	1.12
Hadsa	1	41	36	88%	25	0.7
Km 18	4	268	250	93%	298	1.19
Poinkeo	7	853	274	32%	322	1.18
Total	**32**	**2,709**	**1,291**	**48%**	**1,308[2]**	**1.01**

Source: Phongsaly DAFO, 2010

Tea is cultivated either from own germinated seed, often collected from ancient tea varietals or from imported seedlings provided at low cost by processors. During the early years of tea plantation, farmers also intercrop tea with some other crops such as rice, vegetables, etc. Fresh leaves from both ancient cultivated and modern cultivated tea are typically sold by farmers to processing companies who process fresh leaf tea into either Maocha as raw material for pu-erh then tea cake production or other types of the e.g. black tea, green tea, Biluchun, bag tea. The main market is Yunnan, while domestic markets and special tea markets account for small volume. Farmers also process Maocha themselves if fresh leaf is not bought by the processors and the home made Maocha is sold to local collectors or visitors or used for home consumption.

Over the last decade local tea prices boomed in response to high demand from Yunann's Pu-erh eta sector. This boom ended mid season 2008 with a substantial price correction (see pricing section below). As a result, tea picking became less attractive and overall production volumes have declined since their peak in 2007 by some 38%. In many cases farmers are simply either not picking their tea or only picking during the higher value spring pick period. This rapid change in fortunes within the tea sector is shown in Figure 2.

Fig. 2: Phongsaly District processed tea volumes, 1990-2009 (MAF)



Among the five Kumban cultivating tea in Phongsaly district, production is concentrated in two; Phoufa and Kormen zones which represent 63 % of the area. The district has plans in place to increase cultivated areas by a further 500 ha over the next five years. Given current prices farmer interest in expanding cultivation is clearly limited.

Bench marking Phongsaly yields is complicated by wide ranges in international yields as a result of age, altitude, varietal, and farm management. Tea processors in Phongsaly stated that at present Phongsaly's tea gardens should be able to produce about 300-400 tons dry leaf per year with this equating to some 1,750 kgs fresh leaf/ha. Phongsaly DAFO reported that in 2009, Phongsaly district produced a total fresh leaf of 2,690 tons (about 550-600 tons of dry leaf) with an average yield of 1.98 tons of fresh leaves per hectare. Based on the above available data, and cross-checked through farmer interviews it is estimated that average yields in Phongsaly for modern cultivated teas at around 20,000 plants / Ha plant density are some 2,000 kgs of fresh leaf or 400 kgs of processed tea.

2

Since the decline in Pu-erh prices, and follow on declines in local fresh leaf prices, production volumes have declined by almost 40%. This appears to be more as a result of farmer unwillingness to pick at current prices rather than processor unwillingness to buy.

These yields are less than 50% of those achieved in neighbouring Mengla county, Yunnan where some 1,050 kgs of dry leaf or 5,250 fresh leaf per ha is produced. The reasons for this substantial difference in yields are many, primarily a) the low quality of land preparation, plantation, etc. farm setup; b) irregular picking and poor quality pruning; c) organic 'default' production systems without soil fertility improvement measures or shading. It is widely acknowledged by Chinese tea specialists that even maintaining organic production methods, yields in Phongsaly could be increased by at least 50% through improved on farm management.

Low yields (shoot production) results in low average picking rates – the number of kgs of fresh leaf able to be picked per day. The picking rate is the key to commercial viability of tea cultivation with picking costs comprising the bulk of total production costs. Based on farmer interviews it is estimated that picking rates range from 10-15 kgs per day for modern cultivated teas and 4-5 kgs per day for ancient cultivated teas. This former rate is roughly half that of reported picking rates in Yunnan and is largely a result of a) low shoot production, and b) poor bush shaping – due to poor pruning.

The combination of low picking rates and now much lower prices combine to significantly reduce the attractiveness of tea cultivation and picking to farmers. The recent declines in production volumes appear likely to continue unless improvements in returns to labour are able to be achieved. While market development may assist it is worth noting (see below) that fresh leaf prices in Phongsaly remain – by regional standards – relatively high. The key requirement to increase returns to labour is thus through improved on-farm tea cultivation. This requires the development of a serious plan of action from local government to support farmers increase yields.

ANCIENT TEA

The Phounoy have cultivated and processed tea for hundreds of years with ancient tea trees present in Ban Kormen, Ban Phayasi, Ban Phousum Kao and Ban Phongseak in Kormen zone. Some 66 ha or 324,182 ancient tea trees are recorded in Ban Kormen alone. Ban Phousum Kao's ancient tea gardens of about 9 ha are accessible only by foot taking 4 to 5 hours to reach the area.

These ancient trees are typically un-pruned and reach 4-5 meters or more in height with trunk circumferences ranging from 30-100 cm's. Because of their height, difficulties with picking and low yields, the fresh leaf price is normally higher compared to modern cultivated tea varieties. Yields from ancient tea gardens are difficult to assess but estimated to be in the range of 2,000-2,500 kgs of fresh leaf per Ha with a maximum picking rate of perhaps 5-6 kgs per day. This ancient varietal has larger leaves and thicker buds compared to modern cultivated types with mature leaves 7-10 cm in length, and shoots 4 cm long common.

Fresh leaf from ancient trees is attracting typically double the price of modern cultivated varieties and as such, communities are expanding cultivation using naturally germinated seedlings as planting stock. This price differential varies by processor with some paying a lower margin. Processors however are seeking to pay premiums only for leaf from ancient trees. The extent to which buyers can differentiate between fresh leaf from ancient trees and recently cultivated teas from ancient seed stock is difficult to assess although some buyers claim to be able to do so.

MODERN TEA CULTIVATION

Phoufa Tea Factory (a branch of Guangxi Nanning Xianglei Tea Company) started distributing seedlings from Yunnan at a rate of 2,500 seedlings per labourer in 1997. The factory initially promoted tea cultivation in 23 villages and this has now expanded to encompass 32 villages. Aid projects such as Rural Development Project of Phongsaly District (PPDP) also distributed tea seedlings as did government projects with farmer investment in tea seedling purchase also occurring.

Between 2006 to 2008, the Lao Syuen Classic Tea Company provided some 2 million seedlings to farmers – 25% of which were of the local ancient varietal. In general, seed was sourced from Yunnan and of reasonably good quality varietals typically used within the Pu-erh eta sector. This varietal is well suited to black tea production also.

The planned planting density was some 37,500 seedlings per Ha, similar to that used in intensive small holder production systems in Yunnan. However due to topography and the lack of inputs provided by farmers, high death rates occurred at this density with most farmers adopting much lower rates – estimated to be some 20,000/ha.

CULTIVATION PRACTICES

Some 50 ha of tea gardens were established in 1997 using high plant density (nearly 40,000/ha) based on intensive production systems in China and Vietnam. However, such systems rely on use of agro-chemical inputs, and high quality farm management that farmers were unwilling or unable to adopt in Phongsaly. More recently, planting at a rate of some 30,000 plants per ha is promoted but it appears that in general farmers are adopting a lower rate of perhaps 20,000/ha.

Fig. 3: Phongsaly tea garden

The organic nature of tea production in Phongsaly is widely recognized and valued within its major market, Yunnan and this has been promoted by district authorities since 2005 through promotional campaigns. The enforcement organic regulations commenced in 2008, *"any tea trees where chemical inputs were used must be destroyed"* said head of Phongsaly PAFO. Despite the organic reputation of Phongsaly's tea production – no formal certification is in place as this is not required by major Yunnan buyers.

While organic production is thus the only system able to be used, there has been little promotion of organic production methods such as a) cultivation of shade trees, b) natural fertilizer application or, c) use of legume ground covers. As a result, fresh leaf yields are lower and leaf quality has also suffered. Higher levels of stress on plants can be expected to increase vulnerability to pests and diseases.

Tea seeds are collected and germinated in October or November, with seedlings then ready for transplanting in June or July. Germination rates are low at 50% with some 160-240 kgs of seed required to cultivate one Ha. During the first few years, tea is often intercropped with upland rice, maize, cucumber, soybean sesame, cassava, bananas, sunflower and other vegetables mainly for home consumption. Terracing of tea gardens is not undertaken. Weeding is undertaken once or twice a year from the end of wet season through to November with this requiring significant labour investments, estimated at 30 to 40 labor days per ha.

Modern tea is typically first picked 3 or 4 years after planting. Picking season starts with the higher value spring pick in March/April. Tea leaves are then normally picked every 14 days during wet season between June and September. The extent of tea picking appears solely determined by pricing with over picking common during the higher value spring pick and under picking prevalent during the lower value wet season and autumn picks. This picking regime contributes to a reduction in production volumes.

The autumn pick occurs in October and November before pruning and tea bushes are then 'rested' for approximately 3 months - December to February. Pruning is first undertaken in the autumn season prior to the first pick after 3-4 years and will then normally continue once a year after last autumn pick. Pruning is usually undertaken with a knife and is generally poor.

Where households are unwilling or unable to pick their own tea, others may pick with half of the daily pick provided to the owner as a fee. However, given picking rates and current fresh leaf prices this is unable to match local wage rates.

Unlike modern cultivated tea, ancient tea requires less weeding. However, better farm management including better fertilization, pruning, and picking is required. It is also suggested that maintaining ancient tea in its natural environment with soil improvement is the best farm management system for this ancient tea. Results of focus group discussions with tea processors and site visits show that ancient tea trees are now threatened by disease and pests such as termites. Yield and quality of ancient tea is reported to have deteriorated and – it is reported by processors - will likely progressively get worse unless soil improvement measures are undertaken.

RESOURCE ACCESS

As tea is the main crop for many households in Phongsaly district, ownership of tea gardens is a key household asset. On average, a household has about one ha of tea gardens with areas typically ranging from 0.2 to 2 ha. Based on interviews, some 90% of households own their tea gardens with the remainder working on other's gardens.

When the Chinese owned Phoufa Tea Factory (PTF) entered Kormen zone in 1997, a concession agreement was signed for fresh leaf collection – in particular the higher value ancient teas - from the zone for 25 years. PTF thus monopolized fresh leaf collection until 2006. At this time the Malaysian owned Lao Syuen Classic Tea Company (LSCT) established a processing tea factory in Phongsaly, replacing PTF in the collection of ancient fresh leaf from Koman zone. In 2009, a new Lao owned tea processing factory, Phongsaly Green Tea (PGT) was set up and also allowed to collect from Kormen zone. This loss of the local monopoly for tea collection from Komen zone was clearly a blow to PTF and appears to have had wider effects – possibly discouraging other potential investors. However, because of its limited resource, high value and good profile, the 400 year old ancient tea in Kormen zone is targeted by processors and collectors with the district authorities now clear that from the 2010 spring pick, no single company should have a monopoly of the collection of teas from this area.

Farmers are entitled to sell or transfer their tea gardens with limited sales occurring. Based on reported sales, prices equate to some Kip 16 million per ha (US$2,000) for modern cultivated tea. Land planted with tea is tax exempt for the first four years and is then taxed at a rate of Kip 30,000 / annum/Ha.

PRICES AND INCOMES

During the Pu-erh tea price boom in 2007 and 2008, fresh leaf prices in Phongsaly reached their highest levels but since the Pu-erh price correction in China have since declined substantially. While a degree of annual price variation has continued it is highly unlikely that prices equaling those of 2007/8 will be attained again in the medium term.

Fresh leaf is typically sold by farmers to processors at factory or through processor collection from the village in remoter sites. The price farmers are able to obtain for fresh leaf is determined by following factors:

1. Tea type; with ancient tea trees commanding a significant premium – typically double - over recently cultivated Yunnan varietals.
2. Picking quality; with shoot and two top leaves considered good quality, few pickers consistently achieved this quality with final prices of fresh leaf reflecting this.
3. Season; with spring pick tea of the highest quality and attracting a high price premium as such. The lowest value tea is picked during the wet season due to the leaves high moisture content. In Phongsaly, the weight of tea leaves is normally discounted by at least 10% when farmers sell their fresh leaves to processors. The final pick of the year in the autumn is of medium quality and attracts a price premium in most producing countries but this is not the case yet in Phongsaly.

Farm gate prices of fresh leaf in Phongsaly district over the last five years are shown in Table 3. This highlights the dramatic effect of the Pu-erh tea boom and bust on Phongsaly farmers with current prices being between 30 - 50% of that during the peak in 2008. Farmers recall the high incomes during this period, with one saying *"in 2008 we could buy motorbikes and DVD players with our tea income, now we can only buy rice".* Given their reliance on tea for subsistence farmers equate tea and rice prices *"In order to have enough income to buy rice, we expect the fresh leaf price to be at least Kip 3,000 per kg",* one farmer in Phoufa zone complained to the team.

Table 3: Fresh leaf prices Kip per kilo 2006-2011.

Type	Pick	2006	2007	2008	2009	2010	2011
Ancient	Spring	10,000	18,000	20,000	10,000	10,000	10,000
	Other	4,000	15,000	10,000	8,000	8,000	60,000
Modern	Spring	3,000	10,000	12,000	4,000	4,000-4,500	3,500
	Other	2,000	8,000	2,000	2,000	2,000-3,500	20,000

In order to help increase fresh leaves prices, the district government meets with each processor monthly to discuss pricing and establish a standard monthly price. A price agreement is then signed

and the collecting price based on this. Farmers report that sometimes prices actually paid are lower than the agreed.

Based on the above 2010 prices incomes from tea picking range from a high of Kip 70,000/day (spring pick ancient tea) down to Kip 20,000/day for lowest value wet season, modern cultivated tea. Given that ancient tea reserves are highly limited and that spring pick volumes are estimated to be some 15% of total, a typical daily income from tea picking is probably in the 35,000 Kip range. As a basis of comparison, standard laboring wage rates in the area are only slightly lower at a reported 25,000-30,000 Kip per day.

Table 4: Tea picking income

Tea type	Pick	Picking income / day[3]	
		Max	Min
Ancient	Spring pick	70,000	40,000
	Other pick	56,000	32,000
Modern	Spring pick	67,500	40,000
	Other pick	52,500	20,000

Based on current average tea garden size, yields and 2010 prices, a households income from modern tea cultivation is estimated to be some Kip 6.7 million ($835) per annum, equivalent to kip 1.37 million ($170) per capita.

A key complaint of farmers is that processors do not always buy the fresh leaf collected – this is in part is due to the batch nature of processing where a company requires a minimum volume at the same time to undertake processing. Where farmers are unable to sell fresh leaf to one or more of the processing companies farmers will then typically home process the fresh leaf themselves to rough tea or *maocha*.

Farmers prefer to sell fresh leaf to processors because 1) they can get cash faster; 2) processing into rough tea (Mao cha) is time consuming and; 3) there is almost no value addition incentive for processing. Given an average conversion rate of 4.5 kg of fresh leaf to 1 kg of Maocha, the processing margin earned by farmers estimated to be less than 10%.

However, when a) there is no fresh leaf collectors or processors; b) when price is too low; or c) if an order has been placed by a buyer, farmers will process fresh leaf into Maocha and then sell to local collectors in town. Processing is time consuming with the following steps 1) wilting, 2) green killing (firing), 3) rolling, and 4) drying. There are two types of Maocha: *Shaiqing Maocha* (sun dried rough tea) and *Hongqing Maocha* (Oven dried rough tea) with the former higher value but also harder to produce in the wet season because of high humidity and drying difficulties. Farmers in Phongsaly do not have the equipment to oven dry and as such rely solely on sun-drying methods. When rainy, many will dry the tea inside the house resulting in smoke contamination and lower value.

Figure 4: Maocha processing

Fresh tea leaves | Wilting few hours | Firing about 15 m | Rolling about 10 m | Dry <5% moisture

Maocha prices in Phongsaly have little if any premium when compared with fresh leaf prices, with the production in Phongsaly best seen as a risk mitigation rather than income generation strategy.

There is no official data on the extent of home processing in Phongsaly but based on trader interviews it is estimated that over 60,000 kgs are produced annually equivalent to perhaps 10% of total production. Local NTFP traders collect Maocha and other NTFPs and export to Shangyong and Mengla in Xishuangbanna, Yunnan. Home produced maocha is generally of poor quality, with high levels of smoke contamination and often poorly dried. Local

Table 5: Farm-gate *mao cha* prices Kip/kg 2006-2010.

Type	Pick	2006	2007	2008	2009	2010
Ancient	Spring	50,000	80,000	90,000	45,000	45-50,000
	Other	20,000	70,000	40,000	30,000	30-35,000
Modern	Spring	15,000	50,000	60,000	20,000	20-25,000
	Other	10,000	40,000	10,000	10,000	8-12,000

[3] Based on maximum picking rate for ancient tea of 7 kgs/ day and minimum of 4 kgs and maximum picking rates for modern tea of 15 kgs and minimum of 10 kgs.

further processing of Maocha through steaming and packing into short bamboo tubes is a traditional and simple form of processing similar to that used for Pu-erh production with resultant biochemical processes likely to be similar. Such tea is often marketed as Phongsaly Smoked Tea in reflection of heavy smoke contamination that is typical.

Yunnan based buyers report that smoke contamination and poor drying reduces the value of home produced Maocha in Phongsaly by an estimated 50%. Improving the quality and hence prices of home processed mao cha is an obvious strategy to improve farmer tea incomes but fresh leaf sales to commercial processors are likely to remain dominant .

TEA CULTIVATION COST / BENEFIT

A simple CBA of tea cultivation over a 15 year period was undertaken using results from farmer interviews based on 2010 fresh leaf prices. Costs associated with the establishment and maintenance of tea gardens were calculated using the local average agricultural wage rate of Kip 25,000 per day. In practice, farmers use their own labor and sometimes produce their own seedlings or receive at low cost from processors. For analysis purposes we assume that all costs are fully incurred with results shown below in table 6.

Table 6: Tea cultivation CBA

Assumptions: picking rate of 15 kgs/day, wage rate of Kip 25,000/day, yield of 2,250 kgs/ha, average price Kip 3000/kg.							
Yr	Establishment	Maintenance	Picking cost	Total Cost	Gross Income	Annual Net Position	Accumulated Net Position
1	5,065,000	1,125,000	0	6,190,000	0	-6,190,000	-6,190,000
2	0	1,125,000	0	1,125,000	0	-1,125,000	-7,315,000
3	0	1,125,000	0	1,125,000	0	-1,125,000	-8,440,000
4	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	-6,565,000
5	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	-4,690,000
6	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	-2,815,000
7	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	-940,000
8	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	935,000
9	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	2,810,000
10	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	4,685,000
11	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	6,560,000
12	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	8,435,000
13	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	10,310,000
14	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	12,185,000
15	0	1,125,000	3,750,000	4,875,000	6,750,000	1,875,000	14,060,000

It is worth noting that the above analysis is highly sensitive to both fresh leaf prices and picking rates, with a decline of picking rates to 10 kgs/day resulting in no annual profits, while a rise in fresh leaf prices to kip 4,000/kg results in annual profits increasing from kip 1.875 to 4.125 million. An increase in picking rates to 20 kgs/day results in profits rising by 1 million kip.

This analysis show that at current prices tea cultivation will break-even in year eight and hence forth generate annual 'profits' of 1.8 million Kip per Ha on the basis of Kip 6.7 million of sales. Because labour provided is typically family based, an assessment on returns to labour provides perhaps a better basis for comparison and shows that returns on labour over the 15 year period are some Kip 27,400 per day only slightly higher than the local agricultural wage rate. If on-farm productivity improvements result in yield increases of 50% and picking rates increase to 20 kgs per day – still much lower than in Yunnan – the return to labour from tea cultivation increases substantially to Kip 44,500/day.

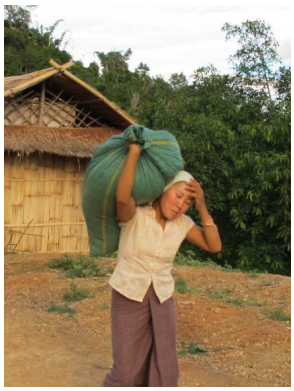
Similar analysis was applied to the ancient tea in Kormen zone and is attached in Annex 1, showing substantially higher returns to labor of some Kip 70,000 per day.

POVERTY REDUCTION:

Tea cultivation is practiced by all ethnic groups in the district but with the Phounoy having the greatest tradition of cultivation. Women undertake the majority of activities associated with tea production and processing with weeding, picking and sale of fresh leaf in particular being dominated by women. Home processing to maocha is also largely undertaken by women rather than men. Men are more likely to be involved in land preparation. In general in Phongsaly it is clear that tea is more

of a women's rather than man's crop. The regular and relatively low levels of income that are generated through tea sales are typically obtained by women and used for household consumption purposes, in particular food purchase. Children also play an active role in tea cultivation often undertaking tea picking before school in the mornings.

Fig. 5: Selling fresh leaf



The steep tea price declines resulting from the Pu-erh price correction have had a significant impact on incomes derived from tea cultivation with 'average' total incomes from one Ha of modern cultivated tea calculated[4] as declining from some 18.7 million kip ($2,334) in 20007 down to 6.7 million kip ($837) in 2010.

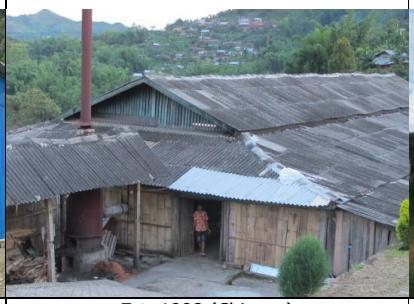
With the national rural income poverty line of Kip 82,000 per capita per month and average household size, incomes from one hectare of tea in Phongsaly have thus declined from providing 3.9 times this level in 2007 down to 1.4 times in 2010.

Given recent rice price increases the capacity of one hectare of tea under current production and pricing regimes to generate sufficient incomes by itself to raise households above the poverty line is marginal at best. The results of this assessment and production volume declines clearly indicate that for some households, tea picking – especially the lower value wet season pick - is no longer an attractive option. Poorer households with fewer alternative options appear still more reliant on the crop.

However, if production improvements are able to be made and yields increased by 50% as is reported as eminently possible, 'average' annual tea incomes would rise proportionally to just over 10 million kip per Ha ($1,255) equivalent to double the rural poverty line. If this productivity gain was achieved over the total current area of cultivated tea in Phongsaly district this would equate to an added value of some 4.5 billion kip ($570,000).

PROCESSING COMPANIES

Phongsaly's tea production is estimated to be divided amongst the processing companies as follows; Phoufa Tea Factory (55%); Phongsaly Green Tea (26%); Lao Syuen Classic (13%) and others (6%). Summary profiles of the main three companies are presented below:

Phoufa Tea Factory	**Phongsaly Green Tea**	**Lao Syuen Classic**
		
Est. 2009 (Lao)	Est. 1998 (Chinese)	Est. 2006 (Malaysia)
4 villages in core buying area Processes to maocha for sale to Yunnan's Landsun Tea company. Now trialing black tea.	23 villages in core buying area 50% of production is black tea, sold to western markets.	7 villages in core buying area Produces high quality maocha and processes to tea cake. Also trialing black tea.

Despite rapid price declines, these processing companies have shown resilience as evidenced by a) the diversification of production into new types of tea, b) the substantial increase in processing capacity that is being added by these companies in 2010 (overall an estimated 20% increase), c) the

[4] Based on yields of 2,250 kgs and prevailing prices.

development of new market linkages/channels that have been strongly supported in some cases through provincial government support.

Challenges reported by these companies are as follows:

a. Sourcing of sufficient volumes of fresh leaf especially during the spring pick when competition between buyers is highest,

b. Decline in total volumes of fresh leaf available and the quality of fresh leaf – esp. picking quality.

c. Over-picking during the spring pick season resulting in plant stress and disease.

d. Poor on-farm management resulting in low yields and declining leaf quality.

e. Difficulties in importing tea processing equipment.

f. Poor road access to some areas (e.g. Kormen) in the wet season.

g. Export tax of Kip 500,000/MT.

h. Time taken in obtaining required export permissions and documentation.

DISTRICT PERSPECTIVES ON THE TEA SECTOR

The district government aims to achieve a 10% annual growth within the agricultural sector as a whole with tea sector targeted to generate some 7,308 tons of fresh leaf (1,624 tons of processed tea) within the next five years. This equates to an increase of 170% over 2009 volumes and 67% over peak production volumes in 2007.

The price correction in 2008 has generated significant issues and reduced farmer confidence in tea cultivation and willingness to address production issues. The key challenges now faced are the instability of the market and market channels. The district now encourages open competition amongst buyers to stimulate maximum prices for tea and meets with buyers to reduce price fluctuation issues.

Focusing on and enforcing organic production is one way that the district has sought to maintain competitiveness of the sector. Technical production challenges remain associated with tea garden establishment, management, and soil fertility maintenance. Technical service centers may provide a mechanism to demonstrate improved cultivation techniques but district funds are limited. Since the assessment was undertaken, increasing recognition of issues associated with soil fertility, yields and fresh leaf quality has occurred.

CONCLUSIONS:

The tea sector has made a valuable contribution to poverty reduction in Phongsaly but post-Pu-erh price boom the sector is at present perhaps best seen as making a useful contribution to subsistence rather than propelling households out of poverty. The sector is dominated by ethnic women and as such a focus on the sector should inevitably enable greater benefits to accrue to this, the typically poorest segment of Lao society. The potential for tea to significantly contribute to poverty alleviation in Phongsaly is evident but in the current post-Pu-erh boom price situation will require increased focus and attention if such benefits are to be achieved.

Improved on-farm management should result in higher yields and better returns to labour. This will require the development of low-input, organic production models that are likely to be characterized by low plant density, intercropping, use of shade trees. The use of legume ground covers could reduce weeding requirements whilst also contributing to soil fertility and water retention. In fill re-planting will be required in some sites. The FAO have substantial international expertise in the tea sector and could assist in this regard. Production models will need to be demonstrated on existing tea farmer gardens with the full costs of such trials would need to be paid to participating farmers.

Improving picking rates through better cultivation (above) and improved bush shaping and pruning will go some way to balancing lower prices and thereby increasing farmer interest.

The use of local ancient varietals rather than imported Yunnan types is increasingly acknowledged by officials and farmers as a more appropriate strategy and this should be encouraged. It is worth noting that substantial areas of newly cultivated ancient varietals are already in place.

The organic nature of tea cultivation in Phongsaly is a key comparative advantage within the Chinese and international market. Whilst certification does not appear warranted for the China market, international sales of Phongsaly tea that are reported to be already occurring could attract a significant price premium (30%) if internationally recognized certification was undertaken. Costs of certification will need to be borne by processors/buyers or the aid sector rather than by farmers.

Improved on-farm processing to mao-cha appears to offer good opportunities to add-value and reduce income loss risks at household levels and is technically low-cost and simple to undertake. However it will be essential that any process to support such fully involve existing traders and buyers in a) market assessment, b) quality standard development and c) processing training so that farm-gate price incentives are able to be established to encourage such improvement.

The continued high volume production of factory produced mao cha and its good quality suggests that direct entry to end markets – rather than via Yunnan – should be considered. Hong Kong represents a major market for Yunnan mao cha and represents an obvious high end market that Phongsaly producers could seek to enter. This will require external facilitation and support. Supporting processor participation in the Hong Kong Tea Expo (August 2011) and exhibition of best quality Phongsaly teas at this event would represent an ideal first step. Support to tea processors in improving quality or entering new markets should be provided irrespective of their origin.

Current trends towards black tea production from lower value wet season picked tea offer the potential for entry into higher end western markets. Western buyers are interested to source from Phongsaly if price/ quality issues are competitive. Organic certification would facilitate this and should enable Phongsaly producers to effectively compete price-wise.

External donor assistance to the sector in Phongsaly appears warranted from both a) a local poverty reduction perspective and b) contribution to national sector wide development. Given the scale of the sector at present in Phongsaly – and evident opportunities for sector development - donor financing in the order of 20% of annual sector value appears justified.

Cost-benefit for ancient tea collection in Kormen in Phongsaly (ha)

Picking rate (kg/day): 10 Wage rate: 25,000 Yield (kg.ha): 1,620 Average price (Kip/kg): 9,000

Year	Establ.	Maintenance	Picking	Total Cost	Income	Annual Position	Accumulation
1	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	9,405,000
2	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	18,810,000
3	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	28,215,000
4	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	37,620,000
5	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	47,025,000
6	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	56,430,000
7	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	65,835,000
8	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	75,240,000
9	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	84,645,000
10	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	94,050,000
11	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	103,455,000
12	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	112,860,000
13	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	122,265,000
14	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	131,670,000
15	0	1,125,000	4,050,000	5,175,000	14,580,000	9,405,000	141,075,000