PART 5. PERU COCA CULTIVATION SURVEY

FACT SHEET – PERU COCA SURVEY FOR 2005

		2004	Variation on 2004	2005
Coca cultivation		**50,300 ha**	**- 4%**	**48,200 ha**
Of which in	*Alto Huallaga*	*16,900 ha*	*-5%*	*16,000 ha*
	Apurimac-Ene	*14,700 ha*	*+ 6%*	*15,500 ha*
	La Convencion y Lares	*12,700 ha*	*- 2%*	*12,500 ha*
	Elsewhere	*6,000 ha*	*- 30%*	*4,200 ha*
Weighted average sun-dried coca leaf yield		2,200 kg/ha		2,200 kg/ha
Potential production of sun-dried coca leaf		110,000 mt	- 4%	106,000 mt
Potential production of cocaine hydrochloride		190 mt	- 5%	180 mt
in percent of world illicit cocaine production		20 %		20 %
Average farm-gate price of sun-dried coca leaf		US$ 2.8/kg		US$ 2.9 /kg
Potential farm-gate value of sun-dried coca leaf		US$ 304 million		US$ 307 million
Farm-gate value of coca leaf production as percentage of 2004 GDP (US$ 68.5 billion)		0.4%		0.4%
Average price of cocaine paste		US$ 640/kg		US$ 640/kg
Average price of cocaine hydrochloride		US$ 890/kg		US$ 890/kg
Reported eradication of coca cultivation		10,257 ha	+ 19%	12,232 ha
Reported seizure of cocaine paste		6,330 kg	- 49%	3,199 kg
Reported seizure of cocaine hydrochloride		7,303 kg	- 70%	2,199 kg

Abbreviations

ENACO	National Coca Enterprise
GIS	Geographical Information Systems
GPS	Global Positioning System
ICMP	UNODC Illicit Crop Monitoring Programme
DIRANDRO	Anti-Drugs Directorate, Peruvian National Police
OFECOD	Drug Control Office, Peruvian Ministry of Interior
NAS	Narcotics Affairs Section, United States Embassy
UNODC	United Nations Office on Drugs and Crime
CONTRADROGAS	Committee for the Fight Against Drug Consumption
DEVIDA	National Commission for Development and Life without Drugs
CORAH	Control and Reduction of Coca Leaf in Upper Huallaga

Acknowledgements

The following organizations and individuals contributed to the implementation of the 2005 coca cultivation survey in Peru, and to the preparation of the present report:

Government of Peru:
National Commission for Development and Life without Drugs (DEVIDA)

UNODC:

Humberto Chirinos, Project Coordinator, Peru
Paloma Lumbre, Digital Classification, Cartography and GIS Specialist, Peru
Aldo Gutarra, Multi-spectral Analysis Specialist, Peru
Germán Galvez, Surveying, Cartography and GIS Specialist, Peru
Lorenzo Vallejos, Digital Classification, Cartography and GIS Specialist, Peru
Victor Rojas, Photo-Interpretation and Cartography Specialist, Peru
Carlos Coello, Cartographic Technician, Peru

Aldo Lale-Demoz, UNODC Representative for Peru and Ecuador

Coen Bussink, Remote Sensing and GIS expert (UNODC – Research and Analysis Section - ICMP)
Denis Destrebecq, Regional Illicit Crop Monitoring Expert (UNODC – Research and Analysis Section - ICMP)
Anja Korenblik, Programme Manager (UNODC – Research and Analysis Section - ICMP)
Thibault le Pichon, Chief (UNODC – Research and Analysis Section)
Thomas Pietschmann, Research Officer (UNODC-Research and Analysis Section)
Martin Raithelhuber, Programme Officer (UNODC-Research and Analysis Section)
Javier Teran, Statistician (UNODC – Research and Analysis Section – ICMP)

The implementation of UNODC's Illicit Crop Monitoring Programme in the Andean countries and the Peru survey in 2005 was made possible thanks to financial contributions from the Governments of the United States of America, the United Kingdom, Spain, Italy, France and Austria.

This report and other ICMP survey reports can be downloaded from:

www.unodc.org/unodc/en/crop_monitoring.html

TABLE OF CONTENT

1 INTRODUCTION 189

2 FINDINGS 190

2.1 COCA CULTIVATION 190
2.1.1 Regional analysis 193
2.1.1.1 Coca cultivation in Alto Huallaga 195
2.1.1.2 Coca cultivation in Apurimac-Ene 203
2.1.1.3 Coca cultivation in La Convencion y Lares 209
2.1.1.4 Coca cultivation in Inambari-Tambopata 213
2.1.1.5 Coca cultivation in San Gaban 214
2.1.1.6 Coca cultivation in Marañon, Putumayo, Huallaga Central and Bajo Huallaga 215
2.1.1.7 Coca cultivation in Aguaytia 217
2.1.1.8 Coca cultivation in Palcazu – Pichis - Pachitea 218
2.1.2 Production coca leaf and derivatives 222
2.2 PRICES OF COCA LEAF AND ITS DERIVATIVES 224
2.3 REPORTED ERADICATION 226
2.4 REPORTED SEIZURE 228

Index of maps

Map 1: Coca cultivation by region in Peru, 2001 – 2005 192
Map 2: Coca cultivation density in Alto Huallaga, 2005 194
Map 3: Verification overflight with GeoVideo, Alto Huallaga 201
Map 4: Coca cultivation density in Apurimac-Ene, 2005 202
Map 5: Verification overflight with GeoVideo, Apurimac 207
Map 6: Coca cultivation density in La Convención y Lares, 2005 208
Map 7: Coca cultivation density in Inambari-Tembopata – San Gaban, 2005 212
Map 8: Coca cultivation density in Aguaytia and Palcazu-Pichis-Pichitea, 2005 216
Map 9: Verification overflight with GeoVideo, Aguaytia, Palcazu – Pichis – Pachitea 221
Map 10: Reported eradication of coca cultivation, Peru, 2005 227

1 INTRODUCTION

In response to the decisions of the 1998 United Nations General Assembly Special Session on Drugs, UNODC developed and implemented a global Illicit Crop Monitoring Programme (ICMP). Through this programme, UNODC supports member states in establishing a crop monitoring system to monitor illicit cultivation of coca and opium poppy. The Programme is currently operating in Afghanistan, Myanmar, Laos, Colombia, Peru, Bolivia and Morocco.

In 1998, UNODC started working with DEVIDA to develop a national coca monitoring system in Peru. Using aerial photography, the project produced a detailed mapping (at 1/20,000 scale) of all the coca cultivation areas in 2000. Every year since then, satellite images were used to update the estimates. This report presents the findings of the 2004 Survey.

In Peru, the General Law on Drugs enacted in 1978 prohibits the cultivation of coca and seedlings in new areas within the national territory. This reference to "cultivation" includes the grafting and renovation of existing coca bushes. In 1978, another law established the National Coca Enterprise (ENACO), which has a monopoly on the commercialization and industrialization of the coca leaves. Therefore, the selling of coca leaves to any party other than ENACO is considered illicit by national law.

The Government also established in 1996 a Committee for the Fight Against Drug Consumption (CONTRADROGAS), renamed National Commission for Development and Life without Drugs (DEVIDA) in 2002. DEVIDA's objectives are to design, coordinate and implement policies and activities aimed at national drug control.

Until the mid-1990's, Peru was the world's main coca cultivating country. Today, it is the second major producer of coca far behind Colombia.

The reduction in coca cultivation in Peru in the mid-1990's was linked to the sharp decline in both the coca leaf prices and the demand for Peruvian coca leaf. In 1995, trade in coca leaf on the local market ceased and, from 1996 to 1998, the prices of coca leaf remained lower than its production costs. Farmers abandoned their coca fields and coca cultivation dropped from 115,300 ha to 38,700 ha, or 66%, between 1995 and 1999.

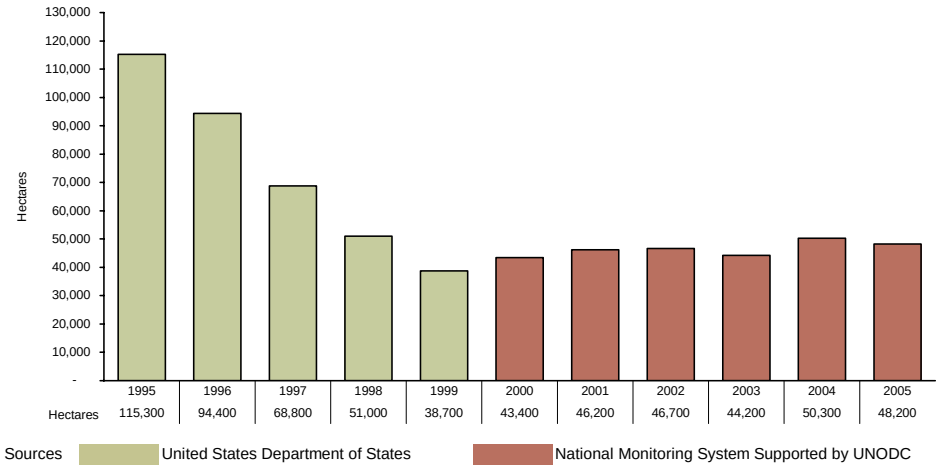
After 1999, coca prices increased slowly while the prices of licit crops (coffee and cacao) decreased. Farmers started to re-activate their abandoned coca fields and coca cultivation rose again in Peru. To some extent, the increase has been contained by the presence of alternative development projects, as well as the introduction of eradication measures, which include both forced eradication conducted by CORAH (Ministry of Interior) and voluntary eradication schemes conducted by DEVIDA.

2 FINDINGS

2.1 COCA CULTIVATION

In 2005, the total area under productive coca cultivation in Peru was estimated at 48,200 ha. This represented a decrease of 4 % over the estimate for 2004 of 50,300 ha.

Figure 1. Coca cultivation in Peru, 1995 – 2005 (ha)



The decrease in coca cultivation observed in 2005 was the results of the eradication campaigns implemented by CORAH during that year. Eradication efforts were particularly important in two departments: the department of Puno in San Gabán's valley, and the department of San Martin in Alto Huallaga region. As a result, in San Gaban's valley, coca cultivation decreased from 2,700 ha as of September 2004 to 300 ha as of July 2005, corresponding to a reduction of 91%. In the department of San Martin, coca cultivation in the valleys of Mishollo and the region of Pizana-Polvora, where most the eradication campaign took place, totalled 1,316 ha in 2004, but only 369 ha in 2005, corresponding to a decrease of 72%.

The decrease in coca cultivation in San Gaban and Mishollo/Pizano-Polvara was offset by small increases in others regions of Atlo Huallaga, and by increases in Apurimac-Ene and Aguaytia.

Despite the decrease between 2004 and 2005, coca cultivation in Peru remained the second largest after Colombia. It represented 30% of the 2005 global coca cultivation, compared to 33% in 2004. A percentage that remained much lower than ten years ago, when coca cultivation in Peru accounted for 54% of the cultivation in the world.

The decreases in Peru and Bolivia were offset by the increase in coca cultivation in Colombia, and the global level of coca cultivation remained unchanged between 2004 and 2005.

Figure 2. Coca cultivation in the Andean region, 1995 – 2005 (ha)

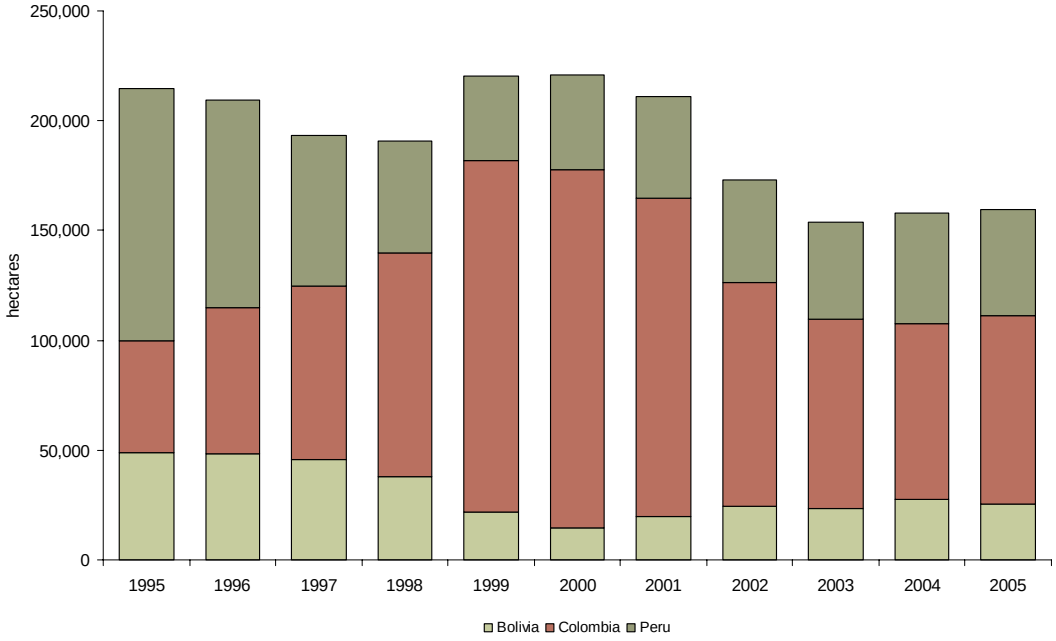
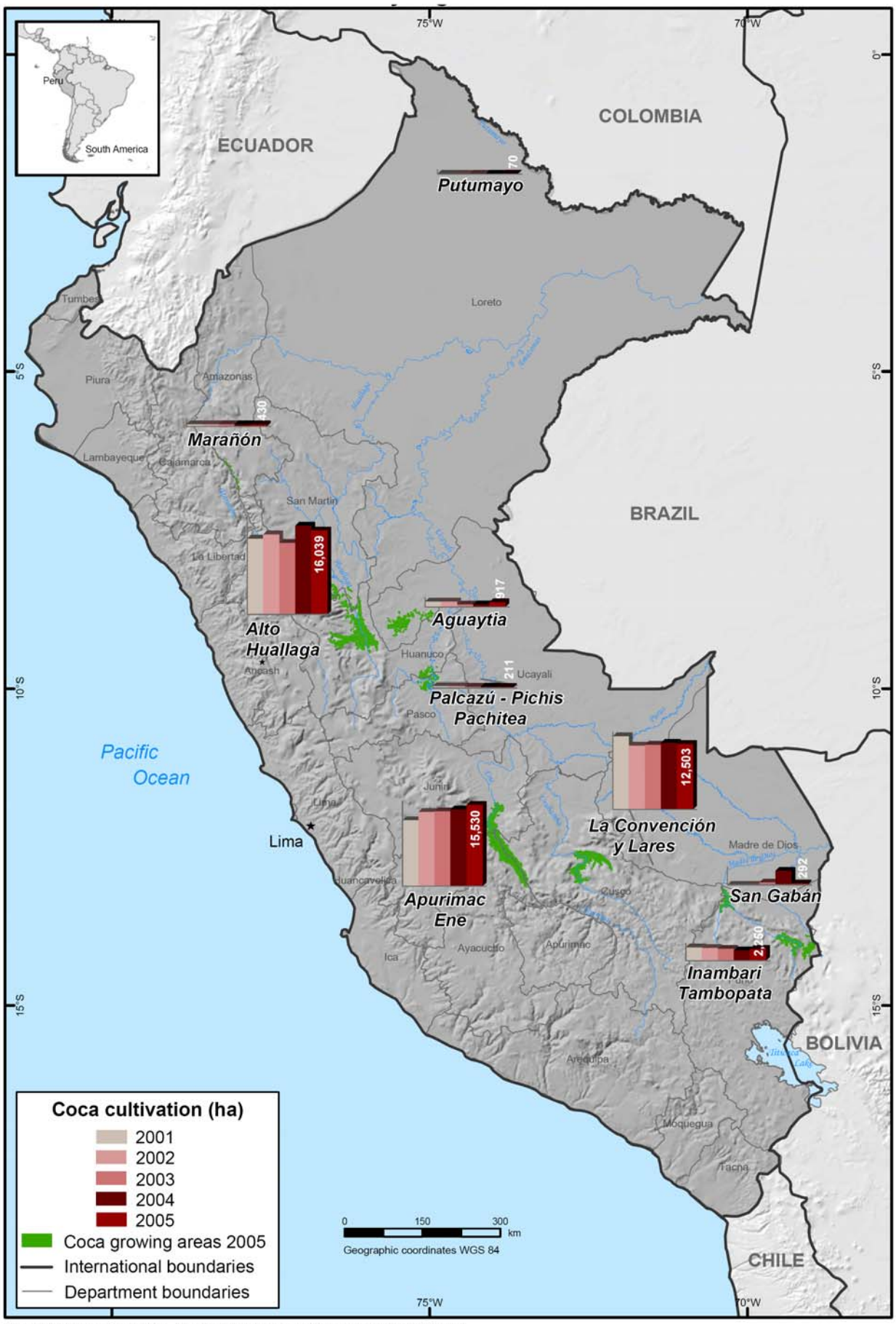


Table 1: Coca cultivation in the Andean region, 1995- 2005 (ha)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	% change 2004-2005
Bolivia	48,600	48,100	45,800	38,000	21,800	14,600	19,900	21,600	23,600	27,700	25,400	-8%
Peru	115,300	94,400	68,800	51,000	38,700	43,400	46,200	46,700	44,200	50,300	48,200	-4%
Colombia	50,900	67,200	79,400	101,800	60,100	63,300	44,800	02,000	86,000	80,000	86,000	8%
Total	214,800	209,700	194,000	190,800	220,600	221,300	210,900	170,300	153,800	158,000	159,600	1%

Sources United States Department of States National Monitoring Systems Supported by UNODC

Map 1: *Coca cultivation by region in Peru, 2001 – 2005*



Source: Government of Peru - National of monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

2.1.1 REGIONAL ANALYSIS

In Peru, most coca cultivation is concentrated in 14 large valleys and 8 smaller valleys. These valleys can be grouped in three main regions, making up 91% of the total cultivation in 2005: Alto Huallaga, Apurimac-Ene and La Convención y Lares. Each region has its own characteristics: While La Convención y Lares is the main supplier of the domestic consumption of coca leaf, coca cultivation in Apurimac-Ene and Alto-Huallaga are almost exclusively oriented for the production of cocaine for domestic and international markets.

Coca cultivation in others areas like San Gaban and Inambari-Tambopata at the border with Bolivia, Aguaytía and Palcazu- Pichis- -Pachitea in the central part of the country, Marañon in the northern area close to the border with Ecuador and Putumayo of Loreto department close to Colombia, only accounted for 9% of the 2005 total. Coca cultivation in these areas has mainly been oriented towards the production of cocaine.

Altogether, in 2005 coca cultivation could be found at various levels in 12 out of the 24 departments of Peru (Cajamarca, Amazonas, La Libertad, San Martín, Loreto, Huanuco, Ucayali, Pasco, Junin, Ayacucho, Cusco and Puno).

Figure 3. Coca cultivation estimates by region, 2001 – 2005 (ha)

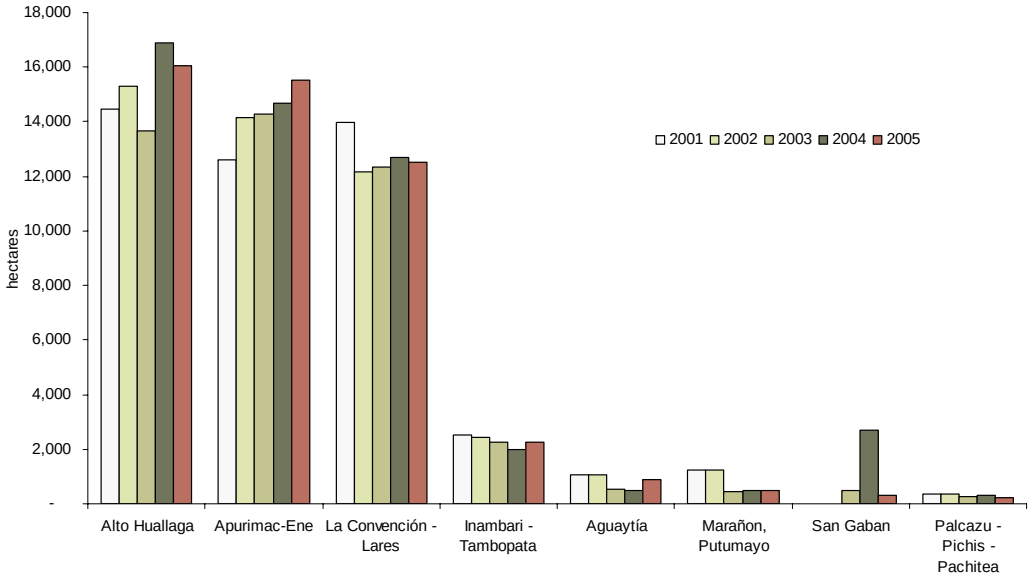
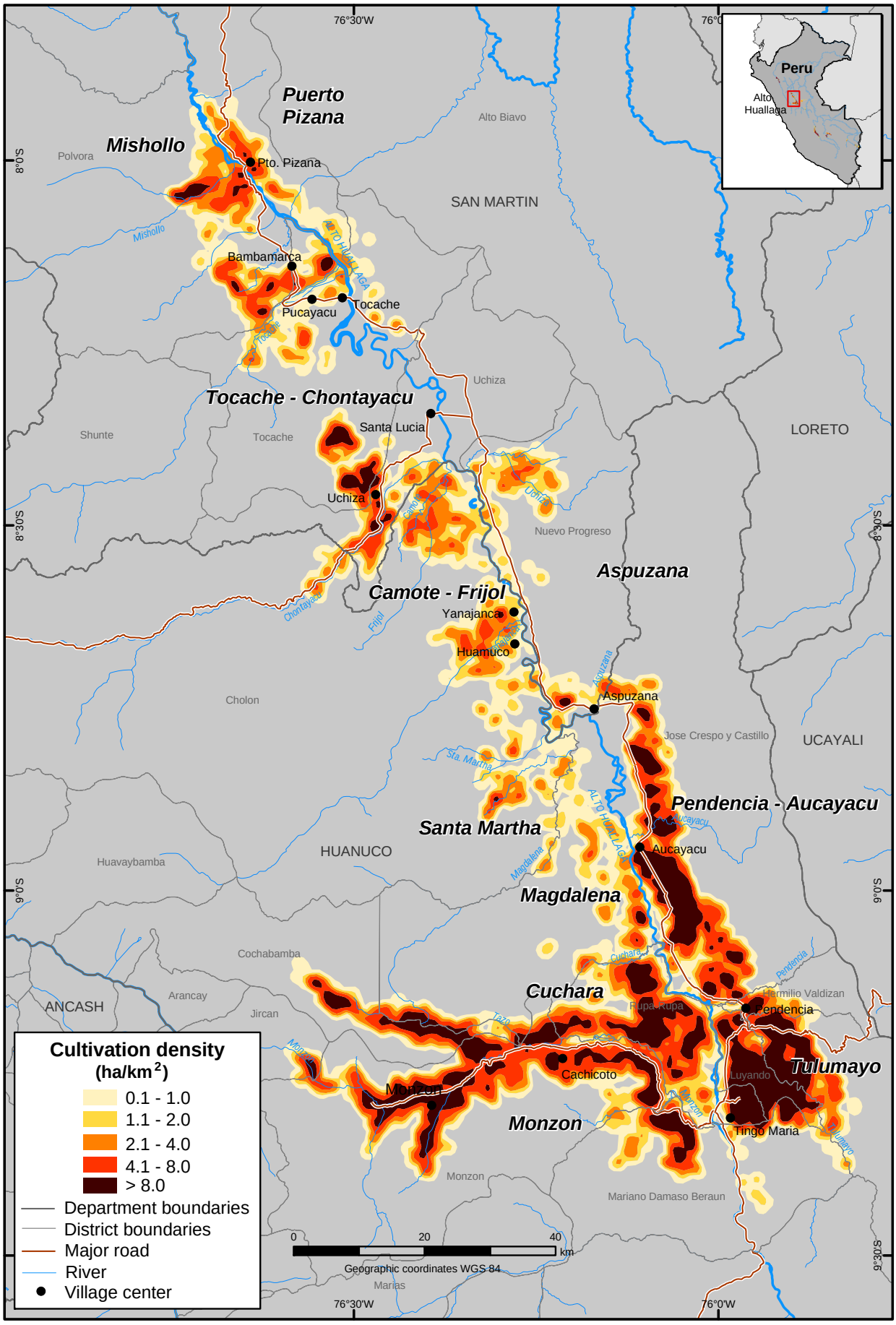


Table 2: Coca cultivation estimates by region, 2001 – 2005 (ha)

Region	2001	2002	2003	2004	2005	Change 2004 – 2005	*% of 2005 total*
Alto Huallaga	14,481	15,286	13,646	16,900	16,039	-861	33%
Apurimac-Ene	12,600	14,170	14,300	14,700	15,530	830	32%
La Convención - Lares	13,980	12,170	12,340	12,700	12,503	-197	26%
Inambari - Tambopata	2,520	2,430	2,260	2,000	2,250	250	5%
Aguaytía	1,051	1,070	510	500	917	417	2%
Marañon, Putumayo	1,250	1,250	450	500	500	0	1%
San Gaban	n.a.	n.a.	470	2,700	292	-2,408	1%
Palcazu - Pichis -Pachitea	350	350	250	300	211	-89	0%
Rounded Total	46,200	46,700	44,200	50,300	48,200	-2,100	100%

Source: National monitoring system supported by UNODC

Map 2: *Coca cultivation density in Alto Huallaga, 2005*



Source: Government of Peru - National monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

2.1.1.1 Coca cultivation in Alto Huallaga

The Alto Huallaga region is located on the Eastern side of the Andes mountain range, in the high tropical or subtropical forests of the departments of San Martin and Huamuco. In this region, coca bush is cultivated between 400 and 1,400 meters above sea level. Deforestation is important in the region and mostly due to agricultural exploitation of land that should rather be protected or devoted to forest or forestry activities.

The Alto Huallaga is one of the three main coca growing regions of Peru where coca cultivation has long been established. The 16,039 ha estimated in 2005 accounted for 33% of the national total. It represented a 5% decrease compared to 2004, but despite this decrease, Alto Huallaga remained in 2005 the main centre of coca cultivation in Peru, ahead of Apurimac and La Convención y Lares.

Between 2004 and 2005, a decrease of 5% was noted in Alto Huallaga. The decrease is mostly the result of intense eradication campaigns implemented by CORAH and that took place throughout 2005. The eradication campaigns targeted in particular the lower valley of the Mishollo river, the coca fields around the villages of Pizana, Yanjanca and Huamuco, as well as the lower valley of the Tocache river (on the left bank). The eradication implemented by CORAH eliminated seedbeds, new fields that had not yet been harvested, as well as coca fields in full production.

Eradicated coca fields, sector Mishollo, March 2006

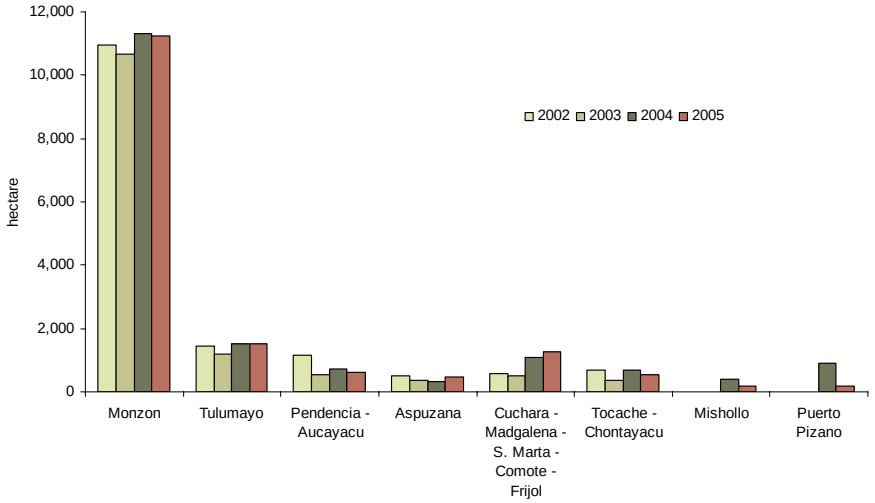
Eradicated coca fields, sector Pizana, March 2006

Table 3: Coca cultivation in the valleys of the Alto Huallaga region, 2002 – 2005 (ha)

Coca growing areas	2002	2003	2004	2005	% change 2004-2005	% of 2005 total
Monzon	10,935	10,659	11,325	11,230	-1%	70%
Tulumayo	1,438	1,188	1,507	1,507	0%	9%
Pendencia – Aucayacu	1,147	560	711	632	-11%	4%
Aspuzana	488	373	335	469	40%	3%
Cuchara - Madgalena - S. Marta - Camote – Frijol – Yanajanca – Huanuco	587	510	1,080	1,278	18%	8%
Tocache – Chontayacu	691	356	677	554	-18%	3%
Mishollo			408	187	-54%	1%
Puerto Pizano			908	182	-80%	1%
Rounded total for Alto Huallaga	15,300	13,600	16,900	16,039	-5%	100%

Source: National monitoring system supported by UNODC

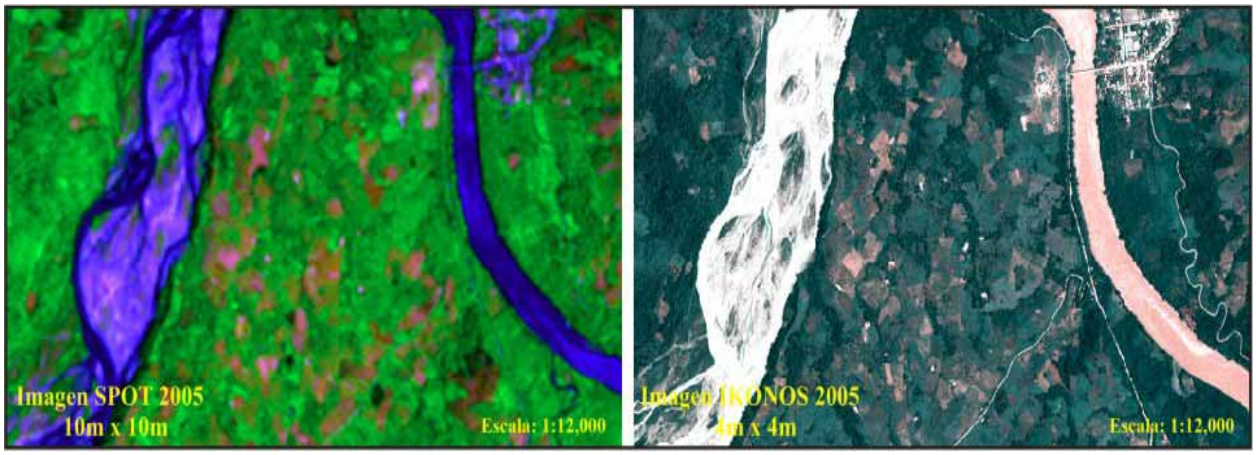
Figure 4. Coca cultivation in the valleys of the Alto Huallaga region, 2002 – 2005 (ha)

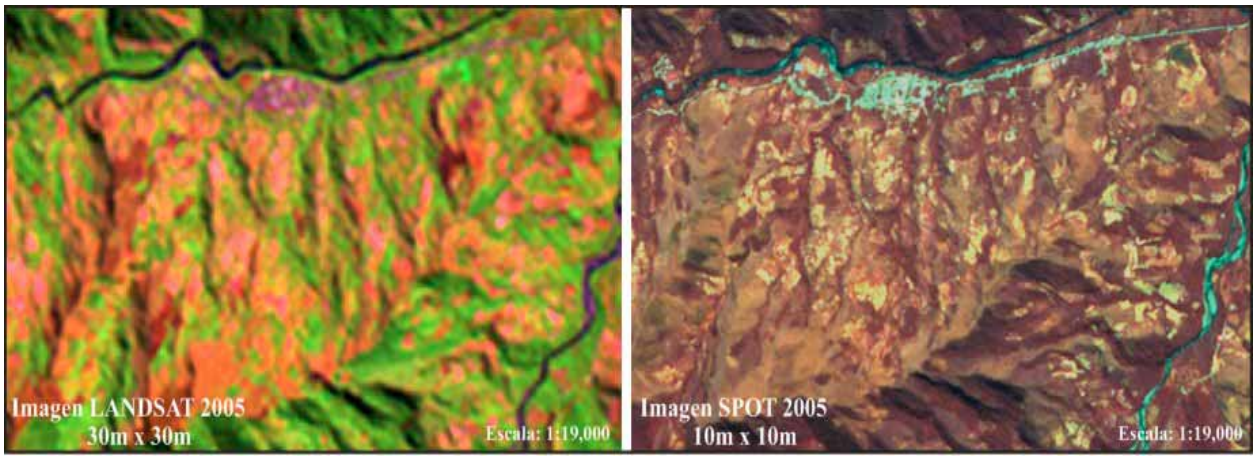


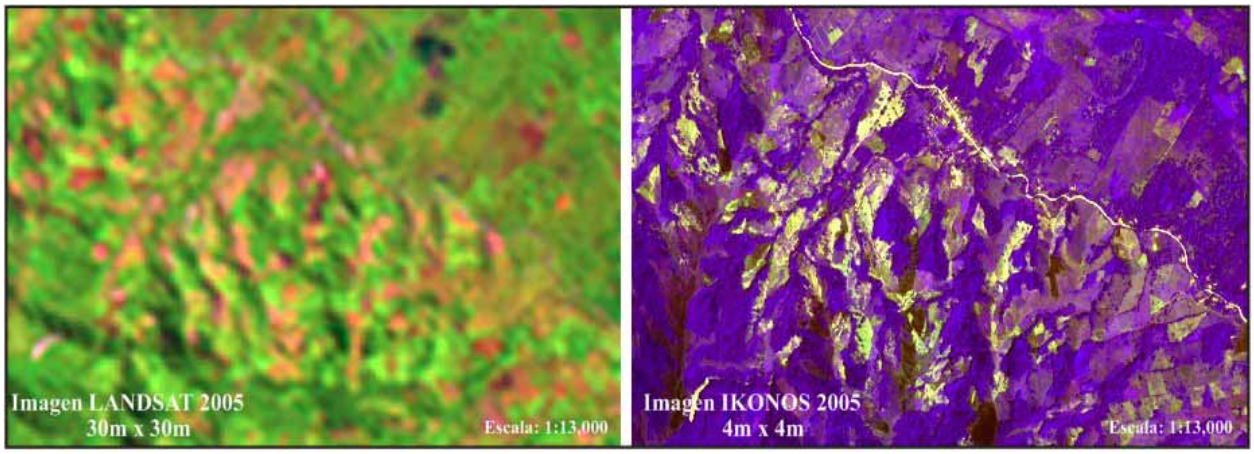
Beside the decrease in coca cultivation in the areas mentioned above, coca cultivation actually increase in other areas like in the small valleys of the Aspuzana, Cuchara, Magdalena, Santa Martha, Camote, Frijol, Huamuco and on the leaf bank of the Huallaga river. In these areas, coca cultivation increased by about 13% between 2004 and 2005. During the verification over flight, it was also noted that farmers were preparing new fields, of the size and in environment usually suitable for coca cultivation. This could be an indication that there could be more coca cultivation in these areas in 2006.

As was the case in previous years, most of Alto Huallaga's coca cultivation took place in the Monzon valley. Monzon accounted for 70% of the coca cultivation of the Alto Huallaga, and 23% of the national total with 11,230 ha. This amount of coca cultivation was roughly similar to the 11, 325 ha registered in 2004. As there was no eradication efforts conducted in this valley in 2005, nor any alternative development activities, and that prices of coca leaf and its derivatives remained high, the difference between 2004 and 2005 was mainly attributed to the different type of satellite images used for both years. Indeed, in 2005, it was not possible to cover the whole Alto Huallaga with SPOT5 images like in 2004 because of intense cloud cover and it was therefore decided to use a combination of IKONOS (more precise but smaller than SPOT images) and Landsat7 images (less precise but larger than SPOT images).

Comparison of Landsat7, SPOT5, and IKONOS satellite images over coca growing areas of Peru.







Although coca cultivation remained relatively stable between 2004 and 2005 in Monzon area, it was noted during the verification flights that farmers were preparing new fields suitable for coca cultivation, and even new fields of less than one year old which were not counted in the 2005 census, but that will be productive in 2006.

Coca fields have long been established in Monzón valley and most of them are over 20 years old. Typically, coca fields in Monzón valley are less productive than in other parts of Alto Huallaga. However, there were recent reports over the past three years of farmers interspersing new coca plants among older coca plants to increase the density and thereby their coca leaf yield.

The economy of Monzón valley is almost exclusively dependent on coca cultivation for the cocaine market. Up-to-date data on the number of persons living in this valley does not exist. However local authorities usually mentioned about 35,000 inhabitants living in the valley, but this does not take into account the external labour recruited for harvesting of coca leaf and processing of coca paste. The coca farmers organizations of Monzón strongly opposed the efforts of the government to reduce coca cultivation, and the insecurity and violence brought by these organizations were constant in 2005. These tense conditions, that prevailed for the past three years, have prevented the local authorities and the personnel of alternative development projects from entering the valley and working with the 1,200 people registered as beneficiaries of Alternative Development projects in Monzón.

Although there was no eradication of coca fields in Monzon valley in 2005, the anti-narcotic police, DIRANDRO, conducted a number of operations aimed at the destruction of maceration pits, seizures of materials and destruction of clandestine laboratories.

High density of coca fields and deforestation, Cuyacu - Monzon, March 2006

Coca fields in various development stages Cashapampa - Monzon, March 2006

High density of coca fields in strong slope, Caunarapa - Monzon, March 2006

Panoramic view of a small valley with coca fields, Shipaco- Monzon, March 2006

Recently planted coca fields. Coca plants are grouped and put in small holes
Caunarapa - Monzon, March 2006

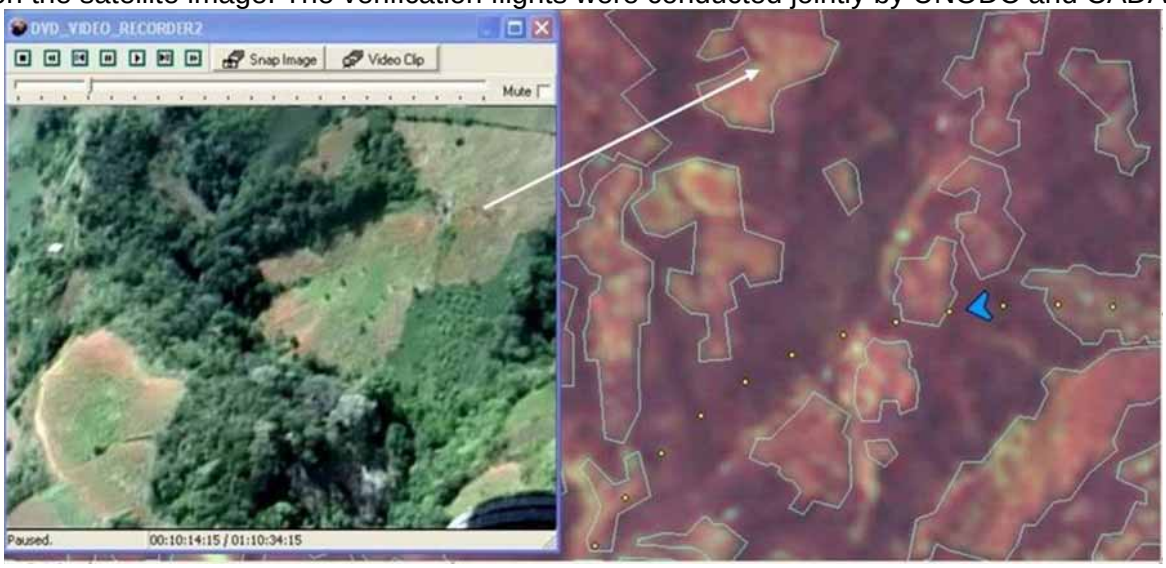
The second most important areas of coca cultivation in Alto Huallaga, but far behind Monzon valley, is the valley of Tulumayo. In 2005, coca cultivation in this region represented 9% of the coca cultivation in Alto Huallaga, but only 3% of the national level. Between 2004 and 2005, the level of coca cultivation remained stable at 1,507 ha. However, it was noted during field visits and overflights that farmers were preparing new fields, suitable for coca cultivation, an indication that coca cultivation could increase.

High density of coca fields in production and recently harvested, Maronas, March 2006

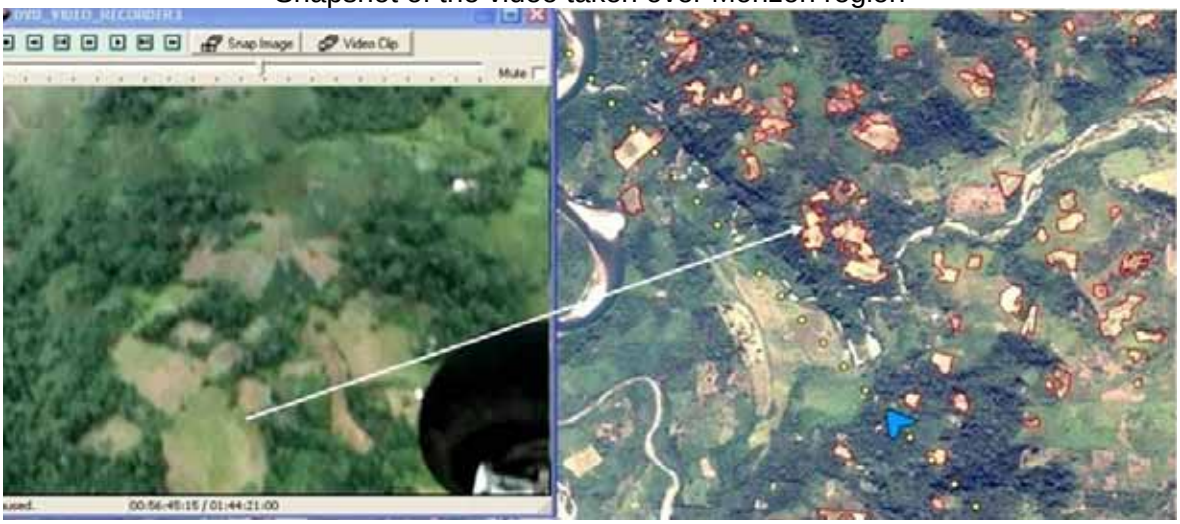
Coca fields in production and recently planted, Supte, March 2006

Snapshots of the video taken during the verification flights.

A camera video linked to a GPS was used to verify the initial interpretation of the satellite images. The yellow dots represent the flight path, the blue arrow the position of the plane when the video was paused. The white line matches a coca field spotted on the video and the corresponding field on the satellite image. The verification flights were conducted jointly by UNODC and CADA.



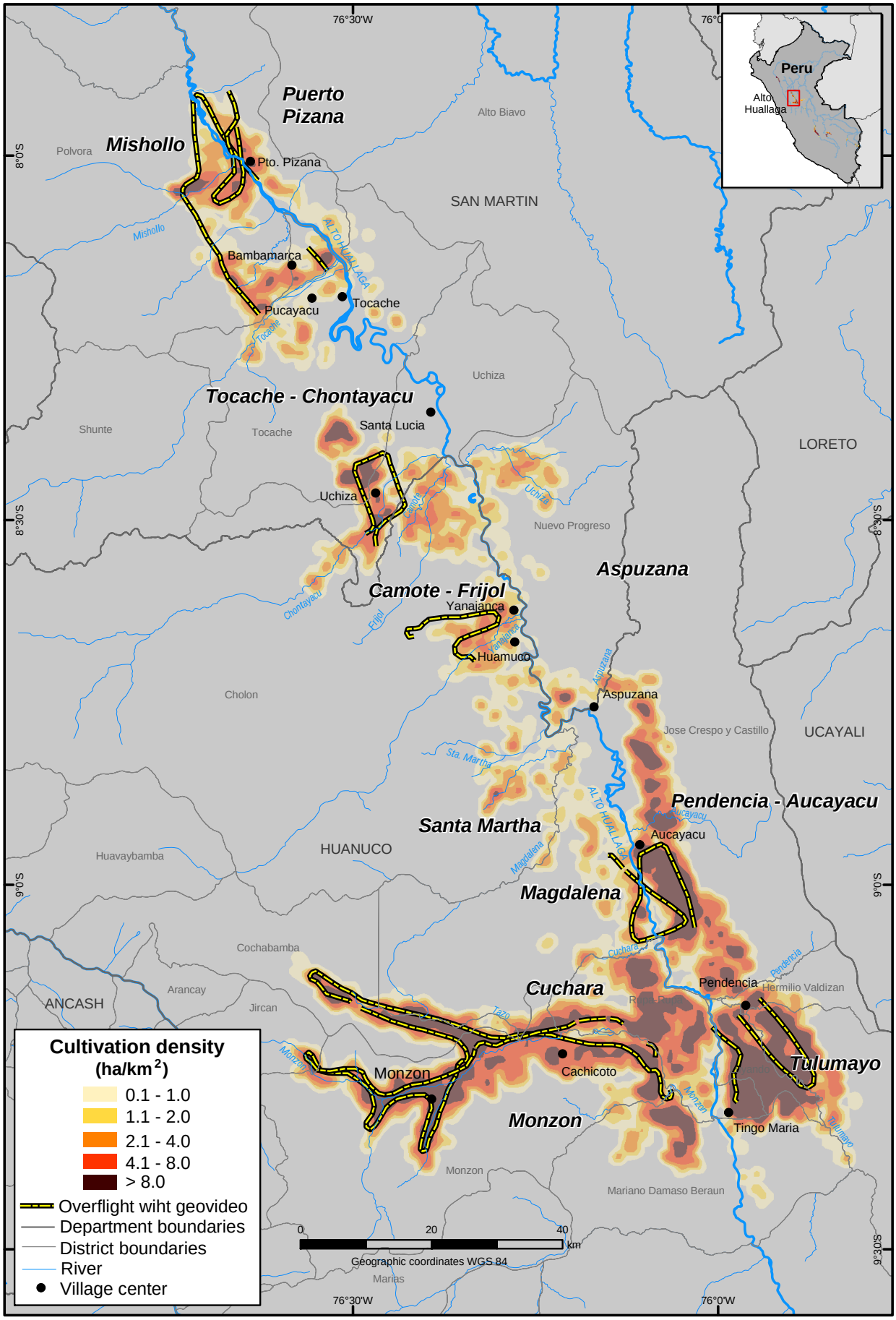
Snapshot of the video taken over Monzon region



Snapshot of the video taken over Tulumayo, Alto Huallaga.

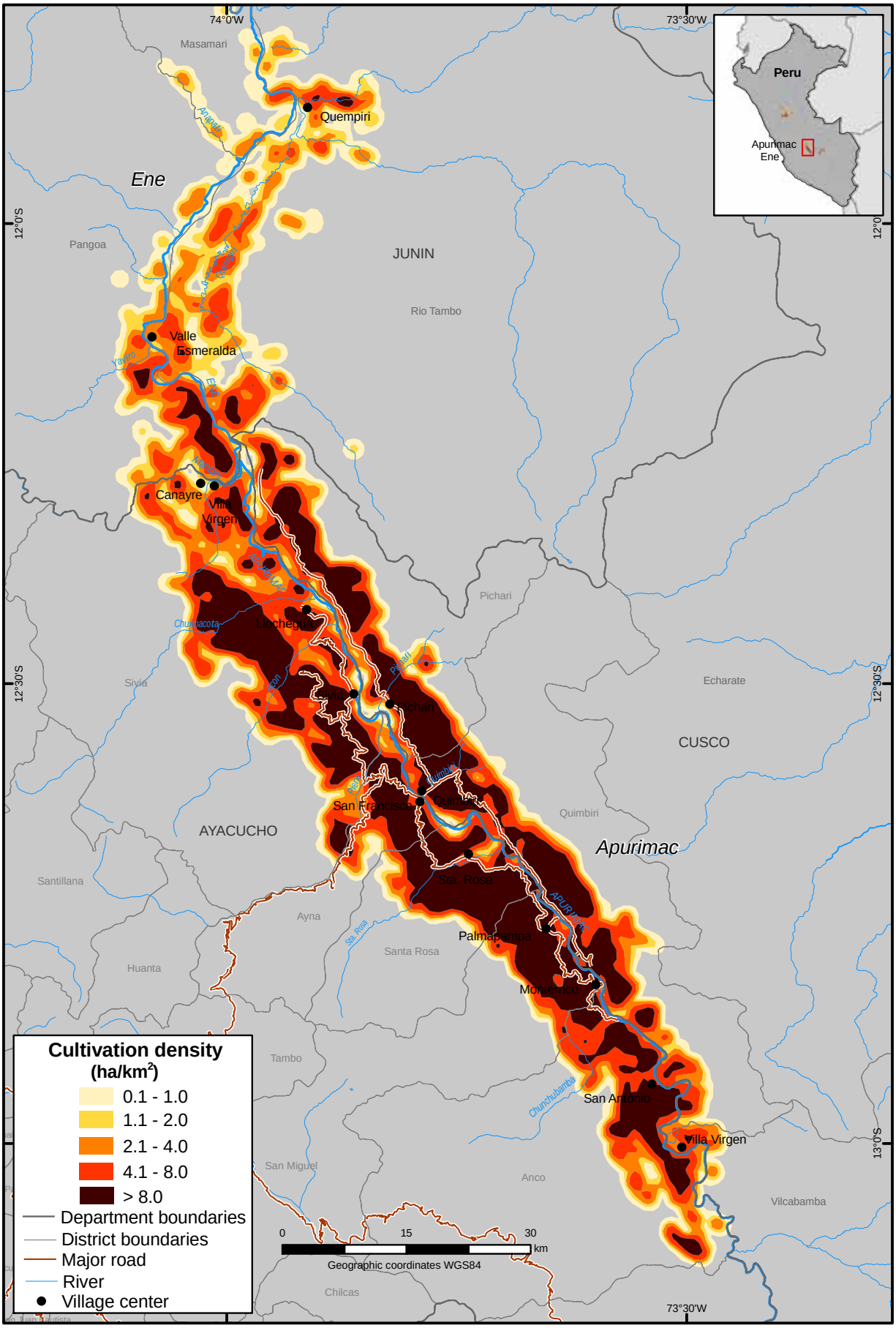
Snapshot of the video taken over Aucayacu, Alto Huallaga.

Map 3: *Verification overflight with GeoVideo, Alto Huallaga*



Source: Govemment of Peru - National monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

Map 4: *Coca cultivation density in Apurimac-Ene, 2005*



Source: Government of Peru - National monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or aceptance by the United Nations

2.1.1.2 Coca cultivation in Apurimac-Ene

The region is situated in the central part of the country extending over 12,000 sq km in the valleys of the rivers Apurimac and Ene, among the departments of Ayacucho, Cusco and Junín. The relief is uneven, and coca cultivation takes place at altitudes ranging between 550 and 2,000 meters above sea level.

Coca cultivation has long been established in Apurimac-Ene, predominantly on the steep slopes areas where the only other crops that can be grown are coffee and a few leguminous. To a lesser extent coca is also grown in areas of lower slopes, sharing the land with annual crops like maize, yucca, beans, sesame and permanent crops like cacao and fruit trees.

Apurimac-Ene is the second largest coca growing region of Peru, and with 15,530 ha in 2005, it represented 32% of the national total. This represented an increase of 6% compared to 2004. The increase was distributed over the valley, and it was not possible to identify a particular region where an increase took place. The main centers of coca cultivation continued to be around the villages of Santa Rosa, Palmapampa, Llochegua, Monterrico, Catarata and Alto Pichari.

Recently planted coca fields with high density of plants/ha, Palmapampa, March 2006

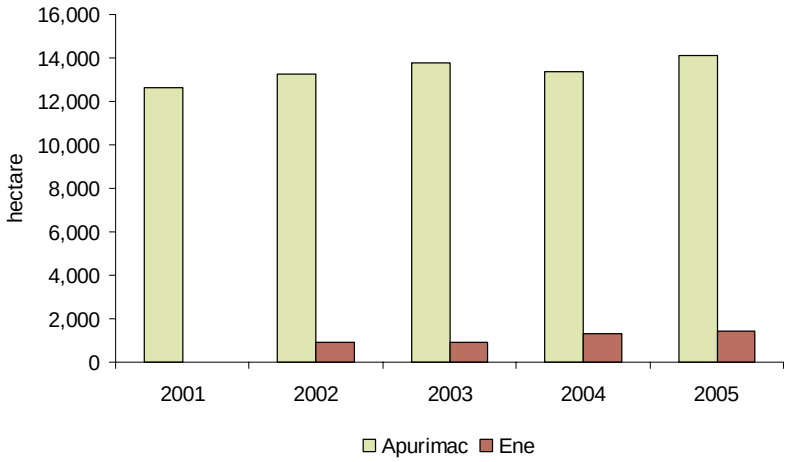
Recently planted coca fields on small terraces Santa Rosa, March 2006

Table 4: Distribution of coca cultivation in Apurimac-Ene,2001 – 2005 (ha)

Region	2001	2002	2003	2004	2005	% change 2004 - 2005	% of 2005 total
Apurimac	12,600	13,283	13,777	13,382	14,125	6%	*91%*
Ene	0	887	923	1,319	1,405	7%	*9%*
Rounded total	12,600	14,170	14,300	14,700	15,500	5%	*100%*

Source: National monitoring system supported by UNODC

Figure 5. Distribution of coca cultivation in Apurimac-Ene,2001 – 2005 (ha)



Coca cultivation in Apurimac-Ene is notoriously more sophisticated than in other valleys, characterized by a high density of the coca plants (up to 100,000 plants/ha) combined with an intense use of fertilizers and pesticides. New plants are readily available from existing seedbeds, either to be planted on new fields or to increase the plant density of old fields. There were also report of farmers being advised by experts to improve their coca yields. For these reasons, it is in Apurimac-Ene that the highest coca yields are obtained. Reports of annual yield above 4,000 kg/ha are more and more often frequent.

According to the population statistics of INEI, in 1994 there were 93,800 inhabitants (18,500 families) in Apurimac-Ene. Since then, the population has naturally increased, but it is also likely that it counts now with new migrants from the poorest areas of the Andean region who arrived in Apurimac-Ene, attracted by the demand for labour in the coca fields. A large majority of the population in Apurimac-Ene benefits directly or indirectly from coca cultivation.

In 2005, no forced eradication was implemented in the region, mainly due to the strong opposition from the farmers organizations. The social tensions surrounding the issue of coca cultivation were noticeable for the past three years and impeded the work of various organizations working in alternative development projects. Since 1995, UNODC has been implementing Alternative Development projects to improve coffee and palm trees production, benefiting about 1,100 persons. The same social tensions also prevented the implementation of voluntary eradication programme (4.4 ha voluntarily eradicated in 2005). There were however regular operations of the anti-narcotics police to destroy coca maceration pits and clandestine laboratories.

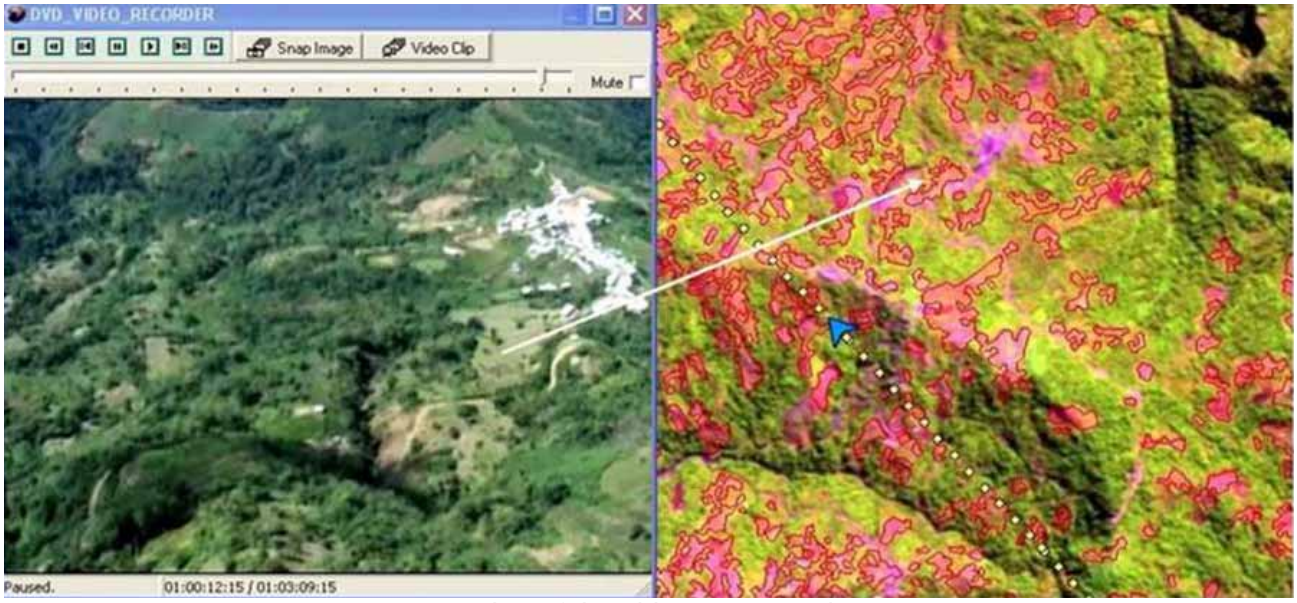
Coca fields, Santa Rosa, March 2006

Coca seed beds and recently planted fields, Progreso, March 2006

Coca seed beds, Sivia, October 2005

Snapshots of the video taken during the verification flights.

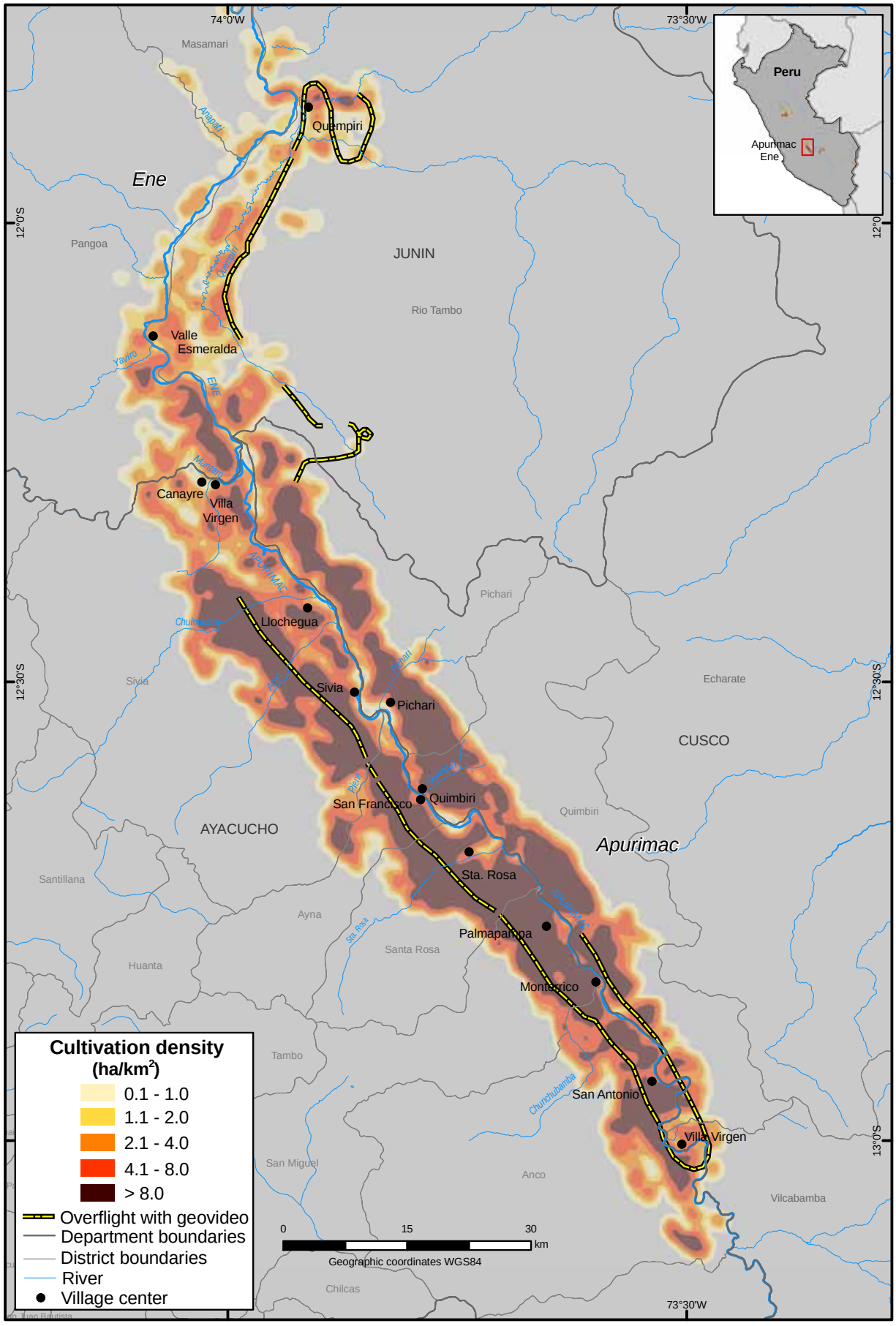
A camera video linked to a GPS was used to verify the initial interpretation of the satellite images. The yellow dots represent the flight path, the blue arrow the position of the plane when the video was paused. The white line matches a coca field spotted on the video and the corresponding field on the satellite image. The verification flights were conducted jointly by UNODC and CADA.



Snapshot of the video over Apurimac

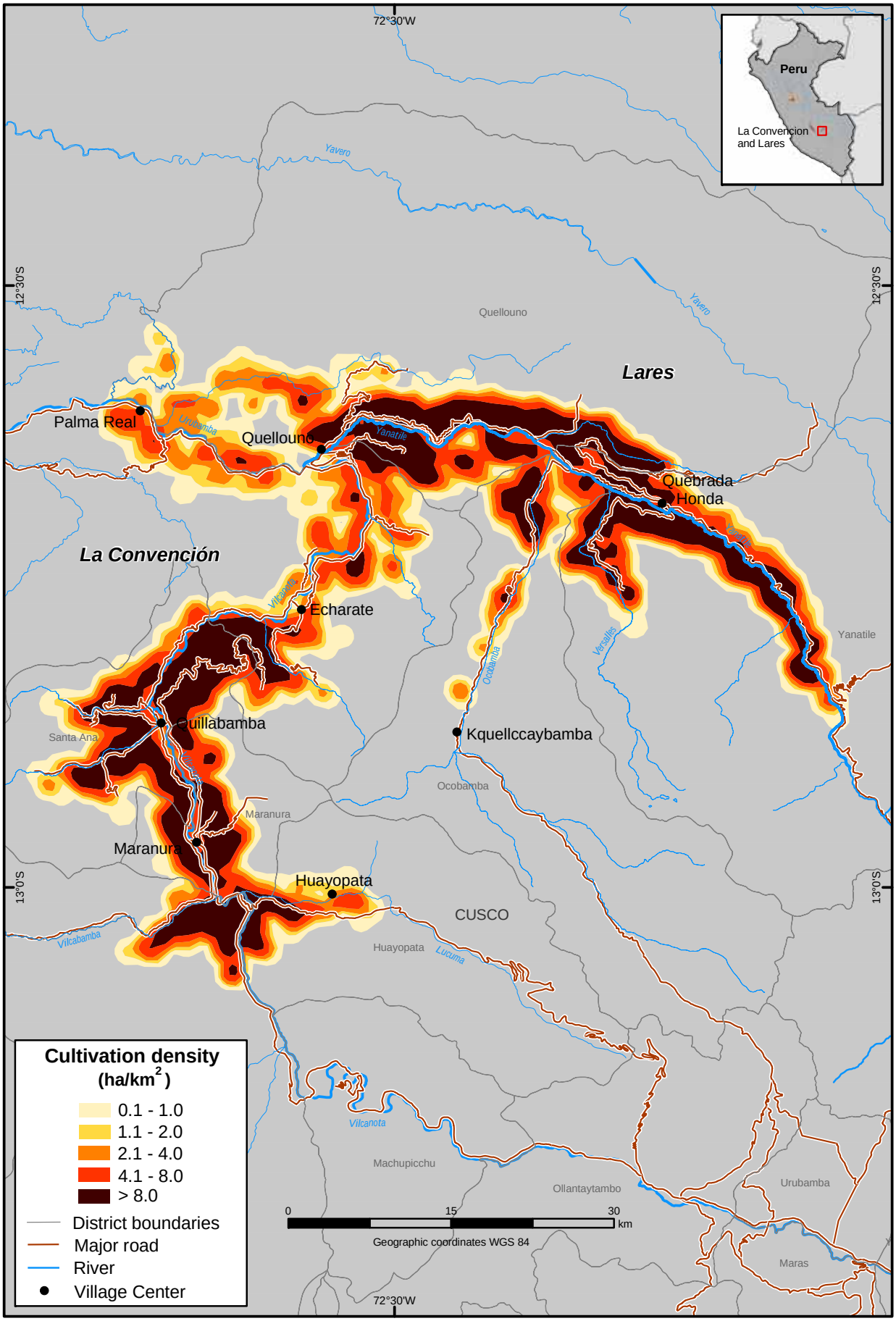
Snapshot of the video over Apurimac

Map 5: *Verification overflight with GeoVideo, Apurimac*



Source: Government of Peru - National monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or aceptance by the United Nations

Map 6: *Coca cultivation density in La Convención y Lares, 2005*



Source: Government of Peru - National of monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

2.1.1.3 Coca cultivation in La Convencion y Lares

The region is situated in the province of La Convencion in the department of Cusco. The natural vegetation is made of subtropical forests. Due to intense deforestation, the primary forest is nowadays only found in the higher parts of the region. Coca is mostly cultivated between 800 and 2,000 meter above sea, in the valleys of the rivers Urubamba and Yanatile.

In 2005, coca cultivation reached 12,503 ha, representing 26% of the national total, which ranked the region third in terms of coca cultivation, behind Alto Huallaga and Apurimac. Compared to 2004 there was a slight decrease of 2% in coca cultivation. This small difference was mainly attributed to the farmers' practice of cutting their coca fields after three or four year of continuous production.

Coca fields on steep slopes (typical of La Convention)
Echarate, March 2006

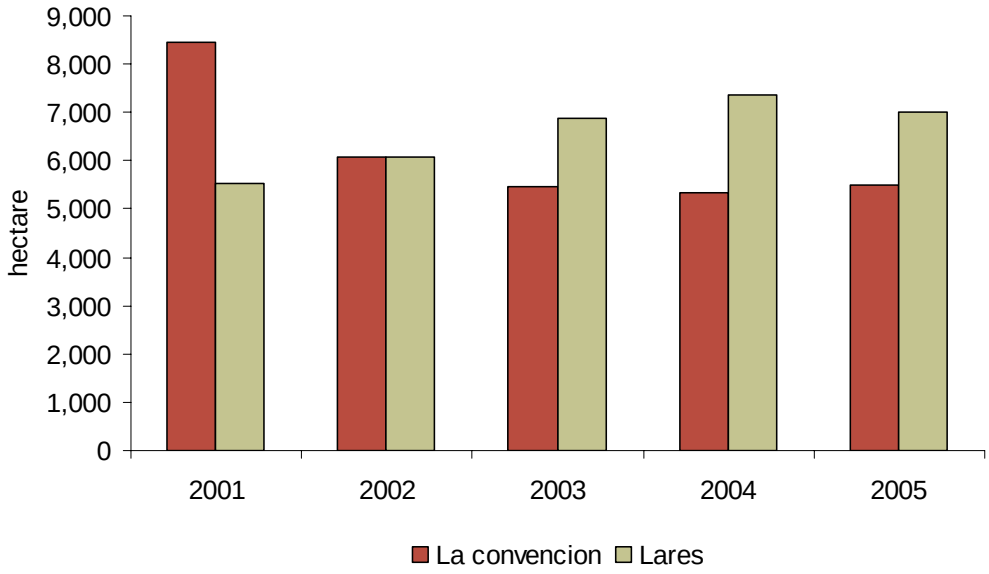
Sprouting coca fields (after pruning)
Huayanay, February 2005

Table 5: Distribution of coca cultivation in La Convencion y Lares, 2001 – 2005 (ha)

Region	2001	2002	2003	2004	2005	% change 2004 – 2005	*% of 2005 regional total*
La Convención	8,455	6,086	5,476	5,339	5,481	3%	*44%*
Lares	5,525	6,084	6,864	7,361	7,022	-5%	*56%*
Rounded total	13,980	12,170	12,340	12,700	12,500	-2%	*100%*

Source: National monitoring system supported by UNODC

Figure 6. Distribution of coca cultivation in La Convencion y Lares, 2001 – 2005 (ha)



Historically, the region has been considered as the coca cultivation centre for the traditional use of coca leaves. In 1978, the state company ENACO registered 12,685 coca farmers for the cultivation of 10,670 ha of coca bush. It was estimated at that time that the coca leaf production amounted to 7,400 metric tons per year, of which 3,764 metric tons (or 51%) were destined to ENACO, the rest being smuggled outside the control of ENACO. Since then, the diversion of coca leaf intensified due to the better price offered for coca leaf outside ENACO's market. In particular, in the past few years, it was noted that farmers improved their coca leaf yields by increasing the coca plant density and the use of fertilizers and pesticide.

However, coca leaf production from the region is supposed to be mainly oriented towards traditional uses like chewing, and not towards narco-trafficking. There was no report of eradication nor destruction of maceration pits or clandestine laboratories.

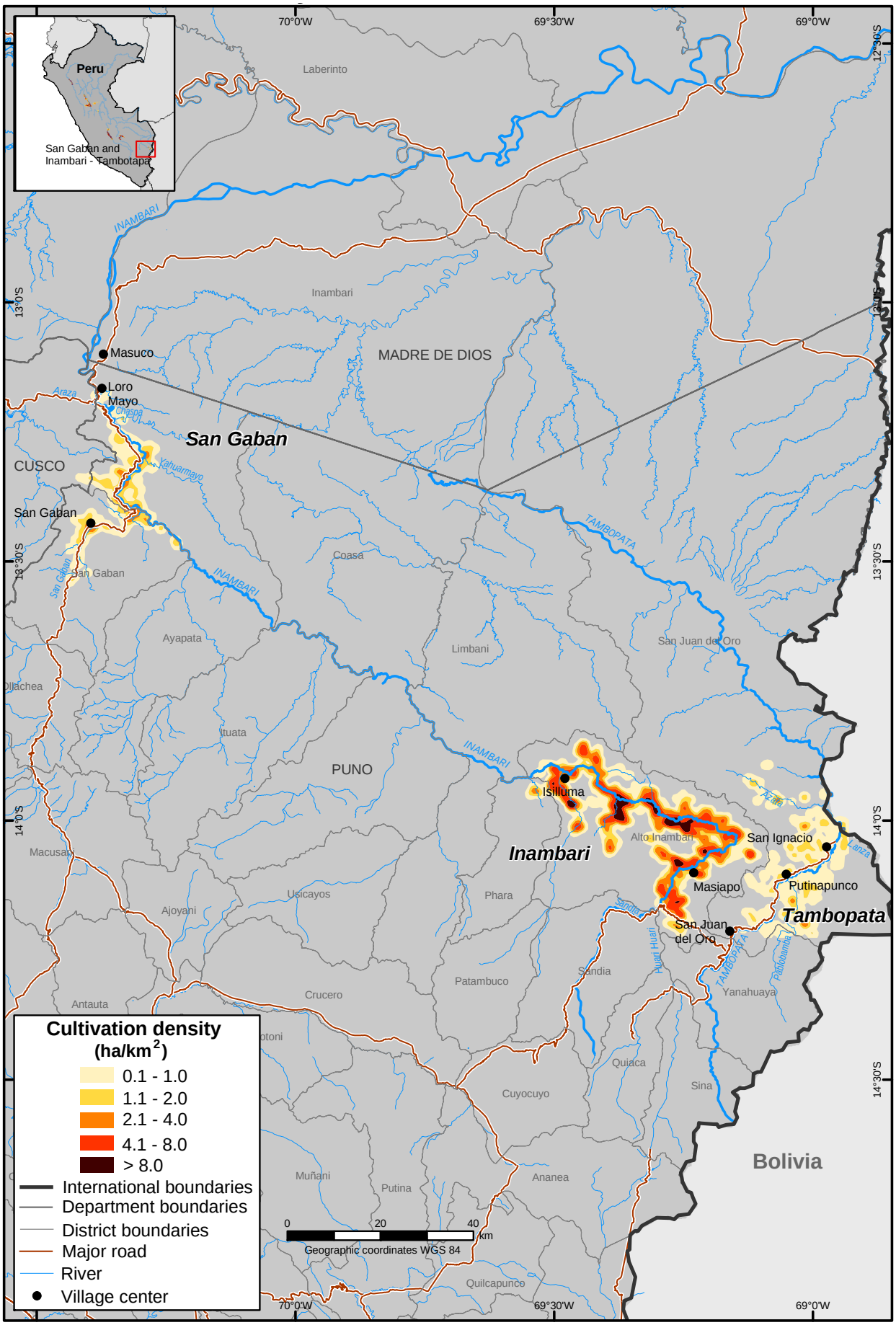
In 2005, a regional decree authorized coca cultivation, thereby recognizing the region as a traditional center of coca cultivation. The decree gave to the coca plant the status of Regional Natural, Biological and Cultural Heritage of Cusco, as well as botanical resource integrated to the culture and cosmovision of the Andean world and to the medicinal customs and traditions. It recognized the region as traditional coca producing area and legalized coca cultivation in the valleys of La Convencion, i.e. the valleys of Yanatile in the province of Calca and Qosñipata de Iño in the province of Paucartambo, all in the department of Cusco. However, the decree was invalidated by the Constitutional Court.

Old coca fields replanted with young plants, Vilcanota, November 2005

Coca fields associated with papaya trees, Sambaray, February 2005

Coca seed beds under shadow, Vilcanota February 2005

Map 7: *Coca cultivation density in Inambari-Tembopata – San Gaban, 2005*



Source: Government of Peru - National monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

2.1.1.4 Coca cultivation in Inambari-Tambopata

The rivers Inambari and Tambopata constitute the two main valleys for coca cultivation in the province of Macusani in Puno department. According to the National System of Land Classification, only 1% of the land would be suitable for agricultural activities while 99% of the land is on steep slopes considered protected areas because of their vulnerability to erosion. Coca cultivation mainly takes place on these steep slopes, between 800 and 1,800 meter above sea.

In 2005, coca cultivation was estimated at 2,250 ha, representing 5% of the national total. This corresponded to a slight increase compared to the level of coca cultivation in 2004 estimated at 2,000 ha. In this region, coca cultivation is concentrated in the small valley of the river Inambari.

Table 6: Distribution of coca cultivation in Inambari-Tambopata, 2001 – 2005 (ha)

Region	2001	2002	2003	2004	2005	% Change 2004 – 2005	*% of 2005 regional total*
Inambari	1,903	1,761	1,441	1,913	1,997	17%	*87%*
Tambopata	617	669	819	87	253	-12%	*11%*
Rounded total	2,520	2,430	2,260	2,000	2,300	15%	*100%*

Source: National monitoring system supported by UNODC

In the 80's, this area was considered as a traditional coca growing region. ENACO in 1988 registered 1,778 coca farmers for a declared area of coca cultivation of 783 ha. In the 90's, the production increased and was apparently more and more oriented towards narco-trafficking. Recently, there were reports of production and marketing of cocaine paste. There were also reports of illegal smuggling of inputs necessary for the production of cocaine paste or hydrochloride, like kerosene, sulfuric acid and chalk among others.

During the field verification process, it was noted that in this region coca cultivation was often interspersed or associated with other crops or bushes, which makes the detection of coca cultivation more difficult. It was also noticeable that farmers tended to improve the management of their coca fields to increase their yields, in particular an increase in plant density and use of fertilizers.

In general, coca farmers living in this region do not depend exclusively from coca cultivation, but also have other crops like coffees, or have developed activities in neighboring areas. It is rare to find farmers who only cultivate coca bush.

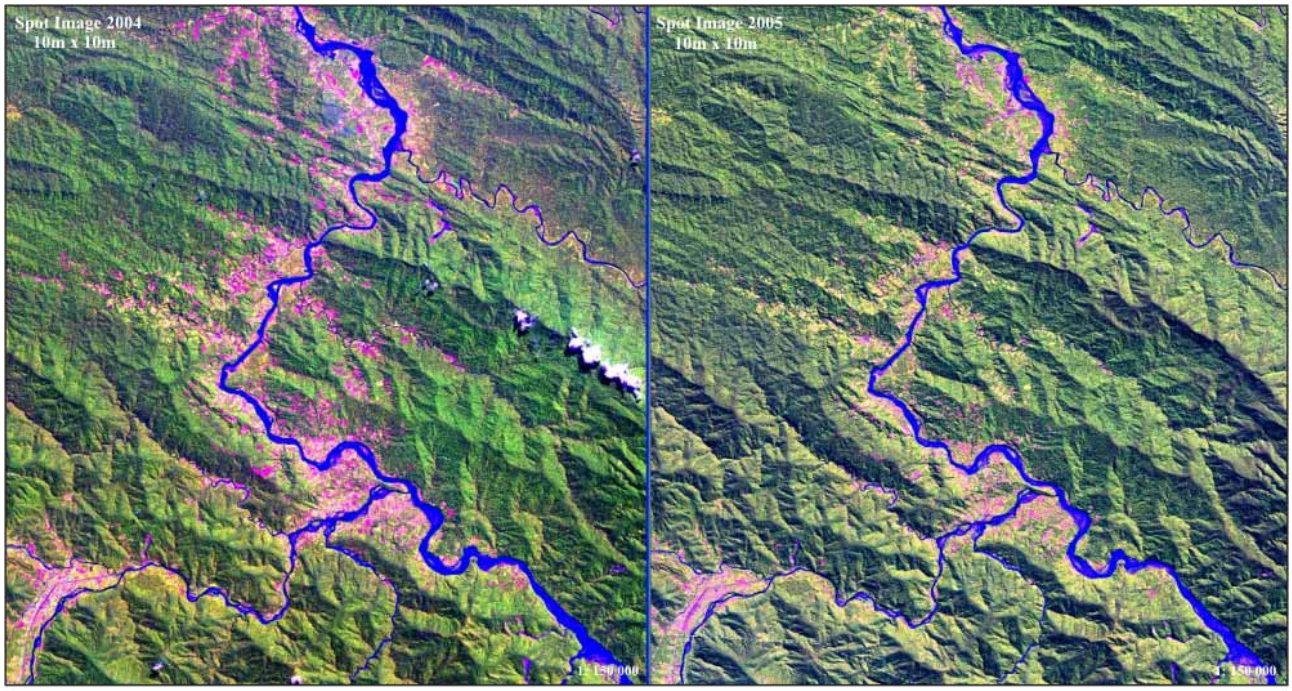
In 2005, there was no report of eradication or auto-eradication in the valley. It should be noted that access to this valley is increasingly difficult and risky because of the coca production destined for narco-trafficking.

2.1.1.5 Coca cultivation in San Gaban

San Gaban region is presented on the same map as Inambari-Tambopata region. The valley of the San Gaban river is part of the larger watershed of the Inambari river. It is situated in the north-western part of the department of Puno bordering Bolivia. The relief is uneven and covered by high altitude tropical forest. Coca cultivation mostly takes place between 400 and 1,200 meter above sea level, on the high slope areas situated in the middle and low parts of the San Gaban valley, up to its connection with the Inambari river. The area includes by the localities of Juliaca, Puerto Maldonado and Iñapari at the border with Brazil.

The analysis of the SPOT5 image acquired in July 2005 over that area, showed that there were 292 ha of coca cultivation in this region. This corresponded to a decrease of 90% compared to the 2,700 ha registered in 2004, and only 0.6% of the national total. This spectacular decrease followed intense eradication efforts by CORAH, that reported the eradication of 1,900 ha of coca cultivation between October and December 2005.

The decrease in coca cultivation and its replacement by grasses and shrubs, can be noted in the following snapshots of satellite images taken in 2004 and 2005.



Coca fields change 2004 - 2005 in San Gaban basin (coca filelds are in light red)

2.1.1.6 Coca cultivation in Marañon, Putumayo, Huallaga Central and Bajo Huallaga

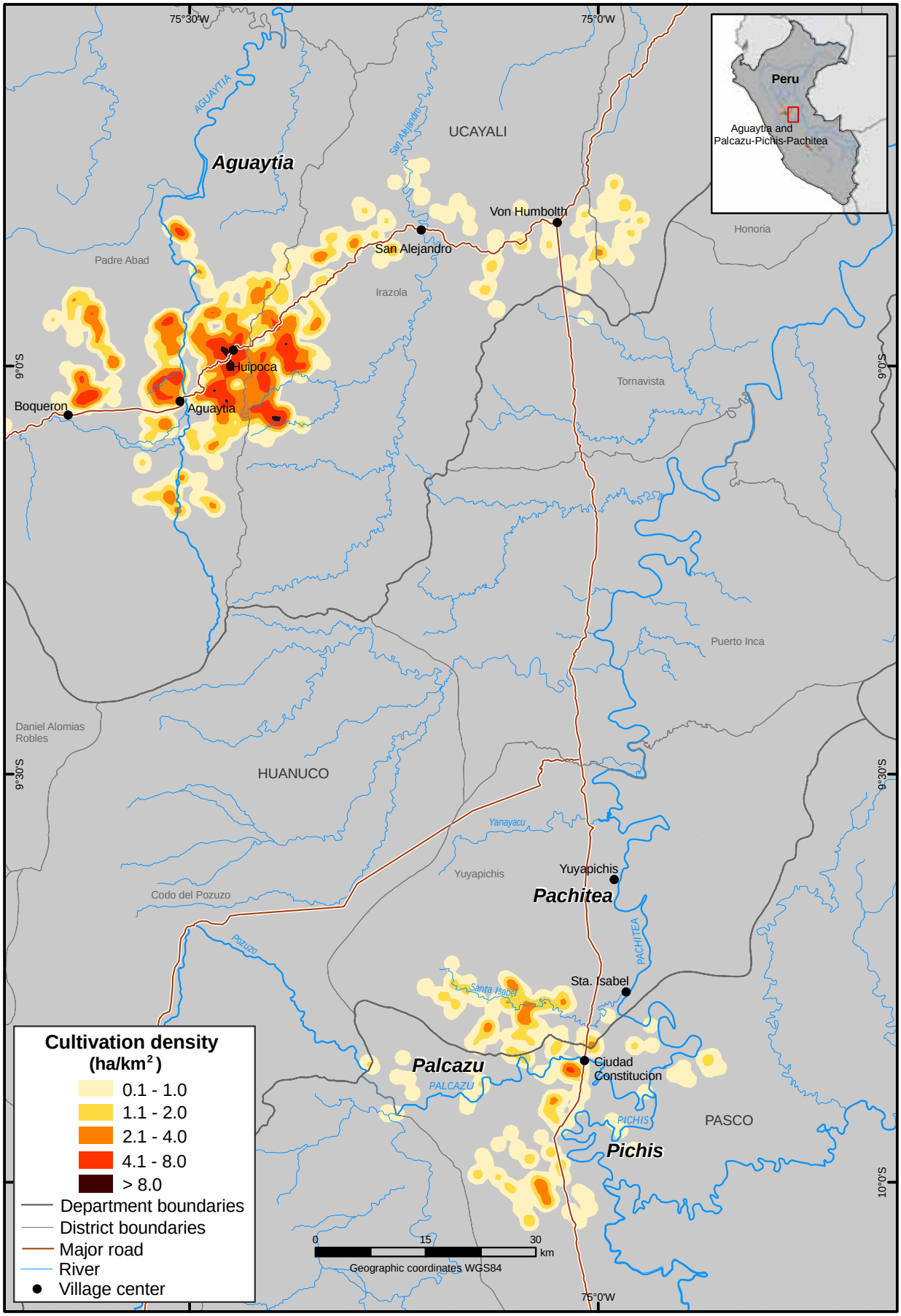
There were marginal levels of coca cultivation in the higher areas of the Marañon valley, situated in the northern part of the Andean region, as well as in the Putumayo region close to the border with Colombia in the north-eastern part of the country. Coca cultivation was estimated at only 350 ha for these two regions.

In Marañon, in 1978, ENACO registered 900 coca farmers in the areas of Huayobamba and Balzas, for a total of about 300 ha.

The Putumayo region is situated along the Putumayo river that makes the border with Colombia. Although close to the important coca cultivation of Putumayo on the Colombian side of the river, coca cultivation on the Peruvian side was considered very low in 2005. Coca cultivation was estimated at about 100 ha in 2005.

For the past three years, various eradication campaigns have been conducted in the regions of Huallaga Central and Bajo Huallaga. In 2005, only about 150 ha of coca cultivation were detected on the satellite images.

Map 8: *Coca cultivation density in Aguaytia and Palcazu-Pichis-Pichitea, 2005*



Source: Government of Peru - National monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or aceptance by the United Nations

2.1.1.7 Coca cultivation in Aguaytia

Aguaytia is a valley situated in Aguaytia province in the department of Ucayali. The region is made flat alluvial land and hills where coca cultivation takes place between 300 and 600 meters above sea level.

Coca cultivation increased from 500 ha in 2004 to 917 ha in 2005, representing a 74% increase. During the verification overflight, many new coca fields and recently prepared fields were noted. This would mean that coca cultivation might continue to increase in 2006. However, coca cultivation in Aguaytia only represented 2% of the national total.

Table 7: Coca cultivation in Aguaytia region(ha)

Region	2001	2002	2003	2004	2005	Change 2004 – 2005	*% of 2005 total*
Aguaytía	1,051	1,070	510	500	917	417	2%

Source: National monitoring system supported by UNODC

Most of the coca cultivation was concentrated around the locality of Huipoca, and small patches of coca cultivation could also be found along the Shambillo river. Coca fields were relatively less dense and productive then in other regions. It could be found mixed with other crops and under trees canopy. In these cases, the yield was probably even lower then on pure coca fields. There were little reports on the use of agrochemicals in the coca fields in this region.

Coca fields in production and others recently planted
Huipoca, March 2006

Coca fields (note the spot where coca leaves are being dried)
Huipoca, March 2006

Although coca cultivation from Aguaytia was destined for the cocaine market, coca cultivation did not represent any longer the basis of the agricultural economy of the region. Most of the crops were banana, pineapple, cotton, and recently palm oil plantation supported by UNODC. The palm oil plantation of 2000 ha benefited to 400 persons, most of them former coca growers.

There were a few operations of voluntary eradication conducted in the area of Campo Verde (451 ha) and in Aguaytia (1,001 ha). In 2005, DIRANDRO also reported the seizure of 393 kg of cocaine paste and 500 g of cocaine hydrochloride.

2.1.1.8 Coca cultivation in Palcazu – Pichis - Pachitea

The valleys of the rivers Palcazu, Pichis and Pachitea are situated in the province of Oxapampa in the department of Pasco, and the region is often referred to as 'Selva Central', the country central forest. The landscape is predominantly hilly, alternating with flat areas. Coca cultivation is found between 300 and 500 meters above sea level.

In 2005, coca cultivation was estimated at about 211 ha, representing only 0.4% of the national total, and a decrease of 17% compared to the 300 ha found in 2004. As there was no eradication in the region in 2005, the decrease was attributed to the limitation of the satellite images to detect coca cultivation below tree canopy.

Table 8: Distribution of coca cultivation in Palcazu-Pichis-Pachitea, 2001 – 2005 (ha)

Region	2001	2002	2003	2004	2005	Change 2004 – 2005	*% of 2005 total*
Palcazu	100	150	102	161	151	-6%	*76%*
Pichis	100	98	73	96	43	-55%	*22%*
Pachitea	150	102	75	43	17	-60%	*9%*
Rounded total	350	350	250	300	200	-33%	*100%*

The presence of coca cultivation in this region has been attested since 1986. In the early 1990s, coca cultivation in this region reached up to 12,000 ha for a production of coca leaves oriented towards cocaine production. The prices fall of the mid-nineties caused the end of coca cultivation in the region. In 2004, coca cultivation often took place below tree canopy to avoid detection, which resulted in very low coca leaf yield.

In 2000, UNODC launched an alternative development project mainly oriented towards the genetic improvement of cattle, and the training of native communities in the extraction of latex from Hevea trees.

During the verification overflight in the north-western part of the region (between San Matias, and the rivers Santa Isabel and Yanayacu in the district of Yuyapichis), a considerable amount of new coca fields were spotted, along with coca seedbeds and newly prepared fields.

Coca fields under shadow,Santa Isable, March 2006

Recently planted coca fields, Santa Isabel, March 2006

Coca seed beds and recently planted coca fields, Santa Isabel, March 2006

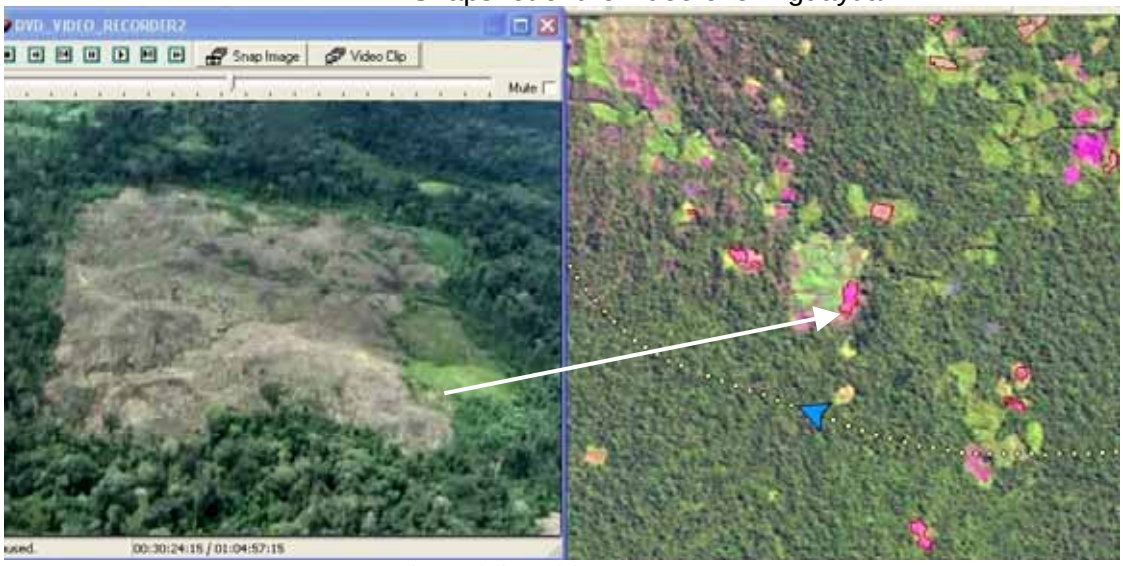
Recently planted coca fields, Santa Isabel, March 2006

Snapshots of the video taken during the verification flights.

A camera video linked to a GPS was used to verify the initial interpretation of the satellite images. The yellow dots represent the flight path, the blue arrow the position of the plane when the video was paused. The white line matches a coca field spotted on the video and the corresponding field on the satellite image. The verification flights were conducted jointly by UNODC and CADA.

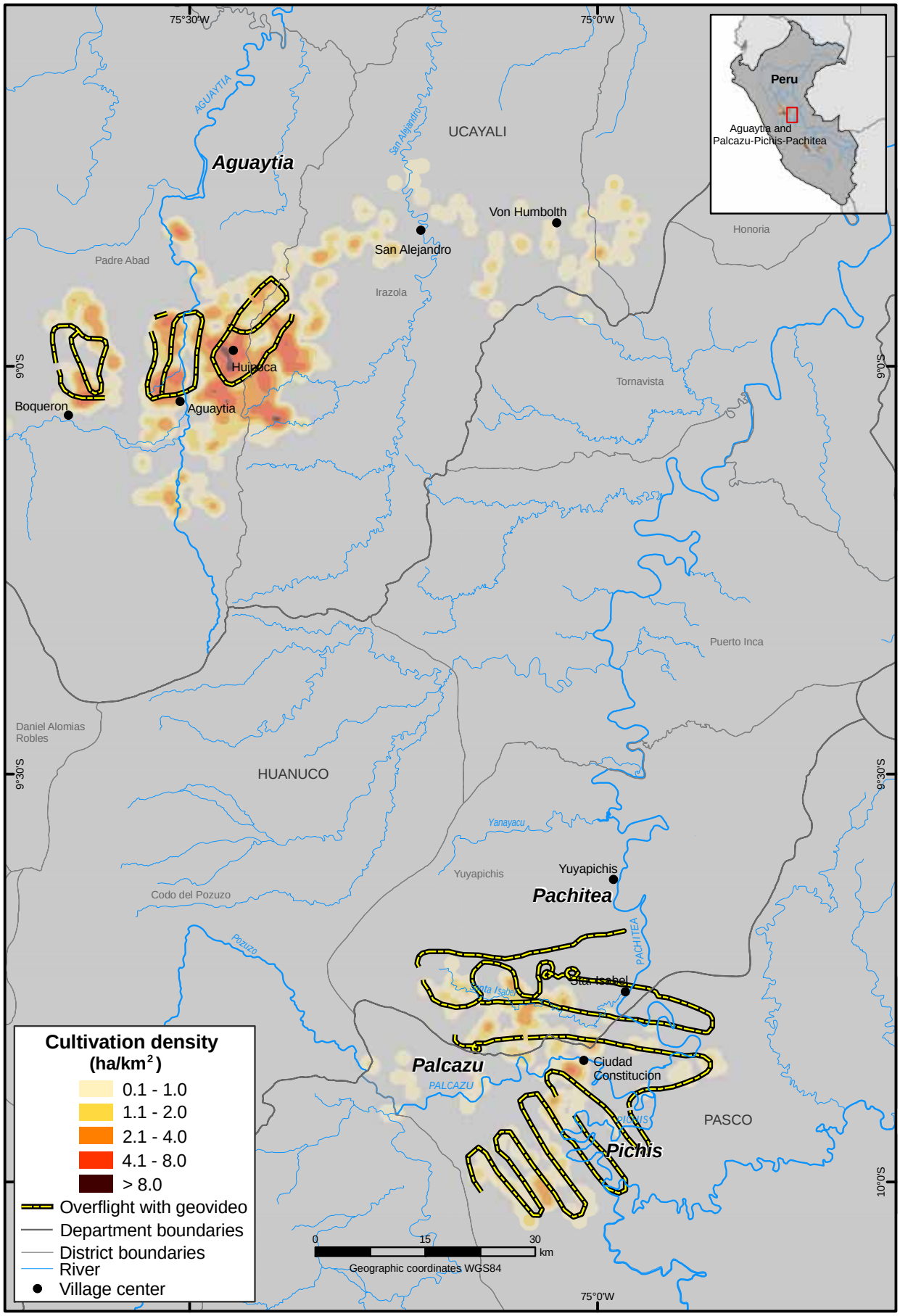
Snapshot of the video over Aguaytia

Snapshot of the video over Aguaytia



Snapshot of the video over *Pichis-Pacazu-Pachitea*

Map 9: *Verification overflight with GeoVideo, Aguaytia, Palcazu – Pichis – Pachitea*



Source: Government of Peru - National monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or aceptance by the United Nations

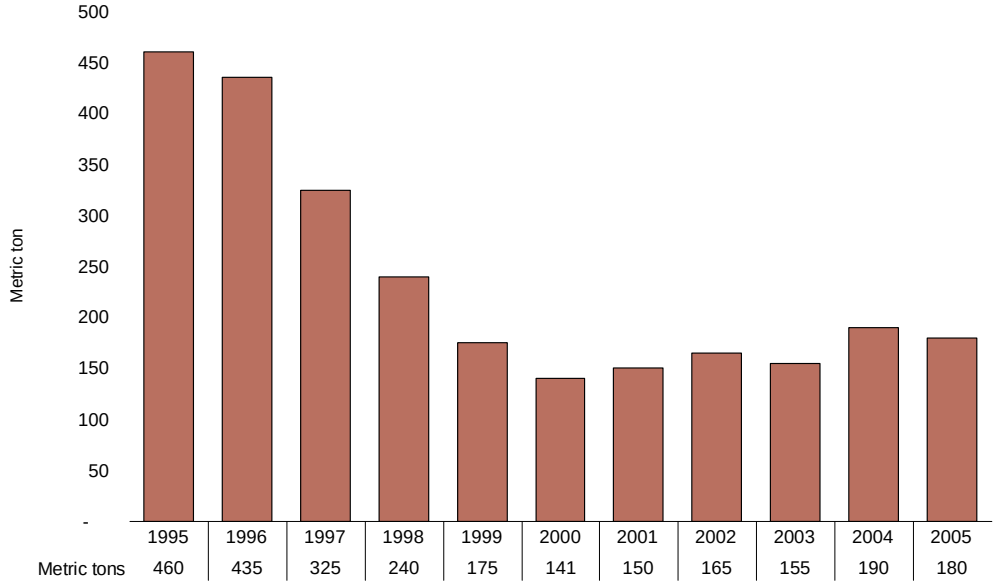
2.1.2 PRODUCTION COCA LEAF AND DERIVATIVES

UNODC continuously endeavours to refine its estimation of coca leaf and cocaine production. In 2004, a coca leaf yield survey was initiated. As coca leaves are harvested several times during the year, it is important that such yield survey spanned over a year or more. However, the field activities planned in 2005 and that should have validated the results obtained in 2004 could not be implemented because of the insecurity for staff prevailing in the main coca growing regions. The results obtained in 2004 thus continued to be used, but further work on the topic is needed to refine and complement these results in particular the conversion rate from coca leaf to cocaine.

In 2005, assuming an average sun-dried coca leaf yield of 2,200 kg/ha, the total sun-dried coca leaf production in Peru was estimated at 106,000 metric tons. Of this amount, a study[1] of the National Institute of Statistics and Computer Science (INEI) estimated that about 9,000 metric tons corresponded to the annual demand for coca leaves for traditional, commercial or industrial uses. The rest being destined for narco-trafficking.

Assuming a cocaine yield per hectare of 4.1 kg/ha – similar to the average yield obtained in 2004[2] -, the total rounded cocaine production in Peru was estimated at 180 metric tons. Thus, cocaine production in Peru decreased by 5% compared to 190 metric tons produced in 2004.

Figure 7. Peru potential cocaine production 1995 – 2005 (in metric tons)



In 2005, potential cocaine production in Peru accounted for 20% of the global potential cocaine production of 910 metric tons. This was a much lower percentage than ten years ago, when potential cocaine production in Peru represented about 49% of the global potential cocaine production.

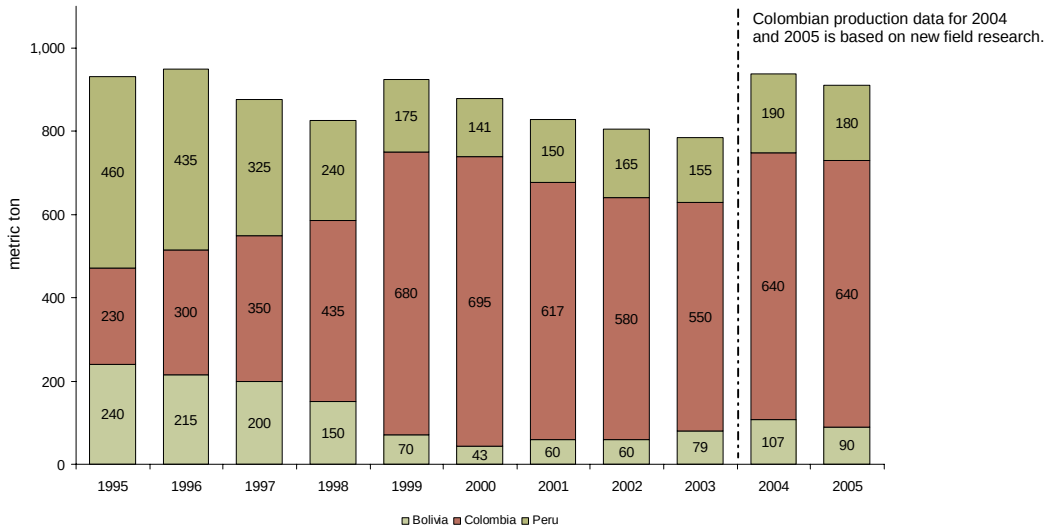
[1] *"Encuesta Nacional sobre consume tradicional de hoja de coca en los hogares", INEI – DEVIDA, November 2004*
[2] *After deduction of 4,100 ha of coca cultivation corresponding to the production of 9,000 mt of coca leaf for traditional demand*

Table 9: Potential cocaine production in the Andean region 1995 - 2005 (in mt)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	% change 2004-2005	% of 2005 total
Bolivia	240	215	200	150	70	43	60	60	79	107	90	-16%	10%
Peru	460	435	325	240	175	141	150	165	155	190	180	-5%	20%
Colombia	230	300	350	435	680	695	617	580	*550*	*640*	640	0%	70%
Total	930	950	875	825	925	879	827	805	784	937	910	-3%	100%

Source: UNODC World Drug Report 2006

Figure 8. Potential cocaine production in the Andean region 1995 - 2005 (in mt)



2.2 PRICES OF COCA LEAF AND ITS DERIVATIVES

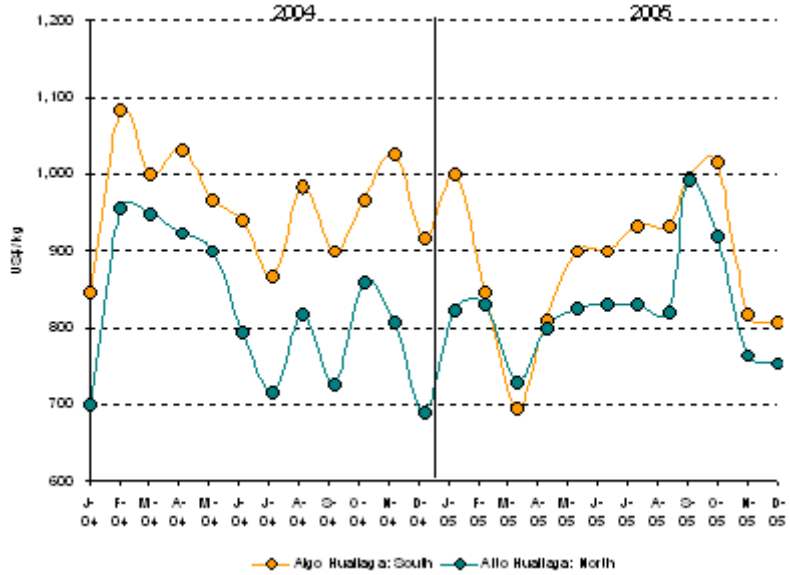
In Peru, the annual average price of coca leaf in 2005 (SOL 9.4/kg or US$ 2.9/kg) was very similar to the annual average of 2004 that established at SOL 9.4 /kg (US$ 2.8/kg), illustrating the stability of the coca leaf prices. Even though a decrease could be noted for the prices of coca leaf between September and December, a decrease also noted for the cocaine paste prices between the same period, this trend might have been seasonal, corresponding in a peak of harvest of coca leaf during the rainy season. In addition, prices usually fell towards the end of the year, as farmers tend to harvest just before Christmas to cover their expenses during the festive period. At the regional level, prices of coca leaf remained the highest in Monzon region, where coca cultivation is widespread and the demand high.

Table 10: Regional prices of coca leaf in Peru, 2005

Region	SOL/kg	US$/kg
Alto Huallaga: Monzon	12.0	3.7
Alto Huallaga: South	10.4	3.2
Alto Huallaga: North	8.5	2.6
Apurimac	7.0	2.2
Inambari	9.8	2.9
Aguaytia	8.4	2.6
All regions	9.4	2.9

The detailed monthly prices per region for 2005 and 2004 are annexed.

Figure 9. Coca leaf, 2004-2005 monthly average prices, Peru (US$/kg)



In 2005, the potential farm-gate value of the sun-dried coca leaf production amounted to about US$ 307 million, estimated from the sale of 106,000 metric tons of coca leaf at 2.9 US$/kg. This represented about 0.4% of the 2004 GDP estimated at US$ 68.6 billion[3].

The stability of the prices of coca leaf was reflected in the stability of the price of cocaine paste. Prices of cocaine paste remained unchanged between 2004 and 2005 at US$640 /kg. Like for the prices of coca leaf, prices of cocaine base have been decreasing between September and December 2005, but this decrease might have only reflected a seasonal variation.

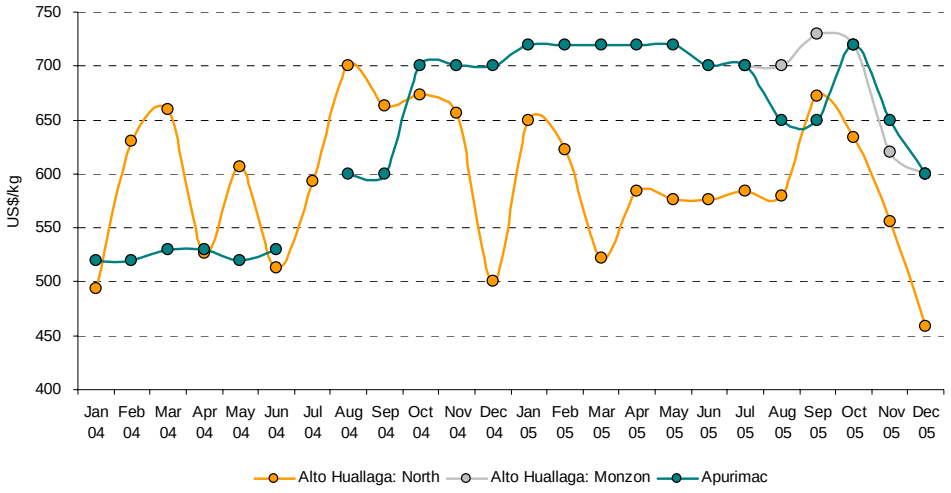
Prices for cocaine paste are usually highest in Monzon and Apurimac regions, the two main centers of illicit cultivation which represented respectively 23% and 32% of the national coca cultivation in 2005.

[3] *World Bank, latest available estimate as of May 2006*

Table 11: Regional prices of cocaine paste, 2005

Region	US$/kg
Alto Huallaga: Monzon	680
Alto Huallaga: South	640
Alto Huallaga: North	580
Apurimac	690
Aguaytia	680
All regions	640

Figure 10. Cocaine paste, 2004-2005 average prices for Alto Huallaga North, Monzon and Apurimac (US$/kg)



Like the prices of coca leaf and cocaine paste, prices of cocaine remained virtually unchanged in Peru between 2004 and 2005, at US$890 /kg. The annual average cocaine prices recorded in Peru is much lower then the average prices in Colombia (US$ 1,860/kg) and Bolivia (US$ 1,800/kg). The difference might be due to the fact that the price in Peru refers to the price in the producing region, close to its processing, whereas prices in Colombia and Bolivia refer to whole sale prices in the main cities.

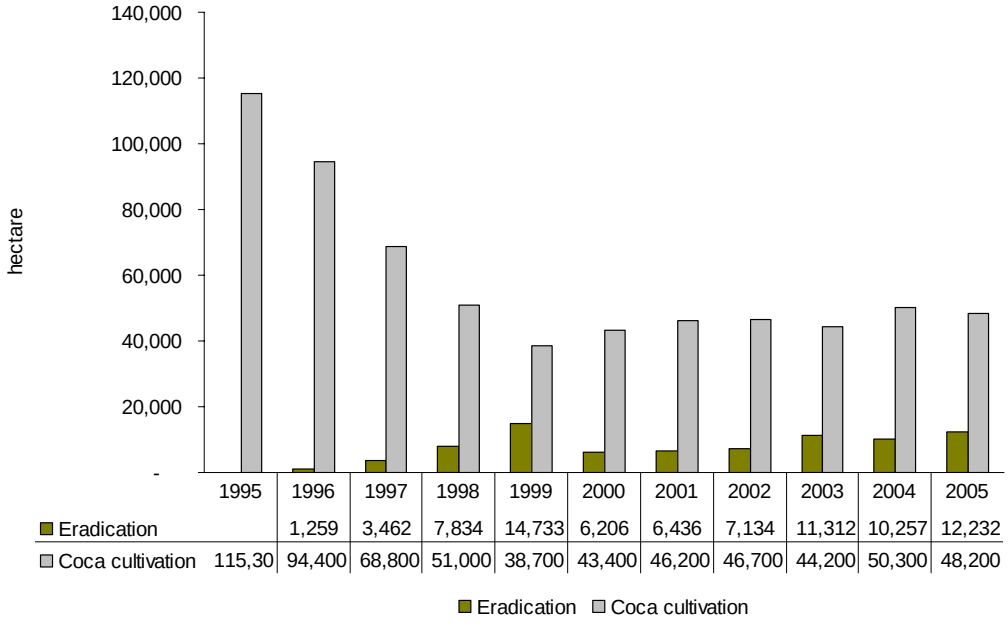
Table 12: Regional prices of cocaine in Peru, 2005

Region	US$/kg
Alto Huallaga: Monzon	970
Alto Huallaga: South	890
Alto Huallaga: North	830
Aguaytia	1,080
All regions	890

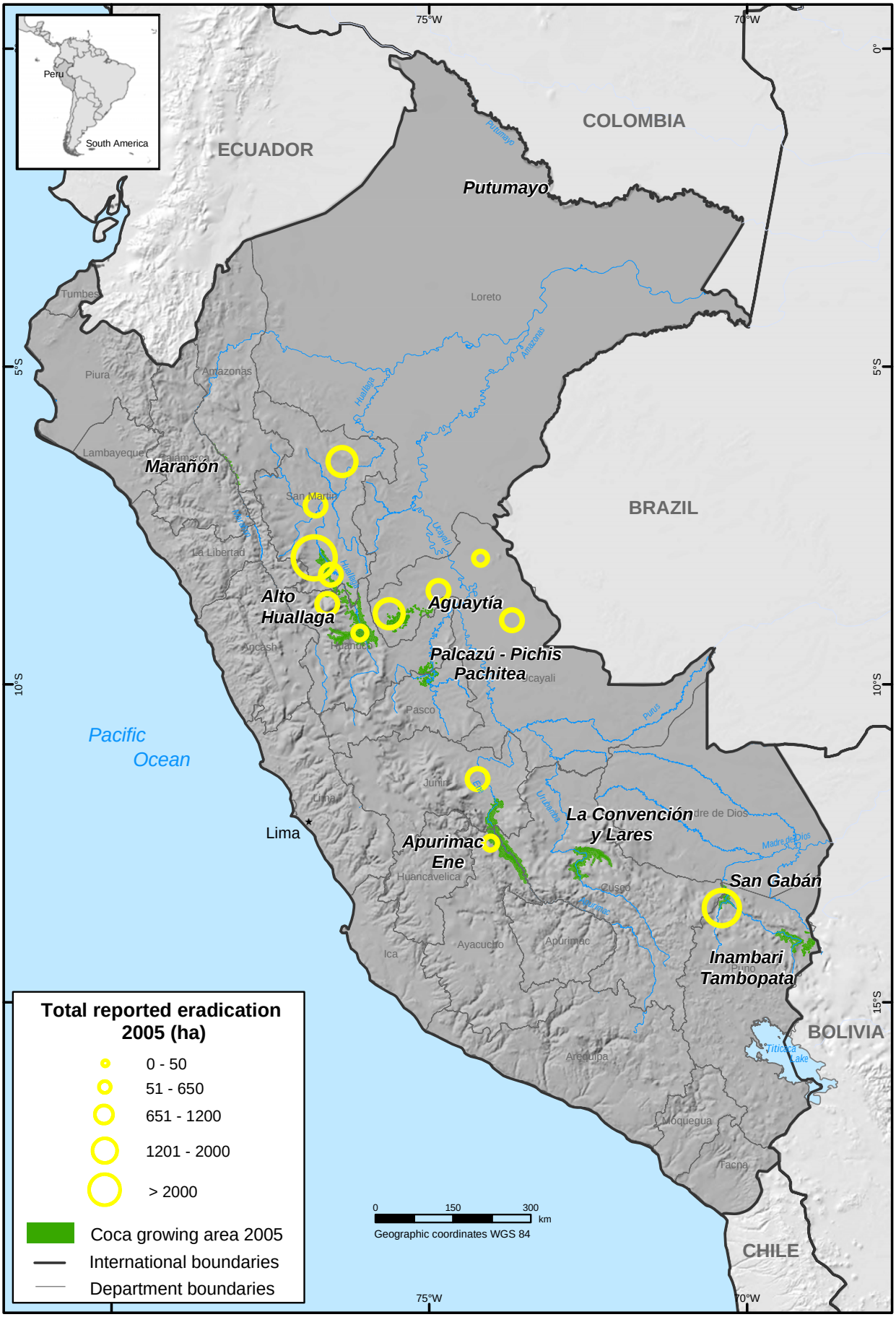
2.3 REPORTED ERADICATION

In 2005, the Peruvian government reported the eradication of 12,232 ha of coca fields, of which 8,966 ha eradicated by CORAH as part of its programme of forced eradication and 3,266 ha eradicated by CADA as part of its programme of voluntary eradication. This corresponded to an increase of 19% compared to the 10,257 ha of eradicated coca cultivation reported in 2004.

Figure 11. Coca cultivation and eradication of coca fields in Peru, 1995 - 2005



Map 10: *Reported eradication of coca cultivation, Peru, 2005*



Source: Government of Peru - National of monitoring system supported by UNODC
The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations

2.4 REPORTED SEIZURE

Between 2004 and 2005, according to the reported data of the Peruvian anti-narcotics police, DIRANDRO, seizures of cocaine paste and cocaine hydrochloride decreased but destruction and seizures of coca leaves increased. Seizures of cocaine hydrochloride decreased from 7,3 mt in 2004 to 2,1 mt kg in 2005, while seizures and destruction of coca leaves increased from 916 mt to 1,525 mt.

Table 13: Drug seized in Peru, 2003 – 2005 (kg or otherwise specified)

Item seized	2003	2004	2005
Destruction and seizure of coca leaf	1,328,347	916,024	1,525,739
Cocaine paste	4,366	6,330	3,199
Cocaine hydrochloride	3,574	7,303	2,119

Source: DIRANDRO