

2.3 Coca/cocaine



2.3.1 Production

Cultivation

The global area under coca cultivation decreased by 5% from 167,600 ha in 2008 to 158,800 ha in 2009, mainly due to a significant decrease in Colombia, which was not offset by increases in Peru and the Plurinational State of Bolivia. This is about the same level of cultivation as during the period 2003 to 2006. Colombia remained the country with the largest area under coca cultivation but the distance to the second largest, Peru, has shrunk due to two consecutive years of decreases in Colombia and increases in Peru over the same period.

In Colombia, the area under coca cultivation decreased for a third year to 68,000 ha, a 16% decrease over 2008. Most of the reduction took place in the departments of Putumayo, Nariño and Antioquía.

In 2009, coca cultivation in Peru increased by 7% from 2008 and reached 59,900 ha. Peru remained the second largest coca cultivating country, after Colombia. This is the country's third consecutive increase in three years. The cultivation level is 55% or 21,200 ha more than in 1999, when coca cultivation was at its lowest level in the last two decades at 38,700 ha. The area under cultivation in the three main growing regions Alto Huallaga, Apurímac-Ene and La Convención-Lares, where large parts are already covered with coca plantations, increased only slightly. Most of the increase in absolute and percentage terms took place in smaller growing regions such as Aguaytía, Inambari-Tambopata and Palcazú-Pichis-Pachitea, which have seen a considerable expansion of the area under coca cultivation since 2004.

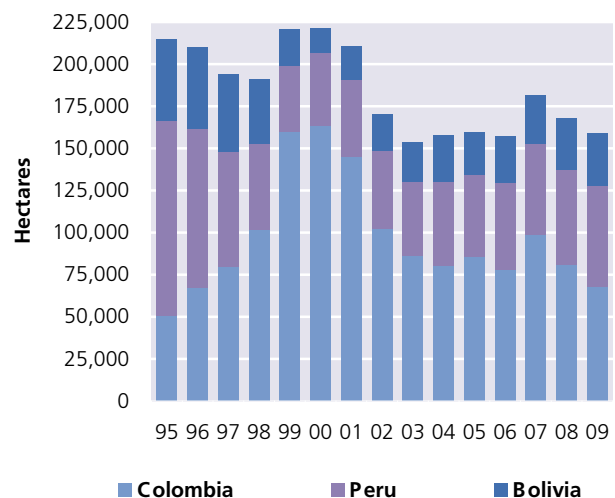


Coca cultivation in the Plurinational State of Bolivia in 2009 remained by and large at the 2008 level with only a slight increase of 1% to 30,900 ha. The increase took place in both large growing regions, the Yungas of La Paz and Chapare.

Eradication reports from Ecuador indicated the existence of small-scale coca cultivation. However, surveys implemented by UNODC in cooperation with the Government of Ecuador in 2006 and 2008 confirmed that the level of coca cultivation was insignificant.¹

Fig. 132: Global coca bush cultivation (ha), 1995-2009

Source: see Table 'Global illicit cultivation of coca bush and production of coca leaf and cocaine, 1995-2009'



¹ The surveys covered provinces in the north of Ecuador bordering Colombia.

Table 19: Global illicit cultivation of coca bush and production of coca leaf and cocaine, 1995-2009

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CULTIVATION OF COCA BUSH IN HECTARES^(a)															
Bolivia^(b)	48,600	48,100	45,800	38,000	21,800	14,600	19,900	21,600	23,600	27,700	25,400	27,500	28,900	30,500	30,900
Colombia^(c)	50,900	67,200	79,400	101,800	160,100	163,300	144,800	102,000	86,000	80,000	86,000	78,000	99,000	81,000	68,000
Peru^(d)	115,300	94,400	68,800	51,000	38,700	43,400	46,200	46,700	44,200	50,300	48,200	51,400	53,700	56,100	59,900
Total	214,800	209,700	194,000	190,800	220,600	221,300	210,900	170,300	153,800	158,000	159,600	156,900	181,600	167,600	158,800
POTENTIAL PRODUCTION OF DRY COCA LEAF IN METRIC TONS^(e)															
Bolivia^(f)	85,000	75,100	70,100	52,900	22,800	13,400	20,200	19,800	27,800	38,000	28,200	33,200	36,400	39,400	40,200
Colombia^(g)	80,900	108,900	129,500	165,900	261,000	266,200	236,000	222,100	186,050	164,280	164,280	154,130	154,000	116,900	103,100
Colombia (fresh coca leaf)^(h)										552,800	555,400	528,300	525,300	389,600	343,600
Peru⁽ⁱ⁾	183,600	174,700	130,600	95,600	69,200	46,200	49,300	52,500	72,800	101,000	97,000	105,100	107,800	113,300	119,000
POTENTIAL MANUFACTURE OF COCAINE IN METRIC TONS^(j)															
Bolivia^(b)	240	215	200	150	70	43	60	60	79	98	80	94	104	113	n.a.
Colombia^(k)	230	300	350	435	680	695	617	580	550	680	680	660	630	450	410
Peru⁽ⁱ⁾	460	435	325	240	175	141	150	160	230	270	260	280	290	302	n.a.
Total	930	950	875	825	925	879	827	800	859	1,048	1,020	1,034	1,024	865	*

* Due to the ongoing review of conversion factors, no point estimate of the level of cocaine production could be provided for 2009. Because of the uncertainty on the level of total potential cocaine production, the 2009 figure was estimated as a range (842-1,111 mt). For more detailed information, see Statistical Annex (4.1.1). It should be noted that the trend estimate of cocaine production between 2008 and 2009 indicate a stable situation.

a) Potentially harvestable, after eradication.

(b) Sources: 1995-2002: CICAD and US Department of State, International Narcotics Control Strategy Report. For the region Yungas of La Paz since 2002, for all regions since 2003: National Illicit Crop Monitoring System supported by UNODC. Cocaine production: Before 2003, CICAD and US Department of State. Since 2003, own calculations based on UNODC (Yungas of La Paz) and DEA (Chapare) coca leaf yield surveys and DEA conversion factors from leaf to cocaine HCl (currently under review).

(c) Sources: 1995-1998: CICAD and US Department of State, International Narcotics Control Strategy Report; since 1999: National Illicit Crop Monitoring System supported by UNODC.

(d) Sources: 1995-1999: CICAD and US Department of State, International Narcotics Control Strategy Report; since 2000: National Illicit Crop Monitoring System supported by UNODC.

(e) Refers to the potential coca leaf production available for cocaine production, i. e. after deducting the amount, which Governments report as being used for traditional or other purposes allowed under national law. In the absence of a standard definition of "dry coca leaf" and given considerable differences in the processing of the fresh coca leaf harvested, the figures may not always be comparable across countries.

(f) Since 2005, potential sun-dried coca leaf production available for cocaine production, estimated by the National Illicit Crop Monitoring System supported by UNODC. This figure does not include the estimated amount of coca leaf produced on 12,000 ha in the Yungas of La Paz where coca cultivation is authorized under national law.

(g) Sources: 1995-2002: CICAD and US Department of State, International Narcotics Control Strategy Report. Since 2003, potential coca leaf production available for cocaine production estimated by the National Illicit Crop Monitoring System supported by UNODC. Figures refer to oven-dried coca leaf equivalents.

(h) Since 2004, fresh coca leaf production figures are available based on coca leaf yield studies done by UNODC and the Government of Colombia. Similar to potential cocaine production, fresh coca leaf production in Colombia is calculated based on two-year area averages.

(i) Since 2003, potential sun-dried coca leaf production available for cocaine production, estimated by the National Illicit Crop Monitoring System supported by UNODC. For the calculation of coca leaf available for cocaine production, 9,000 mt of sun-dried coca leaf were deducted, which, according to Government sources, is the amount used for traditional purposes.

(j) Potential manufacture refers to the amount of 100% pure cocaine that could be produced if all coca leaves harvested from an area under coca cultivation in one year were processed into cocaine, based on the information on cocaine alkaloid content of coca leaves and efficiency of clandestine laboratories. Estimates for Bolivia and Peru take into account that not all coca leaf production is destined for cocaine production.

(k) Since 2004, cocaine manufacture is calculated based on the average area under coca cultivation of the reporting year and the previous year. This is thought to be closer to the actual amount produced than a figure solely based on the year-end cultivation. Colombian cocaine manufacture estimates for 2004 and later are based on new research and cannot be directly compared with previous years. For the calculation of the 2009 cocaine manufacture new information on coca leaf yield available for some regions was used. Estimates from 2004 to 2008 were revised in 2010 based on more detailed information on the average cocaine base purity (81%) and the cocaine base to HCl conversion ratio (1:1) available from DEA scientific studies.

(l) Figures from 2003 to 2005 were revised in 2007 based on updated information available on the amount of coca leaf necessary to produce one kilogram of cocaine HCl. Estimates based on conversion factors from leaf to cocaine HCl from DEA scientific studies (currently under review).

Table 20: Reported spraying and manual eradication of coca bush (ha), 1995-2009

Note: The Plurinational State of Bolivia: Since 2006, voluntary and forced eradication. Peru: includes voluntary and forced eradication.
Source: UNODC ARQ, Government reports, US Department of State (INCSR)

		1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Bolivia	manual	5,493	7,512	7,000	11,620	15,353	7,653	9,395	11,839	10,089	8,437	6,073	5,070	6,269	5,484	6,341
Colombia	manual	1,487	4,057	2,262	3,126	1,046	3,495	1,745	2,762	4,219	6,234	31,980	43,051	66,805	95,634	60,557
	spraying	23,915	18,519	41,861	66,029	43,112	58,073	94,153	130,364	132,817	136,552	138,775	172,026	153,134	133,496	104,772
Peru	manual		1,259	3,462	7,834	14,733	6,208	6,436	7,134	11,312	10,399	12,237	12,688	12,072	10,143	10,025
Ecuador	manual										4	18	9	12	12	6
Venezuela	manual	181	18	0	0	0	38	47	0	0	118	40	0	0	0	

Production

Due to the ongoing review of conversion factors from coca leaves to 100% pure cocaine HCl used to estimate the potential cocaine production in the Plurinational State of Bolivia and Peru, no point estimate of the level of cocaine production could be provided for these countries in 2009. Because of this uncertainty, global cocaine production in 2009 was estimated as a range (842-1,111 mt).² The uncertainty concerning conversion factors from leaves to cocaine affects the level of cocaine production in 2009, but other years prior to 2009 may be affected as well. Indeed, production figures provided by UNODC between 2005 and 2009 may be revised once more precise estimates can be elaborated for the conversion factors, which depend on the alkaloid content of the leaves and laboratory efficiency. They do not show major changes from one year to another. Thus, in spite of the uncertainty around the level of the 2009 estimates it can be noted that the total production trend between 2008 to 2009 remained stable.

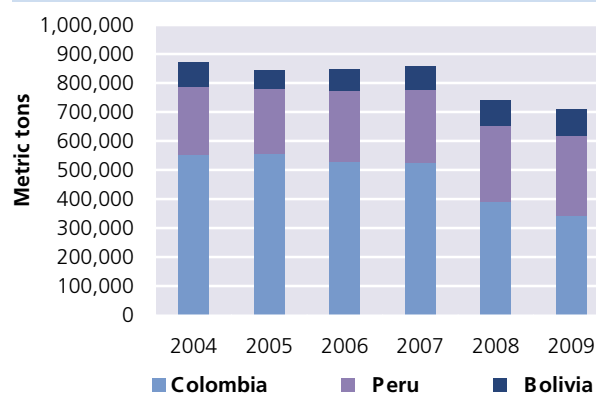
Cocaine HCl production estimates for Colombia were revised, reflecting the availability of more detailed information on specific elements of the conversion process from the DEA scientific studies. This led to a slight increase in the estimated level of potential cocaine production since 2004. However, potential cocaine production in Colombia declined by 9% from 450 mt in 2008 to 410 mt in 2009.³

In the absence of a point estimate for the level of potential cocaine production in 2009, estimates of coca leaf production can provide additional information on recent illicit production trends. To be able to compare coca leaf production across countries, fresh coca leaf production estimates were used where available (Colombia) or cal-

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- 2 For more detailed information, see Annex 'The process of estimating the production of pure cocaine HCL.'
- 3 For more details, see Ibid.

Fig. 133: Global potential production of fresh coca leaf available for cocaine production (mt), 2004-2009

Source: National monitoring systems supported by UNODC. For more details see Table 'Global illicit cultivation of coca bush and production of coca leaf and cocaine, 1995-2009'



culated from sun-dried leaf production (Plurinational State of Bolivia and Peru) using a conversion factor.⁴

Global potential production of fresh coca leaf was relatively stable between 2004 and 2007 at about 850,000 mt, but declined significantly between 2007 and 2008 (by 14%) and again between 2008 and 2009 (by 4%) to just over 700,000 mt. Between 2004 and 2009, Colombia always accounted for the largest share of coca leaf production. However, while Colombia contributed almost two thirds (63%) of total production in 2004, in 2009, it accounted for less than half (48%). Peru's share grew from 27% in 2004 to 39% in 2009, due to a decline in coca leaf production in Colombia in absolute terms and an increase in production in Peru over the same period.

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- 4 The average weight loss from fresh to sun-dried leaf measured in UNODC's yield studies ranged from 52% (Bolivia, Yungas of La Paz) to 57% (average Peru). Only the amount of coca leaves estimated to be available for cocaine production was included in the estimate. More details see Table 'Global illicit cultivation of coca bush and production of coca leaf and cocaine, 1995-2009.'

Measuring coca leaf yield

Three elements are needed to estimate cocaine production each year: i) number of hectares under coca leaf cultivation; ii) annual coca leaf yield (quantity of leaves harvested per hectare in a year); and iii) alkaloid content of the leaves and efficiency of clandestine laboratories to extract these alkaloids, which determine the quantity of coca leaves needed to produce pure cocaine hydrochloride (HCl). Coca leaf yield is the element that probably shows the highest variation since it is affected by unpredictable factors such as weather, plant diseases, as well as eradication activities. The effect of these factors varies not only from year to year and during the course of a year but also from one cultivating region to the other. Thus, the annual coca leaf yield can be estimated with less certainty than the other elements.

Since 2004, UNODC, in cooperation with the respective Governments, undertook coca leaf yield studies in many coca growing regions in the Plurinational State of Bolivia, Colombia and Peru. The core element of these studies is the controlled harvest of mature coca fields. For this purpose, sample plots are selected randomly among a set of fields which are also randomly selected among all fields under coca leaf cultivation. All coca leaves in the sampled plots are harvested and weighed on the spot. In the Plurinational State of Bolivia and Peru, where farmers sun-dry coca leaves after the harvest, an additional weight measurement is taken after the sun-drying. The weight of the harvested coca leaves divided by the area of the sample plots is the yield per hectare of that plot (for one harvest). Yield measurements from all plots and fields are used to determine the per hectare yield in the studied area.

The coca bush allows several harvests per year, with four being a typical number. Depending on seasonal variations, such as periods with higher precipitation or variations in farming practices (application of fertilizer and/or irrigation) or counter-narcotics activities such as spraying with herbicide, the yield varies from harvest to harvest. These variations have to be taken into account. Ideally, all harvests in the selected plots should be measured. However, often the security situation in coca cultivation regions does not allow for a return to sample fields for further measurements. Then, information from farmers' interviews can be used to estimate the number and yield of past harvests. The annual yield is the sum of all coca leaf yields in the course of one year.

Due to the different post-harvest processing methods in the Andean countries, coca leaf yield and production figures can be expressed in fresh, sun-dry or oven-dry leaf. Fresh coca leaf is typically used in Colombia, where the leaves are processed directly after harvesting to extract the alkaloids, often by the farmers themselves. In the Plurinational State of Bolivia and Peru, farmers dry the harvested coca leaves in a process referred to as sun- or air-drying before the alkaloids are extracted. Sun-drying is also used to produce coca leaves for traditional uses such as tea preparation and mastication (chewing). Sun-drying reduces the weight of the fresh leaves by more than 50%. It makes transportation easier and increases the shelf life of the coca leaves. Oven-dry weight is a standard that allows comparing coca leaf yields across countries with different post-harvest processing methods. Coca leaves are dried in an oven to extract moisture until their weight is stable. This method requires a scientific laboratory. After oven-drying, coca leaves have only about one third of their fresh weight.

Total cocaine production can be estimated by determining the cocaine alkaloid content of coca leaves and multiplying it with the total coca leaf production estimated from yield and cultivation surveys. As clandestine laboratories are not able to extract 100% of the cocaine alkaloids contained in the leaf, a factor representing the efficiency of these laboratories is applied. Depending on the extraction method used, clandestine laboratories can extract between 40% and 80% of the alkaloids present in the coca leaves.

Sources: United Nations International Drug Control Programme, Guidelines for yield assessment of opium gum and coca leaf from brief field visits New York, 2001; US Government, DEA Studies, 1993-2005.

Clandestine laboratories

In 2008, Governments reported the detection of 9,730 clandestine installations ('laboratories') involved in coca processing, compared to 7,245 in 2007. As in past years, about 4% of the total installations detected were producing cocaine HCl. Over 99% of coca processing laboratories were located in the three coca cultivating countries, Plurinational State of Bolivia, Colombia and

Peru. Over the last four years, there was a significant increase in coca processing laboratories reported destroyed in these countries and also worldwide.

In 2008, cocaine laboratories were also reported from other countries in South America, such as Argentina (20), the Bolivarian Republic of Venezuela (10), Chile (4) and Ecuador (3). Outside South America, Spain (25), the Netherlands (4), the Republic of Moldova (1)

Table 21: Clandestine coca processing installations, 2005-2008

Note: Previous years' figures were revised based on updated information received from Governments.
 Source: UNODC ARQ, Government reports

	2005	2006	2007	2008
Cocaine paste/base producing installations	5,690	6,849	6,930	9,341
Percentage of coca processing installations detected in coca cultivating countries	>99%	>99%	>99%	>99%
Cocaine HCl producing laboratories	212	244	315	389
Cocaine HCl labs as % of total installations	4%	3%	4%	4%
Cocaine HCl labs in coca cultivating countries	166	215	308	322
Total coca processing installations detected	5,902	7,093	7,245	9,730

and Greece (1) reported the detection of cocaine laboratories. Preliminary reports from Governments of countries with coca cultivation indicate that in 2009, the number of clandestine coca processing laboratories detected was almost as high as in 2008, and significantly higher than 2005-2007.

2.3.2 Seizures

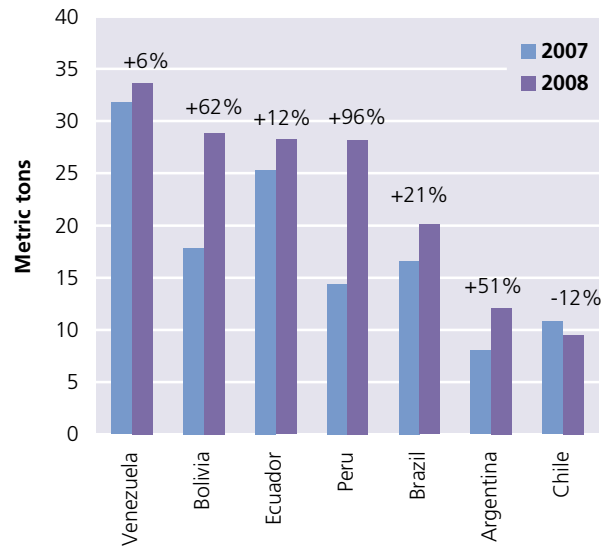
Following a significant increase over the period 2002-2005, global cocaine seizure totals have followed a stable trend, amounting to 712 mt in 2007 and 711 mt in 2008. Seizures continued to be concentrated in the Americas and Europe. However, the transition from 2007 to 2008 brought about a geographical shift in seizures towards the source countries for cocaine. Seizures in South America accounted for 59% of the global total for 2008, compared with 45% in 2007. This was mainly due to increases in several South American countries, notably Colombia, and simultaneous decreases in North America and Europe.

More cocaine stopped at the source

Cocaine seizures in South America reached record levels in 2008, amounting to 418 mt (cocaine base and salts) – almost one third more than the level in 2007 (322 mt). In absolute terms, the largest increase from 2007 was by far the one registered in Colombia (an increase of 61.9 mt). In relative terms, significant increases were also recorded in Peru (where seizures almost doubled), the Plurinational State of Bolivia (where seizures rose by 62%), Argentina (51%), Brazil (21%) and Ecuador (12%). One exception to the generally increasing trend

Fig. 135: Trend in South American cocaine seizures (excluding Colombia), 2007-2008

Source: UNODC ARQ/DELTA



prevalent in South America was Chile, which registered a decrease of 12%. Seizures in the Bolivarian Republic of Venezuela remained essentially stable.

Fig. 134: Comparison of cocaine seizures in South America and other regions, 2000-2008

Source: UNODC ARQ/DELTA

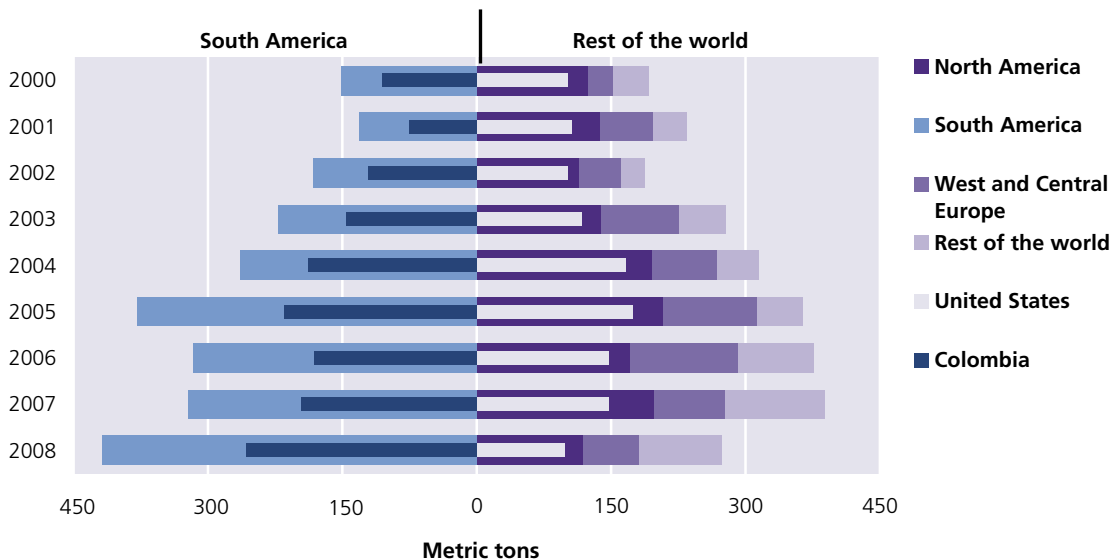
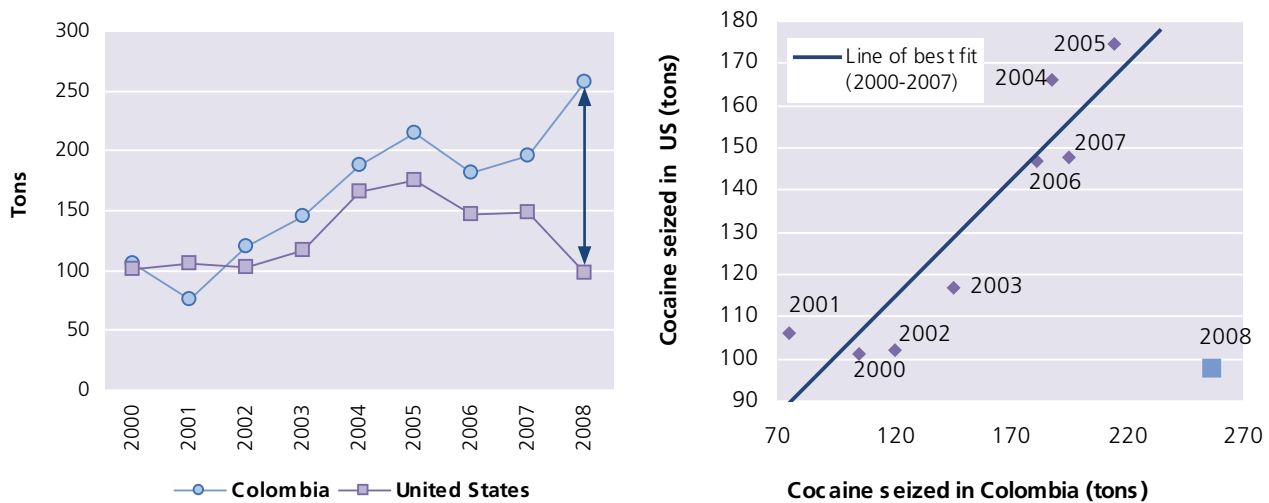


Fig. 136: Cocaine seizures in Colombia and the United States, 2000-2008

Source: UNODC ARQ/DELTA

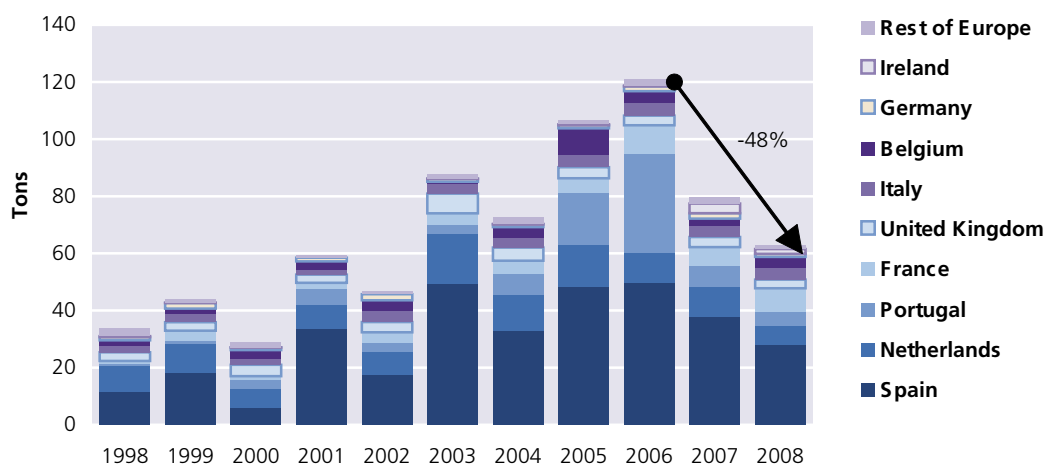


From 2002 onwards, Colombia and the United States consistently registered the largest and second largest annual cocaine (base and salts) seizures worldwide, respectively. Over the 2002-2007 period, cocaine seizures in the United States, the country with the largest consumer market for cocaine, were in line with those in Colombia, the country with the largest manufacture of cocaine, to a remarkable degree (with a correlation coefficient of 0.96). However, the trends in the two countries diverged in 2008. Seizures in Colombia reached record levels, rising from 195 mt in 2007 to 257 mt⁵ in 2008, while seizures in the United States fell sharply, from 148 mt in 2007 to 98 mt in 2008 (-34%).

Mexico continued to be the key transit country for large quantities of cocaine trafficked from the Andean region to the United States. In line with the trend in the United States, cocaine seizures in Mexico fell sharply in 2008, amounting to 19.3 mt. Cocaine seizures by authorities in the United States along the border with Mexico followed a generally decreasing trend between the last quarter of 2005 and the second quarter of 2008,⁶ suggesting that the amount of cocaine reaching the United States through the border with Mexico was in decline. In fact, between 2006 and 2008, cocaine seizures along this border fell by more than 40%. Partial data suggests that the decreased level was essentially sustained into

Fig. 137: Cocaine seizures in Europe, 1998-2008

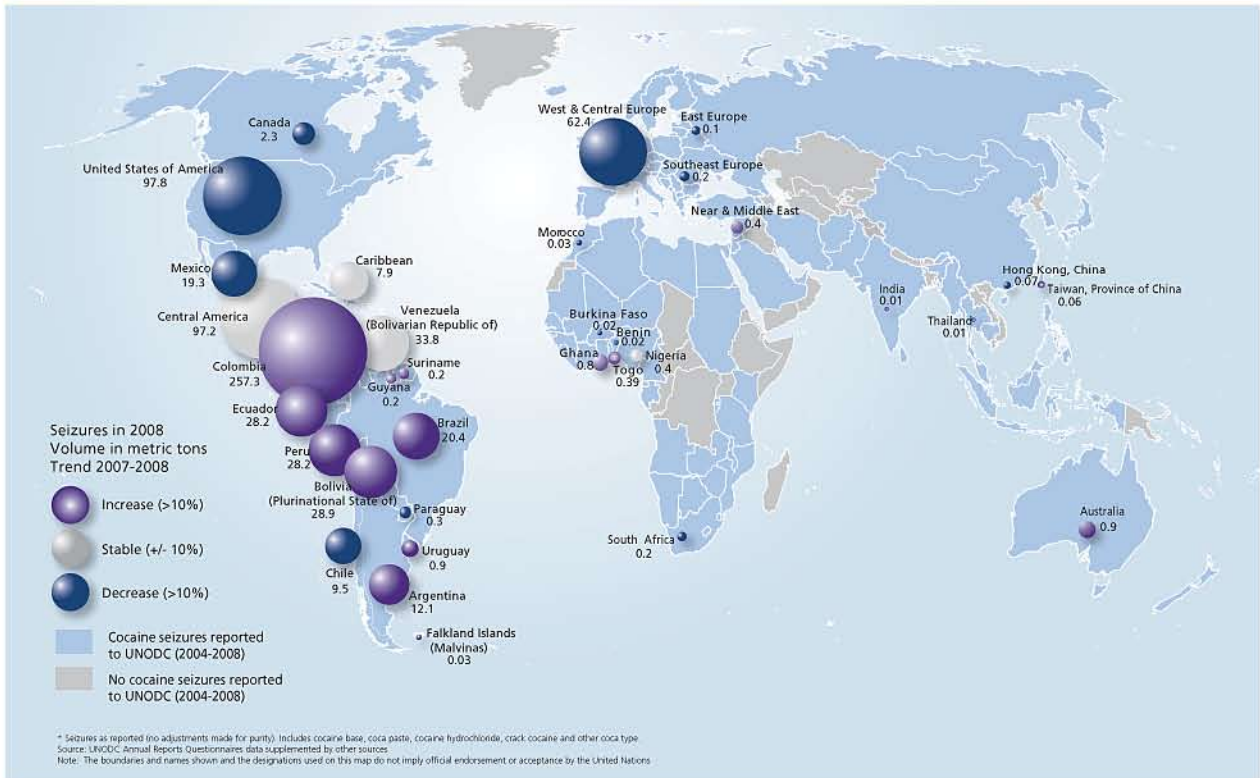
Source: UNODC ARQ/DELTA



5 Observatorio de Drogas de Colombia. Data for Colombia from the ARQ (part III) for 2008 were not available.

6 National Drug Intelligence Center, United States Department of Justice, *National Drug Threat Assessment 2009*, December 2008.

Map 19: Seizures of cocaine, 2008 (countries reporting seizures* of more than 10 kg)



2009, while seizures of other drugs (heroin, marijuana and methamphetamine) clearly increased along the south-western border over the 2006-2009 period.⁷

Seizures continue to decline in Europe

The market for cocaine in Europe has undergone a significant expansion since the year 2000, in terms of both supply and demand. Annual cocaine seizures in Europe averaged 35.5 mt over the period 1998-2000 and 102 mt over the period 2005-2007.

The recent short-term developments in the European cocaine market are less straightforward to interpret. Seizures in Europe climbed to 121 mt in 2006, but since then, fell twice in succession, standing at 62.7 mt in 2008. This is a decline of 48% over a two-year timespan. The three countries reporting the highest seizures in Europe in 2007, namely Spain, Portugal and the Netherlands, all registered significant decreases in 2008. Seizures fell from 37.8 mt to 28.0 mt in Spain (the country's second consecutive year-on-year decrease), from 10.5 mt to 6.8 mt in the Netherlands, and from 7.4 mt to 4.9 mt in 2008 in Portugal (also the second consecutive year-on-year decrease).

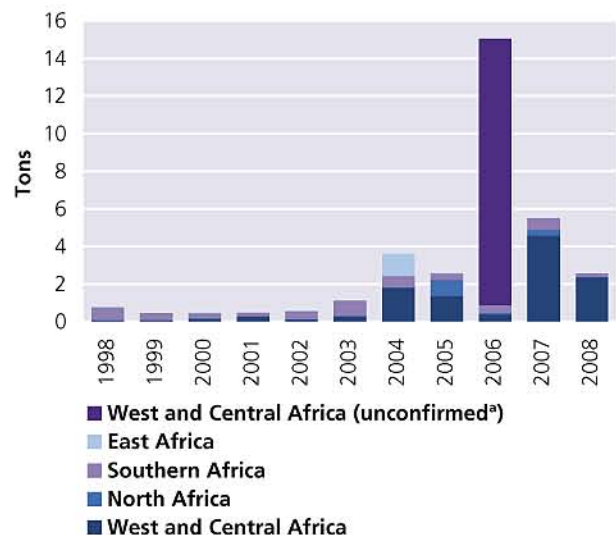
A reduced role for West Africa in cocaine trafficking

Since the year 2004, Africa, especially West Africa, has assumed an important role as a transit area for cocaine being trafficked from South America to Europe. How-

Fig. 138: Cocaine seizures in Africa, 1998-2008

^aThe unconfirmed quantity refers to a single major seizure, in which a follow-up analysis failed to confirm the presence of controlled substances. This quantity is not included in the national, regional or global totals for 2006 as reported by UNODC.

Source: UNODC ARQ/DELTA

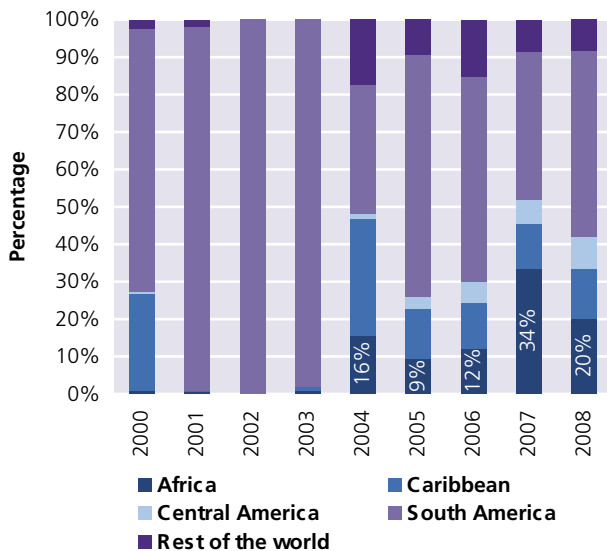


⁷ National Drug Intelligence Center, United States Department of Justice, *National Drug Threat Assessment 2010*, February 2010.

Fig. 139: Distribution of number of cocaine seizure cases in Europe, by transit/origin country,* 2000-2008.

* This refers to the source of the cocaine as far back as it could be traced by the reporting countries.

Source: UNODC Individual Drug Seizures database



ever, seizure data suggest that this pattern may have started to subside. Cocaine seizures in West and Central Africa increased from 98 kg in 2002 to 4.6 mt in 2007, but in 2008 declined to 2.3 mt.

An analysis of cocaine consignments seized in Europe based on the UNODC individual drug seizure database confirms this picture. Among those cases in which the point of origin was identified, the proportion of cases in which African countries (or Africa as a whole) were named as the point of origin was negligible until 2002, climbed to 34% by 2007 but fell back to 20% in 2008.

Increased cocaine trafficking in Australia

Cocaine seizures in Australia rose steadily over the period 2005-2008, from 87.5 kg in 2005 to 930 kg in 2008. With reference to the period 1 July 2007 – 30 June 2008, Australia⁸ mentioned the threat arising from trafficking and subsequent trans-shipment of cocaine from Canada, as well as the growth in trafficking through China (including Hong Kong). China has also reported a perceived increase in the use of cocaine in 2008.

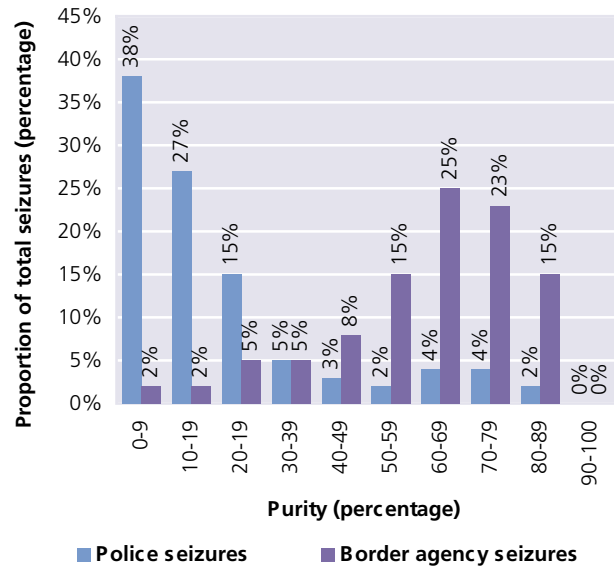
Interception rate

Estimating the global interception rate for cocaine depends on a good understanding of the global supply of cocaine as well as the total amount of cocaine seized.

⁸ ARQ submitted by Australia for 2008.

Fig. 140: Frequency distribution of cocaine purities in the United Kingdom, January-September 2009

Source: Forensic Science Service, UK



Given the time lag incurred between cultivation of coca bush, harvesting, processing and trafficking, in a given year, supply in a consumer market such as Europe may be linked to production occurring in previous years. Moreover, the theoretical amount of pure cocaine seized can only be determined by taking into account the purity of seizures, which may vary considerably across countries and according to various factors, such as the size of the transaction (level of sale - retail versus wholesale) and the place of seizure (border versus domestic).

Taking into account these considerations, UNODC estimates an interception rate range of 37%-50%⁹ for cocaine in 2008.¹⁰ This is significantly higher than the corresponding rates for opiates, possibly due to the fact that a significant proportion of seizures is made in or close to the source countries. The range drops to 27%-33% if seizures in the three producing countries, Colombia, the Plurinational State of Bolivia and Peru are excluded.

⁹ This is calculated as the ratio of global seizures to global supply. Global seizures are adjusted for purity according to a weighted average, and include cocaine base, cocaine salts, coca paste and crack cocaine (but not coca leaf). Global supply is estimated by the average cocaine production in the preceding two years. The lower end of the range is obtained by considering retail purities only, and the upper end by considering wholesale purities only.

¹⁰ In previous years, UNODC estimated a single interception rate, adjusting global seizures for purity using an unweighted average of all purity data reported by Member States (retail and wholesale). This quantity was then expressed as a percentage of the cocaine production in the same year. This method produces an estimate of 42% for the year 2008.

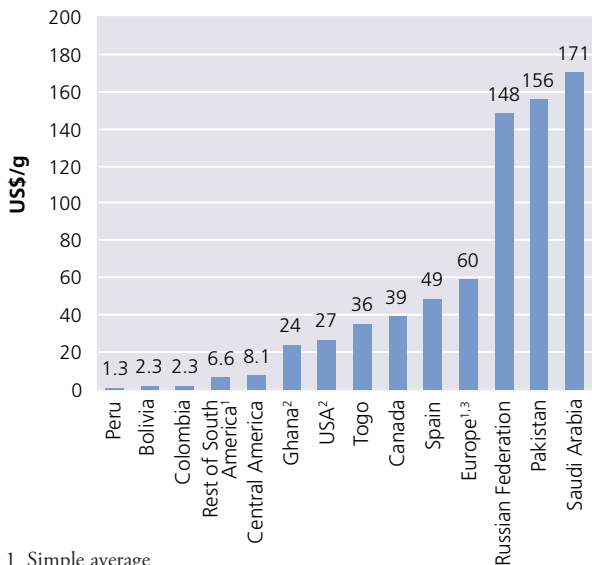
2.3.3 Prices

Cocaine prices in 2008 reflected the well-known trafficking routes from South America to North America and Europe. The lowest wholesale prices were to be found in Peru, the Plurinational State of Bolivia and Colombia. Prices were, on average, noticeably higher in the rest of South America and slightly higher in Central America and the Caribbean. There was a clear markup in prices outside Latin America and the Caribbean. Wholesale prices in West Africa were significantly higher, but lower than prices in Europe. The wholesale price in Spain was significantly lower than the average in Europe, possibly reflecting Spain's role as a major point of entry for cocaine into the European market. Very high wholesale prices were registered in Saudi Arabia, Pakistan and the Russian Federation. The markup from wholesale to retail price can be more clearly observed when typical prices are adjusted by typical purities.

A comparison of prices in the producer countries and major consumer markets shows a markup of approximately 30 times between prices of coca derivatives in the Plurinational State of Bolivia, Colombia and Peru and cocaine wholesale prices in the United States, and 60 times in the case of Europe.

Fig. 141: Cocaine wholesale prices worldwide, 2008

Source: UNODC ARQ

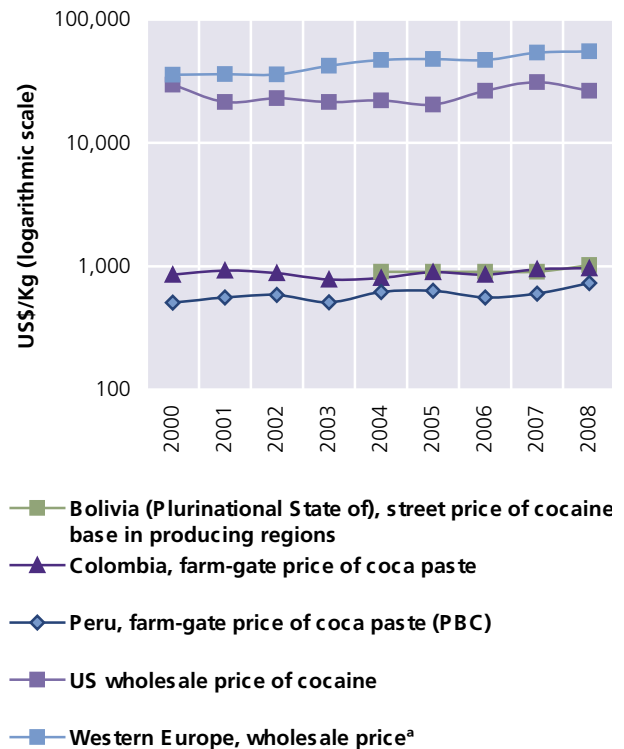


1 Simple average
 2 Average of minimum and maximum price
 3 Excluding Spain and the Russian Federation

Fig. 142: Comparison of coca derivative prices in producing countries and consumer markets, 2000-2008 (US dollars)

^aWeighted average of 18 countries.

Sources: National monitoring systems in the Plurinational State of Bolivia, Colombia and Peru and UNODC ARQ



- Bolivia (Plurinational State of), street price of cocaine base in producing regions
- ▲ Colombia, farm-gate price of coca paste
- ◆ Peru, farm-gate price of coca paste (PBC)
- US wholesale price of cocaine
- Western Europe, wholesale price^a

In the United States, after a sharp increase in prices and decrease in purity, 2009 brought the first signs of stabilization

In the United States, price and purity data confirmed the reduced availability of cocaine. Data from the US Drug Enforcement Agency point to a distinct transition between the fourth quarter of 2007 and the fourth quarter of 2008, with purity dropping by 27% and the price per pure gram of cocaine rising by 72%, suggesting a shortage of cocaine in the US market. The increased price level was sustained into the third quarter of 2009,¹¹ when it appeared to stabilize at the higher levels.

¹¹ US Department of Justice, *National Drug Threat Assessment 2010*. Based on data extracted from System To Retrieve Information on Drug Evidence (STRIDE).

Fig. 143: Purity-adjusted and non-adjusted cocaine retail and wholesale prices in US dollars, 2008 (log-log scale)

Note: On a linear scale, the slope of the line of best fit (through the origin) for purity-adjusted prices is 2.94. This means that, overall, there is a markup in price of 194% from wholesale to retail level.
Source: UNODC ARQ

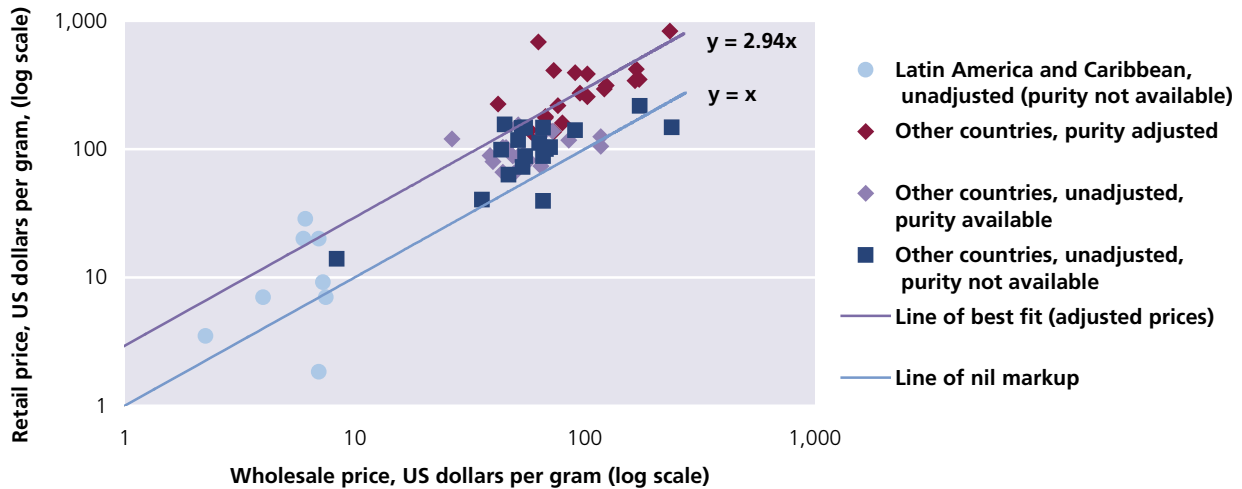
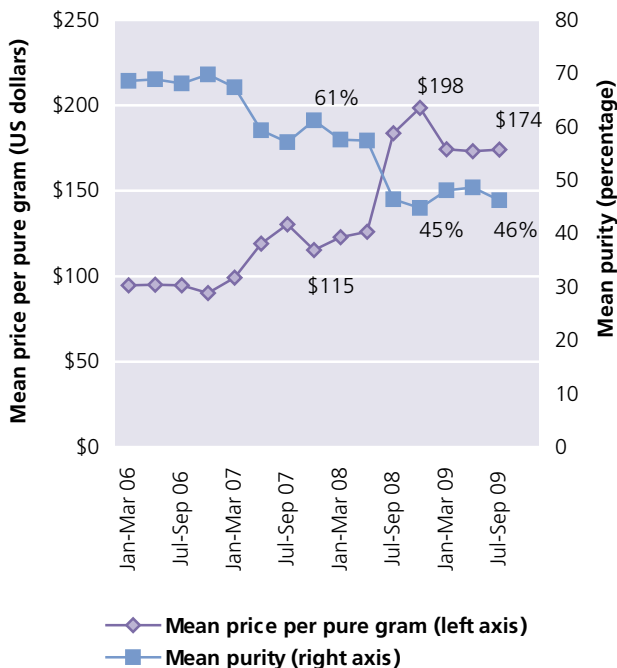


Fig. 144: Cocaine prices and purities in the United States, 2006-2009 (STRIDE*)

*STRIDE is a database of drug exhibits maintained by the US Drug Enforcement Administration. The values reported here represent averages of all cocaine purchases in the database. Although not collected as a representative sample of the US market, STRIDE data reflect the best information available available on changes in cocaine price and purity in the US market.

Source: *National Drug Threat Assessment 2010*, United States Department of Justice



Mixed picture in Europe

Prices per pure gram of cocaine for European countries were generally not available. On average,¹² European cocaine prices, expressed in euro and adjusted for inflation (but not for purity), displayed a decreasing trend over the period 2006-2008, at both the retail and wholesale levels. However, over the same period, prices increased when expressed in dollars and adjusted for inflation, suggesting that the trend has been more sensitive to the exchange rate between US dollar and euro than changes in the market.

A comparison of purity- and inflation-adjusted prices¹³ with cocaine seizures in selected European countries suggests a certain sensitivity of prices - notably at the retail level - to success in interdiction, as measured by seizure totals. In 2006, European seizures peaked, along with the purity- and inflation-adjusted retail price in France, Germany and the United Kingdom. This was due to a change in purity in some cases and a change in bulk price in other cases. Since 2006, the purity- and inflation-adjusted retail price declined, in line with seizure totals. One possible explanation for the correlation between the trends in price and seizures could be related to the effect of law enforcement activities: the stronger the effect of law enforcement, the higher are the amounts seized and the associated risk of trafficking which take the price to a higher level.¹⁴

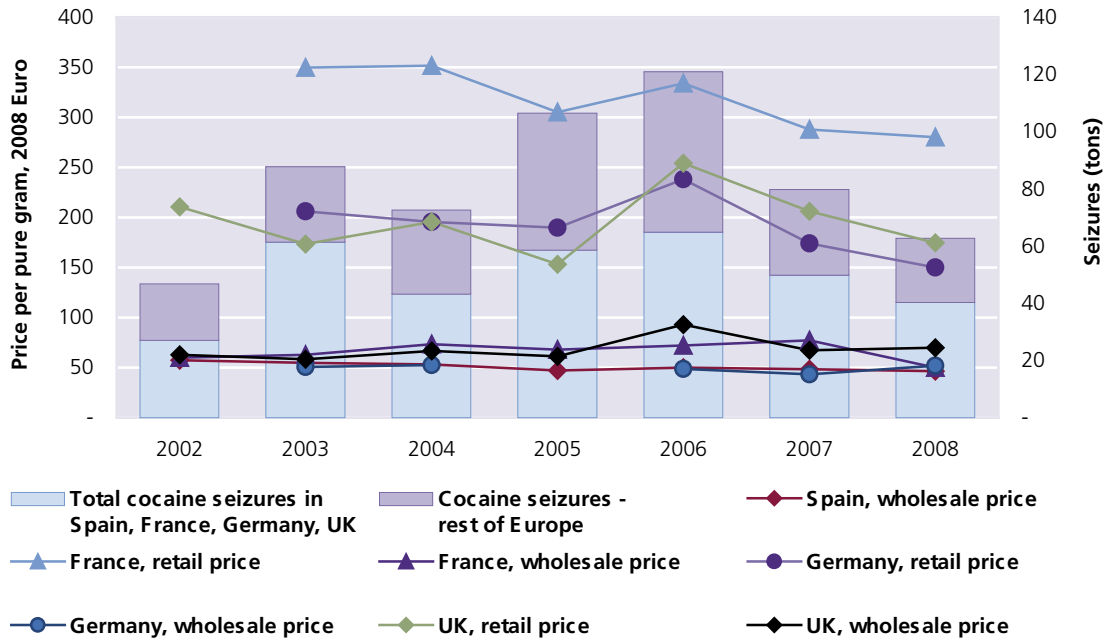
¹² Weighted average of 18 European countries, based on ARQ, data from Europol and UNODC estimates; see UNODC, *World Drug Report 2009*.

¹³ UNODC estimates based on reported prices and purities.

¹⁴ In contrast, over the period 2000-2006, rising seizures in Europe

Fig. 145: Purity- and inflation-adjusted cocaine prices in selected European countries, in comparison with cocaine seizures

Note: Purity-adjusted prices are UNODC estimates based on reported prices and purities
 Sources: UNODC ARQ, Europol, EMCDDA, UNODC *World Drug Report 2009*



■ ■ went hand in hand with falling cocaine prices (weighted average for 18 European countries, not adjusted for purity), suggesting that seizures were reflecting the rising supply of cocaine reaching the European market.



2.3.4 Consumption

UNODC estimates that the prevalence of cocaine use worldwide in 2008 ranged from 0.3% to 0.4% of the adult population, or between 15 and 19 million people who had used cocaine at least once in the previous year. Compared to 2007, the range shifted to lower levels, suggesting a decrease in the global number of cocaine users. This change is due to the decrease in the number of cocaine users in North America. In addition, missing data and/or absence of recent reliable estimates affect

many regions, particularly East Africa, Central Asia, the Near and Middle East and South Asia. Available qualitative information suggests that the prevalence of cocaine use is low in most parts of Asia, although Chinese experts reported a recent increase of cocaine use in their country (though starting from an almost negligible level)¹⁵ and other countries have reported increasing trafficking of cocaine in Asia.

Table 22: Estimated number of people who used cocaine at least once in the past year and prevalence among the population aged 15-64, by region, 2008

Region/subregion	Estimated number of users annually (lower)	-	Estimated number of users annually (upper)	Percent of population aged 15-64 (lower)	-	Percent of population aged 15-64 (upper)
Africa	1,020,000	-	2,670,000	0.2	-	0.5
Eastern Africa	Subregional estimate cannot be calculated					
North Africa	30,000	-	50,000	<0.1	-	<0.1
Southern Africa	290,000	-	900,000	0.3	-	0.8
West and Central Africa	640,000	-	830,000	0.4	-	0.5
Americas	8,720,000	-	9,080,000	1.4	-	1.5
Caribbean	110,000	-	320,000	0.4	-	1.2
Central America	120,000	-	140,000	0.5	-	0.6
North America	6,170,000	-	6,170,000	2.0	-	2.0
South America	2,330,000	-	2,450,000	0.9	-	1.0
Asia	430,000	-	2,270,000	<0.1	-	0.1
Central Asia	Subregional estimate cannot be calculated					
East/ South-East Asia	390,000	-	1,070,000	<0.1	-	0.1
Near and Middle East	Subregional estimate cannot be calculated					
South Asia	Subregional estimate cannot be calculated					
Europe	4,570,000	-	4,970,000	0.8	-	0.9
Eastern/South-East Europe	470,000	-	840,000	0.2	-	0.3
Western/Central Europe	4,110,000	-	4,130,000	1.5	-	1.5
Oceania	330,000	-	390,000	1.4	-	1.7
Global	15,070,000	-	19,380,000	0.3	-	0.4

¹⁵ ARQ submitted by China for 2008.

Fig. 146: World annual cocaine users

Source: UNODC ARQ

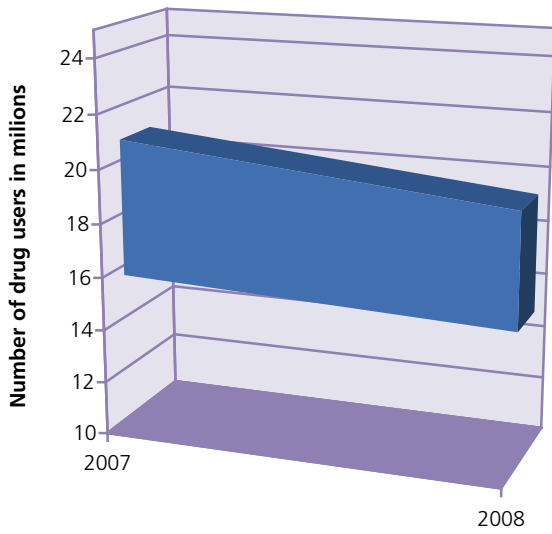


Fig. 147: Cocaine use: lower and upper range of numbers and annual prevalence globally and by region

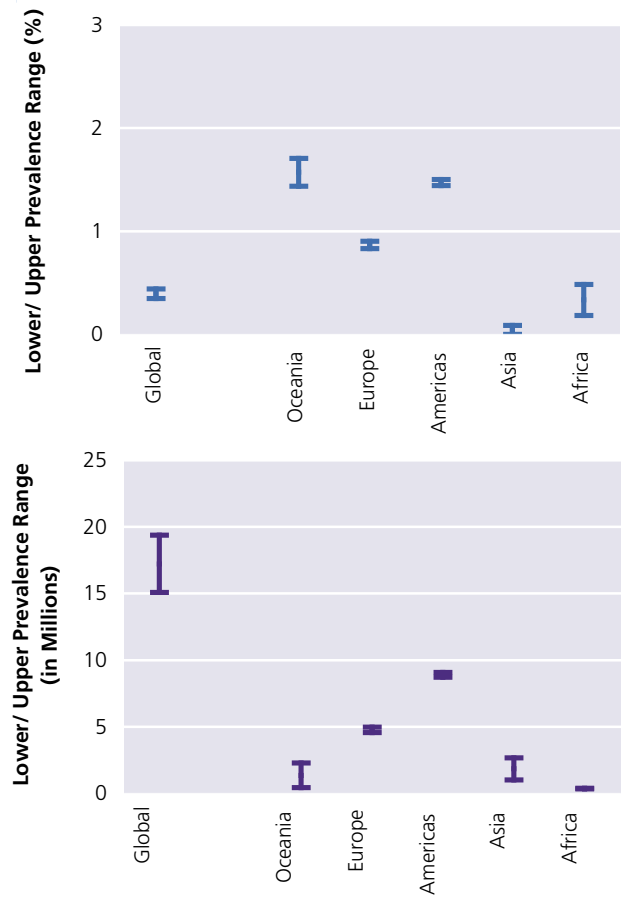


Fig. 148: Global trend in the perception of cocaine use: unweighted average of trends as reported by national experts*

* The graph measures the trend of the number of countries reporting an increase or decrease in drug use (not the trend in number of drug users).
Source: UNODC ARQ

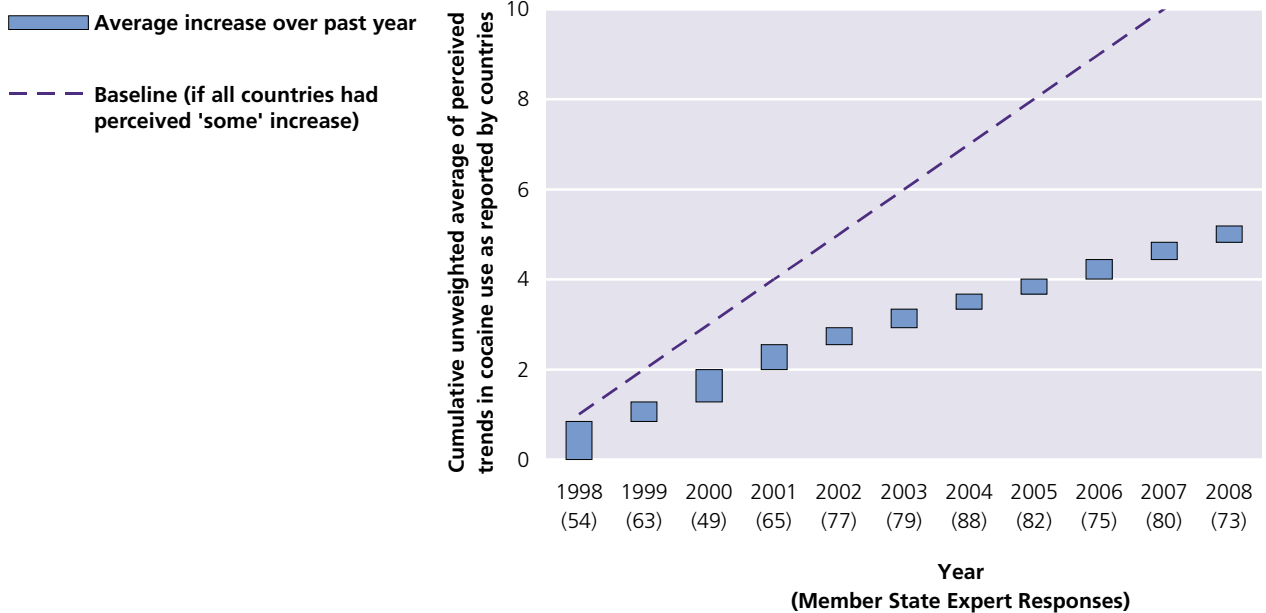


Fig. 149: United States: Annual prevalence of cocaine use among the population aged 12 and older

Source: Substance Abuse and Mental Health Services Administration, *Results from the 2008 National Survey on Drug Use and Health, National Findings*, Office of Applied Studies (OAS), US Department of Health and Human Services

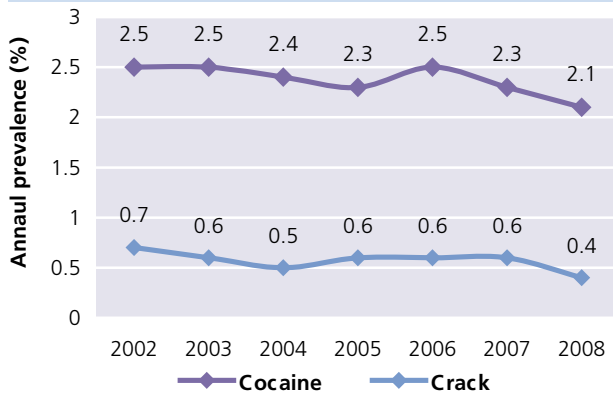
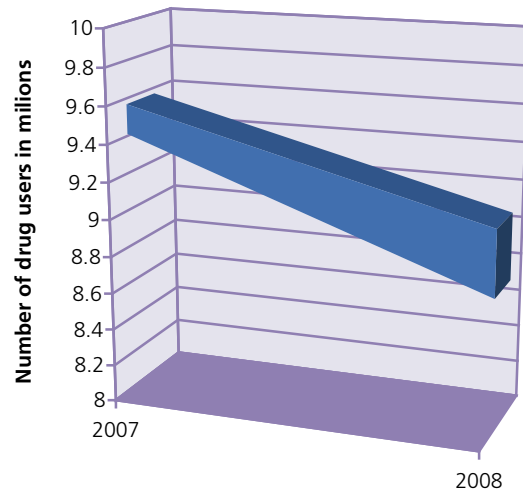


Fig. 150: Annual cocaine users in the Americas

Source: UNODC ARQ



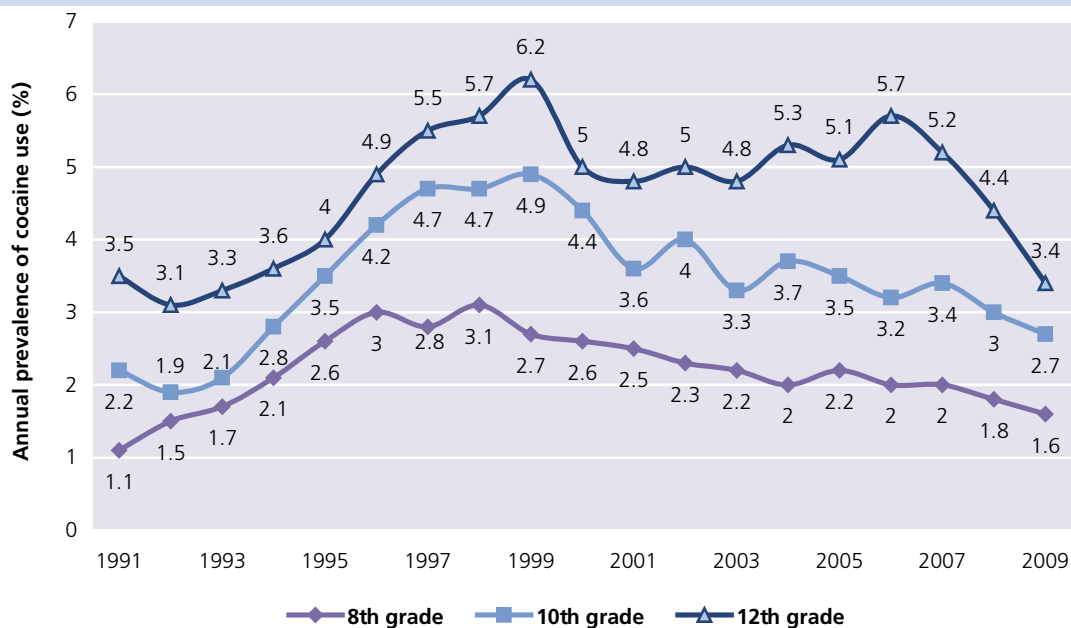
North America, the largest cocaine market, is shrinking

The highest prevalence of cocaine use remains in North America, at 2% of the adult population aged 15 to 64. In the United States, many indicators show a downward trend in cocaine use over the past years, which mirrors a decreasing trend in cocaine production in Colombia, the source country of the cocaine reaching the United States, as well as increased difficulties faced by the Mex-

ican drug cartels to have cocaine shipped from Colombia via Mexico into the United States. Data from 2008 confirm the decreasing trend both in the adult and young populations. There has been a significant reduction in the use of cocaine and crack among the population aged 12 and older. The annual prevalence of cocaine use declined to 2.1% in 2008 from 2.3% in 2007. The perceived easy availability of cocaine among youth aged 12 to 17 also decreased significantly, from 25% in 2007 to 22.1% in 2008.¹⁶

Fig. 151: United States: annual prevalence of cocaine use among high school students, 1991-2009

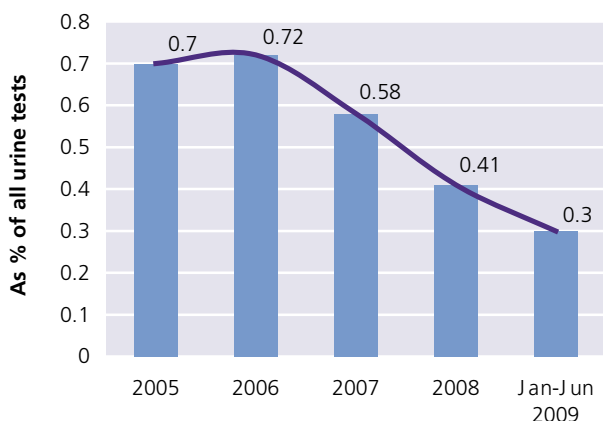
Source: National Institute on Drug Abuse, *Monitoring the Future, Overview of key findings in 2009*, Bethesda, Maryland, USA, 2009



¹⁶ Substance Abuse and Mental Health Services Administration *Results from the 2008 National Survey on Drug Use and Health, National Findings*, Office of Applied Studies (OAS), SAMHSA, US Department of Health and Human Services, September 2009.

Fig. 152: Percent testing positive for cocaine in urine drug tests of the general US workforce (percent of all such tests)

Source: Quest Diagnostics, *Drug Testing Index*



Similarly, the number of positive tests for recent use of cocaine in the general workforce in the United States dropped by 29% in 2008 (a decline to 0.41% in 2008 from 0.58% in 2007 of all urine drug tests). The downward trend in cocaine use also continued in 2009, where it was observed in tests for cocaine use among the general work force in the first six months of 2009.¹⁷ Similar downward trends were seen in the annual prevalence of cocaine use among high school students. The annual prevalence dropped from 2.8% in 2008 to 1.6% in 2009 among the 8th graders, from 3% to 2.7% among 10th graders and from 4.4% to 3.4% among the 12th grade students.¹⁸

The prevalence of positive test results for cocaine use among arrestees appears to be stable or declining across many of the US cities where the Arrestees Drug Abuse Monitoring Programme (ADAM II) has been implemented. There are statistically significant declines between 2003 and 2008 in two of the 10 monitored cities: Chicago and Portland. Statistically significant declines between 2007 and 2008 were observed in Indianapolis and Washington DC. Nonetheless, cocaine remained in 2008 the second most common drug among arrestees. The number of problem cocaine users or those classified with substance dependence and abuse in the household survey declined from 1.5 million in 2002 to 1.4 million in 2008 among the population aged 12 or older, although none of the changes between 2008 and previous years is statistically significant. Point estimates show a more noticeable decline between 2006 (1.7 million) and 2008 (1.4 million).¹⁹

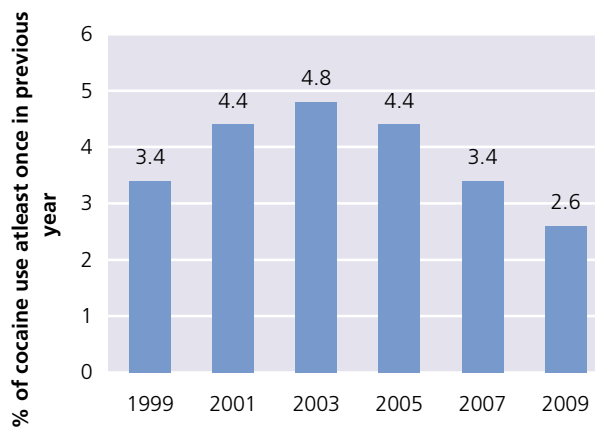
17 Quest Diagnostics, *Drug Testing Index*, November 2009.

18 National Institute on Drug Abuse, *Monitoring the Future, Overview of Key Findings in 2009*, Bethesda, Maryland, USA, 2010.

19 US Department of Health and Human Services, Substance Abuse

Fig. 153: Annual prevalence of cocaine use among Ontario students, 1999-2009

Source: Centre for Addiction and Mental Health, Ontario Student Drug Use and Health Survey, *Drug use among Ontario students, 1977-2009*



The 2008 Canadian survey also shows a decrease in the annual prevalence of cocaine use, falling from 2.3% of the population aged 15-64 in 2004 to 1.9% in 2008.²⁰ The school survey conducted in Ontario, Canada's most populous province, accounting for close to 40% of Canada's total population, also indicates a decline in cocaine use among school students. The annual prevalence of cocaine use, from its peak of 4.8% in 2003 has nearly halved to 2.6% in 2009. 44% of the students reported greater risk in trying cocaine and nearly half strongly disapproved of cocaine use. Cocaine was also reportedly less easily available than in 2007 or a decade ago.²¹

Cocaine use in Mexico increased over the 2002-2008 period. The lifetime prevalence of cocaine use among the population aged 12 to 65 doubled, from 1.2% in 2002 to 2.4% in 2008.²² The increase in the annual prevalence of cocaine use was, however, less pronounced, from 0.35% in 2002 to 0.44% in 2008.

High prevalence rates continue to be reported in West Europe

In Europe, cocaine remains the second most used illicit drug after cannabis. The annual prevalence of cocaine use in Europe ranges between 0.8% and 0.9% of the population aged 15 – 64, or around 4.5-5 million people who had used cocaine in the past year in 2008/2009, a slight upward shift from the range reported in 2007 (4.3

■ ■ and Mental Health Services Administration, *Results from the 2008 National Survey on Drug Use and Health: National Findings*, 2009.

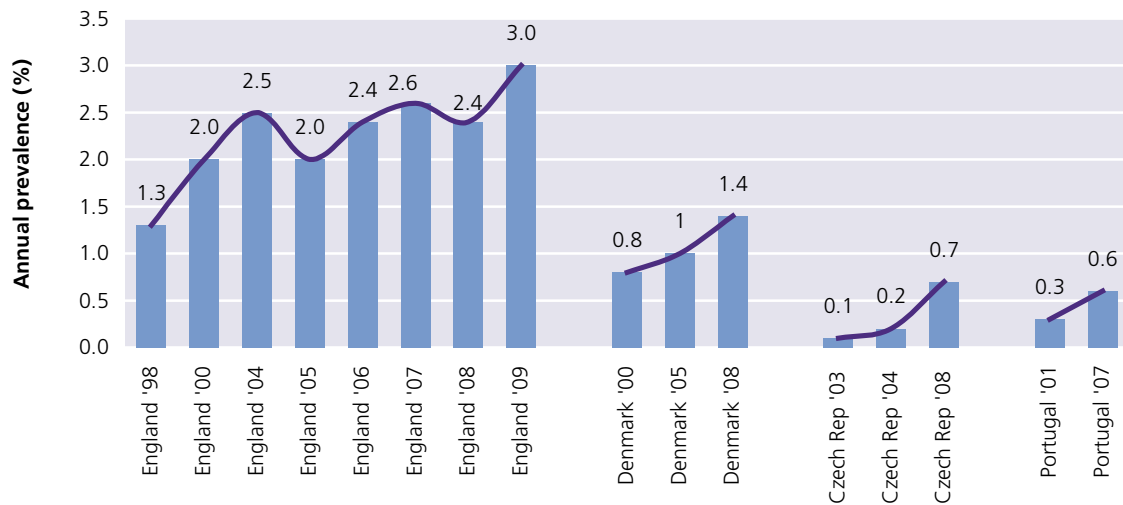
20 Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey (CADAUMS) 2008*.

21 Centre for Addiction and Mental Health, Ontario Student Drug Use and Health Survey, *Drug use among Ontario students, 1977 – 2009*, 2009.

22 SALUD, *Encuesta Nacional de Adicciones 2008*, 2009.

Fig. 154: Europe: Increasing trends in annual prevalence of cocaine use among the adult population

Source: British Crime Survey, Government reports and UNODC ARQ



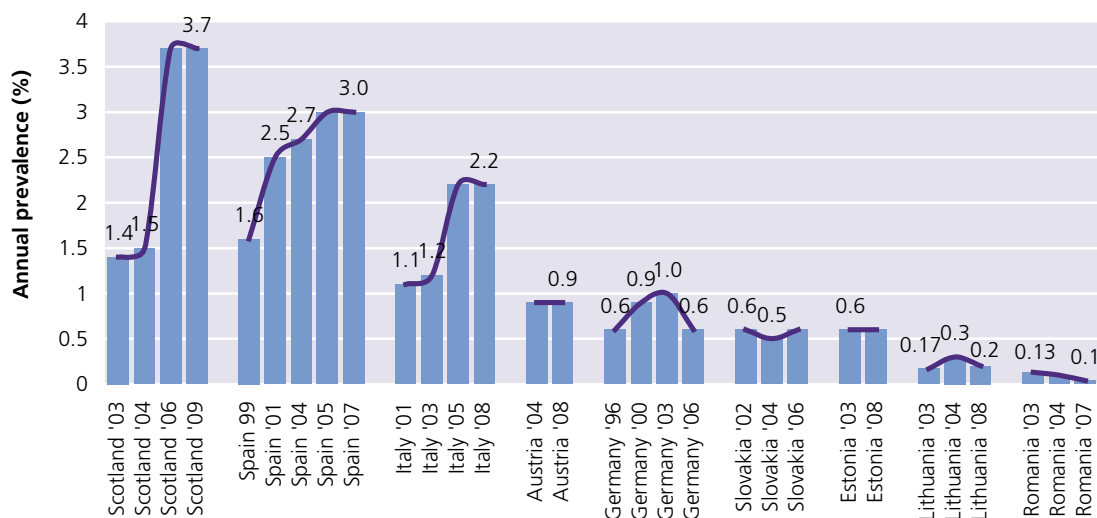
- 4.6 million people). An overall increase in cocaine use has been observed in Europe in the last decade. In recent years, the trend has started to stabilize in some countries, while in others it is still increasing.

Higher cocaine use is reported in West and Central Europe (1.5%) than in East and South-East Europe (0.3%). Cocaine use appears to be concentrated in a few countries in Europe, notably in Spain, the United Kingdom, Italy, Ireland and Denmark, where high cocaine use prevalence rates are observed. Use of cocaine is reportedly high among young males between 15 – 34 years old.²³ Low prevalence countries in the European Union remain Romania, Greece, Hungary, Poland and the Czech Republic.

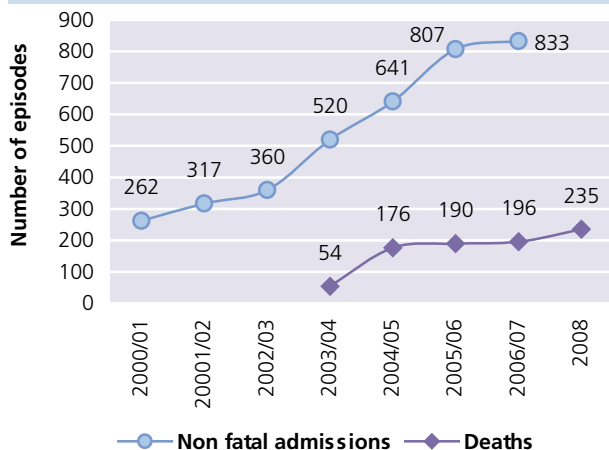
In Spain and Italy, the annual prevalence rates for cocaine have stabilized at 3% and 2.2% in 2007 and 2008 respectively, after reaching high levels in 2005. A stabilization was also reported in 2007 by Germany and several other EU countries. The only major European market showing an increase is the United Kingdom. In England and Wales, cocaine prevalence rates declined in 2007/2008, but increased to 3% of the population aged 16-59 in 2008/2009. The highest prevalence of cocaine use in Europe is found in Scotland (3.7% of the population aged 16-59 in 2008/2009), even though this rate has remained stable since 2006. The United Kingdom is thus overall Europe's largest cocaine market in absolute numbers with some 1.2 million users in 2009. Increases

Fig. 155: Europe: Stable or declining trends in annual prevalence of cocaine use among the population aged 15-64

Source: Government reports and UNODC ARQ



23 EMCDDA, *Drug Situation in Europe*, Annual Report 2009.

Fig. 156: United Kingdom: Cocaine-related poisoning episodes and deaths, 2000-2008Source: United Kingdom, The Cocaine Trade – Home Affairs Committee, *Trends in Cocaine Use*

in the annual prevalence rate were also reported in Albania, the Czech Republic and Denmark over the last period. Among the six European countries that reported updated information on cocaine use for 2008, only Lithuania registered a decrease in the adult prevalence, from 0.3% in 2004 to 0.2% in 2008.

In the United Kingdom, cocaine has been a problem drug for some time. Since 2000/2001, there has been a large increase in reported episodes of non-fatal hospital admissions for cocaine poisoning in England. Since 2004, there has also been an upward trend of cocaine-related deaths, which accounted for 14% of all drug-related deaths in 2008.²⁴

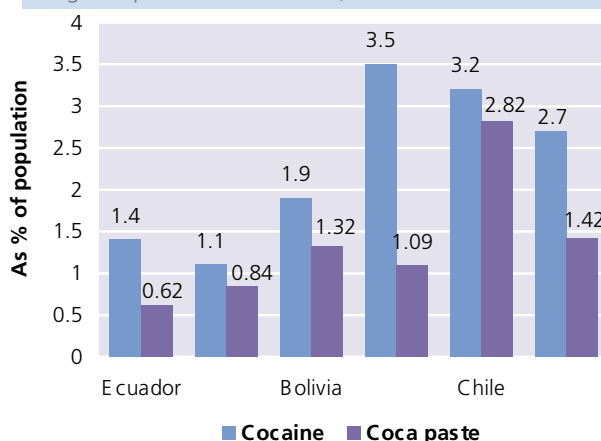
The lifetime prevalence of cocaine use among 15-16 year old school students in Europe²⁵ was on average 3%. Cocaine use, however, remains much lower than cannabis use. In half of the 28 reporting countries, in 2007, the prevalence rate ranged between 1% and 2%. Most of the remaining countries reported prevalence levels between 3% and 4%. France, Italy and the United Kingdom reported levels around 5%. Like for most other drugs, lifetime prevalence of cocaine use among males is higher than among females.²⁶

The number of clients entering drug treatment with cocaine as the primary drug has been increasing in Europe for several years. Between 2002 and 2007, the

24 United Kingdom, The Cocaine Trade – Home Affairs Committee, *Trends in Cocaine Use*, March 2010.

25 European School Survey Project on Alcohol and Other Drugs (ESPAD).

26 Hibell, B., Andersson B., et al. *ESPAD: The 2007 ESPAD Report: Substance use among students in 35 European Countries*, The Swedish Council for Information on Alcohol and other Drugs (CAN), EMCDDA, Council of Europe, Co-operation Group to Combat Drug Abuse and Illicit Trafficking in Drugs (Pompidou Group).

Fig. 157: South America: Prevalence of cocaine and pasta base use among students aged 13-17, selected countriesSource: UNODC/CICAD, *Informe subregional sobre uso de drogas en poblacion escolarizada, 2009/2010*

largest proportional increases among new clients were reported by Spain, Ireland and Italy. In those countries the number of all clients entering treatment citing cocaine as their primary drug increased as a proportion from 13% to 19%. The proportion of cocaine clients in treatment is now also increasing in other countries such as Denmark, Ireland, Greece and Portugal.²⁷

Increasing trends of cocaine use in most countries in South America

The annual prevalence of cocaine use in South America is between 0.9% and 1% of the population aged 15-64, thus comparable to cocaine use in Europe, though far lower than in North America. The aggregate annual prevalence of cocaine use in Central America ranges between 0.5% and 0.6%, and in the Caribbean, from 0.4% to 1.2%. In contrast to North America, national experts in South America continue to report an increasing trend in cocaine use.

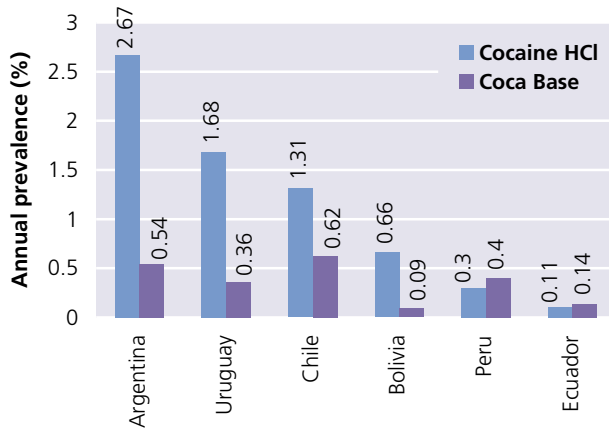
Increases in cocaine use in recent years were reported by the Bolivarian Republic of Venezuela, Ecuador, Brazil, Argentina and Uruguay, as well as countries in Central America (Guatemala and Honduras) and the Caribbean (Jamaica and Haiti). Compared to the previous year, new quantitative information for 2008 was available only from two countries: Chile, where an increase in the annual prevalence among the adult population aged 15-64 was observed (from 1.7% in 2006 to 2.4% in 2008) and Suriname, where there was a decrease (from 0.5% in 2002 to 0.3% in 2007).

The highest prevalence of cocaine use in South America

27 EMCDDA, *Drug Situation in Europe 2009: Problem cocaine use and treatment demand*, 2009.

Fig. 158: South America: annual adult (aged 15-64) prevalence of cocaine use in selected countries, 2006-2007

Source: UNODC/CICAD, *Elementos Orientadores para las Políticas Públicas sobre Drogas en la Subregión: Primer Estudio Comparativo sobre Consumo de Drogas y Factores Asociados en Población de 15 a 64 años, 2008*



was reported from Argentina (2.7%), followed by Chile (2.4%) and Uruguay 1.4%). The annual prevalence of cocaine use in Argentina and Chile are comparable to the prevalence in United States. Brazil and Argentina constitute the biggest cocaine markets in South America in terms of absolute numbers (more than 900,000 and 600,000 users, respectively). According to the school survey conducted by UNODC and CICAD in the South American countries, the highest annual prevalence of cocaine use among students was in Chile, followed by Uruguay and Argentina.²⁸ The *pasta base* or the cocaine base is also frequently abused in South America. However, both for the student and adult populations, the use of cocaine HCl is generally higher than coca paste. In Chile, the Plurinational State of Bolivia and Peru, there were comparable rates of cocaine and *pasta base* use among the students surveyed.

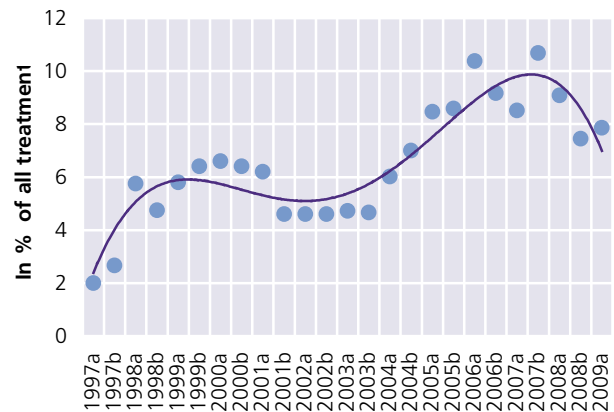
Experts are reporting rising cocaine use in Africa

For most parts of Africa, there are no recent or reliable estimates of cocaine use. Nevertheless, the annual prevalence of cocaine use in Africa is estimated at between 0.2% and 0.5% of the population aged 15 to 64. The upper bound of the estimate fell compared to last year when it was 0.7%. The major reason for this drop is the removal of national estimates which were more than 10 years old. However, experts from Africa report that cocaine use has increased in many parts of the continent, notably West and Central Africa. In South Africa, one of the few countries that have data to substantiate the expert perceptions, treatment demand for cocaine-related problems has shown a strong increase over the past

28 UNODC and CICAD *Informe subregional sobre uso de drogas en población escolarizada, 2009/2010*.

Fig. 159: South Africa: Percent of all treatment admissions for cocaine, 1997-2009

Source: Pluddemann A., Parry C., Bhana A., et al, *Alcohol and Drug Abuse Trends: January-June 2009* (Phase 26), South African Community Epidemiology Network on Drug Use, November 2009



10 years, where it has increased from 5% of treatment demand in 1998 to 8% in the first half of 2009. However, there has been a declining trend in treatment demand for cocaine since 2008.²⁹

For large parts of Asia and the Near and Middle East, there are no recent or reliable estimates available on cocaine use. In Asia, the annual prevalence of cocaine use is estimated at maximum 0.1%, or between 430,000 and 2.3 million cocaine users. Hong Kong, China is the only territory in Asia reporting new information in 2008, revealing an increase in the estimated annual adult prevalence rate from 0.003% in 2003 to 0.3% in 2008.³⁰ In Hong Kong, China, there are indications of increasing availability and decreasing prices of cocaine since 2004.³¹ In the school survey conducted in Hong Kong, China in 2008/2009, the lifetime prevalence of cocaine and 'ecstasy' use among students was 13.8%, compared to 11.3% in 2004/2005.³²

29 Pluddemann A., Parry C., Bhana A., et al, *Alcohol and Drug Abuse Trends: January – June 2009* (Phase 26), South African Community Epidemiology Network on Drug Use, November 2009.

30 Data extrapolated from the results of a school survey.

31 Narcotics Bureau, Hong Kong Police, *Drug Situation Report – Hong Kong Special Administrative Region of the People's Republic of China*, January 2009.

32 Narcotics Division, Security Bureau, *The 2008/2009 Survey of Drug Use among Students*, 2010.

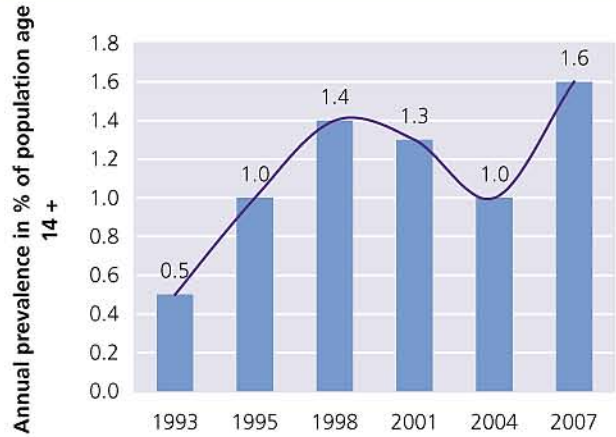
In Oceania, there are mixed trends of cocaine use

In Australia, the annual prevalence of cocaine use among the population aged 14 and above grew from 1% in 2004 to 1.6% in 2007 (or 1.9% of the population aged 15-64).³³ As reflected in data from the Australian Institute for Criminology for the *Drug Use Monitoring in Australia (DUMA)*, the percentage of detainees that tested positive for cocaine remained at 1% in 2008, as in previous years.³⁴

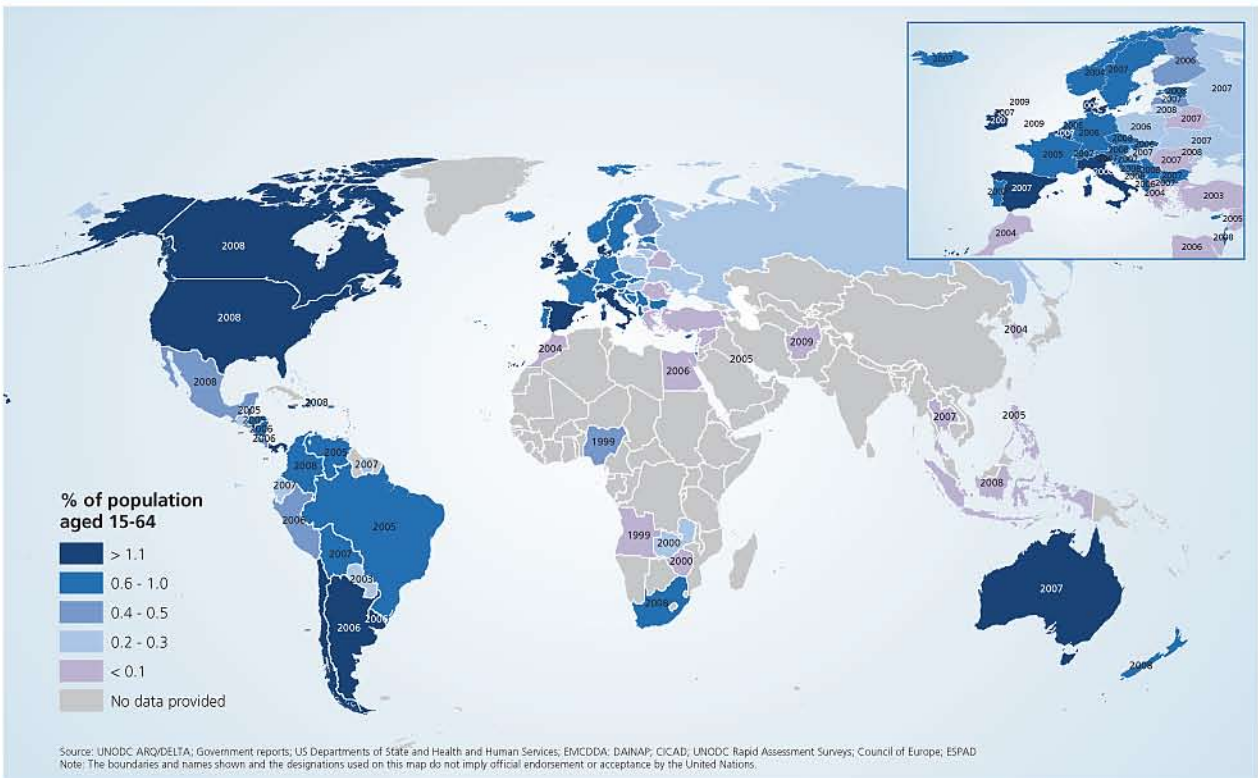
In New Zealand, cocaine use now appears to be stabilizing, having increased considerably between 2003 and 2006. In 2007/2008, about 0.6% of the population aged 16-64 had used cocaine in the previous year,³⁵ compared to 0.8% of the same population reported in 2006.

Fig. 160: Australia: Annual prevalence of cocaine use among the population aged 14 and above, 1993-2007

Source: Australian Institute of Health and Welfare, 2007 *National Drug Strategy Household Survey*, 2008

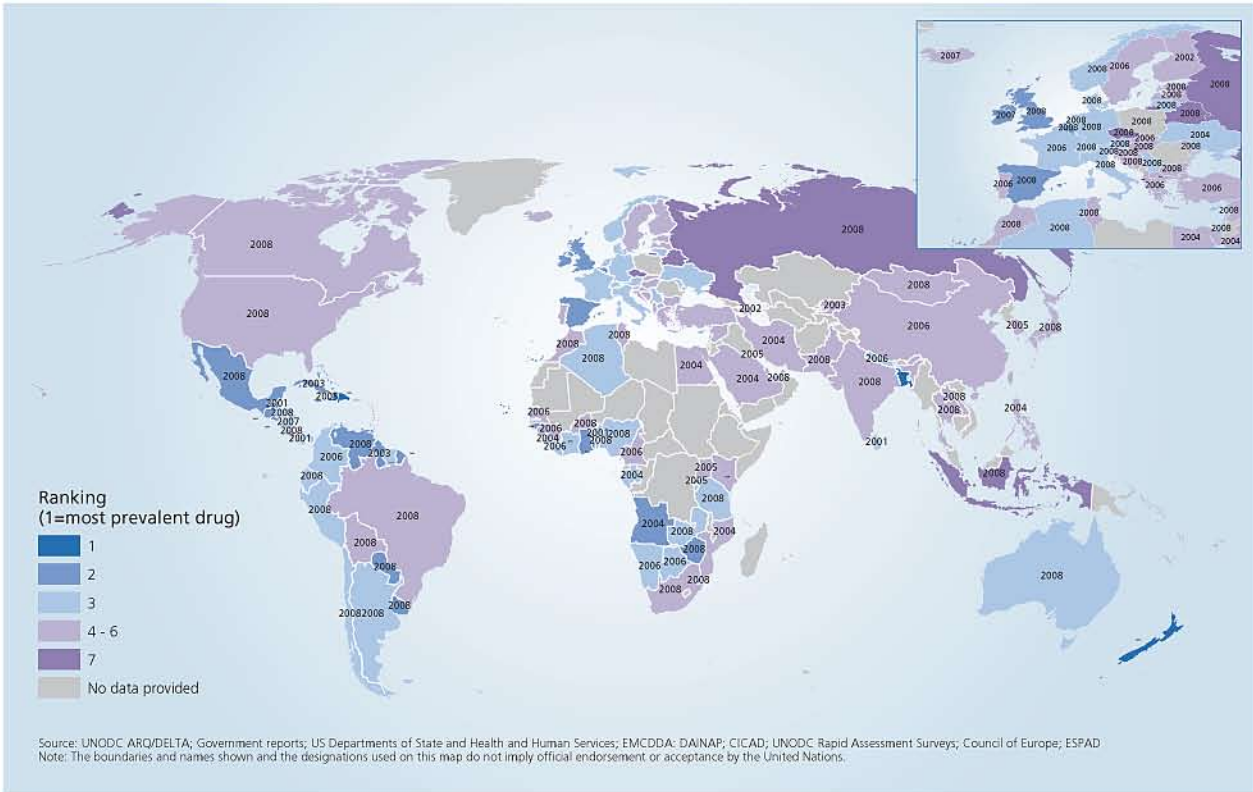


Map 20: Use of cocaine in 2008 (or latest year available)



33 Australian Institute of Health and Welfare, 2007 *National Drug Strategy Household Survey*, Canberra., April 2008.
 34 Australian Institute of Criminology, *Drug use monitoring in Australia: 2008 annual report on drug use among police detainees*, AIC Monitoring Reports 2009.
 35 Ministry of Health, *Drug use in New Zealand: Key Results of the 2007/08 New Zealand Alcohol and Drug Use Survey*, January 2010.

Map 21: Ranking of cocaine in order of prevalence, 2008 (or latest year available)



Map 22: Expert perception of trend changes in the use of cocaine, 2008 (or latest year available back to 2005)

