

## 1.1 Opium / heroin market



### 1.1.1 Summary trend overview

Opium poppy cultivation in Afghanistan, the source country for most of the world's opium, decreased by 19% in 2008. As a result, the total area under cultivation in the three major cultivating countries thus decreased to 189,000 hectares, in spite of small increases in Myanmar and the Lao People's Democratic Republic. Total potential opium production also decreased to a total of some 8,000 metric tons; a high level, in spite of the decrease.

Overall opiate seizures remained stable – at a high level – in 2007, due to a large decrease in morphine seizures. Opium and heroin seizures increased by 33% and 14%, respectively. Although opiate trafficking is global, more than two thirds of seizures were reported by South-West Asian countries in 2007. Europe accounted for the second largest share of seizures, mainly from south-eastern countries.

Opiates remain the world's main problem drug in terms of treatment, and a majority of the world's opiate users live in Asia. The highest levels of use (in terms of the proportion of the population aged 15-64 years) are found along the main drug trafficking routes close to Afghanistan. UNODC estimates that the number of people who used opiates at least once in 2007 was between 15 and 21 million people worldwide.<sup>1</sup>

1 The lack of robust data on the levels of drug use, particularly in large countries such as China and India, is a huge impediment to an accurate understanding of the size of the population of drug users. Please see the Methodology and Special Features sections below for more detail.



### 1.1.2 Production

#### Cultivation

The area under opium poppy cultivation in major cultivating countries decreased by 16% over the past year, mainly due to a large decrease in Afghanistan. Opium poppy cultivation did not change much in Myanmar and the Lao People's Democratic Republic. Overall, the level of opium poppy cultivation in Afghanistan, Myanmar and Lao PDR was about the same as in 2006.

In Afghanistan, opium poppy cultivation continued to be concentrated mainly in the southern provinces, while more provinces in the centre and north of the country became poppy-free. Two thirds of the area under opium poppy cultivation in 2008 – more than 100,000 ha – were located in the southern province of Helmand alone. The decline in cultivation happened in spite of less opium poppy eradication in 2008 (5,480 ha) than in 2007 (19,047 ha). In 2008, opium poppy cultivation continued to be associated with insecurity. Almost the entire opium poppy-cultivating area was located in regions characterized by high levels of insecurity.

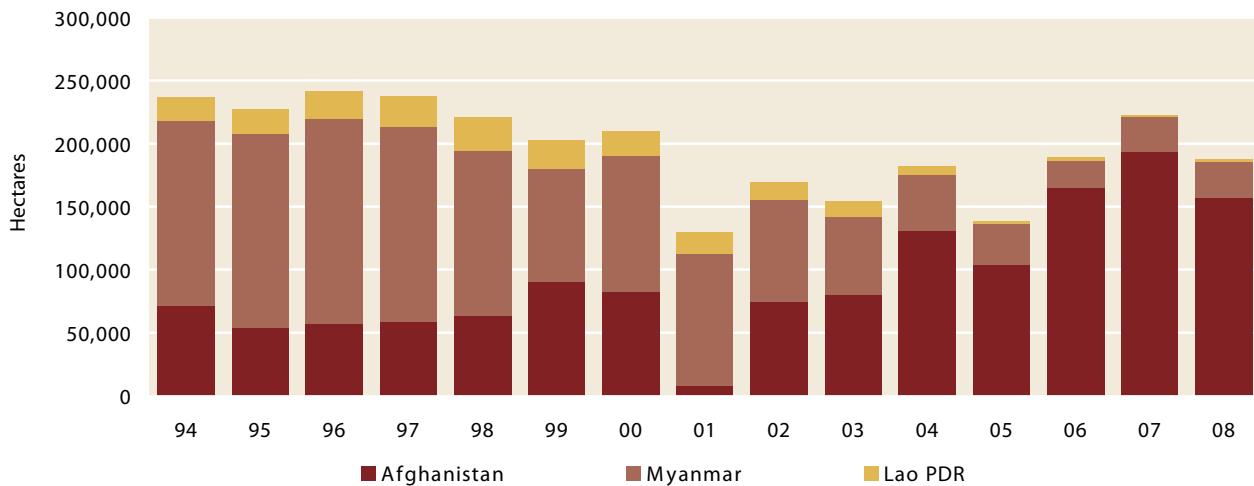
In Pakistan, opium poppy continued to be cultivated in the border area with Afghanistan at about the same relatively low level of about 2,000 ha reported over the past 5 years.

In Myanmar, opium poppy cultivation remained below levels reached in 2004 and before. As in the past, cultivation of opium poppy was heavily concentrated in the Shan State in eastern Myanmar. In Lao PDR, a low level of opium poppy cultivation was found in the northern provinces.

**Table 1: Global illicit cultivation of opium poppy and production of opium, 1994-2008**

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<b>CULTIVATION<sup>(a)</sup> IN HECTARES</b>															
<b>SOUTH-WEST ASIA</b>															
Afghanistan <sup>(b)</sup>	71,470	53,759	56,824	58,416	63,674	90,583	82,171	7,606	74,100	80,000	131,000	104,000	165,000	193,000	157,000
Pakistan <sup>(c)</sup>	5,759	5,091	873	874	950	284	260	213	622	2,500	1,500	2,438	1,545	1,701	1,909
<b>Subtotal</b>	<b>77,229</b>	<b>58,850</b>	<b>57,697</b>	<b>59,290</b>	<b>64,624</b>	<b>90,867</b>	<b>82,431</b>	<b>7,819</b>	<b>74,722</b>	<b>82,500</b>	<b>132,500</b>	<b>106,438</b>	<b>166,545</b>	<b>194,701</b>	<b>158,909</b>
<b>SOUTH-EAST ASIA</b>															
Lao PDR <sup>(d)</sup>	18,520	19,650	21,601	24,082	26,837	22,543	19,052	17,255	14,000	12,000	6,600	1,800	2,500	1,500	1,600
Myanmar <sup>(e)</sup>	146,600	154,070	163,000	155,150	130,300	89,500	108,700	105,000	81,400	62,200	44,200	32,800	21,500	27,700	28,500
Thailand <sup>(f)</sup>	478	168	368	352	716	702	890	820	750						
Viet Nam <sup>(f)</sup>	3,066	1,880	1,743	340	442	442									
<b>Subtotal</b>	<b>168,664</b>	<b>175,768</b>	<b>186,712</b>	<b>179,924</b>	<b>158,295</b>	<b>113,187</b>	<b>128,642</b>	<b>123,075</b>	<b>96,150</b>	<b>74,200</b>	<b>50,800</b>	<b>34,600</b>	<b>24,000</b>	<b>29,200</b>	<b>30,100</b>
<b>LATIN AMERICA</b>															
Colombia <sup>(g)</sup>	15,091	5,226	4,916	6,584	7,350	6,500	6,500	4,300	4,153	4,026	3,950	1,950	1,023	714	394
Mexico <sup>(h)</sup>	5,795	5,050	5,100	4,000	5,500	3,600	1,900	4,400	2,700	4,800	3,500	3,300	5,000	6,900	n.a.
<b>Subtotal</b>	<b>20,886</b>	<b>10,276</b>	<b>10,016</b>	<b>10,584</b>	<b>12,850</b>	<b>10,100</b>	<b>8,400</b>	<b>8,700</b>	<b>6,853</b>	<b>8,826</b>	<b>7,450</b>	<b>5,250</b>	<b>6,023</b>	<b>7,614</b>	n.a.
<b>OTHER</b>															
Combined <sup>(i)</sup>	5,700	5,025	3,190	2,050	2,050	2,050	2,479	2,500	2,500	3,074	5,190	5,212	4,432	4,185	n.a.
<b>GRAND TOTAL</b>	<b>272,479</b>	<b>249,919</b>	<b>257,615</b>	<b>251,848</b>	<b>237,819</b>	<b>216,204</b>	<b>221,952</b>	<b>142,094</b>	<b>180,225</b>	<b>168,600</b>	<b>195,940</b>	<b>151,500</b>	<b>201,000</b>	<b>235,700</b>	n.a.
<b>POTENTIAL PRODUCTION IN METRIC TONS OPIUM<sup>(j)</sup></b>															
<b>SOUTH-WEST ASIA</b>															
Afghanistan <sup>(b)</sup>	3,416	2,335	2,248	2,804	2,693	4,565	3,276	185	3,400	3,600	4,200	4,100	6,100	8,200	7,700
Pakistan <sup>(c)</sup>	128	112	24	24	26	9	8	5	5	52	40	36	39	43	48
<b>Subtotal</b>	<b>3,544</b>	<b>2,447</b>	<b>2,272</b>	<b>2,828</b>	<b>2,719</b>	<b>4,574</b>	<b>3,284</b>	<b>190</b>	<b>3,405</b>	<b>3,652</b>	<b>4,240</b>	<b>4,136</b>	<b>6,139</b>	<b>8,243</b>	<b>7,748</b>
<b>SOUTH-EAST ASIA</b>															
Lao PDR <sup>(d)</sup>	120	128	140	147	124	124	167	134	112	120	43	14	20	9	10
Myanmar <sup>(e)</sup>	1,583	1,664	1,760	1,676	1,303	895	1,087	1,097	828	810	370	312	315	460	410
Thailand <sup>(f)</sup>	3	2	5	4	8	8	6	6	9						
Viet Nam <sup>(f)</sup>	15	9	9	2	2	2									
<b>Subtotal</b>	<b>1,721</b>	<b>1,803</b>	<b>1,914</b>	<b>1,829</b>	<b>1,437</b>	<b>1,029</b>	<b>1,260</b>	<b>1,237</b>	<b>949</b>	<b>930</b>	<b>413</b>	<b>326</b>	<b>335</b>	<b>469</b>	<b>420</b>
<b>LATIN AMERICA</b>															
Colombia <sup>(g)</sup>	205	71	67	90	100	88	88	80	52	50	49	24	13	14	10
Mexico <sup>(h)</sup>	60	53	54	46	60	43	21	91	58	101	73	71	108	149	n.a.
<b>Subtotal</b>	<b>265</b>	<b>124</b>	<b>121</b>	<b>136</b>	<b>160</b>	<b>131</b>	<b>109</b>	<b>171</b>	<b>110</b>	<b>151</b>	<b>122</b>	<b>95</b>	<b>121</b>	<b>163</b>	n.a.
<b>OTHER</b>															
Combined <sup>(i)</sup>	90	78	48	30	30	30	38	32	56	50	75	63	16	15	n.a.
<b>GRAND TOTAL</b>	<b>5,620</b>	<b>4,452</b>	<b>4,355</b>	<b>4,823</b>	<b>4,346</b>	<b>5,764</b>	<b>4,691</b>	<b>1,630</b>	<b>4,520</b>	<b>4,783</b>	<b>4,850</b>	<b>4,620</b>	<b>6,610</b>	<b>8,890</b>	n.a.
<b>HEROIN</b>															
<b>Potential HEROIN<sup>(k)</sup></b>	<b>562</b>	<b>445</b>	<b>436</b>	<b>482</b>	<b>435</b>	<b>576</b>	<b>469</b>	<b>163</b>	<b>452</b>	<b>478</b>	<b>495</b>	<b>472</b>	<b>606</b>	<b>735</b>	n.a.

- (a) Opium poppy harvestable after eradication.
- (b) Afghanistan, sources: 1994-2002: UNODC; since 2003: National Illicit Crop Monitoring System supported by UNODC.
- (c) Pakistan, sources: ARQ, Government of Pakistan, US Department of State
- (d) Lao PDR, sources: 1994-1995: US Department of State; 1996-1999: UNODC; since 2000: National Illicit Crop Monitoring System supported by UNODC.
- (e) Myanmar, sources: 1994-2000: US Department of State; since 2001: National Illicit Crop Monitoring System supported by UNODC.
- (f) Due to continuing low cultivation, figures for Viet Nam (as of 2000) and Thailand (as of 2003) were included in the category "Other".
- (g) Colombia, sources: 1994-1999: various sources, since 2000: Government of Colombia. In Colombia, opium is produced as opium latex, which has a higher moisture content than opium produced in other regions of the world. To maintain comparability with other countries, opium production in Colombia was calculated by dividing the potential annual heroin production by 10.
- (h) Figures derived from US Government surveys. In 2006, the Government of Mexico reported a gross opium poppy cultivation of 19,147 hectares and estimated potential gross opium production at 211 mt. These gross figures are not directly comparable to the net figures presented in this table.
- (i) Reports from different sources indicate that illicit opium poppy cultivation also exists in other countries and regions, including the Baltic countries, Balkan countries, Egypt, India, Guatemala, Iraq, Lebanon, Nepal, Peru, Russian Federation and other C.I.S. countries, Thailand, Ukraine, Viet Nam, as well as in Central Asia and Caucasus region. The cultivation level in these countries and regions is thought to be low. Due to the difficulties of estimating cultivation and production based on the available information, no estimate is provided for 2008.
- (j) All figures refer to dry opium.
- (k) Heroin estimates for Afghanistan are based on the Afghanistan Opium Surveys (since 2004). For other countries, a 10:1 ratio is used for conversion from opium to heroin.

**Fig. 1: Opium poppy cultivation in major cultivating countries (ha), 1994-2008**

Reports on eradication of opium poppy from Bangladesh, India, Nepal, Thailand and Viet Nam indicated the existence of cultivation in these countries. However, the extent of illicit opium poppy cultivation in these countries is not known, with the exception of Thailand, which reported the detection of 288 ha of opium poppy, most of which was subsequently eradicated.

In the Americas, opium poppy cultivation was reported from Colombia and Mexico, and reports on eradication in Ecuador, Guatemala, Peru and the Bolivarian Republic of Venezuela over the past years point to the existence of opium poppy cultivation in these countries as well.

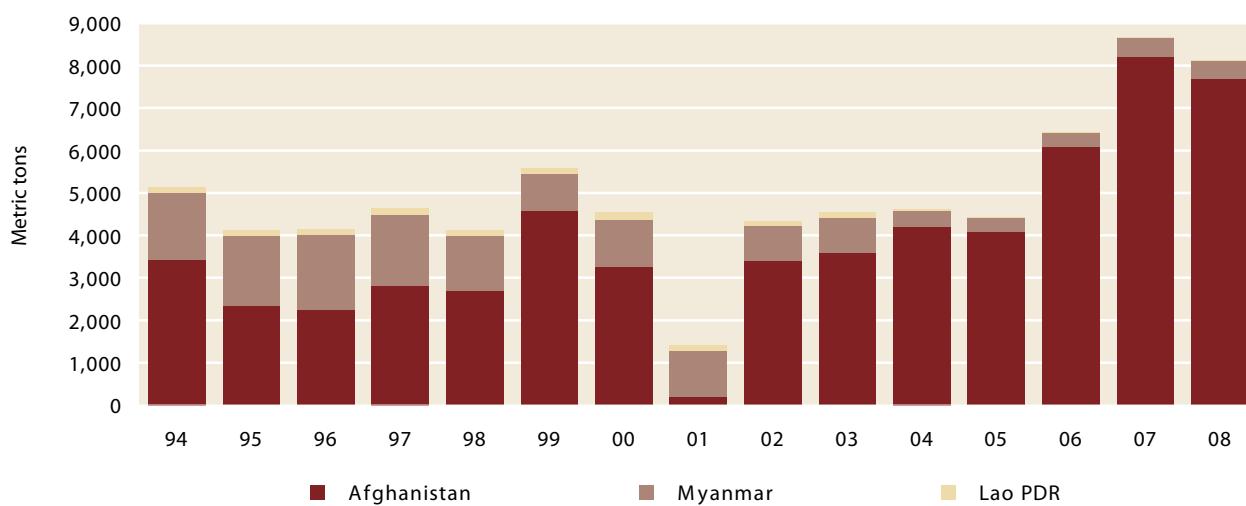
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### Production

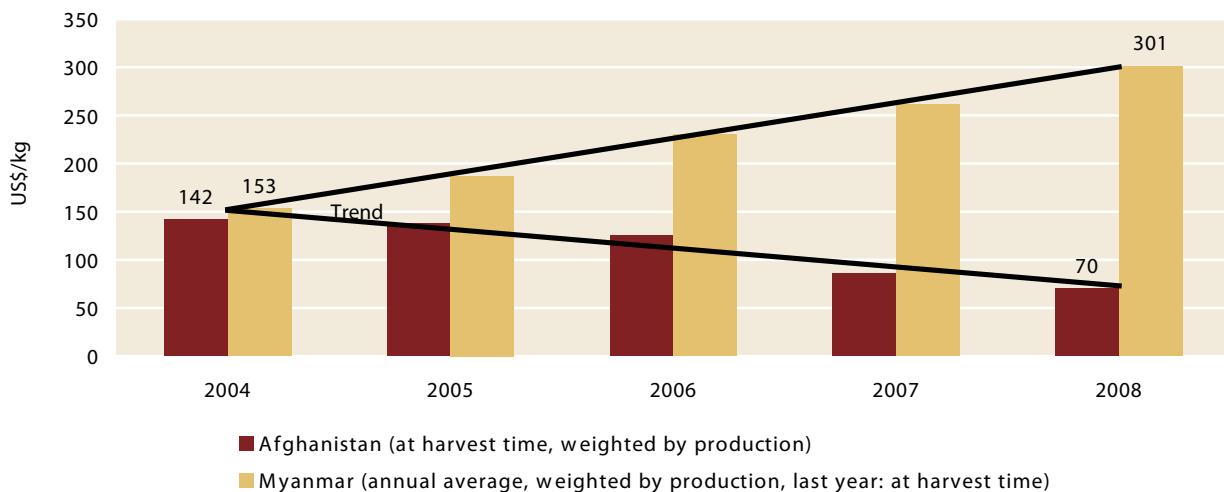
The potential opium production in the major opium poppy cultivating countries decreased slightly but is still high compared to previous years.

Opium yields in Afghanistan remained high in 2008. The potential opium production was estimated at 7,700 mt (range 6,330-9,308 mt). Some 60% is believed to be converted into morphine and heroin within the country. The amount of morphine and heroin produced in Afghanistan available for export was estimated at 630 mt (range 519-774 mt). Almost 40% of the total production was exported as opium.

**Fig. 2: Opium production in major cultivating countries (mt), 1994-2008**

**Fig. 3: Annual farm-gate prices for dry opium in Afghanistan and Myanmar, 2004-2008 (US\$/kg)**

Sources: UNODC



Opium production in Myanmar was estimated at 410 mt, which is much lower than in the years before 2004. Afghanistan remained the world's largest opium producer, followed by Myanmar.

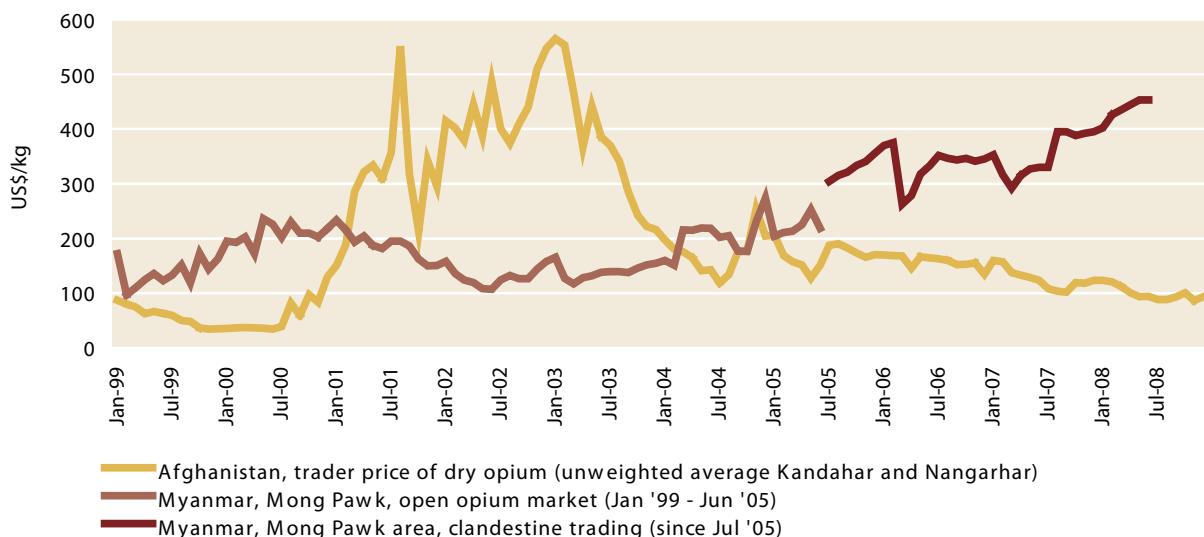
## Prices

Farm-gate prices in Afghanistan and Myanmar differ considerably both in trend and level. In 2004, farmers in both countries received about US\$ 150/kg for one kilogram of dry opium. Since then, farm-gate prices in Afghanistan have roughly halved, whereas they doubled in Myanmar. A similar diverging trend can be observed in trader prices in opium production areas, which have been available since 1999.

A comparison of average opium production levels in Afghanistan and Myanmar supports the assumption that local opium production levels had a strong influence on these prices. In Afghanistan, annual opium production before the Taliban opium ban in 2001 was at about 3,000 mt on average (1994-2000). Since 2002, opium production has been much higher in every single year, and amounted to an average of some 5,300 mt. Reflecting these high supply levels, Afghan opium prices have been on the decrease since 2003. In Myanmar, on the other hand, average annual opium production fell from about 1,400 mt (1994-2001) to an annual average of just 500 mt (2002-2008). As a consequence, opium prices in Myanmar increased considerably. In these two cases, the laws of supply and demand seem to hold some

**Fig. 4: Monthly trader prices for dry opium in Afghanistan and Myanmar, 1999-2008 (US\$/kg)**

Sources: UNODC





explanatory power for prices in production areas. However, it should be noted that illicit markets do not necessarily show the same behaviour as licit markets.

Relatively high opium prices of over US\$ 1,000/kg in neighbouring Lao PDR and Thailand, where very little opium is produced, also indicate that the demand for opium is high compared to the amount available on the market in the region.

Compared to Asia, farm-gate prices for opium latex in Colombia were high, at US\$ 318/kg in 2008. This would correspond to more than US\$ 600/kg in dry opium equivalents. It should be noted that in the countries discussed, opium is traded in the respective local currencies, and that prices were not adjusted for inflation.

## Laboratories

In 2007, the detection of 638 opiates-producing clandestine laboratories was reported to UNODC. In 2006, originally, a similar number of laboratories were reported by Governments (619), which was later updated to 873 based on additional reports received. Ukraine and Moldova, which reported high numbers of laboratories destroyed in 2006, did not report the detection of laboratories in 2007.

The Russian Federation reported the highest total number of opiate-processing laboratories (547) and, included in this number, also the highest number of heroin laboratories (187) of all countries reporting.<sup>2</sup> However, the amount of heroin seized at the laboratory sites does not indicate that these were large-scale processing facilities. Opiate processing laboratories were also detected in Afghanistan (57 heroin-processing), where most of the world's illicit opium is produced, Australia (9 heroin-processing), China (9 heroin-processing), Myanmar (8 heroin-processing), Mexico (4 heroin-processing), Colombia (2 heroin-processing), Germany (1 fentanyl-processing) and India (1 heroin-processing laboratory).

Laboratories in Moldova, the Russian Federation and Ukraine tend to produce acetylated opium from locally cultivated poppy straw. Indeed, most of the laboratories detected in the Russian Federation (347) were producing acetylated opium. The 2007 figures and the information received in connection to these figures indicate that most morphine and heroin processing takes place close the source, that is, in or close to the countries where opium poppy is cultivated, or, in the case of Germany and Australia, where opiates may be diverted from legal channels.

2 The number of detected heroin laboratories in the Russian Federation indicated in the text (187) relates to locations where different types of drugs were processed on a small scale and of low quality (so-called "kitchen production"). Russia did not report the detection of significant heroin-processing laboratories in 2007.

## Precursors

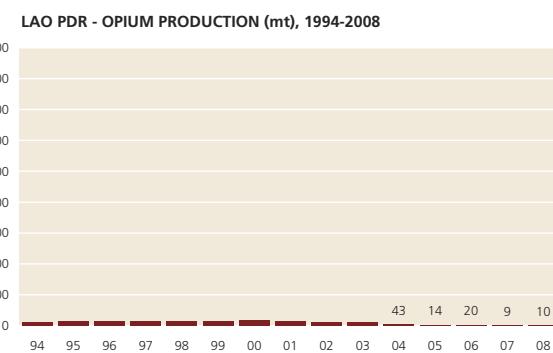
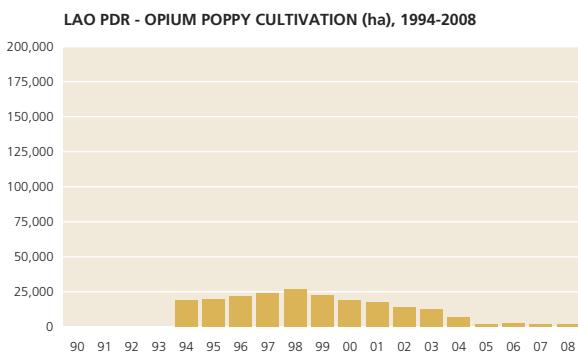
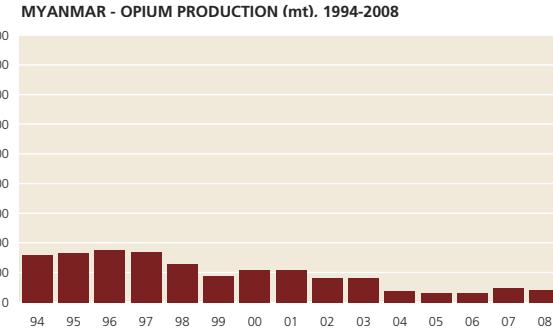
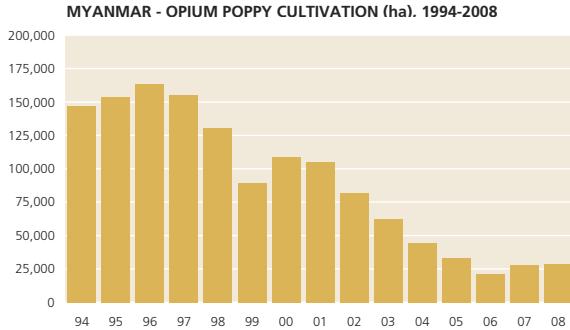
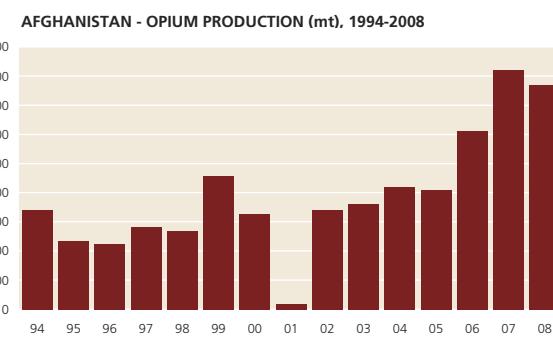
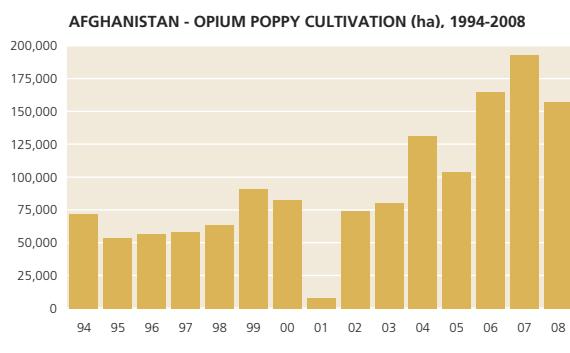
Illicit morphine and heroin production in Afghanistan requires large quantities of precursor chemicals such as acetic anhydride, a substance which is essential in the refinement of morphine to heroin. All acetic anhydride has to be imported as there are no known production facilities and no reported legitimate use of the chemical in the country. Following increased cooperation between countries in the region within the framework of the Paris Pact Initiative, more precursor seizures were reported from Afghanistan and neighbouring countries as well as from the countries of origin. During operation TAR CET (Targeted Anti-trafficking Regional Communication, Expertise and Training) and subsequent back-tracking investigations, almost 20 mt of acetic anhydride and more than 27 mt of other precursor chemicals were seized in Afghanistan, the Islamic Republic of Iran, Kyrgyzstan, Pakistan, Tajikistan and Uzbekistan in 2008.<sup>3</sup> In Afghanistan, an additional 14,000 l of acetic anhydride plus several other substances typically used for heroin production were seized on other occasions. Several cases of attempted diversion of precursor shipments for illicit purposes were detected and prevented and significant precursor seizures were made in countries of origin in Europe and Asia as well as in countries along the heroin trafficking routes. The seizures and related investigations confirmed the assumption that large-scale trafficking of morphine and heroin precursor to Afghanistan and neighbouring countries occurs. It is not known to what extent uncontrolled chemicals are brought into the region to produce controlled substances such as acetic anhydride locally to avoid increased international control of precursor shipments. There are indications that precursors have become a major cost factor for clandestine laboratories producing heroin in Afghanistan.

3 International Narcotics Control Board, E/INCB/2008/4

**Table 2: Significant opium poppy eradication reported (ha), 1995-2008**

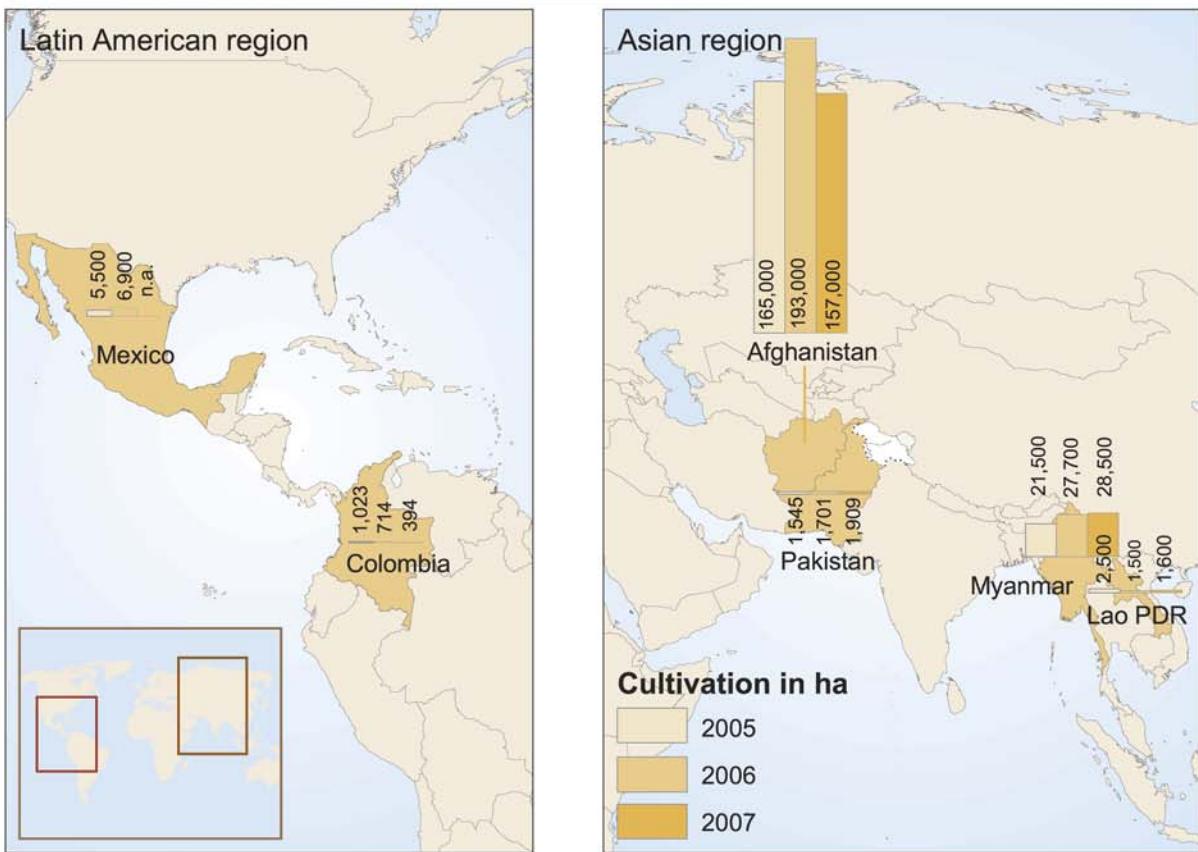
	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Afghanistan					400	121			21,430	*	5,103	15,300	19,047	5,480
Colombia	3,466	6,885	6,988	2,901	8,249	9,254	2,385	3,577	3,266	3,866	2,121	1,929	375	381
Egypt								15	34	65	45	50	98	
Guatemala											489	720	449	536
India			29	96	248	153	18	219	494	167	12	247	7,753	595
Lao PDR									4,134	3,556	2,575	1,518	779	575
Lebanon									4	67	27		8	
Mexico	15,389	14,671	17,732	17,449	15,461	15,717	15,350	19,157	20,034	15,926	21,609	16,890	11,046	13,095
Myanmar	3,310	1,938	3,093	3,172	9,824	1,643	9,317	7,469	638	2,820	3,907	3,970	3,598	4,820
Pakistan		867	654	2,194	1,197	1,704	1,484		4,185	5,200	391	354	614	0
Peru				4	18	26	155	14	57	98	92	88	88	16
Thailand	580	886	1,053	716	808	757	832	507	767	122	110	153	220	285
Venezuela	148	51	266	148	137	215	39	0	0	87	154	0	0	0
Viet Nam	477	1,142	340	439		426		125	100	32		38		99

\* Although eradication took place in 2004, it was not officially reported to UNODC.

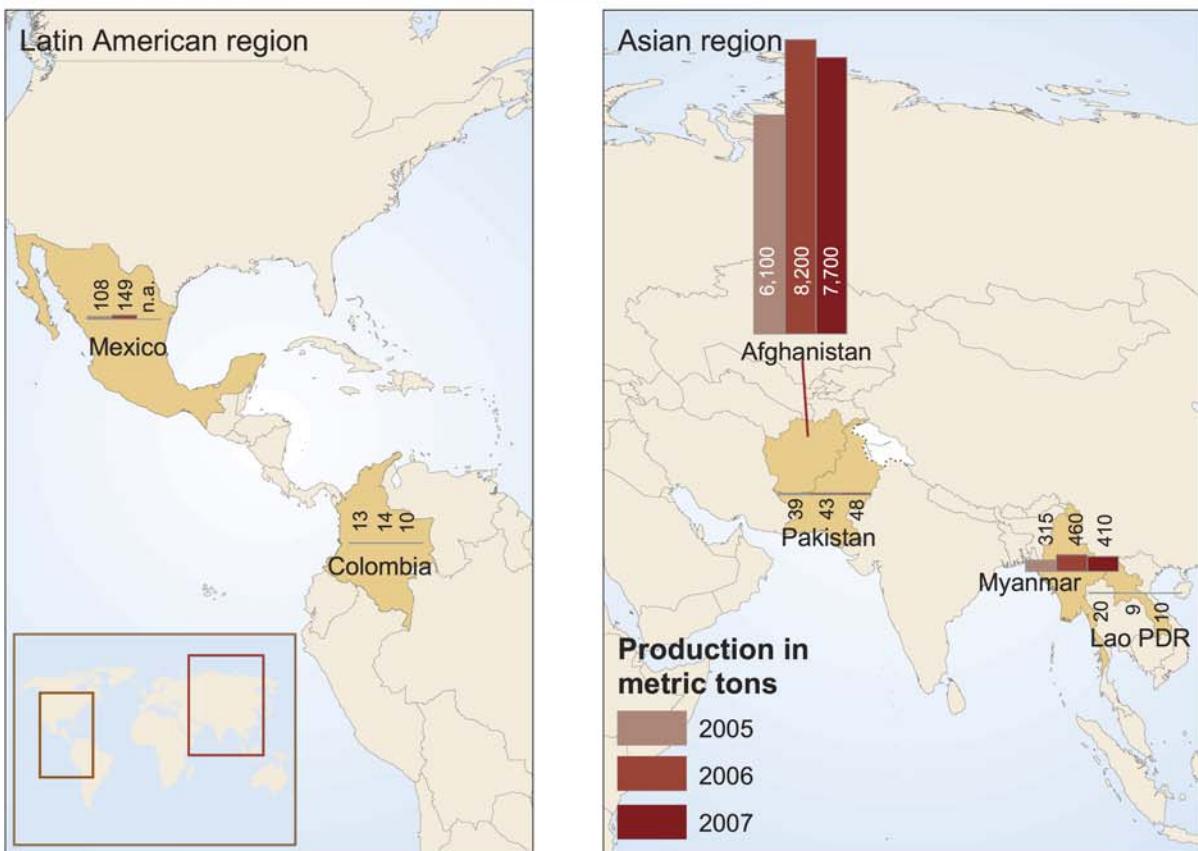
**Fig. 5: Annual opium poppy cultivation and opium production in main producing countries, 1994-2008**



**Map 1: Opium poppy cultivation, 2006-2008**



**Map 2: Opium poppy production, 2006-2008**



## Estimating opium cultivation and production



Illicit crop cultivation is often associated with insecurity, insurgency and lack of alternative livelihood options. Knowing where poppy is cultivated and how much opium and heroin can be produced is important for Governments and the international community to understand and tackle the issue.

In Afghanistan, Myanmar and the Lao People's Democratic Republic, UNODC supports the efforts of the respective Governments to estimate the annual area under opium poppy cultivation. In Afghanistan and Myanmar, this is mainly done by using high-resolution satellite images. Opium poppy plants, like other crops, reflect sunlight in a specific way. This is not because of its colourful flower, but rather, a certain shade of green, which is different from other crops. This enables an image analyst to identify poppy. Other characteristics, such as the texture, shape or size of the field, are also used.

Important information comes from surveyors on the ground who map small portions of the area covered by the image and identify which crop is grown where. The growth stages of all crops and their exact locations are

documented with photos and GPS devices. This information serves as an interpretation template for the image. If there is still uncertainty, a second image taken after the opium harvest can help. Farmers in Afghanistan, for example, plough poppy fields after the harvest, whereas they leave wheat fields for the cattle to graze on the stubble. The freshly ploughed poppy fields show clearly on the images with a darker tone.

Hundreds of satellite images are taken every year over different parts of the countries. This sample of images can be compared to a poll. If well designed, a poll enables analysts to understand the preferences of the population as a whole, although only a sample of the population is interviewed. Similarly, a sample of satellite images representing the total agricultural area in the country can be used to calculate the area under opium poppy cultivation, based on the results of the image analysis.

To be able to estimate opium production, surveyors visit fields in several hundred villages and measure the number of poppy capsules as well as their size in sample plots. Using a scientific formula, the measured poppy capsule volume indicate how much opium gum each plant can potentially yield. Thus, the opium yield per hectare can be estimated. Because of irrigation and climate, the yield can differ considerably from year to year and from region to region.

Opium yield and the total poppy cultivation area form the basis for estimating annual opium production. The bulk of the opium undergoes a transformation process to morphine and finally heroin. This is done by so-called "chemists" or "cooks" who know which precursor chemicals are necessary and in which quantities. Information on the efficiency of this transformation process comes mainly from law enforcement agencies which obtain detailed information from apprehended traffickers. With this information it is possible to estimate potential heroin production in a country.



### 1.1.3 Trafficking

#### Opiate trafficking is global, but seizures are stabilizing

In 2007, global seizures of opiates amounted to 143 mt (expressed in heroin equivalents<sup>1</sup>), about the same as in 2006 (142 mt). Compared to 1998, global opiate seizures almost doubled (93% increase).

Out of 143 countries that reported seizures to UNODC for 2007, 109 reported seizures of opiates. Trafficking in heroin is in geographical terms more widespread than trafficking in opium or morphine, as 107 countries reported seizures of heroin (75% of reporting countries), whereas 57 reported opium seizures and 36 morphine.

#### Opium seizures continue to rise in and around Afghanistan while morphine seizures decline

Although global opiate seizures remained stable between 2006 and 2007, there were significant market shifts among opium, heroin and morphine. Global opium seizures increased by 33% in 2007, in line with the rise in opium production reported in 2007 (34%). Some of the largest increases in opium seizures in 2007 were reported in and around Afghanistan (opium seizures in Tajikistan increased by 83%; Pakistan 71%; the Islamic Republic of Iran 37%; Afghanistan 28%). Most of the opium was seized in Iran (427 mt or 84% of the global total), followed by Afghanistan (52 mt) and Pakistan (6 mt).

In contrast, morphine seizures fell by 41% in 2007, mainly due to lower seizures reported by Pakistan (66% decrease) and the Islamic Republic of Iran (9% decrease). The world's largest morphine seizures continued to be reported by Pakistan (11 mt or 40% of the global total), Iran (10 mt) and Afghanistan (5 mt).

#### Heroin seizures increase, but at a lower rate than opium production

Heroin seizures rose by 14% between 2006 and 2007, which is a smaller increase than the one observed in opium production in 2007 (34%). Some of the largest increases in heroin seizures were reported by countries along the main trafficking routes from Afghanistan to Europe.<sup>2</sup>

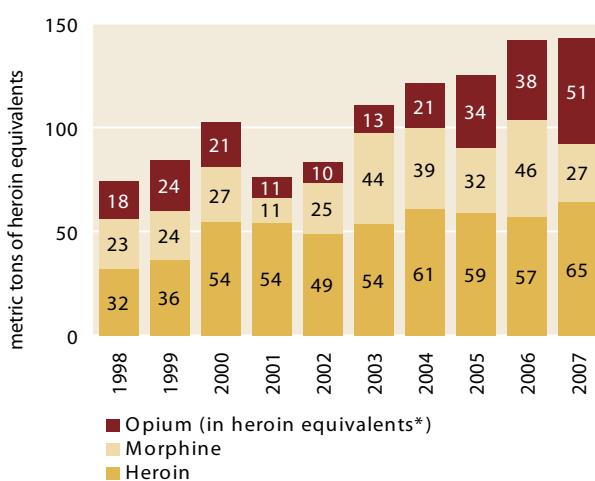
<sup>1</sup> For the purposes of this calculation it is assumed that 10 kg of opium are equivalent to 1 kg of morphine or 1 kg of heroin.

<sup>2</sup> Afghanistan (+24%), Islamic Republic of Iran (+49%), Turkey

**Fig. 6: Global opiate seizures, expressed in heroin equivalents\*, by substance, 1998-2007**

\* based on a conversion rate of 10 kilograms of opium for 1 kg of morphine or 1 kg of heroin.

Source: UNODC, Annual reports Questionnaire Data / DELTA.



The largest heroin seizures in 2007 were reported by the Islamic Republic of Iran (16 mt or 25% of the world total), Turkey (13 mt) and Afghanistan (5 mt).

#### Processing of opium into heroin appears to be less frequent

Between 2003 and 2007, combined heroin and morphine seizures remained basically stable. Combined with the data on sharp increases in opium seizures, this suggests that transformation of opium into morphine and heroin is becoming more difficult and less frequent<sup>3</sup> in Afghanistan. It also suggests that the large increases in opium production in 2006/07 did not result in large increases in morphine and heroin flows out of Afghanistan.

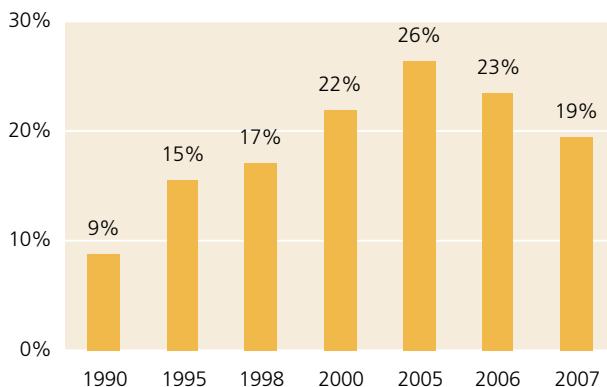


(+28%), Bulgaria (+66%), Italy (+43%), Germany (+22%), Belgium (+21%) as well as, along the Northern Route, Kyrgyzstan (65%), Turkmenistan (+62%) and the Russian Federation (+20%)

<sup>3</sup> Increases in the price of precursors in Afghanistan is an indication of the lack of supply of precursors which could make the production of heroin and morphine more difficult.

**Fig. 7: Calculated global interception rate of opiates\***

\* seizures of opiates in a given year (in heroin equivalents) shown as a proportion of global illicit opiate production (in heroin equivalents)  
Source: UNODC, 2008 World Drug Report and UNODC, ARQ data.



### The calculated global interception rate declines as more opiates are being stock-piled

The global interception rate for opiates<sup>4</sup> rose from 9% in 1990 to 26% in 2005. The rate started to decline after 2005, reaching 19% in 2007. Following the 2006 and 2007 increases in opium production which exceeded global demand, there are indications that a portion of opiates has been stockpiled. Prices continue to fall and trafficking out of Afghanistan did not grow as fast as opium production.

The falling levels of global opium production in 2008 may not translate into reduced trafficking flows in the near future as production shortfalls could be compensated by reducing the size of existing stocks.

### The bulk of seizures take place close to opium production centers

Despite of the large number of countries affected by trafficking in opiates, there are clear concentrations of trafficking flows and seizures.

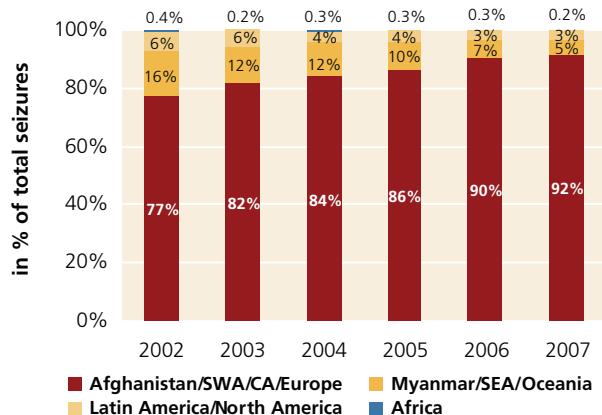
The most important subregion for opiate seizures in 2007 continued to be South-West Asia, accounting for 70% of global opiate seizures. The large seizures in this region clearly reflect the dominant position of Afghanistan as the world's largest opium producer.

Europe accounted for almost 19% of global opiate seizures. Most opiate seizures there were made in South-East Europe (11% of the total), notably by Turkey. Most of the opiates that reach Western Europe are trafficked from Afghanistan through Turkey and the Islamic Republic of Iran.

4 Interception rate is defined as the total seizures of opiates of a given year over the global illicit opiate production in the same year.

**Fig. 8: Distribution of opiate seizures (expressed in heroin equivalents\*), 2002-2007**

\* applying a conversion ratio of 10 kg of opium equivalent to 1 kg of morphine and 1 kg of heroin  
Source: UNODC, ARQ data / DELTA.



Opiate seizures made in East and South-East Asia, and Oceania, accounted for 5% of the global total in 2007.

Seizures in Africa account for only 0.2% of the world total. Traditionally, Africa has been supplied from South-West Asia (typically via Pakistan or India) and South-East Asia (typically via Thailand), though lately the opiates supply is almost exclusively from South-West Asia.

The Americas – which seem to be largely ‘self-sufficient’ in terms of opiate production and consumption – accounted for 3% of global opiate seizures. Most of the seizures in this region were made in the USA, the region’s main opiate-consuming country.

### Seizures rising in regions affected by Afghan opiates

The proportion of seizures related to Afghan opium production<sup>5</sup> increased from 77% of the world total in 2002 to 92% in 2007, reflecting the strong increases in Afghan opium production between 2002 and 2007. Opiate seizures in the countries of South-West Asia rose by 177% over the same period, and in Europe by 19%. In contrast, opiate seizures in the countries of Central Asia declined by 19%.

### Seizures declined in regions typically supplied by South-East Asian opiates

The proportion of opiate seizures in the countries mainly supplied by opiates produced in Myanmar and the Lao People’s Democratic Republic<sup>6</sup> fell from 16% of the world total in 2002 to 5% in 2007. Reported seizures from countries in East and South-East Asia declined by 43% over the 2002-07 period. Opiate seizures reported by countries in Oceania fell by 86% over this period.

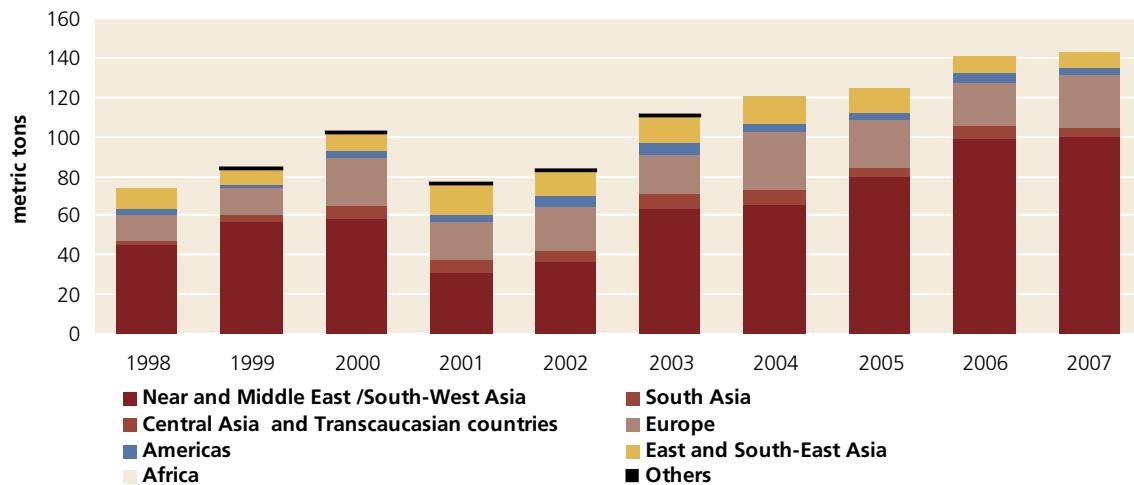
5 Seizures made by countries in South-West Asia, Central Asia, South Asia and Europe.

6 Countries in South-East Asia and Oceania.



### Fig. 9: Global opiate seizures, expressed in heroin equivalents\*, regional breakdown, 1998-2007

\* For this calculation it is assumed that 10 kg of opium are equivalent to 1 kg of morphine and 1 kg of heroin.  
Source: UNODC, ARQ data / DELTA



#### Seizures declined in North America, but they are increasing again

The proportion of opiate seizures made in the Americas fell from 6% of the world total in 2002 to 3% in 2007. This mainly reflected falling opiate seizures in South America (-52% over the 2002-07 period), which is in line with reports of falling levels of opium production in Colombia. Opiate seizures reported from North America started rising again in 2007, after a downward trend in 2006 in Mexico and the USA.

The vast majority of opiates found in the USA (96%) originate in Mexico and Colombia.

#### Trafficking in opiates continues to be concentrated along three major routes ...

Three distinct production centres for opiates still supply three distinct markets. The main trafficking flows continue to be:

- from Afghanistan to neighbouring countries, the Middle East, Africa and Europe;
- from Myanmar/Laos to neighbouring countries of South-East Asia, (notably China) and to the Oceania region (mainly Australia);
- from Latin America (Mexico, Colombia, Guatemala and Peru) to North America (notably USA)

#### ...although alternative routes are emerging from South-West Asia to South-East Asia and the Oceania region

A number of reports show that trafficking activities have started to diversify from established market connections. Though the bulk of opiates found on the Chinese market

is still from Myanmar, there have been reports of shipments of heroin from Afghanistan via Pakistan to China.<sup>7</sup> The heroin is being shipped either directly (mainly by air) from Pakistan to various Chinese destinations as well as indirectly, via Dubai (United Arab Emirates).<sup>8</sup> The amounts involved are still modest, but may represent emerging trafficking patterns.<sup>9</sup>

In 2007, Pakistan reported an additional new route to Malaysia, both direct and via Dubai. Until recently, heroin in Malaysia originated exclusively in Myanmar. This new route shows that Afghan opiates may now reach other destinations since Malaysia has been mentioned among the key embarkation points for heroin shipments into Australia.<sup>10</sup>

#### ... and from South-West Asia to North America

New trafficking routes from South-West Asia to North America are emerging. Canada reported that 98% of the heroin found on their market in 2007 originated in South-West Asia. The heroin was mainly trafficked by air via India and Pakistan into Canada.<sup>11</sup> Organized crime groups in Ontario and British Columbia are involved in heroin imports.<sup>12</sup>

<sup>7</sup> UNODC, ARQ data for 2007

<sup>8</sup> UNODC, ARQ data for 2007.

<sup>9</sup> Data collected on individual drug seizures show from 2004 to 2006 a marked upward trend of heroin seizures made in Pakistan with final destinations in China. This upward trend did not continue in 2007 and in 2008.

<sup>10</sup> Australian Crime Commission, *Illicit Drug Data Report 2006-07*, revised edition, Canberra, March 2009.

<sup>11</sup> UNODC, ARQ data for 2007.

<sup>12</sup> Criminal Intelligence Service Canada (CISC), *Report on Organized Crime*, Ottawa, Ontario 2008.

### Most heroin continues to be trafficked in the countries surrounding Afghanistan and along the Balkan route towards Western Europe

The bulk of all opiates produced in Afghanistan is destined for consumption in the neighbouring Islamic Republic of Iran, Pakistan, Central Asian countries and, to a lesser extent, India. These markets are, in fact, larger (about 5 million users) than the opiate market in West and Central Europe (about 1.4 million). The opiate markets in Western Europe are, however, financially more lucrative. Therefore, opiates also leave Afghanistan via Iran and Pakistan along the Balkan route towards Western Europe.

UNODC estimates for 2008 suggest that most of the opium exports from Afghanistan cross the border in the Islamic Republic of Iran (83%; range: 71%-96%). Morphine and heroin exports go to Pakistan (41%; range: 28%-51%) and Iran (39%; range: 32% - 44%) and to a lesser extent, to Central Asia (19%; range: 8%-25%)<sup>13</sup>.

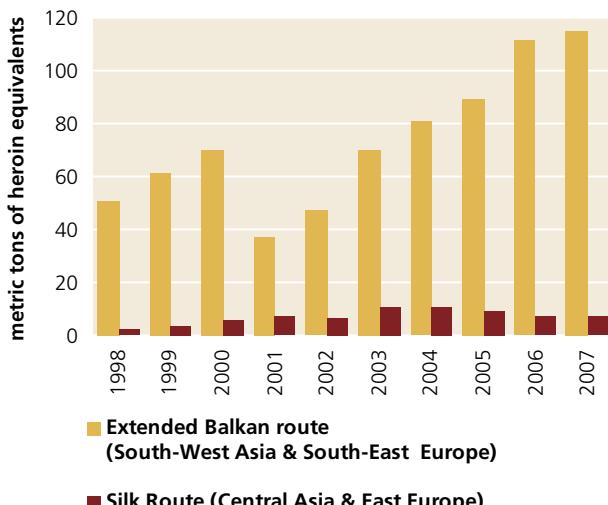
Opiate seizures continued to increase along the extended Balkan route in 2007, accounting for 94% of all seizures of Afghan opiates. Seizures along the other route, the Silk route (or North route) have continued to decline, reaching 9% in 2007.

Afghan opiates enter the Islamic Republic of Iran either directly from Afghanistan or via Pakistan.

The frequency of Turkey being mentioned by other European countries as a 'country of origin' for the heroin found on their markets has declined in recent years,

**Fig. 10: Opiate\* seizures along the Balkan Route and along the Silk Route, 1998-2007**

\* For this calculation it is assumed that 10 kg of opium are equivalent to 1 kg of morphine and 1 kg of heroin.  
Source: UNODC, Annual Reports Questionnaire Data / DELTA.



13 UNODC, *Afghanistan Opium Survey 2008*, October 2008.

reflecting decreasing heroin manufacturing levels in Turkey. Nonetheless, Turkey remains the key transit country for heroin produced in South-West Asia and consumed in Europe, in spite of alternative trafficking routes emerging in recent years. According to Turkish authorities, 80% of the heroin illegally imported into Turkey was from Afghanistan; the remaining 20% is believed to have originated in Iran.

Once in Turkey, heroin is smuggled from eastern Turkey to Istanbul towards Bulgaria for subsequent transport to Serbia and Romania for shipments to various countries in Western Europe. Heroin and morphine seizures made by the Bulgarian authorities rose by 66% in 2007. According to Bulgarian authorities, most of the heroin seized in 2007 was destined for Croatia and Germany. According to information from the Romanian authorities major destination countries were the Netherlands and the United Kingdom.<sup>14</sup>

Another transit country for heroin leaving Bulgaria is the Former Yugoslav Republic of Macedonia. From there, heroin is either sent to Serbia for subsequent deliveries along the Balkan route (Bosnia-Herzegovina, Croatia, Slovenia) and Western Europe, or to Albania for subsequent shipment to Italy. In Italy, heroin coming from Albania and Turkey is destined for the domestic market (45%) and for re-export, mainly to Germany (35%).<sup>15</sup>

Most of the heroin shipments to Germany still arrive via the Balkan countries and Austria. The main destination of heroin seized in Germany is the Netherlands (78% in 2007). Once in the Netherlands the heroin is typically re-exported to the United Kingdom, France, Germany and other EU countries. Most of the heroin seized in France in 2007 had transited Turkey and the Netherlands and was on the way to the UK (50%) or to Spain (15%); about a quarter was for domestic consumption.<sup>16</sup>

There have been reports that heroin intended for Western Europe was also trafficked through Ukraine via Turkey and the Islamic Republic of Iran, with main destinations being the UK, Poland and Germany.<sup>17</sup>

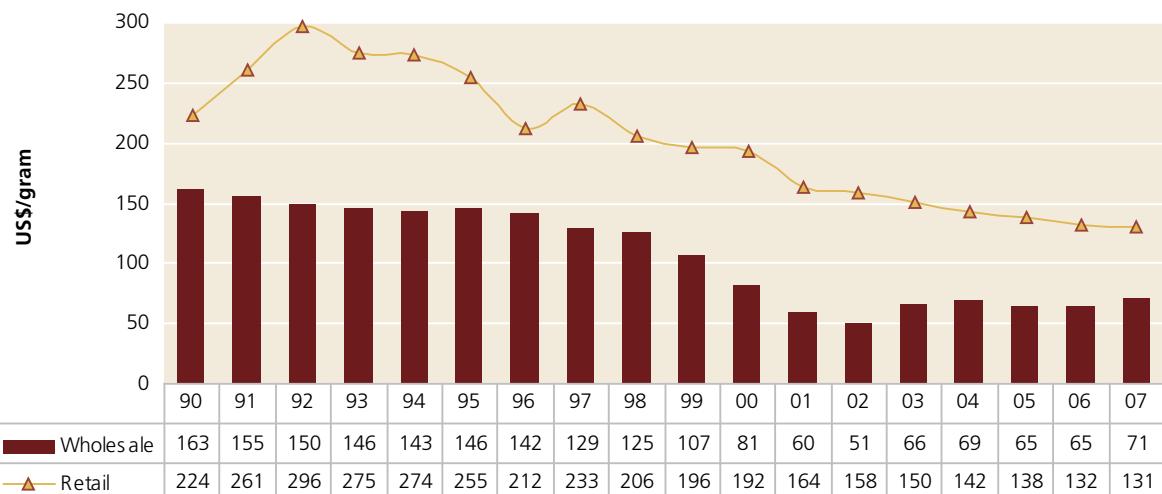
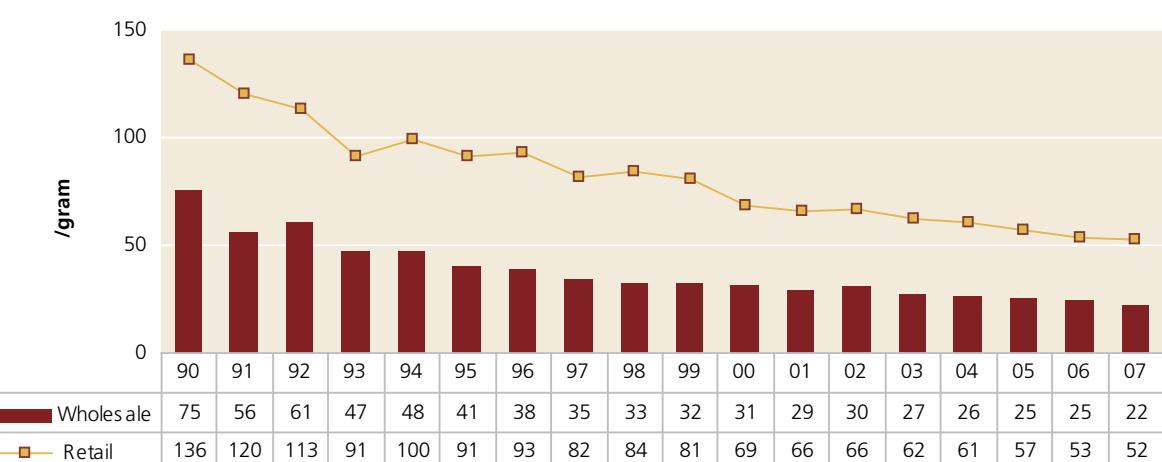
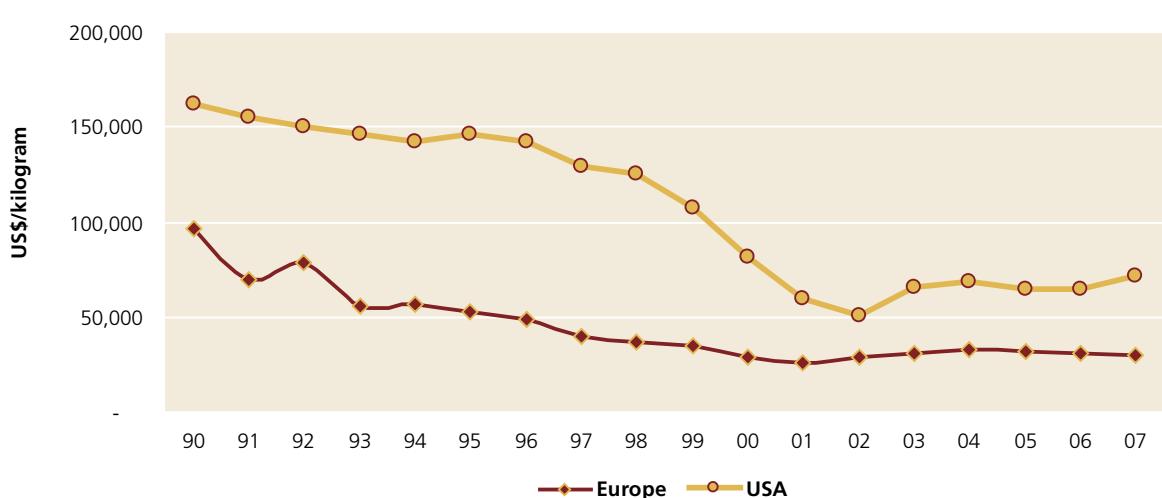
A number of more direct routes from South-West Asia to Europe also exist, mainly via Pakistan as well as via the Middle East, Eastern and Western Africa.

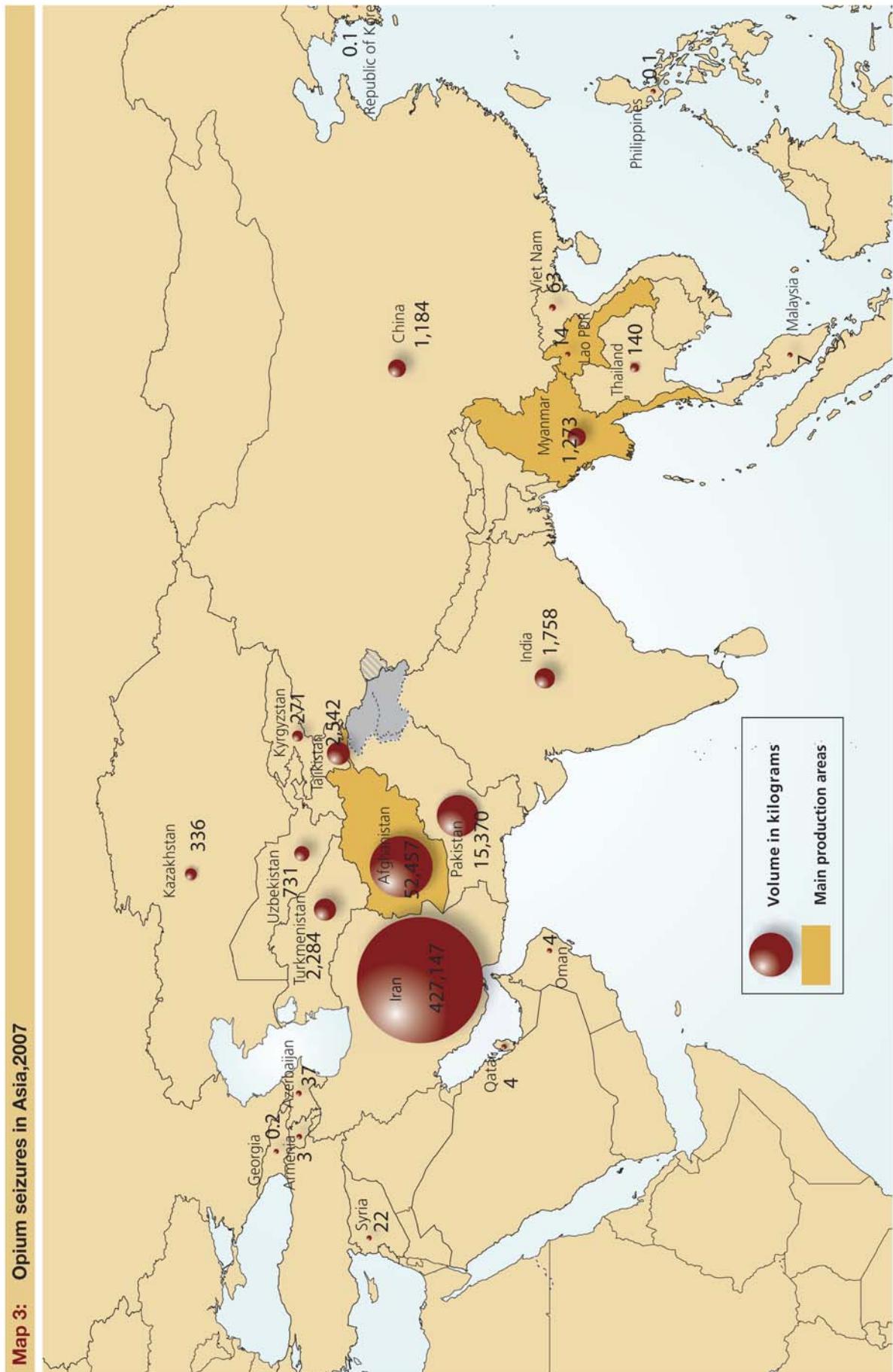
14 UNODC, Annual Reports Questionnaire Data for 2007.

15 UNODC, Annual Reports Questionnaire Data for 2007.

16 UNODC, Annual Reports Questionnaire Data for 2007.

17 The Ukraine reported that 45% of heroin seized came via Turkey and 32% via the Islamic Republic of Iran and that 46% were intended for the UK, 31% for Poland and 23% for Germany. Source: UNODC, Annual Reports Questionnaire Data for 2007.

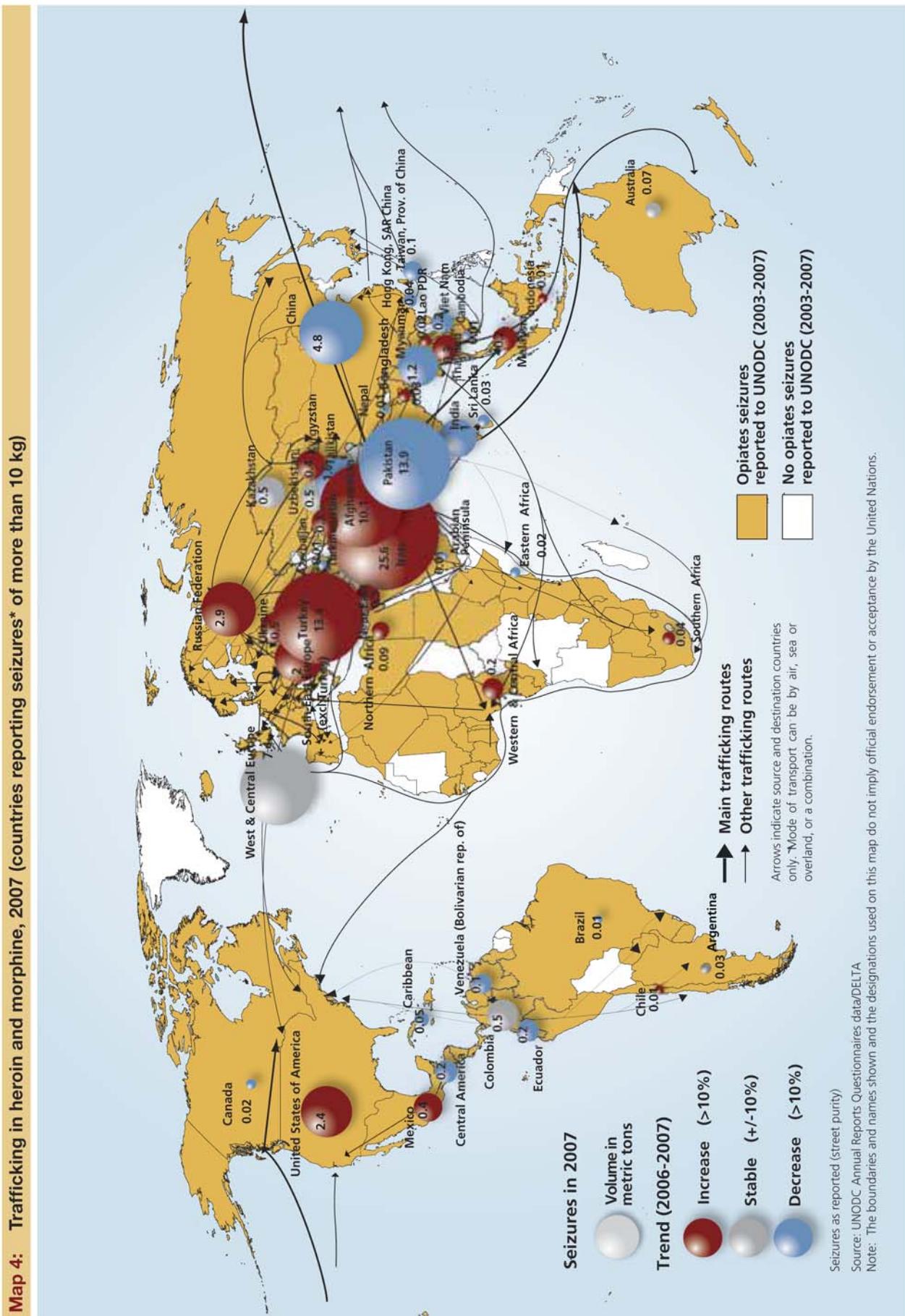
**Fig. 11: USA: Heroin retail and wholesale prices, 1990-2007, US\$/gram****Fig. 12: WESTERN EUROPE: Heroin retail and wholesale prices, 1990-2007, €/gram****Fig. 13: Wholesale heroin prices in Western Europe and the USA, 1990-2007 (US\$/gram)**

**Map 3:** Opium seizures in Asia, 2007

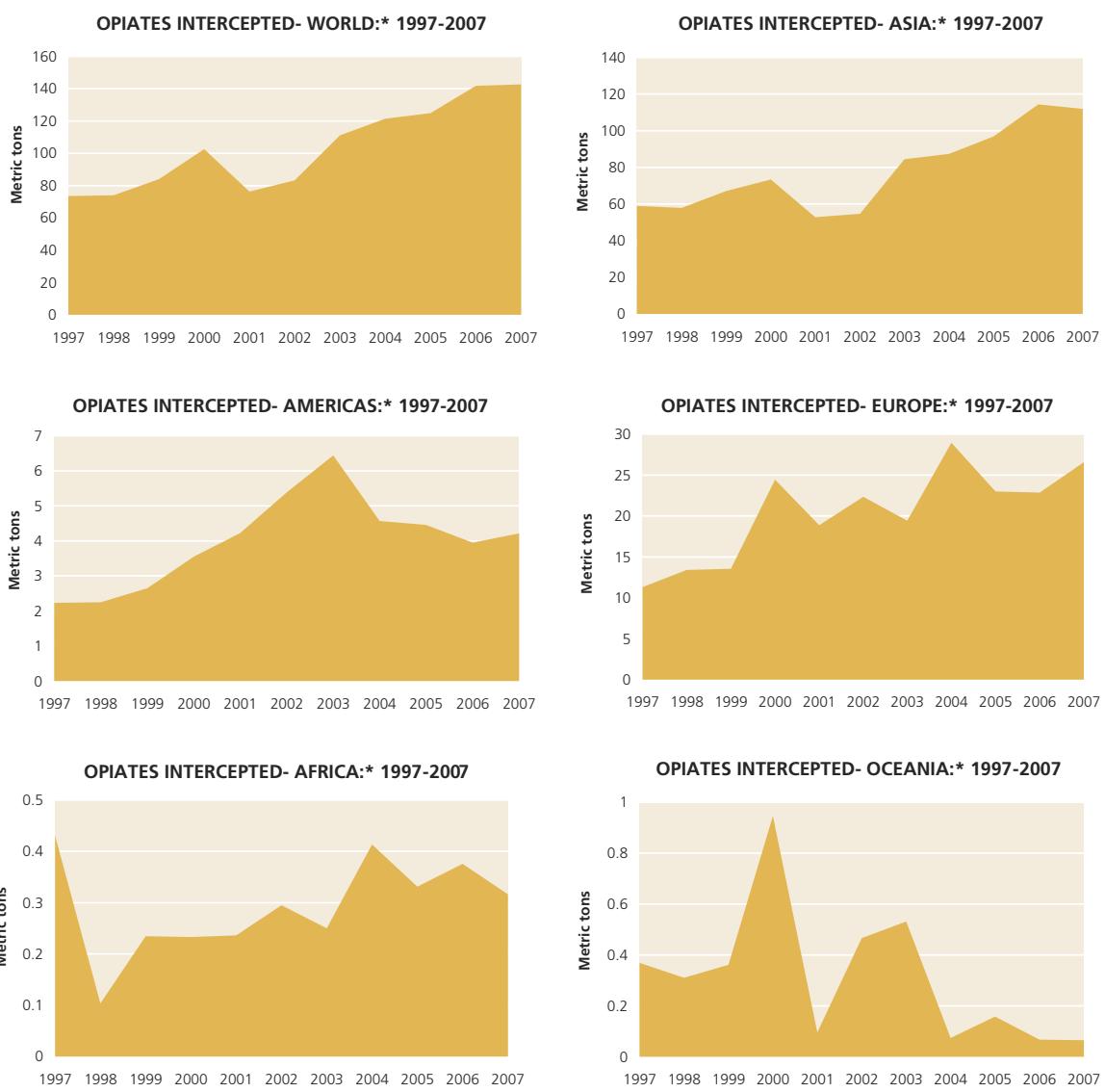
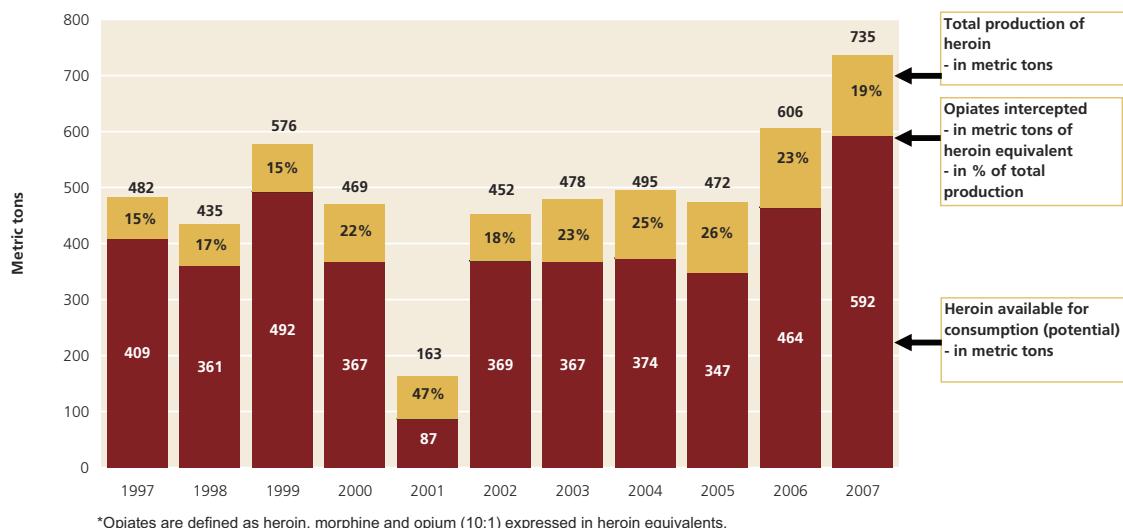
Source: UNODC Annual Reports Questionnaires data/DELTAA.  
Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.



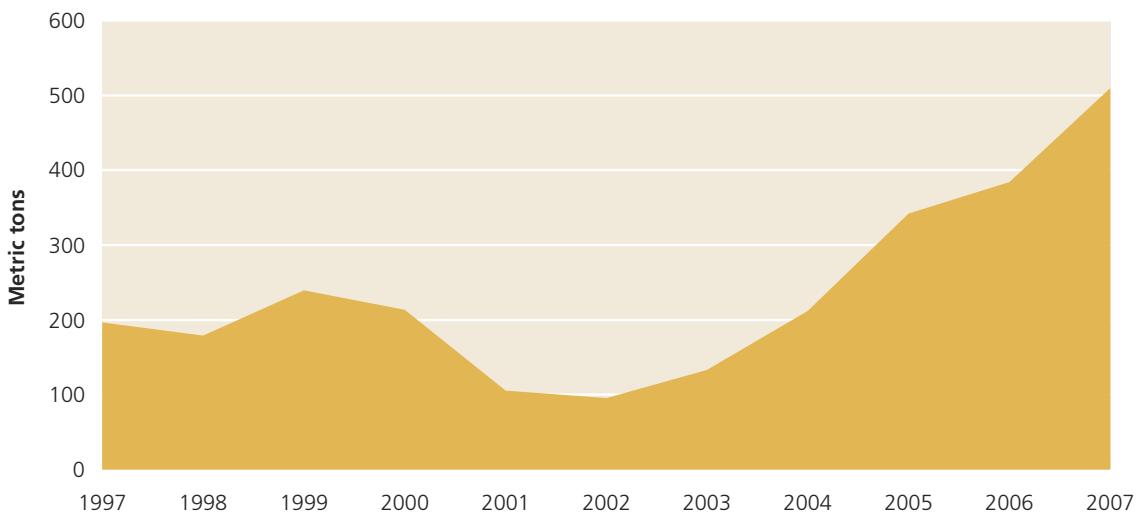
**Map 4: Trafficking in heroin and morphine, 2007 (countries reporting seizures\* of more than 10 kg)**



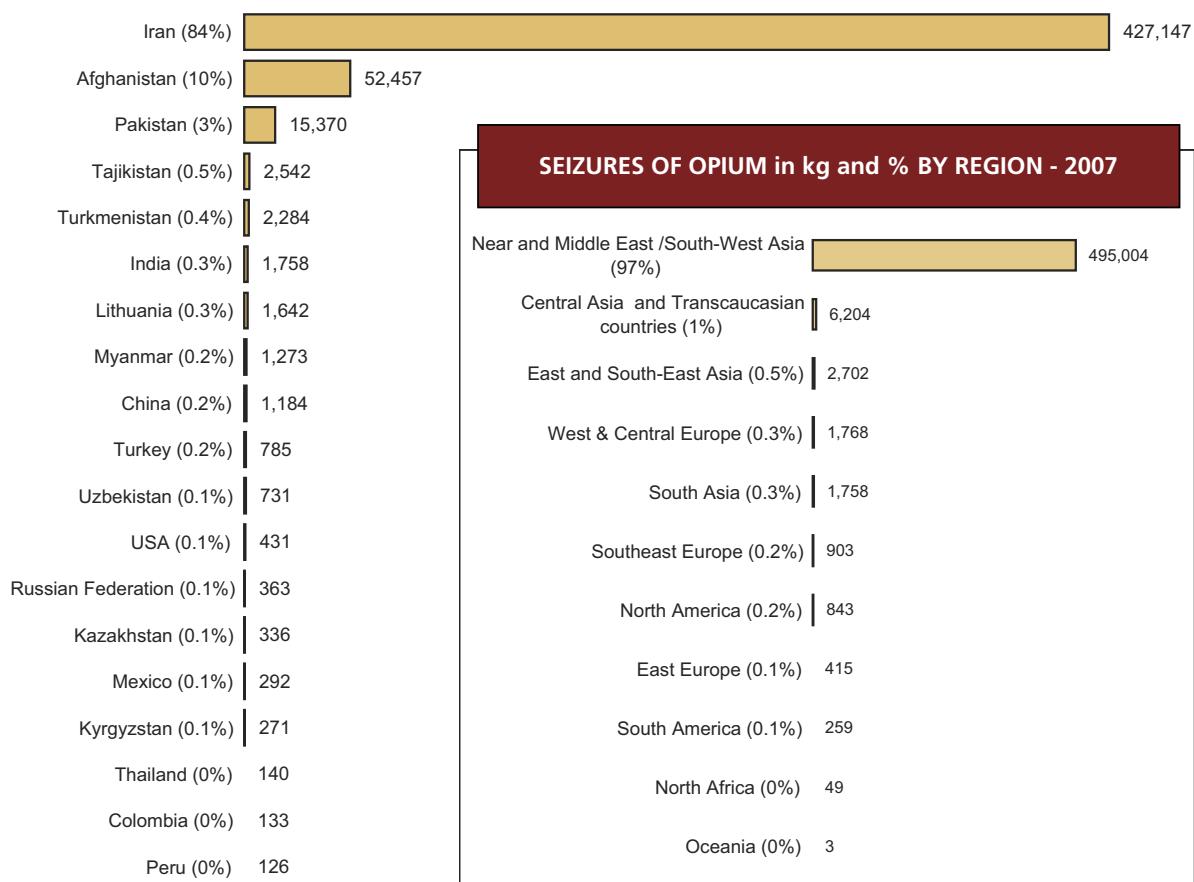
**Fig. 14: Global illicit supply of opiates, 1997-2007**

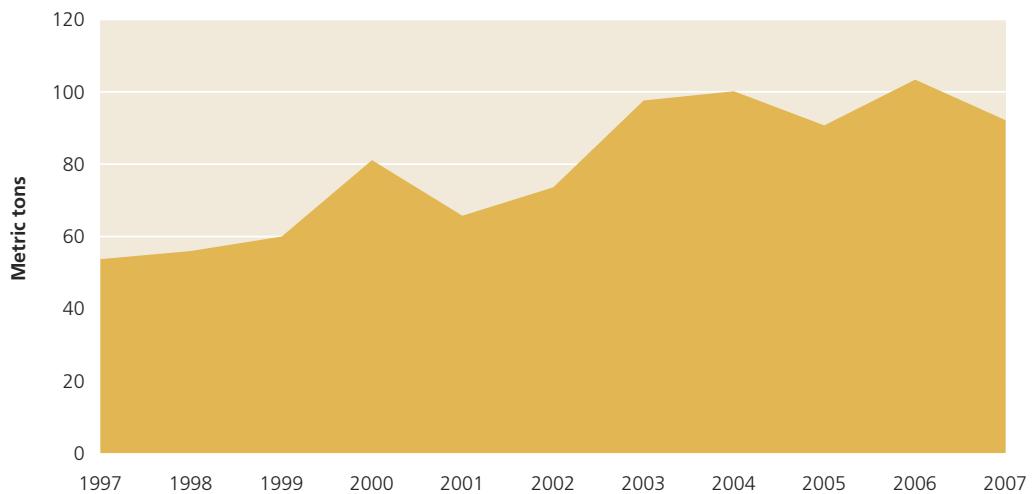


\*Opiates are defined as heroin, morphine and opium (10:1) expressed in heroin equivalents.

**Fig. 15: Global seizures of opium, 1997-2007**

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Metric Tons	196	179	239	213	106	96	133	212	342	384	510

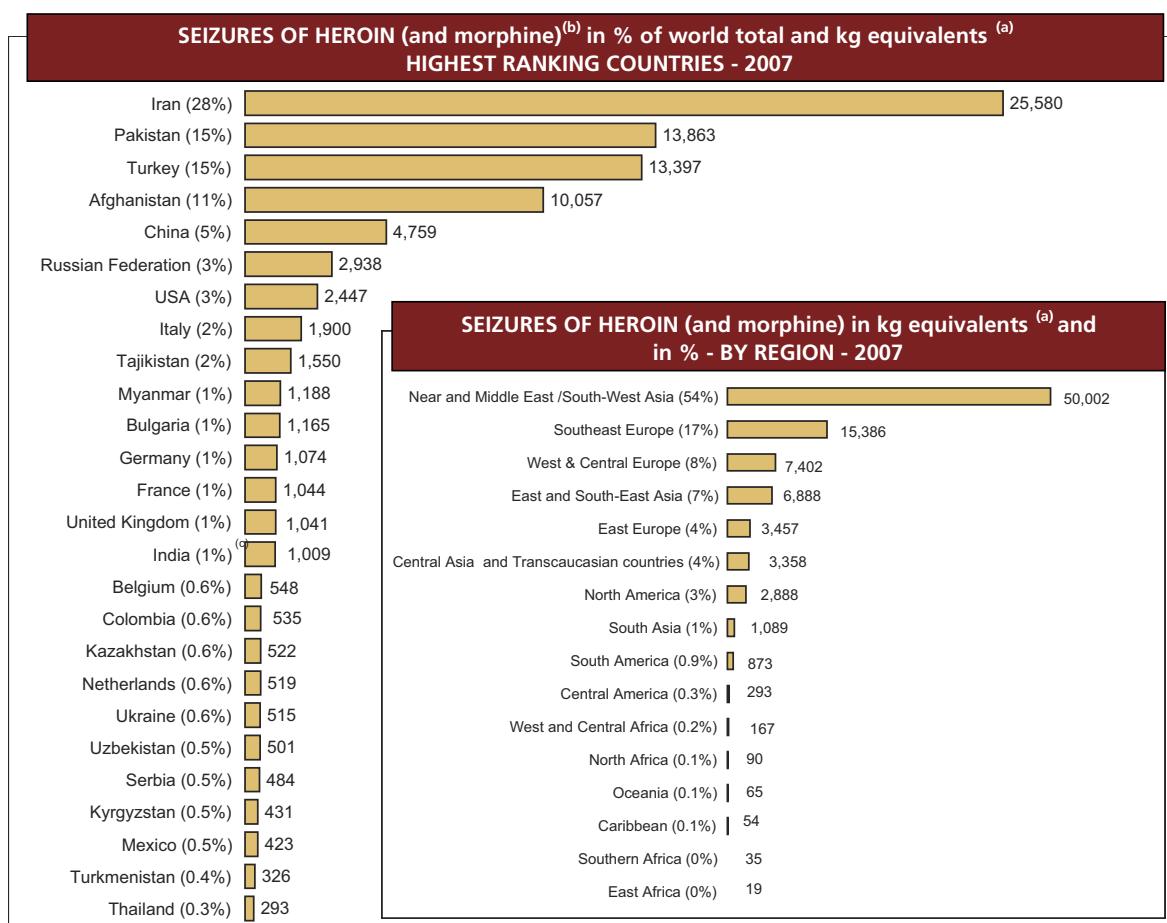
**SEIZURES OF OPIUM in % of world total and kg- HIGHEST RANKING COUNTRIES - 2007**

**Fig. 16: Global seizures of heroin(a) and morphine(b), 1997-2007**

(a) Seizures as reported (street purity).

(b) 1 kg of morphine is assumed to be equivalent to 1 kg of heroin.

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Metric Tons	54	56	60	81	66	74	98	100	91	103	92



(a) Seizures as reported (street purity)

(b) 1 kg of morphine is assumed to be equivalent to 1 kg of heroin.

(c) Data refer to England and Wales only.



## Interpretation of seizure data

The quantity of illicit drugs seized in a given year may be influenced by two main factors, namely the available supply of the drug in the illicit market and the effectiveness of interdiction efforts by law enforcement agencies.

To measure supply, it is useful to have other indicators than seizure quantities. If these are obtained independently, they can help to interpret the market of illicit drugs and the relationship between supply and seizures.

Price and purity are among the key factors that can help to better interpret trends in seizures. Trends in prices measure the changes in the market and can be a sign of changes in supply. For example, an increasing trend of seizures together with a decreasing trend in prices suggest a real increase in supply. An increasing trend in seizures with increasing price levels suggests an improvement in law enforcement activities. Information on purity is also important to interpret data on seizures. Very often the market reacts to a decrease of supply by diminishing the pure content of the drug. Increases or decreases of seizures in terms of weight or unit may not be sufficient to measure actual changes occurring in the market.

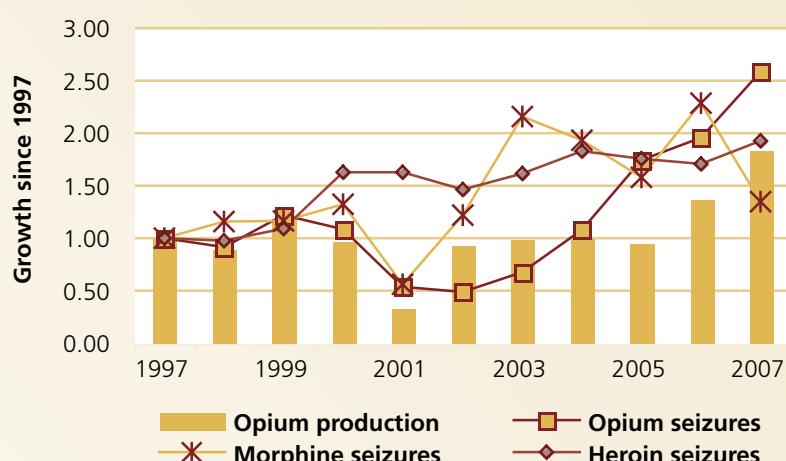
In many countries, only seizure data are available to estimate a trend in the availability of illicit drugs. How much seizure trends can help to understand the availability of drugs is illustrated in the following example, where trends in opium seizures and production (as a proxy of supply) are compared at the global level. Interpreting seizure data on short-term changes or in one single country could be meaningless. Looking at long-term changes on a global scale provides a more accurate picture.

In the figure, the growth of opium production is presented together with growth of global seizures of opium, heroin and morphine. If it is assumed that both seizures and opium production are indicators of the supply of opiates, it is expected that seizures and production follow the same pattern. Indeed it can be noted that seizures of opium and morphine follow the same trend as production, but this is not true for heroin. Heroin seizures do not show the same drastic decline that affected production in 2001. The sustained high levels of heroin seizures

in 2001, despite the decrease of production, may partly be attributed to intensified law enforcement efforts (notably in China and Tajikistan<sup>1</sup>). Stock-piling could also be a factor that can explain this trend. Opium production may also not be a good indicator of supply. In fact, heroin seizures may arguably be a better indicator of heroin supply than opium production, especially for a consumer market that is removed from the production basin around Afghanistan, such as West and Central Europe.

Supply and law enforcement activities can not be separated, and assuming trends in supply solely on the basis of data on seizures can sometimes be misleading. This can also be seen by looking at the growth of opium seizures between 2005-2007. Although the trend is similar to opium production, the more rapid increase of seizures compared to production measures not only an increase in supply but most probably also an increased level of law enforcement activities.

**Growth of opium production and opiate seizures, relative to 1997**



Note: All quantities are expressed relative to 1997. Thus, for example, a value of 2.5 indicates that the quantity grew 2.5 times since 1997.

It is easy to compare levels and changes of seizures and production to understand how much information seizures can give on the increase or decrease of supply. However, this kind of analysis is not always possible, and in many situations, seizure totals are the best available indicators of supply. When information on seizures is supplemented with information on price, purity and consumption, more accurate conclusions can be made about the supply of illicit drugs. When only seizure data are used, there is a risk of overestimating or underestimating real changes in supply.



<sup>1</sup> UNODC, Global Illicit Drug Trends 2003.

### 1.1.4 Consumption

In 2007 UNODC estimates that the total number of opiates users at the global level is between 15.2-21.1 million people. More than half of the world's opiates-using population are thought to live in Asia. The highest levels of use (in terms of the proportion of the population aged 15-64 years) are found along the main drug trafficking routes out of Afghanistan.

This year, significant revisions were made to the approach taken in making global and regional estimates of the number of people who use drugs. The new estimates reflect the uncertainties surrounding these data (which exist due to data gaps and quality) and are presented in ranges rather than absolute numbers. Because of this revision, previous point estimates are not comparable to the current ones.

**Table 3: Estimated number of people who used opiates at least once in the past year and proportion of population aged 15-64, by region, 2007**

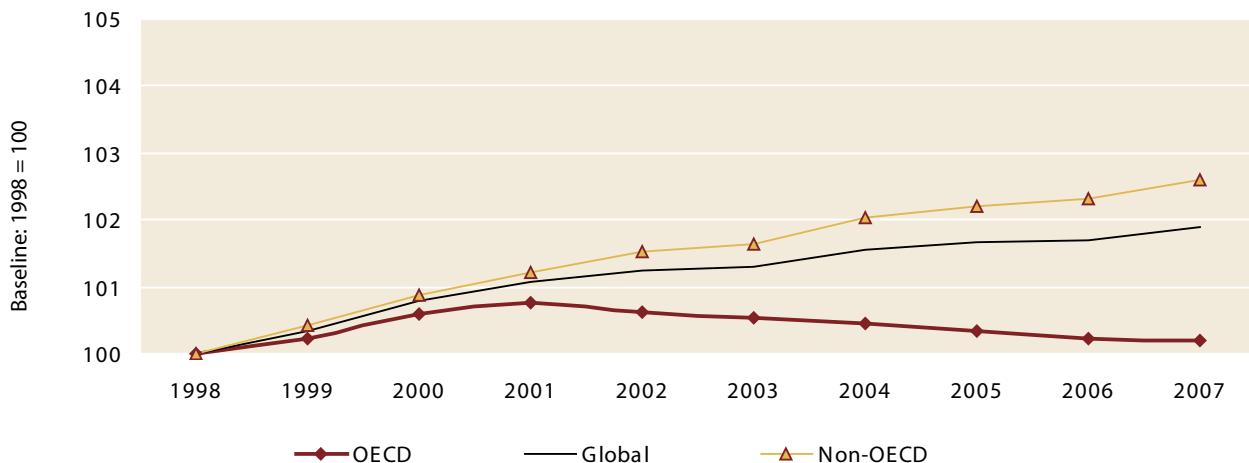
Note: 2007 estimates cannot be compared to previous UNODC estimates  
Source: UNODC

Region/subregion	Estimated number of users (lower)	Estimated number of users (upper)	Percent of population aged 15-64 (lower)	Percent of population aged 15-64 (upper)
Africa	1,000,000	2,780,000	0.2	0.5
North Africa	120,000	490,000	0.3	0.4
West and Central Africa	550,000	650,000	0.3	0.4
Eastern Africa	100,000	1,330,000	0.1	1.0
Southern Africa	230,000	310,000	0.2	0.3
Americas	2,190,000	2,320,000	0.4	0.4
North America	1,310,000	1,360,000	0.4	0.5
Central America	20,000	30,000	0.1	0.1
The Caribbean	60,000	90,000	0.2	0.3
South America	800,000	840,000	0.3	0.3
Asia	8,440,000	11,890,000	0.3	0.5
East/South-East Asia	2,800,000	4,970,000	0.2	0.3
South Asia	3,620,000	3,660,000	0.4	0.4
Central Asia	340,000	340,000	0.7	0.7
Near and Middle East	1,680,000	2,910,000	0.7	1.2
Europe	3,440,000	4,050,000	0.6	0.7
Western/Central Europe	1,230,000	1,520,000	0.5	0.6
East/South-East Europe	2,210,000	2,535,000	0.8	0.9
Oceania	90,000	90,000	0.4	0.4
<b>Global</b>	<b>15,160,000</b>	<b>21,130,000</b>	<b>0.3</b>	<b>0.5</b>



**Fig. 17: Opiate use trends as perceived by experts of developed (OECD) and developing (non-OECD) countries, 1998-2007 (baseline: 1998 = 100)**

Sources: UNODC, Annual Reports Questionnaire Data, UNODC Field Offices, UNODC's Drug Use Information Network for Asia and the Pacific (DAINAP).



### Opiate consumption may be falling in East and South-East Asia

In East and South-East Asia, it was estimated that 2.8-5.0 million persons aged 15-64 years used opiates in the past year. Use in China has been estimated at around 0.19-0.31% (1.8 to 2.9 million persons).<sup>1</sup> Higher levels have been reported in opium cultivation areas, including 1.1% in the Shan State and Kachin (Myanmar).<sup>2</sup>

Most countries of East and South-East Asia reported recent declines in opiate use, reflecting declining opium production in Myanmar and the Lao People's Democratic Republic. Heroin was still reported as the main problem drug in China (Hong Kong and Macao only), Indonesia, Malaysia and Myanmar, although reports suggested that heroin use may also be declining there. Opium use in northern Lao PDR is estimated to have declined from 0.6% (2006) to 0.4% (2008)<sup>3</sup>. In both Lao PDR and Myanmar, opium producing villages have much higher consumption than non-opium producing villages.

### Opiates remain a prominent issue in Central and South West Asia

Opiate use remains the most prominent illicit drug problem in this region. Population surveys suggested that 1.4% used opiates in the past year in Afghanistan (in 2005), and 2.8% in the Islamic Republic of Iran (has an estimated 0.7 to 1.6 million so-called "drug addicts").<sup>4</sup> In Pakistan, injecting drug use is reportedly increasing;<sup>5</sup> one study estimated 630,000 opiate users in Pakistan, equivalent to 0.7% of those aged 15-64, around 77% of whom were heroin users.<sup>6</sup>

In the Central Asia<sup>7</sup> and the Caucasus subregion, opiate use is also thought to be above estimated global average levels, particularly in Kazakhstan (1%),<sup>8</sup> Kyrgyzstan (0.8%)<sup>9</sup> and Uzbekistan (0.8%).<sup>10</sup> Estimates for Tajikistan are slightly lower (0.5%). The HIV epidemic continues among primarily opiate-injecting drug users in the



- 4 Drug Control Headquarters of the Islamic Republic of Iran, Policies, Achievements, Ongoing Programs and Future Plans, Tehran 2007.
- 5 UNODC, Global Assessment Programme on Drug Use, Ministry of Narcotics Control of the Government of Pakistan, Anti-Narcotics Force of the Government of Pakistan. Problem Drug Use in Pakistan, Results from the year 2006 National Assessment. Tashkent, 2007.
- 6 UNODC and the Paris Pact Initiative, Illicit Drug Trends in Pakistan, April 2008. UNODC, Global Assessment Programme on Drug Use, Ministry of Narcotics Control of the Government of Pakistan, Anti-Narcotics Force of the Government of Pakistan. Problem Drug Use in Pakistan, Results from the year 2006 National Assessment. Tashkent, 2007.
- 7 UNODC, HIV/AIDS and injecting drug use in Central Asia: From evidence to action, 2007.
- 8 Ibid.
- 9 UNODC, HIV/AIDS and Injecting Drug Use in Central Asia: from Evidence to Action, Kyrgyzstan Country Report 2007
- 10 UNODC, HIV/AIDS and Injecting Drug Use in Central Asia: from Evidence to Action, Uzbekistan Country Report 2007.

1 Estimate derived from Lu F, Wang N, Wu Z, Sun X, Rehnstrom J, Poundstone K, et al. "Estimating the number of people at risk for and living with HIV in China in 2005: methods and results; Sex Transmitted Infections, June 2006, Vol. 82 Suppl 3, pp. iii 87-91, reported in: Mathers B, Degenhardt L, Phillips B, Wiessing L, Hickman M, Strathdee S, et al. Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review. The Lancet 2008;372:1733-1745.

2 2008 UNODC Opium and Poppy Cultivation Report, South-East Asia. (December 2008)

3 Ibid.

**Table 4: Expert perception of changing opiate use, by region, 2007**

Sources: UNODC, Annual Reports Questionnaire data.\* Identifies increases/ decreases ranging from either some to strong, unweighted by population.

Region	Member States responding	Use problem increased*	Percent use problem increased	Use problem stable	Percent use problem stable	Use problem decreased*	Percent use problem decreased
Africa	17	9	53%	6	35%	2	12%
Americas	12	7	58%	3	25%	2	17%
Asia	27	14	52%	4	15%	9	33%
Europe	31	8	26%	15	48%	8	26%
Oceania	0	0		0		0	
<b>Global</b>	<b>87</b>	<b>38</b>	<b>44%</b>	<b>28</b>	<b>32%</b>	<b>21</b>	<b>24%</b>

region, particularly marked across Uzbekistan,<sup>11</sup> Tajikistan<sup>12</sup> and Kyrgyzstan.<sup>13</sup> This is thought to be driven by the countries' proximity to major trafficking routes out of Afghanistan.

### South Asia

India holds the largest opiate-using population in the subregion, estimated at around 3.2 million persons (estimated from a study conducted in the year 2000). There are few data on the size of opiate-using populations in this region; the most recent population survey - of Indian men - was conducted in 2000.

Some information on drug use has been obtained from samples of illicit drug users in countries across this region. These studies have suggested that heroin use is common among illicit drug users in Bangladesh<sup>14</sup> and India,<sup>15</sup> and buprenorphine injection<sup>16</sup> has been identified as a significant issue among Indian and Bangladeshi drug users. In Sri Lanka, in contrast, heroin smoking is more common – injection appears to rarely occur.

11 UNODC, HIV/AIDS and Injecting Drug Use in Central Asia: from Evidence to Action, Uzbekistan Country Report 2007.

12 UNODC, HIV/AIDS and Injecting Drug Use in Central Asia: from Evidence to Action, Tajikistan Country Report 2007

13 UNODC, HIV/AIDS and Injecting Drug Use in Central Asia: from Evidence to Action, Kyrgyzstan Country Report 2007

14 UNODC Regional Office for South Asia. (2008). Rapid Situation and Response Assessment of Drugs and HIV in Bangladesh, Bhutan, India, Nepal and Sri Lanka: A Regional Report.

15 Degenhardt L, Larance B, Mathers B, Azim T, Kamarulzaman A, Mattick RP, on behalf of the Reference Group to the United Nations on HIV and injecting drug use. Benefits and risks of pharmaceutical opiates: Essential treatment and diverted medication. A global review of availability, extra-medical use, injection and the association with HIV. Sydney: University of New South Wales, 2008.

16 It is important to note that large scale diversion of buprenorphine is at the factory/warehouse level (rather than diversion from patients or medical practitioners).

### Near and Middle East: heroin use may be increasing but data are limited

In countries with available data in this region, heroin use is reported to have increased, with decreasing age of onset and increasing demand for treatment. Many countries, however, still lack essential capacity to collect and analyse data on drug use and drug treatment demand. There is a need to improve data in this region.

### Europe holds the second largest population of opiate users; trends differ between western and eastern countries

Europe has an estimated 3.4-4.0 million opiate users (around 0.6-0.7% of the population aged 15-64): between 1.23-1.52 million estimated consumers in West and Central Europe, and between 2.21-2.53 million consumers (0.8-0.9%) in Eastern and South Eastern Europe. This region is the world's second largest opiate market in terms of quantities consumed, and the largest in economic terms.

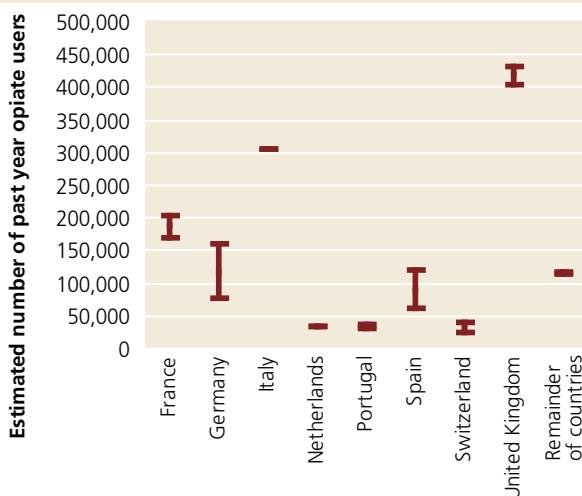
The major populations of users in Western Europe are estimated to be in the United Kingdom (between 404-434,000 persons), Italy (305,000), France (171-205,000), Germany (76-161,000) and Spain (61-121,000).<sup>17</sup> According to expert perceptions, use of opiates remained stable or declined in this subregion. Data from the past decade similarly suggest stable levels of use, although some countries have reported increases in fatal overdoses and in first treatment entrants with heroin as the primary drug problem in recent years.

17 All of these estimates have been derived from estimates of the number of problem drug users because household surveys are not considered to provide good estimates on the number of heroin and other opiate users.



**Fig. 18: Distribution of opiate users in the past year among Western European countries**

Source: UNODC



The Russian Federation has the largest opiate-using population in Eastern Europe. Although estimates of the number vary substantially<sup>18</sup>, some estimate there are 1.68 million opiate users in the country (1.6% of the population aged 15-64).<sup>19</sup> The second largest opiate using population in Eastern Europe is the Ukraine with between 323-423,000 opiate users (1-1.3%).

In 2008, perceived increases in opiate use were noted in Albania, Belarus, Croatia, and the Republic of Moldova. Specialised studies have estimated that injecting drug use is prevalent in many eastern European countries, and HIV is common among people who inject drugs.<sup>20</sup> This is particularly the case in the Russian Federation, the Ukraine, and Belarus, and there are reasons to be concerned about increasing problems in many other countries in the region where injecting is also occurring.<sup>21</sup>

18 This also reflects major differences on the estimates of total drug use in the Russian Federation. A review of estimates of the total number of drug users in the Russian Federation showed a range from 1.5 million to 6 million people (UNODC, *Illicit Drug Trends in the Russian Federation*, 2005. UNODC and the Paris Pact Initiative, *Illicit Drug Trends in the Russian Federation*, April 2008.)

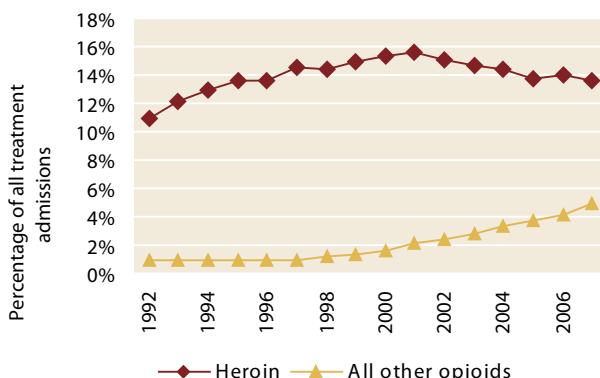
19 The new estimate is based on registered drug users and a new treatment multiplier. 350,267 drug dependent patients were registered in 2006. Of these, 89% were opiate users (UNODC and the Paris Pact Initiative, *Illicit Drug Trends in the Russian Federation*, April 2008). The new national-level treatment multiplier is 5.3 (United Nations Office on Drugs and Crime, National Addiction Centre of the Russian Federation, *Dynamics of Drug-Related Disorders in the Russian Federation*, 2007).

20 UNODC, Global Assessment Programme on Drug Use (GAP), National Addiction Centre of the Russian Federation. Koshkina, E.A. (2007) *Dynamics of Drug-Related Disorders in the Russian Federation* (2008). Mathers B, Degenhardt L, Phillips B, Wiessing L, Hickman M, Strathdee S, et al. *Ibid.*

21 Mathers B, Degenhardt L, Phillips B, Wiessing L, Hickman M, Strathdee S, et al. *Ibid.*

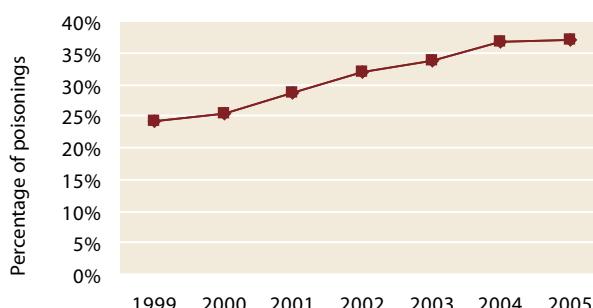
**Fig. 19: Percentage of all US drug treatment admissions accounted for by heroin and other opiates**

Substance Abuse and Mental Health Services Administration, Office of Applied Studies. Treatment Episode Data Set (TEDS) Highlights - 2007 National Admissions to Substance Abuse Treatment Services.



**Fig. 20: Percentage of all US poisoning deaths where pharmaceutical opioids were mentioned**

Warner, M., Chen, L-H., (2009). Drug poisoning mortality: Scope of the problem. CDC meeting on State Strategies for Preventing Prescription Drug Overdose. Atlanta, Jan 13, 2009.



### Opioid consumption in the Americas: heroin use may be stable, but other opiate use is a significant issue

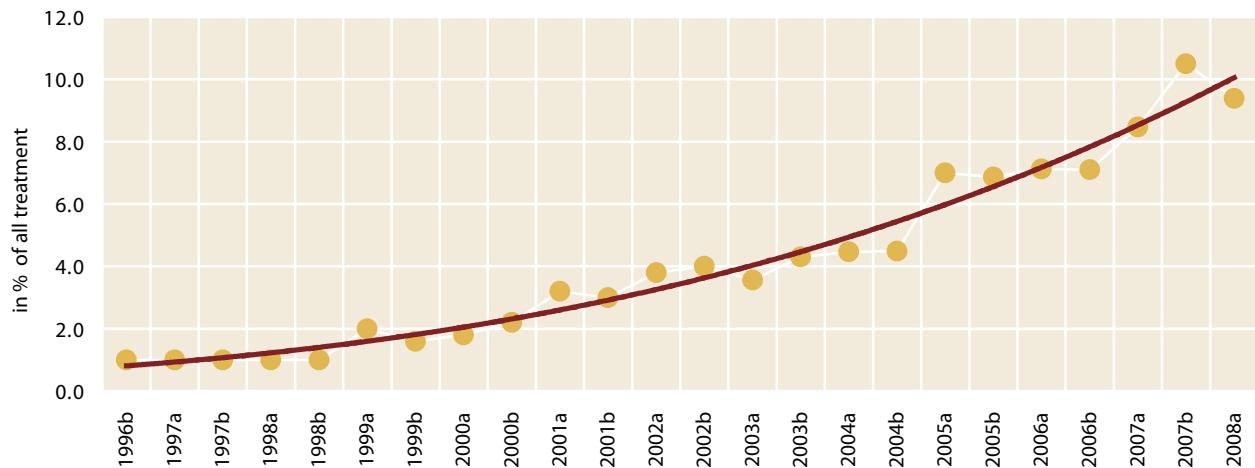
The largest heroin using population in this region is found in the USA, with one study estimating approximately 1.2 million heroin users (0.6% of the population aged 15-64);<sup>22</sup> derived from a study of "problem drug users" in 2000). The largest opioid using population in this region is also, by far, in the USA, with an estimated 5.2 million persons in 2007 reporting using prescription pain relievers non-medically (a level that has remained stable since 2002).<sup>23</sup> This reflects a very well-documented problem across the USA of inappropriate prescribing and use of pharmaceutical opiates (particularly

22 ONDCP, 2000.

23 SAMHSA, Results from the 2007 National Survey on Drug Use and Health, National Findings, (Rockville, Maryland, 2008).

**Fig. 21: Percentage of all treatment admissions in South Africa for heroin, 1996-2008**

Unweighted average of treatment (including alcohol) in 6 provinces. Source: SACENDU, "Monitoring Alcohol & Drug Use Trends in South Africa, July 1996 - June 2007", Research Brief, Vol. 10 (2), 2007.



oxycodone), leading to a new cohort of opiate-dependent persons across the country. Treatment admissions and poisoning deaths continue to increase.

The largest population of opioid users in South America is found in Brazil, with some 635,000 opioid users (0.5% of those aged 12-65). Most use synthetic opioids rather than heroin (less than 0.05%). Experts reported a stable trend of opioid use in multiple countries in the Americas, but rising levels of opioid use were reported in Mexico, Venezuela (Bolivarian Republic of) and Argentina.

#### Heroin use in Oceania appears stable

Data from the Oceania region reflect only Australia and New Zealand, with no reports from the numerous island nations. Data from drug monitoring systems in Australia and New Zealand suggest stable levels of use, with some 90,000 opiates users in the Oceania region. In Australia, these remain much lower than those seen in the late 1990s prior to the so-called Australian "heroin shortage", though there are indications that injecting drug users are increasingly injecting other opioids such as morphine.<sup>24</sup>

#### Heroin use may be rising in Africa

There may be between 1.00-2.78 million people using opiates in Africa – the wide range of this estimate reflects the uncertainty in the numbers. Comparatively high levels have been reported in Mauritius and Egypt<sup>25</sup>.

Almost all opiate consumption is heroin, which is the primary drug among problematic drug users in countries such as Kenya, Mauritius, Nigeria, Tanzania and Zambia.<sup>26,27,28</sup>

Reported heroin use trends suggest that heroin consumption continues to rise in eastern and southern Africa and some western African countries. This reflects the increasing role of African countries as heroin transits from Afghanistan to Europe. Opiates are the second most common drug for treatment; greater opiate treatment demand exists in the eastern and southern parts of the continent.

Unfortunately, few countries of west and central Africa report drug use trends, and there are no accurate prevalence data. Data in Africa therefore primarily reflect countries in northern and southern Africa. South Africa is the only country with a drug use surveillance system (the South African Community Epidemiology Network on Drug Use (SACENDU)). There is a continuing need for technical assistance in the region in order to build sustainable, cost-effective drug monitoring capacity.



and Alcohol in Egypt. (Cairo, 2007)

26 Abdool, R., Sulliman, F.T., Dhanno, M.I. The injecting drug use and HIV/AIDS nexus in the Republic of Mauritius, African Journal of Drug & Alcohol Studies, 5(2), 2006

27 Deveau, C., Levine, B., Beckerleg, S. Heroin use in Kenya and findings from a community based outreach programme to reduce the spread of HIV/AIDS, African Journal of Drug & Alcohol Studies, 5(2), 2006

28 Timpson, S., McCurdy, S.A., Leshabari, M.T., Kilonzo, G.P., Atkinson, J., Msami, A. & Williams, M.L. Substance use, HIV risk and HIV/AIDS in Tanzania, African Journal of Drug & Alcohol Studies, 5(2), 2006

24 E. Black, A. Roxburgh, L. Degenhardt, R. Bruno, G. Campbell, B. de Graaff, et al. Australian Drug Trends 2007: Findings from the Illicit Drug Reporting System (IDRS). Australian Drug Trends Series No. 1 National Drug and Alcohol Research Centre, University of New South Wales (Sydney, 2008).

25 Ghaz, I. National Study of Addiction, Prevalence of the use of Drugs



## Injecting drug use and HIV

### What is the extent of injecting drug use around the world?

Injecting drug use is well established in every region of the world and appears to be an emerging phenomenon in many countries where it has not been previously reported<sup>1</sup>. By 2008, injecting drug use had been reported in 148 countries and territories which together account for 95% of the world's population.

Estimates of the prevalence of injecting drug use were available for only 61 countries around the world; these countries make up 77% of the world's population. The prevalence of injecting drug use varies considerably, both between and within countries. Observed country-level prevalence of injecting drug use ranges from 0.02% in India and Cambodia to Georgia with 4.19% and Azerbaijan with 5.21%.

It is estimated that between 11–21 million people worldwide inject drugs. China, the USA, the Russian Federation and Brazil are estimated to have the largest populations of injecting drug users (IDUs) and together account for 45% of the total estimated worldwide population of IDUs.

### What is the extent of HIV among people who inject drugs?

Injecting drug use is responsible for an increasing proportion of HIV infections in many parts of the world, including countries in Eastern Europe, South America and East and South-East Asia. Investment in comprehensive public-health interventions is required to address this.

HIV infection among people who inject drugs has been reported in 120 countries, and the prevalence of HIV among IDUs varies dramatically. Midpoint HIV prevalence is reported to be between 20 and 40% in five countries: Spain (39.7%); Russian Federation (37.2%); Viet Nam (33.9%); Cambodia (22.8%) and Libyan Arab Jamahiriya (22.0%); and is greater than 40% in a further nine: Estonia (72.1%); Argentina (49.7%); Brazil (48.0%); Kenya (42.9%); Myanmar (42.6%); Thailand (42.5%); Indonesia (42.5%); Ukraine (41.8%) and Nepal (41.4%).

HIV prevalence rates among IDUs also vary significantly within countries. For example, in China, reported HIV infections are concentrated within seven of the country's 22 provinces. Moreover, in Russia, the reported prevalence rates varied from 0.3% in Pskov, 12.4% in Moscow, 32% in St. Petersburg to 74% in Biysk.

It is estimated that between 0.8 and 6.6 million people who inject drugs worldwide are infected with HIV. Regions with the largest numbers and highest concentration of HIV-positive IDUs include Eastern Europe, East and South-East Asia, and Latin America. The prevalence of HIV is higher than 40% in many national and subnational injecting drug user populations in these regions.

Outside of sub-Saharan Africa injecting drug users make up a sizeable proportion of the total number of people living with HIV. In Eastern Europe and Central Asia, more than half of those living with HIV are IDUs.

The dynamics of the spread of HIV infection are notable. A decade ago, HIV was not identified among people who inject drugs in Estonia; by contrast, a more recent estimate now suggests that the prevalence of HIV infection has reached 72% in one sample of injecting drug users. In contrast, Australia and New Zealand have maintained very low levels of HIV infection (1.09% and 0.73% respectively) despite a higher prevalence of injecting drug use than some other countries. This difference has been attributed to geographic isolation, as well as the swift introduction of needle and syringe programmes and the expansion of opiate substitution treatment programmes after HIV infection was first documented in 1984.

1 This information was compiled, reviewed and published by the *Reference Group to the United Nations on HIV and injecting drug use* and published in *The Lancet* in September 2008. The Reference Group was established for the purpose of providing independent technical advice on HIV and injecting drug use to the United Nations Office on Drugs and Crime (UNODC), World Health Organization (WHO), the Joint United Nations Programme on HIV/AIDS (UNAIDS) Secretariat and relevant co-sponsors. The Reference Group currently comprises 24 experts from 20 countries, and includes clinicians, researchers in epidemiology and policy, and injecting drug user representatives. Further information is available at: [www.iduRefGroup.com](http://www.iduRefGroup.com)

**Table 5: Regional and global estimates of prevalence and number of people who inject drugs and the prevalence and number who may be HIV positive, 2007**

	Estimated number of people who inject drugs (range)	Estimated midpoint prevalence of injecting drug use	Estimated number of people who inject drugs and who are HIV positive (range)	Estimated midpoint prevalence of HIV among people who inject drugs
Eastern Europe	3,476,500 (2,540,000-4,543,500)	1.50%	940,000 (18,500-2,422,000)	27.04%
Western Europe	1,044,000 (816,000-1,299,000)	0.37%	114,000 (39,000-210,500)	10.90%
East and South-East Asia	3,957,500 (3,043,500-4,913,000)	0.27%	661,000 (313,000-1,251,500)	16.70%
South Asia	569,500 (434,000-726,500)	0.06%	74,500 (34,500-135,500)	13.08%
Central Asia	247,500 (182,500-321,000)	0.64%	29,000 (16,500-47,000)	11.81%
Caribbean	186,000 (137,500-241,500)	0.73%	24,000 (6,000-52,500)	12.90%
Latin America	2,018,000 (1,508,000-2,597,500)	0.59%	580,500 (181,500-1,175,500)	28.77%
Canada and USA	2,270,500 (1,604,500-3,140,000)	0.99%	347,000 (127,000-709,000)	15.29%
Pacific Island States and Territories	19,500 (14,500-25,000)	0.36%	500 (<250-500)	1.37%
Australia and New Zealand	173,500 (105,000-236,500)	1.03%	2,500 (500-6,000)	1.51%
Middle East and North Africa	121,000 (89,000-156,500)	0.05%	3,500 (1,500-6,500)	2.94%
Sub-Saharan Africa*	1,778,500 (534,500-3,022,500)	0.43%	221,000 (26,000-572,000)	12.43%
Extrapolated global estimates	15,861,500 (11,008,500-21,222,000)	0.37%	2,997,500 (764,000-6,589,000)	18.90%

\*These numbers are extremely tenuous as they are based on very few countries in the region

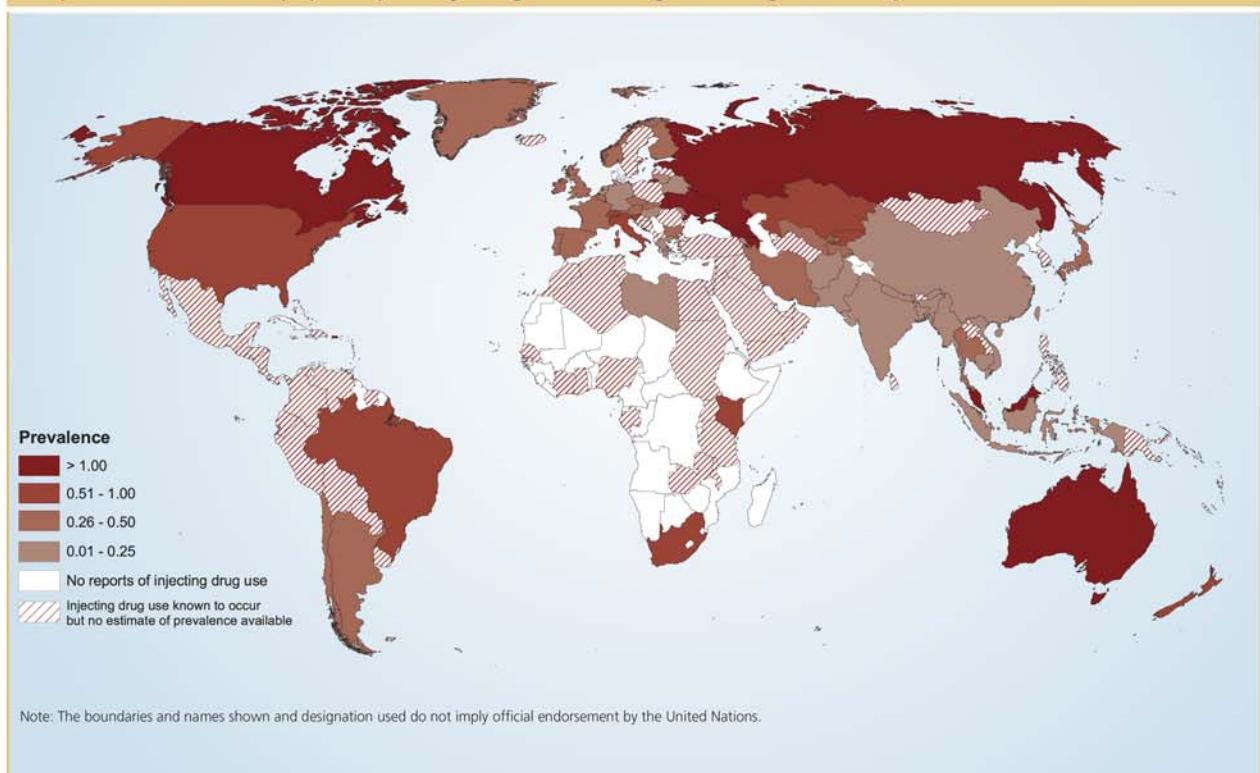
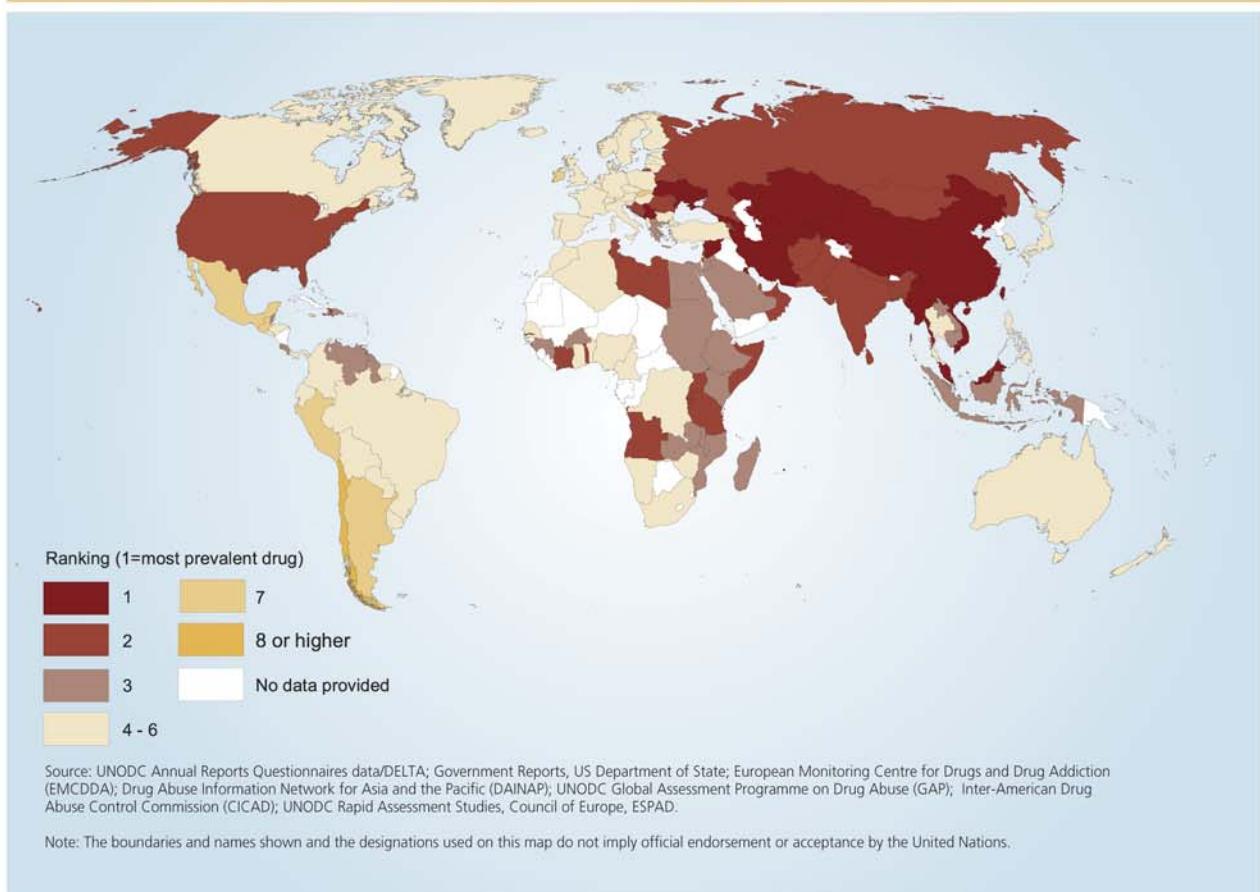
### Data on injecting drug use: challenges and limitations

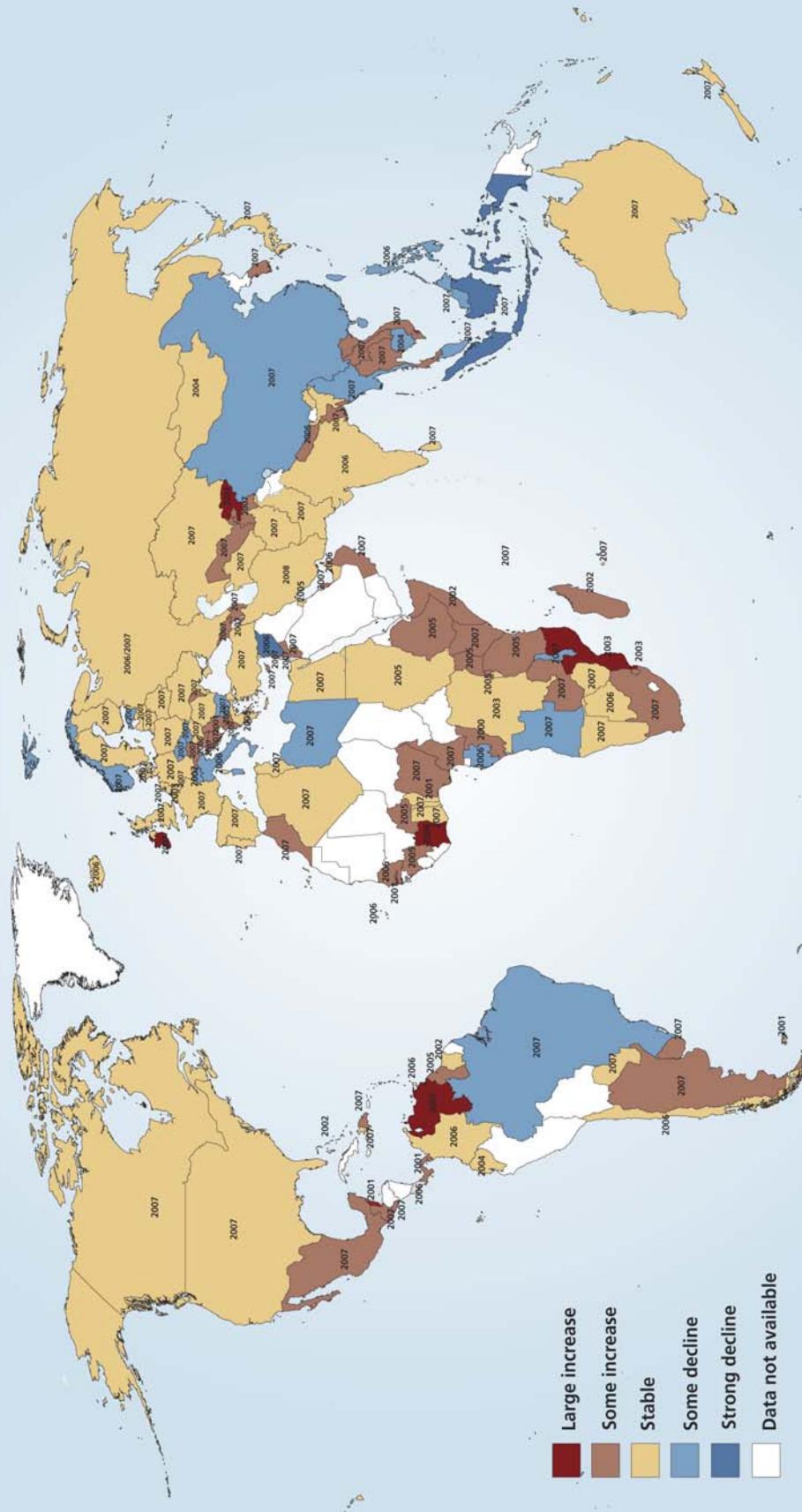
Currently only limited data exist on the prevalence of injecting drug use around the world and the quality of the available data is generally poor. The inadequacy of the available data makes it impossible to determine with any certainty how the extent of injecting drug use globally has changed over time

A lack of consistency in the definition of injecting drug use in the literature and different datasets makes reliable comparison between countries, and in some cases even within countries, impossible.

Injecting drug use is an illegal, stigmatised behaviour and consequently injecting drug users are often referred to as a “hidden population.” It is difficult to measure the extent of this behaviour. Population surveys tend to underestimate its prevalence and indirect methods can also be uncertain.

Collecting the data is technically challenging, particularly for developing countries. However, data from many higher income countries is also inadequate. For example, the most recent national estimates of injecting drug use for eight Western European countries were from the year 2000 or earlier. In order to plan and implement successful interventions to address injecting drug use and HIV, it is critical that consistent, timely data on the extent of injecting drug use and HIV among IDUs is collected.

**Map 5: Prevalence (%) of injecting drug use among those aged 15-64 years****Map 6: Ranking of opiates in order of prevalence in 2007 (or latest year available)**

**Map 7: Changes in the use of heroin and other opiates, 2008 (or latest year available)**

\* Primary source: UNODC Annual Reports Questionnaires. For a few countries UNODC has based its perception on supplementary drug trend information derived from or reported in national household surveys, United States Department of State (Bureau for International Narcotics and Law Enforcement Affairs), International Narcotics Control Strategy Report, Law Enforcement Reports, UNODC, Meetings of Heads of Law Enforcement Agencies (HONLEA), UNODC Illicit Drug Trends publications for various countries, UNODC Opium Surveys, Drug Abuse Information Network for Asia and the Pacific (DAINAP), UNODC Global Assessment Programme on Drug Abuse (GAP), UNODC Data for Africa Project.

Note: The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.



## Cutting agents for heroin in Afghanistan

Through improved forensic capacities and facilities, the forensic laboratory of the Counter Narcotics Police of Afghanistan (CNPA) was able to identify several cutting agents typically used for mixing with heroin.<sup>1</sup> The samples were seized during law enforcement activities in 2008. The chemicals identified include caffeine, chloroquine, phenolphthalein and paracetamol.

Users who smoke or inhale heroin draw some practical benefits if it is mixed with a certain amount of caffeine, as this causes the heroin to vaporize at a lower temperature.

Chloroquine, a well-known anti-malarial drug, has been used as a cutting agent in heroin for many years, though it was not previously known to be used in Afghanistan. Chloroquine does not alter the effects of heroin or influence the way it can be consumed. Its widespread availability, low price, colour and crystalline structure are thought to be some of the reasons for its use. Given the close resemblance in appearance and consistency of chloroquine with some seizures of what is known in South-West Asia as “crystal heroin”, one could also speculate that the chloroquine was marketed on its own, as fake heroin.



“Crystal heroin”



Chloroquine

Phenolphthalein is used as an acid or base indicator. It has also been used as a laxative for more than a century, but has now been removed from the market because of concerns over carcinogenicity. It has been reported as a cutting agent for heroin in the past<sup>2</sup> but the reasons for its use are not well understood.

Paracetamol is a popular over-the-counter painkiller. It is easy to purchase and relatively cheap. Its mild analgesic properties and bitter taste may disguise a poorer quality heroin. The use of paracetamol as a cutting agent for heroin is well documented from many regions and countries.

The reason for adding specific, pharmacologically active substances (so-called adulterants) to heroin remains an area of speculation that can only be partly explained by the pharmacological properties of the substances concerned. However, the findings of the CNPA laboratory suggest that cutting of heroin takes place at source and that heroin produced in Afghanistan may be customized for different markets and consumer groups.

The findings are also a reminder that there is a frequently neglected market associated with the illicit drug industry: the market in cutting agents. This market is lucrative because cutting agents are legal and their trade carries low risk. The increased awareness of the potential value for drug enforcement of understanding the trade in these substances is very recent.<sup>3</sup>

<sup>1</sup> [http://www.unodc.org/pdf/scientific/LIB%20IV-2008\\_Kabul-.pdf](http://www.unodc.org/pdf/scientific/LIB%20IV-2008_Kabul-.pdf)

<sup>2</sup> Chaudron-Thozet, H., Girard, J., and David, J.J. (1992), Analysis of heroin seized in France, *Bulletin on Narcotics*, Vol.1, 29-33.

<sup>3</sup> Daly, M. (2008), Police target ‘bash’ industry, *DrugLink*, September/October 2008, 3.

