



1. TRANSNATIONAL DRUG MARKET ANALYSIS

1.1 Introduction

Since the 1960s, and in a context of rapid and deep socioeconomic changes throughout the world, the international drug control system has succeeded in containing the spread of annual illicit drug use to around 200 million people, or 5% of the world population aged 15-64. This compares very favourably with the much higher prevalence of tobacco use, which causes 5.4 million deaths per year.¹

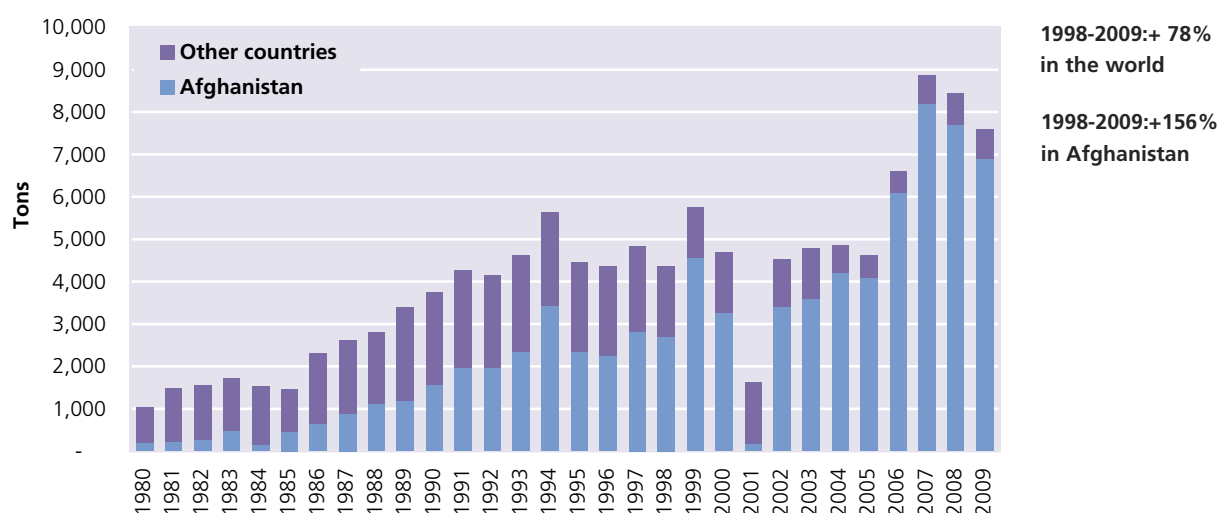
The system was set up to restrict the use of controlled drugs to medical and scientific purposes and, while containment of illicit use to relatively low levels is already a remarkable achievement, Member States have always had a more ambitious goal in mind.

In 1998, 37 years after the 1961 Single Convention, a special session of the UN General Assembly (UNGASS) decided to work towards the “elimination or significant reduction” of illicit drug production and abuse by 2008,² and adopted a series of sectoral plans to reach that objective. Gathered at the end of the 10-year period, Member States were not satisfied with the results and declared that they were still “gravely concerned about the grow-

ing threat posed by the world drug problem.”³ There is no single measure of the year-on-year evolution of the world drug problem. There is not even a clear definition of what is meant by the expression the ‘world drug problem’. Since public health is at the heart of the international drug control system, the prevalence of illicit drug use is generally considered a central, though imperfect, indicator of the status of the problem. Illicit drug use is a multifaceted issue, however. In particular, different drugs produce different effects and present different risks to users. At the international level, annual prevalence of drug use, by drug category, has thus become the most standardized indicator to monitor the evolution of illicit drug use. Unfortunately, only a minority of countries have adequate national prevalence monitoring systems in place. Producing a precise, reliable and sensitive measure of the evolution of the world drug problem over the last decade on that basis is therefore very difficult. Data on illicit drug supply can help fill the information gap, at least for some drugs. The bulk of cocaine and opium production is concentrated in a few locations and successful efforts to develop annual surveys in the

Fig. 1: Global potential opium production, 1980-2009

Source: UNODC



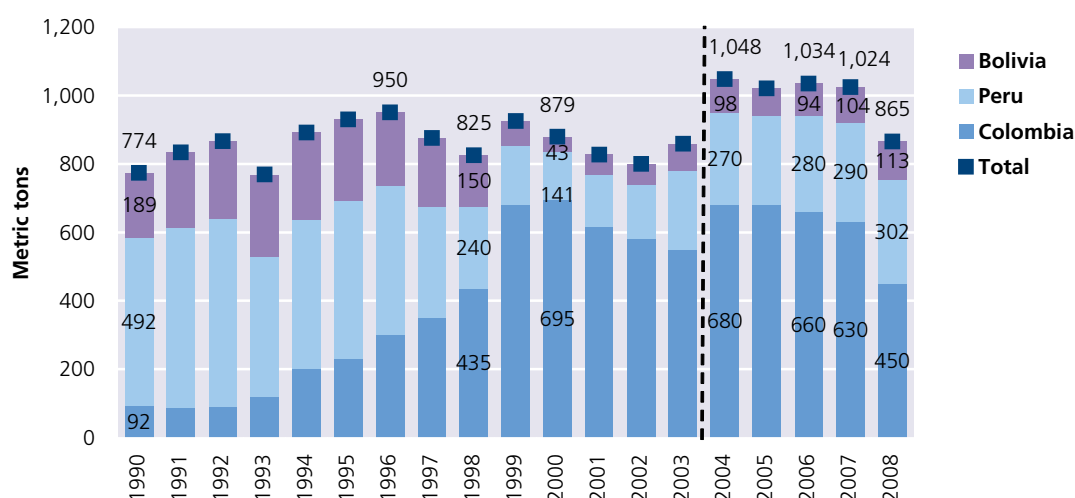
1 WHO, *Tobacco key facts* (see: <http://www.who.int/topics/tobacco/facts/en/index.html>).

2 United Nations General Assembly Special Session on the World Drug Problem (UNGASS), New York, 8-10 June, 1998 (A/S-20/4, chapter V, section A).

3 High-level Segment to the 2009 United Nations Commission on Narcotic Drugs, *Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem*, March 2009 (E/2009/28 - E/CN.7/2009/12).

Fig. 2: Global potential cocaine production (mt), 1990-2008

Source: UNODC



context of the 1998 Plan of Action have provided a coverage that is systematic enough to closely follow the evolution of the global opiate and cocaine markets from the supply side.

Data on illicit opiates supply, arguably the most problematic drug category and always a core preoccupation of the international drug control regime, show that global opium production increased by close to 80% between 1998 and 2009. Increases in Afghanistan more than offset remarkable declines in South-East Asia during that period. There were encouraging declines in the last three years, but Afghan production was still more than 150% higher in 2009 than in 1998. With strong increases after 2005, production seems to have well exceeded world demand and led to the creation of large stockpiles, but it is clear that the global opiate market has not been eliminated, or significantly reduced, since 1998.

The evolution of cocaine production has not been as dramatic as in the case of opium during the same decade. Contrasting trends were recorded in various locations, including a long-term decline of use in North America but an increase in Europe, reductions in production in Colombia and increases in Peru or the Plurinational State of Bolivia. At the global level, these changes essentially amounted to geographical shifts and displacements in supply and demand. As a whole, the market has not been eliminated or significantly reduced over the last decade.

Data on cannabis and amphetamine-type stimulants are too patchy to allow year-on-year monitoring of the global market, but there were no indications of large reductions at the global level for these substances either.

Member States have decided to continue their efforts to achieve the initial UNGASS objective. Accordingly, illicit drug supply and demand should be “eliminated or significantly reduced” by 2019. Their decision was made in a context of renewed criticism from some parts of civil society against the international drug control system and its perceived inefficacy, but governments were remarkably unanimous in their perception of the world drug problem, in the renewal of their political commitment to the international policy framework, and in their resolve to address shortcomings and obtain better results.

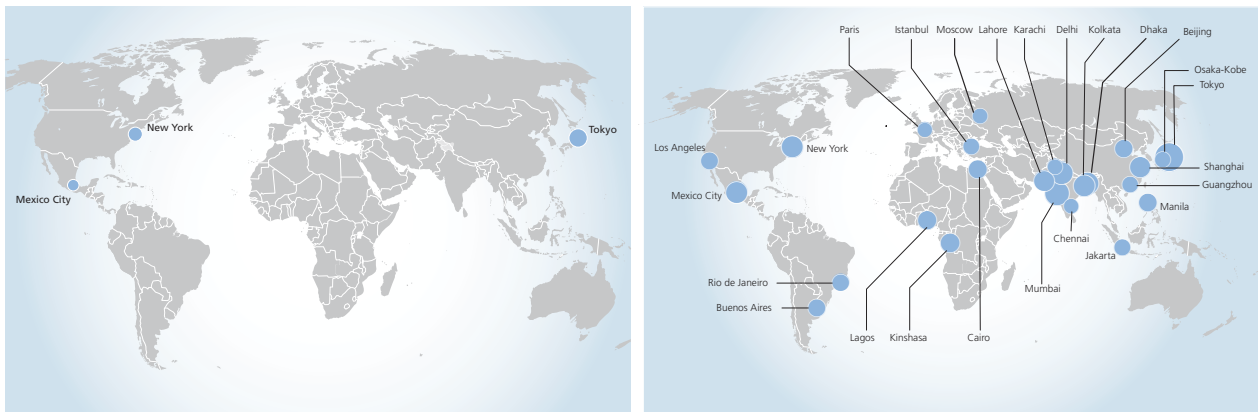
Can overall drug supply and demand be “eliminated or significantly reduced” by 2019, as called for by the Member States? At the national level, one can hope that many countries will be able to significantly improve their drug control situation within a decade. There are a number of encouraging developments in this respect. Will these local successes translate into an overall improvement at the global level?

The increase in world population alone (by some 0.8 billion people, or 11%) during the next decade should automatically increase the size of world drug markets, even if drug use prevalence rates remain constant. The potential impact of other risk factors such as urbanization (+20% during the next decade) and the growth of mega-cities in the developing world could make matters worse, as drug use is typically higher in urban than in rural areas.

As regards cannabis, there is no global market per se to control and monitor. The global picture is made up of a patchwork of multiple and distinct submarkets, typically national or regional in nature. Monitoring their evolution and addressing them as a whole may thus neither be the easiest, nor necessarily the most useful, thing to

Fig. 3: Cities with more than 10 million inhabitants in 1975 (left) and 2025 (right)

Source: UN DESA



do. Monitoring systems are largely missing, and current methods used to estimate the size and evolution of the global cannabis problems are not sensitive. That creates a serious technical problem for any attempt to closely monitor, guide and measure a global elimination approach. There are additional obstacles. Cannabis production and -consumption are found everywhere and there is no longer a clear consensus among national authorities on how to tackle the issue. Under these conditions, a significant reduction of the aggregate cannabis problem at the global level by 2019 would more likely be a matter of coincidence than the result of internationally concerted action. Even if such a reduction were to occur, it would be difficult to detect and reliably measure it, given the lack of a clear baseline and persistent data gaps.

Unlike for cannabis, there is a clear political consensus on heroin, cocaine and, to a large extent, amphetamine-

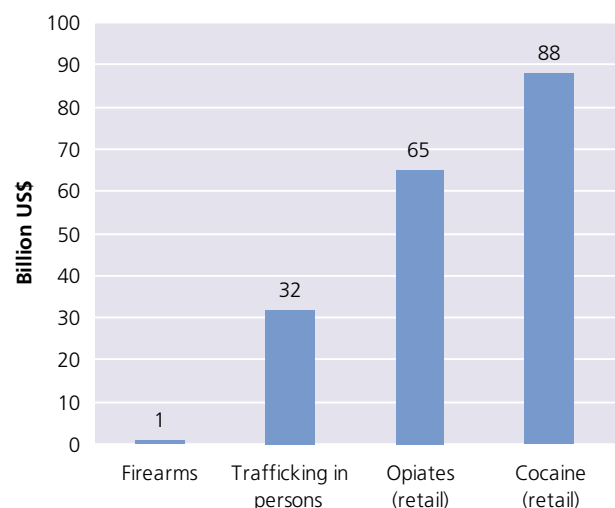
type stimulants (ATS). In the case of ATS, because of the existence of independent, mostly regional or even national, supply and demand markets, as well as the ease, discretion and changing nature of synthetic drugs manufacture, the problem also tends to defy a global approach and overall predictions over the period considered. Nevertheless, ATS have gained a large share of the global drug market over the last two decades and have come to represent a major and evolving threat for present and future drug control efforts. Since 1990, ATS manufacture has spread, with more than a third of Member States reporting this activity on their territory. Moreover, the global number of ATS users is likely to exceed the number of opiate and cocaine users combined. These drugs require international vigilance, the adoption or strengthening of specific regulations and control measures at the global level, and the development of strong regional strategies.

Cannabis

is - by far - the most widely produced, seized and consumed drug worldwide, causing increased health problems in many countries, linked to its spread and rising potency in several (mostly developed) countries over the last decade. Deaths related to cannabis use are rare, however, and dependency tends to emerge only after long periods of use. As cannabis production is widespread, most of its production is intended for local or regional consumption. Overseas trafficking in cannabis is less frequent and appears to have further lost importance with the development of high-potency cannabis production in greenhouses in the industrialized countries. The role of transnational organized crime groups in the cannabis market is thus more limited than for other drugs, and so are the security threats related to its production, trafficking and consumption.

Fig. 4: Estimated annual value of some global criminal markets in the 2000s

Source: UNODC



The impact of illicit opiates, cocaine and ATS

Opiates are the most severe problem drugs worldwide, notably in Asia and Europe. Their use can lead to severe dependence and is often associated with IDU-related HIV/AIDS and hepatitis B and C, as well as high mortality rates. The mortality rate for dependent heroin users is between 6 and 20 times that expected for those in the general population of the same age and gender, as the difference between a 'recreational dose' and a 'fatal' one is small, and variations in street drug purity can result in overdoses. Thus, in most countries, opiates consumption constitutes the main cause of drug-related deaths. In addition, the processing and trafficking of opiates constitute significant sources of income for insurgents in some opium-producing countries such as Afghanistan and Myanmar. In Afghanistan, a conservative estimate suggests that Taliban insurgents generated some US\$125 million per year in profits from the local opiate trade alone in the past several years. In Pakistan, Taliban allies such as al-Qaida and other like-minded groups have bases along the main heroin/opium trafficking routes and are well located to benefit from trafficking. Elsewhere in the world, other militant groups also seem to be financing themselves at least partly from the illicit opiate trade.

Similarly, cocaine use constitutes, first of all, a major health problem. Almost a fifth (18%) of the persons who used cocaine in the previous year at least once were found to be dependent on it in the world's largest cocaine market (United States), a higher proportion than for any other drug, except heroin. Cocaine use also results in tens of thousands of deaths each year worldwide. While cocaine was involved in close to 40% of all drug deaths in the United States in 2008, the proportion is still far smaller in Europe (8% in the EU/EFTA countries). After the opiates, cocaine is the most problematic drug worldwide, notably in the Americas. While the share has declined, almost half (46%) of all people entering drug treatment in the Americas do so due to cocaine. The share in Europe increased from 3% in 1997/1998 to 10% in 2008, rising to almost 15% in West Europe. Proportions are far lower in Africa (6%), Oceania (0.5%) and Asia (0.5%), possibly due to the high availability of amphetamine-type stimulants in these regions. There is also a clear link between cocaine use (notably crack-cocaine use) and crime. While 11% of arrestees in the United Kingdom in 2005/2006 were found to have used crack-cocaine in the month prior to their arrest, the proportion of crack-cocaine use in the general population was far lower (0.1% in that year). Similarly, between 29% and 35% of the male arrestees in the United States were found to have used cocaine in the previous month in recent years (29% in 2008), far more than the corresponding rates among males in the general US population (1% in 2008). With cocaine use falling strongly since the late 1980s (-56% in past month prevalence rates between 1988 and 2008), overall crime also saw a marked decline in the United States, ranging from -29% for property crime rates to -43% for murder rates over the 2000-2008 period. Cocaine trafficking is also linked to corruption. Trafficking of cocaine has contributed to increasing corruption in transit countries, including in West Africa. Moreover, cocaine trafficking constitutes a major security threat, financing organized crime and insurgencies in a number of countries, including the FARC in Colombia and the Shining Path in Peru.

Like for the other drugs, the impact of ATS use is primarily on the health side. The proportion of people requiring treatment for ATS abuse is 5% of all drug-related treatment demand in Africa, 10% in Europe and 12% in the Americas. It is particularly high in Oceania (20%) and Asia (21%), reaching 36% in East and South-East Asia with proportions exceeding 50% in Japan, the Republic of Korea, Thailand, Cambodia and the Philippines, as well as in Saudi Arabia in the Near and Middle East. In particular, methamphetamine use constitutes a major health risk where it occurs. Data for the United States suggest that the use of methamphetamine may constitute similar threats to health as the abuse of crack-cocaine, exceeding for the individuals concerned even the risks related to the consumption of cocaine HCl. Organized crime is involved in the diversion of precursor chemicals, and in the manufacture of ATS, as well as its distribution. ATS manufacture has a major negative impact on the environment, which is reflected in the difficulties to dismantle clandestine ATS labs. There is clearly involvement of organized crime groups in ATS production, particularly in East and South-East Asia, as well as in North America. Less is known with regard to financing of insurgencies (this seems to occur mainly in Myanmar) and violence related to its trafficking.



The global illicit opiate and cocaine markets represent two of the biggest transnational drugs and crime threats of our time. Tens of thousands of the millions of opiate users worldwide die every year. Opiates are at the origin of two thirds of all drug treatment demand in Europe and Asia. The opiate market generates an annual turnover of up to US\$65 billion, of which some US\$ 55 billion for heroin alone. Moreover, the opiate market is interlinked with severe national and international security problems, particularly in Afghanistan and Pakistan. In terms of health impact, cocaine comes next, and represents as big a transnational organized crime threat as heroin. Estimates suggest that the global retail sales figure (some US\$88 billion) is even higher than for opiates, and the impact of the cocaine trade on stability can also be severe in some places.

The global heroin and cocaine markets appear simultaneously as persistent problems from a previous era of drug control, priorities for interventions due to the severity of their impacts on affected societies and good candidates for a global solution within a reasonable time-frame. Since they are both sourced from relatively concentrated production areas, most of their components are directly or indirectly linked. The resulting transnational drug economies they form, from production to trafficking and consumption, can thus be addressed as a whole and be affected by shocks and ripple effects. Not only are holistic market control approaches possible in these two cases, but, as shown by history, they are also a necessity. Local successes against illicit cultivation in the past – there were many – have always been offset by displacements to other locations, and closed trafficking routes replaced by new ones.

Illicit production is presently largely entrenched in rural areas that are difficult to control. On the demand side, increases in cocaine consumption in Europe have tended to compensate reductions in North America, and the stabilization of heroin use in West Europe has been offset by a deterioration of the situation in the Russian Federation. Meanwhile, the size and concentration of the trafficking flows to these main destination markets have often created havoc in vulnerable production and transit areas by overwhelming local law enforcement capacities, generating corruption, fuelling violence and instability, and spreading addiction.

A clear lesson from the history of cocaine and heroin control is that the mere sum of uncoordinated national and sectoral efforts, even successful ones, cannot result in global success. Another lesson is that countries with limited means cannot resist, and counter the impact of, powerful transnational trafficking flows on their own.

With the benefit of experience, success against these two markets appears to be within reach and would result in the removal of a large chunk of the world drug problem

and many of its associated ills. As regards the availability of tools and data to guide interventions and monitor their impact, the situation is much better than in the case of other drugs. Production is already measured on a yearly basis and national data on trafficking is well reported by Member States. There is relatively good demand data from OECD countries, and gaps in other important consuming countries, particularly for heroin, could relatively easily be remedied by prevalence surveys for cocaine or by indirect measures, such as treatment multiplier methods, for heroin.

Global opium production and global coca production have grown by a factor of 6 (cocaine) and 7 (opium) during the last three decades. Eliminating or significantly reducing the world heroin and cocaine markets will thus require more effective approaches than in the past. What can be done? The first thing is to remedy the biggest shortcomings of previous approaches. Member States have recognized an essential one: a lack of integration. In the 2009 Political Declaration,⁴ Member States acknowledged “the importance of promoting, in order to enhance the effectiveness of drug control measures, an integrated approach in drug policies” (art. 31). This call is echoed in the new Plan of Action, notably in its Art. 27, under the title “Addressing supply and demand reduction together”: “While drug trafficking is a multifaceted issue than can be effectively tackled only by reducing both supply and demand, this interlinkage is often not taken into account.”

To achieve the 2019 objectives, the international community needs to interweave drug supply and demand reduction interventions and integrate national efforts into the framework of renewed international strategies on the scale of the cocaine, heroin and ATS markets. To do so, it is urgent to improve our understanding of how these illicit transnational drug economies operate. UNODC has intensified research efforts on the topic. Preliminary results are presented in this chapter.

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4 High-level Segment to the 2009 United Nations Commission on Narcotic Drugs, *Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem*, March 2009 (E/2009/28 - E/CN.7/2009/12).

1.2 The global heroin market



Worldwide, more than 15 million people consume illicit opiates¹ (opium, morphine and heroin). The large majority use heroin, the most lethal form. More users die each year from problems related to heroin use, and more are forced to seek treatment for addiction, than for any other illicit drug. Among illicit narcotics, opiates are also the most costly in terms of treatment, medical care and, arguably, drug-related violence. In addition, heroin is the drug most associated with injection, which brings about a host of acute and chronic health problems, including the transmission of blood-borne diseases such as HIV/AIDS and Hepatitis C. In Central Asia, Ukraine and the Russian Federation, injecting opiates is linked to nearly 60-70% of all HIV infections.²

Beyond its health impact, the illicit opiate industry also has a detrimental effect on stability and security in a number of places, including through the funding it provides for insurgents in production areas, particularly in Afghanistan. In 1998, the United Nations General Assembly Special Session on drugs already expressed 'deep concern about links between illicit drug production, trafficking and involvement of terrorist groups, criminals and transnational organized crime.'³ In some

regions, the nexus of illicit drugs, organized crime and instability has taken the form of growing infiltration of state institutions by drug trafficking groups.

Getting opiates from producer to consumers worldwide is a well-organized and, most importantly, profitable activity. The most lucrative of illicit opiates, heroin, presently commands an estimated annual market value of US\$55 billion. When all opiates are considered, the number may reach up to US\$65 billion. Traffickers, essential to the transportation of drugs from production areas to lucrative end-user markets, pocket most of the profits of this trade. A rough estimate of the number of traffickers involved in moving this illegal commodity across countries and regions would likely stand at well above 1 million people.⁴

The problem is not new and tremendous efforts have been made by governments over the past decades to stem the flow of illicit opiates. Many successes have been obtained. Most of them have been local, however, and over the long term, global illicit opiate production has increased.

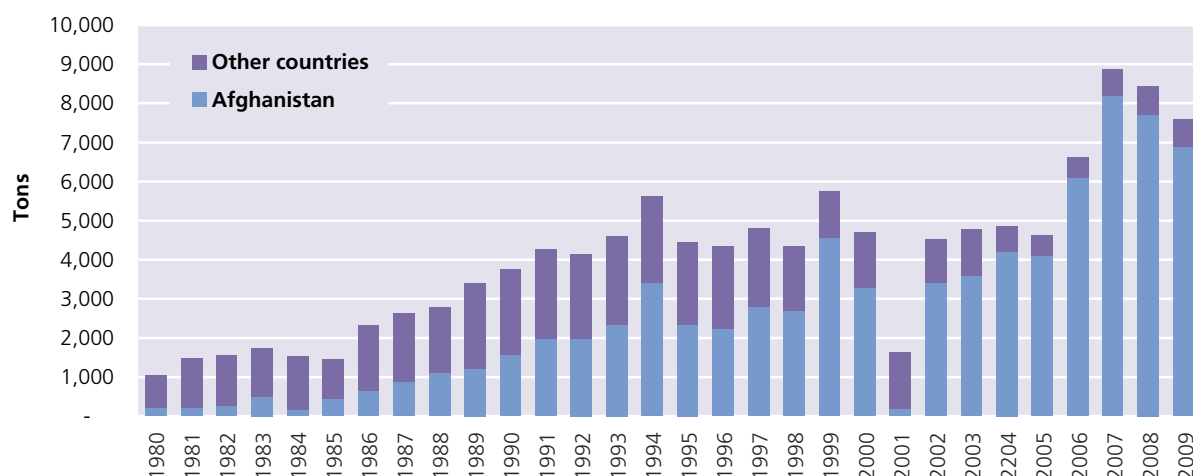
The supply source for this huge underground economy is now concentrated in three areas: Afghanistan, South-East Asia (mostly Myanmar) and Latin America (Mexico and Colombia). Together, they supply nearly all the world's illicit opium and heroin, but Afghanistan stands out among this group, accounting for around 90% of global illicit opium production in recent years.

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1 Opiates are a group of psychoactive substances derived from the poppy plant, which includes opium, morphine, codeine and some others. The term 'opiate' is also used for the semi-synthetic drug heroin that is produced from poppy compounds.
- 2 Mathers B., Degenhardt L., Phillips B., Wiessing L., Hickman M., Strathdee A., Wodak A., Panda S., Tyndall M., Toufik A. and Mattick R, on behalf of the Reference Group to the United Nations on HIV and Injecting Drug Use, "Global epidemiology of injecting drug use and HIV among people who inject drugs: a systematic review," *The Lancet*, 2008; 372:1733-1745.
- 3 United Nations General Assembly Special Session on the World Drug Problem (UNGASS), New York, June 8-10, 1998.

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4 Based on the annual number of arrests for heroin trafficking reported and a tentative, but very high, arrest ratio of 20% (1 in 5 traffickers arrested, which is most certainly well above the real number).

Fig. 5: Global potential opium production, 1980-2009

Source: UNODC World Drug Report (figure for 2009 based on 2009 Survey results for Afghanistan and 2008 data for the rest of the world)



By itself, Afghanistan provides 85% of the estimated global heroin and morphine supply, a near monopoly.

In a 2009 Political Declaration reviewing drug control achievements over the previous decade, UN Member States recognized that 'the supply of opiates originating in Afghanistan continues to pose serious challenges to the international community.'⁵ On that occasion, Member States also decided to redouble their efforts and to obtain decisive results against illicit supply and demand by 2019. Obtaining such results will require clear improvements in the efficacy of the response provided so far by the international community. A first obstacle stands in the way of designing a reinvigorated strategy. Our understanding of the transnational illicit opiate economy, as well as of its links with other socio-economic and political issues, remains fragmented and relatively superficial. Designing the international response that would solve this decades-old problem within the next 10 years thus requires a particular effort to fill knowledge gaps.

1.2.1 Dimensions of the global opiate market

Estimating demand and supply

As with any other commodity, the laws of supply and demand apply to the trade in illicit opiates. However, unlike most commodities, information on supply and demand is not always readily available due to the illicit nature of the trade. Supply and demand depend on one another in multiple ways; there is no simple link between them. For example, a significant drug supply in traffick-

ing transit regions appears to encourage demand in places where there was previously none.

Estimates presented in this chapter draw heavily on the data reported by UNODC surveys (for example, in Central Asia, the Russian Federation and Pakistan), annual reports from governments to UNODC, referred to as the Annual Reports Questionnaire (ARQ) and UNODC estimates. The UNODC Illicit Crop Monitoring Programme, which collects data on global opium poppy cultivation, was used as the main source of production data.⁶ Other indicators examined included the heroin seizure databases of the World Customs Organization (WCO) and UNODC. A trend analysis of both opiate use and seizures data for the 2000-2008 period was carried out by UNODC over the past year to identify the patterns and estimate the magnitude of opiate flows throughout the world.

One important caveat that must be borne in mind is that while the estimates presented are the best currently available, they are not always based on direct research. In the case of demand, indirect methods must sometimes be used, due to the absence - for most countries - of any robust data collection system to arrive at scientifically sound per capita consumption estimates. Only 35% of all countries and territories (76 out of 217) provided data on opiate prevalence rates in the 2008 ARQ; 141 (65%) did not provide data. Out of this total, UNODC used other available sources to calculate drug use prevalence for 55 countries (25%).

Further analysis of information gaps reveals that in 2008, UNODC received no information on opiate

⁵ United Nations, Commission on Narcotic Drugs (CND), Fifty-second session, Vienna, 11-20 March 2009 (UN document number E/CN.7/2009/Res. 52/2).

⁶ The details of this methodology can be found in UNODC's *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, pp.36-37. They can also be found in the online methodology section of the *World Drug Report*.

Table 1: Availability of data on opiate abuse prevalence, by region

Source: UNODC

Continent	Data on prevalence of opiate abuse available (number of countries/territories)		Data on prevalence of opiate abuse not available from any source (number of countries/territories)		Total
	Data provided through ARQ	UNODC estimation	Number of countries/territories	Share of countries/territories	
Africa	4	21	30	55%	55
Americas	12	13	20	44%	45
Asia	20	17	14	27%	51
Europe	38	4	5	11%	47
Oceania	2	N/A	17	89%	19
Total	76	55	86	40%	217

abuse prevalence from 30 countries in Africa, 20 countries in the Americas, 51 countries in Asia, 5 countries in Europe and 17 countries in Oceania (most of which are small islands).⁷ Essentially, a majority of countries do not provide domestic drug abuse data in ARQs which complicates efforts to generate global and/or country-level consumption and consumer figures. Other valuable indicators such as data on opiate purity and prices are even more scarce, but this has much to do with local capacity. As a result, less is known about opiate demand than about opiate supply. All the estimations given in this chapter are therefore based on the limited data available to UNODC and may change or be updated as more data is provided by Member States.

Apart from ARQs, estimates presented in this chapter also relied on indirect methods (mostly treatment multiplier and capture-recapture methods) which usually represent the best evidence available to estimate national demand for opiates. For some countries, household survey data is also available. This tends, however, to be less reliable for the use of drugs such as heroin, which is highly stigmatized and where many users no longer live in a 'normal' household.

The global number of opiate users can be estimated at more than 15 million in the recent period. Around a quarter of them consume some 1,100 mt of opium in raw form.⁸ The rest use heroin and consume approximately 340 mt of pure heroin per year.⁹ In opium equivalents,¹⁰ opiate demand could be estimated at 3,700 mt worldwide.

⁷ Many of these gaps are due to the lack of well-developed data collection systems in many countries.

⁸ Some users consume both heroin and opium, but the overlap between the two categories is difficult to quantify. For the purpose of simplicity, calculations did not take it into account.

⁹ Throughout this report, the term 'heroin' refers to a product with the purity of heroin produced at the main source, Afghanistan (70%).

¹⁰ Taking into account the distribution of production between Afghanistan and the rest of the world, volumes expressed in terms of opium equivalents in this chapter use a conversion factor of 7.5:1.

Demand for opium

There are an estimated 4 million opium consumers worldwide. Unlike heroin demand, which is more evenly distributed around the world, opium consumption is concentrated in Asia, where it has a long tradition of use. Over the past century, opium gradually ceded its place to heroin, but it still maintains important markets in countries like the Islamic Republic of Iran, India and Pakistan.

Afghanistan is the world's largest opium producer and exporter but it is also an important consumer. The country accounted for 7% of total world demand, or 80 mt a year, for an estimated 150,000 users in 2008 (rising to 200,000-250,000 in 2009).¹¹ A large volume of opium is consumed in the Islamic Republic of Iran, approximately 450 mt, according to UNODC estimates. But all of Afghanistan's neighbours report worrying levels of opium use. Excluding China, consumption in the countries bordering Afghanistan (the Islamic Republic of Iran, Pakistan, Tajikistan, Uzbekistan and Turkmenistan) is estimated at 650 mt per year; 60% of global consumption. Although small-scale cultivation occurs in these countries, such as in Pakistan and Central Asia,¹² the main supply source for the region's opium consumers is Afghanistan.

Other parts of the world are affected as well. In the Russian Federation, over 58 mt of opium are consumed annually,¹³ while the Middle East absorbs some 16 mt per year. In the Americas, opium consumption is mainly reported in Mexico. The level of opium consumption (if

¹¹ UNODC, *Afghanistan drug use survey 2005*, 2006.

¹² As the UNODC *Illicit drugs trends in Central Asia* (2008) report notes "Given the 2006 regional total of 2.22 hectares of reported cultivation, this is equivalent to a potential output of 90 kg of opium, a minute fraction of the amount produced in Afghanistan."; see UNODC "Illicit drug trends in Central Asia", April 2008, p.8.

¹³ Of note, some of these users consume only "kompot" (a poppy straw solution that is usually injected), which is generally sourced locally.

Table 2: Estimated opium and heroin consumption, 2008

Source: UNODC

	Region/ country	Heroin users	Opium users	Heroin consumption (mt)	Opium consumption (mt)	Total opiate consumption (opium equivalent)
Major distribution destinations of Myanmar and Laos heroin production	Myanmar	66,000	67,000	1.3	7.0	20.1
	China*	2,254,000	119,000	45.0	12.0	458.2
	India	871,000	674,000	17.0	67.0	239.8
	Oceania	32,500	52,000	2.0	5.0	23.4
	Asia (except India, China, Myanmar)	852,000	1,118,500	17.0	75.0	245.0
	Sub total	4,075,500	2,030,500	82	166	986.6
Major distribution destinations of Afghan heroin	Afghanistan	47,000	146,000	2.0	80.0	91.8
	Pakistan	547,000	145,000	19.0	80.0	213.8
	I.R. of Iran	391,000	531,000	14.0	450.0	547.0
	Central Asia	283,000	60,000	11.0	33.0	112.2
	Russian Federation	1,490,000	166,000	70.0	58.0	548.6
	Turkey	25,000	25,000	0.8	9.0	14.4
	Europe (except Turkey and Russian Federation)	1,614,000	271,000	88.0	95.0	711.0
	Americas	1,538,000	82,000	26.0	29.0	212.0
	Middle East and South Asia (except I.R. of Iran, Pakistan and Afghanistan)	63,500	491,000	1.6	16.0	27.2
	Africa	1,240,000	172,000	25.0	60.0	235.0
	Sub total	7,238,500	2,089,000	257	910	2,713
	Total	11,314,000	4,119,500	340	1,075	3,700

* The reported number refers to the annual number of users as estimated by F. Lu, N. Wang, X. Sun, et al in "Estimating the number of people at risk for and living with HIV in China in 2005: methods and results", *Sexually Transmitted Infections*, June 2006, Vol. 82 Suppl 3, pp. iii 87-91. The number of annual users differs from the official number of opiates users registered which in 2009 was 900,000.

any) in other Latin American countries remains unknown due a dearth of data for nearly half of all Latin American countries.

India has traditionally been an important consumer of opium.¹⁴ Based on the ARQs provided by the Government, current opium consumption in India is estimated at some 65-70 mt per year. The Government reports also show that foreign-sourced opium has neither been seized nor reported as trafficked into India. Consequently, such a consumption level (6% of the estimated global total) would require the illicit cultivation of some 1,500 - 2,000 hectares of opium poppy on Indian territory. Diversion from licit cultivation could also be a source of supply, but Indian authorities now consider this possibility less likely given the limited size of licit cultivation

(6,000 ha in 2009) and the strict controls in place. Opium is also consumed in neighbouring countries, such as Bangladesh and Nepal. But there also, Afghanistan (or Myanmar) does not appear to be the source. Government reports and recent field research have confirmed the existence of (limited) illicit opium poppy cultivation in Nepal, as well as in the border areas of Bangladesh and India,¹⁵ which could be the source for consumption in these countries. Until now, it was generally assumed that these markets were captured by Myanmar and Afghan suppliers, but the possibility of an emerging regional source of supply cannot be discounted and needs to be studied further.

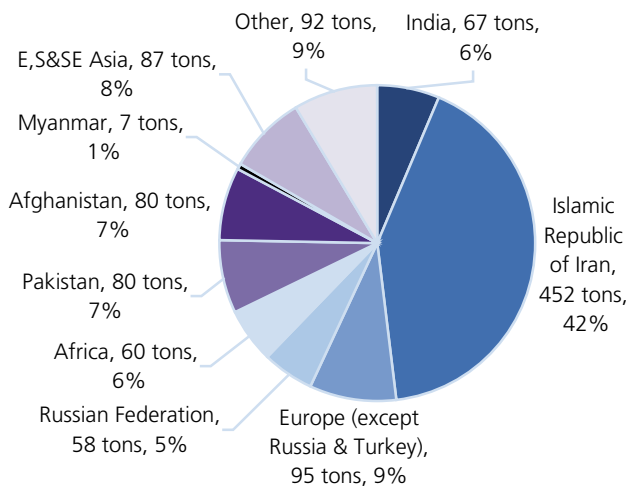
The main African country to have reported opium

¹⁵ UNODC mission report to South Asia, information provided by Bangladesh, Nepalese and Indian counter-narcotics officials, March 2009.

¹⁴ UNODC, *A century of international drug control*, 2008, p.15.

Fig. 6: Estimated global opium consumption in 2008

Source: UNODC



consumption is Egypt. As in India, there are no reports or data to indicate that the opium consumed in Egypt (estimated at 60 mt)¹⁶ is trafficked from another country. This may suggest the existence of illicit cultivation of some 1,000 ha of opium poppy in Egypt. Raw opium may also be consumed in other African countries, but until comprehensive drug use surveys are conducted or other data is made available to UNODC, much uncertainty will remain in this area.

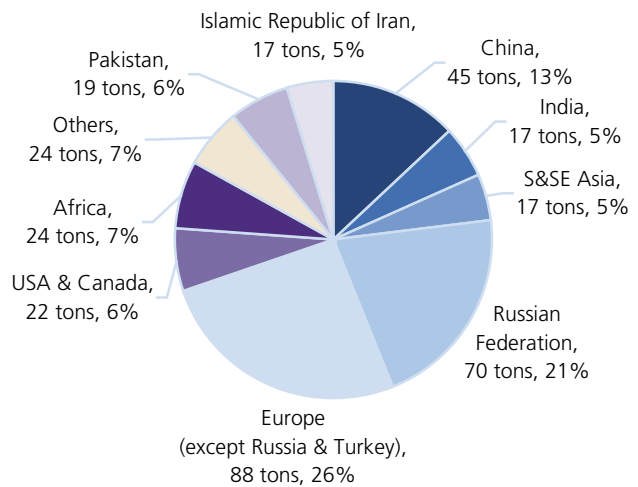
Although it reportedly consumed an extraordinary 26,690 mt of opium a century ago,¹⁷ consumption in China now appears to be limited to some 12 mt annually.¹⁸ The opium consumed in South-East and East Asia originates mainly in Myanmar and to a much lesser extent in the Lao People's Democratic Republic. There may be some local production in other East and South-East Asian countries, since the amount of opium seized there (0.3 mt in 2008) is not proportional, compared with other regions, to the estimated level of consumption (75 mt). Moreover, there is little evidence of opium trafficking from Myanmar or the Lao People's Democratic Republic to these countries.

Demand for heroin

Heroin is a more potent and addictive derivative of opium. It may be smoked or injected. In recent years, it is estimated that some 340 mt of the substance have been consumed worldwide each year.

Fig. 7: Global heroin consumption (340 mt), 2008

Source: UNODC



Two markets, Europe¹⁹ and the Russian Federation, currently account for nearly half of global heroin consumption. With 70 mt of heroin consumed per year, the Russian Federation is estimated to be the country with the highest national level of consumption. The combined level of heroin consumption in European countries is estimated at around 85-90 mt.²⁰ Within Europe, four countries dominate, namely the United Kingdom (some 19 mt), Italy (about 18 mt), France (an estimated 10 mt) and Germany (approximately 7 mt). Afghan opium is now the only known source of heroin consumed in Europe and the Russian Federation.

In 2008, available data suggest that around 20 mt of heroin were consumed in the United States of America, 1.3 mt in Canada and 5 mt in Latin America. According to US Government reports, the majority of the heroin consumed in the country comes from Latin America and Mexico. The rest is trafficked from Afghanistan via Europe and Africa. Opium production in Mexico was reported to have sharply increased that year (by 120%), amounting to 325 mt of raw opium, from which 30-40 mt of heroin could potentially be produced.

In contrast to its high opium consumption levels and despite its proximity to the world's largest heroin producer, official reports indicate that heroin consumption is relatively low in the Islamic Republic of Iran (14 mt for an estimated 391,000 users). Afghanistan's other neighbour, Pakistan, has approximately 500,000 heroin users, estimated to have consumed around 19 mt of heroin in 2008. At the source, in Afghanistan, domestic consumption is estimated at around 2 mt per year (2008)

¹⁶ UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009.

¹⁷ UNODC, *A century of international drug control*, 2008, p.91.

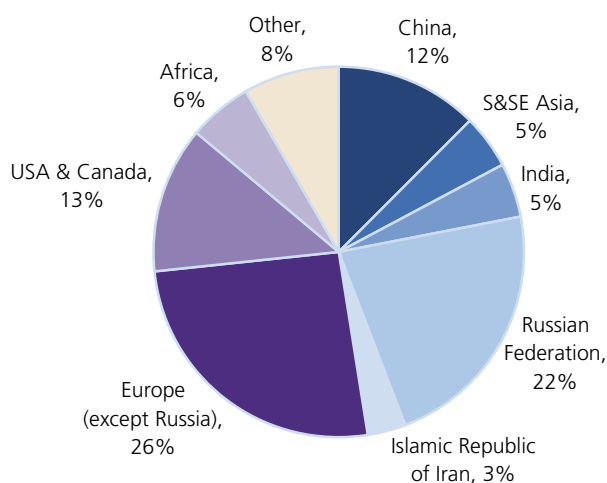
¹⁸ UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p.27.

¹⁹ For the purpose of analysis in this chapter, "Europe" excludes Turkey and the Russian Federation.

²⁰ Ibid.

Fig. 8: Global heroin/opium market distribution (US\$ 65 billion) in 2008

Source: UNODC



among 50,000 users (this increased to 100,000-135,000 in 2009).

At an estimated 17 mt in 2008, India has the highest level of heroin consumption in South Asia. The estimated amount of heroin consumed in neighbouring Bangladesh was also considerable, amounting to 4 mt in the same year. In Nepal, heroin consumption appears to have increased in recent years and is currently estimated at around 800 kg. As already noted, there appears to be a certain level of heroin production – and illicit opium poppy cultivation – in India. According to official reports from the Governments of Nepal and Bangladesh, almost all the heroin consumed in those countries originates in India.

China's 2.2 million heroin users, the largest population in absolute terms, were estimated to consume some 45 mt of heroin in 2008. Most of the supply for China is sourced in Myanmar, although Afghan heroin appears to be gaining market shares. In other South-East and East Asian countries, heroin consumption was estimated at around 18 mt. The main sources of the heroin consumed in this region are Myanmar and the Lao People's Democratic Republic, followed by processed Afghan opium. In Australia and New Zealand, the annual heroin consumption was estimated at 1.8 mt, sourced from both Afghanistan and Myanmar.

Nearly all of Africa's opiate users are reportedly consuming heroin.²¹ Although estimates for that region are not very reliable, approximately 25 mt of heroin would be needed to supply Africa's addict population,²² tentatively estimated at 1.2 million individuals. Most of this

market appears to be supplied by Afghan heroin trafficked via Pakistan, India and a number of countries along the Arabian peninsula.

Value of the trade

At retail level, the total value of the heroin market is substantial at an estimated US\$55 billion. The size of the annual opium market is a more 'modest' US\$7-10 billion. Consequently, the combined total opiates (heroin/opium) market could be worth up to US\$65 billion per year. This amount is higher than the GDPs of many countries. In economic terms, nearly half of the overall opiate market value is accounted for by Europe (some US\$20 billion) and the Russian Federation (US\$13 billion). Other lucrative markets include China (US\$9 billion) and the United States and Canada (US\$8 billion). Most profits are generated downstream, leaving Afghan producers with only a fraction of the profits. The farm-gate value to the farmer for cultivation and immediate sale of opium was estimated at US\$0.4 billion in 2009. When adjusted to include the profits derived from trafficking of opium and the conversion of opium to morphine and/or heroin, the value to the Afghan opium economy was estimated at US\$2.4 billion (2009) or only about 3.5% of the total value of the opiate industry.

Global volume and distribution

To estimate the quantity of opiates required to supply world illicit demand, one must add reported seizures to estimated levels of consumption. Some 646 mt of opium and 91 mt of heroin/morphine were seized in 2008. Around 5,000 mt of opiates (heroin, morphine and opium combined and expressed in opium equivalents) would have needed to enter the market to satisfy global demand in 2008.

For heroin only, world consumption (some 340 mt in 2008) combined with reported seizures (91 mt in 2008), would indicate an annual flow of about 430 mt of heroin into the global market.

The distribution of opium production

Production in Afghanistan increased from around 200 mt in 1980 to 3,300 mt in 2000, reaching a peak of 8,200 mt in 2007, before dropping slightly to 7,700 mt in 2008 and again to 6,900 in 2009. Expressed as a proportion of the global illicit opium production, Afghanistan's share rose from around 20% in 1980 to 70% in 2000, and to more than 90% since 2006. This is directly related to decreased output in the 'Golden Triangle', encompassing Thailand, the Lao People's Democratic Republic and Myanmar, the world's leading opium producer in the 1970s and 1980s. Between 2003 and 2008, opium production in Myanmar fell by 59%, from 810 to 410 mt. Production in the neighbouring Lao People's

²¹ UNODC, *2006 World Drug Report*, p. 74.

²² UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p. 13.

Table 3: Opiate (opium, heroin and morphine) seizures, 2008

Source: UNODC

		Heroin and morphine (mt)	Heroin and morphine in opium equivalent (mt)	Opium (mt)	Total opium equivalents (mt)
Major distribution routes of Myanmar and Laos heroin production	Myanmar	0.3	3.0	3.9	7
	China	4.3	43.0	1.4	44
	India	1.1	11.0	2.0	13
	Oceania	0.1	0.8	0.0	1
	Asia (except India, China, Myanmar)	1.0	10.0	0.3	10
	Sub total (rounded)	7	68	8	76
Major distribution routes of Afghan heroin	Afghanistan	3.3	23.1	43.0	66
	Pakistan	9.2	64.4	27.0	91
	I. R. of Iran	32.0	224.0	561.0	785
	Central Asia	5.3	37.1	4.8	42
	Russian Federation	3.4	23.8	0.4	24
	Turkey	15.5	108.5	0.5	109
	Europe (except Turkey and Russian Federation)	10.4	72.8	0.3	73
	Americas	3.6	25.2	0.8	26
	Middle East and South Asia (except I. R. of Iran, Pakistan and Afghanistan)	0.8	5.6	0.1	6
	Africa	0.3	2.2	0.1	2
	Sub total (rounded)	84	587	638	1,225
	World total (rounded)	91	655	646	1,301

Democratic Republic also declined dramatically, from more than 120 mt in the 1990s to around 10 mt in recent years. Thailand's production is negligible; it has not reported any significant cultivation since 2003.

Although Afghanistan's potential opium production decreased by 10% from 2008 to 2009, it is still well above the average annual production recorded during the 1990-2006 period. Data do not show a corresponding increase in world demand and UNODC has not registered any unusual price declines or dramatic increases in the purity of the heroin seized worldwide. On that basis, and taking into account uncertainties as regards the exact level of world demand, a potential over-production of some 12,000 mt during that period presents a supply-demand riddle that deserves attention.

Turning to the Americas, the average amount of opium estimated to be produced in Latin America and Mexico was around 130 mt per year until 2006. In 2008, a reported 120% increase in opium production in Mexico made it the third biggest opium producing country after Myanmar with 325 mt potentially produced in 2008.

Fig. 9: Global opium production, 1990-2009

Source: UNODC

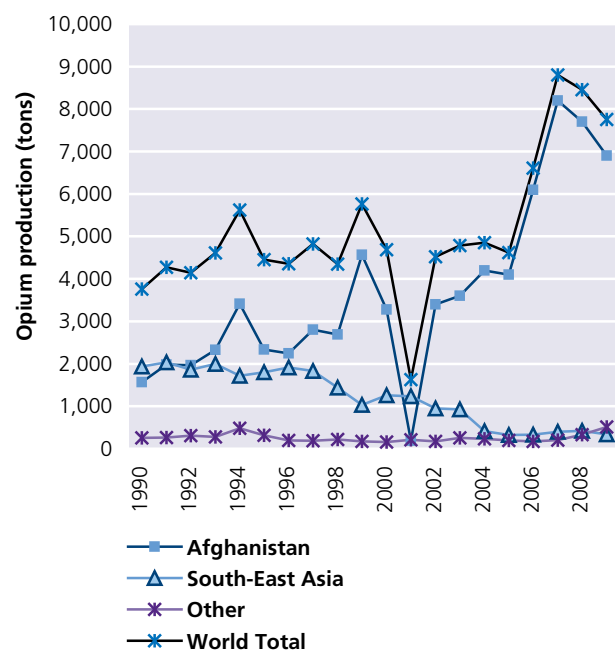
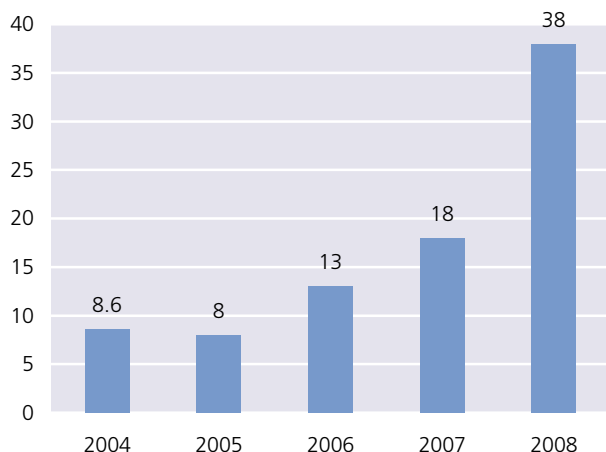


Fig. 10: Potential pure heroin production in Mexico, in metric tons, 2004-08Source: National Drug Intelligence Center, *National Drug Threat Assessment 2010*

Some data also suggest that limited illicit cultivation takes place in other countries, such as Egypt and India. At the time of writing, no information was available on the quantities cultivated and produced, which, in the case of Egypt, may be negligible. Algeria reports the eradication of approximately 80,000 opium poppy plants every year, but this production appears to be limited to supplying the local market.²³ Finally, there is illicit cultivation in some CIS countries. Ukraine, the Republic of Moldova and the Russian Federation for example seem to be self-supplied for their own local market of poppy straw derivative solution (Kompot).

The distribution of heroin production

In 2008, approximately 2,700 mt of Afghanistan's opium were refined into an estimated 380 mt of heroin to supply the global market. Placing a distant second is Myanmar and the Lao People's Democratic Republic production which yielded some 40 mt of heroin in 2008; all processed in Myanmar. The remainder, some 30-40 mt in 2008, is shared among mostly Latin American countries (including Colombia and Mexico). Processing Mexico's opium output alone would potentially yield some 38 mt of pure heroin in 2008. Lastly, lower levels of heroin production continue to exist in places like India.

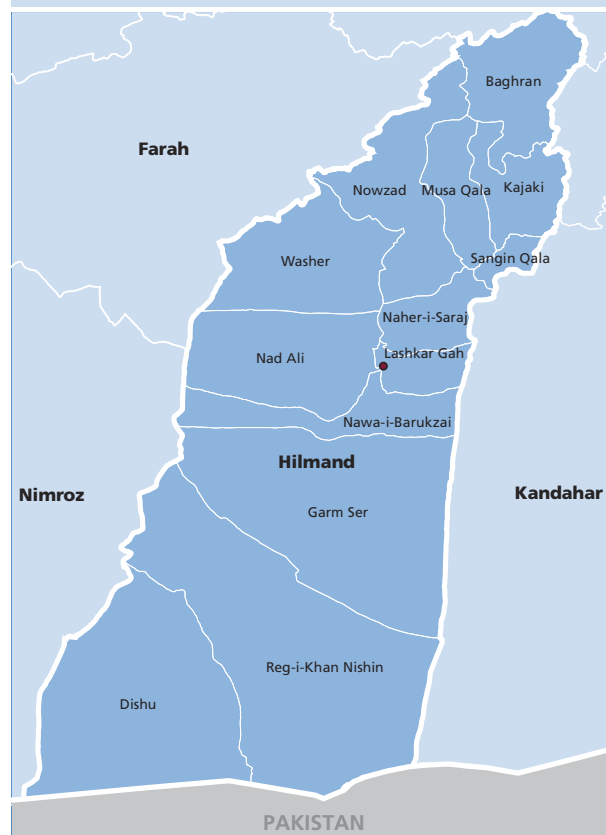
Through a relatively simple chemical process, opium is used as the raw material for the extraction of morphine base, an intermediary product. A crucial precursor chemical, acetic anhydride, is then used to convert morphine base into heroin.²⁴ In terms of quantities, each kg

²³ INCB, *Report of the International Narcotics Control Board for 2009*, February 2010.

²⁴ Other chemicals are required but most of these are anyway not restricted under international conventions.

Map 1: Hilmand province

Source: UNODC



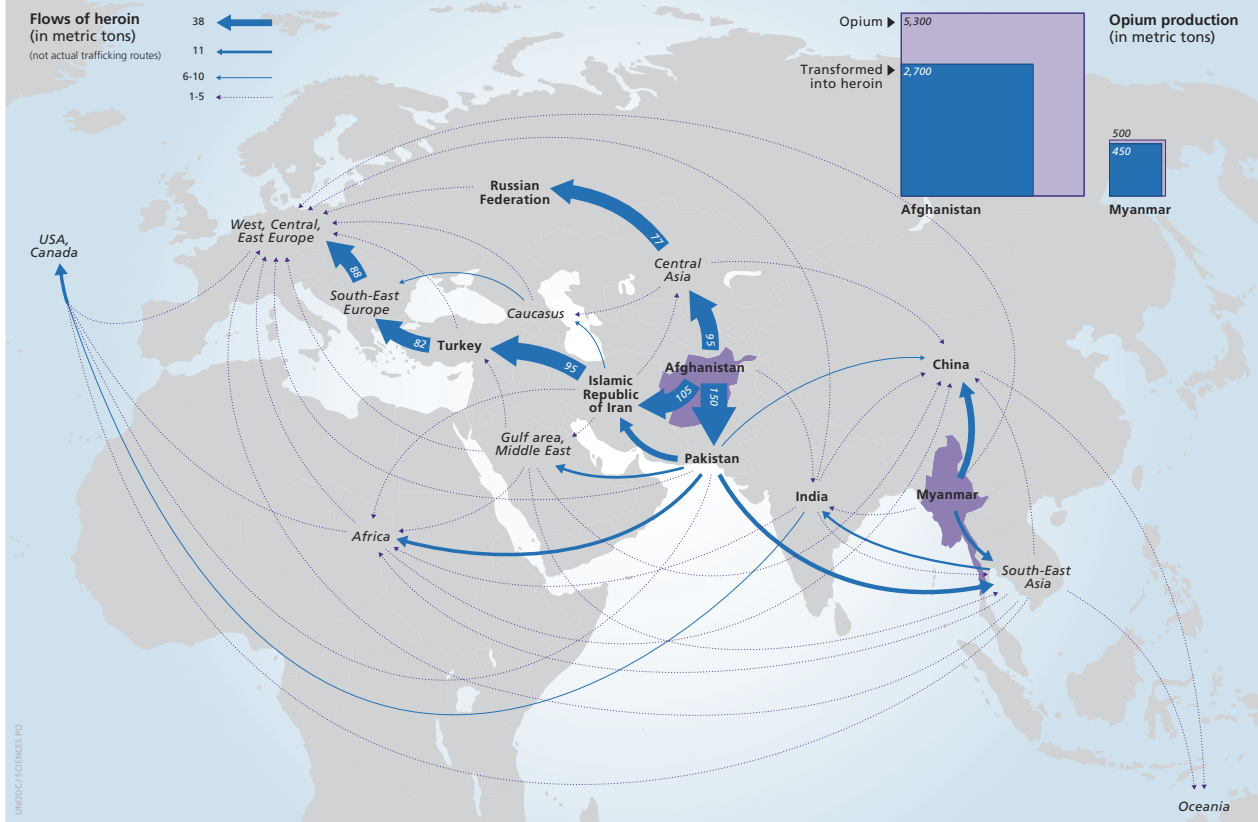
of Afghan heroin requires approximately 7 kg of Afghan opium to produce. Afghan opium generally has a higher morphine content than the opium produced in Myanmar which requires approximately 10 kg of opium for each kg of heroin processed. Laboratories refining Afghan opium therefore face somewhat lower processing costs in the initial phases of heroin production.

Acetic anhydride costs approximately US\$1-2 per litre in licit trade but (illicit) prices in Afghanistan have shot up over the past decade from US\$24 to US\$350 per litre, either due to more effective interdiction or increased demand. Since acetic anhydride is not produced in Afghanistan, it must be diverted from licit trade and smuggled into the country. In order to produce the required volumes of heroin (380 mt), as much as 1,000 tons of acetic anhydride needed to be smuggled into Afghanistan (or other countries where processing potentially takes place) in 2008. The interdiction of 14,233 litres in Afghanistan in 2008, while an increase over 2007, remains marginal at a ratio of approximately 1%.

Generally speaking, there is a geographical overlap between regions of opium production and heroin processing (Afghanistan, Myanmar). It is established that there is a considerable number of heroin laboratories in Afghanistan. This is evidenced by reports from the Afghan authorities on the destruction of 69 facilities in

Map 2: Global heroin flows of Asian origins

Source: UNODC



2008²⁵ (against 57 in 2007) while UNODC surveyors identified 97 laboratories that same year. By way of comparison, Myanmar authorities dismantled 24 heroin laboratories over the 2006-2008 period.²⁶

In Afghanistan, processing (and cultivation) are concentrated in the southern provinces, such as Hilmand, Kandahar and Nimroz, where the insurgency and lack of government control provide the ideal cover. Notably, Kandahar's Spin Boldak district was the location of the largest acetic anhydride seizure in 2008, with 7,500 litres (enough for over 3.5 mt of heroin) confiscated in a single incident. But Hilmand province is at the core of the global trade in Afghan opiates. As well as its vast production of opium, it is also the location of large, fixed heroin processing facilities. In 2008, Hilmand province alone accounted for almost 50% of Afghanistan's opium seizures.²⁷ Of the known district locations, Dishu in the south and Nad Ali in the centre saw the greatest seizure

volumes. The latter district is a major opium poppy cultivation area on the Hilmand river, while Dishu is a processing district and a hub for trafficking into Pakistan. However, all of the laboratories dismantled in Hilmand in 2008 were in central and northern districts. Well-known opiate bazaars in places such as Lashkar Gah, Baramcha and Girishk continue to operate, although they were the scene of several seizures in 2008.

At the same time, there is also the possibility that not all Afghan opium is processed into heroin in Afghanistan. If this is the case, Afghanistan needs to export opium (and/or morphine) for this purpose, which, in the case of opium, increases the chance of detection. There are no reports, however, of Afghan opium being trafficked to the Americas, Africa, South Asia (except Pakistan) and South-East Asia. Only a trivial amount is thought to be shipped to Gulf countries and is limited to local consumption. Between 2000 and 2008, seizure data provided to UNODC indicated negligible opium and morphine seizures in European countries (including Turkey). There were, however, sizeable opium seizures reported by countries north of Afghanistan. In 2008, approximately 4.5 mt of opium were seized in Central Asian countries but the regional market (34 mt) likely absorbed most of the flow. Moreover, there is a general absence of morphine seizures in this region.

²⁵ UNODC Afghanistan country office, *Analysis of Opiate and Precursor Seizures in Afghanistan in 2008*, 2009, p.13; see UNODC 2009 *World Drug Report*, p.37.

²⁶ UNODC, *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs in East and South-East Asia (and neighbouring regions)*, November 2009, pp 86-91.

²⁷ UNODC Afghanistan country office, *Analysis of Opiate and Precursor Seizures in Afghanistan in 2008*, 2009, p.13; see UNODC 2009 *World Drug Report*, p.37.

The highest volumes of morphine and opium seizures were reported by Pakistan and the Islamic Republic of Iran, Afghanistan's immediate neighbours. In 2008, Pakistan (7.3 mt) and the Islamic Republic of Iran (9 mt) seized a combined 16.3 mt of morphine, a staggering 95% of global morphine seizures. In contrast, Afghanistan only seized 479 kg that same year. Most Iranian and Pakistani morphine seizures occurred close to the Afghan border, perhaps suggesting that if large-scale processing is taking place outside Afghanistan, it is staying close to the source. Both Pakistan (27 mt) and the Islamic Republic of Iran (573 mt) effected more than 90% of global opium seizures, but demand for the substance is high in both countries while that of morphine is negligible. Referring to these numbers, the *2008 World Drug Report* concluded that such high morphine and opium seizures indicated that 'important amounts of heroin might be produced outside Afghanistan, as morphine does not have a large user base.' This possibility needs to be further researched.

Distribution of trafficking flows

As mentioned earlier, there is no strict division between regions of supply and demand. The same caution is warranted in examining 'transit' regions, which very often are also regions of consumption and possibly add to supply. The following estimate of global opiate flows uses a methodology combining both supply-side and demand-side analyses from production, consumption and seizure data.²⁸

At first sight, there are distinct patterns of distribution, as production in Latin America and Myanmar is mostly dedicated to the US and Chinese markets, respectively. Altogether, these two regions constitute around 15% of total heroin flows in the world. Afghanistan accounts for an estimated 85% of global heroin and morphine exports, often overlapping with both Latin America and Myanmar, including in the case of the United States and Chinese markets, respectively.

From Afghanistan

Of the estimated 380 mt of heroin produced in Afghanistan, approximately 5 mt stay in the country for local consumption or is seized by local law enforcement.²⁹ The remaining 375 mt are exported to the world via routes flowing into and through the neighbouring countries of Pakistan (150 mt), the Islamic Republic of Iran (105 mt) and the Central Asian countries of Tajikistan, Uzbekistan and Turkmenistan (95 mt) towards their

final destinations in Europe, the Russian Federation and Asia.³⁰

About a third of the heroin produced in Afghanistan travels to Europe (110 mt) while a quarter goes north to Central Asia and the Russian Federation. Afghan heroin is also increasingly meeting a rapidly growing share of Asian, mainly Chinese, demand. Approximately 15-20 mt are estimated to be trafficked to China while another 35 mt are trafficked to other South and South-East Asian countries.³¹ Perhaps 35 mt are shipped to Africa, while the remainder supplies markets in other parts of Asia, North America and Oceania.

In addition to heroin, Afghanistan also exports some 1,000 mt of opium annually to its immediate neighbours (the Islamic Republic of Iran, Pakistan and Central Asia) and further to a global market of some 4 million opium consumers - most of which are in Asia.³² With the exception of South and Central America, Afghan opiates are now trafficked and sold in virtually every corner of the globe.

From Myanmar

More than three quarters of Myanmar's production (some 40 mt of heroin) supplies the local and regional markets, primarily Chinese. The remainder goes to other South-East Asian countries and Oceania.

From Latin America (Colombia and Mexico)

In 2008, it is estimated that some 30-40 mt of heroin were potentially produced in Latin America (mainly Mexico and Colombia). Producers in Colombia and Mexico supply all of the Americas, although the majority goes to the north.

Flow interception (seizures)

Interception rates vary widely between regions; however, estimated global interception rates are approximately 20% of the total heroin flow worldwide in 2008. The Islamic Republic of Iran leads all countries with 23% of all heroin interceptions. Turkey comes next with 16%, followed by the United States and China, which come in third and fourth with 9 and 8% respectively. Heroin seizures decreased sharply in Pakistan compared to the average level observed between 2000 and 2006 (26 mt).

■ ■ 28 Available demand data was the key variable used to estimate the size of the heroin/opium flows. Total heroin consumption was estimated for each country, then combined with official seizure data and balanced against total production.

29 The country seized less than three mt of heroin in 2008, a seizure rate of less than 1%.

■ ■ 30 The destination of the remaining 20 mt is unknown. It might be sourced from Afghanistan via Pakistan and/or other routes and/or be produced in India (diverted from the licit to the illicit market). In order to clarify this, an in-depth heroin consumption and trafficking study should be carried out in India.

31 There are approximately 20 mt of heroin unaccounted for which can potentially be trafficked to India (see UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009) but this remains a hypothesis until further evidence is produced.

32 See UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p. 11.

Table 4: Heroin flow and interdiction, 2008

Source: UNODC

Country/region	Estimated amount of heroin + morphine flow (mt)	Average heroin + morphine seizures (mt)	Percent of estimated flow intercepted
Afghanistan	380	3.30	1%
Pakistan	150	9.20	6%
I. R. of Iran	140	32.00	23%
Turkey	95	15.50	16%
South-East Europe (Bulgaria, Greece, Albania, Romania, Serbia, FYR Macedonia, Bosnia, Croatia, Montenegro)	90	2.8	3%
Rest of Europe (except Russian Federation)	105	7.60	7%
Midde East& Gulf countries (except I. R. of Iran)	14	0.80	6%
Central Asia	95	5.30	6%
Russian Federation	77	3.40	4%
Africa	35	0.31	1%
Myanmar	60	0.30	1%
India	37	1.10	3%
China	55	4.30	8%
Rest of S, E & SE Asia	30	1.00	3%
Oceania	2	0.08	4%
USA and Canada	24	2.1	9%

Interdiction rates continued to remain very low in the main production centres of Afghanistan (1%) and Myanmar (1%), in African countries (1%), the Balkans (3%) and India (3%). In 2008, there were also substantial decreases in heroin seizure volumes in Western and Central Europe (7.6 mt), compared to the level observed between 2000 and 2006 (9 mt).

Global impact

The opium economy is deeply entrenched and its reach extends far beyond the borders of the few source countries. Whether one looks at the damages to the health of communities, the rise in criminal activity, the loss of economic productivity, the impact on global security or the more insidious corruption of government institutions, it is fair to say that illicit opiates leave very few nations untouched.

The cost of opiate use to individual users and to society as a whole is high. Studies indicate that more users die each year from problems related to heroin use and more are forced to seek treatment for addiction than for any other illicit drug. Users develop both tolerance and physical dependence, which means that their bodies adjust to the presence of heroin over time, requiring

more to produce the same effect and inducing severe withdrawal symptoms if the drug is not taken in sufficient quantities. The difference between a recreational dose and a fatal one is small, and variations in street drug purity result in many overdoses. The mortality rate for dependent heroin users is between 6 and 20 times that expected for those in the general population of the same age and gender.³³ In addition, heroin is the drug most associated with injection, which brings about a host of acute and chronic health problems including the transmission of blood-borne diseases such as HIV/AIDS and hepatitis C.

The largest national market for Afghan heroin is the Russian Federation; a market which has rapidly expanded since the dissolution of the Soviet Union. It is there that heroin is currently doing some of its worst damage, including through the spread of HIV. In neighbouring Central Asia, the past 10 years have witnessed both the highest increase in prevalence of drug abuse worldwide and similarly alarming levels of HIV/AIDS. Both these regions are good examples of the speed and extent of the

³³ WHO/UNODC/UNAIDS position paper: "Substitution maintenance therapy in the management of opioid dependence and HIV/AIDS prevention".

damage a sudden increase in heroin transit can do. On the Balkan route, the ravages of opiate consumption in the Islamic Republic of Iran have been well documented, that country having one of the largest opium user populations in the world. In Africa, an emerging destination for Afghan heroin, a rise in injecting drug use³⁴ could worsen an already severe HIV/AIDS epidemic.³⁵ In Afghanistan itself, while most of the lethal crop is exported, enough is left behind to create addiction. In 2005, UNODC estimated the entire opiate-using population to be 200,000. Since then, recurring anecdotal information appears to indicate increased addiction rates, sometimes affecting and debilitating entire villages.

In 2008, 285,000-360,000 opiate users were found in Afghanistan. In addition to creating health problems, the opiate trade has implications for global security. Previous UNODC research highlighted the role of drugs (including opiates) as precursors or perpetrators of instability worldwide.³⁶ One early example was the Soviet invasion in 1979, which triggered the mass production of opiates in Afghanistan. Global drug production is increasingly being concentrated in a few unstable areas and conflict zones. In the case of opiates, insurgent groups operating in various theatres are thought to partially fund their operations from the taxing of production and trafficking. In Afghanistan, a conservative estimate placed the figure at US\$125 million/year in profits for Taliban insurgents. Across the border, in Pakistan's tribal areas, Taliban allies such as al-Qaida and other like-minded groups (for example, the Islamic Movement of Turkestan and the Tehrik-e-Taliban Pakistan) have bases along the main heroin/opium trafficking routes and are ideally located to benefit from trafficking. In other parts of the world, militant groups such as the Kurdistan Workers' Party (PKK) or rebels in India's north-east may also be benefiting from the illicit opiate trade. Illicit opiates thus potentially feed a chain of insecurity stretching across Asia and Europe.

Transnational crime generates money and power. This power is not sufficient to threaten the stability of developed states, but in Afghanistan, and some vulnerable countries on the Balkan and Northern routes, money generated from opiates compares well with GDPs. The amount of money that the trade brings to bear on these countries' political systems and societies poses a threat to their development and some nations may be at risk of 'drug dependence'. Countries like Afghanistan (48% of

GDP in 2007, 33% in 2008 and 26% in 2009), are in a sense dependent on the illicit opiates industry. In the case of Tajikistan, the industry may amount to as much as 30% of the recorded GDP.³⁷ This situation is exploited by powerful criminal organizations, which have in some cases infiltrated the highest levels of government. These groups, which generate vast profits through drug trafficking and other illicit activities, are able to corrupt governmental officials, reduce the effectiveness of law enforcement and derail the march towards instituting the rule of law in newly-formed states in the Balkans, transition states in Central Asia and vulnerable states in Africa. Of course, corruption can emerge at any part of the chain, which means that corruption is not limited to transit (or source) countries.

1.2.2 Northern route

Unlike other major routes out of Afghanistan which have existed for decades, the Northern route through Central Asia and into the Russian Federation is a relatively recent phenomenon, only taking shape in the mid-1990s. In this region, both the nature and extent of drug trafficking have been strongly shaped by the dissolution of the USSR, whereby newly-formed states had to suddenly police borders previously administered centrally. These new borders remained virtually open until new national customs services were created in 1993–1994.³⁸

Routes and volumes

UNODC estimates that 25% of all Afghan heroin – or 95 mt – are trafficked each year from Afghanistan into the Central Asian Republics (CARs) towards the Russian Federation.³⁹ This total includes heroin that is consumed en route or at destination, seized by law enforcement or to a limited extent, trafficked onward to Europe. The Russian market is estimated to consume approximately 70 mt of heroin annually while Central Asian demand stands at 11 mt; the rest is either seized or continues onwards.

In addition to heroin, some 120-130 mt of opium are smuggled into the region each year, mostly for consumption in the CARs and the Russian Federation. There is no evidence of morphine being shipped in large quantities through this route. Transformed into opium equivalents, approximately 780-800 mt of opiates are trafficked annually along this route.

34 One of the indicators of that trend is the rise in the number of heroin users, which appears to have increased by 54% between 2004 and 2008 in Africa.

35 Sub-Saharan Africa, is home to two-thirds (67%) of people living with HIV/AIDS or 22 million people; see UNAIDS, *Report on the Global AIDS epidemic 2008*, August 2008.

36 UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009; see also UNODC, *Crime and instability: case studies of transnational threats*, February 2010.

37 Letizia Paoli et al., "Tajikistan: the rise of a narco-state", *The Journal of Drug Issues*, 2007, p.951.

38 Martha Brill Olcott et al.; "Drug trafficking on the great Silk road: the security environment in Central Asia", Carnegie Endowment working papers, 2000.

39 UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009.



From Afghanistan to the north, traffickers are offered a choice of three countries: Tajikistan, Uzbekistan and Turkmenistan. These northern borders span a length of some 2,600 km. The Uzbek and Tajik borders are marked by the Amu Darya River, while the Turkmen border is mostly desert. Although there is no shortage of possibilities for clandestine crossings, it appears that most of the trafficking occurs along established trade and transit routes. There are nine official crossings between Afghanistan and Central Asia, including two river ports, one on the Uzbek border and one on the Tajik border. These river ports are the primary conduit for legitimate trade, and also, it appears, for trafficking. They are:

- Hayraton (Afghanistan's Balkh province - Sukhandaraya province of Uzbekistan);
- Ninji Pianj (Afghanistan's Kunduz province - Khatlon Province, Tajikistan).

Uzbekistan's border with Afghanistan is short (137 km) and well-policed. While armed attempts at night crossings still occur, traffickers generally prefer to avoid this border in favour of easier alternatives such as the Tajik border. It appears instead that most opiates that do enter Uzbekistan first transit Tajikistan and to a lesser extent Kyrgyzstan. What cannot be excluded, however, is that larger, long-distance shipments by well-protected networks may find it convenient to use the better-developed infrastructure of Hayraton when aiming for the Russian market, or even to import precursor chemicals, as evidenced by a 2008 seizure of 1.5 mt of acetic acid.⁴⁰

Afghanistan's border with Turkmenistan is lengthy (744 km) and mostly desert. There is some lab activity in the border areas of adjoining Afghan provinces (such as Badghis), which is of concern since traffickers generally export opiates over the closest border. The Turkmen route is facilitated by the presence of approximately 1 million ethnic Turkmens in Hirat, Badghis and Faryab provinces. Turkmenistan also shares a 992 km border with the Islamic Republic of Iran where an equal number of Turkmens reside, mainly in the Mazandaran and Khorassan provinces, close to the border. Turkmenistan borders the Caspian Sea for a length of 1,768 km and its coastal port of Turkmenbashi was long viewed as an important heroin route across the Caspian to Azerbaijan and further to Europe. Although the Caspian is undoubtedly used for opiate trafficking, recent UNODC field research suggests that trafficking through this particular seaport may have fallen into disuse. Seizure data also appears to indicate limited direct trafficking from Afghanistan into Turkmenistan. Other routes may however be used. Recent data from the Central Asia Regional Information and Coordination Centre (CARICC) indi-

cates the emergence of a new route through Turkmenistan: From Afghanistan to the Islamic Republic of Iran-Turkmenistan-Kazakhstan-Russian Federation/CIS countries-Europe.⁴¹ Not enough information is available on this route to estimate its importance, however. Turkmenistan was a leading country in precursor chemical seizures in the late 1990s,⁴² but no movements have been detected in the past decade.

From a law enforcement perspective, control of the Tajik-Afghan border (1,387 km) is becoming more and more elusive. Outside fixed border points, traffickers continue to swim, wade or cross the Amu Darya river by boat, with the majority reportedly crossing undetected. Once in Tajikistan, the loads are then broken down into smaller quantities to be shipped across the border by land, rail and air. The larger portion of opiates travels north through Kyrgyzstan toward Kazakhstan. In Kyrgyzstan, the southern city of Osh has consistently been identified as a regional hub of trafficking activity. As noted, a smaller flow veers east into Uzbekistan and further to Kazakhstan.

The building of new bridges across the Amu Darya river, while crucial for the development of regional trade, is misused by traffickers. According to law enforcement sources, opiate traffickers, in collusion with corrupt officials, reportedly use the cover provided by legitimate cross-border commerce to traffic growing quantities of heroin into Tajikistan.⁴³ These developing corridors can also be potentially misused for precursor conveyance destined for laboratories in north-eastern Afghanistan.⁴⁴ In 2007, a seizure of 10 mt of acetic anhydride in the Russian Federation was to be shipped by truck to Afghanistan, by way of Tajikistan.⁴⁵

In all, 95 mt of heroin are estimated to be trafficked across these three borders. Estimates suggest that the largest proportion of the Central Asian flow runs through Tajikistan. Once in Central Asia, traffickers have access to a number of transportation options, including a well-developed road and rail network. Based on seizure figures, most trafficking appears to be conducted in private and commercial vehicles, often in relatively small amounts. Of 45 heroin seizures above 500 grams (a commercial quantity) made in Tajikistan between 2005

⁴⁰ Acetic acid is not a controlled substance but as been cited as a possible alternative to acetic anhydride in processing.

⁴¹ UNODC Regional office for Central Asia, "Compendium 2010".

⁴² In 1997-1998, 78% of heroin seized in Central Asia was apprehended in Turkmenistan while in 1995-2000, more than 198 mt of precursor chemicals were seized in the country, mostly acetic anhydride; see UNODC ROCA, "The Drug and Crime Situation in Central Asia: Compendium", 2003.

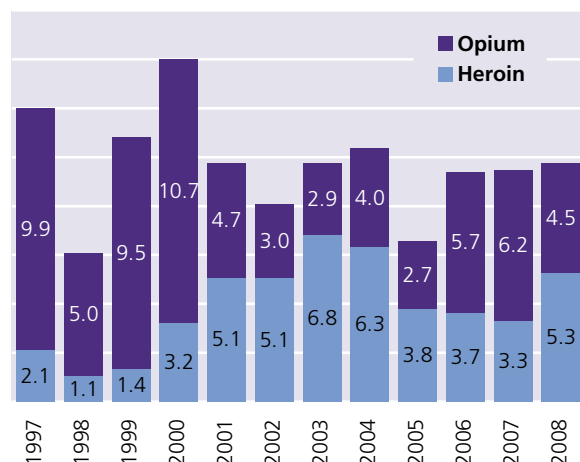
⁴³ Interview, Tajikistan, November 2009.

⁴⁴ UNODC surveyors identified 24 laboratories (13 morphine, 11 heroin) in north-eastern Afghanistan, see UNODC Afghanistan country office, *Analysis of Opiate and Precursor Seizures in Afghanistan in 2008*, p 13.

⁴⁵ UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p.73.

Fig. 11: Opiate seizures in Central Asia, 1997-2008 (mt)

Source: UNODC Regional Office for Central Asia



and 2007, 80% amounted to 10 kg or less, and of these, the average size was 2.6 kg. The largest seizure, made in 2005, was 119 kg. This is a large seizure, but it would take hundreds of similar shipments to accommodate the 95 mt estimated to be trafficked through the region.⁴⁶

There appears to be a recent trend toward larger seizures, however, suggesting increasingly well-resourced organizations. While it was rare to find a seizure of over 100 kg of heroin in Central Asia (or the Russian Federation) prior to 2008, at least 14 such seizures have been made since that time, including in Kazakhstan (537 kg), Tajikistan (100 kg twice), Uzbekistan (133 kg and 568 kg) and the Russian Federation (330 kg). A similar trend was observed with opium, where larger than usual consignments were seized in Tajikistan (400 kg), Turkmenistan (200 kg) and Uzbekistan (155 kg and 190 kg) in 2008. Of course, it remains unclear whether these trends reflect changes in the nature of the trafficking or in the nature of enforcement.

Reversing a previous downward trend that started in 2005, heroin seizures sharply increased in 2008 and made up the largest proportion of opiates seized in Central Asia. In all, 5.3 mt of heroin (60% more than in 2007) and 4.5 mt of opium (28% less than in 2007) were seized in Central Asia in 2008. Tajikistan has traditionally led Central Asia in heroin seizures, and on a per capita basis, probably leads the world in opiate seizures.⁴⁷ Turkmenistan's seizures are dominated by opium

while other Central Asia countries appear more balanced. In 2008, Uzbekistan's heroin seizures (1,472 kg) more than tripled compared to 2007 (480 kg).

Although most opiates are reported trafficked by road, traffickers can also move their product by air, including via direct routes into the Russian Federation. A common method involves internal body carry or 'swallowers'; most start their journey in Tajikistan. Air routes from Central Asia carry smaller shipments of opiates than land routes, but on aggregate, they likely amount to significant quantities with higher profit margins. According to official reports from the Russian Federation, more than 20% of seized heroin enters the Russian Federation through commercial airliner.⁴⁸ A smaller proportion, approximately 12%, is reportedly trafficked northward by passenger train. Here again, internal body carry appears to be a common method. UNODC estimates that approximately 25 mt of heroin are trafficked by air/rail, while the bulk, some 50-55 mt, is trafficked using the regional road network, mainly via Kazakhstan.⁴⁹

Although Kazakhstan is the inescapable heroin gateway to the Russian Federation if travelling by land, it seized only about 3% of the heroin flow estimated to cross its territory in 2008, despite a three-fold increase in heroin seizures over previous years. Kazakhstan is also last in regional opium seizures despite an annual consumption estimated at 18 mt. This anomaly is difficult to explain. It is true that due to their length, Kazakhstan's borders are the most challenging of all the CARs. A country roughly the size of Western Europe, Kazakhstan must police some 12,000 km of land borders (including the 7,000 km border with the Russian Federation) and 1,900 km of Caspian Sea coastline. Conversely, Kazakhstan is probably the best equipped Central Asian state to handle the drug threat as it has the largest financial resources. A 2008 report from the Central Asian Regional Information and Coordination Centre (CARICC) starkly concluded: "If drugs reach the territory of Kazakhstan then the probability of safe shipping to the Russian Federation can be around 95%." Once the heroin reaches Kazakhstan, most passes through the north-western borders into the populated areas of south-western Russia and western Siberia.

In addition to losses en route such as seizures and local consumption, not all heroin is destined for the Russian Federation. One small stream (approximately 1 mt) veers east towards China's Xinjiang province to supply the Chinese market. Based on anecdotal reports, this route may have grown in significance although it is unclear if one or all of Central Asia's borders with China

⁴⁶ In contrast, large cocaine seizures are typically multiple mt, and the wholesale value of these drugs is about the same in their primary destination markets.

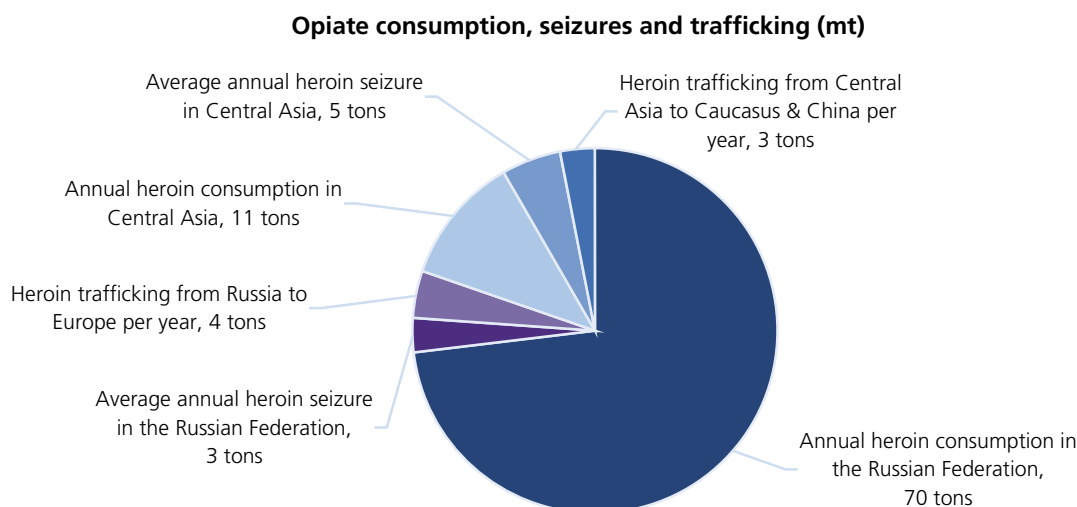
⁴⁷ According to UNODC data, three of the Central Asian countries were listed among the top 25 opium seizing countries in 2007. In terms of global heroin seizures, Tajikistan ranked 7th; Kazakhstan – 19th; and Uzbekistan – 21st.

⁴⁸ ARQ, Russian Federation 2008.

⁴⁹ UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p.50.

Fig. 12: Distribution of the heroin market on the Northern route, 2000-2008

Source: UNODC



are used for trafficking.⁵⁰ Another two mt are estimated to be shipped from Central Asia to the Caucasus region every year. The remainder, approximately 75-80 mt of heroin, enters the Russian Federation. Some 70 mt is annually consumed by heroin users in the Russian Federation and an average of 3 mt of heroin is seized annually. This leaves an estimated 4 mt of heroin to exit into Ukraine, Belarus, the Baltic countries and the Nordic countries.

How does the market operate?

The dissolution of the USSR influenced the dynamics and structures of organized crime in the region. Firstly, it permitted the re-activation of dormant cross-border trade, ethnic and family ties with Afghanistan. Second, the Central Asian states inherited a well-established air and road communication system that links them to the Russian Federation and Europe, a boon for opiate traffickers seeking new markets and alternate routes to Europe. Third, these new states are mostly poor and some have had problems with political insurgencies. Under-resourced and struggling to find their feet, addressing heroin trans-shipment was not an early priority. During the early transition years, Afghan groups quickly expanded their operations into Central Asia. The civil war in Tajikistan (1992-1997) was a facilitator, creating a lawless climate and further impoverishing the least developed of all post-Soviet states. In the post-war period, some warlords and criminal elements were left to consolidate their position. Over time, Tajik and other

Central Asian groups would traffic increasingly large loads into a rapidly expanding Russian market. Networks became entrenched and relationships were cemented with both Russian organized crime and Afghan suppliers.

On the Afghan side of the border, trafficking to Central Asia appears to be dominated by reportedly five major Afghan narcotics networks, comprised of officials, organized crime groups and warlords with sprinkled elements from former Mujahedin factions such as *Hizb-i-Islami*. These (sometimes overlapping) networks are often engaged in legitimate businesses and work alongside much smaller, often family-based, groups. Ethnic Tajiks living on both sides of the Tajik-Afghan border and their common language are important in this respect. Although there are some laboratories active in the adjacent north-eastern Afghan provinces (Takhar, Kunduz and Badakhshan)⁵¹ bordering Tajikistan, most Central Asian heroin is processed in and trafficked from southern Afghanistan. Pashtun networks based in the south ship narcotics across the country to Uzbek and Tajik groups for further shipment. Although groups are generally organized along ethnic lines in Central Asia, mixed ethnic membership is also found in some regions. This is most obvious in Tajikistan where some networks are composed of nationals from Afghanistan and Tajikistan. This facilitates trafficking operations and ensures smooth lines of supply.

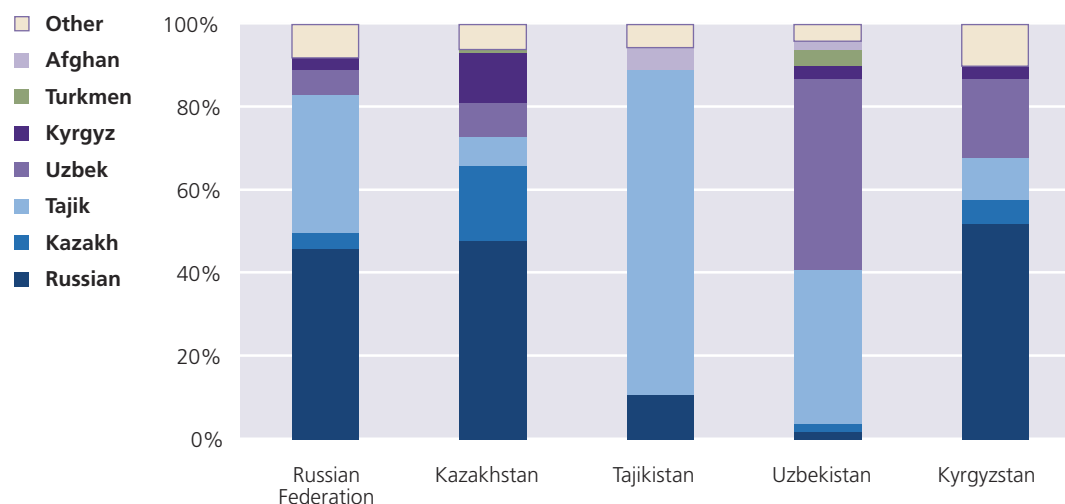
Based on customs seizures, there is plenty of evidence of transnational activity, but no national groups appear to dominate regional trafficking. Russian nationals comprise a large share of arrestees in Kazakhstan and Kyrgyzstan.

⁵⁰ According to some reports, the level of heroin trafficking from Central Asia (especially from Tajikistan) to China may be higher than currently estimated. Given the paucity of information, it is currently difficult to estimate the importance and extent of this relatively new phenomenon.

⁵¹ There are also laboratories active in Nangarhar (eastern Afghanistan) and a portion of their production reportedly moves north.

Fig. 13: Distribution of nationalities of arrested heroin traffickers at customs, 2000-2008

Source: World Customs Organization



gyzstan, but a much smaller share among countries that span the Afghan border. Conversely, a small number of Afghans are arrested in Tajikistan, but usually not further afield. Tajiks appear to be major players in a number of countries, including the Russian Federation, but are detected in much smaller numbers in Kazakhstan. According to Western law enforcement sources in the region, Russian-based organized crime groups generally place orders with Tajik-based groups who arrange for trans-shipment of the drugs from Afghanistan through Tajikistan. The drugs are then moved through the region and into the Russian Federation. It is possible that the Tajik groups who source the drugs then pass the consignments on to Russian groups in Kazakhstan but it seems more likely that the drugs change hands several times before reaching the consumer.

Outside these 'regional' nationalities, West Africans, especially Nigerians, have also been reported, particularly in Tajikistan. In some instances, they may act as simple couriers, as demonstrated with the 2006 attempt by a Nigerian group to have one of their own cross the Kazakh-Chinese border with heroin. There is a distinct possibility that firmer ties across borders will occur between Central Asian groups and networks that originate outside the region. Increased cross-border commercial ties and a re-establishment of ethno-cultural linkages with the western Chinese province of Xinjiang could facilitate supply to a growing heroin market in that part of China.

Heroin trafficking in some Central Asian countries also appears increasingly complex and professional. Large seizures in recent years may indicate an organized trafficking business, while arrest statistics seem to suggest a trend towards regionalization. Although they are still numerically important, individual entrepreneurs and

smaller groups united by family ties or kinship may have become fewer in number. There is also evidence that traffickers are increasingly resorting to violence in order to protect shipments. Armed clashes used to occur mostly on the Tajik-Afghan border, but Uzbek and Turkmen border guards are reporting incidents as well.⁵²

Heroin increases in value as it distances itself from the source. The estimated value of opiates (at the borders) trafficked through the Afghanistan/Central Asia border area is US\$350-400 million⁵³ annually. The portion that eventually reaches the Russian Federation will be worth 30 times this amount. In the Russian Federation, retail distribution of heroin and other drugs is carried out by a variety of criminal groups typically organized along ethnic lines with Central Asian, Caucasian, Russian/Slavic and Roma groups all active in drug trafficking.⁵⁴

Impact of this flow

In terms of absolute numbers, the Russian Federation is particularly affected with its 1.5 million addict population. The hugely damaging threat of HIV/AIDS is directly related to heroin injection. To date, there are over a quarter of a million registered HIV cases (although the number of unregistered cases is estimated to be much higher than this) in the Russian Federation. Of these, over 80% are intravenous drug users. In the CARs, nearly 15 years of continuous heroin transit has created

52 Interview Uzbek Chief of Border Guards, Tashkent, Uzbekistan, November 2009; Interview Deputy Chief Turkmen border guards, Ashgabat, Turkmenistan, November 2009.

53 UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009.

54 International Narcotics Control Strategy Report - 2007.

Table 5: Heroin users and consumption in the Russian Federation and Central Asia

Source: UNODC

Country	Number of estimated heroin users	Estimated level of heroin consumption (mt)	Number of estimated raw opium users	Estimated level of opium consumption (mt)
Tajikistan	20,300	1	4,700	3
Turkmenistan	31,200	1	1,400	1
Uzbekistan	118,600	5	13,800	8
Kyrgyzstan	25,900	1	9,600	5
Kazakhstan	86,000	3	33,000	18
Total (rounded)	282,000	11	62,500	34
Russian Federation	1,500,000	70	160,000	58

a local market of 282,000 heroin users, consuming approximately 11 mt of heroin annually. Local opium consumption is estimated at approximately 34 mt (although demand in Turkmenistan may be underestimated). This puts some Central Asian states on par with countries with the highest global opiate abuse prevalence.⁵⁵ As in the Russian Federation, heroin use in Central Asia has led to a jump in HIV cases, spreading predominantly among male injecting drug users of the most productive age (20 to 49 years).⁵⁶ Another statistic completes this grim picture: the total number of officially registered HIV cases in Central Asia has increased 19-fold in the last decade: from 1,641 cases in 2000 to 30,993 cases⁵⁷ in late 2008.⁵⁸

The total value of the opiate market is estimated to be around US\$13-15 billion per year in both Central Asia and the Russian Federation.⁵⁹ By virtue of this financial weight alone, organized crime in the region contributes substantially to problems of corruption and undermines governance. Drug traffickers are able to offer substantial bribes to poorly paid local police, border guards and customs to turn a blind eye to suspicious shipments. In Central Asia, both Tajikistan and Kyrgyzstan are particularly vulnerable, and both have very high levels of corruption.



55 Current annual prevalence of opiate abuse is estimated to be around 1% of the adult population (between 15 – 64 years) in the region.

56 UNODC Regional Office for Central Asia, *Compendium of Drug Related Statistics. 1997-2009, 2009*, p.7.

57 In 2008, 6,664 officially registered persons with HIV/AIDS were identified in Central Asia.

58 UNODC Regional Office for Central Asia, *Compendium of Drug Related Statistics. 1997-2009, 2009*, p.7.

59 These figures are necessarily imprecise, particularly due to the lack of data on heroin purity levels in Central Asia and lack of certainty regarding the size of the Russian heroin using population.

1.2.3 Balkan route

The Balkan route to West and Central Europe runs from Afghanistan via the Islamic Republic of Iran, Turkey and south-east European countries. This route and its various branches form the artery that carries high purity Afghan heroin into every important market in Europe. UNODC estimates that 37% of all Afghan heroin or 140 mt is annually trafficked into the Islamic Republic of Iran, from Afghanistan and Pakistan, towards the European market.

Routes and volumes

The Islamic Republic of Iran's eastern border with Afghanistan and Pakistan is 1,845 km long and consists of mainly mountainous or harsh desert terrain. There are obvious challenges to achieving even partial control over this area, although 12,000 anti-narcotics police and border guards are reportedly deployed at these long borders.⁶⁰ The Balkan route begins in Afghanistan's southern and western provinces, with shipments destined for both the Afghan-Iran border and the Afghan-Pakistan border.

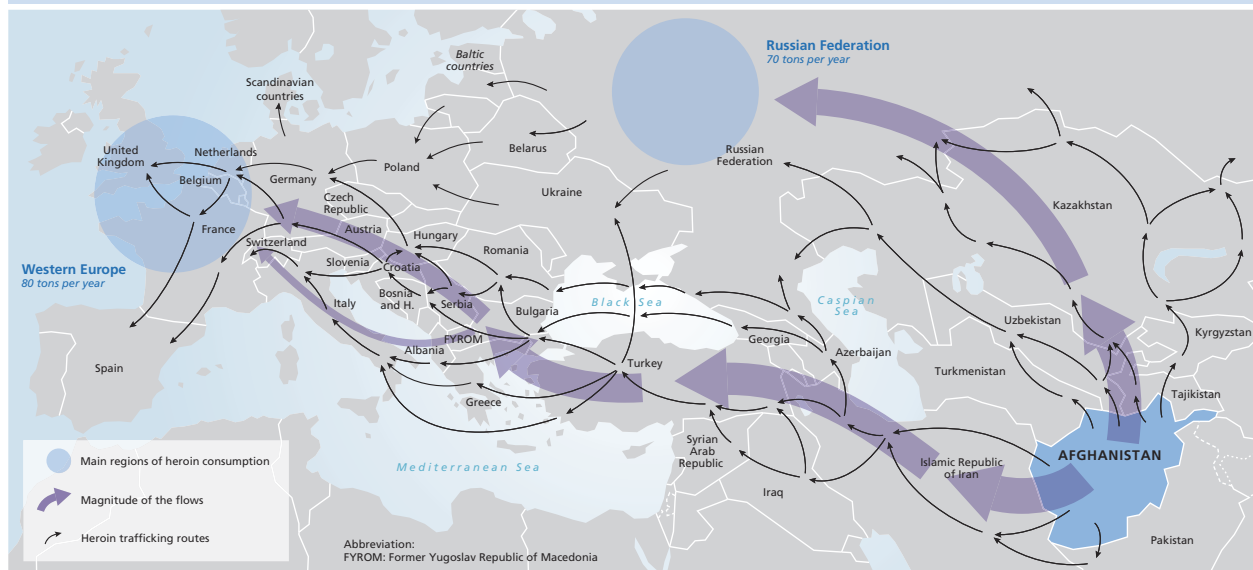
Most of the heroin flow moves through the Iran-Afghan border. Every year, approximately 105 mt of heroin are smuggled from the Afghan provinces of Nimroz, Hirat and Farah into eastern Islamic Republic of Iran. Possibly due to increased law enforcement efforts at that border, Afghan traffickers are thought to increasingly rely on the Afghanistan-Pakistan-Iran route, estimated to handle an additional 35 mt of heroin. To do this, they must first cross into the Pakistani province of Balochistan and veer



60 UNODC project document, "Integrated Border Control in the I.R. of Iran (IRN150).

Map 3: The Northern and Balkan routes

Source: UNODC



east into the Islamic Republic of Iran. Once in the Islamic Republic of Iran, only two borders separate Afghan opiates from mainland Europe.

In all, approximately 1,000 mt of opium and 140 mt of heroin flow into the Islamic Republic of Iran via these borders. Most of the heroin, around 30% (105-110 mt) of Afghanistan's total production, continues to move west/south-west into the Islamic Republic of Iran towards Turkey and further to Europe. This total includes heroin that is consumed within Europe, seized by law enforcement or trafficked onward to destinations like the United States. The bulk of the supply (at least 80%, or 85 mt) travels the traditional overland Balkan route. An additional 10 mt reach Europe by air or sea from various points of departure.

The so-called 'northern Balkan route' is a relatively recent variant on the Balkan route which transits the Caucasus rather than Turkey. Every year, approximately 9 mt of heroin are estimated to be trafficked from the Islamic Republic of Iran along this route. Joining this flow is a smaller volume of about 2 mt from Central Asia (not shown on map). In all, 11 mt of heroin are estimated to enter the Caucasus. Some 4 mt are either consumed or seized. The remainder, around 7 mt,⁶¹ is thought to be trafficked to Europe. Through one branch of this route, an estimated 6 mt are shipped from Georgia and then to Europe (Bulgaria) via the Black Sea.⁶² A smaller flow of 1 ton also travels through Georgia, but moves northward across the Black Sea to the Ukraine.⁶³

Some of the identified routes running through the Caucasus are:

1. Islamic Republic of Iran – Azerbaijan – Georgia – Black Sea – Ukraine and/or Bulgaria;
2. Islamic Republic of Iran – Caspian Sea – Russian Federation/Caucasus – Black Sea – Ukraine and/or Bulgaria;
3. Afghanistan – Central Asia – Caspian Sea – Azerbaijan/Caucasus.

Other, smaller routes include trafficking from the Islamic Republic of Iran into Azerbaijan and onward to Daghestan in the Russian Federation, and a small heroin flow originally shipped to the Ukraine via the Caucasus region for transport to Romania and beyond to West Europe. An extension of the Northern route, perhaps 4 mt per annum (4%), is also reported to reach Europe via the Russian Federation.

Heroin crosses from the Azarbaycan-e-Khavari province of the Islamic Republic of Iran into Turkey and traverses Turkey's Hakkari and/or Van districts. An estimated 95 mt of heroin are shipped across Turkey's borders every year along the following routes:

- Hakkari/Van – south-eastern cities – central Anatolian cities – Istanbul – Edirne to Bulgaria/Greece.
- Hakkari/Van – south-eastern cities – southern/western Anatolian cities and onward to Greece/Cyprus by sea.
- Hakkari/Van – south-eastern cities – central Anatolian cities – northern Anatolian cities – Ukraine.

From Turkey, around 80-85 mt of heroin flow towards West Europe (particularly Germany, the Netherlands Italy and the UK) along several routes:

61 UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p.49.

62 Ibid., p.39.

63 Ibid., p.39.

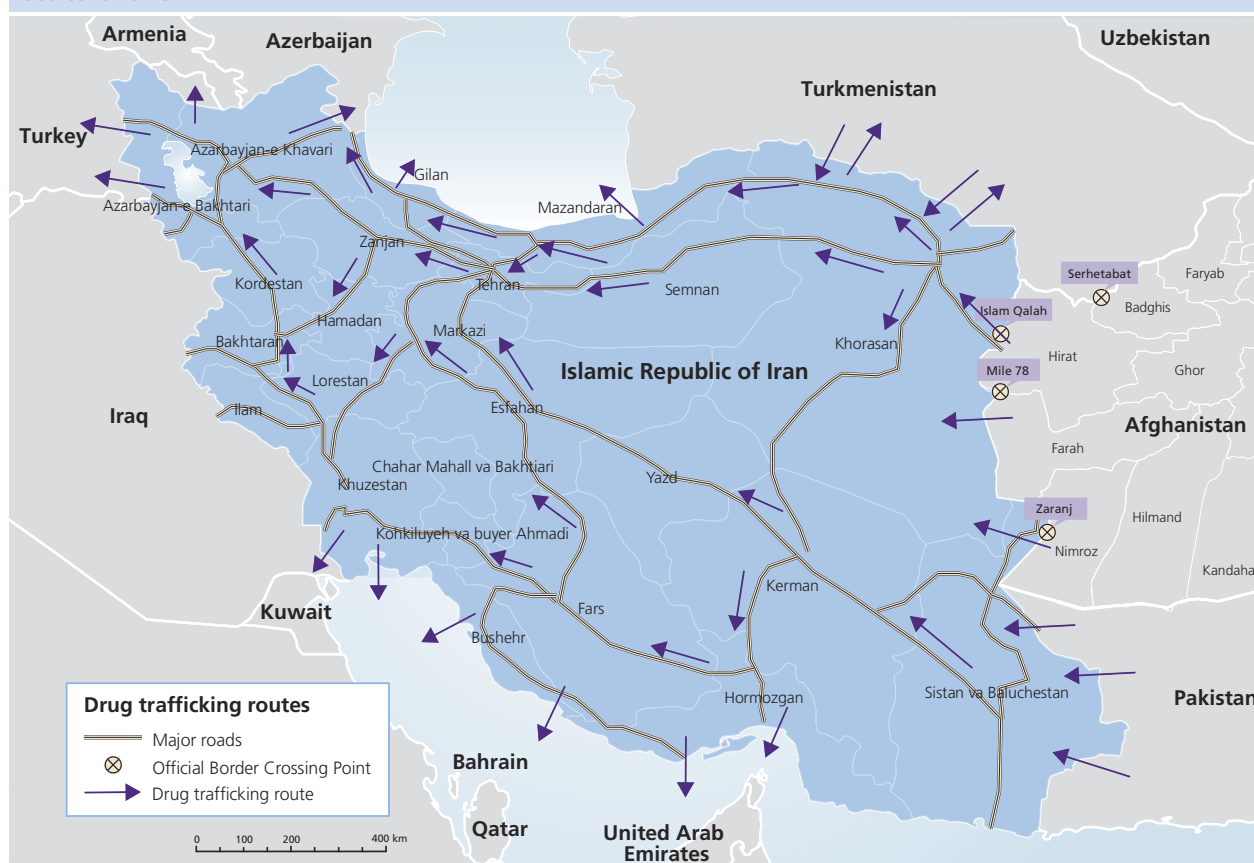
Table 6: Breakdown of heroin flows to Europe

Source: UNODC

Route	Size of flows (mt)	Percentage (rounded)
Balkan route (Afghanistan-I. R. of Iran-Turkey-Southern Europe-Rest of Europe)	85	80%
Northern route (Afghanistan-Central Asia-Russian Federation-East Europe)	4	4%
Northern Balkan route (Afghanistan-I. R. of Iran-Caucasus-Southern Europe)	7	7%
Directly from Pakistan to West and Central Europe	5	5%
Through Africa to Western and Central Europe	2	2%
Directly from South and South-East Asia (except India) to West and Central Europe	1	1%
Through the Middle East and the Gulf area to West and Central Europe	1	1%
Directly from India to West and Central Europe	1	1%
Total	106	100%

Map 4: Major drug trafficking routes in the Islamic Republic of Iran

Source: UNODC



- **To Italy:** Approximately 20-25 mt⁶⁴ of heroin are trafficked towards Italy (mostly by sea) and Switzerland. Most of that amount is thought to be trafficked via Bulgaria, Greece, the former Yugoslav Republic of Macedonia and Albania for onward transportation to

Italy. A smaller route proceeds directly from Greece by sea towards Italy. Some heroin also flows via the former Yugoslav Republic of Macedonia to Serbia, Bosnia and Herzegovina, Croatia and Slovenia and further north. In addition, an undetermined amount of heroin is trafficked via sea and air from Turkey to Italy.

⁶⁴ This amount is equivalent to the estimated quantity of heroin consumed in Italy and Switzerland.

- **To the Netherlands and Germany:** The bulk of the heroin trafficked along this route (approximately 55 to 60 mt) travels to Germany and the Netherlands through Bulgaria, Serbia, Hungary and Austria, or through Bulgaria, Romania, Hungary, Slovakia and Austria. From Germany and the Netherlands, heroin shipments are trafficked onwards to larger markets in France, the United Kingdom and Spain.

Because of its central position along the Balkan route, Austria plays an important transit role for much Germany-bound heroin. Heroin flows to Austria through its borders with Slovenia and Hungary. However, some heroin destined for the German market is trafficked through Bulgaria, Romania, Hungary, Slovakia and the Czech Republic, thereby bypassing Austria. Controls at Schengen borders are limited or non-existent.

Other routes include:

- **To East Europe:** A limited amount of heroin is trafficked directly from Turkey to Ukraine by sea.
- **Direct shipments to West and Central Europe:** An undetermined amount of heroin is trafficked directly from Turkey to Western and Central European countries such as Germany, the Netherlands, Belgium, France and the United Kingdom by sea and air.

How does the market operate?

Considerable quantities of heroin are trafficked to Europe by sea and air, but the Balkan route resembles the Northern route in that the bulk of the flow proceeds by land. Most of the heroin headed for West European markets leaves Afghanistan into the Islamic Republic of Iran, Pakistan and Turkey, which collectively seize most of the heroin interdicted in the world (40% of the estimated flow intercepted in 2008). Despite these remarkable enforcement efforts, traffickers nevertheless succeed in getting sufficient volumes through, so that most of the heroin consumed in Europe in recent decades has passed through these countries.

Drug smuggling along the Balkan route is systematic and seems to involve groups with ample resources and consignments much larger than those found on the Northern route (in Central Asia). On the Balkan route, the average amount of heroin seized is approximately 10 kg, which is twice the average amount seized on the Northern route. Consignments very rarely travel the whole way from Afghanistan to Europe in a single unbroken journey. Normally, they will be bought and sold by different groups along the route, the mode of transport will change, and loads will be split and merged as they are moved westward. Seizures are especially large up to Turkey, at which point consignments appear to be broken down into smaller quantities.

The logistics of the trade summarized above necessitates

the involvement of well-organized trafficking groups with international connections. For such profit-driven organizations, the lure of Afghan opiates is obvious given the huge mark-ups that arise with distance from the source. One kg of heroin is worth around US\$2,000-2,500 in Afghanistan, but rises to US\$3,000 on the Afghanistan-Pakistan border and to US\$5,000 on the Iran-Afghanistan border. It increases yet again by around 60%, to approximately US\$8,000, at the Iran-Turkey border. Based on the estimated flows via this route, Iranian crime groups organizing heroin trafficking from the Afghanistan-Iran border to the Turkey-Iran border stand to pocket some US\$450-600 million per year. In addition to heroin, raw opium (some 1,000 mt in 2008) also flows from Afghanistan to the Islamic Republic of Iran via the above-mentioned routes to feed an established Iranian market. An estimated total of 450 mt⁶⁵ of opium is consumed each year in the Islamic Republic of Iran. The annual street value of opium consumed in that country is around US\$900,000.

Given the huge sums involved and the serious penalties if caught,⁶⁶ traffickers along the Iran-Afghanistan borders are generally well-organized and well-armed. Deadly clashes between Iranian troops and traffickers are commonplace, as demonstrated by the thousands of casualties sustained by the Iranian border guards in the past three decades. Depending on the border region, smugglers may be Baluchi tribesmen or Kuchi nomads. If opiates are trafficked through Balochistan - via the largely uncontrolled borders of the Nimroz, Hilmand and Kandahar provinces of Afghanistan - Taliban insurgents are known to provide security to drug convoys up to the border. Balochistan-based organized crime groups then transport the heroin to the Iran-Pakistan border. Once the heroin enters the Islamic Republic of Iran, drug trafficking groups based in that country facilitate onward trafficking to the Turkish border. This is supported by the official statistics of the Islamic Republic of Iran which show that most traffickers are Iranian nationals, with few Pakistanis arrested in the Islamic Republic of Iran (similar proportions are observed for Iranian arrestees in Pakistan). These numbers and other reports suggest that the involvement of Pakistani organized crime groups may not extend far inside the borders of the Islamic Republic of Iran.

Once Iranian criminal groups receive the shipments, the majority is forwarded westward towards Turkey. As previously noted, a portion of the flow veers north and transits the Caucasus towards Europe. The presence of 12 to 20 million ethnic Azeris in northern Islamic Republic of Iran can facilitate direct traffic into Azerbaijan. Also hindering drug law enforcement over Azerba-

⁶⁵ UNODC, *Addiction, crime and insurgency*, 2009, UNODC.

⁶⁶ *Drug control in 2009*, Annual Report, Islamic Republic of Iran.



Iran's 132 km long border with the Islamic Republic of Iran is the existence of uncontrolled territories due to an unresolved conflict. In fact, the entire Caucasus region hosts several breakaway republics and disputed zones, over which no recognized national authority has control. The recent conflict in Georgia, for example, has reportedly led to an increase in the volume of heroin trafficking from that country to Europe via the Black Sea.

On the main route to Turkey, ethnic Kurdish groups, with large border populations in the Islamic Republic of Iran, Iraq and Turkey, may be responsible for border crossings. These groups may resell these drugs in Turkey or traffic them to Europe through their own networks. The United Kingdom's Serious Organised Crime Agency argues that in 2009, 138 Turkish networks continued to control the heroin supply to Europe.⁶⁷ According to WCO seizure statistics between 2000 and 2008, the majority of drug traffickers arrested in Turkey were Turkish nationals. This might suggest that Turkish groups are organizing the heroin trafficking all through Turkey up to the borders with Bulgaria and Greece where Balkan-based groups take over.

Once heroin leaves Turkish territory, interception efficiency drops significantly. In the Balkans, relatively little heroin is seized, suggesting that the route is exceedingly well organized and lubricated with corruption.⁶⁸ In 2008, the countries and territories that comprise South-East Europe (a total of 11 countries, including Greece and Cyprus) seized 2.8 mt of heroin in 2008. This is in sharp contrast to what is seized upstream in Turkey (15.5 mt in 2008) and the Islamic Republic of Iran (32 mt in 2008) every year. In other words, for every kg seized in the South East Europe, nearly 6 are seized in Turkey and 11 in the Islamic Republic of Iran. Given that approximately 85-90 mt travel through this region, this suggests inadequate controls and poor cooperation in a region where high levels of unemployment and low salaries also create incentives for corruption.

The total quantity of heroin seized in West and Central Europe, as reported by some 45 countries, was around 7.6 mt in 2008, which again is only a fifth of the total amount seized in Turkey and the Islamic Republic of Iran in 2008. In all, three countries - the United Kingdom (18%), Italy (14%) and Bulgaria (13%) - accounted for almost half of the total amount seized in the EU and EFTA countries in 2008. Across Europe, many countries directly straddling the main heroin trafficking routes report rather low levels of heroin seizures, such as Montenegro (18 kg in 2008), Bosnia and Herzegovina (24 kg), the former Yugoslav Republic of Macedonia (26 kg), Hungary (28 kg), Alba-

nia (75 kg), Austria (104 kg), Slovenia (136 kg), Croatia (153 kg) and Serbia (207 kg).

Organized crime in the Balkans involves a large variety of criminal activities and as such, heroin is but one, albeit among the most lucrative, commodities illicitly trafficked through this region. The profits accrued as the opiates move downstream are substantial. Organized crime groups managing heroin trafficking between the Islamic Republic of Iran and Turkey and on to the Balkans are estimated to earn around US\$8,000 per kg of heroin or a total of US\$600-700 million per year. The routes through this region also operate in the reverse direction with cocaine, precursor chemicals and amphetamine-type stimulants (ATS) moving eastward into Turkey and beyond. Organized crime groups controlling these corridors thus have comparatively better access to more numerous and diversified crime markets than their Northern route counterparts. Thus, many tend to be poly-drug (heroin, cannabis et cetera) and poly-crime (trafficking in human beings, weapons and stolen vehicles, to name but a few).

Another notable feature of the Balkan route is that some important networks have clan-based and hierarchically organized structures. Albanian groups in particular have such structures, making them particularly hard to infiltrate. This partially explains their continued involvement in several European heroin markets. Albanian networks continue to be particularly visible in Greece, Italy and Switzerland. Italy is one of the most important heroin markets in Europe, and frequently identified as a base of operation for Balkan groups who exploit the local diaspora. According to WCO seizure statistics, Albanians made up the single largest group (32%) of all arrestees for heroin trafficking in Italy between 2000 and 2008. The next identified group was Turks followed by Italians and citizens of Balkan countries (Bulgaria, Kosovo/Serbia, the former Yugoslav Republic of Macedonia and to some extent Greece). A number of Pakistani and Nigerian traffickers were arrested in Italy as well.

Most of the Balkan heroin first passes through Bulgaria, a country which has reported some fairly large heroin seizures in the past, but where figures have been erratic, despite little evidence of fluctuation in the flows. In 2008 for example, Turkey seized some 15 mt of heroin while Bulgaria, despite being the recipient of most of the Balkan route flow, seized 1.1 mt. In Bulgaria, most of the arrested heroin traffickers are nationals of that country. However, the proportion of Turkish nationals also stands out. The other main nationalities are citizens of the Balkans such as Serbs and Macedonians. Notably, Albanians are near-absent.

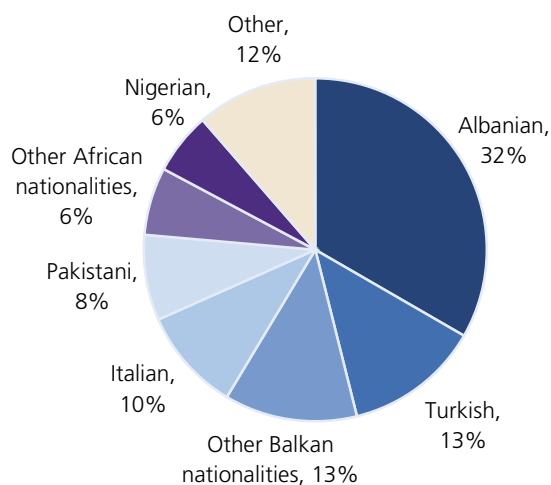
The Netherlands is a hub for heroin trafficking to France, the United Kingdom, Belgium, as well as Germany. In the Netherlands, the total number of arrests made by customs authorities is limited. Dutch, Nigerian

⁶⁷ Serious Organised Crime Agency, *The United Kingdom Threat Assessment of Organized Crime*, October 2009, p.26.

⁶⁸ Interception rates in the Balkan region are very low (3%), especially when compared with Turkey (16%) and the Islamic Republic of Iran (23%).

Fig. 14: Nationality of heroin traffickers arrested in Italy, 2000-2008

Source: World Customs Organization



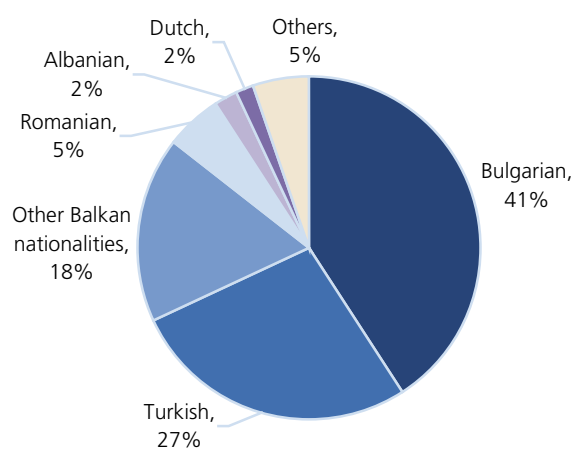
and Turkish nationals are nearly equally represented, while Balkan nationals are conspicuously absent.

In Germany, the number of Turks arrested for heroin trafficking outnumbers all other nationalities except Germans. Dutch citizens represent 5% of all heroin trafficking arrests and generally enter the trafficking chain only after the heroin has arrived in Germany or in trafficking the heroin from the Netherlands back into Germany. Balkan nationalities make up a minority of arrestees in Germany, followed by Nigerian nationals.

In the United Kingdom, British citizens predominate, but a considerable number of Dutch citizens also show up in arrest statistics. The proportion of arrested Turkish, German, Pakistani and Belgian nationals was considerably smaller than Dutch or British nationals between 2000 and 2008. Here too Balkan nationalities com-

Fig. 15: Nationality of heroin traffickers arrested in Bulgaria, 2000-2008

Source: World Customs Organization

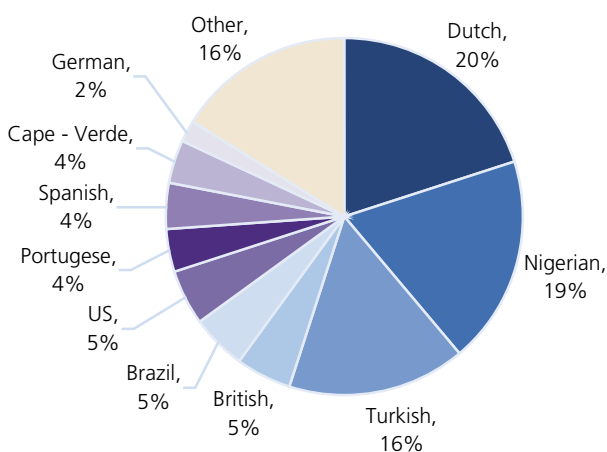


prised a negligible percentage of all heroin trafficking arrests.

Heroin trafficking from the Turkey-Bulgaria and Turkey-Greece borders to the main heroin markets in the United Kingdom, France, Germany and the Netherlands is organized by multi-ethnic groups. Locally-based organized crime groups generally traffic heroin within the destination (main consumer) countries. In Germany and the United Kingdom, for example, German and British groups, respectively, operate heroin distribution networks. In transit countries, south-east European and Turkish organized crime groups cooperate. The involvement of local groups in transit countries varies from country to country. In Austria, for example, the number of Austrians arrested for heroin trafficking between 2000 and 2008 was negligible, with most arrestees holding Turkish, Hungarian, Nigerian or Iranian citizenship. In

Fig. 16: Nationality of heroin traffickers arrested in the Netherlands, 2000-2008

Source: World Customs Organization

**Fig. 17: Nationality of heroin traffickers arrested in Germany, 2000-2008**

Source: World Customs Organization

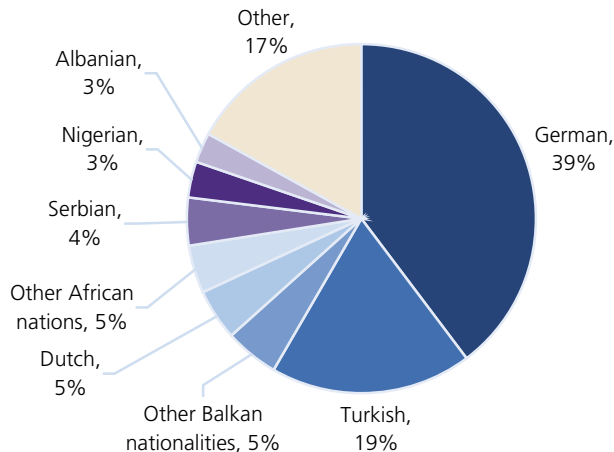
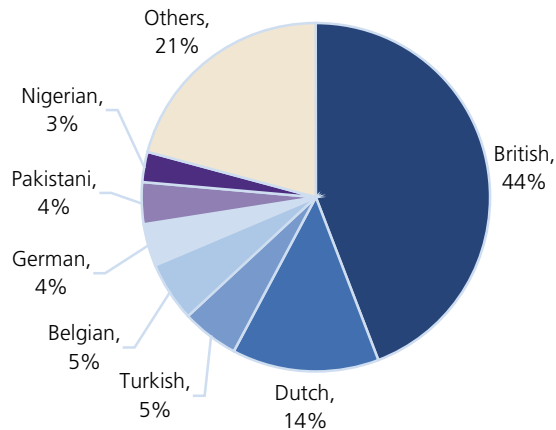


Fig. 18: Nationality of heroin traffickers arrested in the United Kingdom, 2000-2008

Source: World Customs Organization



neighbouring Hungary, by contrast, the number of Hungarian nationals arrested for heroin trafficking during the same period was comparable to that of other nationalities.

Shared ethnicity and language undoubtedly helps smugglers to facilitate opiate trafficking from the source, through the Iran-Pakistan and Afghanistan-Pakistan borders all the way to the Turkish border and beyond. At the same time, different ethnic groups cooperate seamlessly. This includes Kurdish and Turkish groups as well as Bosnian, Serb, Albanian and Croat groups further downstream. The 2010 US International Narcotics Control Strategy Report argues, regarding trafficking in the Balkans, that 'elements from each ethnic group and all major crime "families" are involved in the narcotics trade, often collaborating across ethnic lines.'

Impact of this flow

The first and most direct impact of opiates is on health, including heroin-related deaths. Opiates (including synthetics) account for 35% to almost 100% of all drug-related deaths in the 22 European countries that have provided data, and over 85% in 11 of those countries.⁶⁹ In addition, heroin abuse by injection contributes to high rates of serious diseases such as hepatitis B, hepatitis C and HIV.⁷⁰ The HIV epidemic among injecting drug users continues to develop at varying rates across Europe. In the countries of the European Union, the rates of reported newly diagnosed cases of HIV infection

⁶⁹ European Monitoring Center for Drugs and Drug Addiction (EMCDDA), *Drug situation in Europe: Drug-related infectious diseases and drug-related deaths*, November 2009.

⁷⁰ Hepatitis C (HCV) is more prevalent than HIV among injecting drug users across Europe. HCV antibody levels among national samples of injecting drug users in 2006 and 2007 vary from 18% to 95%, with half of European countries reporting levels in excess of 40%.

Table 7: Subregional distribution of heroin consumption in Europe

Source: UNODC

Region	Heroin consumption (mt)
East Europe	4.4
Southern Europe	2.4
West and Central Europe	80
Total	87

among injecting drug users are mostly at stable and low levels, or in decline. However, in post-soviet European countries such as Ukraine, Belarus and the Republic of Moldova, those rates increased in 2007.⁷¹ Finally, the term 'transit country' may not adequately apply to the Islamic Republic of Iran, given the ravages of opiates in the country. There are around 1 million opiate users in the Islamic Republic of Iran and approximately 14 mt of heroin and 450 mt of opium are consumed in-country.⁷² The Islamic Republic of Iran appears to have one of the highest rates of heroin addiction per capita in the world: 20% of Iranians aged 15 to 60 are involved in illicit drug use, and 9% - 16% inject drugs.⁷³ But the lethality of heroin is even more direct on the Islamic Republic of Iran's borders where 3,500 casualties among the border guards are a reminder of the risks taken by law enforcement officials to stem this deadly flow.

Europe is the most important market in terms of volume and turnover for Afghan heroin, with around 250 kg of heroin (of 70% purity) consumed on a daily basis. Annually this represents some 85-90 mt of heroin and a value of some US\$20 billion. Most of it, approximately 80 mt, is thought to be consumed in Western and Central European countries. The European market is far from homogenous as four main national markets, the United Kingdom (21%), Italy (20%), France (11%) and Germany (8%) together account for about 60% of consumption in Europe.

Opiate trafficking also fuels corruption and all countries on the Balkan route are affected. The combined GDP of Kosovo/Serbia, the former Yugoslav Republic of Macedonia and Albania at US\$20 billion is equivalent to the value of West-Europe's heroin market. The opiate trade is a serious threat to the Balkans; particularly vulnerable

⁷¹ European Monitoring Center for Drugs and Drug Addiction (EMCDDA), *Drug situation in Europe: Drug-related infectious diseases and drug-related deaths*, November 2009.

⁷² UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p.25.

⁷³ Razzaghi E, Movaghar A, Green TC, Khoshnood K. 2006. "Profiles of risk: a qualitative study of injecting drug users in Tehran, Iran." *Harm Reduct J*, Vol. 3, No. 12, doi:10.1186/1477-7517-3-12 in "Mapping and Situation Assessment of High-Risk Key Populations in Three Cities of Afghanistan", World Bank, September 2007, p.4.

are Kosovo/Serbia, Bosnia, the former Yugoslav Republic of Macedonia and Albania. A number of unresolved conflicts and/or remaining inter-ethnic tensions along sections of this route continue to prevent the emergence of effective regional counterdrug cooperation and to facilitate trafficking.

1.2.4 The Southern route

Unlike the Northern or Balkan routes, which are mostly dedicated to single destination markets, the southern route serves a number of diverse destinations, primarily Europe, Africa and Asia, and even a limited quantity going to the United States and Canada. In truth, the only opiate destination market seemingly *not* targeted through this route is the Russian Federation. It therefore seems more accurate to talk about a vast network of routes rather than one general flow direction.

Routes and volumes

Pakistan is geographically vulnerable to opiate trafficking; UNODC estimates that approximately 40% of Afghanistan's heroin/morphine (150 mt) transits or is consumed in Pakistan. More Afghan opiates pass through Pakistan than any other country bordering Afghanistan. Controlling this border is a major challenge; the long, thinly guarded boundary (2,500 km) follows a chain of mountains with long sections reaching altitudes of more than 4,000 metres gradually ceding to open plains and dunes in Balochistan province facing southern Afghanistan. The most important points for all trade, both licit and illicit, on the Pakistan-Afghanistan border are the Torkham crossing in the Federally Administered Tribal Areas (FATA) and the Chaman checkpoint in Balochistan province. In addition to these, there are hundreds of natural passes and desert roads coursing across the entire border, most of which are unmanned and unsupervised.

In recent years, a cross-border insurgency has precluded effective law enforcement work in much of the FATA and in parts of Balochistan province. The biggest vulnerability, however, is Pakistan's immediate proximity to heroin processing zones in Afghanistan, notably the adjoining provinces of Hilmand, Nimroz and Kandahar. Every day, finished heroin is smuggled into Pakistan using multiple methods of transportation, including the wide usage of camels and pack animals. Not only heroin but unrefined opium and semi-refined morphine are shipped across these borders, as seizure data demonstrates. In 2006, Pakistan seized approximately 32,658 mt of morphine or 72% of global seizures. This is a huge 18-fold increase over seizures in 2001, which totaled 1,825 kg.⁷⁴ Since then, morphine seizures have dropped by two thirds in

2007 (10,989) and again by a third in 2008 (7,324).⁷⁵ Seizures of opium nearly doubled from 2007 (15,369) to 2008 (27,242) and Pakistani users consume approximately 80 mt of opium annually, most of it sourced in Afghanistan. A portion of heroin never leaves Pakistan, either due to absorption into the domestic market (estimated to consume approximately 20 mt of heroin annually)⁷⁶ or seizures (9.2 mt of heroin in 2008).

The remaining opiates (mostly heroin) flow out of Pakistan in multiple directions, starting with the major consumption markets next door in China, India and the Islamic Republic of Iran. The following are the major routes identified:

- From eastern Afghanistan into the FATA, opiates are trafficked in three main directions: 1) towards China via Gilgit (northern areas) by road; 2) towards India through the NWFP-Chakwai/Rawalpindi-Sailkot-Wagha route; 3) towards Karachi via the North Western Frontier Province (NWFP)-Rawalpindi-Chawai-Faisabad-Mutan-Sukkur route.
- From Balochistan (mostly the cities of Dalbandin and Quetta) towards eastern Islamic Republic of Iran by road and rail for onward movement towards Turkey and Western Europe. Towards Gwadar port or the smaller fishing ports and open areas of the Makran coast or the main ports of Karachi and Port Qasim and further to international destinations via air or sea, mostly using cargo containers.

Although significant quantities are shipped from Eastern Afghanistan into FATA, the Pakistani province of Balochistan is the primary transit area, both for shipments that exit via the Pakistani coast and those which travel through Pakistan to the Islamic Republic of Iran. This is a significant flow in itself with almost a quarter of the heroin flow (or 35 mt) veering west towards the Iranian border and blending into the Balkan flow destined for Europe.

Europe, an especially lucrative market, is also targeted by Pakistani traffickers who operate numerous air (and sea) trafficking routes from Pakistan to Europe (mostly the United Kingdom and the Netherlands), shipping an estimated 5 mt annually via these direct connections.⁷⁷

Approximately 2 mt of heroin are shipped to the United States and Canada annually, through various routes, including directly in cargo planes.⁷⁸

Over the past decade, China appears to have received an increasing amount of Afghan opiates, approximately 7 mt (out of an estimated total 55 mt of heroin trafficked

⁷⁴ UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, UNODC, p.34.

⁷⁵ ARQ, Pakistan, 2008.

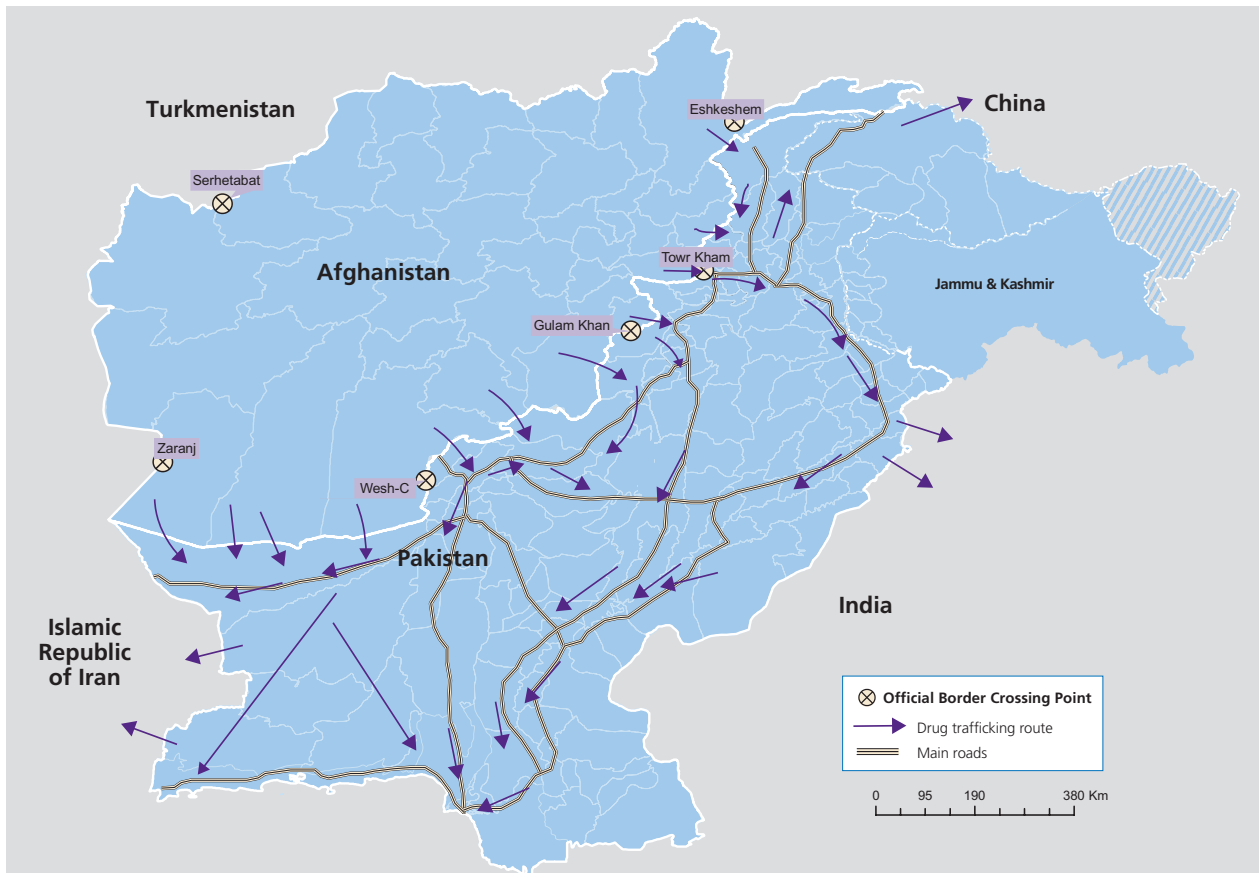
⁷⁶ UNODC, *Addiction, crime and insurgency*, p.25.

⁷⁷ Ibid., p.34.

⁷⁸ In July 2009, the Royal Canadian Mounted Police seized over 120 kg of heroin that had been shipped from Pakistan.

Map 5: Drug trafficking routes in Pakistan

Source UNODC



to China annually) of which were sourced from Pakistan in 2008.⁷⁹ A proportion of this amount is thought to traverse Pakistan's northern areas towards China's Xinjiang province.

UNODC now tentatively estimates that Pakistan is Africa's main supplier of heroin at approximately 20 mt a year. In addition to the aforementioned direct routes into the United Kingdom/the Netherlands, Pakistani traffickers - in collusion with African crime groups - ship perhaps an additional 2-3 mt into Europe using Africa as a trans-shipment point.⁸⁰

Karachi is a major sea conduit for shipments to Gulf countries and further to East and Southern Africa and various destinations in China. Approximately 11 mt are estimated to be trafficked into the United Arab Emirates (mostly Dubai) for onward shipping to these two destinations.⁸¹

Pakistani traffickers also operate routes through Lahore and other northern cities into India (mainly by road). There are a large number of other air/road and sea routes servicing numerous other Asian countries for a total flow of approximately 25 mt.⁸² Additionally, some routes proceed in seemingly counter-intuitive directions. As an example, in June 2007, Kyrgyz authorities arrested a Nigerian who had organized trafficking from Pakistan to Tajikistan and onward to CIS countries, Europe and Australia. Another route reported by Central Asian authorities involved multiple couriers starting in Pakistan and onward to the Islamic Republic of Iran-Azerbaijan-Turkey towards a final destination city in China.⁸³

⁷⁹ UNODC, *Addiction, crime and insurgency*, p. 48.

⁸⁰ In Africa, Nigeria, South Africa and Ghana are the main African States sourcing to Europe; see UNODC *Addiction, crime and insurgency: the transnational threat of Afghan opium*, p.38.

⁸¹ Individual seizure data provided by the UAE indicates that at least 50% of the heroin seized in the UAE was headed to Africa, and the rest to China; see UNODC, *Addiction, crime and insurgency: the*

transnational threat of Afghan opium, p.48.

⁸² UNODC, *Addiction, crime and insurgency: the transnational threat of Afghan opium*, 2009, p. 59.

⁸³ CARICC Information Bulletin N.48.

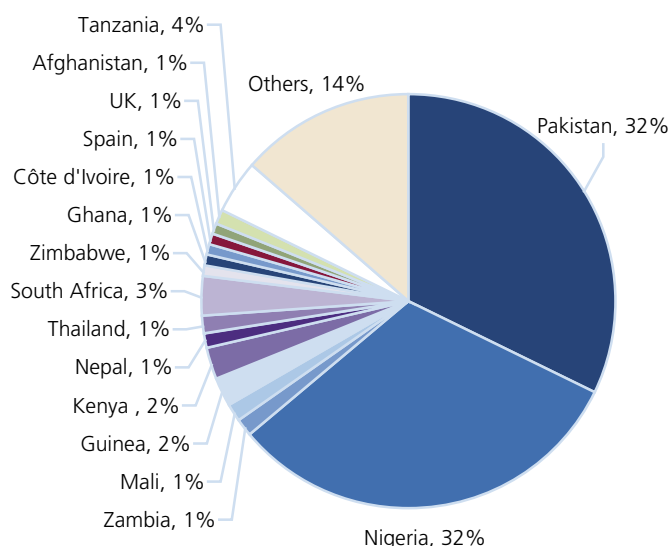
How does the market operate?

The first stage of the route offers relatively few challenges to experienced traffickers, many of whom belong to ethnic groups that live on both sides of the border. In Balochistan, drug trafficking convoys consist mostly of Baloch traffickers receiving from Pashtuns in Afghanistan and delivering to the Islamic Republic of Iran, Karachi, or launches from the Balochistan coast (Gwadar and Pasni ports). These convoys are heavily militarized and intimidation/violence occurs all around their business, including in areas of Balochistan that suffer from having very low penetration of government security forces. Many important traffickers are based in Quetta (Balochistan) and some are Afghans who have relocated there following law enforcement operations in southern Afghanistan.

Trafficking from eastern Afghanistan into the FATA generally involves the use of mountain trails and pack animals. Violence is rarely reported during crossings (which often occur at night). The cross-border trade is under the control of several prominent cross-border Pashtun tribes, notably the Afridi and Shinwari, but also others such as members of the Mohmand and Waziri sub-tribes. To offload further in Pakistan, whether in Karachi or on the Makran coast, traffickers rely on high-level political protection and connections between Afghans and powerful people in Sindh and Punjab provinces.

Fig. 19: Breakdown by nationality of arrested heroin traffickers in Pakistan, 2008

Source: World Customs Organization



With the possible exception of Iran-bound opiates, African traffickers – the majority West Africans – are pivotal to the international trafficking of heroin. Groups often have a large and varied pool of couriers to employ. These may be Filipinos, Indonesians, Pakistanis and Chinese nationals but also West Africans. Among West African

groups, Nigerians are especially active as attested in arrest figures. These groups tend to be organized along tribal/ethnic lines with loose network structures.⁸⁴

West African groups traffic to multiple destinations, including China, India and Africa. This type of trafficking usually involves the use of air routes (from the airports of Peshawar, Islamabad, Lahore, Karachi and Quetta) to transit points like Dubai and onward to Nigeria and other West African countries.⁸⁵ The use of post parcels is also widely reported.

Africa is both a market and a staging point for other destinations. According to ANF reports, African traffickers “have created two networks: a supply network from Pakistan to Africa and a redistribution network from Africa to Europe and North America and elsewhere.”⁸⁶ In destination markets like Europe, West African networks rely on their respective diaspora as a base for their activity (importation and retail distribution of heroin). Recruiting European nationals as couriers to bring heroin by air to Europe has also been reported.

The use of air routes is significant; over 37% of Pakistan’s total heroin seizures in 2006 took place at airports.⁸⁷ Couriers typically attempt to either conceal opiates in luggage or body carry them out of Pakistan.

The extent to which African groups collaborate with Pakistani groups in smuggling ventures remains unclear. According to the US State Department INCSR 2010, drug trafficking organizations in Pakistan are still fragmented and decentralized but there is a trend towards specialization. Clearly, the market is not closed to outsiders, as Nigerians alone account for fully 32% of drug trafficking arrests in 2008. Rather it appears that Nigerians (and other African groups) overlap in some cases with Pakistani groups, both in Pakistan and in some destination markets (Africa and China)

Annually, UNODC estimates that the revenue generated by Afghan opiate trafficking to and through Pakistan exceeds US\$1 billion, while emphasizing that this excludes the revenue from illicit trading in associated precursor chemicals. In the past few years, most large (multi-ton) seizures have occurred at the port of Karachi but chemicals may also be trafficked to Pakistan in small lots from China and/or India, two major producers. It is notable that Pakistan’s acetic anhydride seizures surpassed Afghanistan’s in 2008.⁸⁸ There is an increasing

⁸⁴ Joergen Carling, *Migration, Human Smuggling and Trafficking from Nigeria to Europe*, International Peace Research Institute, Oslo (PRIO), 2006.

⁸⁵ Anti Narcotic Force Pakistan, *Analysis of domestic seizures 2006*.

⁸⁶ Ibid., p.14.

⁸⁷ UNODC Pakistan country office, *Illicit drug trends in Pakistan*, April 2008, p.23.

⁸⁸ According to information provided by the UNODC Pakistan country office, in 2008, Pakistan reportedly seized over 15,000 litres of acetic anhydride in three separate seizures.



information flow on precursor trafficking through Pakistan and this is directly related to the country's openness to observation and international cooperation. There remain, however, serious information gaps on precursor procurement networks and the illicit precursor trade in general.

Impact of this flow

As with the Islamic Republic of Iran, Pakistan's high levels of opium and heroin use are fuelled by the easily available supply. The latest assessment of drug use in Pakistan took place in 2006 and estimates the number of chronic opiate users at 628,000, of which around 500,000 are heroin users.⁸⁹ To put these numbers in perspective, this is twice the numbers found in Central Asia⁹⁰ and ten times the numbers found in Afghanistan.

A 100% increase in injecting drug use was estimated between 2000 and 2006. There is currently a concentrated, but localized, HIV epidemic among injecting drug users (IDUs) in Pakistan. Coupled with widespread risk behaviour, this could lead to an HIV epidemic among the wider population. Surveys in several cities of Pakistan have confirmed substantial epidemics of HIV among IDUs.⁹¹ One study in Karachi revealed an increase in HIV prevalence among IDUs from 1% in 2004 to 26% in March 2005,⁹² while a more recent study found that HIV prevalence among IDUs has reached 24% in Quetta (along the border with Afghanistan).⁹³ The increase in the number of IDUs has complicated drug treatment and requires trained service providers.

As in neighbouring Afghanistan, drugs in Pakistan are inseparably entangled with corruption and insecurity. Currently, Pakistan's efforts against the trafficking of Afghan opiates (and the cultivation of opium poppy) are constrained by a major cross-border insurgency and the threat of violent extremism, which has monopolized the attention of law enforcement agencies. One example is the restive Federally Administered Tribal Areas (FATA) which was opium poppy-free for several years until 2003/2004, but where there has been a re-expansion of cultivation.⁹⁴

89 According to the 2008 UNODC survey *Illicit drug trends in Pakistan* there are 482,000 heroin users in Pakistan.

90 Prevalence was revised downwards to 0.7% of the adult population. However, this assessment was not methodologically sound and it is suspected that opiate use in Pakistan is much higher than the numbers it returned.

91 National AIDS Control Programme of Pakistan, *HIV Second Generation Surveillance in Pakistan: National Report – Round 1*, 2005.

92 Emmanuel F, Archibald C, Altaf A; "What Drives the HIV Epidemic among Injecting Drug Users in Pakistan: A Risk Factor Analysis", XVI International AIDS Conference, 13-18 August 2006, Toronto, Canada.

93 Achakzai M, Kassi M, Kasi PM, "Seroprevalences and Co-infections of HIV, Hepatitis C Virus and Hepatitis B Virus in Injecting Drug Users in Quetta, Pakistan", 2007, *Tropical Doctor*, 37(1):43-5.

94 According to the US Government, Pakistan cultivated 1,779 ha in

1.2.5 Implications for response

Drug control in the era of globalization faces a number of challenges, from a cultural shift in consuming societies - which sees some forms of drug use as increasingly acceptable - to the dismantling of barriers to global trade. The latter poses acute challenges to border controls, which still require substantial strengthening, particularly in the Balkans, Central Asia, South Asia and along the Pakistan-Afghanistan border. The level of global sea, air and land transportation will continue to increase. As an example, according to the International Association of Ports and Harbours container traffic is expected to double by the year 2012, compared with 1999 figures. At present, more than 220 million sea containers move around the globe per year with approximately 90% of the world's cargo shipped via container. Scanning or searching every single container, load and vehicle is practically impossible. Traffickers are well aware of these limitations and frequently target the busiest ports of entry. International information exchange and cooperation should therefore be the pillar of any global counter-narcotics strategy. Practically speaking, this should include increased support for regional information collection and coordination bodies such as the Joint Planning Unit (JPU) in the Islamic Republic of Iran, the Southeast European Cooperative Initiative (SECI) centre in the Balkans and the Central Asian Regional Information and Coordination Centre (CARICC) in Central Asia, which would enhance capacities for expanded cooperation in the future.

Like any other industry, the opiate market follows the laws of demand and supply, and also react to economic stimulus and pressures. The geographic concentration of opiate production in Afghanistan is unique. It is tempting to think that if control could be maintained over a few provinces in one of the poorest countries on earth, one of the world's most intractable drug problems could be solved overnight. Experience has shown, however, that markets quickly adjust, and that production soon re-emerges to meet an established demand. This perspective may also have led to a disproportionate focus on production in Afghanistan, at the cost of efforts in other parts of the market chain. It is thus imperative that the market be tackled as a whole, including both supply and demand. The international community needs to strengthen the link between supply and demand reduction measures and to better integrate national efforts in the framework of an international strategy on the scale of the market. To do both, getting a better understanding of the transnational heroin economy is a matter of urgency.

2009 with a potential opium production of approximately 44 mt. The majority of this cultivation occurs in the Federally Administered Tribal Areas (Khyber, Bajaur, and Mohmand); see Bureau of International Narcotics and Law Enforcement Affairs, *2010 International Narcotics Control Strategy Report (INCSR)*, March 2010.

1.3 The global cocaine market



Cocaine has been a popular recreational drug for decades, and while demand appears to be on the wane in its largest markets, it has gained popularity in an ever widening range of countries. ‘Cocaine’ comprises at least two distinct drug products: powder cocaine on the one hand, and a range of cocaine base products, mostly falling under the heading of ‘crack’, on the other. Powder cocaine produces a more subtle effect, is more expensive to use, and has become emblematic of economic success in some circles. Demand has emerged in many developing countries, particularly among elites. Crack is cheaper, more intense, and associated with prostitution and street crime. Traditionally, crack use was rare outside the United States of America and the United Kingdom, but this also appears to be changing, especially in Latin America and parts of Africa.

Starting in the 1960s and 1970s, global production, trafficking and consumption of cocaine rose strongly. Until the mid-1960s, global cocaine seizures were measured in the tens of kilograms annually. In recent years, they have been in the hundreds of tons. Based on seizure figures, it appears that cocaine markets grew most dramatically during the 1980s, when the amounts seized increased by more than 40% per year. The number of countries reporting cocaine seizures has also grown during this period, from 44 in 1980 to 87 in 1990 and 123 in 2008.¹



1.3.1 Dimensions

Supply, demand and value

The extent as well as the pattern of global cocaine production have changed significantly over the last four decades. From the end of World War II until the late 1990s, almost all the world’s coca bush (the raw material for the manufacture of cocaine) was grown in Peru and the Plurinational State of Bolivia, and since the 1970s, most of this output was refined into cocaine in Colombia. This increased over time and, in 1997, coca cultivation in Colombia exceeded that of the traditional growers for the first time.

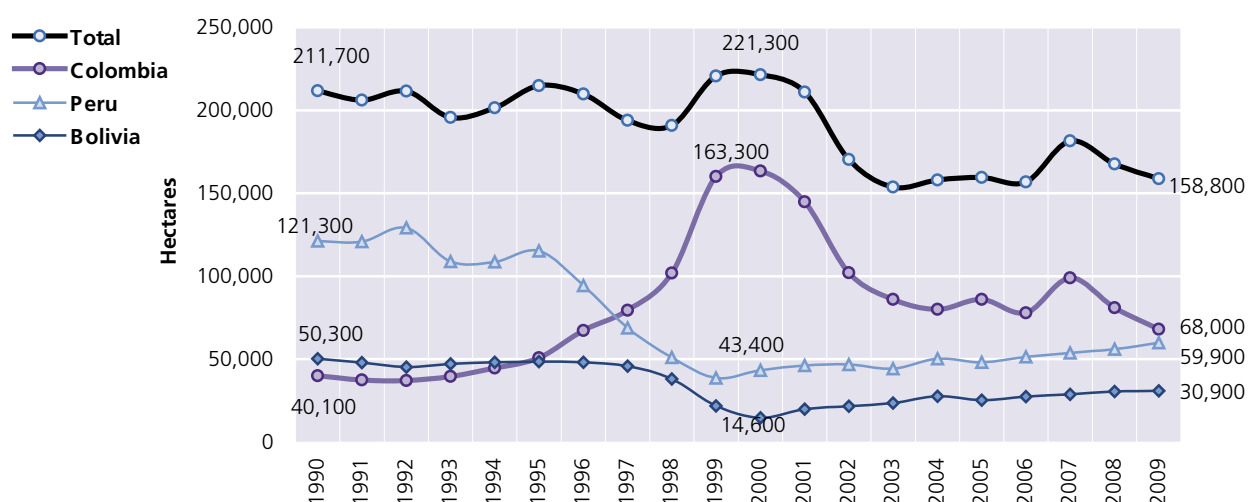
In the twenty-first century, the pendulum has swung back again. Coca cultivation in Colombia decreased by 58% between 2000 and 2009, mainly due to large-scale eradication. At the same time, it increased by 38% in Peru and more than doubled in the Plurinational State of Bolivia (+112%), and both of these countries have acquired the ability to produce their own refined cocaine. Despite the increases in Peru and the Plurinational State of Bolivia, the net decline in the global area under coca cultivation over the 2000-2009 period was significant, amounting to 28%. A far smaller area is now under coca cultivation than in any year of the 1990s.

In 2008, an estimated 865 metric tons (mt) of pure cocaine were produced. This was the lowest level in five years and considerably less than a year earlier when over 1,000 mt were produced. A further decline on a year earlier seems to have taken place in 2009 though final figures for 2009 are not yet available. In 2008, Colombia appears to have been responsible for about half of

■ ■
1 UNODC ARQ.

Fig. 20: Global coca bush cultivation (ha), 1990-2009

Source: UNODC



global production, with Peru contributing over one third and the Plurinational State of Bolivia making up the balance.

The process of analysing the production of cocaine is complex, though, because the amount of cocaine that can be produced out of a given plot of land varies over time and between areas. Productivity has grown in some areas due to improvements in both farming and processing techniques, but eradication has pushed some cultivation into less suitable areas, decreasing yields. Improvements in laboratory efficiency increased again cocaine production. In the end, the hectares of cultivation (determined through satellite and ground surveys) are multiplied by an average kilogram-per-hectare coca leaf yield figure and coca-leaf to cocaine transformation ratios to generate a cocaine production estimate. When

these ratios are updated, they can create misleading year-on-year trends (like those seen between 2003 and 2004). The long-term trends should be more accurate (provided the coca yields and transformation ratios were accurately measured). It appears that, despite radical changes within countries, total cocaine output has been fairly stable over the last decade. This perception may still change, however, once updated and properly verified information on the different ratios for the different countries (and for the various coca producing regions in these countries) becomes available.

Global cocaine seizures have grown greatly over the last decade, suggesting that a declining amount of the drug is actually reaching the markets - unless there is more production than presently accounted for. Most of the increase in seizures came from South America while

Fig. 21: Global cocaine production, 1990-2008

Source: UNODC

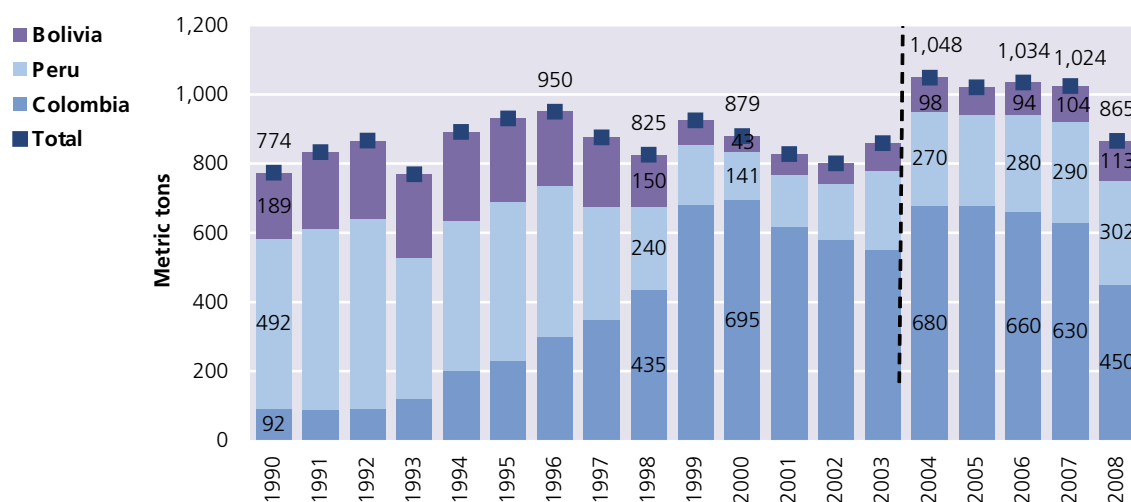
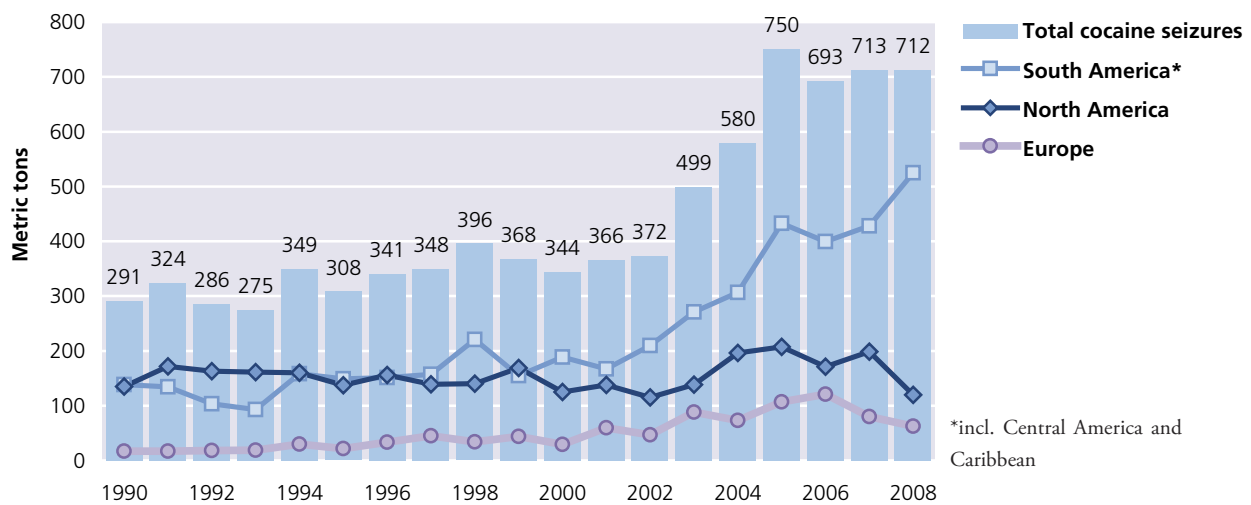


Fig. 22: Global cocaine seizures (unadjusted for purity), 1990-2008

Source: UNODC DELTA



seizures in North America and Europe declined between 2006 and 2008. Since 2001, Colombia has seized more cocaine than any other country in the world, and seizures have also increased strongly in Central America.² Enhanced international cooperation has meant that many shipments are seized before they leave their source country, or before they reach their final destination.

But here again, the analysis is complex because production estimates are made on the basis of pure cocaine, and most seizures consist of a product of uncertain dilution. It appears that the purity of cocaine shipments is declining. Traditionally, they have been around 60% cocaine, but the average purity³ reported to UNODC declined to 58% in 2007 and 51% in 2008. Keeping these considerations in mind, it appears that a large share of the cocaine produced is seized: around 42%.⁴ This share has increased dramatically from a decade ago, when the figure was closer to 24%.

Once purity is accounted for and seizures deducted, it seems that the amount of cocaine available for consumption fell from over 700 mt in the mid-1990s to around 500 mt in 2008.⁵

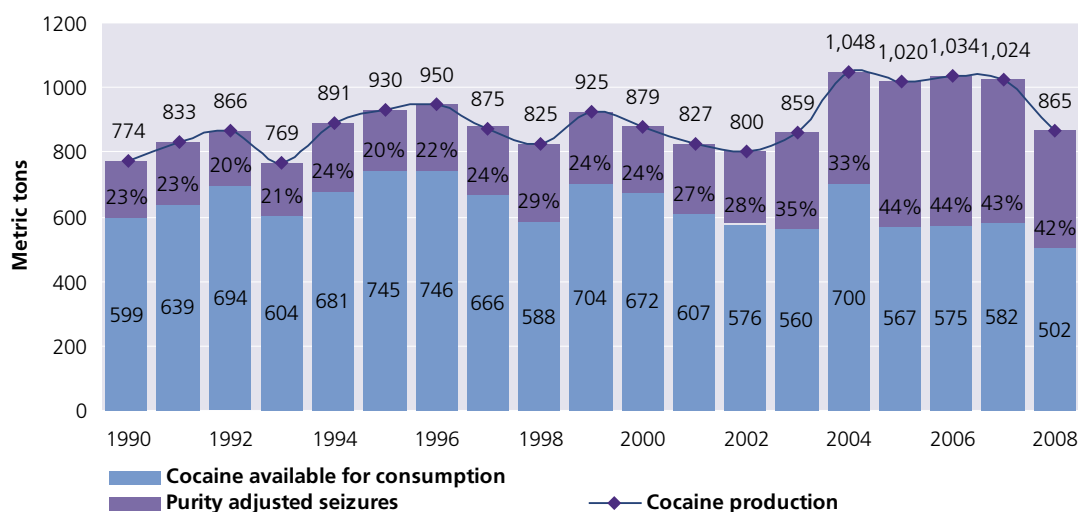
How does this tally with what is known about global cocaine consumption? Knowledge about cocaine consumption is based on household surveys. Unfortunately, few countries have annual household surveys on drug use, and in some areas of the world (mostly in Asia and Africa), few such surveys have ever been conducted. In keeping with this uncertainty, starting last year, UNODC presents use rates as ranges, rather than point estimates.

In many cases, though, the reason why a survey has not been undertaken is because there is good reason to believe that widespread drug use is unlikely. As a result, the best point estimates are often toward the bottom of the range of uncertainty. For example, it is theoretically possible that cocaine use is widespread in China and India, since no national survey data exist to establish the level of use in either country. But based on what is known about cocaine production, trafficking patterns and the countries themselves (derived from seizures, arrests, treatment and qualitative information), this is highly unlikely. Taking just these two countries out of the picture can have a dramatic effect on global use estimates.

Based on the best reading of the available data, the number of people who consumed cocaine at least once in the previous year may have increased by around 14% between the late 1990s and 2008, with the rate of annual cocaine use basically stable in the last decade, at about 0.4% of the adult population (16 million people in 2008; range: 15-19 millions).

- 2 It is possible that some of this rise was due to double counting. Enhanced international cooperation could lead to several countries reporting a single cocaine seizure as their own.
- 3 Unweighted average of wholesale and retail purity data reported by Member States to UNODC in a given year.
- 4 If reported purities were weighted by the amounts seized, the calculated average purity would be higher, which would result in an even higher interception rate. However, some of the reported seizures are inflated due to double counting.
- 5 Methods to estimate the potential cocaine production in the Andean region are currently under review and could lead to higher estimates than previously reported. While it is too early to predict the outcome of this exercise, it may help answer the questions raised by a decline of the estimated cocaine availability in recent years, while the number of cocaine users was increasing (though in different regions at various

stages of market maturity).

Fig. 23: Cocaine production, seizures and supply to markets, 1990-2008Sources: UNODC *World Drug Report 2009* and DELTA**Fig. 24: Annual prevalence of cocaine use at the global level**Sources: UNODC *World Drug Report 2008* and updates based on ARQ

If the amount of cocaine making it to market has declined (from more than 700 mt in the late 1990s to around 500 mt in 2008) while the number of users increased over the past 10 years, then the amount used by each consumer must have declined significantly. Alternatively, one should not exclude the possibility that laboratory efficiency may have increased stronger than is currently reflected in the cocaine production estimates so that global cocaine availability (production less seizures) may have remained stable or increased slightly over the last decade.

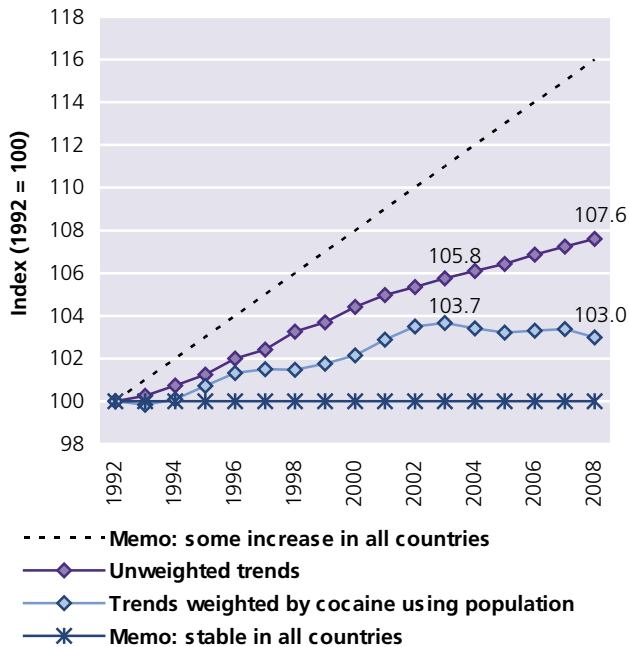
How well does all this jell with expert opinion about global drug trends? One of the questions asked in UNODC's Annual Reports Questionnaire (ARQ) concerns perceptions about trends in each drug market. This allows countries who do not conduct surveys to

highlight what they see as emerging drug issues. If these responses are amalgamated to create an index,⁶ this index is rising, suggesting that a growing number of countries indicate that cocaine is a growing problem. If these responses are weighted by the estimated cocaine-using population, however, the global trend is downwards in recent years, in keeping with the decline in use in the United States, the largest national cocaine market. A clear divergence can be seen between the responses of developed (OECD) and developing countries: use is perceived to be declining in the former and increasing in the latter.

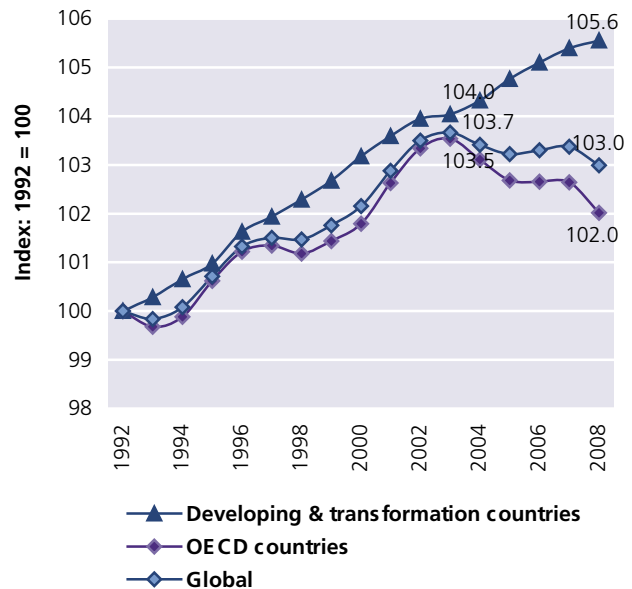
⁶ For 'strong increase' 2 points are given; for 'some increase' 1 point; for stable: 0 points; for 'some decline' 1 point is deducted and for 'strong decline' 2 points are deducted. The average at the global level is then calculated.

Fig. 25: Global trends in cocaine use as perceived by government experts, 1992-2008

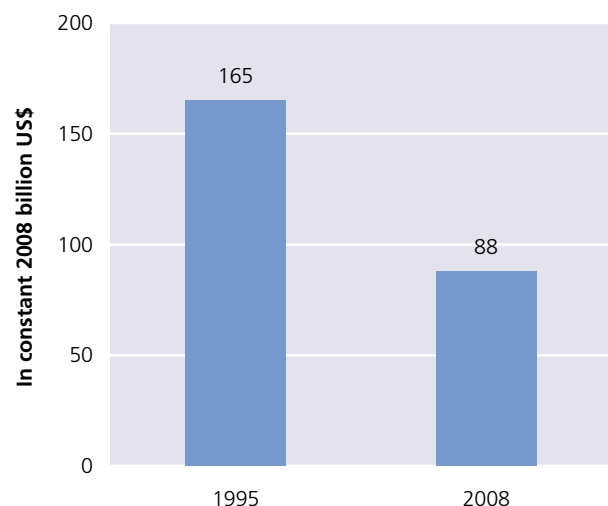
Source: UNODC ARQ

**Fig. 26: Global trends in cocaine use, OECD versus non-OECD countries, as perceived by government experts (based on trends weighted by cocaine using population), 1992-2008**

Source: UNODC ARQ



How has this affected the value of the global cocaine market? The value is most certainly lower than it was in the mid-1990s, when prices were much higher and the US market was strong. For 1995, UNODC estimated the retail value of the global market at US\$117 billion.⁷ Expressed in constant 2008 US dollars, this would be equivalent to US\$165 billion in 2008. The corresponding figure for 2008 would be US\$88 billion (range: US\$80–US\$100 bn), suggesting the value has halved in this 13-year period. The global cocaine retail sales were equivalent to 0.15% of global GDP in 2008, down from 0.4% of global GDP in 1995. Nonetheless, the value of global cocaine retail sales in 2008 were still higher than the gross domestic product (GDP) of 123 out of 184 countries for which the World Bank provided estimates for the years 2007 or 2008.

Fig. 27: Global cocaine retail market in billion constant 2008 US\$, 1995 and 2008Source: UNODC estimates⁸

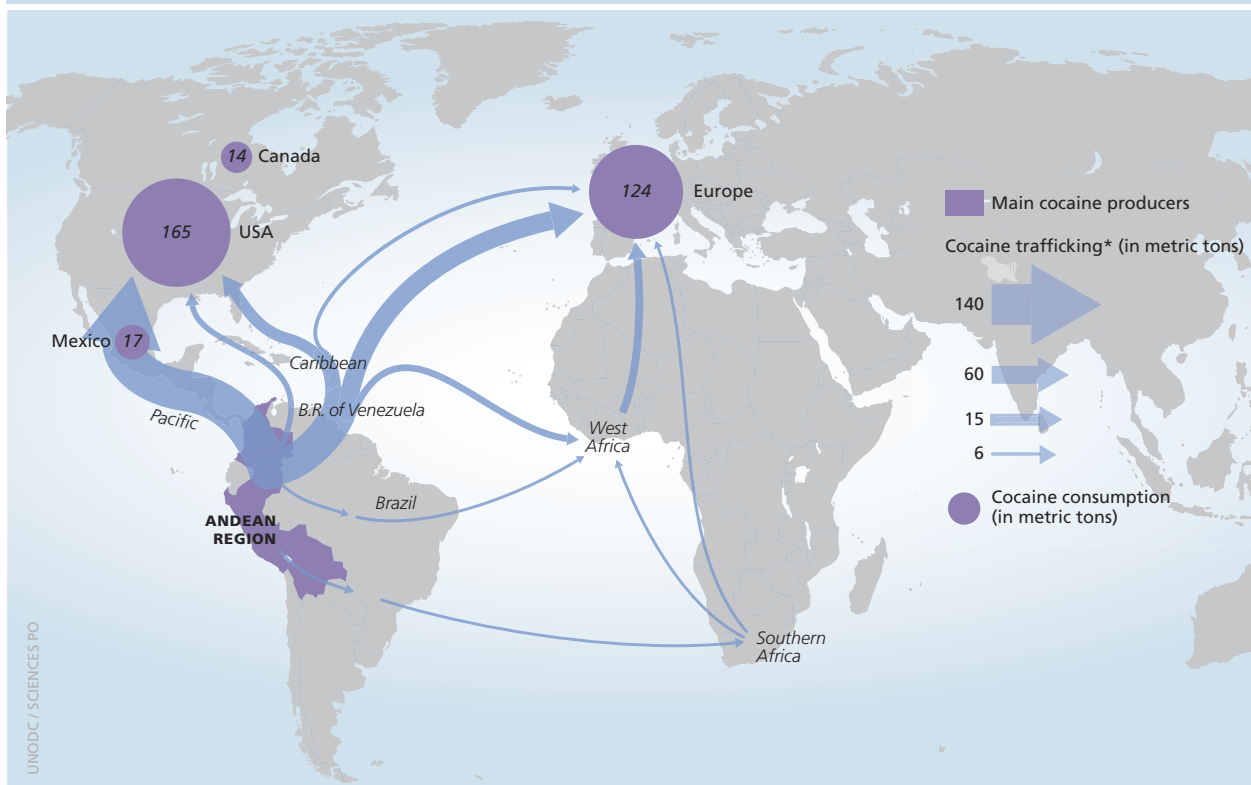
⁷ UNDCP, *Economic and Social Consequences of Drug Abuse and Illicit Trafficking*, Vienna 1997.

⁸ UNDCP, *Economic and Social Consequences of Drug Abuse and Illicit Trafficking*, Vienna 1997; World Bank, *World Development Indicators 2009*; UNODC estimates for 2008 based on UNODC ARQ; UNODC, "Estimating the value of illicit drug markets" in UNODC, *2005 World Drug Report*, Volume 1: Analysis, pp. 123-143; ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001; United Nations Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2008 Revision*, 2009; SAMHSA, *National Survey on Drug Use and Health*, Rockville MD 2009, and previous years; FBI, *Uniform Crime Reports* (2002-2008); ONDCP, *Arrestee Drug Abuse Monitoring Program - ADAM II 2008 Annual Report*, Washington D.C., April 2009; ONDCP, "Cocaine Consumption Estimates Methodology", September 2008 (internal paper); US State Department, *International Narcotics Control Strategy Report*, March 2010; ONDCP, *The Price and Purity of Illicit*

Drugs: 1981-2007, Report pared by the Institute for Defense Analysis for ONDCP, Washington, July 2008; US Drug Enforcement Agency analysis of STRIDE data; Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey 2008*; Instituto Nacional de Salud Pública, *Encuesta Nacional de Adicciones*, 2008; EMCDDA, *Statistical Bulletin 2009*; European Centre for Social Welfare Policy, *Two Worlds of Drug Consumption in Late Modern Societies*, Vienna 2009; UK Home Office, *Sizing the UK market for illicit drugs*, London 2001; Home Office, *Measuring different aspects of problem drug use: methodological developments*, Home Office Online Report 16/06, London 2006; and various other Government reports.

Map 6: Main global cocaine flows, 2008

Source: UNODC, *World Drug Report 2009*, and UNODC calculations, informed by US ONDCP, *Cocaine Consumption Estimates Methodology*, September 2008 (internal paper).



Global volume and distribution

Although cocaine use appears to be growing in developing countries, the vast bulk of the production is destined for two major overseas markets: North America (6.2 million users in 2008) and Europe (4 to 5 million users, of which 4.1 million were in the EU and EFTA countries).⁹ The largest emerging market in the developing world is seen in the South America, Central America and Caribbean region, with some 2.7 million users. Estimates are far less certain for use levels in Asia and Africa.

Current estimates suggest that about 500 mt of pure cocaine were available for consumption in 2008, of which around 480 mt were actually consumed. The rest was either stocked or lost in transit. Based on what is known about production, seizures, use levels and use rates, a likely global distribution of the 480 mt of cocaine consumed in 2008 is presented in a separate table. This table suggests that more than 320 mt, or around two thirds, is consumed in the mature cocaine markets of North America (41%) and West Europe (26%). Latin America is not far behind, however, suggesting that more attention should be paid to this growing market.

⁹ The 27 countries of the European Union (EU) and the four countries of the European Free Trade Association (EFTA).

These estimates remain tentative, with substantial uncertainty in Asia and Africa in particular, but they are generally in keeping with the distribution of global cocaine seizures.

Based on this distribution and what is known about prices and purities, it is possible to place a retail value on each regional market. Due to much higher purity-adjusted retail prices, the estimated value of the market in Europe (US\$34 billion) is almost as large as that of North America (US\$38 billion). Surprisingly, the third largest cocaine market, in economic terms, is the Oceania region, worth an estimated US\$6 billion, due to very high retail prices.

Global impact

The use of cocaine constitutes, first of all, a major health problem. Cocaine use results in tens of thousands of deaths each year worldwide. After the opiates, cocaine is the most problematic drug globally, and it is indisputably the main problem drug in the Americas. Out of the 5.3 million people who used cocaine at least once in the United States during 2008, 1.9 million also used cocaine in the previous month, of which almost 1 million were found to have been dependent on cocaine.¹⁰ In other

¹⁰ Substance dependence was based on the definition of the 4th edi-

Table 8: Tentative distribution of global cocaine consumption (purity-adjusted), 2008Source: UNODC estimates¹¹

	Estimated number of users (in millions)	Grams per user per year	Amounts of pure cocaine consumed (in mt)	In %
North America	6.2	31.6	196	41%
EU/EFTA	4.1	30.2	124	26%
South America, Central America, Caribbean	2.7	35	95	20%
Africa	1.3	20	26	5%
Asia	0.7	20	14	3%
East and South-East Europe	0.5	26	13	3%
Oceania	0.4	25	11	2%
World (rounded)	15.9	30.1	480	100%

Table 9: Tentative distribution of the global cocaine market in billion US\$, 2008Source: UNODC estimates¹²

	Amounts consumed (in mt)	Average retail price (in US\$ per gram)	Average purity at retail level	Purity-adjusted prices	Value (in billion US\$)
North America	196	108	56%	192	38
EU/EFTA	124	101	37%	273	34
South America, Central America, Caribbean	95	11	66%	17	2
Africa	26	22	34%	65	2
Asia	14	142	73%	195	3
East and South-East Europe	13	125	48%	260	3
Oceania	11	291	53%	549	6
World – total (rounded)	480				88

words, out of the people who used cocaine in the previous year at least once, 18% were dependent on it. This is a higher proportion than for any other drug except heroin. Figures for the year 2007 showed that out of 1,000 people who used crack cocaine in the previous 12 months, 116 entered treatment for substance abuse, a slightly higher proportion than for methamphetamine (102) and a significantly higher proportion than for drug use in general (30) or for the use of alcohol (6).¹³

tion of the Diagnostic and Statistical Manual for Mental Disorders (DSM-IV).

11 Sources the same as for footnote 8, except UNDCP, *Economic and Social Consequences of Drug Abuse and Illicit Trafficking*, Vienna 1997; World Bank, *World Development Indicators 2009*; ONDCP, *The Price and Purity of Illicit Drugs: 1981-2007*, Report prepared by the Institute for Defense Analysis for ONDCP, Washington, July 2008; US Drug Enforcement Agency, based on STRIDE data.

12 Sources the same as for footnote 8, except UNDCP, *Economic and Social Consequences of Drug Abuse and Illicit Trafficking*, Vienna 1997; World Bank, *World Development Indicators 2009*; ONDCP, *The Price and Purity of Illicit Drugs: 1981-2007*, Report prepared by the Institute for Defense Analysis for ONDCP, Washington, July 2008; US Drug Enforcement Agency, based on STRIDE data.

13 SAMHSA, *Treatment Episode Data Sets (TEDS)* and SAMHSA,

While the share has declined, almost half of all people entering drug treatment in the Americas do so due to cocaine (46%), and the share in Europe increased from 3% in 1997/1998 to 10% in 2008. In West Europe, the share is almost 15%.

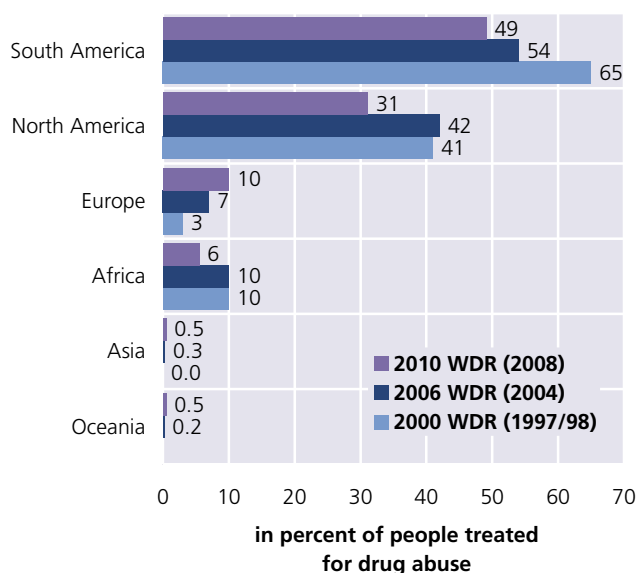
Trafficking in cocaine also constitutes a security threat, financing organized crime and insurgencies in a number of countries, including the FARC in Colombia and the Shining Path in Peru.

Cocaine trafficking is also linked to corruption. Trafficking in cocaine both thrives on corruption and breeds corruption. Rising trafficking of cocaine via countries neighbouring the cocaine production centres in the Andean region led to rising levels of corruption, while high levels of corruption in a number of West African countries have certainly been a facilitating factor for the establishment of cocaine transit traffic via this region.

National Survey on Drug Use and Health.

Fig. 28: Cocaine as primary drug of abuse among persons treated for drug problems*

* unweighted regional averages.

Sources: UNODC ARQ and *World Drug Report 2006*; UNODCCP, *World Drug Report 2000*

1.3.2 Cocaine from the Andean region to North America

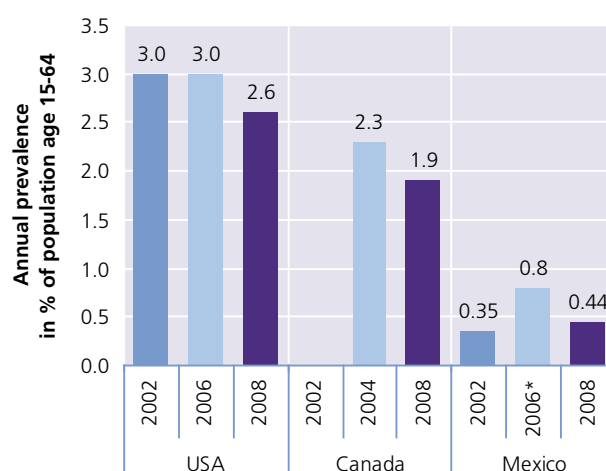
North America is the largest regional cocaine market, with some 6.2 million annual users, close to 40% of the global cocaine-using population. The United States remains the single largest national cocaine market in the world, but this market has declined since the early 1980s. In 1982, an estimated 10.5 million people in the United States had used cocaine in the previous year.¹⁵ In 2008, the figure was 5.3 million, about half as many. This long-term decline occurred despite falling prices and can be attributed to a number of causes, including increased prevention, treatment (complemented by the

14 Unweighted results are shown as for a number of developing countries data from only a few hospitals or drug treatment centers is available. Nonetheless, for most regions, changes in the proportion of treatment demand for cocaine seem to reflect rather well underlying actual trends in the relative importance of cocaine in total drug-related treatment demand. The only exception is Africa. The alleged 'decline' in the proportion of cocaine-related treatment demand for Africa between 2004 and 2008 is a statistical artifact. For this year's *World Drug Report* all estimates older than 10 years were removed. This did not impact much on most regions, except Africa. It reduced significantly the number of country estimates available for Africa. The 'decline' for Africa is thus basically due to a different and very small sample of reporting African countries, but not to any actual decline of cocaine-related treatment demand there. On the contrary, in the limited number of African countries where comparable data are available, the proportion of cocaine in total treatment demand appear to have increased.

15 US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration (SAMHSA), *1995 National Household Survey on Drug Abuse, Report #18*, Rockville, Maryland, 1996.

Fig. 29: Annual prevalence rates of cocaine use in North America among the population aged 15-64, 2002-2008

* 2006 data for Mexico: UNODC estimates, extrapolated from household survey results in Mexico City.

Sources: SAMHSA, *Results from the 2008 National Survey on Drug Use and Health (and previous years)*; CONADIC, *Encuesta Nacional de Adicciones 2008*; Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey 2008*; UNODC, *World Drug Report 2009 (and previous years)*

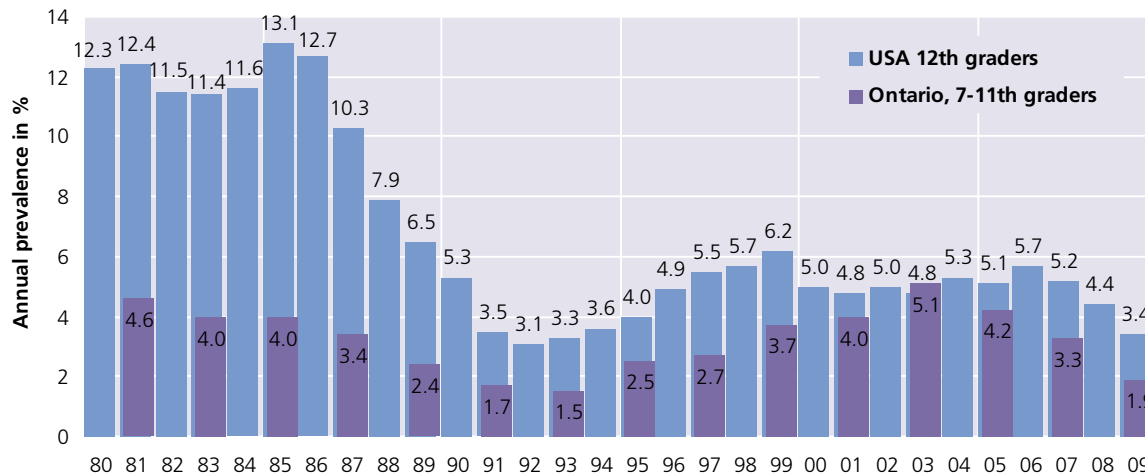
establishment of 'drug courts') and 'social learning.' Crack cocaine became a stigmatized drug in the second half of the 1980s, and powder cocaine also became less fashionable.

This long-term demand-driven decline appears to have been complemented by a recent, more dramatic, supply-driven one. The annual prevalence rate of cocaine use in the United States fell from 3% of the adult population in 2006 to 2.6% in 2008.¹⁶ Recent declines have also been reported in Canada, with adult annual use rates falling from 2.3% in 2004 to 1.9% in 2008.¹⁷ Household surveys in Mexico showed an increase after 2002. However, results from a survey in Mexico City in 2006 suggest that cocaine use may have actually declined between 2006 and 2008, following a strong increase between 2002 and 2006.¹⁸

16 SAMHSA, *Results from the 2008 National Survey on Drug Use and Health*. The data were re-adjusted to the internationally comparable age group 15-64.

17 Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey 2008*, Ottawa 2009. The decline from 1.9% of the population age 15 and above in 2004 to 1.6% in 2008 is equivalent to a decline from 2.3% to 2.0% if the numbers are re-adjusted to the internationally comparable age group of those aged 15-64.

18 Massive increases, followed by a decline seems to be indirectly also confirmed by general population household surveys conducted in Mexico in 2002 and 2008. While lifetime prevalence of cocaine use doubled, from 1.23% in 2002 to 2.4% in 2008, annual prevalence rose by 'just' 25% from 0.35% in 2002 to 0.44% in 2008. In other words, lifetime prevalence rose by almost 1.2 percentage points while annual prevalence rose by 'just' 0.1 percentage points. Such results would be only possible if large sections of society started experimenting with cocaine but gave it up again at some point between 2003

Fig. 30: Annual prevalence of cocaine use among high school students in the United States and Ontario (Canada), 1980-2009Sources: NIDA, *Monitoring the Future*; OSDUH, *Drug Use Among Ontario Students, 1977-2009*

The same recent and dramatic decline can be seen in school surveys in the United States and Canada, where student use has almost halved in three years.¹⁹ In 2009, the perceived availability of cocaine among US students reached its lowest level since 1978. A strong reduction in availability is also confirmed by US law enforcement. Despite ongoing efforts to fight the drug trade, US cocaine seizures along the border with Mexico fell by 40% between 2006 and 2008 and remained at the lower level in 2009, while heroin, marijuana and methamphetamine seizures all increased.²⁰

The strong drop in cocaine use is also reflected in forensic data. Cocaine positive hair tests among the US workforce, reflecting use over the past three months, showed a 40% drop in just two years, from 5.3% in 2007 to 3.2% over the first two quarters of 2009.²¹ The share of the US workforce that tested positive for cocaine, as detected by urine analysis (reflecting use over the last two to three days), showed a 58% decline between 2006 (0.72%) and the first two quarters of 2009 (0.3%).

and 2007. This in turn would suggest that the annual prevalence of cocaine use was already higher at some point between 2003 and 2007, with a peak probably around 2006, followed by a decline in the most recent years. Alternatively, more than 50% of all annual cocaine users would have had to give up their habit every year between 2002 and 2007, which is not very likely. Moreover, the proportion of cocaine in total drug treatment demand declined in recent years, from 37.1% in 2006 to 33.9% (UNODC ARQ).

19 The reduction was 40% between 2006 and 2009 in the USA and 50% in Ontario, which accounts for more than a third of Canada's total population.

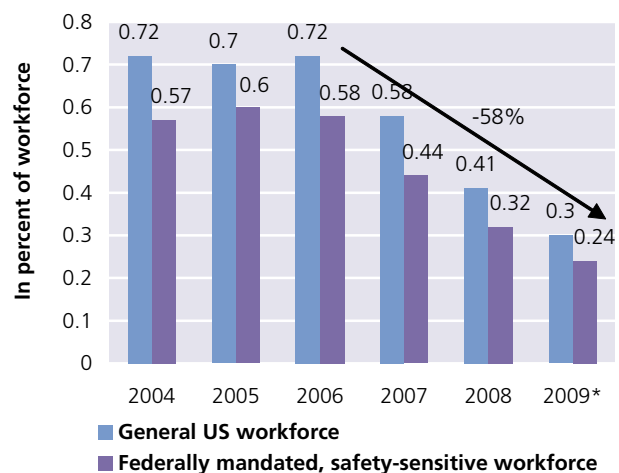
20 National Drug Intelligence Center, *National Drug Threat Assessment 2010*, Johnstown, February 2010.

21 Quest Diagnostics, *New Hair Data Validate Sharp Downward Trend in Cocaine and Methamphetamine Positivity in General U.S. Workforce* Madison, N.J., 20 November 2009 and The Medical News, *Quest Diagnostics reports sharp downward trends in cocaine and methamphetamine use*, 20 November 2009.

While the forensic tests are not administered to a representative sample of the US population, some 6 million people undergo these tests, almost 100 times as many as those interviewed in household surveys (69,000 in 2008).²²

Fig. 31: Positive tests for cocaine use among the US workforce, 2004-2009*

* Positive tests for cocaine use among the general US workforce (5.7 million tests in 2008) and among the federally mandated, safety-sensitive workforce (1.6 million tests in 2008). Data for 2009 refer to the first two quarters only.

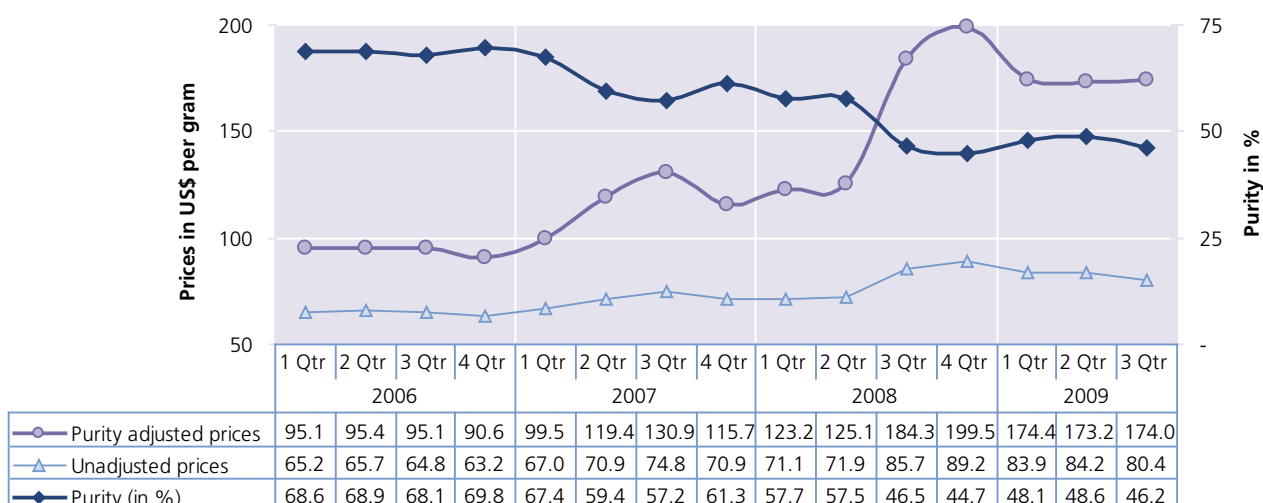
Source: Quest Diagnostics, *Drug Testing Index*

The recent decline (since 2006) appears to have been mainly supply-driven, caused by a severe cocaine shortage. This shortage is also reflected in rapidly falling purity levels and a consequent rise in the cost per unit of pure cocaine. While street prices remained fairly

22 SAMHSA, *Results from the 2008 National Survey on Drug Use and Health*.

Fig. 32: Average of all cocaine purchase prices in the United States, January 2006-September 2009

Source: US Drug Enforcement Agency



stable throughout this period, purity dropped dramatically, resulting in an effective doubling of the real price of cocaine between 2006 and 2009.

There are several reasons for this shortage. Interdiction has stiffened in Colombia, Central America and Mexico. Cartel violence in Mexico has also disrupted supply routes. Perhaps most importantly, production has declined in Colombia, the primary source of cocaine for the United States market, and production in Peru and the Plurinational State of Bolivia continue to be directed towards Europe and the Southern Cone. The fact that the US market is almost exclusively supplied by Colombian cocaine (rather than Peruvian or Bolivian) has been established scientifically. Forensic analyses of cocaine seized or purchased in the United States have repeatedly shown that nearly 90% of the samples originate in Colombia.²³

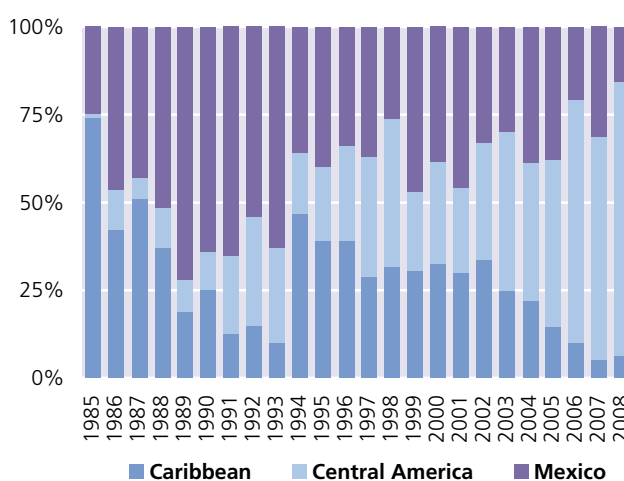
Cocaine is typically transported from Colombia to Mexico or Central America by sea (usually by Colombian traffickers), and then onwards by land to the United States and Canada (usually by Mexican traffickers). The US authorities estimate that close to 90% of the cocaine entering the country crosses the US/Mexico land border, most of it entering the state of Texas and, to a lesser extent, California and Arizona, through the relative importance of Arizona seems to be increasing. According to US estimates, some 70% of the cocaine leaves Colombia via the Pacific, 20% via the Atlantic and 10% via the Bolivarian Republic of Venezuela and the Caribbean.²⁴ The routes have changed over the years.

²³ US State Department, Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Strategy Report*, Vol. I, March 2009.

²⁴ National Drug Intelligence Center, *National Drug Threat Assessment 2009*, December 2008.

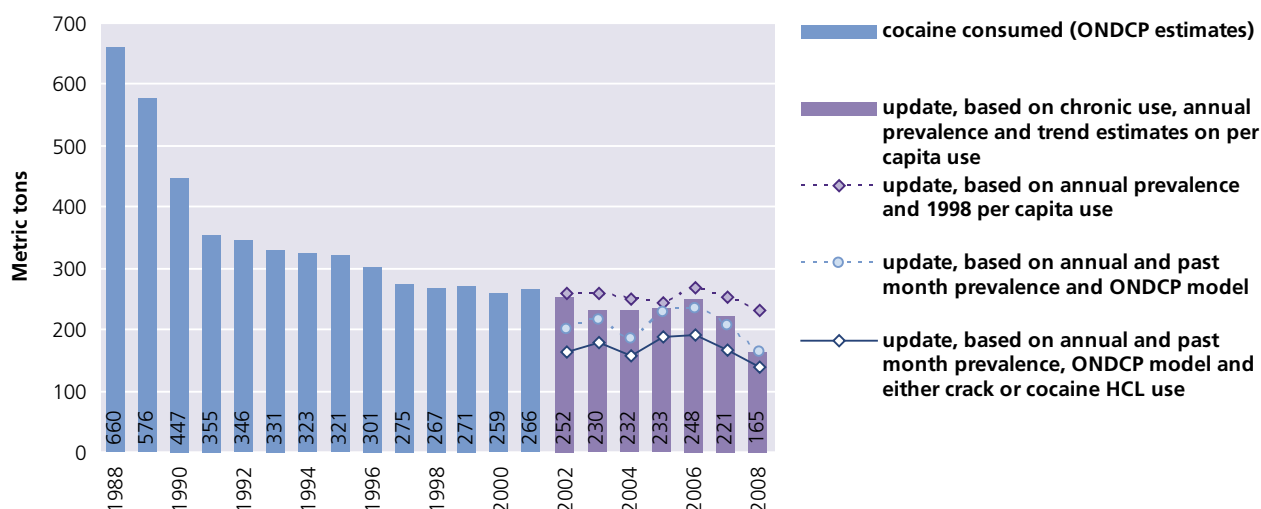
Fig. 33: Distribution of cocaine seizures in Central America, the Caribbean and Mexico, 1985-2008

Source: UNODC ARQ/DELTA



Direct cocaine shipments from Colombia to Mexico have been moved by a wide variety of marine craft, recently including self-propelled semi-submersibles, often transporting several tons of cocaine (typically between 2 and 9 mt). In 2008, 29.5 mt of cocaine were seized by the Colombian navy on board semi-submersibles in the Pacific Ocean, equivalent to 46% of all seizures made at sea by the Colombian authorities in the Pacific (64.5 mt). A few semi-submersibles have been detected on the Atlantic side as well. The Colombian Government reported seizing 198 mt of cocaine in 2008; 58% in the Pacific region and 31% in the Atlantic region.²⁵

²⁵ UNODC and Government of Colombia, *Colombia Coca Cultivation Survey*, Bogota, June 2009.

Fig. 34: Estimates of cocaine consumption in the United States, 1988-2008Sources: Multiple sources²⁶

In addition, the Bolivarian Republic of Venezuela has emerged as a prominent trans-shipment location for cocaine destined for Europe and the United States, according to Colombian, US and European sources, reflected, inter alia, in strong increases of Colombian overland cocaine shipments to the Bolivarian Republic of Venezuela. Cocaine transiting the Bolivarian Republic of Venezuela en route to the USA frequently departs by air from locations close to the border with Colombia for destinations in the Dominican Republic, Honduras and other Caribbean and Central American countries, as well as Mexico.²⁷

Moreover, the importance of the Central American countries as trans-shipment locations has increased in recent years. Most of this cocaine is destined for Mexico and the United States, though some is also locally trafficked.

Routes and volumes

Calculating the amount of an illicit drug consumed in a country is complicated, even in a country as rich in data as the United States. In 2001, the US Government estimated that national cocaine consumption had declined from 660 mt in 1988 to 259 mt in 2000.²⁸ If these

calculations were extended based on more recent annual prevalence data, the figure would be 231 mt for 2008.

This simple extension, however, may not capture the strong decline in recent years. A simplified model, recently proposed by the US Government,²⁹ results in a consumption range of 140 to 164 mt in 2008.³⁰ A third method, suggested by a think tank, would put the figure at less than 175 mt.³¹

2001. The report estimated the number of chronic and occasional cocaine users, and multiplied these numbers with a per capita expenditure estimate, derived from interviews with arrested persons who had used drugs. Based on these dollar amounts, the actual amounts consumed could be calculated.

29 The simplified ONDCP model assumes that 20% of the monthly cocaine users consume 0.5 grams of cocaine per day while the remaining 80% consume 0.5 grams per week. This gives an average consumption of 57.3 grams of cocaine per month. Non-monthly annual users are assumed to consume 4 grams of cocaine per year. In the case of crack-cocaine it is assumed that 30% of the monthly users consume 0.75 grams per day and the remaining 70% consume 0.75 grams per week. This gives, on average, 109.4 grams of crack-cocaine per year for monthly users. The annual excluding monthly users are assumed to consume 6 grams of crack-cocaine per year. (ONDCP, *Cocaine Consumption Estimates Methodology*, September 2008, internal paper). Adding cocaine HCL and crack-cocaine consumption estimates, the model results in overall per capita consumption of 31 grams of cocaine per user in the USA in 2008.

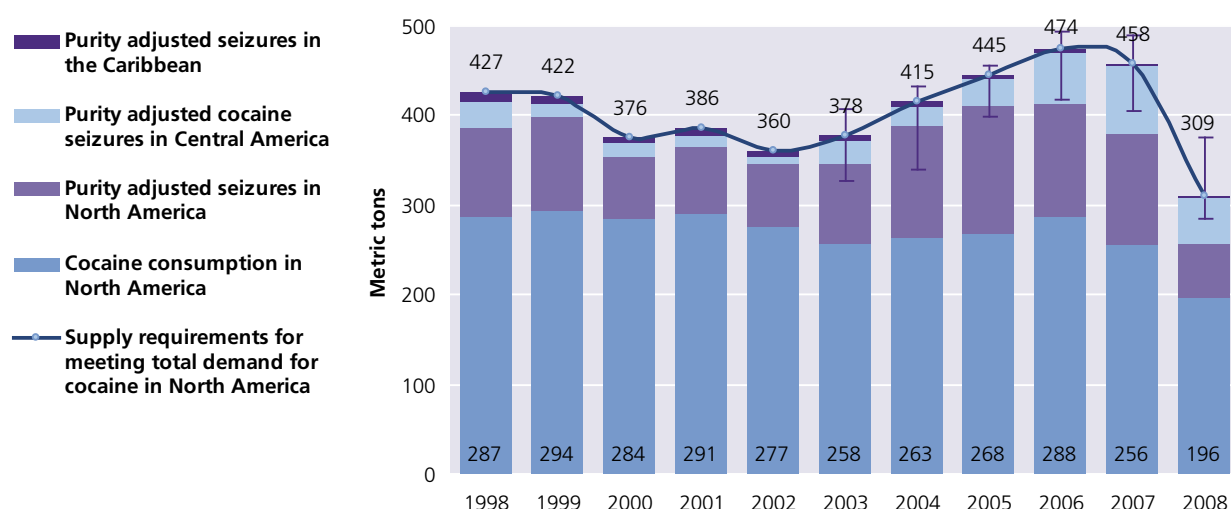
30 The problem here is that the US household survey provides estimates on overall cocaine use (that is, cocaine HCL and crack-cocaine) and then gives an estimate on the number of crack cocaine users. Assuming that no crack user in the US consumes cocaine HCL, the cocaine HCL users can be 'calculated' by subtracting crack cocaine users from all cocaine users; assuming that all crack-cocaine users also consume cocaine HCL, the cocaine HCL figure would be identical to the overall cocaine figure. Applying the first interpretation, cocaine use would have amounted to 140 tons in 2008; applying the second interpretation, cocaine use would have amounted to 164 tons in 2008.

31 Institute for Defense Analyses, *History of the US cocaine market (supply and consumption)*, presentation given to the UNODC expert group meeting: "The evidence base for drug control in Colombia: lessons learned", Bogota, 9-10 November 2009.

26 For data 1988-2000: ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001; for 2001 data: Drug Availability Steering Committee, *Availability Estimates in the United States*, December 2002; for 2002-2008: UNODC estimates based on SAMHSA, *2008 National Survey on Drug Use and Health*, Rockville MD 2009, and previous years; FBI, *Uniform Crime Reports* (2002-2008); ONDCP, *Arrestee Drug Abuse Monitoring Program - ADAM II 2008 Annual Report*, Washington D.C., April 2009; ONDCP, *Cocaine Consumption Estimates Methodology*, September 2008 (internal paper).

27 US Department of State, *2010 International Narcotics Control Strategy Report*, March 2010.

28 The last comprehensive attempt to measure the size the US cocaine market entitled *What America's Users Spend on Illegal Drugs* was published by the Office of National Drug Control Policy (ONDCP) in

Fig. 35: Cocaine demand (consumption and seizures), North America, 1998-2008Sources: Multiple sources³²

There is a fourth method which makes use of new data to reclassify the users and calculate the amount of cocaine a user consumes in a year.³³ Applying these figures to the 2001 model suggests a total US consumption of 165 mt in 2008.³⁴ The four methods show a range of 140 to 231 mt, with the final method (165 mt) falling within this range of values.

The simplified method proposed by the United States can also be applied to the survey data available from Canada and Mexico, producing estimates of around 17 mt of cocaine for Mexico and 14 mt for Canada in 2008. Adding this to US consumption results in a total North American cocaine consumption of some 196 mt for the year 2008.

32 ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001; Drug Availability Steering Committee, *Availability Estimates in the United States*, December 2002; SAMHSA, *National Survey on Drug Use and Health*, Rockville MD 2009, and previous years; FBI, *Uniform Crime Reports (2002-2008)*; ONDCP, *Arrestee Drug Abuse Monitoring Program - ADAM II 2008 Annual Report*, Washington D.C., April 2009; ONDCP, *Cocaine Consumption Estimates Methodology*, September 2008 (internal paper); Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey 2008* and previous years; CINADIC, *Encuesta Nacional de Adicciones 2002*, Ciudad Mexico, Secretaría de Desarrollo, *Encuesta de Hogares, 2006*; CONADIC and Instituto Nacional de Salud Pública, *Encuesta Nacional de Adicciones, 2008*, UNODC ARQ/DELTA.

33 For example, new data are available on the number of cocaine-dependent people and heavy cocaine users (using cocaine more than 100 days a year) identified in the National Household Survey on Drug Use and Health (NHSDU). There are also new data on cocaine-positive tests among arrestees, provided in the Arrestee Drug Abuse Monitoring Program (ADAM II). See ONDCP, *Arrestee Drug Abuse Monitoring Program, ADAM II 2008 Annual Report*, Washington D.C., April 2009. This allows an updated definition and estimate of 'chronic use.'

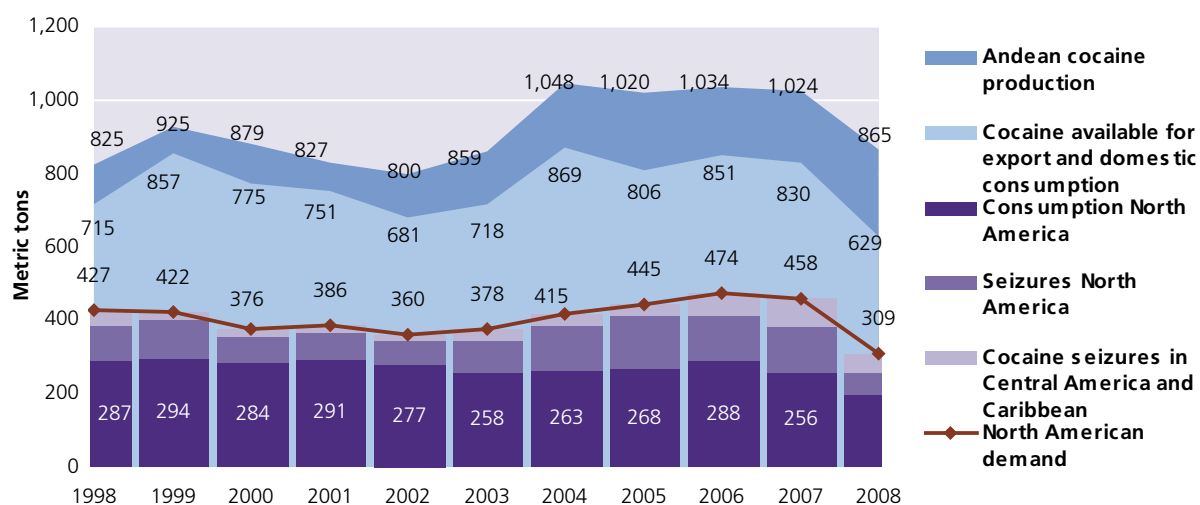
34 The 31 grams of pure cocaine figure is the result of a multiplication of the number of chronic users (2.3 million) with a per capita use of 55 grams per year and a multiplication of the number of occasional users (3 million) with 14 grams per year. This yields a total at 165 tons for 5.3 million users, which gives 31 grams per user in 2008, down from 44 grams per user in 1998 and 66 grams per user in 1988. The per capita use figures were derived from the results of the ONDCP study *What America's Users Spend on Illegal Drugs*, published in 2001. They found average per capita consumption for chronic users to have fallen from 141 grams in 1988 to 106 grams in 1990 and 78 grams in 1998. The model used assumed that the downward trend continued as availability of treatment facilities continued to improve (67 grams in 2007). The downward trend was assumed to have accelerated in 2008, as a result of falling purity levels (55 grams). The decline in per capita consumption for occasional users was less pronounced, from 16 grams in 1988 to 15 grams in 1998, and was thus assumed to have fallen only slightly, to 14 grams in 2008.

How much cocaine must be produced to satisfy this demand? Seizures along this route are substantial, although these shipments are not pure cocaine. In order to get 196 mt to the consumer, it appears that around 309 mt of cocaine was dispatched from the Andean region destined for North America in 2008. This would represent about half of all the cocaine that leaves these countries, down from around 60% in 1998.

How much is this worth, and who derives the most money out of the supply chain? Calculating the retail value of the US market is a matter of applying the estimated volume consumed to the price data and adjusting for purity. The 2001 US Government calculations, adjusted to constant 2008 US dollars, show a decline of the US cocaine market from almost US\$134 billion in 1988 to US\$44 billion in 1998. Applying the new figures, it appears this value has fallen further still, to around US\$35 billion by 2008.

In other words, the retail value of the US cocaine market declined by about two thirds in the 1990s, and by about another quarter in the last decade. The reason the value did not drop even further in the last 10 years is that the real price (adjusted for purity) has gone up.³⁵

35 The calculations were based on the available price data series, provided by ONDCP, ending for the year 2007. For 2008, the purity-adjusted cocaine prices per gram, as reported by the DEA, were used. However, a comparison shows that the two price data series – though both based on STRIDE data – do not correspond, neither in absolute

Fig. 36: Cocaine production and demand for cocaine, North America, 1998-2008Sources: Multiple sources³⁶

Applying similar methods, the 2008 value of the Canadian cocaine market can be estimated at around US\$2.4 billion. The domestic Mexican cocaine market is worth much less, due to far lower cocaine prices: around US\$300 million in 2008. Adding these values, it appears that the North American cocaine market has declined in value from US\$47 billion in 1998 to US\$38 billion in 2008. Between 2006 and 2008, the value of the market remained basically stable.

Using price data and volumes for the various points in

values nor in trends. While the ONDCP price data are supposed to reflect exclusively the retail level, based on the analysis of purity-adjusted prices for purchases of 2 grams or less, the DEA price data series is based on the average price for all cocaine purchases, purity-adjusted and recalculated to represent the average price of cocaine per gram. Though differences in methodology can explain differences in the level, they do not really explain differences in trends. In fact, the bulk of the DEA prices concerns the retail level and the DEA prices should thus – primarily – reflect changes in these prices as well. The differences in the two data sources is not only of academic interest. If the growth rates in prices, as revealed in the DEA data, were applied to the ONDCP price data set, starting as of 2007, the calculations suggest that the overall cocaine market would have slightly increased, from US\$33.5 bn in 2006 to US\$35 bn in 2008, as the strong increases in prices would have more than compensated for the declines in consumption. Given the large number of reports suggesting that strong price increases took place over the 2006-2008 period, the latter estimates appear to have a higher level of credibility.

36 UNODC, *2009 World Drug Report*, Vienna 2009; UNODC ARQ/DELTA; ONDCP, *What America's Users Spend on Illegal Drugs, December 2001*; Drug Availability Steering Committee, *Availability Estimates in the United States*, December 2002; SAMHSA, *National Survey on Drug Use and Health*, Rockville MD 2009, and previous years; FBI, *Uniform Crime Reports (2002-2008)* and ONDCP, *Arrestee Drug Abuse Monitoring Program - ADAM II 2008 Annual Report*, Washington D.C., April 2009 and ONDCP, *Cocaine Consumption Estimates Methodology*, September 2008 (internal paper), Health Canada, *Canadian Alcohol and Drug Use Monitoring Survey 2008* and previous years, CINADIC, *Encuesta Nacional de Adicciones 2002*, Ciudad Mexico, Secretaria de Desarrollo, *Encuesta de Hogares, 2006*, CONADIC and Instituto Nacional de Salud Pública, *Encuesta Nacional de Adicciones*, 2008.

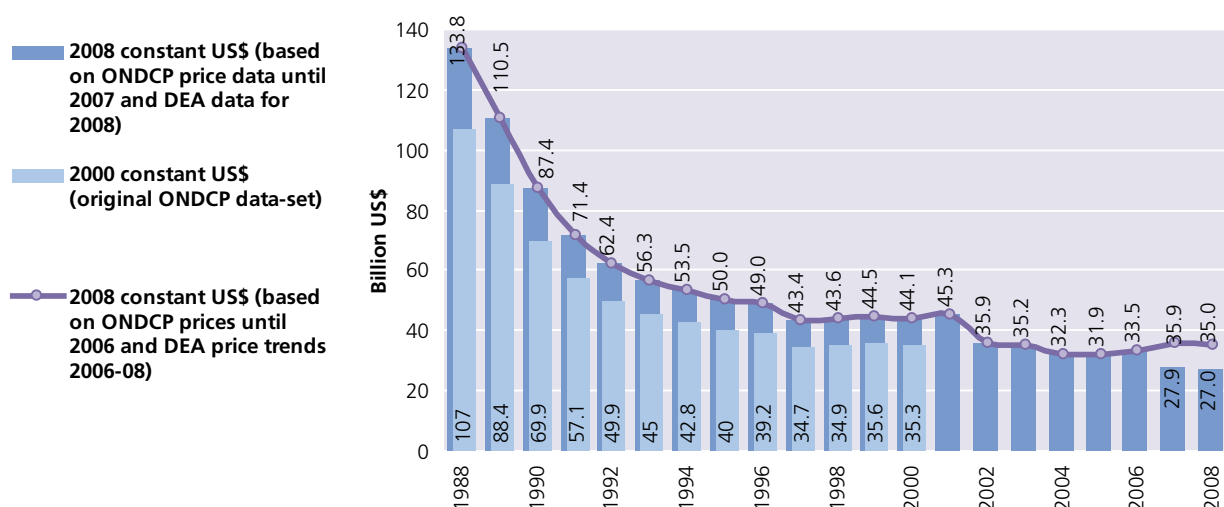
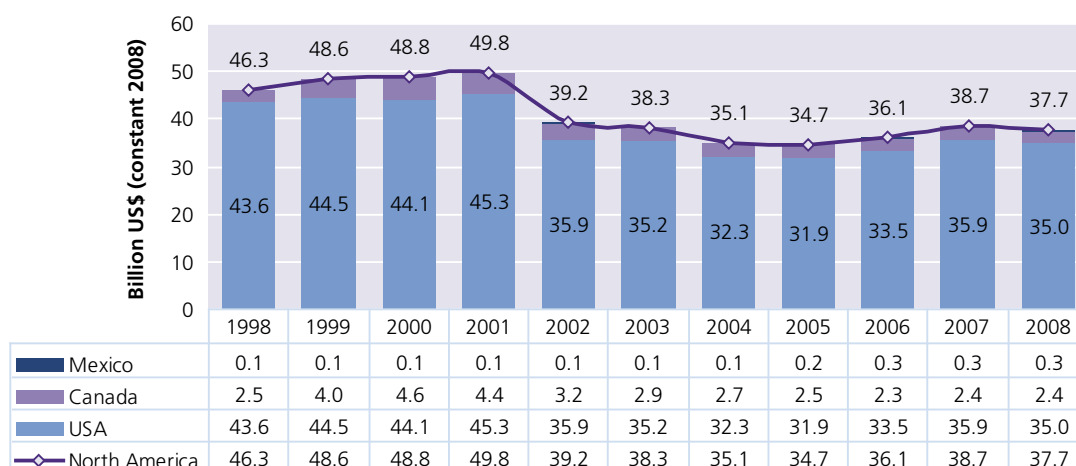
the trafficking chain, the value accruing to the various market players can be estimated. One study, analysing data from the late 1990s, suggested that there are typically seven layers of actors between a coca farmer in the Andean countries and the final consumer in the USA:³⁷

1. The farmer sells the coca leaf (or his self-produced coca paste) to a cocaine base laboratory, operated by the farmers themselves or by various criminal trafficking groups. Sometimes these labs have the capacity to refine the drug further into cocaine hydrochloride.
2. The cocaine base (or the cocaine hydrochloride) is sold to a local trafficking organization which transports and sells the cocaine to a transnational drug trafficking organization.
3. The drug trafficking organization contracts yet another group to do the actual shipping.
4. The cocaine is shipped to traffickers in Mexico.
5. The Mexican traffickers transport the drugs across the US border to wholesalers.
6. The wholesalers sell the cocaine to local mid-level dealers or street dealers across the USA.
7. The street dealers sell the cocaine to the consumer.

The coca farmers in the three Andean countries earned about US\$1.1 billion in 2008, down from US\$1.5 billion in 2007.³⁸ Since about half of the exports go to North America, about half the farmer's income is ultimately derived from the North American market. But the share of the value of that market which goes to the

37 R. Anthony and A. Fries, "Empirical modelling of narcotics trafficking from farm gate to street", in UNODC, *Bulletin on Narcotics*, Vol. LVI. Nos. 1 and 2, 2004, *Illicit Drug Markets*, pp. 1-48.

38 UNODC, *2009 World Drug Report*, Vienna 2009.

Fig. 37: Value of the US cocaine market, 1988-2008, in constant 2008 US\$Sources: Multiple sources³⁹**Fig. 38: Value of the North American cocaine market in constant 2008 US\$, 1998-2008**Source: Multiple sources⁴⁰

farmer is only about 1.5%. The other 98.5% goes to those who transport and deal the drug.

The farmer's output is processed further and transported within the country to its point of embarkation. Those who take on these tasks earned around US\$400 million from North American-bound shipments in 2008, or about 1% of the retail sales value.

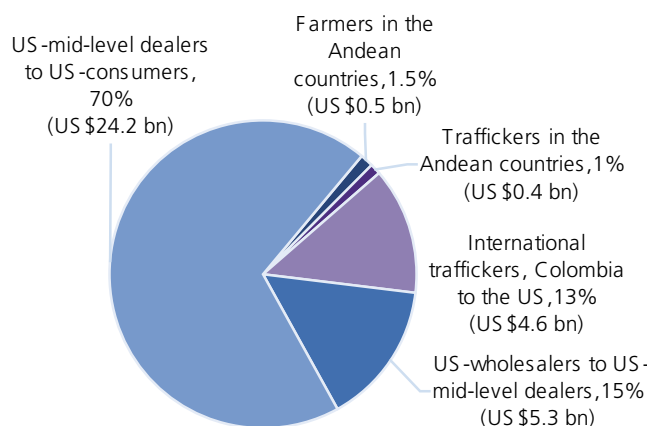
³⁹ For data 1988-2000: ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001; for 2001 data: Drug Availability Steering Committee, *Availability Estimates in the United States*, December 2002; SAMHSA, *National Survey on Drug Use and Health*, Rockville MD 2009, and previous years; FBI, *Uniform Crime Reports* (2002-2008) and ONDCP, Arrestee Drug Abuse Monitoring Program - *ADAM II 2008 Annual Report*, Washington D.C., April 2009; ONDCP, *The Price and Purity of Illicit Drugs: 1981-2007*, Report prepared by the Institute for Defense Analyses for ONDCP, Washington, July 2008; US Drug Enforcement Agency, based on STRIDE data.

Out of 309 mt of cocaine that left the Andean region towards North America in 2008, some 208 mt arrived in the hands of the Mexican cartels. Most of the rest was seized. Trafficking from Colombia to Mexico was still largely in the hands of Colombian groups in 2008, though more recently Mexican groups have also started

⁴⁰ For data before 2000: ONDCP, *What America's Users Spend on Illegal Drugs*, December 2001; for 2001 data: Drug Availability Steering Committee, *Availability Estimates in the United States*, December 2002; SAMHSA, *National Survey on Drug Use and Health*, Rockville MD 2009, and previous years; FBI, *Uniform Crime Reports* (2002-2008) and ONDCP, Arrestee Drug Abuse Monitoring Program - *ADAM II 2008 Annual Report*, Washington D.C., April 2009; ONDCP, *The Price and Purity of Illicit Drugs: 1981-2007*, Report prepared by the Institute for Defense Analyses for ONDCP, Washington, July 2008; US Drug Enforcement Agency, based on STRIDE data, quoted in DEA Intelligence Division, "Cocaine Shortages in U.S. Markets, November 2009" and US Bureau of Labor Statistics, Consumer Price Index (CPI); UNODC ARQ.

Fig. 39: Distribution of gross profits (in %) of the US\$ 35 billion US cocaine market, 2008

Source: Original calculations based on UNODC ARQ and Government reports



to enter this line of business. At a wholesale price of US\$12,500 per kg (US\$15,625 per kg if purity adjusted), the imported cocaine in Mexico was worth some US\$3.3 billion in 2008. With a purchase price of just under 1 billion dollars in Colombia, the total gross profits⁴¹ accruing to those exporting the cocaine to Mexico can be estimated at around US\$2.4 billion.

Shipments from Mexico into the United States are primarily undertaken by Mexican drug cartels. Taking domestic consumption, seizures and purity into account, Mexican cartels moved some 191 mt of pure cocaine across the border to the United States in 2008, valued at US\$3 billion in Mexico. If all of this had been sold to wholesalers in the United States, it would have been worth US\$6.4 billion. Border seizures reduced this value to US\$5.8 billion. Deducting purchase costs, a gross profit of US\$2.9 billion was generated by moving the cocaine across the border into the United States. Most of these profits were reaped by the Mexican drug cartels.

The largest profits, however, are made within the United States. The difference between the wholesale purchase price and the retail value of cocaine in the US was US\$29.5 billion in 2008. Out of these gross profits, the bulk is generated between the mid-level dealers and the consumers, generating more than US\$24 billion in gross profits, equivalent to 70% of total US cocaine sales. Some Mexican groups - as well as Dominican and Cuban groups - are tapping into this highly lucrative market, but most appears to go to a large number of small domestic US groups.

These figures show that US dealers as a whole make the

most out of the market, but there are a lot of US dealers, so individual earnings may remain relatively small. Estimates of the number of persons involved in cocaine trafficking in the 1990s suggested that there were some 200 cocaine wholesalers in the United States, but some 6,000 mid-level cocaine dealers.⁴² Beneath them, there are countless street-level dealers, many of whom are users themselves. Comparable figures are not available for the number of international traffickers, but it seems likely that, as individuals, they make more money than the thousands of dealers in the United States.

How does the market operate?

Following the dismantling of the Medellín and Cali cartels in the early 1990s, the Colombian organized crime groups got smaller, and market competition increased, pushing prices down. After the Colombian Congress amended the Constitution in 1997 to allow the extradition of citizens,⁴³ Colombian groups were largely relegated to the front end of the market chain. Better controls, first for direct flights from Colombia to the United States (starting in the 1980s), and later improved control over shipping in the Caribbean (in the 1990s), reduced the ability of the Colombian organized crime groups to traffic cocaine directly to the United States. By 2008, Mexican organized crime groups were found in 230 US cities (up from 100 cities three years earlier) while Colombian groups controlled illicit cocaine and heroin distribution channels in only 40 cities, mostly in the north-east.

In addition, criminal groups from Caribbean countries are also involved in cocaine trafficking, notably groups with links to the Dominican Republic. Dominican groups have been identified in at least 54 US cities. They operate mainly in locations along the east coast, including Florida. In addition, US-based Cuban organized crime groups pose a threat, because of their affiliations to drug traffickers in Peru, the Bolivarian Republic of Venezuela and Colombia. They are said to operate distribution networks in at least 25 US cities.⁴⁴

Only a quarter of those arrested for cocaine trafficking in the US are foreign, however. US citizens appear to have secured the most lucrative portion of the trafficking chain for themselves. Perhaps this is why, despite the importance of the US as a destination market, US citizens are rarely arrested for cocaine trafficking in the transit or production countries. Based on data from 31

⁴² Institute for Defense Analyses, *History of the US Cocaine Market (Supply and Consumption)*, presentation given to the UNODC expert group meeting: "The evidence base for drug control in Colombia: lessons learned", Bogota, 9-10 November 2009.

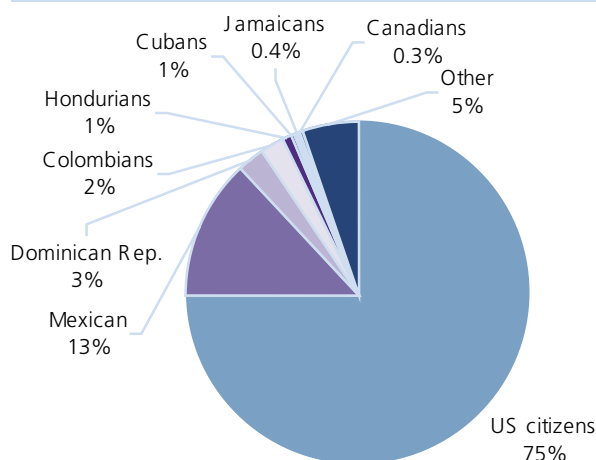
⁴³ Article 35, amended in the Colombian Constitution, A.L. No. 01, 1997.

⁴⁴ National Drug Intelligence Center, *National Drug Threat Assessment 2009*, December 2008.

⁴¹ Gross profits are defined here as the difference between the sales price of the drugs and the original purchase price.

Fig. 40: Citizenship of federal cocaine arrestees in the USA in 2008

Source: UNODC ARQ



countries in the Americas, US citizens comprised only 0.2% of all cocaine trafficking arrestees over the 2001-2008 period. In 2008, the share was only 0.1%.

Impact of this flow

Large-scale cocaine imports into North America constitute, first of all, a serious health problem. This is reflected in high levels of dependence and strong treatment demand for cocaine across the Americas as well as in high levels of drug-related deaths linked to the abuse of cocaine. In most countries of the Americas, cocaine is the main problem drug, and thus the main drug for which treatment is required.

In the United States alone, almost 1 million people were dependent on cocaine in 2008 (see Box for the definition of 'dependence'). Of these, 660,000 people had to be treated for cocaine problems, according to US household survey data. This was twice as many people as for heroin or stimulants (around 340,000 each). One out of three people treated for drug problems in the United States in 2008 was treated for cocaine problems,⁴⁵ at a direct cost of around US\$6 billion.⁴⁶

⁴⁵ SAMHSA, *Results from the 2008 National Survey on Drug Use and Health: National Findings*, 2009.

⁴⁶ Treatment expenditure at the federal level amounted to US\$3.3 bn or 24.5% of the federal US drug control budget in 2008. (ONDCP, *National Drug Control Strategy: FY 2010 Budget Summary*, Washington, May 2009). A previous ONDCP study put the overall health care costs (federal and state) at US\$15.7 bn in 2002 (ONDCP, *The Economic Costs of Drug Abuse in the United States*, December 2004), equivalent to US\$18.9 bn expressed in 2008 US dollars. As the total number of persons treated remained largely unchanged between 2002 and 2008 (2.0 million persons treated in 2002, rising to 2.5 million in 2006 before falling to less than 2.1 million in 2008; SAMHSA, *Results from the 2008 National Survey on Drug Use and Health: National Findings*, Sept. 2009), total health care costs may have still been close to US\$ 19 bn in 2008. As cocaine accounted for close to

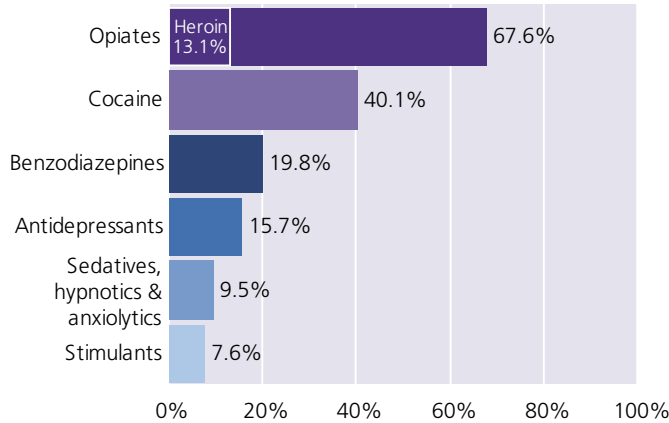
The DSM-IV definition of 'dependence'

The definition of 'dependence' in the US household survey is based on the definition found in the 4th edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV). DSM-IV defines dependence as: a maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

- Tolerance, as defined by either of the following:
 - a need for markedly increased amounts of the substance to achieve intoxication or desired effect;
 - markedly diminished effect with continued use of the same amount of substance.
- Withdrawal, as manifested by either of the following:
 - the characteristic withdrawal syndrome for the substance;
 - the same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms.
- Use of larger amounts or over a longer period than was intended.
- There is a persistent desire or unsuccessful efforts to cut down or control substance use.
- A great deal of time is spent in activities to obtain the substance, use the substance, or recover from its effects.
- Important social, occupational or recreational activities are given up or reduced because of substance use.
- The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance (for example, continued drinking despite recognition that an ulcer was made worse by alcohol consumption).

Source: DSM-IV, Diagnostic and Statistical Manual of Mental Disorders, ed. 4. Washington DC: American Psychiatric Association (AMA), 1994.

a third of all persons treated in 2008, cocaine-related treatment costs can be estimated to amount to some US\$6 bn.

Fig. 41: Drug related deaths – by drug category – across 40 US metropolitan areas, 2007Source: SAMHSA, *Drug Abuse Warning Network, 2007: Area Profiles of Drug Related Mortality, 2009*

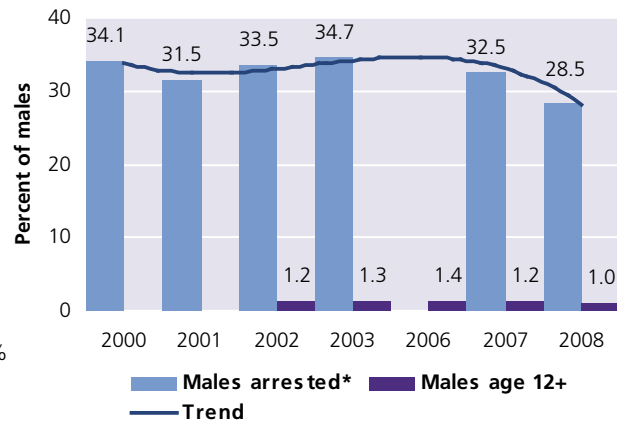
Cocaine also plays a significant role in drug-related deaths. Some 31,800 people died from drug-related causes in the United States in 2007, or about 10 per 100,000 citizens.⁴⁷ This is about twice the country's murder rate. The 7,475 fatal poisonings due to cocaine in 2006 are equivalent to 2.5 deaths per 100,000 inhabitants, or 20% of all drug-related deaths in the USA. Other studies suggest that the total proportion of 'cocaine-related' deaths (that is, deaths where cocaine was involved though not necessarily the only cause) is higher, at 40% of the total, equivalent to some 12,700 people in total in 2007.⁴⁸ The costs of these premature cocaine deaths can be estimated at some US\$13 billion, expressed in 2008 US\$.⁴⁹

Cocaine use is more common among arrestees than the general population. The national drug use survey indicated that about 1% of US men used cocaine in the previous month in 2008, but urine tests of arrestees in 10 US cities found that 28.5% of the men in custody had recently used the drug. In Chicago, the figure was 44%. The corresponding rates in the 10 US cities for opiates (7.7%) and methamphetamine (5.9%) were much lower than for cocaine.⁵⁰ In line with the trends among the

Fig. 42: Cocaine use among male arrestees in 10 US cities* and past month prevalence of cocaine use among males in the general US population, 2000-2008

* Unweighted average of results obtained from Atlanta, Charlotte, Chicago, Denver, Indianapolis, Minneapolis, New York, Portland, Sacramento and Washington DC.

Source: Office of National Drug Control Policy 2009



general population, however, cocaine use among arrestees has shown a clear decline in recent years.

Of course, the fact that suspected criminals use cocaine does not mean that cocaine causes their criminality. Both drug use and the likelihood of being arrested may be related to a third factor, such as social marginalization. But the same would be true for heroin or methamphetamine, where the connection with crime is much weaker. Studies have also shown a stronger correlation between levels of cocaine use in a city and violent crime than for other drugs. Cocaine users, especially crack users, can consume an almost unlimited amount of their chosen drug, unlike heroin or methamphetamine users. Crack highs are short-lived, prompting users to find money for more by any means possible, including prostitution and violent acquisitive crime. High sales volumes have also made crack an attractive funding source for street gangs, whose wars over sales turf have been a major source of murders in the United States in the past.

This is one reason that the general decline in murders in the United States over the last two decades or so has been attributed, at least in part, to declines in cocaine use. Other crime rates have also fallen in the same period. According to national surveys, the share of people who used cocaine in the previous month fell by 56% between 1988 and 2008. Between 1990 and 2008, the murder rate fell by 43%. During the same period, the US property crime rate fell by 29% and the violent crime rate by 34%.⁵¹ There are also clear links between cocaine and violence in the production and transit countries.

47 *National Vital Statistics Reports, Deaths: Preliminary Data for 2007*, Vol. 58, No. 1, August 2009.

48 *Ibid.*

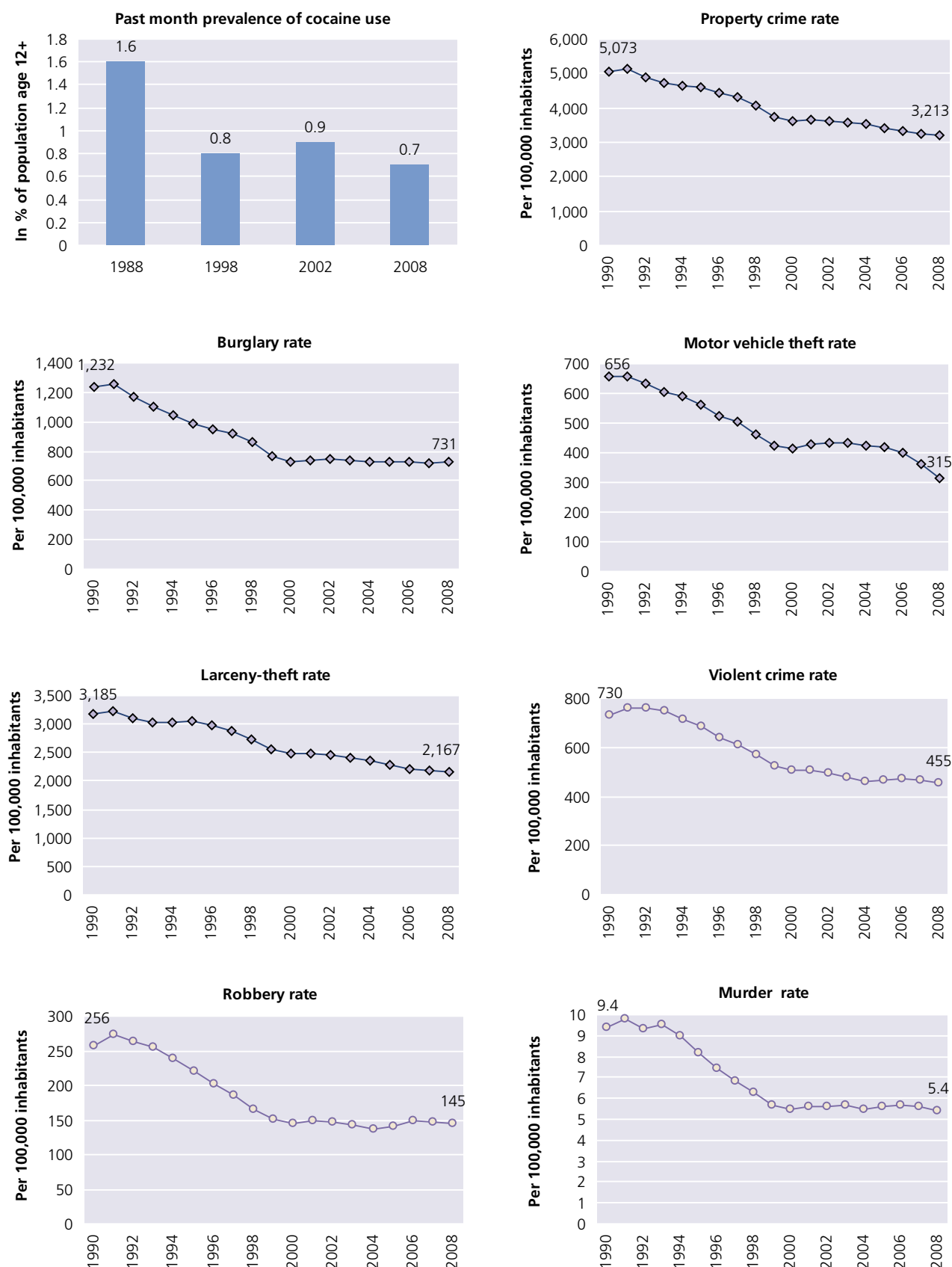
49 The overall costs related to premature deaths due to drug abuse for US society were estimated by ONDCP at US\$ 24.6 bn for the year 2002 (ONDCP, *The Economic Costs of Drug Abuse in the United States, 1992-2002*, Washington, November 2004), equivalent to US\$ 27 bn in 2008 US dollars. As the number of drug-related premature deaths actually increased by 22% between 2002 and 2007, this figure would come close to US\$33 bn, expressed in 2008 US dollars. Applying a ratio of 40% to this value (share of cocaine in all deaths in 2007), results in an estimate for cocaine-related premature death of around US\$13 bn.

50 ONDCP, *Arrestee Drug Abuse Monitoring Program - ADAM II, 2008 Annual Report*, April 2009.

51 US Department of Justice, Federal Bureau of Investigation (FBI), *Crime in the United States, Preliminary Semiannual Uniform Crime Report*, January to June, December 2009.

Fig. 43: Long-term trends: Cocaine use and changes in the crime rates in the United States

Sources: SAMHSA, 2008 Household Survey on Drug Use and Health; SAMHSA, 1998 National Household Survey on Drug Abuse; FBI, Uniform Crime Reports

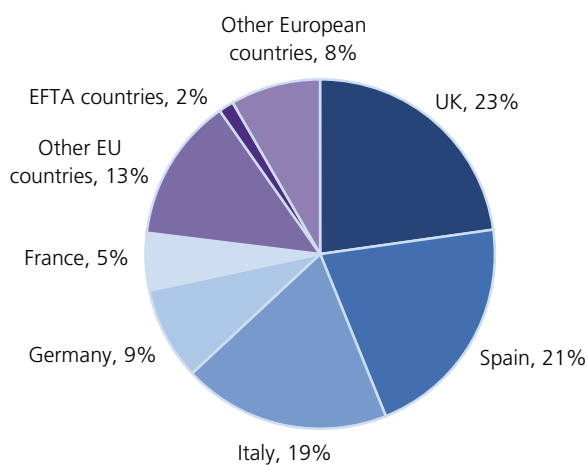


1.3.3 Cocaine from the Andean Region to Europe

The world's second largest flow of cocaine is directed towards Europe. The 27 countries of the European Union (EU) and the four countries of the European Free Trade Association (EFTA) host some 90% of Europe's 4.5 million cocaine users. The single largest cocaine market within Europe is the United Kingdom, followed by Spain, Italy, Germany and France.

Fig. 44: National shares of the cocaine user population in Europe in 2007/08

UNODC ARQ; Government reports; UNODC, *World Drug Report 2009*; EMCDDA, *Statistical Bulletin 2009*



In contrast to the shrinking cocaine market in North America, the number of cocaine users in the EU/EFTA countries has doubled over the last decade, from 2 mil-

lion in 1998 to 4.1 million in 2007/2008. Recent data suggest, however, that the rapid growth of the European cocaine market is beginning to level off. The annual cocaine prevalence rate in the EU/EFTA region (1.2% of the population aged 15-64) is still far lower than in North America (2.1%), though individual countries, notably Spain (3.1% in 2007/2008) and the United Kingdom (3.7% in Scotland; 3.0% in England and Wales in 2008/2009), already have higher annual prevalence rates than the United States (2.6% in 2008).

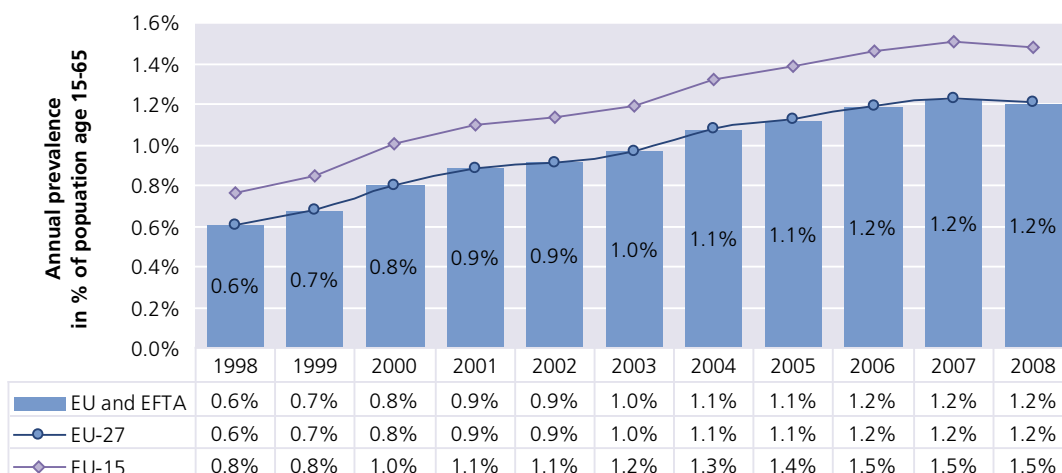
Routes and volumes

Trafficking of cocaine to Europe is mainly by sea (often in container shipments), although deliveries by air and by postal services also occur. The World Customs Organization reported that 69% of the total volume of cocaine seized by customs authorities en route to West Europe was detected on board boats or vessels, concealed in freight or in the vessels' structure.⁵² Though recent years have seen a proliferation of entry points, including some in the Balkan region, most of the cocaine entering Europe does so through one of two hubs: Spain and Portugal in the south, or Netherlands and Belgium in the north. The Iberian peninsula is close to Latin America both geographically and culturally, and the Low Countries host the largest ports in Europe. Between them, Spain, Portugal, the Netherlands and Belgium accounted for close to 70% of all cocaine seized in Europe in 2008, though just a quarter of the 'European cocaine' was consumed in these countries.⁵³

Despite the growth of Peruvian and Bolivian production capacity, the main source of the cocaine found in Europe

Fig. 45: Annual prevalence of cocaine use in the EU and EFTA countries, 1998-2008

Sources: UNODC ARQ; Government reports; UNODC, *World Drug Report 2009*; EMCDDA, *Statistical Bulletin 2009*



⁵² World Customs Organization, *Customs and Drugs Report 2008*, Brussels, June 2009.

⁵³ EMCDDA/Europol, *Cocaine: A European Union perspective in the global context*, April 2010.

in still Colombia. Individual drug seizures reported by Spain suggest, for instance, that 81% of the cocaine originated in Colombia and its neighbouring countries (the Bolivarian Republic of Venezuela, Ecuador and Panama) in 2008. Nonetheless, shipments from Peru and the Plurinational State of Bolivia are more common for Europe than for the United States, and the relative importance of Colombia is declining. For 2002, the UK authorities reported that 90% of the cocaine seized there originated in Colombia; by 2008, the figure fell to 65%. For some of the smaller European markets, Peru and the Plurinational State of Bolivia seem to be the primary sources of cocaine already. There have also been changes in the routes. Shipments to Europe, particularly large maritime shipments, have been increasingly transiting the Bolivarian Republic of Venezuela in recent years.⁵⁴ In fact, for cocaine seized since 2004 where the origin could be determined, 41% have been traced back to the Bolivarian Republic of Venezuela.⁵⁵ According to the new Maritime Analysis Operation Centre (MAOC-N), more than half (51%) of all intercepted shipments in the Atlantic over the 2006-2008 period started their journey in the Bolivarian Republic of Venezuela. Direct shipments from Colombia accounted for just 5% of the total.⁵⁶

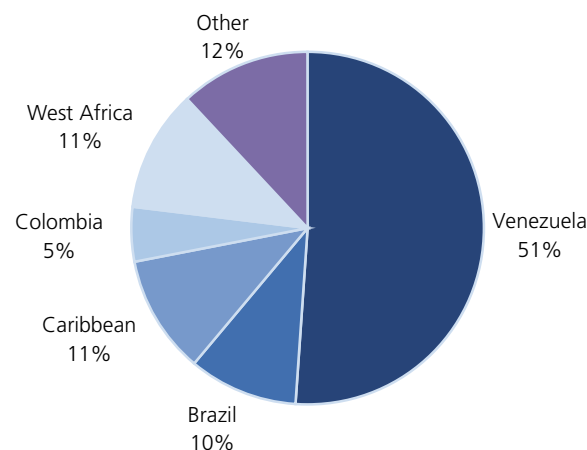
Sailing vessels, mostly travelling from the Caribbean to Europe, emerged in recent years as the most common source for seizures (43% of all seizure cases according to MAOC-N data), followed by freight vessels (39%) and other motor vessels (12%).⁵⁷ Semi-submersibles, in contrast, do not play any significant role for trafficking cocaine from South America to Europe. Only one has been sighted so far, in Galicia, northern Spain in 2006.⁵⁸

There are also ongoing cocaine shipments by air from various South American countries (Brazil, Argentina, Uruguay et cetera), Caribbean countries (Netherlands Antilles, Dominican Republic, Jamaica et cetera) and Central American countries (including Costa Rica) to destinations in Europe.

In addition, shipments to Africa, mostly West Africa, gained in importance between 2004 and 2007, resulting in the emergence of two key trans-shipment hubs: one centered on Guinea-Bissau and Guinea, stretching to Cape Verde, Gambia and Senegal, and one centered in the Bight of Benin, which spans from Ghana to Nigeria. Colombian traffickers often transport the cocaine by 'mother ships' towards the West African coast before

Fig. 46: Departure locations of identified drug trafficking shipments by sea from South America to Europe, 2006-2008

Source: Maritime Analysis Operation Centre



offloading it to smaller vessels. Some of it proceeds onward by sea to Spain and Portugal while some is left as payment to West Africans for their assistance – as much as 30% of the shipment.⁵⁹ The West Africans then traffic this on their own behalf, often by commercial air couriers. Shipments are also sent in modified small aircraft from the Bolivarian Republic of Venezuela or Brazil to various West African destinations.⁶⁰ Increased awareness, interdiction and political turmoil in the northern hub seem to have reduced the traffic through this region in 2008 and 2009, although it could quickly re-emerge. The decline in trafficking, affecting in particular Lusophone Africa, may also be a reason why Portugal experienced a sharp fall in cocaine seizures between 2006 and 2008, following a massive upward trend over the 2003-2006 period.

European cocaine seizures as a whole increased strongly over the 1998-2006 period, from 32 to 121 mt, before declining again over the 2006-2008 period to some 63 mt. Nonetheless, overall cocaine seizures in 2008 were almost twice as high as in 1998.

The largest interceptions were reported by Spain, accounting for 45% of all European cocaine seizures in 2008 as well as over the 1998-2008 period. The Spanish figures reflect both the strong increase and the recent decline in cocaine seizures in Europe. The trends are also confirmed in survey data on perceived cocaine availability in Spain.⁶¹

⁵⁴ Ibid.

⁵⁵ UNODC, Individual Drug Seizures database.

⁵⁶ Maritime Analysis Operation Centre (MAOC(N), *Statistical Analysis Report*, Lisbon 2009.

⁵⁷ Ibid.

⁵⁸ MAOC-N, *Semi-Submersible Briefing Paper*, Lisbon 2008.

⁵⁹ Serious Organized Crime Agency (SOCA), *The United Kingdom Threat Assessment of Organised Crime, 2009/10*, London, 2009.

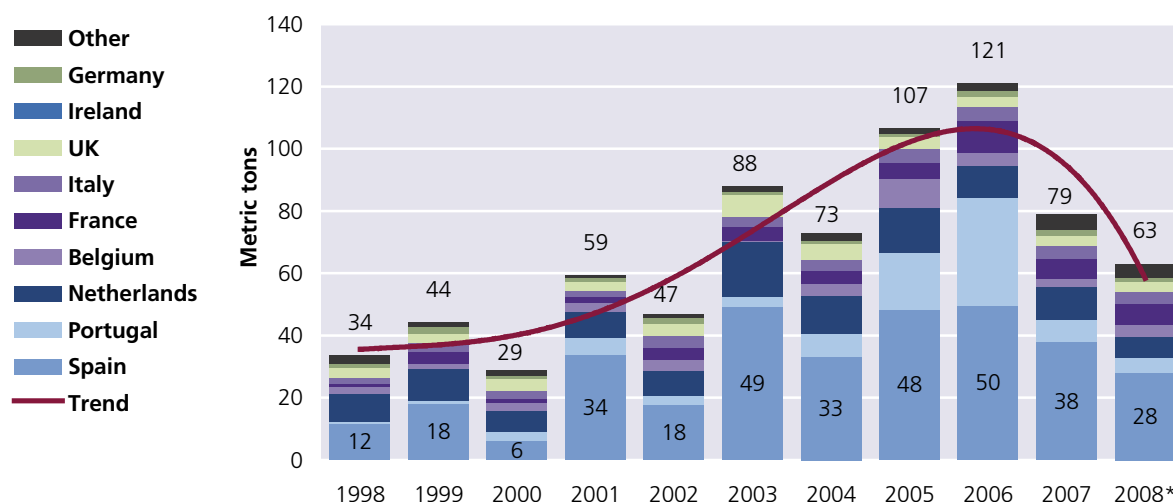
⁶⁰ UK Home Affairs Committee, *The Cocaine Trade* (see: <http://www.publications.parliament.uk/pa/cm200910/cmselect/cmhaaff/74/7410.htm>); SOCA, *UK Threat Assessment of Organised Crime 2009/10*.

⁶¹ Ministerio de Sanidad y Consumo, *2008 National Report to the EMCDDA by the Reitox National Focal Point, 'Spain' New Development, Trends and in-depth information on selected issues*, Madrid,

Fig. 47: European cocaine seizures (mt; not adjusted for purity), 1998-2008

*No data for 2008 received for Poland, Scotland, Ukraine and Belarus – assumed unchanged levels of seizures.

Source: UNODC ARQ/DELTA



Spanish cocaine seizures primarily take place in international waters (two thirds of the total in 2007) and about one tenth are made from containers. A much smaller share is seized close to the country's beaches (2%), while airports account for just 6%.⁶²

Portuguese seizures basically mirror the patterns seen in Spain, showing increases until 2006 and declines thereafter (from 34 mt in 2006 to 5 mt in 2008). The changes have been even more pronounced in Portugal, reflecting the strong links with trafficking via West Africa (via Guinea-Bissau and Cape Verde).

Dutch cocaine seizures have also sharply fallen in recent years. This is a result of the '100% control' policy in the Antilles and at Schiphol airport (Amsterdam), which reduced the number of drug couriers from the Caribbean and various South American countries,⁶³ improved container controls as well as growing efforts to stop shipments before they arrive in the Netherlands. For example, in 2008, the National Crime Squad arrested several men planning to ship 2.6 mt of cocaine from a warehouse in Sao Paulo, Brazil, to the Netherlands. Large amounts of cocaine continue to be seized by the coastguards of the Dutch Antilles and Aruba. Out of 6.8 mt seized in 2008, 4.2 mt were taken by the Dutch navy from a cargo vessel sailing under a Panamanian flag from the Bolivarian Republic of Venezuela to Europe. An additional factor may be diversions to the port of Antwerp (Belgium).

In 2008, for the first time, France seized more cocaine than any other European country besides Spain. Most of this cocaine (6 out of 8.2 mt) was seized at sea, mainly close to the French overseas territories in the Caribbean or close to the West African coast. Cocaine seizures that could be traced back to the West African countries themselves, however, amounted to just 0.3 mt in 2008. Most of the French-seized cocaine in 2008, came from Brazil (40% of the total) or the Bolivarian Republic of Venezuela (21% of total). Cocaine trafficked from Brazil most likely originated in Peru or the Plurinational State of Bolivia, reflecting the growing importance of these producers to Europe.⁶⁴

As in the US market, estimating the volume of cocaine consumed in Europe is complicated. There are good survey data on the share of the population that uses cocaine, but less information on how much they use. The subsequent analysis is based on four different estimation methods,⁶⁵ resulting in average consumption

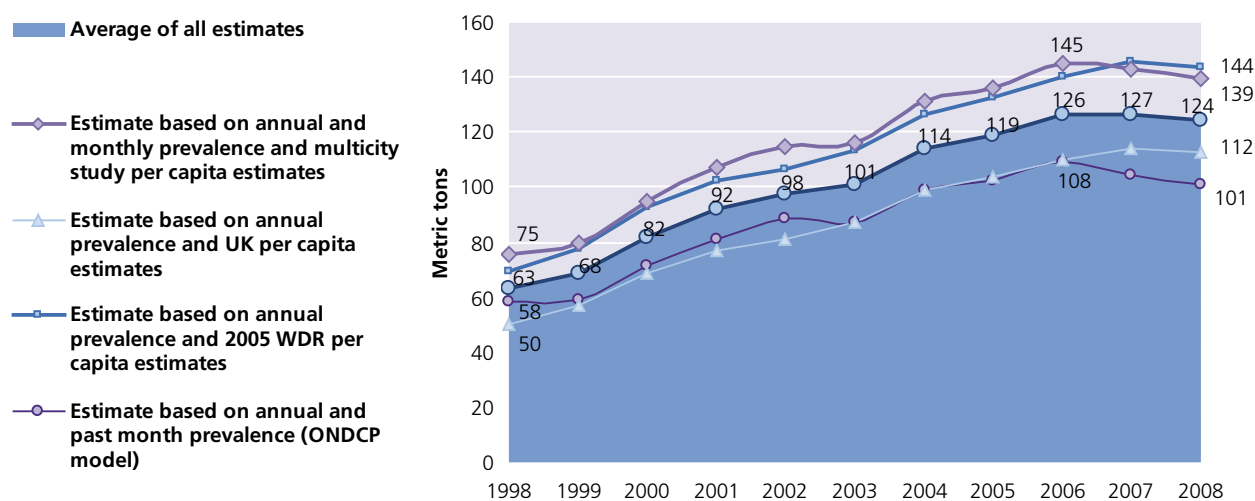
⁶⁴ Direction Générale de la Police Nationale, Direction Générale de la Police Judiciaire, Office Central pour la Répression du Trafic Illicite des Stupéfiants (O.C.R.T.I.S.), *Usage et Trafic des Produits Stupéfiants en France en 2008*, Paris, 2009.

⁶⁵ These techniques are detailed in the following documents: United States Office of National Drug Control Policy, *Cocaine Consumption Estimates Methodology*, September 2008 (internal paper); Home Office, *Sizing the UK market for illicit drugs*, London 2001; Home Office, *Measuring different aspects of problem drug use: methodological developments*, Home Office Online Report 16/06, London 2006; UNODC, *2005 World Drug Report, Volume 1: Analysis*, Vienna 2005; European Centre for Social Welfare Policy, *Two Worlds of Drug Consumption in Late Modern Societies*, Vienna 2009. While the first model, developed by ONDCP, seems reasonable, it is based on assumptions, not on actual empirical data from European countries. The second model is based on empirical data, but they refer to the situation in one country (UK) which is not necessarily representative for the rest of Europe. The third model refers to cocaine use in West and Central Europe, but it is again derived from a number of underlying assumptions (such as effectiveness of law enforcement interven-

2008.

⁶² Ministerio del Interior, Secretaría de Estado de Seguridad, Centro de Inteligencia contra el Crimen Organizado, *Hashish and Cocaine in Europe*, presentation given to UNODC, Vienna, July 2008.

⁶³ US Department of State, *International Narcotics Control Strategy Report*, March 2009.

Fig. 48: Amounts of (pure) cocaine consumed in the EU/EFTA countries, 1998-2008Sources: Multiple sources⁶⁶

rates of between 25 to 35 grams of pure cocaine per user. Multiplied by the number of users, this suggests consumption of some 101 to 144 mt for the EU and EFTA countries in 2008. The average is 124 mt, about double the figure a decade before.⁶⁷

In line with the increases in the volumes of cocaine trafficked into Europe since the early 1990s, prices declined. Expressed in constant 2008 euros,⁶⁸ cocaine retail prices, at street purity, fell from an average of €143 in 1990 to €70 per gram in 2008, essentially halving in two dec-

ades. To understand the relative attractiveness of this market, however, it helps to look at these figures in constant 2008 US dollars.⁶⁹ Here, too, cocaine prices declined over the 1990-2000 period, but they increased over the 2000-2008 period, from US\$88 to US\$102, as the US dollar depreciated against the euro. The increase was most acute over the 2006-2008 period.

These euro price declines took place in the context of declining purity, however.⁷⁰ Taking purity into account, retail cocaine prices expressed in constant 2008 euros remained basically stable between 1998 and 2008: €183 per pure gram in 1998 and €189 per pure gram in 2008. The same was true of wholesale prices. Expressed in constant US dollars, the purity-adjusted price actually increased significantly. The euro, particularly the high-value 500 euro note, has become an important secondary currency for drug traffickers.

If the amounts of cocaine consumed are multiplied by

tions and importance of regional proximity). The fourth model is based on empirical data from six cities in Europe, but applying the use rate found among marginalized users to all past month users is likely to result in an over-estimate. At the same time, a basic problem of household surveys, based on self-reports, is that they are – most likely – showing a substantial under-estimate of the extent of drug use. It remains difficult to judge to what extent these errors offset each other in the final calculation of the amounts consumed.

66 UNODC ARQ; UNODC, *2009 World Drug Report*, Vienna 2009; EMCDDA, *Statistical Bulletin 2009*, Lisbon 2009; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2008 Revision*, 2009; European Centre for Social Welfare Policy, *Two Worlds of Drug Consumption in Late Modern Societies*, Vienna 2009; ONDCP, *Cocaine Consumption Estimates Methodology*, September 2008 (internal paper); Home Office, *Sizing the UK market for illicit drugs*, London 2001; Home Office, *Measuring different aspects of problem drug use: methodological developments*, Home Office Online Report 16/06, London 2006; UNODC, *2005 World Drug Report, Volume 1: Analysis*, Vienna 2005.

67 Available data suggest that the European cocaine market doubled in volume terms over the 1998-2006 period, before stabilizing over the 2006-08 period. The calculation is based on the assumption of largely stable per capita use levels. Given the lack of reliable quantitative or qualitative information, the calculations do not allow for the possibility that per capita use levels increased over the 1998-2006 period due to the progression from casual to problematic use, and that they may have fallen in terms of pure cocaine equivalents after 2006 as purity declined while use may have remained stable in terms of the amounts of street level cocaine consumed.

68 Current euro values were transformed into constant euros by applying the consumer price index for the euro zone.

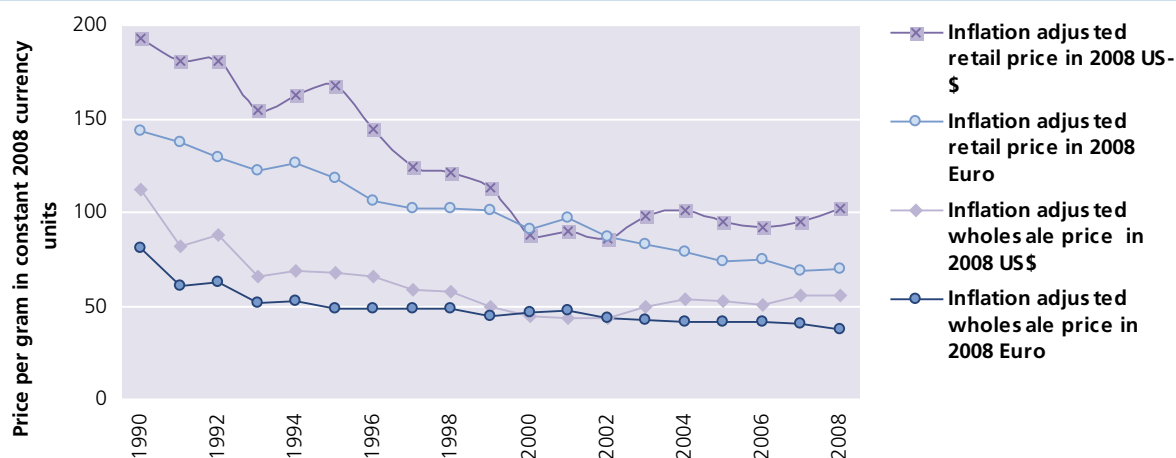
69 Current US dollar values were transformed into constant US dollar values by applying the US consumer price index.

70 The unweighted averages of reported purities for countries in West and Central Europe show a decline at the retail level from 59% in 1998 (range: 25% - 75%) to 47% in 2005 and 36% in 2008 (range: 16% - 52%). At the wholesale level the decline was from 78% (range: 55% - 90%) in 1998 to 55% in 2008 (range: 26% - 80%).

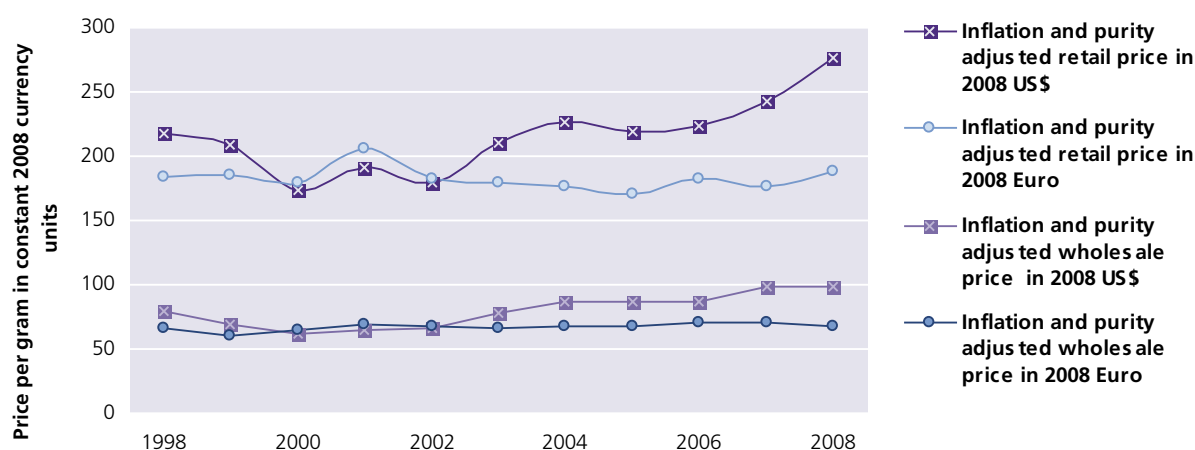
As some of the decline could have been simply the result of specific countries reporting in one year, and not in another, a modified calculation model was introduced. This model assumes that the results of non-reporting countries remained basically unchanged from the previous year (or a later year) for which data are available. This was done to avoid changes in the overall average due to the reporting or non-reporting of countries in specific years. Using this approach for missing data, changes in the overall average only reflect actual changes in country-specific purity data. Based on this model, the average cocaine purities at the retail level in West and Central Europe declined from 55% in 1998 to 43% in 2005 and 37% in 2008. The wholesale purities declined according to this model from 72% in 1998 to 60% in 2005 and 56% in 2008.

Fig. 49: Cocaine prices (not adjusted for purity) in West Europe* in constant currency units per gram, 1990-2008

* Average price of 18 West European countries (accounting for the bulk of cocaine consumption in Europe), weighted by population size.
Sources: UNODC, *World Drug Report 2009* (and previous years) and ARQ

**Fig. 50: Purity-adjusted cocaine prices in West Europe, in constant currency units, per gram, 1998-2008**

Sources: UNODC, *World Drug Report 2009* (and previous years) and ARQ



the purity-adjusted retail prices, it appears that the value of the European cocaine market has more than doubled in the last decade (from US\$14 billion in 1998 to US\$34 billion in 2008). In 2008, it was worth almost as much as the US market (US\$35 billion), even though it was still significantly smaller in terms of volume.

How much cocaine must be shipped to satisfy this growing demand? Taking seizures into account,⁷¹ some 212 mt would have to have left South America to the Euro-

pean market in 2008.⁷² The growth of the European market has meant that a growing share of the total cocaine production needs to be funneled toward the EU/EFTA countries, increasing from 13% in 1998 to 25% of total production in 2008.

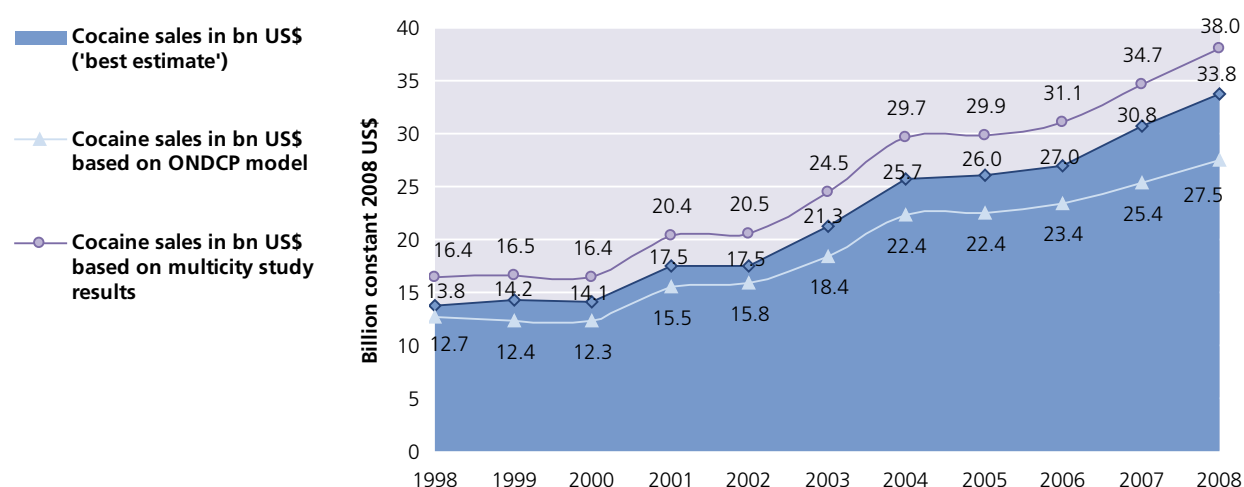
Where does the money go? Out of European cocaine sales, less than 1% goes to the Andean coca farmers. Another 1% goes to the processors and traffickers within the Andean region. About 25% of the final sales value accrues to the international traffickers who ship the cocaine from the Andean region to the main entry points. Shipping the cocaine from the entry points to the wholesalers in the final destination countries across

⁷¹ Based on the Annual Reports Questionnaire Data, about 55% of the seizures made in the Caribbean and 61% of the seizures made in South America excluding the Andean countries were linked to shipments towards Europe in 2008, up from 47% and 46% respectively in 2002. For seizures made in Africa it was assumed that the bulk of them was linked to shipments towards Europe.

⁷² Range: 189–232 tons.

Fig. 51: Size of the EU/EFTA cocaine market in billions of constant 2008 US\$

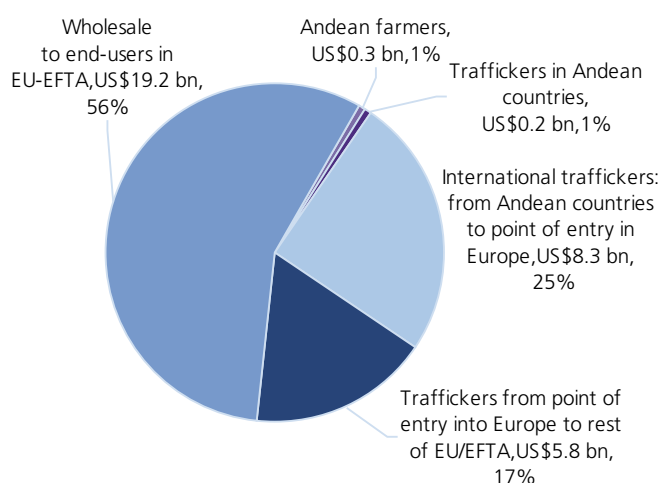
Sources: UNODC ARQ; Government reports; UNODC, *World Drug Report 2009*; EMCDDA, *Statistical Bulletin 2009*; European Centre for Social Welfare Policy, *Two Worlds of Drug Consumption in Late Modern Societies*



Europe generates a further 17% of the retail value. More than half (56%) of the value is, however, made within the destination countries, between the wholesalers and the consumers. As there are far more dealers at the national level, the per capita income of the dealers at the national level is (like in North America) likely lower than among the smaller group of international cocaine traffickers.

Fig. 52: 'Value-added' of cocaine sales among the EU/EFTA countries in 2008, billion US\$

Sources: Multiple sources⁷³



⁷³ UNODC, Annual Reports Questionnaire Data; Government reports; UNODC, *2009 World Drug Report*, Vienna 2009; EMCDDA, *Statistical Bulletin 2009*, Lisbon 2009; United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2008 Revision*, 2009; Home Office, *Sizing the UK market for illicit drugs*, London 2001; Home Office, *Measuring different aspects of problem drug use: methodological developments*, Home Office Online Report 16/06, London 2006; European Centre for Social Welfare Policy, *Two Worlds of Drug Consumption in Late Modern Societies*, Vienna 2009; UNODC, *2005 World Drug Report, Volume 1: Analysis*, Vienna 2005.

How does the market operate?

Trafficking of cocaine to Europe is, to a significant extent, organized by Colombian organized crime groups that forge alliances with various criminal groups operating in Europe, notably with groups in Spain, Italy and the Netherlands. In most European countries, the majority of those arrested for drug trafficking are local citizens, but the Colombian groups act as importers and, to a lesser extent, as wholesalers. Their involvement in retail markets is limited to Spain. Between 21% and 26% of all foreigners arrested for cocaine trafficking in Spain over the 2004-2007 period were Colombian nationals. The proportion rose to 29%, or nearly 1,000 individuals, in 2008.

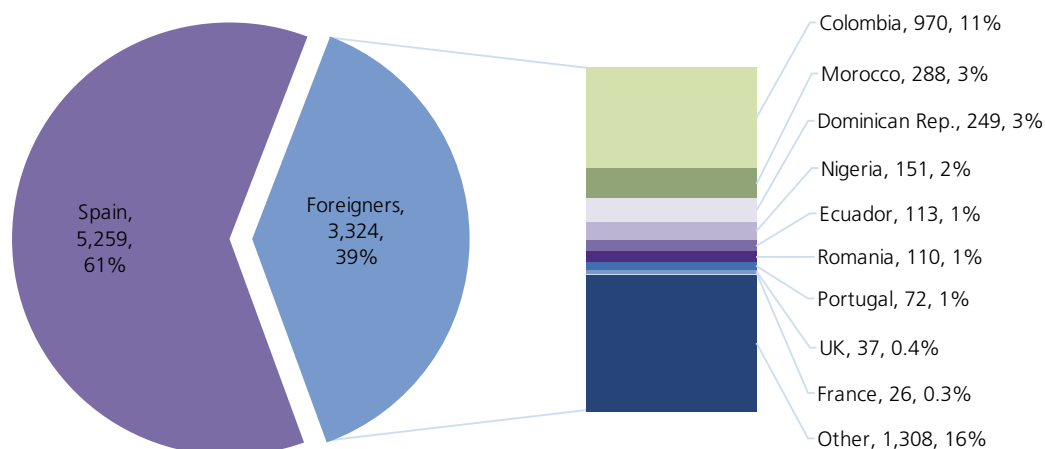
In addition, groups from the Caribbean region play a role, including Dominicans in Spain, Jamaicans in the United Kingdom and Antilleans in the Netherlands. Other South Americans are also prominent, especially on the Iberian peninsula. In a number of countries in continental Europe, West Africans are active as retailers (as well as small-scale importers), including in France, Switzerland, Austria, Italy, Germany and Portugal.

The largest proportion of non-Portuguese cocaine traffickers arrested in Portugal in 2008 were from Cape Verde (27%) and Guinea-Bissau (19%).

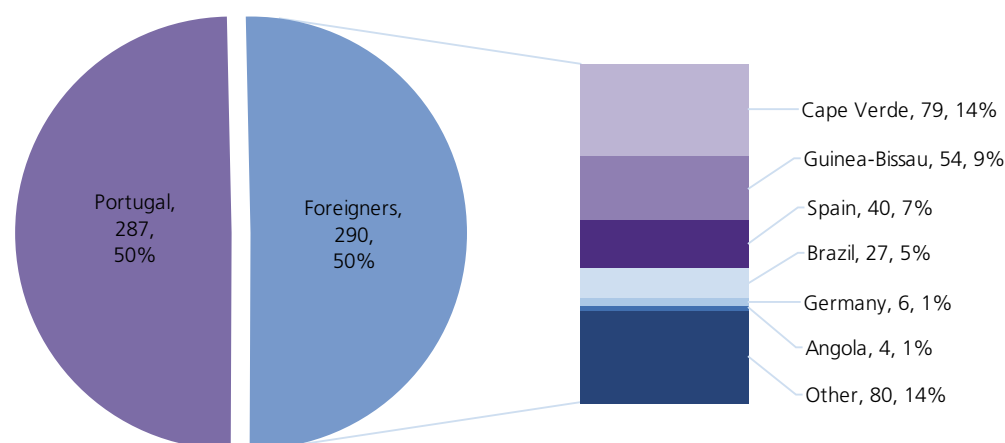
North Africans are prominent in several countries with a Mediterranean coastline or a large North African diaspora, including Spain, Italy, France and the Netherlands. A few groups from the Balkan region have also emerged as players in the international cocaine trade in recent years. In contrast, there is little concrete evidence so far to suggest that the Mexican drug cartels are playing a major role in Europe.

Fig. 53: Nationality of persons arrested in Spain for trafficking cocaine into or within the country, 2008

Source: UNODC ARQ

**Fig. 54: Nationality of persons arrested in Portugal for trafficking cocaine into or within the country, 2008**

Source: UNODC ARQ



In the Netherlands, criminal groups from the 'Dutch Caribbean' (Aruba, Netherlands Antilles and Suriname) have long been active alongside Colombians.⁷⁴ In recent years, Nigerian groups expanded in Amsterdam, working inter alia through air couriers flying to the Netherlands from the Netherlands Antilles and Suriname. As controls improved on direct flights, they also started to use other transit countries such as the Dominican Republic, Peru and Mexico.⁷⁵ Some of the traffic has also been displaced to Antwerp (Belgium), following improved controls in the port of Rotterdam (Netherlands). This traffic is still largely controlled by Colom-

bian groups,⁷⁶ though Albanian groups, working at the port facilities, also seem to play a role in Antwerp.

Most of the cocaine needed to supply the United Kingdom, Europe's largest cocaine market, transits another European country, rather than being shipped directly. Bulk maritime shipments on merchant vessels or yachts from ports in Colombia or the Bolivarian Republic of Venezuela cross the Atlantic to the Iberian Peninsula. There, the cocaine is sold to local British criminals, who then smuggle it to the United Kingdom. To a lesser extent, cocaine is also imported by British criminals from the Netherlands. Thus, some 75% of the cocaine destined for the UK market is estimated to have been carried across the Channel, concealed in trucks, private cars or by human couriers ('mules').

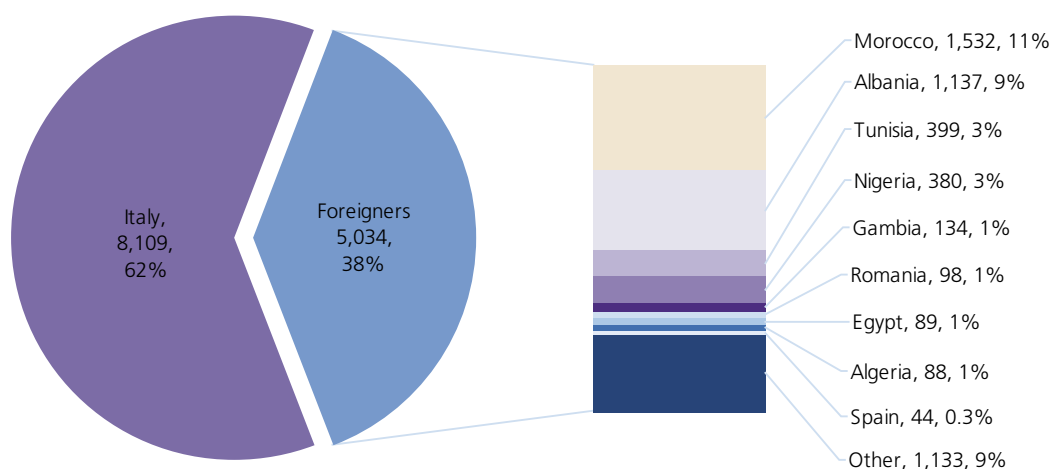
⁷⁴ Damian Zaitch, *Trafficking Cocaine – Colombian Drug Entrepreneurs in the Netherlands (Studies of Organized Crime)*, The Hague 2002.

⁷⁵ US Department of State, *International Narcotics Control Strategy Report*, March 2009.

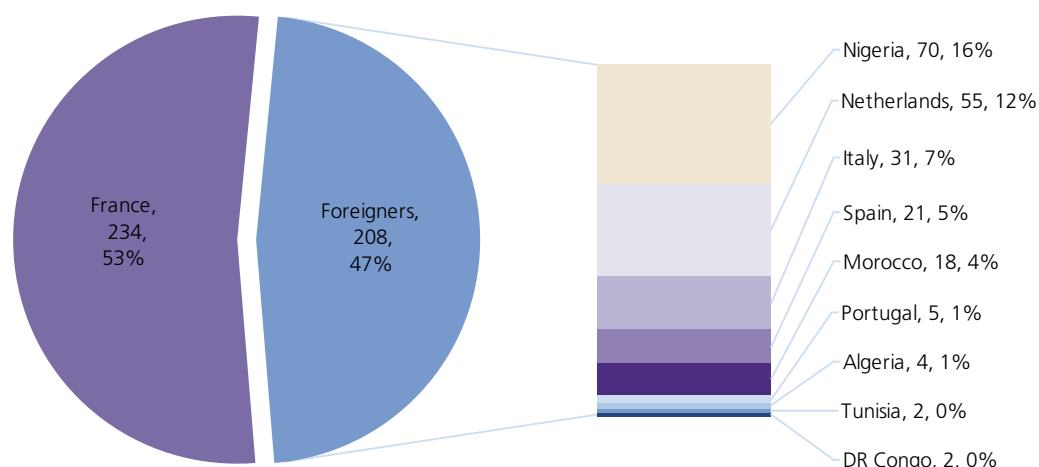
⁷⁶ Ibid.

Fig. 55: Nationality of traffickers arrested in Italy for trafficking cocaine into or within the country, 2008

Source: UNODC ARQ

**Fig. 56: Nationality of traffickers arrested in France for trafficking cocaine into or within the country, 2006⁷⁷**

Source: UNODC ARQ



In Italy, Colombian, Dominican and other Latin American organizations are working with Italian organized crime groups (notably the 'Ndrangheta) to import cocaine in commercial cargo or containerized shipments.⁷⁸ Italy is also one of the few European countries where close links between organized Mexican groups (the Gulf Cartel) and local organized crime groups have been confirmed.⁷⁹ As of 2007, the Camorra, located in

Naples, was reported to have begun trafficking cocaine to Italy from Spain, as well as directly from South America. More recently, the Sicilian mafia has also become involved, getting support from the 'Ndrangheta and the Camorra to bring cocaine into the areas it controls.⁸⁰ West African and North African groups are active in retailing and small-scale import, as well as groups from the Balkans, in particular Albanians and Serbians. Several West African and Albanian groups import the cocaine from the Netherlands to northern Italy.⁸¹

The French cocaine market used to be rather small,

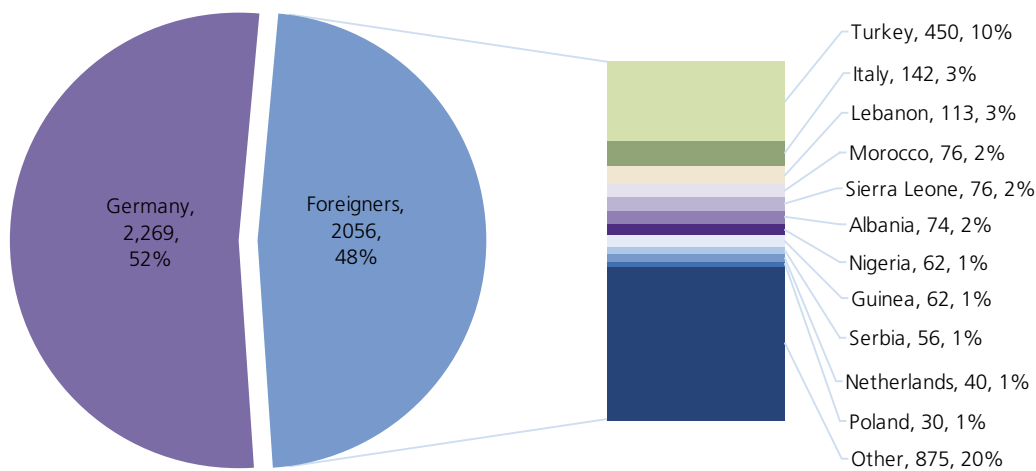
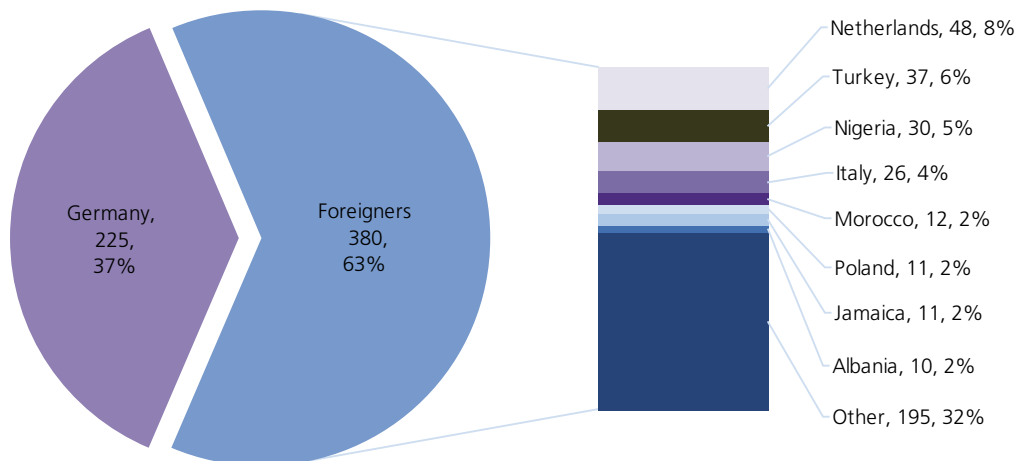
⁷⁷ Sample of arrested cocaine traffickers (n = 442) for which nationality was identified; number of all arrested cocaine traffickers in France in 2006: N = 2,561.

⁷⁸ Presidenza del Consiglio dei Ministri, Dipartimento Politiche Antidroga, *Relazione Annuale Al Parlamento Sullo Stato Delle Tossicodipendenze in Italia 2008*, Rome 2009.

⁷⁹ US Department of State, op cit.

⁸⁰ Presidenza del Consiglio dei Ministri, op cit..

⁸¹ US Department of State, op cit.

Fig. 57: Nationality of those arrested for sale of cocaine in Germany, 2008Sources: UNODC ARQ and Bundeskriminalamt, *Polizeiliche Kriminalstatistik 2008*, Wiesbaden 2009**Fig. 58: Nationality of 'cocaine importers' arrested in Germany, 2008**Sources: UNODC ARQ and Bundeskriminalamt, *Polizeiliche Kriminalstatistik 2008*, Wiesbaden 2009

though this has started to change in recent years, partly due to the growing importance of Africa as a transit location. When West Africa became a more prominent transit area after 2004, West African traffickers also became more prominent. In 2008, cocaine traffickers from Togo, Benin, Ghana, Nigeria, Senegal and the Democratic Republic of the Congo were arrested. North African and European traffickers have also been arrested.⁸²

The bulk of cocaine traffickers in Germany were not born in Germany.⁸³ The largest group of foreign traf-

fickers in Germany were Turkish (22% of all foreign cocaine traffickers in 2008). This is a recent development: Turkish traffickers have traditionally been associated with heroin. The second largest foreign group detected are traffickers from Italy (7%), often associated with the 'Ndrangheta and other Italian mafia groups. Various groups from the Middle East (Lebanon and Morocco: 5%) and from West Africa (Sierra Leone, Nigeria and Guinea: 4%) were also prominent.⁸⁴ Those arrested for 'cocaine imports' comprise a smaller and more varied group, with the top foreign nationalities being Dutch (13%) and Turkish (10%, typically acquir-

⁸² UNODC ARQ, 2002-2008.

⁸³ Bundeskriminalamt, *Polizeiliche Kriminalstatistik 2008*, Wiesbaden 2009; Bundeskriminalamt, *Organisierte Kriminalität, Bundeslagebild 2008*, Wiesbaden 2009.

⁸⁴ Bundeskriminalamt, *Organisierte Kriminalität, Bundeslagebild 2008*, Wiesbaden 2009.

ing the cocaine from the Netherlands). Nigerian (5%) and Italian individuals (4%) also feature prominently.⁸⁵

Impact of this specific flow

The social and economic impact of the flow of cocaine to Europe has been – so far at least – less severe than for North America. Though the proportion of people in need of treatment in Europe for cocaine abuse has more than tripled over the last decade (from 3% of total drug treatment demand in 1997/1998 to 10% in 2007/2008), it is still far lower than in North America (31% in 2007/2008).

The number of cocaine-related deaths is also far lower in Europe than in North America. According to the latest national data, less than 700 people in the EU/EFTA

countries died due to cocaine use, which is less than 0.2 deaths per 100,000 inhabitants, and only 8% of all drug-related deaths. As in North America, deaths from poly-drug use are common in Europe. German data show, for example, that in only 14% of all ‘cocaine-related’ death cases was cocaine the only substance involved.⁸⁶

Cocaine use in Europe is also less associated with violence than in North America. This is most likely because powder cocaine is still dominant in Europe, and it is crack that is most associated with violent crime. There does appear to be a link with acquisitive property crime, however.

England and Wales conduct arrestee drug testing. These studies found that 13% of the arrestees in 2005/2006

Table 10: Reported cocaine related deaths in EU/EFTA countries in 2008 or latest year available*

* EU/EFTA countries which provide a breakdown of drug-related mortality by drug type.
Sources: UNODC ARQ; EMCDDA, *Statistical Bulletin 2009*; EMCDDA, National Reports

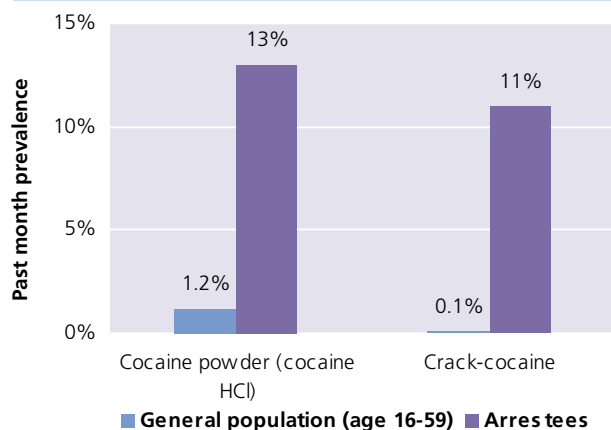
Country	Year	Cocaine-related deaths	Drug deaths	Cocaine in % of drug deaths	Cocaine deaths per 100,000 inhabitants	Source	Comments
Spain	2006	257	428	60.0%	0.58	EMCDDA	overdose
United Kingdom	2007	246	3,359	7.3%	0.40	ARQ	all deaths
Germany	2008	126	1,449	8.7%	0.15	Govt	all deaths
Portugal	2007	103	314	32.8%	0.96	EMCDDA	all deaths
France	2008	51	233	21.9%	0.08	ARQ	all deaths
Italy	2008	37	502	7.4%	0.06	ARQ	overdose
Ireland	2005	34	159	21.4%	0.77	ARQ	overdose
Netherlands	2008	22	129	17.1%	0.13	ARQ	overdose
Denmark	2007	5	205	2.4%	0.09	ARQ	all deaths
Malta	2008	3	8	37.5%	0.74	ARQ	all deaths
Finland	2007	3	229	1.3%	0.06	ARQ	all deaths
Poland	2006	2	241	0.8%	0.01	ARQ	all deaths
Slovenia	2005	1	85	1.2%	0.05	ARQ	all deaths
Luxembourg	2002	1	35	2.9%	0.21	ARQ	all deaths
Czech Republic	2006	1	212	0.5%	0.01	ARQ	overdose
Sweden	2006	0	125	0.0%	-	ARQ	all deaths
Romania	2007	0	23	0.0%	-	EMCDDA	all deaths
Liechtenstein	2008	0	1	0.0%	-	ARQ	all deaths
Hungary	2008	0	194	0.0%	-	ARQ	all deaths
Bulgaria	2006	0	48	0.0%	-	EMCDDA	All deaths
Iceland	2007	0	38	0.0%	-	ARQ	all deaths
Cyprus	2007	0	22	0.0%	-	ARQ	overdose
Total		635	7,611	8.3%	0.14		

⁸⁵ Ibid.

⁸⁶ Bundeskriminalamt, *Rauschgift, Jahreskurzlage 2008, Tabellenanhang*, Wiesbaden 2009.

Fig. 59: Past month prevalence of cocaine use among the general population versus cocaine use among arrestees in England and Wales, 2005/2006

Sources: Home Office, *The Arrestee Survey 2003-2006*, 2nd edition, London, November 2007; Home Office, "Drug Misuse Declared: Findings from the 2005/06 British Crime Survey, England and Wales," *Home Office Statistical Bulletin*, October 2006



had used cocaine powder and 11% crack-cocaine in the previous month.⁸⁷ This is less than in the United States but much more than in the general population: household surveys during the same period indicate that only 1.2% of the population had used cocaine powder and 0.1% had used crack-cocaine in the previous month.⁸⁸ A previous arrestee survey for England and Wales (2003/2004) found that 68% of those arrested for shoplifting, 63% of those arrested for burglary, 41% of those arrested for 'other theft' and 23% of those arrested for assault had consumed either crack-cocaine, cocaine powder or heroin within the previous 12 months.⁸⁹

The consequences of trafficking and cocaine consumption in Europe are dwarfed by the serious repercussions for the cocaine-producing countries (in terms of cocaine-generated violence and insurgencies) and for many of the transit countries in South America, Central America, the Caribbean and Africa, notably West Africa where some of the smaller countries are easy targets for cocaine trafficking organizations that operate internationally.

1.3.4 Implications for response

Prevention and treatment can work. The significant decline in cocaine use in the United States over the last three decades can be linked, inter alia, to increased spending on prevention and treatment. However, not all

prevention efforts are effective. Simplistic interventions can generate an interest in drugs and can lead to even higher use levels. Treatment of problem drug users, who consume the bulk of the drugs, can reduce the demand for drugs. But this requires time as relapse rates are usually high. Some users may never achieve abstinence. It also seems that treating cocaine dependence is even more difficult than treating other drug addictions and some new approaches ('cocaine vaccinations') are being explored.

Many studies have shown that treatment is an effective investment to reduce drug demand, including demand for cocaine,⁹⁰ despite its shortcomings. The fight against the drug cartels is a legitimate and necessary undertaking, but this may not automatically reduce the cocaine market. History has shown that break-ups of big cocaine cartels may lead to the emergence of a larger number of smaller groups. Increased competition can produce lower prices, which could even encourage higher use levels.

⁹⁰ William S. Cartwright, Cost-Benefit Analysis of Drug Treatment Services: Review of the Literature, *The Journal of Mental Health Policy and Economics*, J. Mental Health Policy Econ. 3, 11-26 (2000); Treatment Research Institute at the University of Pennsylvania, *Economic Benefits of Drug Treatment: A critical Review of the Evidence for Policy Makers*, February 2005; Wim van den Brink, Amsterdam Institute for Addiction Research, Academic Medical Center University of Amsterdam, "Effectiveness and Cost-Effectiveness of Drug Dependence Treatment", presentation given at the Donor Conference in Support of the UNODC-WHO Joint Program on Drug Dependence Treatment and Care, The Hague, 10 February 2010. Results from eleven meta studies in the USA suggested that the main economic benefits from drug treatment (all drugs; totaling, on average, some US\$49,500 per patient) were in the form of avoided criminal activity: US\$42,200 per patient or 85% of total economic benefits. (Kathryn E. Mc. Collister and Michael T. French, *The relative contribution of outcome domains in the total economic benefit of addiction interventions: a review of first findings*, 2003). One previous US study, based on more than 500 cocaine dependent patients in the Drug Abuse Treatment Outcome Study suggested that the treatment costs for outpatient cocaine treatment were, on average US\$1,422 while the benefits from avoided crime among this group amounted to US\$1,891 per patient, equivalent to a benefit to cost ratio (BCR) of 1.3. The same study found that long-term residential cocaine treatment resulted in costs of, on average, US\$11,016 while average avoided crime costs amounted to US\$18,461, or a BCR of 1.7. Including other economic benefits, the BCR for cocaine was found to amount to 1.6 and 1.9, respectively, for outpatient and long-term residential cocaine treatment, suggesting that for US\$1 invested into cocaine treatment about US\$2 can be expected to be generated in economic benefits. (Flynn, P.M., Kristiansen J.V., Porto R.L., "Costs and benefits of treatment for cocaine addiction", *Drug and Alcohol Dependence*, 57 (1999), pp. 167-174). A general review of economic benefit to cost ratios in drug treatment (all drugs), reported in the literature for residential and outpatient drug treatment, found BCRs ranging from 1.3 to 6.5 (Treatment Research Institute at the University of Pennsylvania, 2005) with an average of 3.4, suggesting that for each dollar invested into drug treatment one should expect economic benefits of more than US\$3 (and thus more than for treating cocaine dependent persons). According to a West Coast Cost-Benefit Analysis, every dollar invested by the authorities in drug treatment in this region was reported to have even saved, on average, US\$7 in other costs (health care and emergency room visits, criminal justice proceedings, imprisonment, food stamps, unemployment, workers' compensation, child welfare and other related services; *Oregon Research Brief on Addiction Treatment Effectiveness*, 2003).

⁸⁷ Home Office, *The Arrestee Survey 2003-2006*, 2nd edition, London, November 2007.

⁸⁸ Home Office, "Drug Misuse Declared: Findings from the 2005/06 British Crime Survey, England and Wales", *Home Office Statistical Bulletin*, October 2006.

⁸⁹ Home Office, "The Arrestee Survey Annual Report: Oct. 2003-Sept. 2004", *Home Office Statistical Bulletin*, November 2006.

The concept of shared responsibility has long been adopted by UN Member States. They have also recognized the need for a balanced approach between supply and demand reduction efforts. Nonetheless, these general concepts still need to be better translated into operational terms. Uncoordinated efforts, leading to isolated sectoral and geographical successes, have often only displaced the problem, leaving the global cocaine market intact. In the mid-1990s, for example, law enforcement efforts put an end to large-scale air trafficking of coca paste or cocaine base between Peru and Colombia. Coca leaf prices fell in Peru and farmers turned to other crops. The problem was, however, not really solved as this decline was offset by increases in coca cultivation in Colombia. Later, cocaine laboratories emerged in Peru, generating new demand for coca and resulting in higher coca leaf prices, thus leading to a resurgence of coca cultivation in that country in the twenty-first century. Similarly, declines in cocaine use in the United States prompted drug traffickers to seek alternative markets. Thus, reductions in North America were offset by increases in the use of cocaine in Europe and South America over the last two decades.

All of this indicates that coordination of national and sectoral efforts in the context of an internationally integrated strategy has been missing. Unless a more integrated international strategy is developed, sustainable success may remain an elusive goal. Member States recognized this in their Political Declaration⁹¹ of March 2009, stressing that:

“... the world drug problem remains a common and shared responsibility that requires effective and increased international cooperation and demands an integrated, multidisciplinary, mutually reinforcing and balanced approach to supply and demand reduction strategies.”

91 “Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem”, in United Nations Commission on Narcotic Drugs, *Report on the fifty-second session* (14 March 2008 and 11-20 March 2009), E/2009/28; E/n.7/2009/12, pp. 37-77.

1.4 The global ATS market



1.4.1 What are ATS?

Amphetamine-type stimulants (ATS) refer to a group of synthetic substances comprised of amphetamine-group (primarily amphetamine, methamphetamine and methcathinone) and ecstasy-group substances (MDMA and its analogues). The amphetamine-group substances were originally synthesized in the late nineteenth century and marketed as over-the-counter nasal decongestants beginning in 1932. During the Second World War, the various amphetamines were used by military personnel and stockpiles were released onto the market after the war.¹

The uncontrolled use of the amphetamine-group substances led to widespread abuse. By the 1970s, the therapeutic usefulness of these substances was recognized to be limited. National and international control measures appeared, as did a decline in licit pharmaceutical manufacture. However, demand for these substances did not decline at the same rate and clandestine manufacture gradually became the primary source of supply for these substances.

The ecstasy-group substances are chemically related to the amphetamines. The major compound, MDMA and other analogues such as MDA and MDEA were first synthesized early in the 1900s. While MDMA found limited therapeutic use in the 1970s, its recreational use increased dramatically throughout the 1990s and was associated with rave culture in the developed world.

All ATS are available in diverse forms and vary in purity. Methamphetamine or amphetamine can be in powder,

tablet, paste or crystalline form while ecstasy is usually available in tablet or powder form.

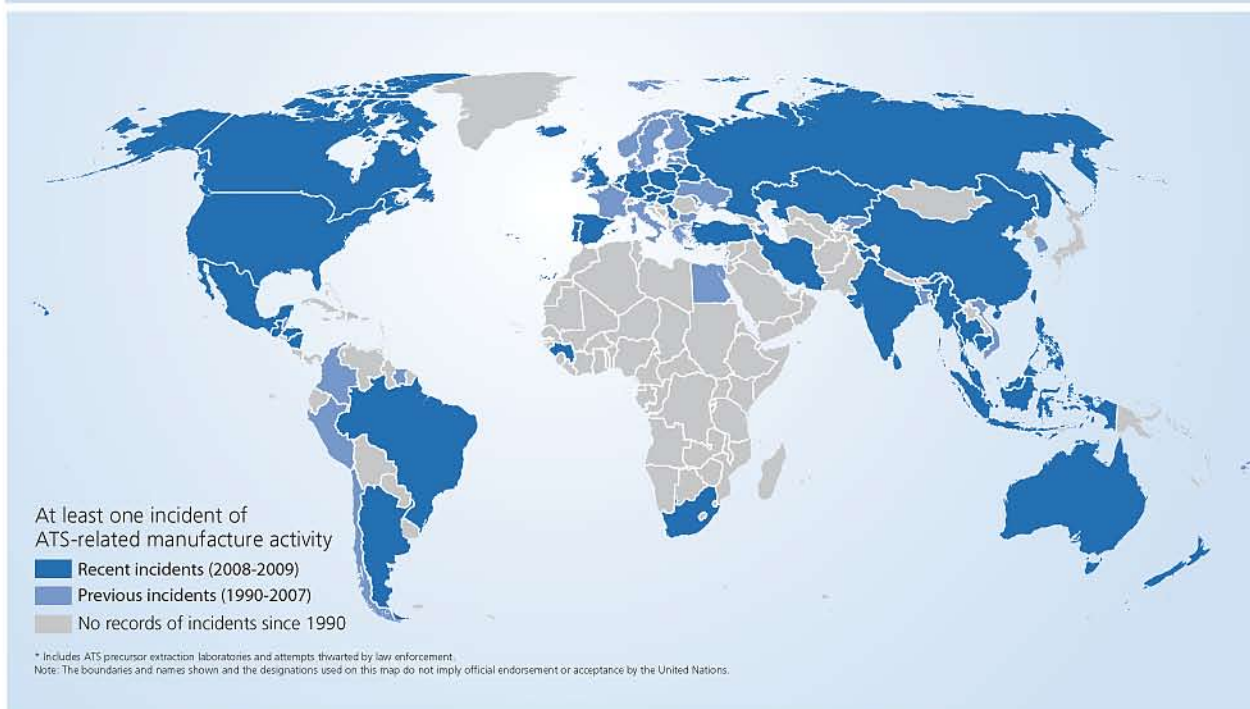
The spreading use of ATS can be attributed to their attractiveness to both users and the criminal organizations who manufacture them alike. They appeal to the needs of today's societies and have become part of what is perceived to be a modern lifestyle, both recreationally and occupationally. Their use is believed to enhance performance including sexual performance and their use is often initiated by mouth in 'convenient' and discrete pill form that avoids the dangers of injection or social stigma of smoking. They are affordable, often sold in single tablet units, which are often erroneously perceived as being less harmful than in other forms.

The popularity of ATS is also a result of a market potential with continuously high profits and low risks with little initial investment. Unlike the cultivation of the coca leaf or opium poppy, ATS manufacture is not limited to certain geographic locations, thus laboratories can clandestinely operate anywhere and be relocated as risk increases. One unique characteristic is that they can be synthesized from a variety of starting materials (precursor chemicals) using a variety of methods. If a traditional precursor becomes unavailable, replacements are easily found, often facilitated by readily available information on the Internet. New synthetic stimulants not yet under international controls can also be brought quickly to market. Additionally, large profits are not only made from the sale of the drug itself, but increasingly from illicit sourcing of the key precursor chemicals.

¹ UNDCP Technical Series Number 3, *Amphetamine-type stimulants: a global review*, 1996.

Map 7: Member States reporting ATS-related manufacture* since 1990

Sources: UNODC ARQ/DELTA; Government reports; UNODC, Global SMART Update 2009, Volume 1, 2 and 3 (March); Amphetamines and Ecstasy: 2008 Global ATS Assessment (United Nations publication, Sales No. E.08.XI.12)



1.4.2 The dimensions of the ATS market

Assessing the size and dynamics of illicit ATS markets is fraught with numerous obstacles due to the clandestine nature of these markets. Estimates are largely based on data reported by Member States but unfortunately, little more than half of Member States consistently provide annual information to UNODC. Irregular and/or incomplete reporting—even in developed regions—compounded by the varying quality of data provided from several key regions hinders the ability to provide timely evidence-based responses. For example, the assessment of prevalence of use, a basic demand indicator, only occurs annually in two countries and on average every three to five years in most countries, when it occurs at all. A number of countries on the Asian continent, including China, are believed to have significant levels of ATS abuse, but figures are elusive as many have never had nationally representative household surveys on drug use.

Another significant limitation is the lack of systematic forensic information required to accurately assess the specific ATS substances, their precursor chemicals, manufacturing processes, trafficking and the user base. The lack of information also hampers the determination of exactly how much ATS is illicitly manufactured. Manufacture is clandestine and cannot be assessed from remote sensing, as is the case with poppy plants and coca bushes. Previous UNODC models attempted to ascertain manu-

factured based on the triangulation of consumption, seized end product, and seized precursor chemicals. However, changes in the drug market, particularly those related to precursor chemical seizures and ability to ascertain seizure rates, made this model less useful. Additionally, Member State reports of clandestine laboratories dismantled annually fail to include standardized measures of manufacture capacity such as the frequency, duration and amount of each production cycle, thus limiting their analytical value. Because of these limits the scale of uncertainty is reflected in the range of many of the estimates provided.

The supply of ATS

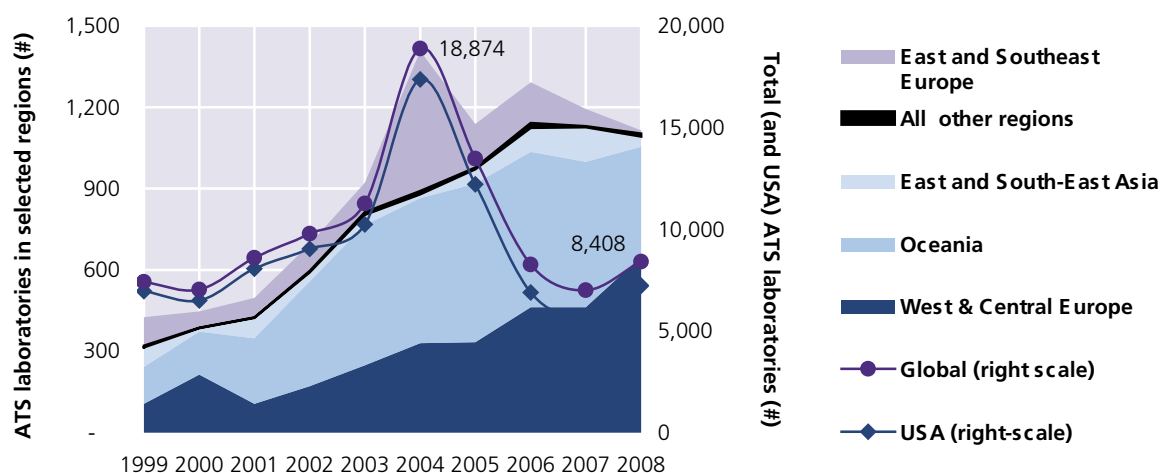
Unlike the illicit cultivation of the coca plant and opium poppy which is constrained to specific locations, the manufacture of ATS is not geographically limited. ATS laboratories therefore tend to be located close to consumer markets. Since 1990, there has been a spread in ATS manufacture with more than a third of Member States having reported ATS-related manufacture activity to date.²

Significant ATS manufacture occurs throughout East and South-East Asia (predominately methamphetamine

² Manufacture can be considered in two broad categories—addiction-based, where small operations synthesize enough drug for the user, and economic-based operations which can be up to the size of industrial factories.

Fig. 60: Number of reported ATS laboratories (all sizes), by region, 1999-2008

Source: UNODC ARQ/DELTA



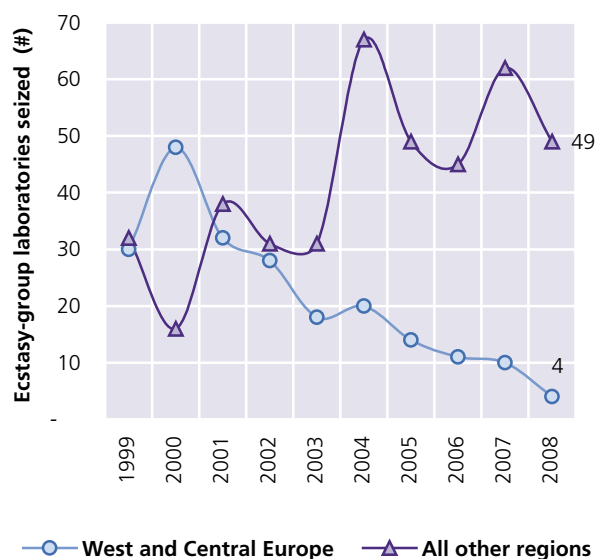
and – in recent years – also ecstasy), North America (methamphetamine and ecstasy in all three countries), Europe (mostly amphetamine and ecstasy, with increasing methamphetamine manufacturing), Oceania (methamphetamine and, to a lesser extent, amphetamine and ecstasy), and parts of Africa, most notably in the south (methamphetamine and methcathinone).

Since 2000, significant ATS manufacture has been reported to UNODC in either number of clandestine laboratories or size of operations from Australia, Belgium, Bulgaria, Canada, China,³ the Czech Republic, Germany, Indonesia, Malaysia, Mexico, Republic of Moldova, Myanmar, the Netherlands, New Zealand, Philippines, Poland, the Russian Federation, Slovakia, South Africa and the United States of America. The overall number of dismantled ATS laboratories rose strongly until 2004, but declined thereafter and is now back to the level a decade ago. This reflects mainly the trends reported from the United States which regularly dismantles the majority of all clandestine ATS labs worldwide, typically concerning smaller methamphetamine incidents. The reported decline after 2004 can be linked to improvements in US precursor controls which made access to such chemicals in the United States far more difficult. The numbers in several regions outside the United States, in contrast, increased over the last decade, particularly for methamphetamine – though some stabilization can be noticed for the period after 2004.

A shift can be noted in the manufacture of ecstasy-group substances, which used to be located predominantly in Western Europe, closer to the main consumer market. Over the past 10 years, manufacture of ecstasy-group

Fig. 61: Ecstasy-group laboratories by region, 1999-2008

Source: UNODC ARQ/DELTA.



substances has shifted away from Europe to a number of consumer markets around the world. Large-scale manufacturing operations are more frequently being dismantled in East and South-East Asia, the Americas and Oceania. In 2008, only four ecstasy laboratories were reported to have been seized in West and Central Europe.

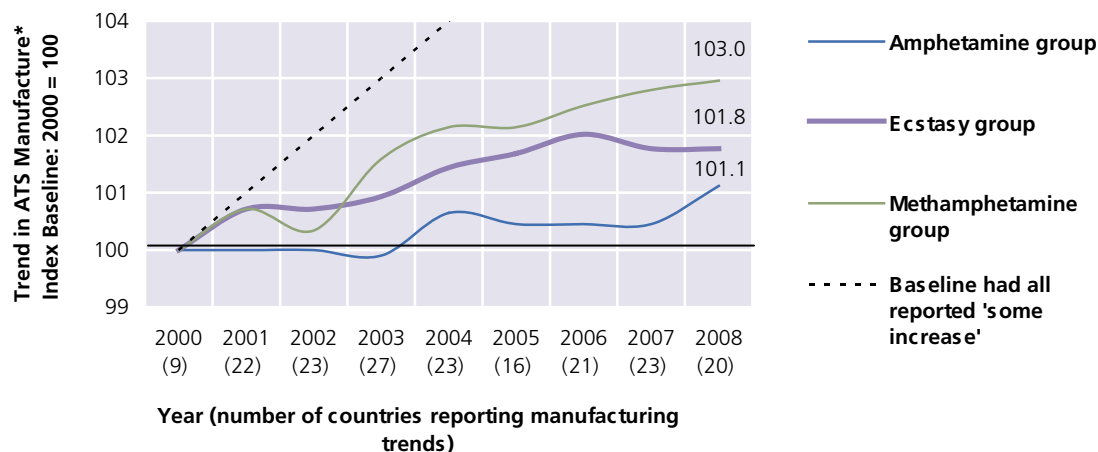
To supplement quantitative data, UNODC requests Member States in the Annual Reports Questionnaire (ARQ) to provide insights as to whether experts believe the trends in manufacturing are changing over time. Each year between 2000 and 2008, an average of 23 countries reported on these trends. Assigning a value to

³ Includes all provinces and Special Administrative Regions.

Fig. 62: Expert perceptions (unweighted) on ATS manufacturing trends, 2000-2008

Note: Expert perception in manufacturing trends were not weighted by the size of the countries' ATS manufacture as the latter is difficult to determine. Therefore, it cannot be excluded that countries with overall minor ATS manufacture may have a disproportionate influence on the global trend. Figures exclude clandestine poly-drug and other synthetic drug manufacture.

Source: UNODC ARQ/DELTA



the experts' responses⁴ and trending them over time (indexed using the year 2000 as the baseline of 100) suggests that the trend in methamphetamine manufacture is perceived to be on the increase in most reporting countries, while until recently amphetamine has remained relatively unchanged. Trends in ecstasy manufacture, on the other hand, are perceived to have stabilized since 2006.

The expert perception trends of increased amphetamine and methamphetamine manufacture over this period are, however, supported by several other data, including rising seizures reported throughout this period, a growing proportion of countries reporting seizures of these substances, and both the volume and increasing size of dismantled laboratories.

Over the past decade, the proportion of countries which reported seizures of ATS has increased markedly, indicating an increase in the size and spread of the market. Whereas in 1999, only 36% of all Member States returning an ARQ reported seizing amphetamine-group substances (34.4 mt), by 2008 that figure had increased to 50% (47.4 mt), with ecstasy-group substances following a similar pattern.

Seizures of ATS have also risen significantly. Between 1999 and 2008, seizures of ATS increased more than 30% from 39 mt to 51.3 mt. A significant amount of this increase was seen in Asia, notably the Near and Middle East with unprecedented increases in seizures of amphetamine-containing pills sold as *Captagon*.

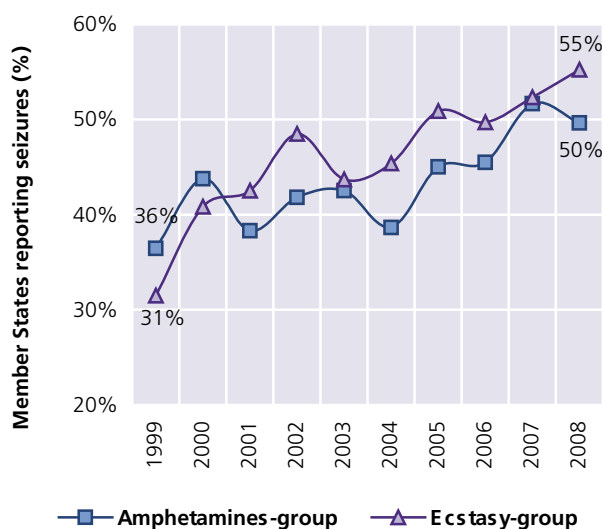
Data show that the proportion of seized methampheta-

■ ■

⁴ ARQ expert perception data is reported unweighted. The following points are allocated if experts perceive: 'strong increase' 2; 'some increase' 1; stable: 0; 'some decline' -1; 'strong decline' -2.

Fig. 63: Proportion of Member States returning an ARQ reporting ATS seizures, by type, 1999-2008

Source: UNODC ARQ/DELTA

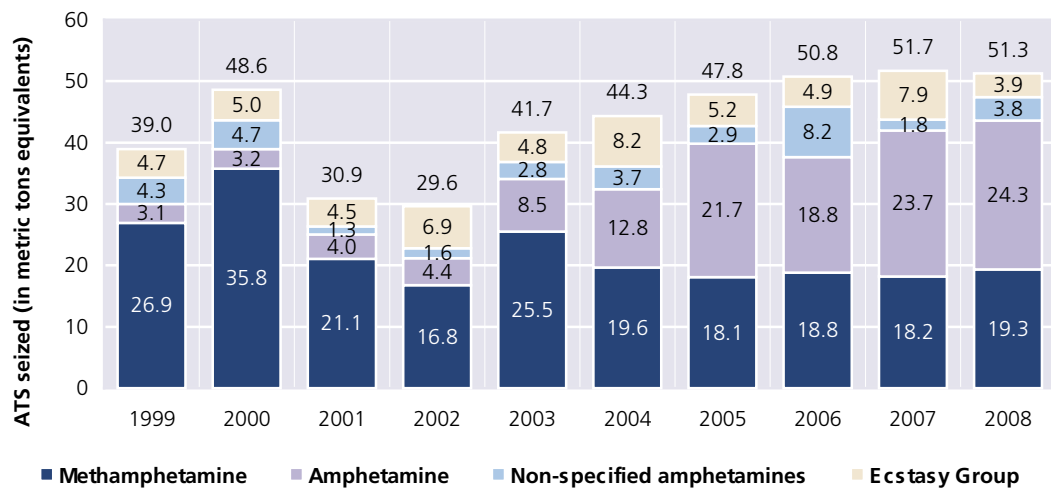


mine has declined, from almost 70% of total ATS seizures to 38%. On the other hand, the percentage of amphetamine has quintupled. However, the amount of ATS diverted from the legitimate market—a significant source of illicit use in many regions—is rarely reported. The regional breakdown of ecstasy seizures shows a shift away from West and Central Europe, the former main region of production.

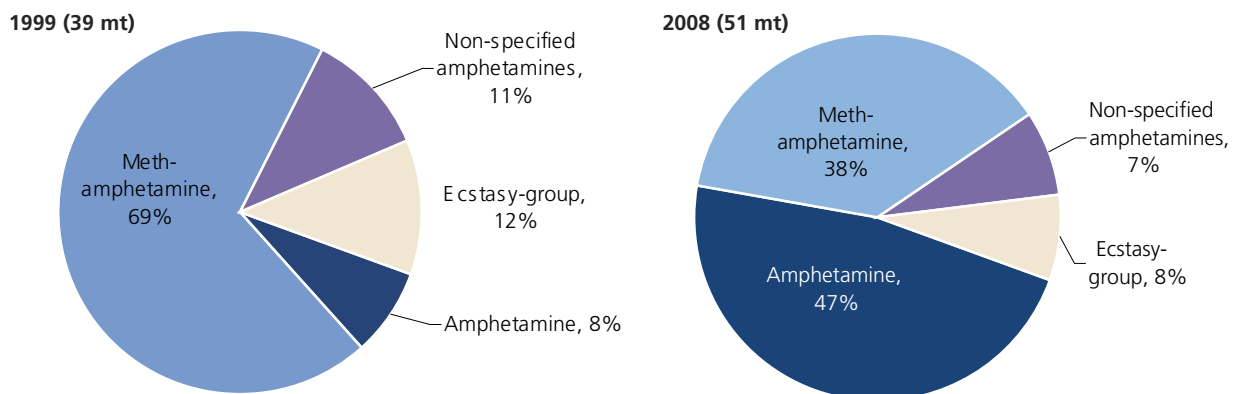
The trafficking in ATS substances remains to a large extent intra-regional, as manufacture can and does occur close to the consumer markets. In 2008, significant seizures of methamphetamine occurred in the following regions: East and South-East Asia (56%), North Amer-

Fig. 64: Seizure trends of ATS, by type, 1999-2008

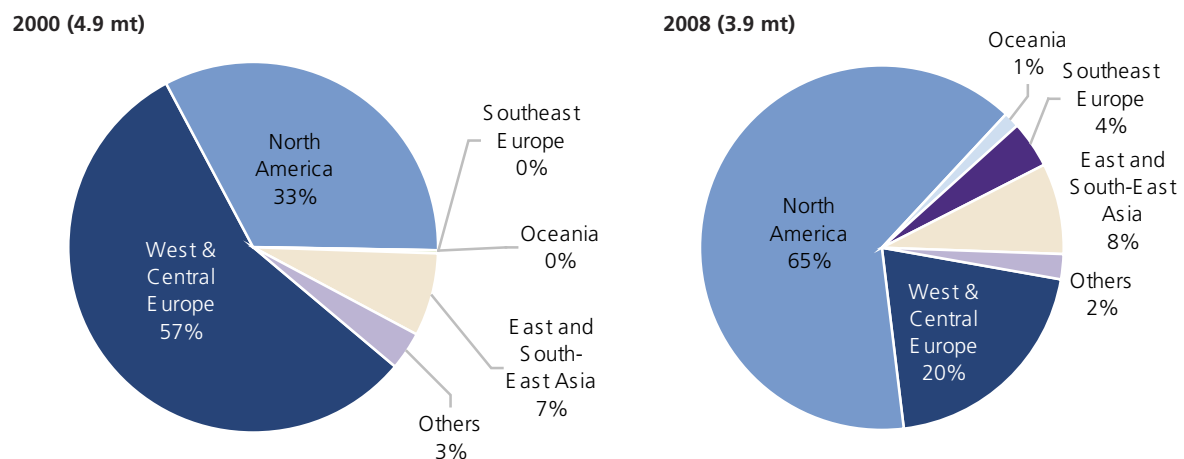
Source: UNODC ARQ/DELTA

**Fig. 65: Breakdown of ATS seizures, by substance group, 1999 and 2008**

Source: UNODC ARQ/DELTA

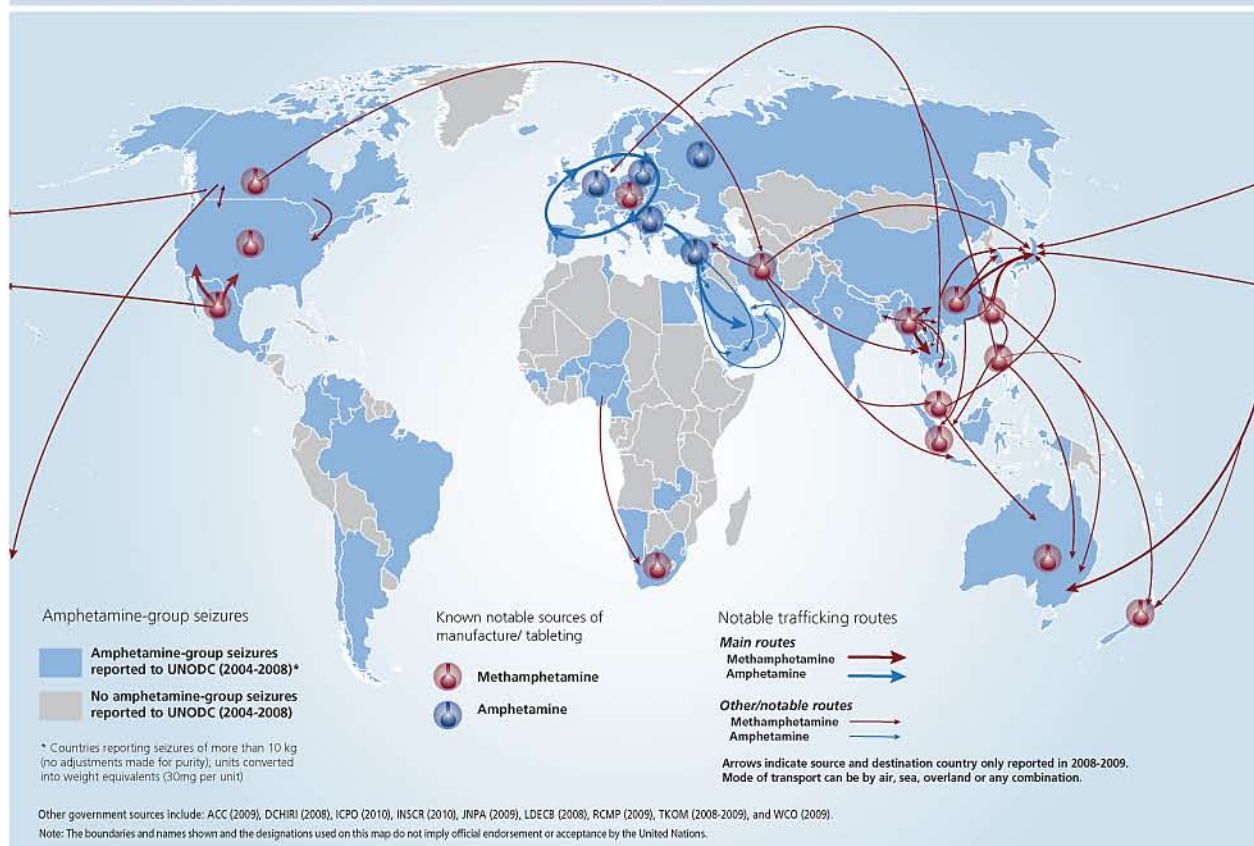
**Fig. 66: Breakdown of ecstasy-group seizures, by region, 2000 and 2008**

Source: UNODC ARQ/DELTA



Map 8: Notable locations of manufacture and main trafficking routes of amphetamine-group substances, 2008-2009

Sources: UNODC ARQ, Individual Drug Seizure Database, and other government sources



ica (42%) and to a much lesser extent, Europe. Amphetamine seizures occurred mainly in the Near and Middle East (63%), West and Central Europe (33%) and to a much lesser extent North America. Ecstasy (MDMA) was mostly seized in North America (65%), West and Central Europe (20%) and to a lesser extent in South-East Europe (4%). These figures may also include significant seizures of drugs sold as 'ecstasy', but often containing substances other than MDMA.

1.4.3 The demand for ATS

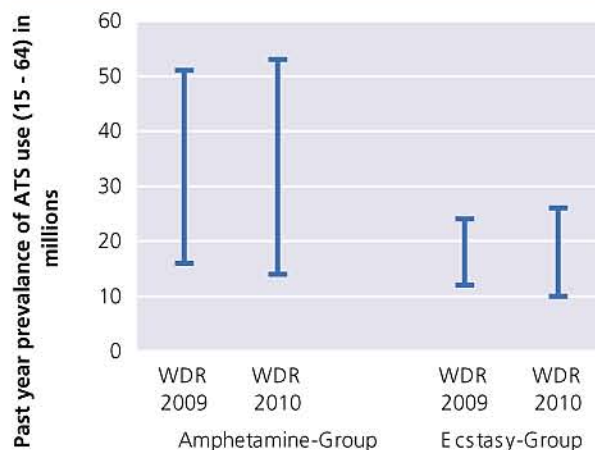
Data limitations are even more acute when determining the size of the demand for ATS. In many countries in the world—particularly developing countries—demand-related data on prevalence, patterns and extent of drug use, are not collected or not regularly collected, thus accounting for a substantial amount of uncertainty reflected in prevalence estimates with wide ranges. There is a paucity of established data collection systems and lack of sufficient data to allow for precise trend analysis and historical comparisons. The estimated number of global ATS users is therefore currently expressed in ranges rather than absolute numbers.

Bearing in mind these limitations, past year ampheta-

mine-group and ecstasy-group users are estimated to be in the range of 14 to 53 million and 10 to 26 million, respectively. Thus the global number of ATS users likely continues to exceed the number of opiate and cocaine users combined. The already sizable 2008/2009 ranges are between 6% and 15% larger than the previous year's estimates of 16 to 51 million and 12 to 24 million for

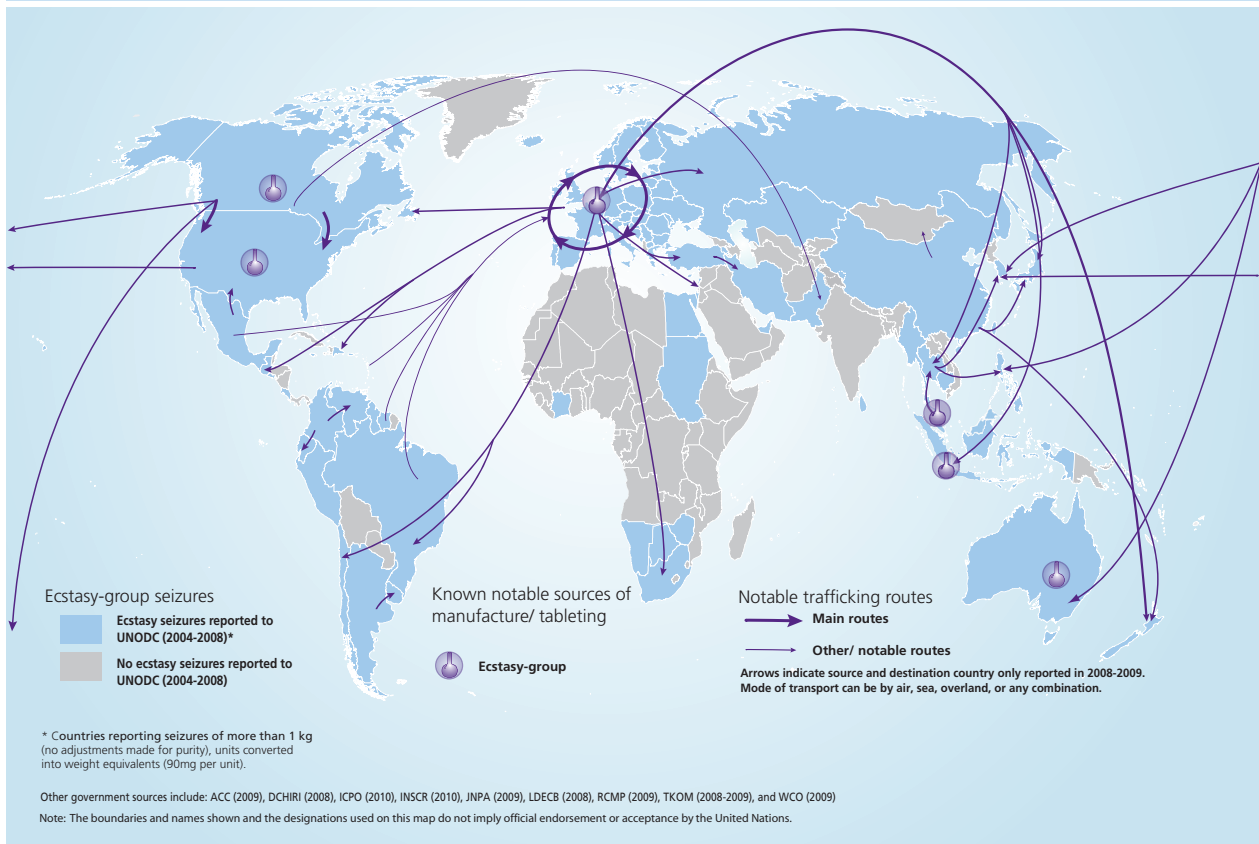
Fig. 67: Estimated annual prevalence of ATS use, 2007/2008 and 2008/2009

Source: UNODC calculations



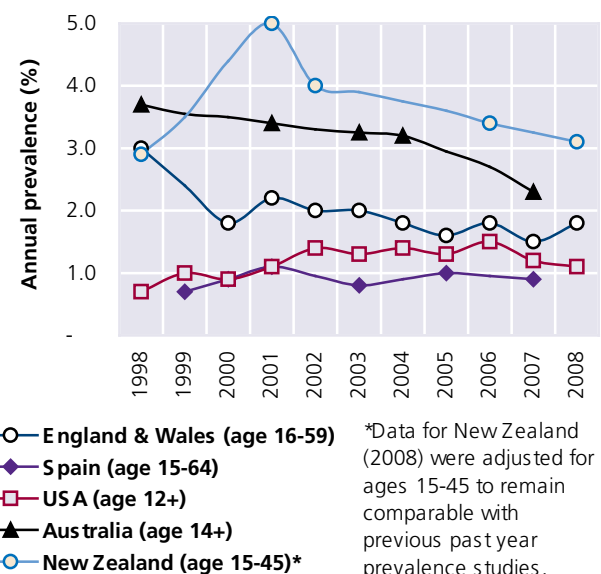
Map 9: Notable locations of manufacture and main trafficking routes of ecstasy-group substances, 2008

Source: UNODC ARQ



amphetamines-group and ecstasy-group substances, respectively, as little new prevalence data has become available, particularly in Africa and Asia. Indeed, the change in global prevalence may well reflect new reports from developed countries rather than actual changes at the global level.

These large ranges mask shifts in use. In developed ATS markets where regular assessments of drug use among the general population are carried out, annual prevalence of amphetamine-group substances by the general population has actually stabilized or declined over the past several years.

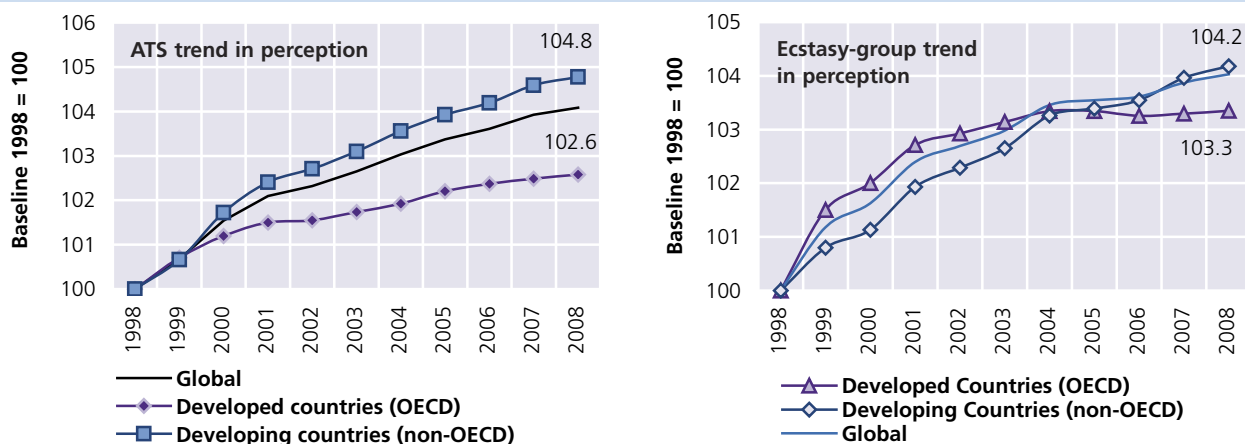
Fig. 68: Annual prevalence in select significant amphetamine-group markets, 1998-2008Sources: Government reports⁵

⁵ Kershaw, C., Nicholas, S. and Walker, A., *Crime in England and Wales 2008/09: Findings from the British Crime Survey and police recorded crime*, Home Office Statistical Bulletin, London, 2009; Substance Abuse and Mental Health Services Administration, *Results from the 2008 National Survey on Drug Use and Health: National Findings*, Office of Applied Studies, Rockville, Maryland, 2009; Australian Institute of Health and Welfare, *2007 National Drug Strategy Household Survey: Drug statistics*, 22, Canberra, 2008; Wilkins C. and Sweetsur P., *Trends in population drug use in New Zealand: Findings from national household surveying of drug use in 1998, 2001, 2003 and 2006*, New Zealand Medical Journal, 121, 61-71, 2008; New Zealand Ministry of Health, *Drug Use in New Zealand: Key Results of the 2007/08 New Zealand Alcohol and Drug Use Survey*, Wellington, 2010; *Informe de la encuesta domiciliaria sobre alcohol y drogas en España (EADADES) 2007/08*, Delegación del gobierno para el plan

nacional sobre drogas, Madrid, 2008.

Fig. 69: ATS use trends (unweighted) by type as perceived by experts of developed (OECD) and developing (non-OECD) countries: 1998-2008 (baseline: 1998 = 100)

Note: Expert perceptions of ATS use were not weighted by the size of the countries' population (either total or ATS drug using population), and thus, one cannot exclude the possibility that countries with only minor or emerging ATS use may have a disproportionate influence on the global trend.
Sources: UNODC ARQ, UNODC field offices, UNODC's Drug Use Information Network for Asia and the Pacific (DAINAP)



As prevalence data are simply not available in many developing countries, UNODC considers expert perceptions as reported by Member States to help assess demand trends. These trend data⁶ over the 1998 to 2008 period suggest that there have been continued increases in ATS demand for developing countries. Beginning around 2000, the rate of increases perceived by experts of developed (OECD)⁷ and developing countries (non-OECD) diverged, as a number of key industrialized countries showed a stabilization or decline while developing countries, particularly those in the Americas and parts of Asia reported ongoing increases in ATS use. Asia, with between a third and three quarters of estimated ATS users worldwide, has regionally diverse ATS user groups. This can be seen, for example, in increased treatment demand for problem amphetamine use in the Near and Middle East⁸ and increases in methamphetamine use in tablet and high purity crystalline form in countries in South-East Asia in 2008.⁹

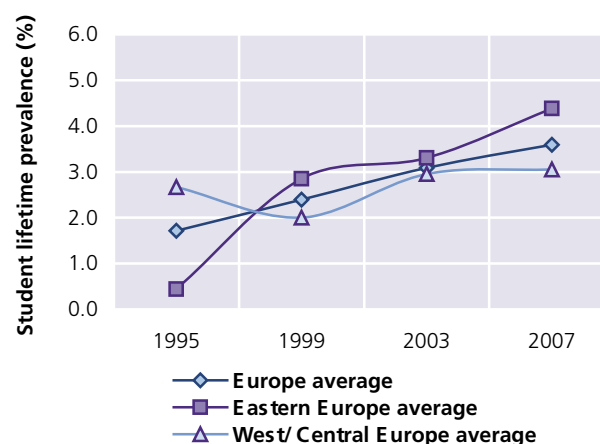
'Ecstasy' use as perceived by experts has steadily increased since 1998. Around 2006, developing countries began reporting more frequent and more significant increases

in ecstasy use, with their frequency outpacing that of the more mature ecstasy markets in the developed countries, which have largely appeared stable since 2004.

The use of 'ecstasy' in developing markets may be spreading particularly among youth in Latin America and East Europe. For example, between 1995 and 2007, increased lifetime prevalence of 'ecstasy' use among students aged 15 and 16 from Central and East Europe¹⁰ was reported. The unweighted average for students in East European countries in 2007 surpassed that in West

Fig. 70: Unweighted average of lifetime prevalence of 'ecstasy' use among students (age 15-16) in Europe: 1995-2007

Source: Hibell, B., Guttormsson, U., Ahlström, S., Balakireva, O., Bjarnason, T., Kokkevi, A., and Kraus, L., *The 2007 ESPAD Report Substance Use Among Students in 35 European Countries*, The Swedish Council for Information on Alcohol and other Drugs (CAN), Stockholm, 2009



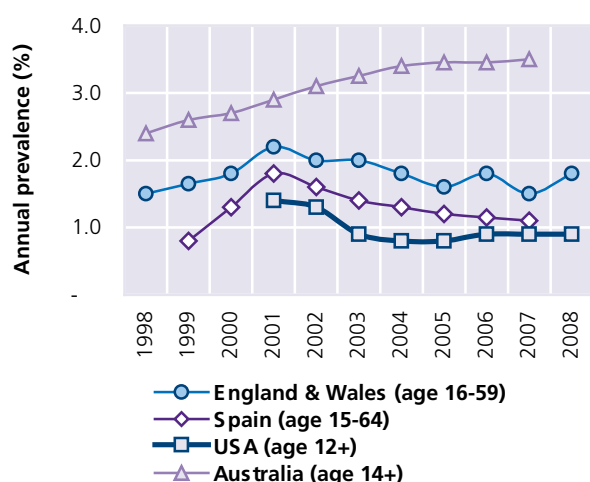
⁶ If all countries had reported 'some increase', the global trend line would have increased by one point each year and would have reached 110 by 2008.

⁷ OECD Member countries include: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Republic of Korea, Slovakia, Spain, Sweden, Switzerland, Turkey, United Kingdom and United States of America.

⁸ Abu Madini M. S., Rahima S. I. A., Al-Zahrani M. A. and Al-Johi A. O., *Two decades of treatment seeking for substance use disorders in Saudi Arabia: Trends and patterns in a rehabilitation facility in Dammam*, *Drug and Alcohol Dependence*, 97(3), 2008, pp 231-236.

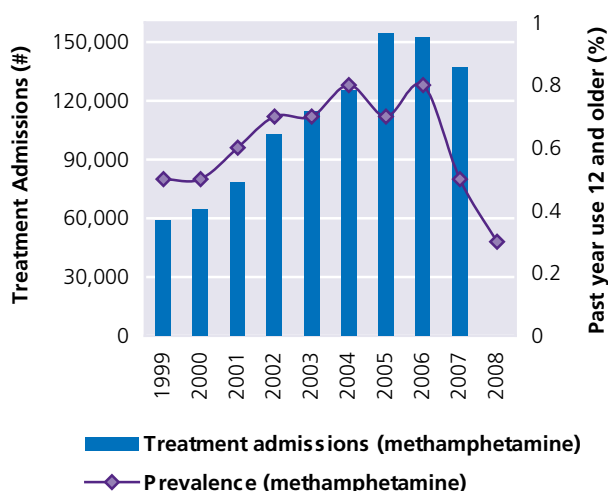
⁹ UNODC, *Patterns and trends of amphetamine-type stimulants and other drugs in East and South-East Asia (and neighbouring regions)* 2009, November 2009.

¹⁰ Students of Eastern Europe include: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation (Moscow), Slovakia, Slovenia and Ukraine.

Fig. 71: Trends in annual prevalence of select 'ecstasy' markets, 1998-2008Sources: Government reports¹¹

and Central European countries which had remained stable since 2003.

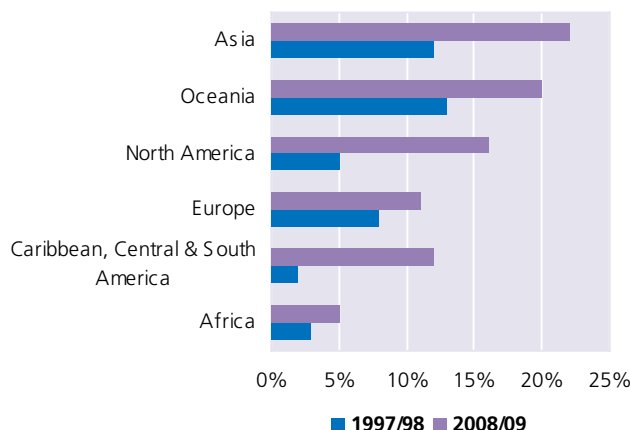
The expert perceptions in the developed countries show a stabilization or decline in 'ecstasy' use since 2004. This is also supported by the results of household surveys in these markets. Australia has reported relative stability, albeit at comparably high levels, in past year use by the general population since 2004 while declines have been reported for Spain, the United Kingdom (England and Wales) and the United States.

Fig. 73: United States: Past year use of methamphetamine and treatment demand, 1999-2008Sources: 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*, Rockville, Maryland, 2009

¹¹ Refer to footnote 5.

Fig. 72: Changes in unweighted regional treatment demand for problem ATS drug users, as a proportion of all drug treatment

Source: UNODC 2000 World Drug Report, ARQ



ATS problem drug use represents the only class of drug use in the past decade which has increased significantly in every region of the world. Although the patterns of ATS use with respect to the specific drug type and its form vary significantly across regions, unweighted treatment demand increased from between 2 (Africa) and 11 (North America) percentage points in the past decade. While improvements may have been noted in the annual prevalence rates among the general population in several developed countries, problem drug use as reflected in treatment admissions can remain high. For example, treatment demand for methamphetamine use in the United States declined only slightly in 2007 while annual prevalence rates showed a marked decline since 2006.

Amounts of amphetamine-type stimulants available for consumption

Exactly how much ATS is illicitly manufactured is for the moment impossible to directly ascertain because independent calculations based on remote sensing of manufacture cannot be done, as is the case with poppy plants and coca bushes.¹² Simple counts of clandestine laboratories dismantled annually fail to include standardized measures of manufacture type or capacity inter alia the frequency of production cycles, amount of output, purity levels, time in operation, thus limiting their overall analytical value. Additionally, it is not known how many laboratories exist for each laboratory discovered.

Nonetheless, there is value in trying to assess the orders

¹² Previous UNODC models estimated manufacture based on the triangulation of consumption, seized end product, and seized precursor chemicals. However, changes in the drug market, particularly related to the precursor chemical seizures, and ability to ascertain seizure rates made this model less useful.

Table 11: Estimate of illicit amphetamine-group substances manufactured in 2008 (mt)

Source: UNODC calculation

	Amphetamines-group (retail purity)		Amphetamines-group (wholesale purity)	
	low estimate	high estimate	Low Estimate	High Estimate
Annual consumers (estimated 2008)	13,710,000	52,900,000	13,710,000	52,900,000
Average consumption (pure grams/year)	10.9	10.9	10.9	10.9
Metric tons estimated Consumed (pure)	149	577	149	577
Metric tons reported seized	47.4	47.4	47.4	47.4
Metric tons manufactured (unadjusted for purity)	197	624	197	624
Purity (weighted)	24%	24%	36%	36%
Metric tons seized (adjusted to pure)	11.4	11.4	17.2	17.2
Metric tons manufactured (pure)	161	588	167	594

of magnitude of the potential amounts of ATS available for consumption at the global level, which can also serve as a proxy or tentative result for the calculation of overall manufacture levels. Some studies have assessed actual consumption of amphetamine, methamphetamine and ecstasy, though mostly limited to a few developed countries.¹³ Several studies assessed consumption as a product of the number of users in a given period, the frequency of drug use over that period and the amount used per typical episode; others indicated what the total consumption of drugs may be in a given year, while others calculated what chronic and occasional/recreational users may consume in a year.

Based on these studies, the orders of magnitude of the global amount consumed can be estimated, assuming that the values from these studies:

1. accurately represent the 'typical user',
2. can be generalized to other countries, particularly developing countries, and that

13 Office of National Drug Control Policy, *What America's Users Spend on Illicit Drugs, 1988-2000*, Washington, DC., 2001; Bramley-Harker, E., *Sizing the UK Market for Illicit Drugs* (RDS Occasional Paper. No. 74), London, Home Office, 2001.; Wilkins C., Reilly J., Rose E., Roy D., Pledger M. and Lee A., *The Socio-Economic Impact of Amphetamine Type Stimulants in New Zealand: Final Report*, Centre for Social and Health Outcomes Research and Evaluation, Massey University, Auckland, September 2004; Netherlands Scientific Research and Documentation Centre, Ministry of Justice meeting with UNODC, February 2004; Singleton, N., Murray, R. and Tinsley, L. (Eds), *Measuring Different Aspects of Problem Drug Use: Methodological Developments* (Online Report 16/06), London: Home Office.; Eisenbach-Stangl, I., Moskalewicz, J., Thom, B. (Eds), *Two Worlds of Drug Consumption in Late Modern Societies*, Farnham (UK), Ashgate, 2009.

3. the epidemiology of drug patterns from the estimates is representative.¹⁴

Taking the studies and assumptions mentioned above into consideration, the average past year amphetamine-group substance user (that is, from the casual to problem user) may consume an estimated average of 10.9 g of pure substance¹⁵ per year. The average past year ecstasy user may consume an estimated 5.1 g of pure MDMA (or analogue) per year, the equivalent of approximately two tablets at 50 mg per week. Multiplying these per capita use estimates by the range of past year users of amphetamine-group substances and ecstasy-group substances in 2008 provides for an order of magnitude of the amounts consumed.

Assuming that drugs seized in 2008 would have been consumed in 2008, or assuming that there was no significant change in the amounts of ATS stockpiled (if any), the amounts consumed plus (purity-adjusted)¹⁶

14 Clearly drug epidemiology is ever changing—some countries have newly emerging markets for various ATS with fewer chronic drug users while others have more mature markets, where fewer new incidents may be occurring but where a larger number of problem drug users may exist.

15 There were three estimates for methamphetamine users at between 16.1 and 22.8 pure grams consumed per year (average 19.3), while nine estimates for amphetamine (includes one amphetamine and methamphetamine combined estimate) had consumer using between 1.6 and 35.8 grams of amphetamine per year (average 8.1). There were 11 estimates for typical ecstasy users. Estimates were for data between 1999 and 2008/2009 with the median estimate from users in 2005.

16 Adjustment was weighted based on reported purities of both retail and wholesale levels for a given country. When a country failed to report purities the unweighted regional average for either market was substituted. In cases where a country reports both low purity methamphetamine (for example tablets) and high purity crystalline



seizures provide for a proxy of the total ATS manufactured in 2008.¹⁷

Amphetamine-group substances available for consumption in 2008

The amounts of amphetamine-group substances potentially manufactured (with seizures unadjusted for purity) are estimated between 197 and 624 mt, or taking purity-adjusted seizures into account, between 161 and 594 mt. The range is larger than was reported in 2007 because the uncertainty in the annual prevalence increased as a number of older estimates (>10 years) were no longer considered to be reliable estimates for the current ATS use situation. If one assumes that the majority of seizures reported to UNODC best represents retail market level seizures at 24% purity,¹⁸ the production range would decline slightly (161 to 588 mt), due to the removal of adulterants and diluents.¹⁹ If reported seizures better represented the wholesale market (36% purity), the range would amount to between 167 and 594 mt. A significant amount of the difference between bulk and purity adjusted seizures are inter alia the massive amounts of seized tablets sold as Captagon in the Near and Middle East, which recent forensic analyses suggested to have an average amphetamine content between 1% and 16%.

Given the estimates from above and the amount of drugs seized, one can derive estimates of the amphetamine-group substances interdicted in orders of magnitude.²⁰ There were 47.4 mt of bulk amphetamine-group substances reported seized in 2008, which, adjusted for purity at the retail and wholesale levels, is between 11.4 and 17.2 mt, respectively. Assuming all of the drugs seized were interdicted from the retail market, estimates would range from 2% (11.4/588) to 7% (11.4/161). If the amounts seized were from the wholesale market, the estimated range would be between 3% and 10%. Such orders of magnitude would be also in line with a few other published rates.²¹

■ ■ methamphetamine, the purity was based on a weighted average (from seizure data). The reported seizures of 'non-specified amphetamines' were assumed to be either amphetamine or methamphetamine, and thus were given an average weighted purity of amphetamine and methamphetamine, based on total seizures.

17 This does not account for other forms of loss, such as discarding drug to avoid capture or spoilage which are assumed to be minimal.

18 Purity data are typically based on seizures which may not be representative of all drugs in the market, and given the various methods in sampling and forensic reporting (for example, as a drug base versus a salt) can impact purity estimates.

19 Unfortunately only total seizure weight by drug is reported, and not the distribution of seizure weights. Therefore, it is not possible to assign whether seizures best represented street or wholesale transaction amounts.

20 Annual drug seizures of drugs considerably greatly from year to year which impact the rates calculated.

21 Individual interception rates fluctuate considerably over time, place

In contrast to the apparently low interdiction rates for ATS, the calculated interception rates for purity-adjusted cocaine have been exceeding 40% in recent years, and are around 20% for the opiates.²² There are several reasons which lend support to the findings of far lower interception rates for the ATS as compared to cocaine and opiates. First, the source of most of the world's cocaine and opiates are restricted to just three specific regions: parts of South America (Colombia, Peru and the Plurinational States of Bolivia), Afghanistan, and the so-called 'Golden Triangle' (mainly Myanmar). Contrast that with the number of reported ATS manufacture locations which are spreading and shifting throughout the world. Second, since manufacture of ATS typically occurs close to their consumer markets they cross far fewer borders than either cocaine or opiates, and thus have significantly less chance of being detected. Next, large-scale manufacture locations—such as in East and South-East Asia—have porous borders and thousands of kilometres of unpatrolled coastline, making transfer of products into neighbouring countries a comparatively low risk activity. Lastly, ATS awareness remains low as governments in many regions continue to remain focused on the 'traditional drugs'—namely cocaine and heroin.

Ecstasy-group substances available for consumption in 2008

Ecstasy-group substances consumed were estimated between 53 and 132 mt in 2008. Adding seizures (and assuming no significant changes in the stocks) would give an estimate of between 57 and 136 mt, or adjusting for purity from 55 to 133 mt. The low end estimate is somewhat lower than in 2007 because the uncertainty in the estimated number of annual users increased. The high end estimate of ecstasy-group substances manufactured remained largely unchanged because far less was reported seized in 2008 than it 2007.

There were a total of 3.9 mt of ecstasy-group substances seized (unadjusted for purity), which, depending on the estimates, gives an interdiction rate ranging from 3% to 7%.

Adjusting the seizures for purity lowers the calculated interdiction rates to between 1% and 3%. Such unusually low rates—even lower than for the amphetamine-group substances—seems counter intuitive, as the countries known to be significant ecstasy manufactures,

■ ■ and drug type. New Zealand (2001) amphetamines-group interceptions were found to be between 2% and 7% of totals for consumption. Centre for Social and Health Outcomes Research and Evaluation, *The Socio-Economic Impact of Amphetamine Type Stimulants in New Zealand*, Auckland, New Zealand (2004). However, those figures changed notably in the following year.

22 *World Drug Report 2009* (United Nations publication Sales No. E.09.XI.12).

Table 12: Estimate of illicit ecstasy-group substances manufactured in 2008 (mt)

Source: UNODC calculation

	Ecstasy-group (retail purity)		Ecstasy-group (wholesale purity)	
	low estimate	high estimate	low estimate	high estimate
Annual consumers (estimated 2008)	10,450,000	25,820,000	10,450,000	25,820,000
Average consumption (pure grams/year)	5.1	5.1	5.1	5.1
Metric tons estimated consumed (pure)	53	132	53	132
Metric tons reported seized	3.9	3.9	3.9	3.9
Metric tons manufactured (unadjusted for purity)	57	136	57	136
Purity (weighted)	36%	36%	45%	45%
Metric tons seized (adjusted to pure)	1.4	1.4	1.7	1.7
Metric tons manufactured (pure)	55	133	55	133

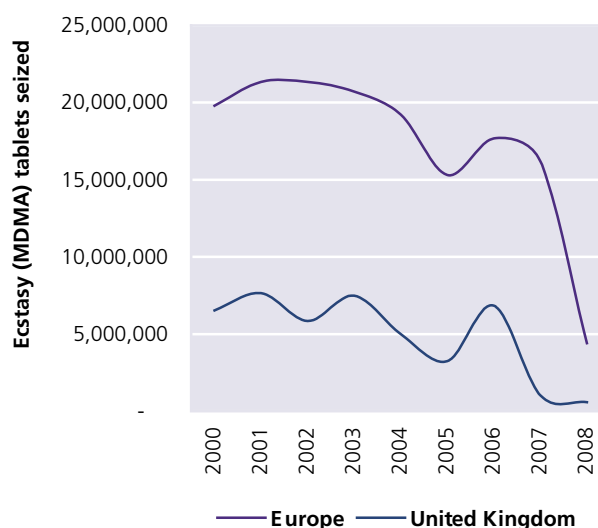
while spreading, remain more limited in number than for other ATS. In fact, only 10 countries reported having dismantled clandestine MDMA laboratories in 2008. Several of these countries have law enforcement personnel that are well trained in detecting this type of substance. Additionally, because of fewer locations, 'ecstasy' is likely to be trafficked across more borders when compared to other ATS like methamphetamine. Therefore, what could explain such extremely low interception rates?

The answer may lie in the fact that 'ecstasy' estimates assume the consumption of pure MDMA (or its analogues), drugs under international control. However, the 'ecstasy' market is undergoing significant transformations particularly in Europe. Since about 2007 the amount of 'ecstasy' (MDMA) tablets available in Europe and the United Kingdom—one of the largest markets—has been declining while tablets sold as 'ecstasy' increasingly contained greater proportions of substitute psychoactive substances not under international control, such as various piperazines like BZP, *m*CPP and TFMPP.²³ For example, in 2006 only 10% of tablets sold as 'ecstasy' in the EU contained *m*CPP, but by the end of 2008 it was as high as 50% in some large-market countries.²⁴ In other words, the model reflects what people consider to be 'ecstasy', while the actual number of MDMA users and the amount of MDMA consumed are likely to be lower than the number of 'ecstasy users'

or the amounts of 'ecstasy' consumed. This leads to—statistically—very low interdiction estimates which may be misleading as they are based on a comparison of apples and oranges. Additionally, MDMA purity levels (retail or wholesale) typically represent the tablet market and not the powder market—which in Europe is roughly a third of reported seizures—and which has been associated with higher purity. Against this background, the seizure figures *unadjusted for purity*, resulting in interdiction rates ranging from 3% to 7%, are probably a far better reflection of actual interdiction successes in the ecstasy market than the figures based on purity adjusted data.

Fig. 74: Ecstasy (MDMA) tablets reported seized in Europe, 2000-2008

Source: UNODC ARQ



²³ 1-Benzylpiperazine, 1-(3-chlorophenyl)piperazine, and 1-(3-Trifluoromethylphenyl) piperazine.

²⁴ EMCDDA, BZP and other piperazines. (see <http://www.emcdda.europa.eu/publications/drug-profiles/bzp>), retrieved 8 April 2010.



Unfortunately, despite the efforts of some governments to improve the capacity to generate reliable data, the quality and timeliness of available data from which these estimates are derived are unlikely to improve in the very near future. This, coupled with the model's assumptions, suggests that the interdiction rates, derived from the tentative manufacture estimates and seizures, are not yet robust enough to be an effective indicator of annual market change, only its magnitude.

1.4.4 Key ATS issues

The significant growth seen in the ATS market over the past decade has been fueled by increased involvement by criminal organizations. Criminal groups have the ability to respond to market pressures on a corporate level. They are able to quickly retool manufacturing processes, develop new products, source new precursor chemicals and disguise their intentions by using complex supply routes for sourcing the required chemicals. Industrial-sized operations with production cycles in the hundreds and now thousands of kilograms dictate the involvement of organized crime, and have become more commonplace among developing countries with examples in Fiji, Guinea, Indonesia, Malaysia, Mexico and the Philippines, among others. Since manufacture often occurs in the consumer country or adjacent country, tracing trafficking flows of these drugs across regions—given the orders of magnitude of interception rates for various ATS—are far less meaningful than for either cocaine or heroin. Instead the dynamics of the market growth is better illustrated by developments in illicit manufacture seen by increases in laboratory size, sophistication, yield, precursor chemical types and sources, and the shifting location of operations into more vulnerable countries.

The importance of precursor control

Precursor chemicals are to ATS what opium is to heroin. These fundamental building blocks are diverted from legitimate trade into illicit manufacture. The United Nations 1988 Convention against the Illicit Traffic in Narcotic Drugs and Psychotropic Substances provides for measures to prevent diversion of key precursor chemicals for purposes of illicit drug manufacture.²⁵ In their bid to obtain these chemicals, criminal organizations have become increasingly innovative in circumventing these controls, and as such, many countries have also enacted progressively stronger domestic controls to stem their flow into illicit manufacture. Inter alia as precursors become more difficult and expensive to obtain, manufacturing costs to illicit operators increase which leads to a variety and combination of events, such as:

1. manufacture drops and the price and purity (that is, value) of the drug decreases,
2. the source(s) and/or supply routes of precursor chemicals change(s),
3. the precursor chemical itself (form or type) and/or manufacturing process changes,
4. the location of manufacture shifts to more vulnerable lower cost areas, and/or
5. substitute psychoactive substances may appear.

The degree to which controls are able to stem the flow of the requisite chemicals dictates the degree to which these events may occur. How long the effect lasts depends on the criminal's ability to circumvent these controls. The impact of regulatory controls on manufacturing dynamics is best illustrated with recent events in the largest ATS markets of North America, Europe and Asia.

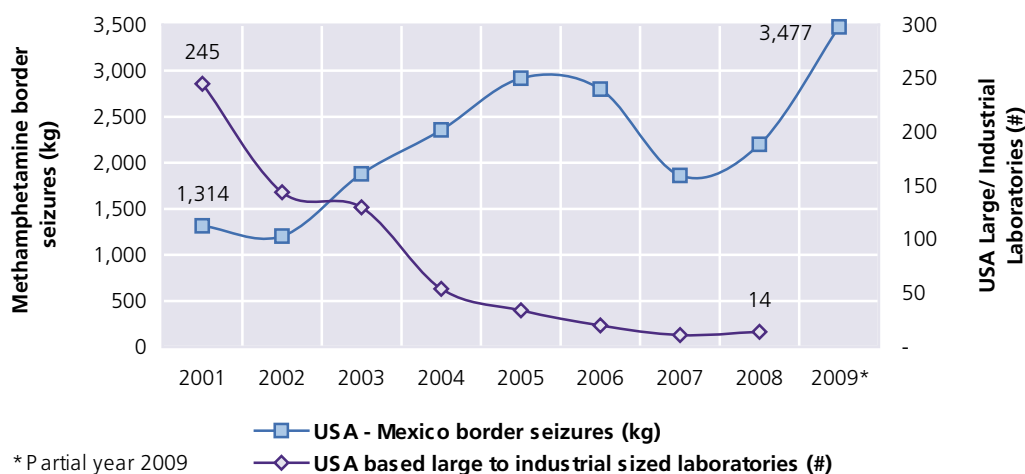
North America: Relocation of methamphetamine manufacture to neighboring regions

Significant methamphetamine manufacture based in the United States of America relocated into neighbouring Mexico after stricter controls over precursor chemicals were enacted in the United States. The United States' methamphetamine market, the largest in North America, is predominantly supplied from Mexican-based criminal groups and to a lesser degree from domestic manufacture. The implementation in the United States over the last 20 years of progressively stricter domestic controls over bulk precursor chemicals, primarily pseudoephedrine and ephedrine, initially resulted in decreases in the purity of the methamphetamine.²⁶ As illicit manufacturers began to identify over-the-counter pharmaceutical preparations containing pseudoephedrine (that is, cold medicine) as a new unrestricted source of chemicals, the number of domestic laboratories, and users, increased. In 2005, national controls for pharmaceutical preparations were enacted in the United States and resulted in a sharp decline in the vast numbers of small to medium-size laboratories, although production loss was offset by increasing large-scale manufacture in neighbouring Mexico. The number, size and sophistication of laboratories in Mexico increased dramatically since then, as did the amount of methamphetamine trafficked back into the US.²⁷ For example, in August 2009, Mexico dismantled the largest industrial-scale laboratory involving the seizure of a manufacturing complex

²⁵ As of 31 October 2009, the Convention had been ratified, acceded to or approved by 183 UN Member States.

²⁶ Cunningham, J. K., Liu L., and Callaghan, R., "Impact of US and Canadian precursor regulation on methamphetamine purity in the United States," *Addiction*, 104 (4), pp. 441–453, 2009.

²⁷ US Department of Justice, *National Drug Threat Assessment 2010*, National Drug Intelligence Center.

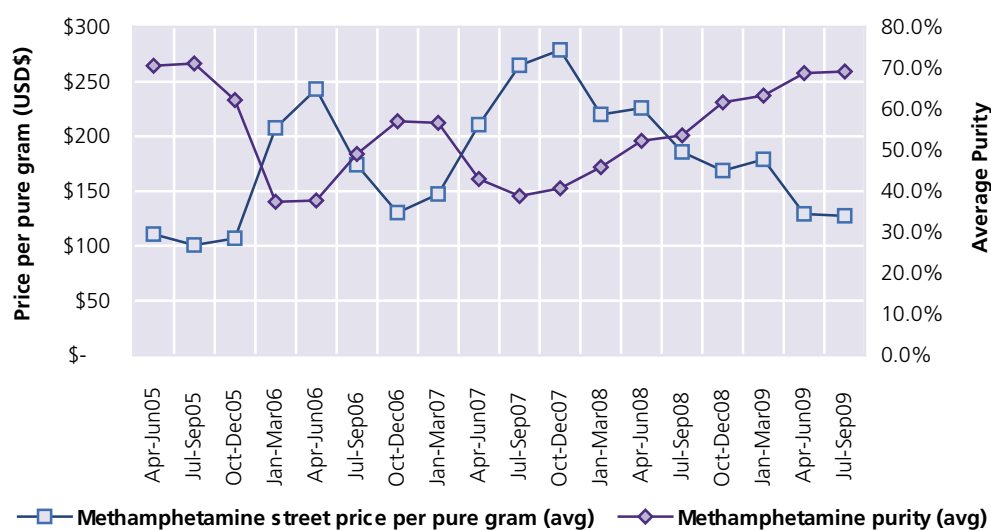
Fig. 75: United States seizures of methamphetamine reported near the Mexico border versus seizures of large-scale USA-based clandestine methamphetamine laboratories, 2001-2009*Source: *National Drug Threat Assessment 2010* (and previous years). US Department of Justice, National Drug Intelligence Center

with more than 31,000 litres of chemicals in the 22 building complex spread over 240 hectares.²⁸

Import restrictions on pseudoephedrine and ephedrine in Mexico to address the shift in the market dramatically cut manufacturing levels in that country in 2007. Mexico embarked on a campaign against organized crime groups involved in manufacturing of methamphetamine by inter alia reducing domestic diversions of precursors through the reduction of legitimate imports of ephedrine and pseudoephedrine, and ultimately banning the

import, export of and trade in the substances by mid-2008. Manufacture dropped and seizures from Mexico into the United States subsequently declined nearly 40% in 2007/2008 from their peak in 2005/2006.

The decline in illicit manufacture of methamphetamine, first in the United States and then in Mexico, impacted the street economics; resulting in an increase in price and a decrease in purity. Methamphetamine price and purity data from the United States confirm that as domestic controls over precursors in the form of phar-

Fig. 76: Change in street price and purity of methamphetamine in the United States, 2005-2009Source: *National Drug Threat Assessment 2009 and 2010*, US Department of Justice, National Drug Intelligence Center

²⁸ La Secretaría de la Defensa Nacional informa de la localización de un complejo para el procesamiento de drogas sintéticas y marihuana, constituido con 22 instalaciones ubicadas en un terreno de 240 hectáreas, Secretaría de la Defensa Nacional (SEDENA), 7 August 2009. *Global SMART Update 2010*, vol. 3, March 2010.

maceutical preparations were strengthened, the price per

Map 10: Routes from notable ephedrine/pseudoephedrine precursor diversion cases, 2006/2007 and 2008/2009

Sources: INCB, *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances* (2009 and previous years), Individual Drug Seizures Database and other government sources



pure gram nearly doubled from 2005 to 2006.²⁹ Cuts to legitimate imports of precursor chemicals in Mexico had a similar effect, again with the price per gram of pure methamphetamine nearly doubling in 2007, US\$147 in the first quarter to US\$279 in the final quarter. In both cases, the significant effect appeared to have lasted between six and nine months before manufacturers were able to retool operations and find new sources of chemicals to continue production. Since 2008, when manufacture in Mexico rebounded (and to a lesser degree the United States) the price per pure gram in the United States has been on the decline and was US\$127 in the third quarter of 2009.

As both the United States and Mexico have tightened controls over the key precursors for methamphetamine both in bulk and in the form of preparations, new sources and supply routes of precursor chemicals have emerged quickly as organized crime groups exploit Latin America to maintain manufacturing operations throughout Mexico. By 2006/2007 precursor traffickers began obtaining and smuggling chemicals increasingly in the form of tableted pharmaceutical preparations from West

Asia, Africa, and via Europe into Mexico. Many of these shipments were identified and subsequently stopped as a result of consistent utilization of existing precursor control mechanisms (namely online pre-export notification systems) and back-tracking investigations of suspicious shipments by law enforcement. However, new routes again emerged in 2008/2009 throughout Central and South America, and new significant sources of diversion were identified, such as Bangladesh.³⁰ Thus, criminals increasingly target countries with weak or non-existent precursor awareness and/or domestic control mechanisms and exploit loopholes within the existing international control mechanisms.

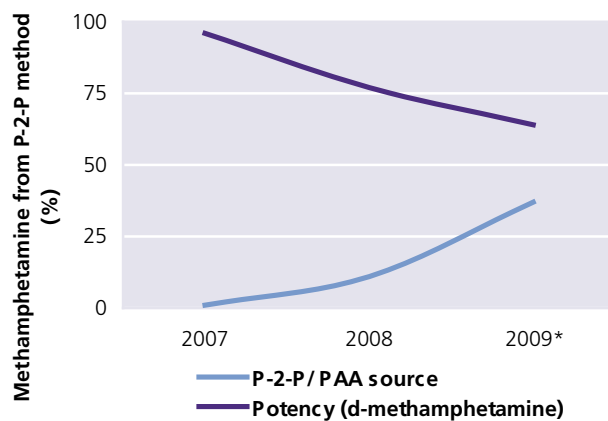
Criminals also continue to circumvent the control mechanisms by changing manufacturing processes to use chemicals with less strict or no international or domestic controls, or they manufacture controlled chemicals from non-controlled pre-precursors. During 2007, manufacturing processes in Mexico began to increasingly rely upon alternative manufacturing formulas starting from phenylacetic acid (PAA) and its derivatives to manufacture phenyl-2-propanone (P-2-P). In 2007, only 1% of seized methamphetamine was derived from the P-2-P method. However, by the end of 2009, it

²⁹ The United States, with its Drug Enforcement Administration's (DEA) *System to Retrieve Information from Drug Evidence* (STRIDE), is the only country with a detailed administrative data system which includes information on drug transactions (undercover purchases, sales and seizures) in operation since the early 1980s.

³⁰ INCB, *Precursors and chemicals used in the illicit manufacture of narcotic drugs and psychotropic substances*, 2009 (United Nations publication Sales No. E.10.XI.4), and previous years.

Fig. 77: Changes in methamphetamine manufacturing methods in Mexico, 2007-2009

Source: US DEA Special Testing Laboratory



*2009 P-2-P / PAA source reflects 4th quarter

had become more prominent with 37% of methamphetamine assumed to have been produced using this method.³¹ During that same period there was also a decrease in the quantities of the more potent *d*-methamphetamine entering the United States as a result of greater reliance upon the P-2-P method.³² Since October 2009, Mexico has reported seizing nearly 120 mt of phenylacetic acid (PAA) derivatives, which are not internationally controlled. These alone could produce up to 30 mt of methamphetamine, which is almost twice the global methamphetamine seizures reported in 2008.³³ PAA is under international control as a Table II substance with far fewer controls than other methamphetamine precursors. It was only in March 2010 that the Commission on Narcotic Drugs (CND) decided to transfer PAA to the same level of control as the other methamphetamine precursor chemicals P-2-P, ephedrine and pseudoephedrine.³⁴ While PAA derivatives continue to remain outside the international control regime, allowing for unfettered international trade, the Government of Mexico strengthened domestic controls and surveillance over the use and import of PAA salts and derivatives in November 2009.

At the same time there are now indications that signifi-

31 Extraction of Methamphetamine Precursor Material from Medicinal Preparations and Methamphetamine Profiling Results, presented by the DEA Special Testing and Research Laboratory at the forty-fifth regular session of the Inter-American Drug Abuse Control Commission (May 2009); US Department of Justice Drug Enforcement Administration, Special Testing and Research Laboratory (Jan 2010)

32 Pseudoephedrine and ephedrine result in the more potent central nervous stimulant *d*-methamphetamine while P-2-P methods result in the less potent racemic *d,l*-methamphetamine, unless separated in an additional synthesis step.

33 Secretaría de Seguridad Pública (SSP) México, Boletín de Prensa/189 México, D.F., 8 de abril de 2010. *Global SMART Update 2010*, vol. 3, March 2010.

34 Member States have now six months to implement the increased control measures.

cant manufacture is yet again shifting further south. In February 2010, Nicaraguan National Police reported the seizure of its first large-scale clandestine methamphetamine laboratory which police estimated had a production capacity of around 70 kg.³⁵ This is reportedly the third laboratory discovered in the country but unprecedented size. Manufacture-related activities have also been reported from Guatemala and Honduras and significant precursor chemical seizures are already being reported throughout the region, even though law enforcement and regulatory attention there continues to focus primarily on the cocaine trade.

There is currently little likelihood of methamphetamine substitutes appearing for methamphetamine on the US market, as has been observed with other ATS in Europe and parts of Asia. Manufacture in the United States shows its first signs of rebounding since 2005 with a 26% increase in laboratory incidents reported in 2009 over 2008. Greater amounts of high potency domestically produced methamphetamine will likely complement the somewhat less potent methamphetamine flowing from Mexico. Additionally, there may be increased flow of derivatives of PAA trafficked via Central American countries for use in retooled production operations in Mexico, as manufacturers attempt to circumvent new restrictions enacted by the Government.

Europe: The changing nature of MDMA manufacture

Organized crime groups in Europe, particularly in the Netherlands and Belgium, have long been considered a major global source of ecstasy (MDMA or its analogues).³⁶ Although ecstasy from Europe is still dominant on the global market, fewer countries identify Europe as the source for ecstasy seen in their markets. While more than 80% of all ARQ reporting countries have identified Europe as the source of their seized ecstasy in 2002, this share has been declining since 2004 to 73% in 2009, as a greater proportion of countries outside of Europe began reporting that the sources of their ecstasy were places other than Europe. This coincided with disruptions to precursor chemical supplies in Europe and emergence of MDMA manufacture in other locations closer to non-European consumer markets. At the same time, European countries continue to report that their seized ecstasy is sourced from within Europe.

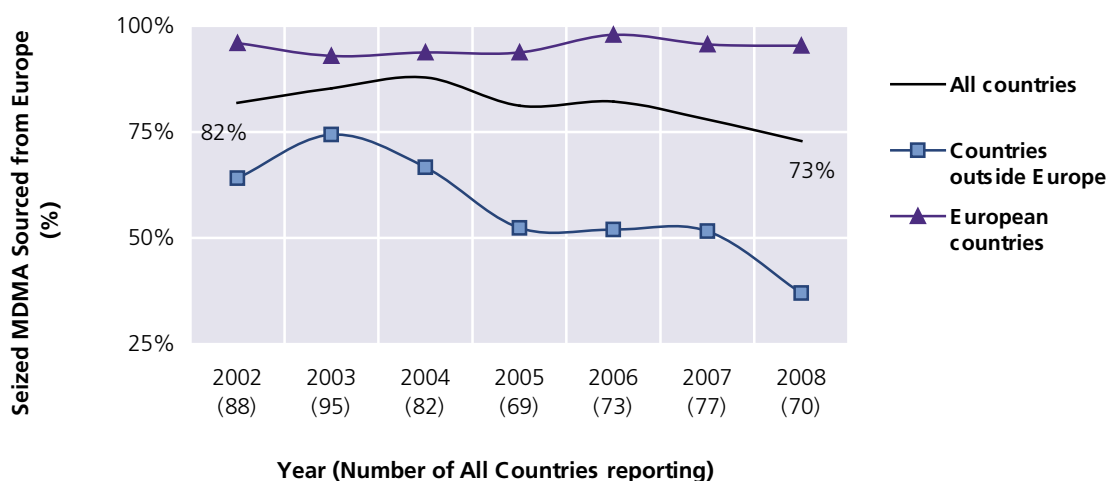
There have been no seizures of 3,4-MDP-2-P (PMK), the most common MDMA precursor chemical used in Europe, since 2007, but there are indications that manufacturers are retooling operations to make use of alterna-

35 Policía Nacional de Nicaragua, *Policía detecta laboratorio de Anfetaminas*, 23 February 2010.

36 *Europol Organized Crime Threat Assessment*, 2009, European Police Office, The Hague.

Fig. 78: Europe as the source of seized ecstasy-group substances as mentioned by Member States, 2002-2008

Source: UNODC ARQ/DELTA.



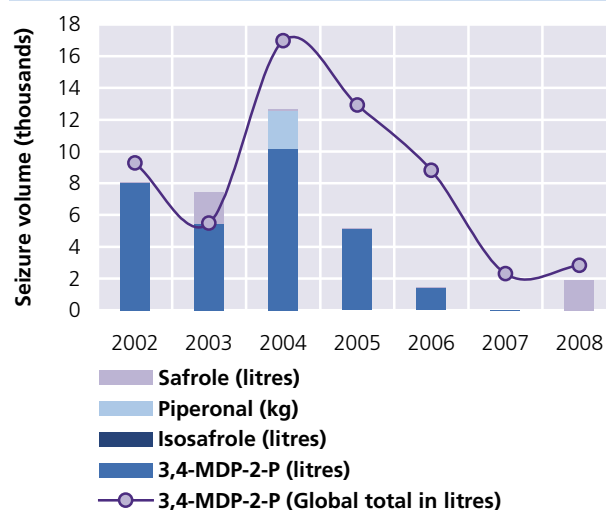
tive chemicals. Europe used to account for the majority of reported global 3,4-MDP-2-P seizures. However since 2004, there has been a decline in the amount of reported seizures of 3,4-MDP-2-P with the last reports in Europe occurring in 2007.³⁷ The likely reasons for the significant shortages may include: an increased demand for this precursor chemical in MDMA manufacture in other parts of the world, increased law enforcement strategies to curtail manufacture, including controlling the availability of key specialized equipment such as pill presses, and significant regulatory efforts to prevent illegitimate imports or diversions of precursor chemicals via more consistent utilization of pre-export notifications. In addition, China, traditionally the source of 3,4-MDP-2-P, entered into a new agreement with the European Union in 2009 to improve precursor controls and coordination. The country also announced tighter controls on the manufacture of 3,4-MDP-2-P. Taken together, this suggests that the trend towards retooling ecstasy manufacture in Europe will continue.³⁸

In fact, criminals are already turning to alternative sources to manufacture MDMA to meet the demand in Europe. In 2008, 1,900 litres of safrole-rich oils (SRO) were reported seized in Europe, the first such seizure of any magnitude since 2003. Safrole-rich oils are typically sourced from South-East Asia. In 2006, there were an estimated 1,360-1,620 mt of SRO produced in East and

South-East Asia, much of it for legitimate industry.³⁹ In February 2009, the Government of Cambodia disposed of almost 15 mt of safrole-rich oils with an additional 5.2 mt seized in June 2009, while 45 mt of safrole was reported seized by Thailand in 2007. Given the significant volume of safrole-rich oils available, there is a high likelihood that illicit manufacturers will turn to using SRO. It is important to note that SRO-based operations are already being reported by countries in Europe and around the world.⁴⁰

Fig. 79: Seizures (in mt) of ecstasy-group precursor chemicals in Europe, 2002-2008

Source: INCB



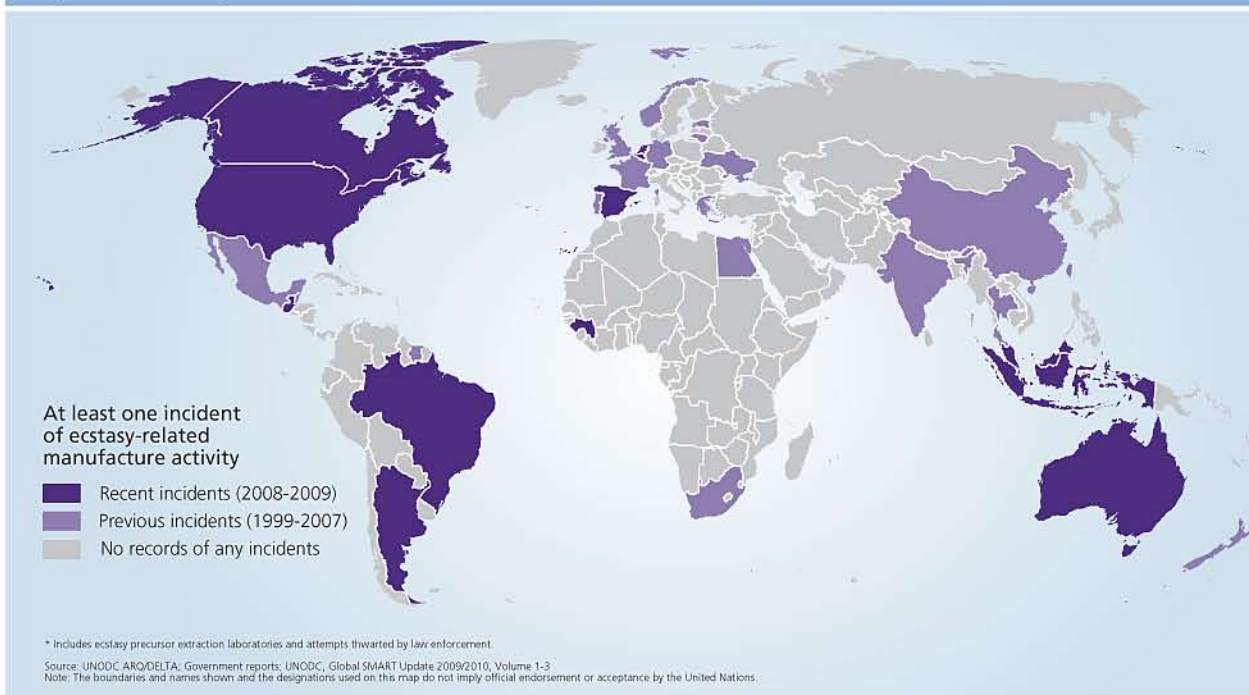
³⁷ The activities of INCB's Project Prism and the PEN on-line system have focused on preventing the smuggling of both 3,4-MDP-2-P and P-2-P into the EU for use in the illicit manufacture of MDMA and amphetamine respectively. However, seizures have been noted in other countries, such as Canada.

³⁸ China also announced tighter controls on the manufacture of ephedrine, P-2-P, and hydroxylamine hydrochloride (the precursor of ketamine).

³⁹ UNODC, *Essential Oils Rich in Safrole, Survey of Production, Trade, and Use in East and South-East Asia*, 2006.

⁴⁰ SYNDEC4, *Operation Counter Curse presentation by the DEA*, November 2009; *Two arrested and police uncover first ever clan lab used in manufacture of safrole oil precursor for MDMA*, New South Wales Police Media Release 28 January 2010.

Map 11: Ecstasy-related manufacture since 1999 and in 2008-2009



Until just a few years ago, MDMA manufacture on a large scale was uncommon outside of Europe. However, since 2003-2004, MDMA manufacturing operations have increasingly been encountered closer to the consumer markets in North America, South-East Asia and Oceania. There are now indications that manufacture is expanding into new regions such as Latin America with illicit manufacture having been reported in Argentina, Belize, Brazil, Guatemala, Mexico and Suriname. With its first small-scale laboratory seized in 2008, Brazilian authorities dismantled another larger and more sophisticated operation in 2009, which included the seizure of 30,000 tablets.⁴¹ The first ever evidence of potential MDMA manufacture in West Africa was reported in 2009. Over 5,000 litres of SRO and 80 litres of 3,4-MDP-2-P, precursors for synthesizing MDMA, were found at multiple locations in Guinea in July 2009. These were enough to produce more than 18 million tablets (at 65 mg) of MDMA. While manufacture in Brazil appears limited, supplying the domestic market in the south of the country, there is little information to support local demand for ecstasy in West Africa, leaving Europe as the nearest significant export market.

Illicit manufacturers have been forced to substitute various other synthetic drugs, notably piperazines,⁴² in tablets sold as 'ecstasy' to meet market demand in

Europe. Almost half of the tablets seized or sold as 'ecstasy' in some EU Member States contained the piperazine *m*CPP alone or in combination with other psychoactive substances in the first half of 2009.⁴³ The increasing presence of piperazines in tablets sold as 'ecstasy' can be seen in both samples seized by law enforcement and also in those voluntarily surrendered by users beginning around 2006 but most notably in 2009. For example, the United Kingdom, whose tablet seizures account for roughly a quarter of the European market, showed marked declines in MDMA tablets seized and analysed by law enforcement. At the same time, the United Kingdom saw increases in tablets containing piperazines. Analysis of tablets sold as 'ecstasy' surrendered voluntarily by users in the Netherlands found similar trends with less MDMA and increasing proportions of other psychoactive substances. These, again, were due in large part to increases in various piperazines, a trend which continued into 2009.⁴⁴ In combination, piperazines can mimic the effects of MDMA.⁴⁵ However, users report that they are a poor substitute for high quality MDMA, with often unpleasant after-effects.

41 *Polícia Militar desativa laboratório do tráfico de drogas em Imaruê*, Polícia Militar de Santa Catarina, 4 August, 2008; *Global SMART Update 2009*, vol. 2, October 2009.

42 1-Benzylpiperazine (BZP), 1-(3-chlorophenyl)piperazine (*m*CPP), and 1-(3-Trifluoromethylphenyl) piperazine (TFMPP).

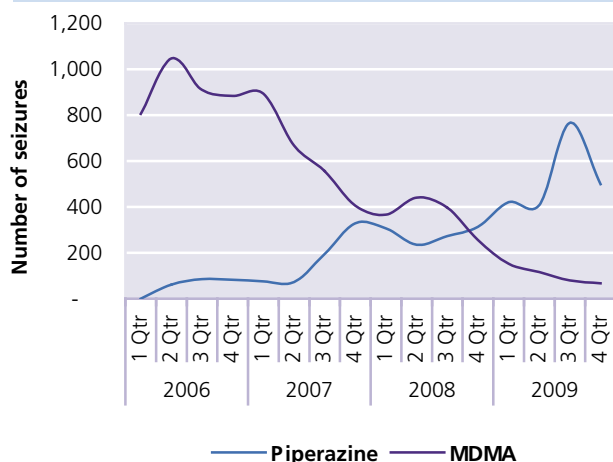
43 EMCDDA, BZP and other piperazines, (see <http://www.emcdda.europa.eu/publications/drug-profiles/bzp>), retrieved 8 April 2010.

44 SYNDEC4, presentation by EUROPOL, The Eye of the Storm. November 2009.

45 Thompson, I., Williams G., Aldington, S., Williams, M., Caldwell, B., Dickson, S., Lucas, N., MacDowall, J., Weatherall, M., Frew A., Robinson, G. and Beasley, R. *The benzylpiperazine (BZP) / trifluoromethylphenylpiperazine (TFMPP) and alcohol safety study*, Medical Research Institute of New Zealand, 2006.

Fig. 80: The composition of 'ecstasy' tablets seized in the United Kingdom, 2006-2009

Source: United Kingdom Forensic Science Services



The average street price for a tablet sold as 'ecstasy' in Europe does not appear to have increased, particularly in the larger West European markets,⁴⁶ as the piperazine-containing tablets command a similar street price in Europe as MDMA, roughly €4 per tablet. However, after controlling for varying purity, the price per pure gram of a tablet of MDMA may likely increase in 2009, even though the price per tablet may not.

Illicit manufacturers exploit the lack of national and international controls over piperazines and other new synthetic substances to continue 'ecstasy' sales. Piperazines are not under international control,⁴⁷ and with the exception of BZP, most countries have limited or no national controls. In addition to piperazines, many new synthetic substances are also being sold as or in the 'ecstasy' market.⁴⁸

One of those, methyl-methcathinone (mephedrone), has been related to major headlines in European news, because of its association with fatalities. Given their legal status, their street sale at a similar price as MDMA would command significantly higher profit margins, provide little chance of criminal sanctions, and likely expand the 'ecstasy' user market.⁴⁹ It is also important

⁴⁶ Estimated street price based on Member State responses for ecstasy (MDMA) tablets, weighted by population and adjusted for currency fluctuation and inflation. In cases where a price range was given, the mid-point was substituted.

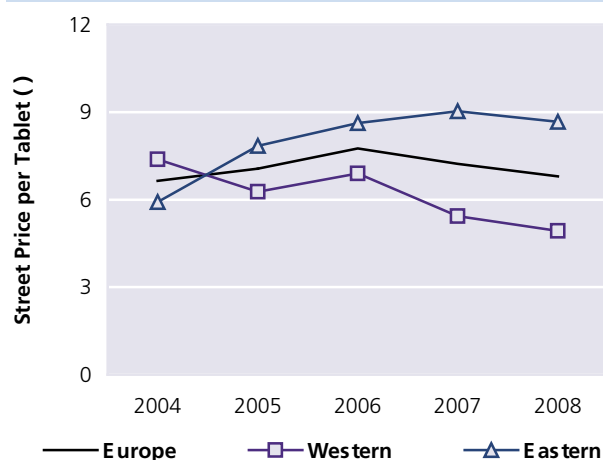
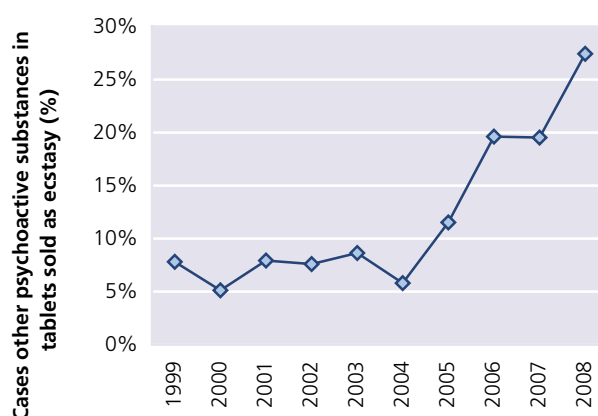
⁴⁷ Note though, that several piperazines have been proposed for critical review by WHO, the first step towards international controls.

⁴⁸ The appearance of synthetic cannabinoid-like substances is not subject of this report as they are more related to the cannabis market. However, the same considerations for legal status, profits and risks to users apply.

⁴⁹ In 2006, legal piperazine party pills in New Zealand emerged as the fourth most widely tried drug type with twice as many people (aged 13-45) having tried legal party pills as the next most commonly tried drug, amphetamine. Wilkins C., et al., *Trends in drug use in the*

Fig. 82: Street price of European 'ecstasy' tablets, 2004-2008

*Weighted for population, currency and inflation-adjusted. Source: UNODC ARQ

**Fig. 81: Tablets sold as 'ecstasy' containing non-controlled psychoactive substances in the Netherlands, 1999-2008**Source: Vogels N., Brunt T.M., Rigter S., van Dijk P., Vervaeke H. and Niesink R.J., "Content of ecstasy in the Netherlands: 1993-2008," *Addiction* 104(12): 2057-66, 2009

to note that the toxicity in humans of the majority of these new substitutes has never been assessed.

Until European demand for MDMA can be met by MDMA imported from other manufacturing locations, alternative MDMA precursor chemicals such as safrole can be adequately sourced, or the traditional MDMA precursor (3,4-MDP-2-P) can be obtained from alternative sources, the trend in end-product substitution can be expected to continue into the foreseeable future.

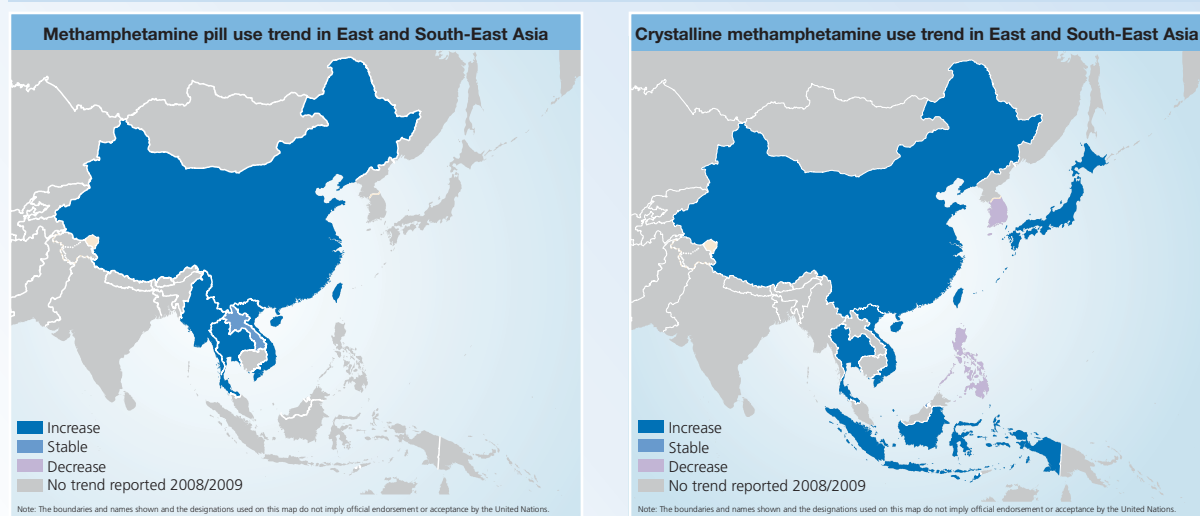
^{■ ■} population in New Zealand: Findings from national household drug surveying in 1998, 2001, 2003 and 2006, Centre for Social and Health Outcomes Research and Evaluation, Auckland, 2007.

More methamphetamine in East and South-East Asia

Indicators suggest increased availability and use of methamphetamine throughout East and South-East Asia. All countries in East and South-East Asia already report the use of methamphetamine with many reporting it as their primary drug of use, either in tablet form (yaba) or high purity crystalline form, with increasing use levels in 2008.¹ Increases in arrests and seizures also point to a significant growth in the availability of methamphetamine tablets on the market. Since 2004, methamphetamine arrests in Thailand—one of the largest consumer markets of tableted methamphetamine—have increased four-fold to 120,000 arrests in 2008, or 86% of the regional total. The number of tablets seized in Thailand also increased, jumping by more than 50% between 2007 and 2008 to 22 million tablets. Preliminary data suggest that further increases in the region are expected again for 2009.²

Fig. 83: Expert perception in the change in use of methamphetamine tablet or crystalline forms from 2007 to 2008

Source: UNODC, *Patterns and trends of amphetamine-type stimulants and other drugs in East and South-East Asia (and neighbouring regions) 2009*, November 2009



- 1 UNODC, *Patterns and trends of amphetamine-type stimulants and other drugs in East and South-East Asia (and neighbouring regions) 2009*, November 2009.
- 2 Ibid.

Asia: Vulnerable to illicit ATS manufacture

To limit the availability of precursor chemicals for illicit manufacture of synthetic drugs, there must be an international regulatory control system for the substance, it must be operationally used and enforced, and it should be coupled with domestic controls and fit-for-purpose cooperation mechanisms with relevant industries. There are several examples across Asia where the lack of controls have made countries vulnerable to attempts by criminals to obtain precursor chemicals for and/or establish illicit ATS manufacturing operations. The examples below illustrate the continuous flow of methamphetamine tablets from areas in Myanmar outside the central Government's control; the dramatically increasing use and availability of ketamine in parts of South-East Asia linked to the absence of international restrictions on the substance; and the unusually high annual legitimate

requirements of key precursors in the Near and Middle East and South-West Asia, which may indicate potential for diversion of chemicals for illicit manufacture of methamphetamine and amphetamine (specifically in the form of Captagon)⁵⁰.

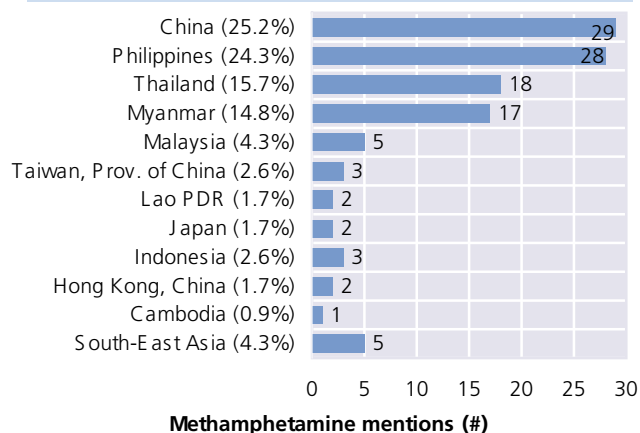
Myanmar: continuous flow of methamphetamine tablets from areas outside the central Government's control

Myanmar ranks fourth of the countries in East and South-East Asia that are most frequently cited as a source of methamphetamine (both crystalline methampheta-

⁵⁰ Captagon was originally the trade name for a pharmaceutical preparation containing fenetylline, a synthetic stimulant. Today, most tablets seized as Captagon essentially contain amphetamine, typically in combination with caffeine and sometimes with a few other adulterants.

Fig. 84: Sources of seized methamphetamine (both crystalline and in tablet form) as mentioned by East and South-East Asian countries/territories, 2002-2008

Source: UNODC ARQ



mine and methamphetamine tablets).⁵¹ Of the countries traditionally associated with illicit methamphetamine tablets, Myanmar shares the top rank with Thailand.⁵² Forensic data indicate that methamphetamine tablets come primarily from Myanmar's Shan State's various Special Regions near the eastern border with China and Thailand, which are under the control of armed ethnic groups operating outside the control of the central Government.⁵³ Because laboratories in these areas operate without fear of government forces, few significant seizures of precursor chemicals, ATS end-products or clandestine laboratories occur. For instance, between 1998 and 2009, the government reported seizing 39 'tableting' operations of which only two were reported to be of a 'large-scale'.⁵⁴ There are no reports of laboratories manufacturing methamphetamine powder (versus tableting laboratories). Similarly, of the 32 million tablets seized in East and South-East Asia in 2008, only about 3% (or 1.1 million) were reportedly seized in Myanmar. However the number of tablets and amount of precursor chemicals seized in Myanmar jumped in 2009, when, inter alia, the central Government entered by force parts of the North and Eastern Shan State not under their control.

Increasing amounts of precursors were seized in the form of tableted pharmaceutical preparations in 2009 which

⁵¹ Information based on 115 mentions of the source of seized methamphetamine (both crystalline and in tablet form). Mentions of Japan as a source country reflects the difficulty in identifying source countries and transiting countries. Japan has reported no clandestine manufacture to UNODC.

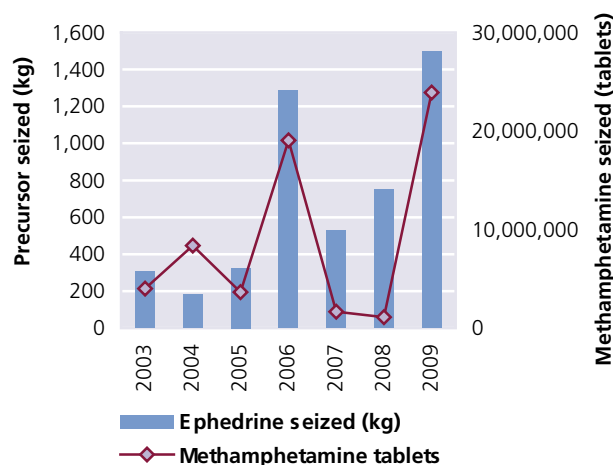
⁵² Note that Myanmar reports seizures of methamphetamine in the form of tablets, powder and in crystalline form.

⁵³ Primarily the north and east Shan State however illicit manufacture of methamphetamine is also reported to occur in the Wa and Kokang autonomous regions.

⁵⁴ Myanmar, Central Committee for Drug Abuse Control.

Fig. 85: Methamphetamine tablets and precursor seizures in Myanmar, 2003-2009

Source: INCB 2003-2009; Central Committee for Drug Abuse Control 2009



suggests that sourcing bulk precursor chemicals may have also become more difficult in Myanmar. Reports in 2009 identified the trafficking of preparations of ephedrine in liquid form with a seizure of 240 litres of ephedrine solution contained in more than 120,000 small nasal drop bottles, enough for about 5.5 million 30 mg methamphetamine tablets. The shift from bulk ephedrine to tableted and now liquid forms of pharmaceutical preparations containing ephedrine may be an indicator of a diversification of precursor supplies, a scenario which has also been reported in other countries with large-scale illicit drug manufacture.⁵⁵

Ketamine in South-East Asia

Ketamine, while not under international control, is often found along with methamphetamine in tablets sold as 'ecstasy' and its use is an increasing concern in East and South-East Asia. There are also indications that it is starting to spread outside South-East Asia, reflected in the declining proportion of ketamine seizures in that region to 86% of global totals (8.2 mt or more than double global 'ecstasy' seizures) in 2008.

The growing use of ketamine is of particular concern in Hong Kong, China, as the demand for high quality MDMA ('ecstasy') appears to be decreasing. While the number of registered drug users for ecstasy-group substances has seen a 40% decline since 2004, the number of ketamine users has doubled.

Part of ketamine's growth in popularity has been its

⁵⁵ In June 2009, authorities in Mexico seized 49,630 litres of a pharmaceutical solution containing pseudoephedrine. International Narcotics Control Board, *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances, 2009*, New York, 2010.

Map 12: Expert perception in the change in ketamine use and sources, 2007-2008

Sources: UNODC (2009), Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs in East and South-East Asia (and neighbouring regions); DAINAP; Individual Drug Seizure Database and other government sources

**Fig. 86: Global ketamine seizures and the proportion reported from South-East Asia, 2003-2008**

Source: UNODC ARQ

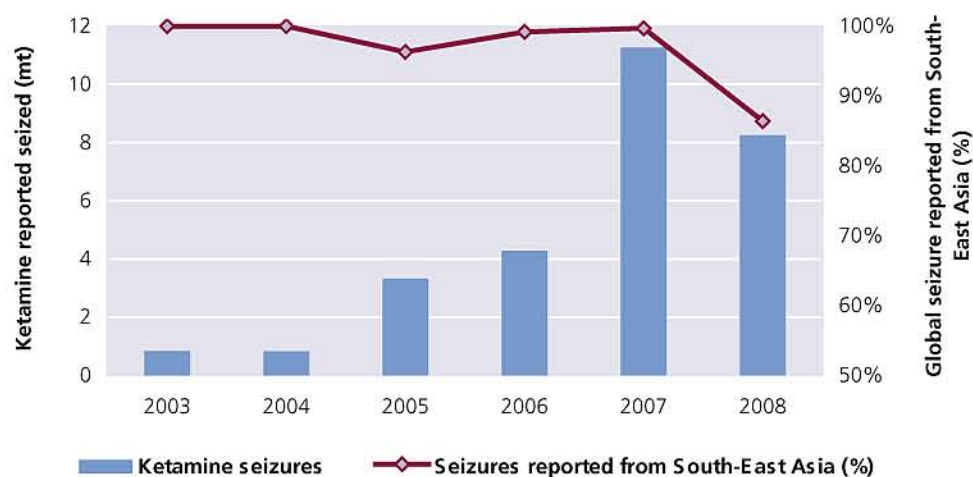
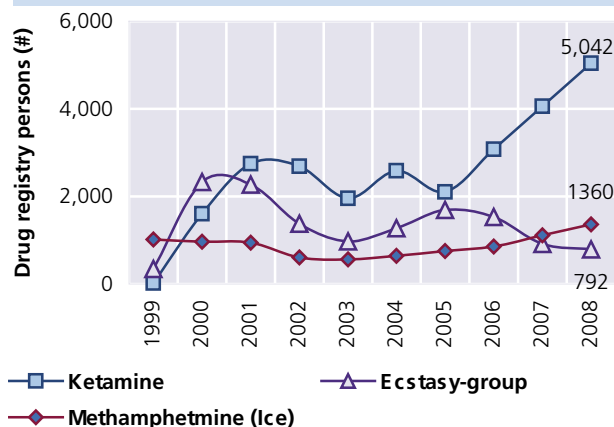


Fig. 87: Hong Kong, China: ketamine, methamphetamine and ecstasy-group drug registry cases, 1999-2008

Source: Central Registry of Drug Abuse, Narcotics Division (ND), Security Bureau, Hong Kong Special Administrative Region, China.



continuously low price. For example, between 2007 and 2009, the average price per pure gram in Hong Kong, China was just HK\$144, making it a cheap substitute for the increasingly expensive 'ecstasy' or methamphetamine.

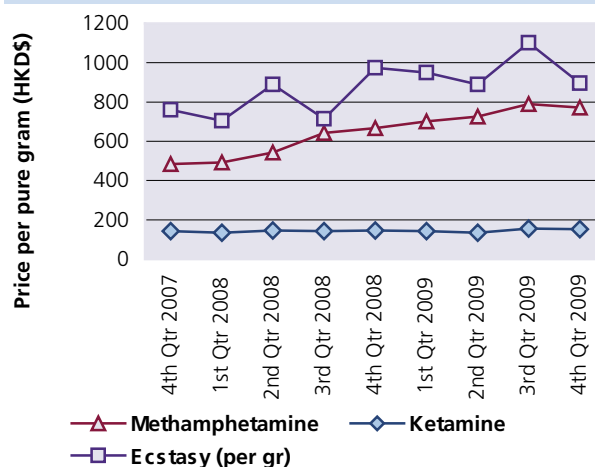
Diversion from licit trade remains the primary source of ketamine with significant seizures being reported in various countries over the last couple of years. In December 2009, customs authorities in India seized a record 440 kg of ketamine en route to Malaysia.⁵⁶ However, industrial-scale illicit ketamine manufacture is also emerging. In 2009, China reported seizing two illicit laboratories processing hydroxylamine hydrochloride, the immediate precursor chemical for ketamine, and seizing 8.5 mt of this substance. In 2009, China announced tighter controls over the manufacture of hydroxylamine hydrochloride and other precursor chemicals.

Possible emerging locations for large-scale manufacture in parts of Asia

One of the most disturbing new ATS trends is the increase of methamphetamine in South-West Asia, a region already suffering from large-scale opium production and use. This specifically refers to the sudden and massive increase of reported seizures of high purity crystalline methamphetamine ('Shisheh') from the Islamic Republic of Iran which began in 2008. In 2008, the country also seized four clandestine methamphetamine laboratories—their first reports ever—and has since reported quickly decreasing street prices and an increase

Fig. 88: Purity-adjusted quarterly street prices for various drugs sold in the ATS market in Hong Kong, China, 2007-2009

Source: Hong Kong Police Narcotic Bureau



in methamphetamine use.⁵⁷ That manufacture outpaces domestic consumption is also reflected in the notable increase in 2009 in the frequency and extent of reported methamphetamine trafficking from Islamic Republic of Iran, with much of this destined for lucrative markets in East and South-East Asia.⁵⁸

The starting material used in the illicit manufacture of methamphetamine in the Islamic Republic of Iran is most likely domestically diverted pseudoephedrine. Since 2006, the first year such reporting was required by the INCB⁵⁹, the Islamic Republic of Iran has reported notable increases in its annual legitimate requirement of the chemical. In just four years, the demand grew to give the Islamic Republic of Iran the fourth highest legitimate requirement in the world. Not only does this increase the likelihood of domestic diversion, but it also makes the country an attractive target for precursor diversion by transnational organized crime groups. That this may be more than a realistic concern is evidenced by recent reports of two stopped shipments of pseudoephedrine totaling 11 mt, both destined for Ethiopia.

An example of how rapidly increasing annual legitimate

⁵⁷ DCHQ Deputy SG, *Prices of the synthetic drugs have dropped to one fourth*, 6 October 2009, Islamic Republic of Iran National Drug Headquarters; UNODC World Drug Report 2009

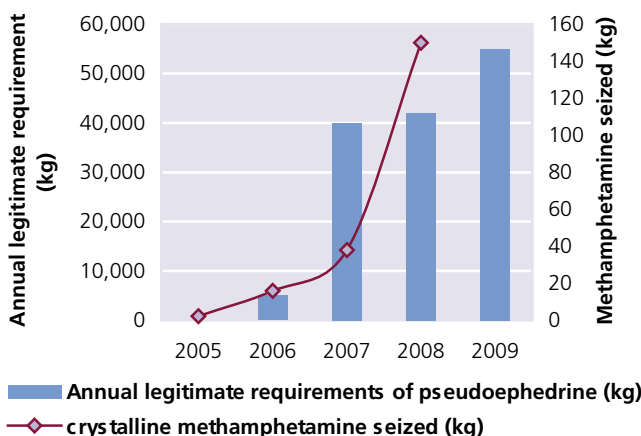
⁵⁸ *737 kg of various drugs were found in airports this year*, Official Islamic Republic News Agency; *Global SMART Update 2009*, vol. 2, October 2009.

⁵⁹ Countries provide INCB with annual estimates of their legitimate requirements for various ATS precursor chemicals to prevent their diversion into illicit manufacturing. In 2009, 91 countries reported their annual legitimate requirements for pseudoephedrine (bulk and preparations), 98 for ephedrine (bulk and preparations), and 15 for P-2-P. INCB, *Annual legitimate requirements reported by Governments for ephedrine, pseudoephedrine, 3,4-methylenedioxypheyl-2-propanone, 1-phenyl-2-propanone and their preparations*, 2 March 2010 and past publications.

⁵⁶ DRI Chennai effects single largest ever seizure of 440 kgs. of ketamine worth RS. 44 crores at Tuticorin, Government of India, Ministry of Finance (Department of Revenue) Directorate of Revenue Intelligence, 25 December 2009.

Fig. 89: Islamic Republic of Iran annual legitimate requirement of pseudoephedrine versus crystalline methamphetamine seizures, 2005-2009

Sources: ARQ/DELTA, INCB, Annual legitimate requirements reported by Governments for ephedrine, pseudoephedrine, 3,4-methylenedioxyphenyl-2-propanone, 1-phenyl-2-propanone and their preparations



requirements can be an indicator for diversion into illicit manufacture can be seen in South-Asia. Since 2006, Bangladesh's annual legitimate requirement for pseudoephedrine has tripled, now making it the 6th highest in the world. In 2009, Bangladesh was first identified as a source country for tableted pharmaceutical preparations containing pseudoephedrine diverted into illicit drug manufacture with multi-million tablet shipments being seized in Central America, destined for Mexico. Bangladesh may also become a target for diversion of pseudoephedrine into neighboring Myanmar's illicit methamphetamine manufacture if pressure upon Myanmar's precursor supply continues.

A similar situation may also be occurring in the Near and Middle East, where the diversion of phenyl-2-propanone (P-2-P) may be fueling the region's expanding *Captagon* market. Jordan reported its annual legitimate requirement of P-2-P at 60,500 kg in 2009, accounting for more than half of the global total. The high legitimate need is based on the purported formulation of P-2-P into 'cleaning and disinfection' products. However the volume represents a significant risk of diversion into illicit *Captagon* manufacture, particularly as P-2-P is not an essential ingredient in the formulation of cleaning and disinfection products and alternative chemicals exist.

The most common way of obtaining requisite precursor chemicals and some of the common psychoactive substances substituting for controlled synthetic drugs, such as ketamine, is by their diversion from legitimate trade. The few examples highlighted herein illustrate that to be effective in preventing such diversions, governments must not only have functioning regulatory controls in

Fig. 90: Bangladesh annual legitimate requirement of pseudoephedrine, 2006-2009

Sources: INCB, Annual legitimate requirements reported by Governments for ephedrine, pseudoephedrine, 3,4-methylenedioxyphenyl-2-propanone, 1-phenyl-2-propanone and their preparations

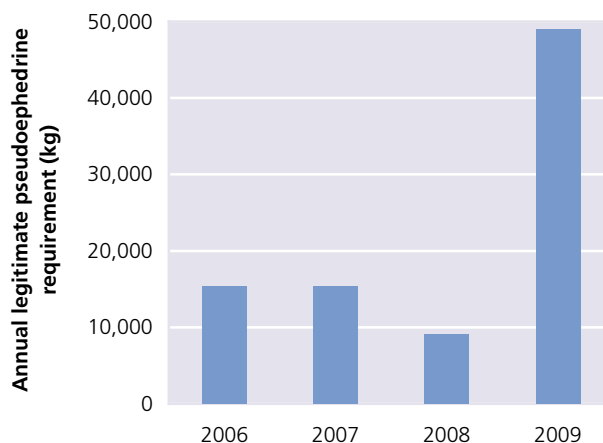
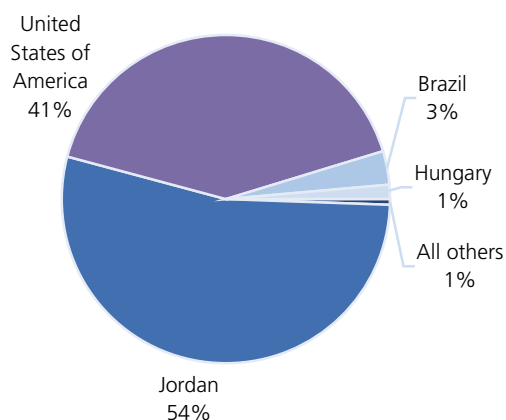


Fig. 91: Global annual legitimate requirement for P-2-P reported by Governments, 2009

Source: INCB, Annual legitimate requirements reported by Governments for ephedrine, pseudoephedrine, 3,4-methylenedioxyphenyl-2-propanone, 1-phenyl-2-propanone and their preparations



place, addressing both international and domestic trade, but that they must be vigilantly re-assessed for purpose.

1.4.5 Implications for response

The increasing size and complexity of illicit ATS operations encountered over the past 10 years point to increased involvement of criminal organizations, from the sourcing of precursor chemicals to the manufacture and trafficking of the ATS end-products. Yet, the intrinsic characteristics of ATS manufacture and trafficking, namely the independence from geographically defined source regions for raw materials and the geographic



closeness of manufacturing locations and consumer markets, limit the range and effectiveness of supply-side interventions when compared to heroin and cocaine.

The discussion above indicates that control of ATS precursors can be successful. In addition, evidence-based prevention and treatment have shown some cost-effective results.⁶⁰ Both measures work best when implemented in a holistic, comprehensive manner and when accompanied by the early identification of emerging developments.

The generation of a timely evidence-base is the only way in which to quickly identify the rapidly changing ATS market and respond with appropriate policies and programmes. The expansion of targeted capacity building programmes, such as *Global SMART*, which support both forensic and synthetic drug data collection, have been shown invaluable in countries and regions with significant ATS markets. To avoid shifts from one country to another, or one region to the next, there is a growing need for a strategic early warning system to identify emerging synthetic drugs, new products and combinations, controlled and non-controlled, substitute precursor chemicals, diversions (including stopped, suspended and cancelled shipments), common adulterants and key equipment used in their manufacture. This information must be shared quickly at national, regional and international levels so as to allow timely or even preemptive responses.

Given the widespread availability of certain ATS, the rapid emergence of new synthetic drugs and non-controlled substitutes, and their use in school, work and recreational settings, a holistic approach is required which looks beyond internationally controlled ATS into the recreational 'pill market' more generally and integrates responses into the wider concept of health promotion. Investments in prevention programmes that increase the awareness as to the health risk of these drugs appear to have played a role in the decline in use, particularly among youth in developed countries. This has specifically proven successful where prevention and treatment services have met the needs of and been accepted by ATS users. The expansion of evidence-based treatment programmes in developed countries has also reduced the likelihood that problem ATS users return to patterns of chronic drug use. However, evidence-based ATS treatment programmes are often the exception, not the rule, especially in countries where emerging problem

ATS use is occurring and health care and treatment professionals are simply not trained or do not have the resources to identify and respond to the unique characteristics manifested in ATS users.

Precursor control works. It is clear that when existing regulatory controls are implemented and all counterparts exert the necessary vigilance to identify unusual transactions, suspicious legitimate needs and fictitious end-uses of precursor chemicals, significant reductions in the availability of precursors for illicit purposes can be made. Understanding legitimate industrial requirements and monitoring the entire chain from precursor manufacture, distribution to end-use, both domestically and internationally, are the only means to identify unusual or suspicious transactions. This also includes scrutinizing annual assessments of legitimate requirements—particularly if these increase significantly year-over-year, and may initially be considered to reflect a newly developing legitimate industry. Systematically checking the legitimacy of individual precursor chemical shipments should become the norm for all countries trading in these substances. The tool for this is available in form of the INCB *Pre-Export Notification* (PEN) online system, which has already proven successful in international precursor operations by stopping suspicious shipments before they leave the country. However, currently only 76 countries (40% of UN Member States) regularly use this real-time system.

Regulatory controls must be complemented by law enforcement action. Seizures should be the beginning of an investigation, not the end. Available specialized investigative techniques include controlled deliveries and back-tracking investigations, which could be utilized more systematically for the ATS end-products, their precursors, and key manufacturing equipment such as new and used pill presses, so as to dismantle the entire criminal manufacture chain. This approach will be of increasing importance also as an element of precursor control strategies, as today diversions often occur at national level, followed by smuggling across international borders.

Better and more timely information, combined with increased awareness of the peculiarities of ATS and their precursors, can be expected to contribute to changing the prevailing low attention devoted towards ATS in some regions, especially those that have historically been associated with the cultivation and/or production of the 'traditional' drugs opium/heroin and cocaine, thus increasing interceptions. Finally, history also shows the importance of regionally and internationally coordinated responses to the ever-changing ATS and precursor chemical situation both in terms of regional shifts and emergence of new precursors, ATS and/or substitutes for either.

⁶⁰ Spoth, R. and Guyll, M., *Prevention's Cost Effectiveness Illustrative Economic Benefits of General Population Interventions*, in United Nations Office on Drugs and Crime Technical Seminar on Drug Addiction Prevention and Treatment: From Research to Practice, 2008. Iowa State University (December 2008); *Cost effectiveness and cost benefit analysis of substance abuse treatment: an annotated bibliography*, National Evaluation Data Services, Center for Substance Abuse Treatment (SAMSHA), US Department of Health and Human Services, 2002.