A. THE OPIATE MARKET

Global production of opiates increased by around 30 per cent in 2016

Opium is illicitly produced in around 50 countries worldwide, with the main areas of production being located in three subregions. Countries in South-West Asia (mainly Afghanistan) supply markets in neighbouring countries and in countries in Europe, the Near and Middle East/South-West Asia, Africa and South Asia, with small proportions going to East and South-East Asia, North America and Oceania. Countries in South-East Asia (mainly Myanmar and, to a lesser extent, the Lao People’s Democratic Republic) supply markets in East and South-East Asia and in Oceania. Countries in Latin America (mostly Mexico, Colombia and Guatemala) mainly supply the United States of America and the more limited markets in South America.

In 2016, the global area under opium poppy cultivation increased in size by 8 per cent from the level of the previous year, to 304,800 hectares (ha), primarily reflecting an increase reported in the cultivation of opium poppy in Afghanistan that year (10 per cent). With 201,000 ha under opium poppy cultivation, Afghanistan accounted for roughly two thirds of the estimated global area under illicit opium poppy cultivation in 2016.

No estimate of the area under opium poppy cultivation in Myanmar in 2016 is available, but the 2015 estimate was 55,000 ha, making Myanmar the world’s second largest opium-producing country that year (20 per cent of the total area under opium cultivation in 2015). A socioeconomic survey was, however, undertaken by the United Nations Office on Drugs and Crime (UNODC) in 2016 in Shan State,1 which in recent years has accounted for
around 90 per cent of Myanmar’s total poppy cultivation and opium production. The survey revealed that the proportion of villages producing opium poppy fell from 31 per cent of all villages in Shan State in 2015 to 22 per cent in 2016: a decrease of almost 30 per cent. However, this trend has been offset by an increase in the size of the average area under opium poppy cultivation, from 0.4 ha to 0.6 ha per household where cultivation is taking place, suggesting an increasing concentration of opium poppy cultivation in Shan State. At the same time, 2016 saw an increase of 5 per cent in the price of opium, which may point to a decline in production (or an increase in demand).

Based on 2014/2015 estimates (26,100 ha), the third largest area worldwide under opium poppy cultivation was identified as being that in Mexico. No estimate of the area under opium poppy cultivation in the Lao People’s Democratic Republic in 2016 is available, but the 2015 estimate was 5,700 ha.

Based on available cultivation and yield data, global opium production increased by more than 30 per cent from the level of the previous year, to around 6,380 tons in 2016. This increase was primarily a reflection of the rising level of opium production reported in Afghanistan (a 43 per cent increase from the level of the previous year), which was mainly the result of a partial recovery in the extremely poor yields in its southern and western provinces recorded a year earlier.

Of the 6,380 tons of opium produced worldwide in 2016, it is estimated that some 2,100 tons remained unprocessed for consumption as opium, while the rest was processed into heroin, resulting in an estimate of some 448 tons of heroin manufactured worldwide (expressed at export purity).

Seizures of opiates have decreased in recent years

After a long-term upward trend since the beginning of the new millennium, global quantities of opiates seized, expressed in heroin equivalents, have been...
MARKET ANALYSIS OF PLANT-BASED DRUGS

A. The opiate market

Largest seizures of opiates primarily in the Near and Middle East/South-West Asia

Reflecting the high concentration of opium production in Afghanistan, the largest opiate seizures in 2015 continued to be reported by countries in the Near and Middle East and South-West Asia, accounting for 97 per cent of the global quantity of opium, 94 per cent of morphine and 47 per cent of heroin seized that year. When all seizures of opiates, expressed in heroin equivalents, are considered, the Islamic Republic of Iran seized almost half (49 per cent) of the global total in 2015, followed by Pakistan (16 per cent), China, Turkey and Afghanistan (6 per cent each) and the United States (5 per cent).

In terms of seizures of heroin and morphine, Asia accounted for 70 per cent of the total quantity seized in 2015, while Europe accounted for 18 per cent and the Americas for 10 per cent, reflecting the concentration of opium production in Asia and Latin America, as well as opiate markets in Asia, Europe and North America.

Seizures of heroin and morphine decreased in Europe in 2015, but continued to increase in the Americas

The decrease in the quantities of heroin and morphine seized in Asia since the peak of 2011 came to a halt in 2015 when quantities intercepted stabilized.

Sources: UNODC calculations based on illicit crop monitoring surveys and responses to the annual report questionnaire.

Note: For details of the calculation methods, see the online methodology section of the present report.

Declining since 2011. That decline was exclusively the result of morphine seizures falling from a peak in 2011, when large amounts of morphine were seized in Afghanistan. Otherwise, seizures of both opium and heroin have remained quite stable at the global level in recent years, in line with a fluctuating, although overall stable, level of opium production.

Fig. 2 - Trends in the global interception rate of opiates, 1980-2015

Seizures of heroin and morphine decreased in Europe in 2015, but continued to increase in the Americas.

The decrease in the quantities of heroin and morphine seized in Asia since the peak of 2011 came to a halt in 2015 when quantities intercepted stabilized.

Fig. 3 - Countries reporting largest quantities of opiates seized, 2015

Source: UNODC, responses to the annual report questionnaire.
In Europe, on the other hand, the quantities of heroin and morphine seized, which had been increasing over the period 2011-2014, fell in 2015, particularly in West and Central Europe (-56 per cent).

By contrast, the quantities of heroin and morphine seized in 2015 continued to increase in the Americas, particularly in North America (+21 per cent from the previous year).

Seizures of pharmaceutical opioids have reached the second-highest level ever reported

Largely linked to very large seizures of codeine and to comparatively smaller seizures of tramadol and buprenorphine, reported quantities of pharmaceutical opioids seized grew exponentially in 2014, exceeding global seizures of opiates (expressed in heroin equivalents) for the first time ever. Most of the pharmaceutical opioids intercepted in 2014 were reported by countries in South Asia, followed by countries in the Near and Middle East, suggesting significant levels of diversion and misuse of such substances in those subregions.

Although overall quantities of pharmaceutical opioids seized decreased in 2015, they were still larger than global heroin seizures and remained very high compared with the quantities intercepted before the peak of 2014. In 2015, pharmaceutical opioid seizures were dominated by tramadol, which, in terms of weight, increased more than fourfold from the level of the previous year. The largest seizures of pharmaceutical opioids in 2015 were reported in Africa, most notably in West and Central Africa, where large amounts of tramadol were seized, whereas most of the tramadol seized in the previous year was seized in countries in the Near and Middle East. The overall decline in seizures of pharmaceutical opioids in 2015 was primarily linked to smaller quantities of codeine being seized in South Asia in 2015 than in the previous year (for more details see booklet 2).

Most opiates continue to be trafficked along the Balkan route

The main trafficking routes of opiates out of Afghanistan remain the so-called Balkan route (via the Islamic Republic of Iran and Turkey to West and Central Europe); the southern route (to South Asia, Gulf countries and other countries in the Near and Middle East and in Africa); and the northern route (through Central Asia to the Russian Federation). Seizures of heroin and morphine made along these routes (plus seizures made in Afghanistan, Pakistan and West and Central Europe) accounted for 75 per cent of global heroin and morphine seizures in 2015.
Seizure data suggest that the world’s largest opiate-related trafficking activities continue to take place along the Balkan route. Overall, 37 per cent of the global quantity of heroin and morphine seized were reported by countries heavily affected by the trafficking of Afghan opiates along the Balkan route in 2015, or 43 per cent if seizures made in West and Central Europe are included (most of the quantities seized in that subregion are related to trafficking via the Balkan route). A breakdown of seizures shows that of the 34 tons of heroin and morphine seized on the Balkan route in 2015, the largest quantities were seized in the Islamic Republic of Iran (24.4 tons), Turkey (8.3 tons) and the Balkan countries of South-Eastern Europe (0.9 tons).

The importance of trafficking of Afghan opiates through the Balkan route is difficult to assess because a number of countries may be affected by different trafficking routes. For example, countries in Western and Central Europe may be supplied with Afghan opiates via both the Balkan route and the southern route. Another example is Pakistan, which reported...
MAP 1 | Main opiate trafficking flows, 2011-2015

Sources: UNODC elaboration, based on responses to annual report questionnaire and individual drug seizure database.

Notes: The trafficking flows are determined on the basis of country of origin/departure, transit and destination of seized drugs as reported by Member States in the annual report questionnaire and individual drug seizure database: as such, they are to be considered as broadly indicative of existing trafficking routes while several secondary flows may not be reflected. Flow arrows represent the direction of trafficking: origins of the arrows indicate either the area of manufacture or the one of last provenance, end points of arrows indicate either the area of consumption or the one of next destination of trafficking. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. The dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined. A dispute exists between the Governments of Argentina and the United Kingdom of Great Britain and Northern Ireland concerning sovereignty over the Falkland Islands (Malvinas).
very large seizures in 2015 (17 tons) that were often destined for countries on the southern route, while the Islamic Republic of Iran reported that 85 per cent of the heroin it seized in 2015 transited Pakistan prior to arriving on Iranian soil.

**Emergence of a new trafficking route to Europe via the Caucasus**

While overall seizures made along the Balkan route declined in 2015, an alternative branch of the route, through the Caucasus, seems to have been gaining in importance in recent years. That route circumvents Turkey, where the recent increase in flows of refugees heading towards countries in the European Union may have pushed traffickers to seek other options.

Heroin trafficked along this route is shipped from the Islamic Republic of Iran to Armenia or Azerbaijan and then to Georgia for shipment by sea to Ukraine (often Odessa) before being trafficked to Romania (or the Republic of Moldova), or directly from Georgia to ports along the Black Sea in European Union countries (notably Romania), before re-entering the eastern branch of the main Balkan route in Romania for trafficking onward to the Netherlands (93 per cent of heroin trafficked into Romania, according to Romanian authorities in 2015) and other countries in West and Central Europe. Romania, where for years the bulk of the heroin had previously transited Bulgaria (71 per cent in 2014), reported for the first time in 2015 that the vast majority (93 per cent) of it had transited Ukraine and only a small proportion (7 per cent) had transited Bulgaria.

**While the northern route maintains its relative importance, changes in the southern route are less clear**

Accounting for 5 per cent of total quantities of morphine and heroin seized in 2015, the next largest seizures reported in relation to Afghan opiates were made on the northern route. Most of the heroin destined for the northern route leaves Afghanistan via Tajikistan for onward trafficking either directly to Kazakhstan, or to Kyrgyzstan or Uzbekistan and subsequent trafficking to Kazakhstan and the Russian Federation. The trafficking of heroin via Turkmenistan, which shares a long border with Afghanistan, has not played much of a role so far, but that could change with the emergence of the Afghan province of Badghis, bordering Turkmenistan, as one of key opium-producing provinces in Afghanistan in 2016. At the same time, a route from Afghanistan to Pakistan and the Islamic Republic

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4 Individual seizures from the Drugs Monitoring Platform. For further information, see http://drugsmonitoring.unodc-roca.org.
The importance of the southern route in the trafficking of Afghan opiates is difficult to assess because of the weak capacity of interdiction and reporting of Member States in Africa. In addition, some of the opiates that transit Pakistan are destined for markets supplied via the southern route. Opiates seized in Pakistan increased sharply from 8 per cent in 2014 to represent 19 per cent of the global quantity intercepted in 2015, with the United Kingdom, Saudi Arabia and the United Arab Emirates (the latter country also for trafficking to other destination markets) being reported as main destination countries.

Seizures of opiates out of South-East Asia on the increase

The markets supplied by opium produced in South-East Asia (notably Myanmar) are China and other countries in South-East Asia and Oceania. Little is currently known about trafficking flows from South-East Asia to Europe, Africa and the Americas. This is worth mentioning as in the past those regions were also supplied with opiates produced in South-East Asia (Europe in the 1970s; the United States from the late 1980s to the mid-1990s).

In line with increases in opium production reported in South-East Asia in recent years (30 per cent over the period 2010-2015), heroin and morphine seizures related to opiates produced in South-East Asia rose by 88 per cent, from 7.1 to 13.3 tons, over the period 2010-2015. This resulted in an increase in the overall proportion of heroin and morphine seized in countries predominantly supplied by opiates produced in Myanmar from 7 per cent of the global total in 2010 to 15 per cent of the global total in 2015. While the Australian authorities reported that just 26 per cent of the heroin they seized in 2008 had originated in South-East Asia (Myanmar), the proportion rose to 90 per cent in 2014 and 98 per cent over the period January-June 2015. Similarly, the vast majority of the large quantities of heroin seized nowadays in China originates in Myanmar.

5 United States Department of Justice, Drug Enforcement Administration, 2016 National Drug Threat Assessment Summary (November 2016), p. 47.
increased, reaching a proportion of 79 per cent of all heroin samples analysed in 2014, with most of the rest originating in Colombia and only 1 per cent in South-West Asia (i.e., Afghanistan). There is, however, still a significant regional difference in the origin of heroin supplied to the United States market: almost all of the heroin found in cities in the western United States is of Mexican origin, while the bulk of heroin found in cities in the eastern United States still originates in South America (mainly Colombia).

**The global opiate market appears stable**

Affecting some 0.4 per cent of the world population aged 15-64 years — the same proportion as in previous years — the global number of opiate users (i.e., users of opium, morphine and heroin) continued to increase, although marginally, from 17.3 million in 2014 to 17.7 million in 2015.

At the global level, expert perceptions suggest that heroin use has been decreasing slightly since 2009, while opium use has remained largely stable.

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7 United States Drug Enforcement Administration, 2016 *National Drug Threat Assessment Summary*, p. 47.
8 Ibid., p. 48.
9 It must be noted, however, that these data only reflect trends in the parts of the world where data are available.
In 2014, increases in opiate use have also been reported by Latvia (2014), Liechtenstein (2014), France (2013) and Estonia (2011). However, at present more countries continue to report decreases than increases in opiate use, and the majority of European countries continue to report overall stable levels of opiate use.

In parallel to the possible increase in opiate use in Europe, there have been some reports of a rising number of deaths involving opiates in recent years. Following a decline in drug-related deaths in Germany, from 2,030 deaths in 2000 to 944 deaths in 2012, which were to a large extent related to the use of opiates, drug-related deaths increased to 1,032 cases in 2014 and 1,226 cases in 2015, which is equivalent to an increase of 30 per cent over the period 2012-2015. Moreover, opioid-related deaths in England and Wales rose by 54 per cent, from 1,290 cases in 2012 to 1,989 in 2015, and deaths linked to heroin and/or morphine actually doubled over the period 2012-2015, from 579 to 1,201 cases.

Differences in subregional trends remain significant, however.

The prevalence of opiate use among the population aged 15-64 years continues to be relatively high in the Near and Middle East/South-West Asia (1.4 per cent), Central Asia (0.9 per cent), Europe (0.6 per cent) and North America (0.5 per cent).

Tentative signs of an expansion of the opiate market in Europe

A number of indicators suggest that the long-term downward trend in opiate use (since the late 1990s) may have come to an end. UNODC estimates of the overall prevalence of opiate use in Europe have shown a marginal upward trend since 2010. Such an increase has been reported most notably in Italy, where the rate of problem drug use related to the use of opioids increased from 0.45 per cent of the population aged 15-64 years in 2012 to 0.52 per cent in 2014, and heroin use, reflected in national household surveys, actually doubled between 2008 and 2014, from 0.4 per cent to 0.8 per cent. There was also a slight increase in Czechia, where the prevalence rate of problem drug use related to the use of opiates rose from 0.13 per cent in 2011 to 0.16 per cent in 2014, and in Cyprus, which reported an increase from 0.11 per cent in 2010 to 0.18 per cent in 2014. In the last few years, increases in opiate use have also been reported by Latvia (2014), Liechtenstein (2014), France (2013) and Estonia (2011). However, at present more countries continue to report decreases than increases in opiate use, and the majority of European countries continue to report overall stable levels of opiate use.

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12 Germany, Bundeskriminalamt, “Rauschgiftkriminalität: Bundeslagebild 2015” (Wiesbaden, 2015) (and previous years).
13 United Kingdom, Office for National Statistics, “Deaths...
Significant increases in the number of deaths have also been reported by Portugal and Romania in recent years. In Portugal, the number of drug-related deaths (mostly attributable to opiates) rose from 19 cases in 2011 to 37 cases in 2014, while they increased from 15 to 36 cases over the same period in Romania,\(^{14}\) with opioids responsible for the highest proportion of deaths among all drug groups.

**The opiate market in North America continues to grow**

Heroin use has been increasing for some time in North America, particularly in the United States, as reflected in both national household surveys and in heroin-related deaths. The proportion of heroin-related deaths per 100,000 inhabitants quadrupled between 2010 and 2015, clearly exceeding growth in overall opioid-related deaths, which almost doubled (from 6.8 to 10.4 per 100,000 inhabitants), and all drug-related deaths, which rose by a third over the period 2010-2015 (from 12.9 to 17.2 per 100,000 population).\(^{15}\)

**Africa seems to be experiencing some of the sharpest increases in heroin use**

Information on the prevalence of opiate use in Africa and in Asia is very limited, making it difficult to identify solid trends; data reported in those regions must be interpreted with caution. Based on trend perceptions reported to UNODC by Member States, heroin use in Africa appears to have increased more than in other regions (followed by the Americas) over the period 2000-2015, reflecting the increasing spillover effect of heroin trafficking along the southern route. Increases in the use of opioids (primarily reflecting heroin use) in 2015 in East Africa were reported by Kenya and the United Republic of Tanzania, in Southern Africa by Mozambique, Zambia (and, in 2012, by South Africa), and in West and Central Africa by Nigeria and Côte d’Ivoire.

In Asia, although heroin use is perceived to have declined slightly since 2010, it still seems to be higher now than in 2000. In 2015, declines in heroin use were perceived to have taken place in some countries in Central Asia and Transcaucasia (Kazakhstan, Kyrgyzstan and Uzbekistan), in South-East Asia (China (including Hong Kong, China) and Indonesia) and in the Near and Middle East (Qatar and the Syrian Arab Republic). In a few countries, however, there were perceived increases in heroin use in 2015, mostly linked to the trafficking of Afghan opiates; those countries included Afghanistan, several of its neighbouring States (Iran (Islamic Republic of), Pakistan and Tajikistan) and one Gulf country (United Arab Emirates), all of which are also used as transhipment locations.

Information for India as a whole is not available, but there are indications of an increasing trend in the use of opioids in the Indian State of Punjab, bordering Pakistan. According to a study conducted in 2015, Punjab, which accounts for 2.2 per cent of India’s total population,\(^{16}\) was reported to have around 860,000 users of opioids (0.5 per cent of

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\(^{14}\) UNODC, annual report questionnaire, 2015; EMCDDA, Statistical Bulletin 2016, Data and statistics.

\(^{15}\) For more details, see Booklet 2 of the *World Drug Report 2017*.

the population aged 15-64 years), including 230,000 who were dependent on opioids and nearly 75,000 who injected opioids. The study concluded that the new data for Punjab point to an increase in opioid use since the last national survey in 2001, which estimated that some 500,000 people in India were opioid dependent.17

Heroin use in Oceania declined over the period 2000-2015, in line with reports of declines in heroin use in Australia and New Zealand. Latest annual prevalence data for Australia showed a decline in heroin use, from 0.2 per cent of the population aged 14 years and older (heroin use had been at that level ever since the drastic fall following the heroin drought of 2001) to 0.1 per cent in 2013.18

17 India, Society for Promotion of Youth and Masses, National Drug Dependence Treatment Centre and All India Institute of Medical Sciences, “Punjab opioid dependency survey: estimation of the size of opioid dependent population in Punjab”, brief report (2015).