

Global manufacture of heroin from global illicit opium production, 2005-2016 (tons)

|   | 2005  | 2006  | 2007  | 2008  | 2009  | 2010  | 2011  | 2012  | 2013  | 2014  | 2015  | 2016  |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| <b>Total potential opium production</b>   | 4,620 | 5,810 | 8,091 | 6,841 | 4,953 | 4,730 | 6,983 | 4,831 | 6,810 | 7,723 | 4,771 | 6,376 |
| Potential opium not processed into heroin | 1,169 | 1,786 | 3,078 | 2,360 | 1,680 | 1,728 | 3,400 | 1,850 | 2,600 | 2,450 | 1,360 | 2,080 |
| Potential opium processed into heroin     | 3,451 | 4,024 | 5,012 | 4,481 | 3,273 | 3,002 | 3,583 | 2,981 | 4,210 | 5,273 | 3,411 | 4,296 |
| <b>Total potential heroin manufacture</b> | 472   | 553   | 686   | 600   | 427   | 383   | 467   | 377   | 555   | 542   | 327   | 448   |

The calculation shows the potential amount of heroin that could have been manufactured out of the opium produced in a given year; it does not take into account changes in opium inventories, which may also be used for the manufacture of heroin and which may be important. Afghanistan is the only country for which the proportion of potential opium production not converted into heroin within the country is estimated. For all other countries, for the purposes of this table, it is assumed that all opium produced is converted into heroin. If all of the opium produced in Afghanistan in 2016 had been converted into heroin, total potential heroin manufacture would have amounted to 668 tons at the global level (510 tons in Afghanistan).

The amount of heroin produced in Afghanistan is calculated using two parameters that may change: (a) the distribution between opium that is not processed and opium processed into heroin; and (b) the conversion ratio into heroin. The first parameter is indirectly estimated, based on seizures of opium versus seizures of heroin and morphine reported by Afghanistan and neighbouring countries. For 2016, this calculation results in a proportion of 57 per cent of potential opium production in Afghanistan converted into heroin. For the second parameter, from 2005 to 2013, a conversion ratio of opium to morphine/heroin of 7:1 was used, based on interviews conducted with Afghan morphine/heroin "cooks", on an actual heroin production exercise conducted by two (illiterate) Afghan heroin "cooks", documented by the German Bundeskriminalamt in Afghanistan in 2003 (published in Bulletin on Narcotics, vol. LVII, Nos. 1 and 2, 2005, pp. 11-31) and UNODC studies on the morphine content of Afghan opium (12.3 per cent over the period 2010-2012, down from 15 per cent over the period 2000-2003). Starting from 2014, a different approach to the conversion was adopted, reflecting updated information on morphine content and a different method for taking purity into account. The revised approach uses a ratio of 18.5 kg of opium for 1 kg of 100 per cent pure white heroin hydrochloride (see MCN and UNODC, Afghanistan Opium Survey 2014); based on an estimated export quality of 51 per cent in 2016, this translates into a ratio of 9.5 kg (range: 9-10 kg) of opium for 1 kg of export-quality heroin (for 2016). For more details, see MCN and UNODC, Afghanistan Opium Survey 2016 – Cultivation and Production. For countries other than Afghanistan, a "traditional" conversion ratio of opium to heroin of 10:1 is used. The ratios will be adjusted when improved information becomes available. Figures in italics are preliminary and may be revised when updated information becomes available.