SUPPLY OF OPIATE RAW MATERIALS AND DEMAND FOR OPIATES FOR MEDICAL AND SCIENTIFIC PURPOSES

Introduction

1. The International Narcotics Control Board (INCB), in fulfilment of the functions assigned to it under the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol and the relevant resolutions of the Economic and Social Council and the Commission on Narcotic Drugs, regularly examines issues affecting the supply of and the demand for opiates for licit requirements and endeavours to ensure a standing balance between that supply and demand. The present section contains an analysis of the current situation based on the data provided by Governments.[1]

2. The analysis presented below has been prepared by examining the data on opiate raw materials and on opiates manufactured from those raw materials. In the analysis, raw materials rich in morphine and the opiates derived from them are, in accordance with the methodology adopted by INCB, considered separately from raw materials rich in thebaine and the opiates derived from them. The cultivation of opium poppy rich in codeine is reported separately for two countries in table 1, but in the global calculation of supply and demand it is included in table 2, together with opium poppy rich in morphine, pending the development of a system for the calculation of codeine equivalency. Global supply of opiate raw materials is measured by the levels of stocks and production. Global demand for opiate raw materials is assessed on the basis of data on global utilization of opiate raw materials for the manufacture of all opiates (see para. 23 below). Data concerning global consumption (including global use for preparations in Schedule III of the 1961 Convention as amended) and stocks of opiates are also included. Utilization of controlled opioids for the manufacture of non-controlled drugs is not included in the analysis.

3. The present analysis complements the comments on the reported statistics for individual opiate raw materials obtained from opium poppy (opium, poppy straw and concentrate of poppy straw) and for the opiates obtained from them. Readers are invited to turn to those comments for more in-depth information on long-term developments concerning the individual substances (see part two above). The main focus of the analysis is on the last four years for which statistical data are available (2015–2018). For 2019 and 2020, the data on production are based on advance statistical information and estimates received from the main producing countries,[2] while the data on the demand for opiate raw materials and the opiates derived from them are INCB projections based on past trends, taking into account relevant estimates furnished by Governments.

4. Finally, the trends in global consumption of all opiates and synthetic opioids over the 20-year period 1999–2018 are analysed. This analysis provides a historical perspective on the relative importance of opiates, which are derived from opium poppy, in the global consumption of opioids.

Supply of opiate raw materials

Cultivation of opium poppy for the extraction of alkaloids

5. Table 1 provides information on the area cultivated with opium poppy (*Papaver somniferum*) for the extraction of alkaloids in the main producer countries; data on varieties rich in morphine, thebaine and codeine are listed separately, where applicable. For all types of raw material, the estimated area of cultivation is given for each year that is available. Data on the area sown and the area actually harvested are given for the years for which such data are available. The total area cultivated in 2018 increased significantly for opium poppy rich in morphine and declined slightly for opium poppy rich in thebaine. The slight decline can be attributed to the fall in demand for opiate raw materials owing to a combination of factors, including the opioid crisis in the United States of America.

Morphine

6. The total area cultivated with opium poppy rich in morphine in 2018 decreased to 96,135 ha, compared with 120,658 ha in 2017. Similarly, the area sown in 2018 decreased to 71,352 ha, from 76,043 ha in 2017. However, the actual area harvested in 2018 increased to 60,418 ha, compared with 44,024 ha in 2017. In 2018, the actual area harvested with opium poppy rich in morphine increased in Turkey (by 90 per cent, or 21,392 ha), France

[1]The analysis excludes data on China and the Democratic People's Republic of Korea, which produce opiate raw materials solely for domestic use. It also excludes data on the utilization of seized opium that was released for licit use in the Islamic Republic of Iran and on the demand for opiates derived from such opium.

[2]Those data have been adjusted, as necessary, to reflect industrially recoverable alkaloid content in the raw materials in question.

Table 1. Area cultivated with opium poppy rich in morphine, opium poppy rich in thebaine and opium poppy rich in codeine, 2014–2020

(Estimated area, as confirmed by the International Narcotics Control Board, area sown and area harvested, in hectares)

	2015	*2016*	*2017*	*2018*	*2019[a]*	*2020[b]*
Australia						
Opium poppy rich in morphine						
Estimated area	15 080	11 410	8 160	3 469	*3 904*	*3 420*
Area sown	8 509	8 280	4 027	3 534	*3 280*	..
Actual area harvested	6 947	7 293	3 445	3 205	*3 100*	..
Opium poppy rich in thebaine						
Estimated area	9 700	7 375	4 650	7 577	*4 760*	*4 787*
Area sown	9 867	6 921	4 629	6 673	*4 942[c]*	..
Actual area harvested	9 104	6 073	4 215	6 567	*4 822[c]*	..
Opium poppy rich in codeine						
Estimated area	5 220	662	1 210	2 849	*7 630*	*4 226*
Area sown	5 652	712	1 022	2 936	*4 305*	..
Actual area harvested	4 447	687	960	2 683	*4 255*	..
Opium poppy rich in morphine, thebaine and codeine						
Total estimated area	**30 000**	**19 447**	**14 020**	**13 895**	***16 294***	***12 433***
Total area sown	**24 028**	**15 913**	**9 678**	**13 143**	***12 527***	..
Total actual area harvested	**20 498**	**14 053**	**8 620**	**12 455**	***12 177***	..
France						
Opium poppy rich in morphine						
Estimated area	8 700	5 895	5 490	5 550	*7 600*	*8 750*
Area sown	8 827	7 140	5 014	6 030	*7 935*	..
Actual area harvested	8 450	6 780	4 893	5 628	*7 486*	..
Opium poppy rich in thebaine						
Estimated area	—	945	2 230	2 950	—	—
Area sown	—	1 837	3 378	752	*60*	..
Actual area harvested	—	1 820	3 161	731	*55*	..
Opium poppy rich in codeine						
Estimated area	3 000	3 500	—	—	—	—
Area sown	2 994	1 113	—	..	..	..
Actual area harvested	2 827	875	—	..	..	..
Opium poppy rich in morphine, thebaine and codeine						
Total estimated area	**11 700**	**10 340**	**7 720**	**8 500**	***7 600***	***8 750***
Total area sown	**11 821**	**10 090**	**8 392**	**6 783**	***7 995***	..
Total actual area harvested	**11 277**	**9 475**	**8 054**	**6 359**	***7 541***	..
Hungary						
Opium poppy rich in morphine						
Estimated area	11 000	7 300	13 800	6 800	*20 100*	*12 010*
Area sown	6 085	5 500	2 451	2 482	*3 780*	..
Actual area harvested	5 302	3 520	2 003	514	*3 110*	..
Opium poppy rich in thebaine						
Estimated area	2 500	2 500	400	220	..	..
Area sown	24	20	20	—	..	..
Actual area harvested	24	20	20	—	..	..

Table 1. (*continued*)

	2015	2016	2017	2018	2019[a]	2020[b]
Opium poppy rich in morphine and thebaine						
Total estimated area	**13 500**	**9 800**	**14 200**	**7 020**	***20 100***	***12 010***
Total area sown	**6 109**	**5 520**	**2 471**	**2 482**	***3 780***	..
Total actual area harvested	**5 326**	**3 540**	**2 023**	**514**	***3 110***	..
India						
Opium poppy rich in morphine						
Total estimated area	**16 000**	**6 900**	**10 900**	**5 134**	***6 500***	***4 500***
Total area sown	**6 172**	**6 639**	**9 704**	**5 740**	***6 843***	..
Total actual area harvested	**5 422**	**557**	**8 721**	**4 710**	***6 107***	..
Spain						
Opium poppy rich in morphine						
Estimated area	9 790	10 020	9 108	5 182	*1 238*	*9 441*
Area sown	2 867	5 694	1 231	1 238	*8 578*	..
Actual area harvested	2 867	5 694	1 231	1 238	*8 578*	..
Opium poppy rich in thebaine						
Estimated area	4 551	5 980	4 796	2 980	*2 423*	*62*
Area sown	4 518	3 811	2 423	2 457	*62*[c]	..
Actual area harvested	4 518	3 811	2 423	2 457	*62*[c]	..
Opium poppy rich in codeine						
Estimated area	..	..	..	..	*2 001*	*863*
Area sown	..	..	2 001	1 990	*863*	..
Actual area harvested	..	..	2 001	1 990	*863*	..
Opium poppy rich in morphine, thebaine and codeine						
Total estimated area	**14 341**	**16 000**	**13 904**	**8 162**	***5 662***	***9 503***
Total area sown	**7 385**	**9 505**	**5 655**	**5 685**	***9 503***	..
Total actual area harvested	**7 385**	**9 505**	**5 655**	**5 685**	***9 503***	..
Turkey						
Opium poppy rich in morphine						
Total estimated area[d]	**70 000**	**70 000**	**73 200**	**70 000**	***70 000***	***70 000***
Total area sown	**66 912**	**52 101**	**53 616**	**52 329**	***64 423***	..
Total actual area harvested	**61 591**	**29 921**	**23 731**	**45 123**	***56 511***	..

Note: A field shaded in red signifies that the corresponding total estimated area for opium poppy rich in morphine, thebaine and codeine has been exceeded. Figures not based on official reports (form B and form C) are in italics. A dash (—) indicates that the amount is nil; and two dots (..) indicate that data are not available.

[a]Figures for area sown and actual area harvested in 2019 are based on advance data submitted by Governments to the International Narcotics Control Board.

[b]Figures for 2020 are based on estimates submitted by Governments to the Board.

[c]Area cultivated with opium poppy rich in thebaine includes area cultivated with opium poppy rich in oripavine.

[d]Estimate referring to the maximum area available for cultivation.

(by 15 per cent, or 735 ha) and Spain (by 1 per cent, or 7 ha) and decreased in Hungary (by 74 per cent, or 1,489 ha), India (by 46 per cent, or 4,011 ha) and Australia (by 7 per cent, or 240 ha). India is the only opium-producing country included in the present analysis.

7. According to data-based projections for 2019, the total area to be harvested for opium poppy rich in morphine in major producing countries is expected to increase by 37 per cent, compared with the figure for 2018. That increase can be attributed to an expected increase of the harvested area in all major producing countries except Australia. In 2020, the area under cultivation with opium poppy rich in morphine is expected to decrease by about 8 per cent compared with the figure for 2019.

Thebaine

8. The total estimated area to be cultivated with opium poppy rich in thebaine in major producing countries showed

a declining trend during the period 2015–2017. In 2018, however, the total estimated area to be cultivated increased to 13,727 ha, compared with 12,076 ha in 2017. In 2018, the area sown and the actual area harvested both decreased, by 5 per cent and by 1 per cent, respectively, compared with 2017. The actual harvested area of opium poppy rich in thebaine decreased by 77.0 per cent in France but increased by 56.0 per cent in Australia and 1.4 per cent in Spain. Hungary stopped cultivating this variety of opium poppy in 2018.

9. The total area of opium poppy rich in thebaine estimated to be harvested in 2019 is expected to decrease compared with the figure for the previous year based on advanced data submitted by major producing countries. The area harvested is expected to decrease by 97 per cent in Spain, 92 per cent in France and 27 per cent in Australia. In general, the total area of opium poppy rich in thebaine to be harvested in 2019 will decrease by 49 per cent compared with the total for 2018. The estimated area cultivated with opium poppy rich in thebaine is expected to decrease by 33 per cent in 2020 compared with the previous year. Australia and Spain are the only countries planning to cultivate thebaine-rich opium poppy plants in 2020.

Codeine

10. The total actual area of opium poppy rich in codeine harvested in 2018 increased by 58 per cent. Australia and Spain were the only countries that produced this variety of opium poppy in 2018. France, which had been one of the main producers of opium poppy rich in codeine, discontinued cultivating this variety of opium poppy in 2017, the year in which Spain started to cultivate it. The area cultivated with opium poppy rich in codeine increased substantially, from 960 ha in 2017 to 2,683 ha in 2018, in Australia and declined slightly, from 2,001 ha in 2017 to 1,990 ha in 2018, in Spain. In 2019, Australia is expected to continue to increase considerably the area harvested for this variety of opium poppy, to 4,255 ha (compared with 2,683 ha in 2018); and in Spain the area harvested is expected to decrease by half. According to data-based projections, in Australia the estimated area under cultivation with codeine-rich opium poppy is expected to decline significantly, from 7,630 ha in 2019 to 4,226 in 2020. In Spain, the estimated area under cultivation with opium poppy rich in codeine is expected to decrease by more than one half in 2020 compared with 2019.

Oripavine

11. Australia and Spain have reported in 2019 the estimated area under cultivation with opium poppy rich in oripavine[3] to be 1,440 and 846 ha, respectively. According to projections, in Spain the area under cultivation with opium poppy rich in oripavine is expected to be only 62 ha in 2020.

Noscapine

12. Even though noscapine is not under international control, a significant amount of morphine can be extracted from opium poppy rich in noscapine. Cultivation of noscapine-rich opium poppy plants for the purpose of opiate production was reported by France in 2018. France harvested 2,053 ha of noscapine-rich opium poppy in 2018 and produced noscapine-rich poppy straw with a gross weight of 1,173 tons. According to advance data for 2019, Australia and France are expected to harvest 678 and 1,974 ha, respectively, of noscapine-rich opium poppy and produce noscapine-rich poppy straw with a gross weight of 1,403 tons. France estimated that it will cultivate 2,250 ha with opium poppy rich in noscapine in 2020.

Production of opiate raw materials

13. Tables 2 and 3 provide an overview of global production of and demand for morphine-rich and thebaine-rich opiate raw materials, respectively, for the period 2015–2020. As in previous years, the actual production of opiate raw materials in 2019 and 2020 may differ considerably from the estimates, depending on weather and other factors.

Morphine

14. Global production of morphine-rich opiate raw materials in the main producing countries increased to 304 tons[4] in morphine equivalent in 2018, from 282 tons in 2017 (see table 2). Turkey became the largest producer in 2018 (102 tons); it was followed by Australia (88 tons), France (42 tons), Spain (37 tons) and India (25 tons). In 2018, production of morphine-rich opiate raw materials declined significantly in India (by 48 per cent), France (33 per cent) and Hungary (33 per cent) and increased noticeably in Turkey (by 85 per cent), Spain (61 per cent) and Australia (31 per cent). Australia and Turkey accounted for 63 per cent of global production in 2018.

15. Global production of opiate raw materials rich in morphine is expected to rise in 2019, to about 594 tons in morphine equivalent. However, actual production has a history of being less than estimated. Production of poppy straw rich in morphine is expected to amount to 561 tons (accounting

[3] The area harvested and the estimated area for opium poppy rich in oripavine are reflected under opium poppy rich in thebaine in table 1.

[4] The analysis is based predominantly on raw materials obtained from opium poppy rich in morphine but includes the morphine alkaloid contained in opium poppy rich in thebaine and in opium poppy rich in codeine whenever appropriate.

Table 2. Opiate raw materials rich in morphine: production, demand, balance between the two[a] and stocks, in tons of morphine equivalent, 2015-2020

	2015	*2016*	*2017*	*2018*	*2019[b]*	*2020[c]*
Australia						
Production	152	180	67	88	*175*	*201*
France						
Production	168	91	63	42	*101*	*109*
Hungary						
Production	22	9	3	2	*25*	*60*
India						
Production	37	3	48	25	*33*	*23*
Spain						
Production	33	56	23	37	*174*	*174*
Turkey						
Production	98	63	55	102	*80*	*96*
Other countries						
Production	*76*	*61*	*23*	*8*	*6*	*7*
(1) Total production	**586**	**463**	**282**	**304**	***594***	***670***
Demand for						
Opium	30	16	12	20	*36*[d]	*38*[d]
Poppy straw and concentrate of poppy straw	407	351	327	319	*333*[d]	*365*[d]
(2) Total demand for opiate raw materials	**437**	**367**	**339**	**339**	***369***[d]	***403***[d]
(3) Total demand for opiates for medical and scientific purposes[e]	**410**	**388**	**325**	**306**	***312***[d]	***322***[d]
Balance, (1) minus (2)	**149**	**96**	**-57**	**-33**	***228***[d]	***270***[d]
Balance, (1) minus (3)	**176**	**75**	**-43**	**-2**	***282***[d]	***348***[d]
Stocks of						
Opium	77	43	79	71	. .	. .
Poppy straw	484	523	314	250	. .	. .
Concentrate of poppy straw	185	181	257	243	. .	. .
Total stocks of opiate raw materials	**746**	**747**	**650**	**564**	***792***	***1 062***
Total stocks of all opiates	**558**	**534**	**517**	**484**	. .	. .

Note: Two dots (. .) indicate that data are not available.

[a]For more information about the balance between supply (stocks and production) of and demand for opiate raw materials rich in morphine, see part three, para. 28, of the present publication.

[b]Figures for 2019 are based on advance data submitted by Governments to the International Narcotics Control Board.

[c]Figures for 2020 are based on estimates submitted by Governments to the Board.

[d]Estimated by the secretariat of the Board.

[e]Excluding demand for substances not covered by the Single Convention on Narcotic Drugs of 1961, as amended by the 1972 Protocol.

for 94 per cent of global production) and production of opium is expected to amount to 33 tons (or 6 per cent). The main producers in 2019 are expected to be Australia (accounting for 29.5 per cent of global production), followed by Spain (29.3 per cent), France (17.0 per cent) and Turkey (13.5 per cent). Those four countries together are expected to account for about 89 per cent of global production of opiate raw materials rich in morphine in 2019.

16. According to information submitted by the Governments of the main producing countries on form B for 2020, it is estimated that global production of opiate raw materials rich in morphine will increase to 670 tons in morphine equivalent in 2020, mainly as a result of the increase in the estimates for Australia, France, Hungary and Spain. Projections for 2020 are likely to be adjusted considerably downward when the actual data become available.

Table 3. Opiate raw materials rich in thebaine: production, demand, balance between the two[a] and stocks, in tons of thebaine equivalent, 2015-2020

	2015	2016	2017	2018	2019[b]	2020[c]
Australia						
Production	172	147	187	207	*115*	*122*
France						
Production	6	5	18	8	*1*	—
Hungary						
Production	—	—	—	—	*1*	*4*
Spain						
Production	33	34	18	9	*5*	*5*
India						
Thebaine extracted from opium	4	—	5	5	*3*	*2*
Other countries						
Thebaine extracted from poppy straw (M)	1	1	1	1	*1*	*1*
(1) Total production	**216**	**187**	**229**	**230**	***126***	***134***
Demand for						
Opium	3	2	1	2	*3*[d]	*3*[d]
Poppy straw and concentrate of poppy straw	180	208	189	144	*153*[d]	*166*[d]
(2) Total demand for opiate raw materials	**183**	**210**	**190**	**144**	***156***[d]	***169***[d]
(3) Total demand for opiates for medical and scientific purposes[e]	**151**	**133**	**104**	**97**	***96***[d]	***95***[d]
Balance, (1) minus (2)	**33**	**-23**	**39**	**86**	***-30***[d]	***-35***[d]
Balance, (1) minus (3)	**65**	**54**	**125**	**133**	***30***[d]	***39***[d]
Stocks						
Opium	8	4	8	7	. .	. .
Poppy straw	112	89	111	145	. .	. .
Concentrate of poppy straw	154	131	125	83	. .	. .
Total stocks of opiate raw materials	**274**	**224**	**244**	**235**	***205***	***170***
Total stocks of all opiates	**241**	**242**	**269**	**248**	. .	. .

Note: Two dots (. .) indicate that data are not available.

[a]For more information about the balance between supply (stocks and production) of and demand for opiate raw materials rich in thebaine, see part three, para. 29, of the present publication.

[b]Figures for 2019 are based on advance data submitted by Governments to the International Narcotics Control Board.

[c]Figures for 2020 are based on estimates submitted by Governments to the Board.

[d]Estimated by the secretariat of the Board.

[e]Excluding demand for substances not covered by the Single Convention on Narcotic Drugs of 1961, as amended by the 1972 Protocol.

Thebaine

17. In 2018, global production of opiate raw materials rich in thebaine amounted to 230 tons[5] in thebaine equivalent (see table 3). Australia accounted for about 90 per cent of global production of those opiate raw materials, Spain accounted for 3.9 per cent, France accounted for about 3.5 per cent, and India and other countries accounted for the remaining 2.6 per cent. Production in 2018 was comparable to the level in 2017. Australia was the only major producer of opium poppy rich in thebaine that reported an increase in production in 2018, to 207 tons (compared with 187 tons in 2017). In 2018, France and Spain reported that production had decreased, by 56 per cent and 50 per cent, respectively, while India produced the same quantity as in 2017 (5 tons).

18. Global production of opiate raw materials rich in thebaine is expected to decline significantly to about 126 tons

[5]The analysis is based predominantly on raw materials obtained from opium poppy rich in thebaine but includes the thebaine alkaloid contained in opium poppy rich in morphine whenever appropriate.

in thebaine equivalent in 2019 as a result of a significant decline in the estimated area of cultivation in all countries producing opium poppy rich in thebaine. Production in 2019 is expected to decline in France by 88 per cent (or 7 ha), in Australia by 44 per cent (or 92 ha), in Spain by 44 per cent (or 4 ha) and in India by 40 per cent (or 2 ha). Australia is expected to continue to account for the largest share (91 per cent, or 115 tons) of global production. Production of thebaine-rich opiate raw materials in 2020 is expected to increase to 134 tons.

Global stocks of opiate raw materials and of opiates derived from them

Morphine

19. As shown in table 2, stocks of opiate raw materials rich in morphine (poppy straw, concentrate of poppy straw and opium) amounted to about 564 tons in morphine equivalent at the end of 2018, decreasing by 13 per cent from 650 tons in 2017. Those stocks were considered to be sufficient to cover for 18 months the expected needs of manufacturers worldwide at the 2019 level of demand. In 2018, Turkey was the country with the largest stocks of opiate raw materials (154 tons); it was followed by Spain (78 tons), France (73 tons), India (58 tons, all in the form of opium), Australia (57 tons), the United Kingdom of Great Britain and Northern Ireland (54 tons), the United States (43 tons), Slovakia (21 tons), Japan (18 tons) and Belgium (7 tons). Those 10 countries together accounted for 99.8 per cent of global stocks of opiate raw materials rich in morphine. The remaining stocks were held in other producing countries and in countries importing opiate raw materials.

20. At the end of 2018, global stocks of opiates of morphine-based opiate raw materials, mainly in the form of codeine and morphine, amounted to 484 tons in morphine equivalent and were sufficient to cover global demand for those opiates for about 19 months. Based on data reported by Governments, total stocks of opiates and opiate raw materials are fully sufficient to cover demand for medical and scientific purposes for morphine-based opiates for more than a year.

Thebaine

21. Stocks of opiate raw materials rich in thebaine (poppy straw, concentrate of poppy straw and opium) decreased to 235 tons in thebaine equivalent at the end of 2018, from 244 tons at the end of 2017. Those stocks were considered to be sufficient to cover for about 18 months the expected need of manufacturers worldwide at the 2019 level of demand (see table 3). Australia held the largest stocks of opiate raw materials rich in thebaine (128 tons); it was followed by the United States (54 tons), France (27 tons), Spain (17 tons) and India (6 tons). The stocks of opiate raw materials rich in thebaine in these five countries accounted for about 99 per cent of global stocks in 2018, while countries with lower production levels and countries importing those opiate raw materials held the remaining stocks.

22. Global stocks of thebaine-based opiate raw materials (oxycodone, thebaine and a small quantity of oxymorphone) decreased to 248 tons in thebaine equivalent at the end of 2018, from 269 tons in 2017. Those stocks were sufficient to cover global demand for thebaine-based opiates for medical and scientific purposes for more than two years.

Demand for opiates

23. As described below, INCB measures demand for opiates in two ways: *(a)* in terms of the utilization of opiate raw materials, in order to reflect the demand by manufacturers; and *(b)* in terms of global consumption for medical and scientific purposes of all opiates controlled under the 1961 Convention as amended.[6]

Demand for opiate raw materials by manufacturers measured as utilization of raw materials

24. Global demand for opiate raw materials rich in morphine (in particular opium) has been decreasing since 2014. In 2018, it was 339 tons in morphine equivalent, similar to the level in 2017. However, it is expected to increase again, to 369 tons in morphine equivalent in 2019 and to 403 tons in morphine equivalent in 2020.

25. Global demand by manufacturers for opiate raw materials rich in thebaine has followed a decreasing trend since 2016. In 2018, the demand decreased to 144 tons in thebaine equivalent, from 190 tons in 2017. However, it is expected to increase in 2019, to 156 tons in thebaine equivalent, and in 2020, to 169 tons in thebaine equivalent.

[6]Prior to 2003, INCB measured the global demand only by global consumption of major opiates controlled under the 1961 Convention as amended by the 1972 Protocol, expressed in morphine equivalent. However, by using that approximation, the following were excluded: *(a)* demand for less commonly used narcotic drugs; *(b)* demand for substances that are not controlled under the 1961 Convention as amended but are manufactured from opiate raw materials and for the consumption of which data are not available to INCB; and *(c)* fluctuations in the utilization of raw materials due to developments in the market anticipated by the manufacturers, such as expectations of sales of opiates, expected changes in prices of raw materials or opiates and so on.

Figure I. Consumption of morphine and opiates derived from morphine, in morphine equivalent, 2015–2018

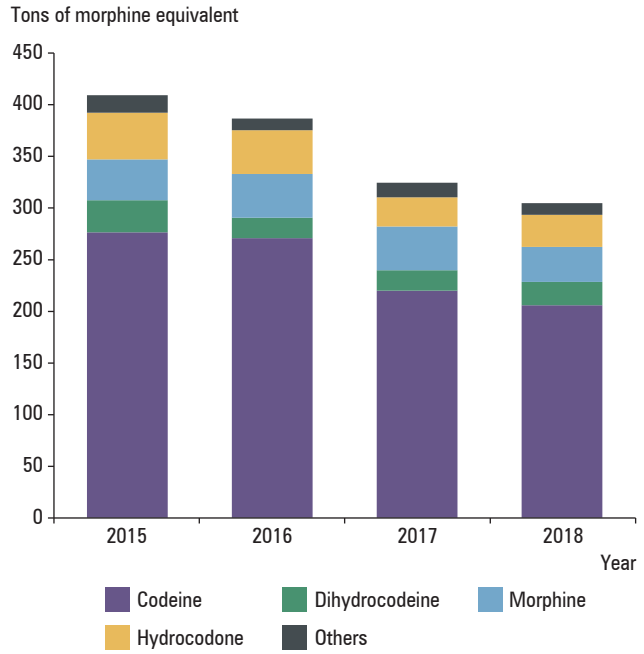
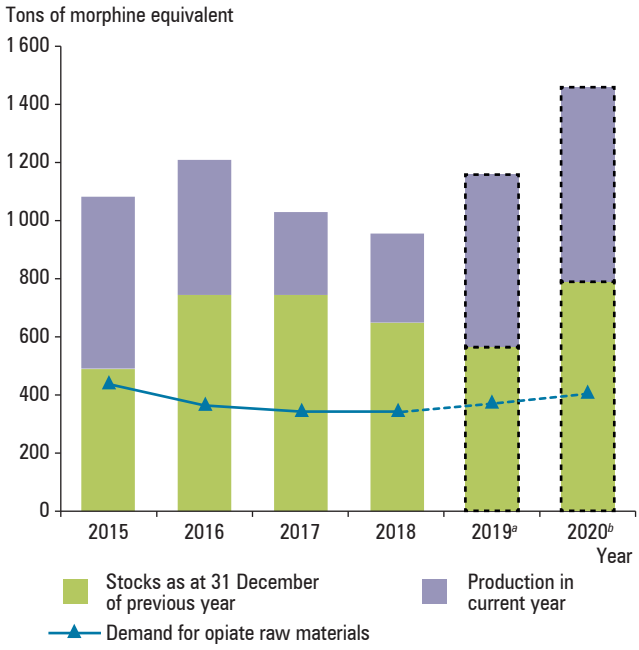


Figure II. Supply of and demand for opiate raw materials rich in morphine, in morphine equivalent, 2015–2020



[a]Data for production and demand for 2019 are based on advance data (*dotted line*) submitted by Governments.

[b]Data for 2020 are based on estimates (*dotted line*) submitted by Governments.

Demand for opiates measured as consumption

26. Figure I presents a breakdown of the demand in terms of consumption of morphine-based opiates, expressed in morphine equivalent, for the main narcotic drugs. Codeine and hydrocodone are the most consumed opiates manufactured from morphine. Global demand for morphine-based opiates decreased to 306 tons in morphine equivalent in 2018, from 325 tons in 2017.

27. Demand for thebaine-based opiates is concentrated mainly in the United States and increased sharply after the late 1990s. However, in 2013, the demand started to decline owing to a decrease in demand in the United States. Global demand for thebaine-based opiates decreased from 151 tons in 2015 to 97 tons in 2018. And it is expected to decrease slightly, to 96 tons in 2019 and 95 tons in 2020, as the consumption of such opiates continues to decrease in the United States and at the global level.

Balance between the supply of and demand for opiate raw materials

Morphine

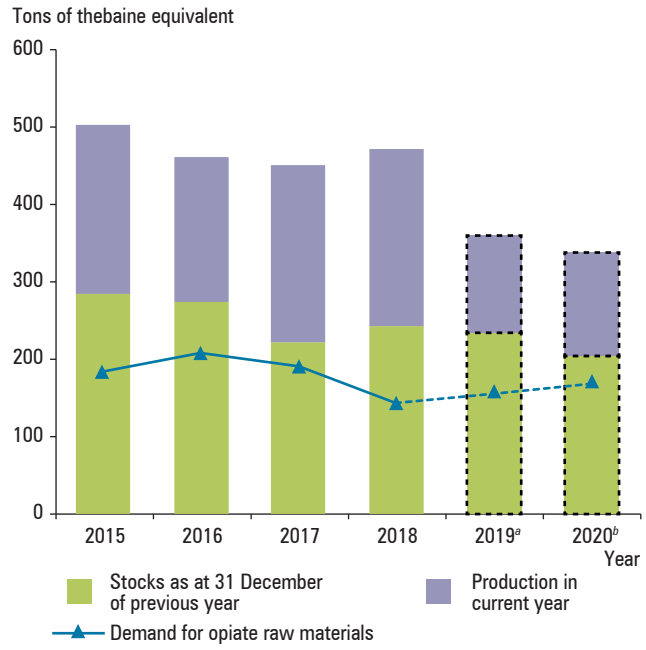
28. In the period 2009–2016, global production of opiate raw materials rich in morphine exceeded global demand. As a result, stocks increased during that period, with some fluctuations. In 2017, however, global production started to be lower than global demand, which led to a declining trend in global stocks. Global stocks at the end of 2018 amounted to 564 tons in morphine equivalent, a level sufficient to cover for about 18 months the expected global demand in 2019 (see figure II).[7] In 2019, global production of opiate raw materials rich in morphine is expected to increase significantly, which might result in an increase of global stocks. The estimated global stocks at the end of 2019 (792 tons) will be sufficient to cover for about 24 months the expected global demand in 2020. For 2020, producing countries have indicated that they plan to further increase production considerably, while demand is expected to increase at a much lower rate than in the previous year. In conjunction with this, stocks are expected to reach about 1,062 tons at the end of 2020, a level considered to be sufficient to cover the expected global demand for more than two years. The global supply of opiate raw materials rich in morphine (stocks and production) will continue to be fully sufficient to cover global demand for more than a year.

Thebaine

29. In 2018, global production of opiate raw materials rich in thebaine amounted to 230 tons in thebaine

[7]Because of a change in format, figures II and III are not directly comparable with the figures that appeared as figures II and III in editions of this technical publication before 2008.

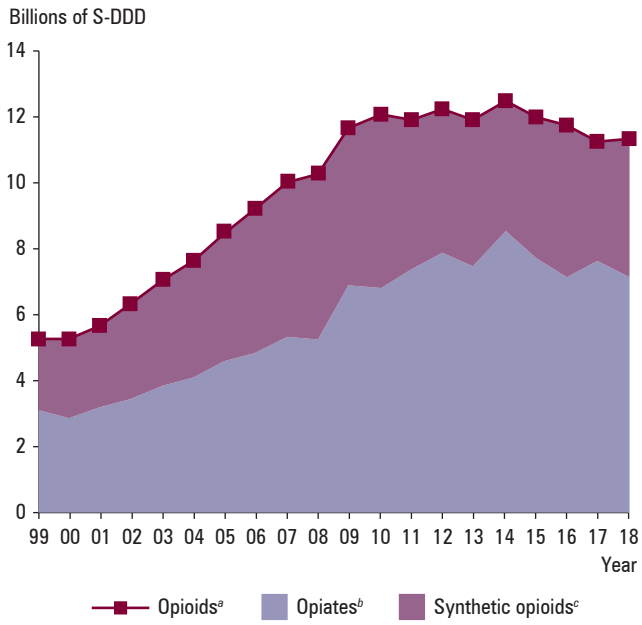
Figure III. Supply of and demand for opiate raw materials rich in thebaine, in thebaine equivalent, 2015–2020



[a]Data for production and demand for 2019 are based on advance data (*dotted line*) submitted by Governments.

[b]Data for 2020 are based on estimates (*dotted line*) submitted by Governments.

Figure IV. Global consumption of opioids,[a] expressed in billions of defined daily doses for statistical purposes (S-DDD), 1999–2018



[a]Opioids: opiates and synthetic opioids.

[b]Including buprenorphine, an opiate controlled under the Convention on Psychotropic Substances of 1971.

[c]Including pentazocine, a synthetic opioid controlled under the 1971 Convention.

equivalent, which was comparable to the level in 2017 (229 tons). Demand for opiate raw materials rich in thebaine, however, continued to decline in 2018, when it reached 144 tons, compared with 190 tons in 2017. This decline in demand should have led to an increase in the level of stocks held at the end of 2018. However, according to the data submitted by Governments, the level of global stocks decreased to 235 tons in 2018 (from 244 tons in 2017). Those stocks were sufficient to meet global demand for 18 months (see figure III). Global production is expected to decrease almost by half, to 126 tons, in 2019 (from 230 tons in 2018). By the end of 2019, global stocks of opiate raw materials rich in thebaine are likely to reach 205 tons, a level sufficient to cover global demand for about 15 months. In 2020, production is expected to increase slightly based on the estimates provided by Governments. Demand for opiate raw materials rich in thebaine is also expected to increase, reaching a level greater than production; as a result, stocks are expected to decrease to 170 tons at the end of 2020. Those stocks at the end of 2020 are sufficient to cover global demand for about one year. The global supply of opiate raw materials rich in thebaine (stocks and production) will be more than sufficient to cover global demand in 2019 and 2020.

Trends in consumption levels of opioids

30. The global consumption levels of opiates and synthetic opioids over the 20-year period 1999–2018 are presented in figure IV. The figure reflects data on opioids, including buprenorphine and pentazocine, which are opioids controlled under the Convention on Psychotropic Substances of 1971.[8] To allow the aggregation of consumption data for substances having different potencies, the consumption levels are expressed in billions of defined daily doses for statistical purposes.[9]

31. Over the past 20 years, global consumption of opioids has more than doubled. The share of consumption of opiates to the total consumption of opioids fluctuated between 51 per cent in 2008 (the lowest share) to 68 per cent in 2014 (the highest share). In 2018, the share of opiates decreased to 63 per cent, compared with 67 per cent in 2017. This indicates that the use of synthetic opioids, which are used for the same indications as opiates, increased in 2018. The overall trend indicates that the demand for opiates might increase in the future, but it is not clear if their share of the total consumption of opioids will increase or decrease in relation to the consumption of synthetic opioids.

[8]United Nations, *Treaty Series*, vol. 1019, No. 14956.

[9]See the explanatory notes to tables XIV.1.a-i, XIV.2 and XIV.3 for an explanation of defined daily doses for statistical purposes and for the method used to calculate those consumption levels; see also table XIV.3 for further details on developments in consumption levels.