

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 currently reported separately for two countries in table 1, but in the calculation of global 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 (2016–2019). For 2020 and 2021, 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 2000–2019 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 for which it is available. Data on the area sown and the area actually harvested are given for the years for which such data are available. In 2019, there was an increase in the total area cultivated with opium poppy rich in morphine, and the area cultivated with opium poppy rich in thebaine fell almost by half.

Morphine

6. In 2019, the area sown with opium poppy rich in morphine increased by 35 per cent from 2018, rising from 73,202 ha in 2018 to 98,794 ha in 2019. The total area of opium poppy rich in morphine sown in major producing countries was 84 per cent of the total estimated area, which was 117,932 ha. In France, India and Spain, the total area sown was larger than the estimated area. The total actual area harvested by all countries in 2019 increased as well, rising to 86,982 ha from 62,022 ha in 2018, with the most significant increases reported by Spain (an increase of as much as 589 per cent, or 7,290 ha, going from 1,238 ha in

¹The 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.

²Those 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, 2016–2021

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

	2016	2017	2018	2019	2020 ^a	2021 ^b
Australia						
Opium poppy rich in morphine						
Estimated area	11 410	8 160	3 469	3 904	5 766	3 083
Area sown	8 280	4 027	3 534	3 280	2 665	n/a
Actual area harvested	7 293	3 445	3 205	1 750 ^c	2 585	n/a
Opium poppy rich in thebaine						
Estimated area	7 375	4 650	7 577	4 760	10 529 ^d	5 993
Area sown	6 921	4 629	6 673	4 942	8 141 ^d	n/a
Actual area harvested	6 073	4 215	6 567	3 400 ^c	8 026 ^d	n/a
Opium poppy rich in codeine						
Estimated area	662	1 210	2 849	7 630	6 040	2 440
Area sown	712	1 022	2 936	4 305	3 592	n/a
Actual area harvested	687	960	2 683	2 300 ^c	3 448	n/a
Opium poppy rich in morphine, thebaine and codeine						
Total estimated area	19 447	14 020	13 895	16 294	22 335	11 516
Total area sown	15 913	9 678	13 143	12 527	14 398	n/a
Total actual area harvested	14 053	8 620	12 455	7 450	14 059	n/a
France						
Opium poppy rich in morphine						
Estimated area	5 895	5 490	5 550	7 600	8 750 ^e	8 564 ^e
Area sown	7 140	5 014	6 030	7 935	8 565 ^e	n/a
Actual area harvested	6 780	4 893	5 628	7 486	7 345 ^e	n/a
Opium poppy rich in thebaine						
Estimated area	945	2 230	2 950	—	—	94
Area sown	1 837	3 378	752	60	94	n/a
Actual area harvested	1 820	3 161	731	55	92	n/a
Opium poppy rich in codeine						
Estimated area	3 500	—	—	—	—	—
Area sown	1 113	—	—	—	—	—
Actual area harvested	875	—	—	—	—	—
Opium poppy rich in morphine, thebaine and codeine						
Total estimated area	10 340	7 720	8 500	7 600	8 750	8 658
Total area sown	10 090	8 392	6 783	7 995	n/a	n/a
Total actual area harvested	9 475	8 054	6 359	7 541	n/a	n/a
Hungary						
Opium poppy rich in morphine						
Estimated area	7 300	13 800	6 800	20 100	11 005	6 000
Area sown	5 500	2 451	2 482	3 780	2 221	n/a
Actual area harvested	3 520 ^e	2 003 ^e	514	3 110	1 365	n/a
Opium poppy rich in thebaine						
Estimated area	2 500	400	220	—	—	—
Area sown	20	20	—	—	2	n/a
Actual area harvested	20	20	—	—	—	n/a

Table 1. (continued)

	2016	2017	2018	2019	2020 ^a	2021 ^b
Opium poppy rich in morphine and thebaine						
Total estimated area	9 800	14 200	7 020	20 100	11 005	6 000
Total area sown	5 520	2 471	2 482	3 780	2 223	n/a
Total actual area harvested	3 540	2 023	514	3 100	n/a	n/a
India						
Opium poppy rich in morphine						
Total estimated area	6 900	10 900	5 134	6 500	4 959	6 000
Total area sown	6 639	9 704	5 740	6 948	4 799	n/a
Total actual area harvested	557	8 721	4 710	6 107	4 308	n/a
Slovakia						
Opium poppy rich in morphine						
Total estimated area	1 300	2 500	1 500	2 000	3 483	6 000
Total area sown	2 210	2 080	1 850	3 900	3 297	n/a
Total actual area harvested	1 928	1 790	1 604	3 500	3 023	n/a
Spain						
Opium poppy rich in morphine						
Estimated area	10 020	9 108	5 182	7 828	9 441	4 179 ^d
Area sown	5 694	1 231	1 238	8 528	4 179	n/a
Actual area harvested	5 694	1 231	1 238	8 528	4 179	n/a
Opium poppy rich in thebaine						
Estimated area	5 980	4 796	2 980	2 423	4 289 ^d	4 211 ^d
Area sown	3 811	2 423	2 457	61	4 210 ^d	n/a
Actual area harvested	3 811	2 423	2 457	61	4 210 ^d	n/a
Opium poppy rich in codeine						
Estimated area	—	2 001	863	2 528
Area sown	—	2 001	1 990	863	2 532	n/a
Actual area harvested	—	2 001	1 990	863	2 532	n/a
Opium poppy rich in morphine, thebaine and codeine						
Total estimated area	16 000	13 904	8 162	12 252	13 730	10 918
Total area sown	9 505	5 655	5 685	9 514	10 921	n/a
Total actual area harvested	9 505	5 655	5 685	9 452	10 921	n/a
Turkey						
Opium poppy rich in morphine						
Total estimated area	70 000	73 200	70 000	70 000	70 000	52 100
Total area sown	52 101	53 616	52 329	64 423	44 629	n/a
Total actual area harvested	29 921	23 731	45 123	56 511	35 249	n/a

Note: A field shaded in red signifies that a given total estimated area has been exceeded. Figures in italics reflect advance data and projected data. A dash (—) indicates that the amount is nil. Two dots (..) signify that statistical data were furnished but estimates were not submitted for the item in question. The annotation "n/a" indicates that data are not yet available.

^aFigures for area sown and actual area harvested in 2020 are based on advance data submitted by Governments to the International Narcotics Control Board.

^bFigures for 2021 are based on estimates (form B) submitted by Governments to the Board.

^cThis figure was calculated by INCB using available data series. It is being followed up with the Government.

^dThe area cultivated with opium poppy rich in thebaine includes the area cultivated with opium poppy rich in oripavine.

^eThe area cultivated with opium poppy rich in morphine includes the area cultivated with opium poppy rich in noscapine.

2018 to 8,528 in 2019) and Hungary (an increase of as much as 505 per cent, or 2,586 ha, going from 514 ha in 2018 to 3,100 ha in 2019). The actual area harvested also increased in Slovakia (increase of 118 per cent, or 1,896 ha, going from 1,604 ha in 2018 to 3,500 ha in 2019), India (increase of 46 per cent, or 1,397 ha, going from 4,710 ha

in 2018 to 6,107 ha in 2019), France (increase of 33 per cent, or 1,858 ha, going from 5,628 ha in 2018 to 7,486 ha in 2019) and Turkey (increase of 25 per cent, 11,388 ha, going from 45,123 ha in 2018 to 56,511 ha in 2019), but decreased significantly in Australia (by 45 per cent, or 1,455 ha, declining from 3,205 in 2018 to 1,750 ha in 2019).

7. According to data-based projections for 2020, the total area to be sown with opium poppy rich in morphine in major producing countries is expected to decrease by 29 per cent compared with the figure for 2019. That decrease can be attributed to an expected decrease in the area sown in all major producing countries except France. In 2021, the estimated area under cultivation with opium poppy rich in morphine is expected to decrease by about 24 per cent compared with the estimated figure for 2020.

Thebaine

8. In 2019, the area sown with opium poppy rich in thebaine in major producing countries nearly halved compared with 2018, falling from 9,822 ha to 5,002 ha. The total area sown with opium poppy rich in thebaine was 70 per cent of the total estimated area, which was 7,183 ha. The total area sown was larger than the estimated area in Australia. The total actual harvested area in major producing countries more than halved, going from 9,755 ha in 2018 down to 3,455 ha in 2019. The actual harvested area decreased by 92 per cent in France and by 48 per cent in Australia. Hungary and Spain did not report cultivating this variety of opium poppy in 2019.

9. According to data-based projections for 2020, the total area to be sown with opium poppy rich in thebaine in major producing countries is expected to be more than double the area of 2019, rising to 12,353 ha, based on advance data submitted by major producing countries. The area sown is expected to increase by 65 per cent in Australia, from 4,942 in 2019 to 8,141 in 2020, and by 57 per cent in France, from 60 ha in 2019 to 94 ha in 2020. Australia also submitted an estimated cultivation area for 2021 of 5,993 ha. France expects that in 2021 the area sown with this variety will be the same as in 2020, which is 94 ha. In 2019, Spain did not cultivate any opium poppy rich in thebaine, but only cultivated 61 ha of opium poppy rich in oripavine. In 2020, Spain is expected to increase significantly the total area cultivated for these two varieties to 4,210 ha, of which 2,695 ha will be sown with opium poppy rich in thebaine and 1,515 ha with opium poppy rich in oripavine. The total area of cultivation expected for 2021 is almost identical, an estimated 4,211 ha, of which 4,149 ha will be cultivated with thebaine-rich opium poppy, and only 62 ha will be cultivated with oripavine-rich opium poppy.

Codeine

10. In 2019, the total area sown with opium poppy rich in codeine grew by 5 per cent, and the total actual area harvested decreased by 32 per cent. Australia and Spain were the only countries that produced this variety of opium poppy in 2019. 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 in Australia decreased slightly from 2,683 ha in 2018 to 2,300 ha in 2019, but in Spain decreased by more than half, from 1,990 ha in 2018 to 863 ha in 2019. In Australia, the area harvested for this variety of opium poppy is expected to increase by 50 per cent, to 3,448 ha in 2020, whereas in Spain the area harvested is expected to increase almost threefold, to 2,532 ha in 2020. According to data-based projections, in Australia the estimated area under cultivation with codeine-rich opium poppy is expected to fall by more than half, from the 6,040 ha estimated for 2020 to 2,440 ha in 2021. In Spain, the area under cultivation with opium poppy rich in codeine is expected to triple, rising from an estimated 863 ha in 2020 to an estimated 2,528 ha in 2021.

Oripavine

11. In 2019, Spain reported an area of 61 ha cultivated for the oripavine-rich variety of opium poppy. It has reported the area under cultivation with opium poppy rich in oripavine³ in 2020 to be 1,515 ha, and also reported an estimated area of 62 ha of this variety to be cultivated in 2021. Australia has harvested 3,721 ha of this variety in 2020, but plans no cultivation in 2021.

Noscapine

12. Noscapine is not under international control, even though a significant amount of morphine can be extracted from opium poppy rich in noscapine. Cultivation of noscapine-rich opium poppy plants⁴ for the purpose of opiate production was reported by France in 2019. France sowed 2,298 ha and harvested 1,974 ha of noscapine-rich opium poppy in 2019 and produced noscapine-rich poppy straw with a gross weight of 1,493 tons. France did not report any extraction of the morphine alkaloid from this harvest of the noscapine-rich variety of poppy straw. According to advance data for 2020, France is expected to harvest 2,250 ha of noscapine-rich opium poppy and produce noscapine-rich poppy straw with a gross weight of 1,400 tons. France estimated that it will cultivate 2,290 ha of opium poppy rich in noscapine in 2021. Hungary stopped producing this variety in 2018.

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

³The harvested area and the estimated area for opium poppy rich in oripavine are reflected under opium poppy rich in thebaine in table 2.

⁴The harvested area and the estimated area for opium poppy rich in noscapine are reflected in the category of opium poppy rich in morphine, in table 2.

Table 2. Opiate raw materials rich in morphine: production, demand, balance between the two^a and stocks, in tons of morphine equivalent, 2016–2021

	2016	2017	2018	2019	2020 ^b	2021 ^c
Australia						
Production	180	67	88	85 ^d	214	170
France						
Production	91	63	42	44	100	113
Hungary						
Production	9	3	2	11	11	24
India						
Production	3	48	25	34	24	31
Spain						
Production	56	23	37	141	111	126
Turkey						
Production	63	55	102	91	80	96
Other countries						
Production	61	23	8	15	12	32
(1) Total production	463	282	304	421	552	592
Demand for						
Opium	16	12	20	24	30 ^e	25 ^e
Poppy straw and concentrate of poppy straw	351	327	317	331	381 ^e	376 ^e
(2) Total demand for opiate raw materials	367	339	339	355	411^e	401^d
(3) Total demand for opiates for medical and scientific purposes^f	388	325	306	346	411^e	456^e
Balance, (1) minus (2)	96	-57	-33	66	141^e	191^e
Balance, (1) minus (3)	75	-43	-2	75	141^e	136^e
Stocks of						
Opium	43	79	71	86	<i>n/a</i>	<i>n/a</i>
Poppy straw	523	314	250	302	<i>n/a</i>	<i>n/a</i>
Concentrate of poppy straw	181	257	243	257	<i>n/a</i>	<i>n/a</i>
Total stocks of opiate raw materials	747	650	564	645	786	977
Total stocks of all opiates	534	517	484	531	<i>n/a</i>	<i>n/a</i>

Note: Figures in italics reflect advance data and projected data, and “n/a” indicates that data are not yet available.

^aFor more information about the balance between supply (stocks and production) of and demand for opiate raw materials rich in morphine, see paragraph 28 below.

^bFigures for 2020 are based on advance data provided by Governments during consultations with the Board.

^cFigures for 2021 are based on estimates (form B) submitted by Governments to the Board.

^dThe figure for Australia was calculated by INCB using available data series. It is being followed up with the Government.

^eEstimated by the secretariat of the Board.

^fExcluding demand for substances not covered by the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol.

2016–2021. As in previous years, the actual production of opiate raw materials in 2020 and 2021 may differ considerably from the estimates, depending on the weather and other factors.

Morphine

14. Global production of morphine-rich opiate raw materials in the main producing countries increased to

421 tons⁵ in morphine equivalent in 2019, from 304 tons in 2018 (see table 2). Spain became the largest producer in 2019 (141 tons); it was followed by Turkey (91 tons), Australia (85 tons⁶), France (44 tons), India (34 tons), and

⁵The 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.

⁶This figure was calculated by INCB using available data series. It is being followed up with the Government.

Hungary (11 tons). Other countries produced the remaining 15 tons. In 2019, production of morphine-rich opiate raw materials increased almost threefold in Spain, fivefold in Hungary and by a third in India. Production decreased by 11 per cent in Turkey and mildly in Australia, while in France it increased slightly. Australia, Spain, and Turkey accounted for 76 per cent of global production in 2018.

15. Global production of opiate raw materials rich in morphine is expected to rise in 2020, to about 552 tons in morphine equivalent. However, actual production is often less than what is estimated, as was the case with 2019, for which 594 tons were estimated. Production of poppy straw rich in morphine is expected to amount to 528 tons in 2020 (accounting for 95 per cent of global production), and production of opium is expected to amount to 24 tons (or 4 per cent of global production). The main producers in 2020 are expected to be Australia (accounting for 39 per cent of global production), followed by Spain (20 per cent), France (18 per cent) and Turkey (14 per cent). Those four countries together are expected to account for about 91 per cent of global production of opiate raw materials rich in morphine in 2020.

16. According to information submitted by Governments of the main producing countries on form B for 2021, it is estimated that global production of opiate raw materials rich in morphine will increase to 592 tons in morphine equivalent in 2021. In 2018, the projection for 2019 was at 594 tons, and for 2020 the projection was 670 tons. The projections are often adjusted downward considerably when the actual data become available.

Thebaine

17. In 2019, global production of opiate raw materials rich in thebaine amounted to 119 tons⁷ in thebaine equivalent (see table 3), a drop to about half of the 230 tons in 2018. Australia accounted for nearly 97.5 per cent of global production of those opiate raw materials in 2019, and India accounted for the remaining 2.5 per cent (with the thebaine being extracted from opium). Australia reported a significant decrease in production in 2019, which fell to 116 tons⁸ (compared with 207 tons in 2018). India reported a decrease from 5 tons to 3 tons. This global decrease in 2019 was expected in 2018, as a result of a significant decline in the estimated area of cultivation in all countries producing opium poppy rich in thebaine. France and Spain did not report any production in 2019. It should be noted that in 2018 those two countries had estimated that there would be notable decreases in production for 2019.

⁷The 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.

⁸This figure was calculated by INCB using available data series. It is being followed up with the Government.

18. Global production of opiate raw materials rich in thebaine in 2020 is expected to bounce back to approximately the amount reported in 2018: to 220 tons. Spain is expected to produce 59 tons, which follows a year of no production in 2019, and Hungary estimated a production of 1 ton. India is expecting to extract 2 tons of thebaine from opium, compared with the 3 tons reported in 2019. Australia estimates a 22 per cent increase in production in 2020, or 157 tons, the same amount that is projected for 2021. Production of thebaine-rich opiate raw materials in 2020 is expected to increase slightly to 225 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 645 tons in morphine equivalent at the end of 2019, an increase of 14 per cent from 564 tons in 2018 and approaching the level of 650 tons in 2017. Those stocks were considered to be sufficient to cover for 18 months the expected needs of manufacturers worldwide at the 2020 level of demand. In 2019, Turkey was the country with the largest stocks of opiate raw materials (207 tons); it was followed by France (96 tons), Spain (87 tons), India (80 tons, all in the form of opium), Australia (54 tons), the United States (43 tons), the United Kingdom (21 tons), Hungary (18 tons), Japan (16 tons), Slovakia (15 tons) and Belgium (7 tons). Those 11 countries together accounted for more than 99 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 2019, global stocks of opiates of morphine-based opiate raw materials, mainly in the form of codeine and morphine, amounted to 531 tons in morphine equivalent and were sufficient to cover global demand for those opiates for about 19 months. On the basis of 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 188 tons in thebaine equivalent at the end of 2019, from

Table 3. Opiate raw materials rich in thebaine: production, demand, balance between the two^a and stocks, in tons of thebaine equivalent, 2016–2021

	2016	2017	2018	2019	2020 ^b	2021 ^c
Australia						
Production	147	187	207	116 ^d	157	157
France						
Production	5	18	8	—	—	—
Hungary						
Production	—	—	—	—	1	2
Spain						
Production ^e	34	18	9	—	59	62
India						
Thebaine extracted from opium	—	5	5	3	2	3
Other countries						
Thebaine extracted from poppy straw (M)	1	1	1	—	1	1
(1) Total production	187	229	230	119	220	225
Demand for						
Opium	2	1	2	2	4	4
Poppy straw and concentrate of poppy straw	208	189	144	162	214	217
(2) Total demand for opiate raw materials	210	190	144	164	218	221
(3) Total demand for opiates for medical and scientific purposes^f	133	104	97	97	128	132
Balance, (1) minus (2)	-23	39	86	-45	2	4
Balance, (1) minus (3)	54	125	133	35	92	93
Stocks						
Opium	4	8	7	9	n/a	n/a
Poppy straw	89	111	145	74	n/a	n/a
Concentrate of poppy straw	131	125	83	105	n/a	n/a
Total stocks of opiate raw materials	224	244	235	188	190	194
Total stocks of all opiates	242	269	248	241	n/a	n/a

Note: Figures in italics reflect advance data and projected data, and "n/a" indicates that data are not yet available.

^aFor more information about the balance between supply (stocks and production) of and demand for opiate raw materials rich in thebaine, see paragraph 29 below.

^bFigures for 2020 are based on advance data provided by Governments during consultations with the Board.

^cFigures for 2021 are based on estimates (form B) submitted by Governments to the Board.

^dThe figure for Australia was calculated by INCB using available data series. It is being followed up with the Government.

^eEstimated by the secretariat of the Board.

^fExcluding demand for substances not covered by the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol.

235 tons at the end of 2018. Those stocks were considered to be sufficient to cover for about 10 months the expected need of manufacturers worldwide at the 2020 level of demand (see table 3). The United States held the largest stocks of opiate raw materials rich in thebaine (66 tons); it was followed by Spain (51 tons), Australia (33 tons), France (25 tons), India (8 tons) and Switzerland (4 tons). The stocks of opiate raw materials rich in thebaine in these five countries accounted for more than 99 per cent of global stocks in 2019, 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 slightly to 241 tons in thebaine equivalent at the end of 2019, from 248 tons in 2018. 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.⁹

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) had been decreasing from 2014 to 2018. In 2019, the demand was 355 tons in morphine equivalent, a slight increase from the 339 tons in 2018. However, it is expected to increase again, to 411 tons in morphine equivalent in 2020 and to 401 tons in morphine equivalent in 2021.

25. Global demand by manufacturers for opiate raw materials rich in thebaine had followed a decreasing trend from 2016 to 2018. In 2019, the demand increased to 164 tons in thebaine equivalent, from 144 tons in 2018. It is expected to increase even further in 2020, to 218 tons in thebaine equivalent, and in 2021, to 221 tons in thebaine equivalent.

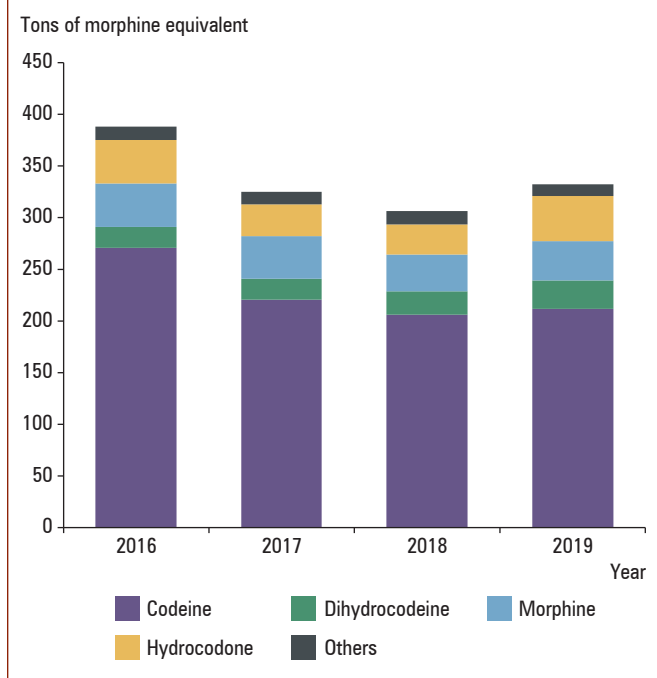
Demand for opiates measured as consumption

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 increased to 346 tons in morphine equivalent in 2019, from 306 tons in 2018.

27. Demand for thebaine-based opiates is concentrated mainly in the United States and increased sharply after the late 1990s. However, in 2013, demand started to decline owing to the decrease in demand in the United States.

⁹Prior to 2003, INCB measured the global demand only by global consumption of major opiates controlled under the 1961 Convention as amended, 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 and expected changes in the prices of raw materials or opiates.

Figure I. Consumption of morphine and opiates derived from morphine, in morphine equivalent, 2016–2019



Global demand for thebaine-based opiates decreased from 151 tons in 2015 to 97 tons in 2018 and remained at that level in 2019. It is expected to increase notably, to 128 tons, in 2020, and to 132 tons in 2021.

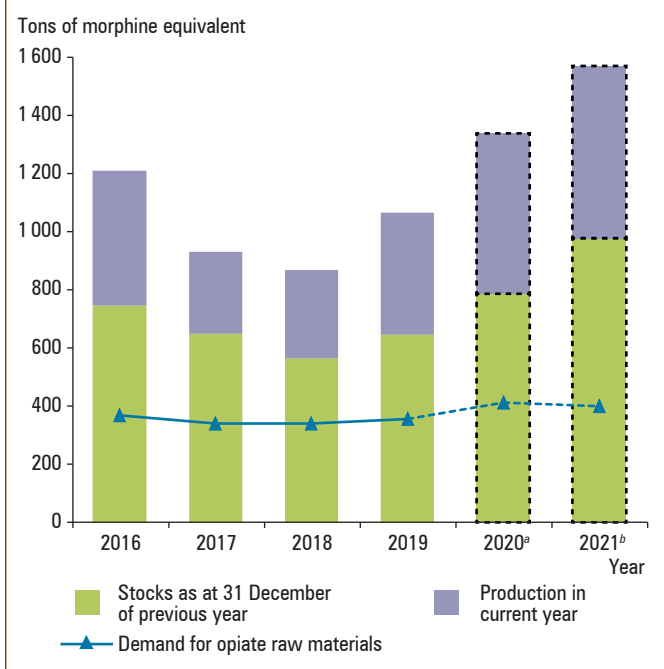
Balance between the supply of and demand for opiate raw materials

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 and 2018, global production was lower than global demand, which led to a declining trend in global stocks. However, in 2019 the production (421 tons) was higher than the demand (355 tons), and consequently the stocks increased from 2018. Global stocks at the end of 2019 amounted to 645 tons in morphine equivalent, a level sufficient to cover for about 18 months the expected global demand at the 2020 level of demand (see figure II).¹⁰ In 2020, global production of opiate raw materials rich in morphine is expected to increase significantly, which is expected to result in an increase of global stocks. The esti-

¹⁰Because 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 II. Supply of and demand for opiate raw materials rich in morphine, in morphine equivalent, 2016–2021



^aData for production and demand for 2020 are based on advance data submitted by Governments (as indicated by the dotted line and bar).

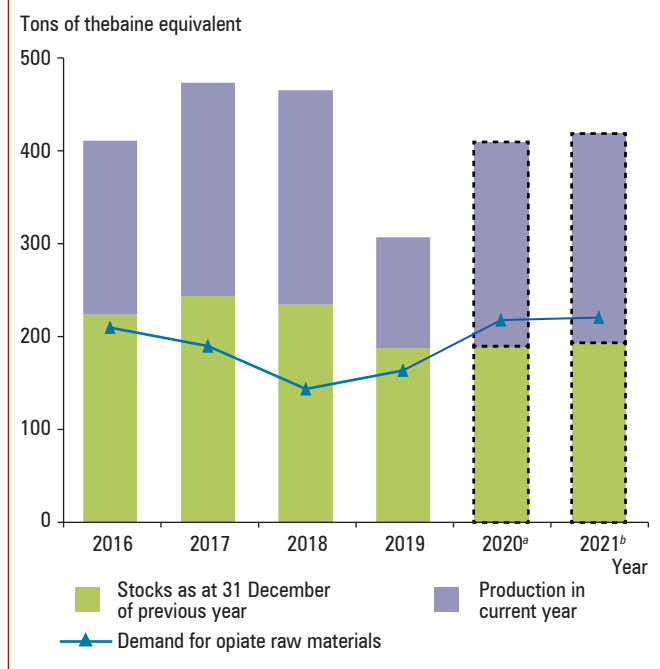
^bData for 2021 are based on estimates submitted by Governments (as indicated by the dotted line and bar).

mated global stocks at the end of 2020 (786 tons) will be sufficient to cover for about 17 months the expected global demand at the projected 2021 level of demand. For 2021, producing countries have indicated that they plan to increase production slightly, while demand for raw materials is actually expected to decrease. In conjunction with that, stocks are expected to reach 977 tons at the end of 2021, a level considered to be sufficient to cover the expected global demand for about 20 months. 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 2019, global production of opiate raw materials rich in thebaine amounted to 119 tons in thebaine equivalent, a notable decrease compared with 2018 (230 tons). Demand for opiate raw materials rich in thebaine, however, started to rise after a decreasing trend that lasted until 2018, and in 2019 the demand was at 164 tons. This increase in demand led to a decrease in the level of stocks held at the end of 2019, which were at 188 tons (down from 235 tons in 2018). Those stocks were sufficient to meet global demand for 18 months (see figure III). Global production is expected to increase by 85 per cent in 2020, to 220 tons. By the end of 2020, global stocks of opiate raw materials rich in thebaine are expected to increase slightly

Figure III. Supply of and demand for opiate raw materials rich in thebaine, in thebaine equivalent, 2016–2021



^aData for production and demand for 2020 are based on advance data submitted by Governments (as indicated by the dotted line and bar).

^bData for 2021 are based on estimates submitted by Governments (as indicated by the dotted line and bar).

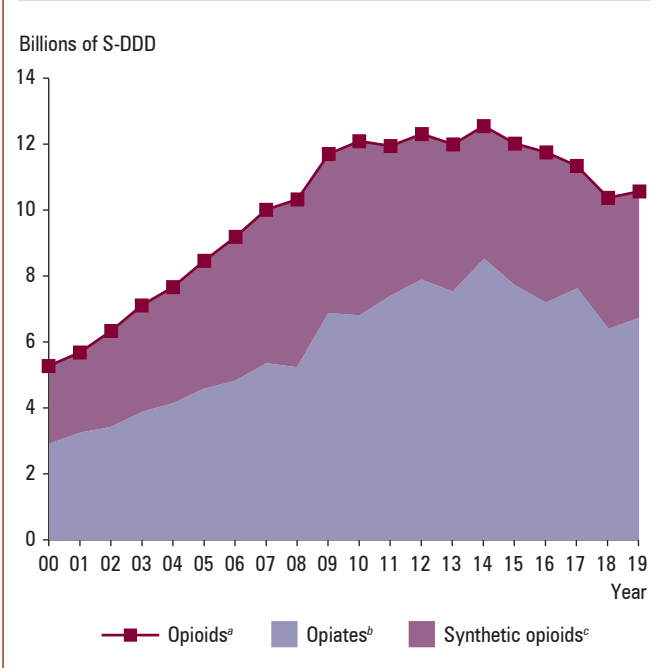
to 190 tons, a level sufficient to cover global demand for about 11 months. In 2021, production is expected to increase slightly, to 225 tons, based on the estimates provided by Governments. Demand for opiate raw materials rich in thebaine is also expected to increase slightly, to 221 tons, thereby nearly reaching the level of production; however, stocks are expected to increase to 194 tons at the end of 2021. Those stocks at the end of 2020 are sufficient to cover global demand for about 10 months. The global supply of opiate raw materials rich in thebaine (stocks and production) will be nearly sufficient to cover global demand in 2020 and 2021.

Trends in consumption levels of opioids

30. The global consumption levels of opiates and synthetic opioids over the 20-year period 2000–2019 are presented in figure IV. The figure reflects data on opioids, including buprenorphine and pentazocine, which are controlled under the 1971 Convention. 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.¹¹

¹¹See 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.

Figure IV. Global consumption of opioids,^a expressed in billions of defined daily doses for statistical purposes (S-DDD), 2000–2019



^aOpioids: opiates and synthetic opioids.

^bIncluding buprenorphine, an opiate controlled under the 1971 Convention.

^cIncluding pentazocine, a synthetic opioid controlled under the 1971 Convention.

31. Over the past 20 years, global consumption of opioids has more than doubled. The share of consumption of opiates in 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 2019, the share of opiates increased to 64 per cent, compared with 62 per cent in 2018. This indicates that the use of synthetic opioids, which are used for the same indications as opiates, decreased in 2019. The overall trend indicates that the demand for opiates might increase in the future, but it is not clear whether their share of the total consumption of opioids will increase or decrease in relation to the consumption of synthetic opioids.