

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. In table 1, the cultivation of opium poppy rich in codeine is currently reported separately for two countries, but in table 2, in the calculation of global supply and demand, opium poppy rich in codeine is included in the totals for 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. Data concerning consumption in all countries and regions (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

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 data on the demand for opiates derived from such opium.

which statistical data are available (2017–2020). For 2021 and 2022, 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 2001–2020 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.

5. **The Board highlights that although data from producing and manufacturing countries points to a balance between the supply of opiate raw materials and the demand for opiates, there are significant disparities between countries in the availability of narcotic drugs because many countries do not accurately assess their medical need for opiate analgesics or have limited access to them. Consequently, and in line with the provisions and objectives of the 1961 Convention as amended by the 1972 Protocol, the Board emphasizes the importance of ensuring sufficient availability for all countries and regions and calls upon countries with greater resources to assist other countries in their efforts to ensure access to and the availability of substances for the treatment of pain.**

Supply of opiate raw materials

Cultivation of opium poppy for the extraction of alkaloids

6. 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, codeine and oripavine 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.

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

7. In 2020, there was a significant decrease of approximately 30 per cent in the total area cultivated with opium poppy rich in morphine. However, the area cultivated with opium poppy rich in thebaine nearly doubled. Cultivation of opium poppy rich in codeine more than doubled in 2020 compared with 2019, and the cultivation of the oripavine-rich variety of opium poppy grew almost tenfold.

8. These developments are pointing to an emerging trend in recent years of major producing countries reducing cultivation of morphine-rich opium poppy and increasing cultivation of codeine-rich opium poppy, as well as increasing the cultivation of oripavine-rich opium poppy. The developments are consistent with a trend observed in the past whereby if in a given year the cultivation of opium poppy rich in morphine increases and the cultivation of opium poppy rich in thebaine decreases, as was the case in 2019, the following year is likely to see the opposite development whereby the production of the morphine-rich variety decreases and the production of the thebaine-rich variety increases, as was the case in 2020. The developments further point to the fact that the onset of the COVID-19 pandemic did not significantly disrupt the global patterns of cultivation of opium poppy for the extraction of alkaloids in the main producing countries.

Morphine

9. In 2020, the area sown with opium poppy rich in morphine decreased by 29 per cent from 2019, falling from 98,794 ha in 2019 to 70,355 ha in 2020. The total area of opium poppy rich in morphine sown in major producing countries was 62 per cent of the total estimated area of 113,404 ha. Most producing countries saw their total area harvested in 2020 decrease and even halve in the cases of Hungary and Spain. France saw only a minor decrease in the actual area cultivated, whereas Australia and Slovakia were the only two countries that saw their area cultivated with morphine-rich opium poppy increase compared with 2019. The total actual area harvested by all countries in 2020 was 59,957 ha, a decrease of 30 per cent compared with the 86,982 ha harvested in 2019. The annual increases and decreases of each major producing country are found in table 1 below.

10. According to data-based projections for 2021, the total area to be sown with opium poppy rich in morphine in major producing countries is expected to decrease by approximately 5 per cent from the area sown in 2020, declining to 67,110 ha in 2021 from 70,355 ha in 2020. In 2022, the estimated area under cultivation with opium poppy rich in morphine is expected to increase by about 12 per cent compared with the estimated area for 2021.

Table 1. Area cultivated with opium poppy varieties rich in morphine, thebaine, codeine and oripavine, 2017–2022

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

	2017	2018	2019	2020	2021 ^a	2022 ^b
Australia						
Opium poppy rich in morphine						
Estimated area	8 160	3 469	3 904	5 766	3 900	4 100
Area sown	4 027	3 534	3 280	2 665	2 695	n/a
Actual area harvested	3 445	3 205	1 750	2 263	2 263	n/a
Opium poppy rich in thebaine						
Estimated area	4 650	7 577	4 760	5 606	5 993	3 137
Area sown	4 629	6 673	3 502	4 357	4 304	n/a
Actual area harvested	4 215	6 567	3 400	3 817	3 681	n/a
Opium poppy rich in codeine						
Estimated area	1 210	2 849	7 630	6 040	3 649	3 113
Area sown	1 022	2 936	4 305	3 592	1 792	n/a
Actual area harvested	960	2 683	2 300	4 236	1 495	n/a
Opium poppy rich in oripavine						
Estimated area	—	—	—	4 923	1 450	..
Area sown	—	—	1 440	3 784	727	n/a
Actual area harvested	—	—	—	3 721	641	n/a

Table 1. Area cultivated with opium poppy varieties rich in morphine, thebaine, codeine and oripavine, 2017–2022 (continued)

	2017	2018	2019	2020	2021 ^a	2022 ^b
Opium poppy rich in morphine, thebaine, codeine and oripavine						
Total estimated area	14 020	13 895	16 294	22 335	14 992	10 350
Total area sown	9 678	13 143	12 527	14 398	9 518	n/a
Total actual area harvested	8 620	12 455	7 450	14 037	8 080	n/a
France						
Opium poppy rich in morphine						
Estimated area	5 490	5 550	7 600	8 750	5 400	4 000
Area sown	5 014	6 030	7 935	8 565	5 253	n/a
Actual area harvested	4 893	5 628	7 486	7 345	4 920	n/a
Opium poppy rich in thebaine						
Estimated area	2 230	2 950	—	—	800	2 000
Area sown	3 378	752	60	94	1 079	n/a
Actual area harvested	3 161	731	55	92	1 075	n/a
Opium poppy rich in morphine and thebaine						
Total estimated area	7 720	8 500	7 600	8 750	6 200	6 000
Total area sown	8 392	6 783	7 995	8 659	6 332	n/a
Total actual area harvested	8 054	6 359	7 541	7 437	5 995	n/a
Hungary						
Opium poppy rich in morphine						
Estimated area	13 800	6 800	20 100	11 005	8 000	5 014
Area sown	2 451	2 482	3 780	2 221	682	n/a
Actual area harvested	2 003	514	3 100	1 395	367	n/a
Opium poppy rich in thebaine						
Estimated area	400	220	—	—	—	n/a
Area sown	20	—	—	2	—	n/a
Actual area harvested	20	—	—	—	—	n/a
Opium poppy rich in morphine and thebaine						
Total estimated area	14 200	7 020	20 100	11 005	8 000	5 014
Total area sown	2 471	2 482	3 780	2 223	682	n/a
Total actual area harvested	2 023	514	3 100	1 395	367	n/a
India						
Opium poppy rich in morphine						
Total estimated area	10 900	5 134	6 500	4 959	5 498	6 000
Total area sown	9 704	5 740	6 948	4 799	5 406	n/a
Total actual area harvested	8 721	4 710	6 107	4 941	4 940	n/a
Slovakia						
Opium poppy rich in morphine						
Total estimated area	2 500	1 500	2 000	3 483	3 500	4 500
Total area sown	2 080	1 850	3 900	3 297	3 000	n/a
Total actual area harvested	1 790	1 604	3 500	4 822	2 500	n/a
Spain						
Opium poppy rich in morphine						
Estimated area	9 108	5 182	7 828	9 441	525	520
Area sown	1 231	1 238	8 528	4 179	511	n/a
Actual area harvested	1 231	1 238	8 528	4 179	511	n/a

Table 1. Area cultivated with opium poppy varieties rich in morphine, thebaine, codeine and oripavine, 2017–2022 (continued)

	2017	2018	2019	2020	2021 ^a	2022 ^b
Opium poppy rich in thebaine						
Estimated area	4 796	2 980	1 577	2 809	0	20
Area sown	1 577	2 457	—	2 695	20	n/a
Actual area harvested	1 577	2 457	—	2 695	20	n/a
Opium poppy rich in codeine						
Estimated area	2 001	863	6 705	6 600
Area sown	2 001	1 990	863	2 532	6 561	n/a
Actual area harvested	2 001	1 990	863	2 532	6 561	n/a
Opium poppy rich in oripavine						
Estimated area	—	..	846	1 480	3 900	3 600
Area sown	846	..	62	1 515	3 504	n/a
Actual area harvested	846	..	61	1 515	3 504	n/a
Opium poppy rich in morphine, thebaine, codeine and oripavine						
Total estimated area	13 904	8 162	12 252	14 593	11 130	10 740
Total area sown	5 655	5 685	9 453	10 921	10 596	n/a
Total actual area harvested	5 655	5 685	9 452	10 921	10 596	n/a
Turkey						
Opium poppy rich in morphine						
Total estimated area	73 200	70 000	70 000	70 000	51 673	70 000
Total area sown	53 616	52 329	64 423	44 629	49 563	n/a
Total actual area harvested	23 731	45 123	56 511	35 012	42 261	n/a

Notes: 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 values were not submitted for the item in question. The annotation “n/a” indicates that data are not yet available.

^a Figures for area sown and actual area harvested in 2021 are based on advance data provided by Governments during consultations with the Board.

^b Figures for 2022 are based on estimates (form B) submitted by Governments to the Board.

Thebaine

11. In 2020, the area sown with opium poppy rich in thebaine in major producing countries doubled compared with 2019, going from 3,562 ha in 2019 to 7,148 ha in 2020, a development that was expected, as noted in last year’s edition of the present publication. The total area sown with opium poppy rich in thebaine was 85 per cent of the total estimated area of 8,415 ha. The total actual harvested area in major producing countries nearly doubled, going from 3,455 ha in 2019 to 6,604 ha in 2020. The actual harvested area nearly doubled in France, from 55 ha in 2019 to 92 ha in 2020, while in Spain it went from zero in 2019 to as much as 2,695 ha in 2020. Hungary reported cultivation of 2 ha of this variety of opium poppy in 2020 after a few years of no cultivation, while Australia saw a small increase from 3,400 ha in 2019 to 3,817 ha in 2020.

12. According to data-based projections, the total area to be sown with opium poppy rich in thebaine in major producing countries in 2021 is expected to decrease by approximately 24 per cent, falling to 5,403 ha in 2021 from 7,148 ha in 2020. The largest decrease is expected in Spain, where the area sown may drop to as low as 20 ha in 2021,

compared with 2,695 ha in 2020, whereas the largest increase is expected in France, where the area sown was expected to rise to 1,079 ha in 2021 from just 94 ha in 2020. Australia is expecting a minor decrease, and Hungary has not reported any expected cultivation of this variety in 2021. According to data-based projections, in 2022, the cultivation of opium poppy rich in thebaine is expected to be somewhat lower than in 2021, with significant increases expected in France and significant decreases expected in Australia.

Codeine

13. In 2020, the total area sown with opium poppy rich in codeine grew by nearly 19 per cent, increasing from 5,168 ha in 2019 to 6,124 ha in 2020, and the total actual area harvested more than doubled, from 3,163 ha in 2019 to 6,768 ha in 2020. Australia and Spain were the only countries that produced this variety of opium poppy in 2020. 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 harvest of opium poppy rich in codeine in Australia nearly doubled, going from

2,300 ha in 2019 to 4,236 ha in 2020, whereas in Spain it nearly tripled, from 863 ha in 2019 to 2,532 ha in 2020. In Australia, the area harvested for this variety of opium poppy is expected to decline by two thirds, to 1,495 ha in 2021, whereas in Spain the area harvested is expected to increase almost threefold again, to 6,561 ha in 2021. According to data-based projections, in 2022 Australia is expected to double its cultivation of this variety, whereas Spain is expected to remain roughly at the same level of cultivation as in 2021, which would make the global projections for 2022 somewhat higher than those for 2021.

Oripavine

14. Australia and Spain were the only countries that cultivated the opium poppy variety rich in oripavine in 2020. Australia has reported significant cultivation of this variety in 2020, with a harvest of 3,721 ha. As a comparison, in 2019, Australia reported an area sown with oripavine but no actual area harvested. For 2021, Australia is expected to harvest 641 ha, whereas it did not report an estimated area of cultivation for this variety in 2022. However, it is likely that Australia will cultivate the oripavine-rich opium poppy in 2022 as the advance data received from Australia signal that it expects extraction of the oripavine alkaloid in 2022. The Board will monitor developments in this respect. In 2020, Spain reported the total area harvested for opium poppy rich in oripavine in 2020 to be 1,515 ha, a significant increase over the actual area harvested of 61 ha in 2019. Spain is expecting to significantly increase its cultivation of this variety of opium poppy, with an expected harvest of 3,504 ha in 2021 and an estimated area under cultivation of 3,600 ha in 2022.

Noscapine

15. Noscapine is not under international control even though a significant amount of the morphine alkaloid can be extracted from opium poppy rich in noscapine. **For the purposes of controlling the production of morphine, the Board requests the countries that cultivate opium poppy rich in noscapine to provide information in a consistent and regular manner about the cultivation of noscapine-rich opium poppy, its intended use and any extraction and use of the morphine alkaloid from this variety.**

16. Cultivation of noscapine-rich opium poppy³ for the purpose of opiate production was reported by France in 2020. Hungary stopped producing this variety in 2018. France sowed 2,290 ha and harvested 1,790 ha of this variety of opium poppy in 2020, a slight decrease from 2019. France

³The 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 II of part four of the present publication.

produced noscapine-rich poppy straw with a gross weight of 826 tons. However, it did not report any extraction of the morphine alkaloid from the noscapine-rich variety of opium poppy that it has cultivated. According to advance data for 2021, France is expected to harvest 3,092 ha of noscapine-rich opium poppy and produce 1,250 tons of noscapine-rich poppy straw, from which it plans to extract about 5 tons of the morphine alkaloid. The Board will monitor developments in this respect. For 2022, it is estimated that France will cultivate 3,000 ha of opium poppy rich in noscapine and that Spain will cultivate 400 ha of this variety.

Production of opiate raw materials

17. 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 2017–2022. As in previous years, the actual production of opiate raw materials in 2021 and 2022 may differ considerably from the estimates, depending on the weather and other factors. Whereas last year's edition of the present publication reported an expected increase in the production in 2020 of all opiate raw materials based on the available data, in reality there was a decrease in the production of raw materials rich in morphine and a lesser than expected increase in the production of raw materials rich in thebaine.

Morphine

18. Global production of morphine-rich opiate raw materials in the main producing countries decreased to 380 tons⁴ in morphine equivalent in 2020, down from 421 tons in 2019 (see table 2). Spain remained the largest producer in 2020 (113 tons), followed by Australia and France (75 tons each), Turkey (69 tons), India (27 tons), Slovakia (15 tons; Slovakia is included in the category of “other countries” in table 2) and Hungary (6 tons). From 2019 to 2020, production of morphine-rich opiate raw materials decreased in all countries except France and Slovakia.

19. After the decrease in 2020, the global production of opiate raw materials rich in morphine is expected to rise in 2021, to about 451 tons in morphine equivalent, or somewhat higher than the levels of 2019 (421 tons). Production of poppy straw rich in morphine is expected to amount to 424 tons in 2021 (accounting for 94 per cent of global production), and production of opium is expected to amount to 27 tons (6 per cent of global production). The main producers in 2021 are expected to be Spain

⁴The 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 production and demand^a and stocks, in tons of morphine equivalent, 2017–2022

	2017	2018	2019	2020	2021 ^b	2022 ^c
Australia						
Production	67	88	85	75	111	116
France						
Production	63	42	44	75	46	36
Hungary						
Production	3	2	11	6	0	26
India						
Production	48	25	34	27	27	23
Spain						
Production	23	37	141	113	176	157
Turkey						
Production	55	102	91	69	83	83
Other countries						
Production	23	8	15	15	8	30
(1) Total production	282	304	421	380	451	471
Demand for						
Opium	12	20	24	19	20	21
Poppy straw and concentrate of poppy straw	327	317	331	308	360	361
(2) Total demand for opiate raw materials	339	337	355	327	380	382
(3) Total demand for opiates for medical and scientific purposes^d	325	306	346	307	404	406
Balance, (1) minus (2)	-57	-33	66	60	71	89
Balance, (1) minus (3)	-43	-2	75	80	47	65
Stocks of						
Opium	79	71	86	96	n/a	n/a
Poppy straw	314	250	302	367	n/a	n/a
Concentrate of poppy straw	257	243	257	304	n/a	n/a
Total stocks of opiate raw materials	650	564	645	767	675	695
Total stocks of all opiates	517	484	531	523	n/a	n/a

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

^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 of the present publication.

^b Figures for 2021 are based on advance data provided by Governments during consultations with the Board.

^c Figures for 2022 are based on estimates (form B) submitted by Governments to the Board.

^d Excluding demand for substances not covered by the 1961 Convention as amended by the 1972 Protocol.

(39 per cent of global production), Australia (25 per cent), Turkey (18 per cent) and France (10 per cent). Those four countries together are expected to account for about 92 per cent of global production of opiate raw materials rich in morphine in 2021.

20. According to information submitted by the Governments of the main producing countries on form B for 2022, it is estimated that global production of opiate raw materials rich in morphine will increase to 471 tons in morphine equivalent in 2022.

Thebaine

21. In 2020, global production of opiate raw materials rich in thebaine amounted to 182 tons⁵ in thebaine equivalent (see table 3 below), a notable increase from 119 tons in 2019. Australia, the sole producer of thebaine extracted from poppy straw in 2019, was the largest producer in 2020

⁵The 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 wherever appropriate.

Table 3. Opiate raw materials rich in thebaine: production, demand, balance between production and demand^a and stocks, in tons of thebaine equivalent, 2017–2022

	2017	2018	2019	2020	2021 ^b	2022 ^c
Australia						
Production	187	207	116	115	97	147
France						
Production	18	8	0	5	14	16
Hungary						
Production	0	0	0	0	0	0
Spain						
Production	18	9	0	59	51	30
India						
Thebaine extracted from opium	5	5	3	3	3	2
Other countries						
Thebaine extracted from poppy straw (M)	1	1	0	0	1	1
(1) Total production	229	230	119	182	166	196
Demand for						
Opium	1	2	2	2	4	2
Poppy straw and concentrate of poppy straw	189	144	162	116	206	180
(2) Total demand for opiate raw materials	190	146	164	118	210	182
(3) Total demand for opiates for medical and scientific purposes^d	104	97	97	111	130	133
Balance, (1) minus (2)	39	84	-45	64	-44	14
Balance, (1) minus (3)	125	133	22	71	36	63
Stocks						
Opium	8	7	9	10	n/a	n/a
Poppy straw	111	145	74	234	n/a	n/a
Concentrate of poppy straw	125	83	105	76	n/a	n/a
Total stocks of opiate raw materials	244	235	188	320	264	273
Total stocks of all opiates	269	248	241	194	n/a	n/a

Note: Data in italics reflect advance data and projected data; and n/a indicates that data are not yet 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. 35, of the present publication.

^b Figures for 2021 are based on advance data provided by Governments during consultations with the Board.

^c Figures for 2022 are based on estimates (Forms B) submitted by Governments to the Board.

^d Excluding demand for substances not covered by the 1961 Convention as amended by the 1972 Protocol.

(63 per cent of the global total), followed by Spain (32 per cent of the global total), France (3 per cent) and India, which extracts thebaine from opium (about 2 per cent of the global total). Production in Australia in 2020 remained at roughly the same level as in 2019, as was the case for India.

22. Global production of opiate raw materials rich in thebaine in 2021 is expected to decrease to about 166 tons. Australia is expected to remain the main producer, with Spain remaining the second largest producer, followed by France. While production in both Australia and Spain is

expected to decrease by about 15 per cent, falling to 97 and 51 tons, respectively, in 2021, France will nearly triple its production of thebaine (reaching 14 tons), and India is expected to remain at the same level (3 tons). In 2022, Australia expects to increase its production of thebaine to 147 tons, production in Spain will continue to decline, falling to almost one half compared to 2020 (30 tons), and France and India will remain at roughly the same level as in 2021 (16 tons and 14 tons, respectively). Total production of thebaine-rich opiate raw materials in 2022 is expected to increase to 196 tons.

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

Morphine

23. As shown in table 2, stocks of opiate raw materials rich in morphine (poppy straw, concentrate of poppy straw and opium) amounted to about 767 tons in morphine equivalent at the end of 2020, an increase of 19 per cent from 645 tons in 2019. Those stocks are considered to be sufficient to cover for about 24 months the expected needs of manufacturers worldwide at the 2021 level of demand (380 tons). In 2020, Turkey was the country with the largest stocks of opiate raw materials rich in morphine (252 tons); it was followed by France (135 tons), Spain (114 tons), India (92 tons, all in the form of opium), Australia (90 tons), the United States (28 tons), Japan and the United Kingdom (20 tons each), Slovakia (9 tons) and Hungary (8 tons). Those 10 countries together accounted for about 98 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.

24. At the end of 2020, global stocks of opiates of morphine-based opiate raw materials, mainly in the form of codeine and morphine, amounted to 523 tons in morphine equivalent and were sufficient to cover global demand for those opiates for about 16 months at the 2021 level of demand (404 tons).

Thebaine

25. Stocks of opiate raw materials rich in thebaine (poppy straw, concentrate of poppy straw and opium) increased to 320 tons in thebaine equivalent at the end of 2020, from 188 tons at the end of 2019. Those stocks are considered to be sufficient to cover for about 18 months the expected needs of manufacturers worldwide at the 2021 level of demand (see table 3). Australia held the largest stocks of opiate raw materials rich in thebaine (144 tons); it was followed by Spain (101 tons), the United States (38 tons), France (28 tons) and India (9 tons). The stocks of opiate raw materials rich in thebaine in those five countries accounted for more than 99 per cent of global stocks in 2020, while countries with lower production levels and countries importing those opiate raw materials held the remaining stocks.

26. Global stocks of thebaine-based opiate raw materials (oxycodone, thebaine and a small quantity of oxymorphone) decreased to 194 tons in thebaine equivalent by the end of

2020, from 241 tons in 2019. Those stocks were sufficient to cover global demand for thebaine-based opiates for medical and scientific purposes for about 18 months.

27. On the basis of data reported by Governments, total stocks of opiates and opiate raw materials for both morphine and thebaine are fully sufficient to cover demand for medical and scientific purposes for morphine-based opiates for more than a year. Nevertheless, the Board highlights that there are notable disparities in the availability of narcotic drugs between countries due to the fact that many countries do not accurately assess their medical need for opiate analgesics or have limited access to them. Consequently, and in line with the provisions and objectives of the 1961 Convention as amended, the Board emphasizes the importance of ensuring sufficient availability at the global level and calls on countries with greater availability of and access to opiate raw materials and opiates to assist countries with limited access and availability in their efforts to increase access to and availability of such substances and raw materials.

Demand for opiates

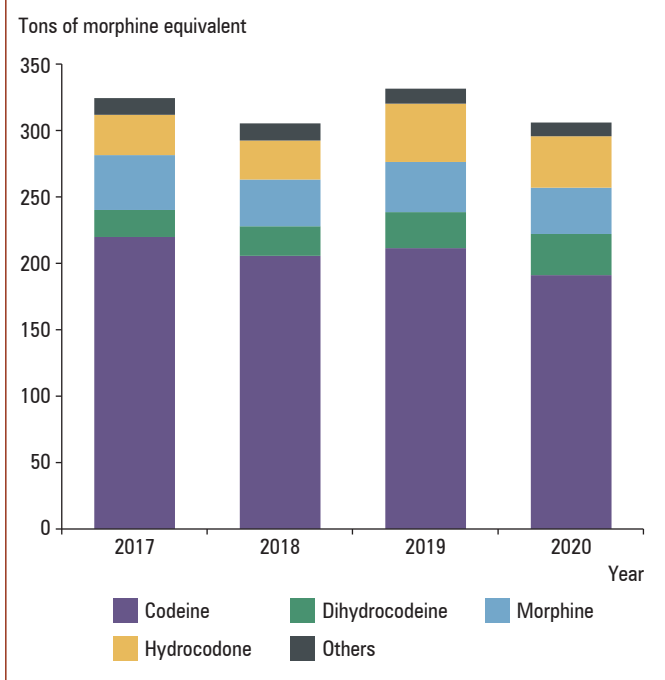
28. As described below, INCB measures demand for opiates in two ways: (a) in terms of the utilization of opiate raw materials, in order to reflect the demand by manufacturers; and (b) in terms of global consumption for medical and scientific purposes of all opiates controlled under the 1961 Convention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

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

29. Global demand for opiate raw materials rich in morphine (in particular opium) had been decreasing since 2014, with the exception of 2019, and stood at 327 tons in morphine equivalent at the end of 2020, a slight decrease from the 355 tons in 2019. However, it is expected to increase again, to 380 tons in morphine equivalent in 2021 and to 382 tons in morphine equivalent in 2022.

⁶Prior 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, 2017–2020



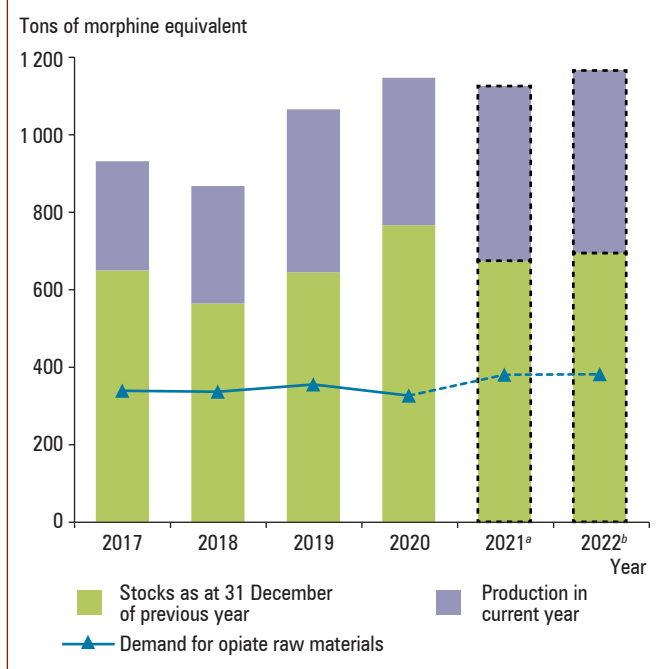
30. Global demand by manufacturers for opiate raw materials rich in thebaine also followed a decreasing trend beginning in 2016, with the exception of 2019, and stood at 118 tons in thebaine equivalent at the end of 2020, a decrease from 164 tons in 2019. It is expected to increase significantly in 2021 to 210 tons before dropping slightly to 182 tons in thebaine equivalent in 2022.

Demand for opiates measured as consumption

31. Figure I above 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 307 tons in morphine equivalent in 2020, from 346 tons in 2019.

32. 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 and grew in 2020, reaching the level of 111 tons in thebaine equivalent. Further increases are expected in 2021 and 2022 (130 tons and 133 tons, respectively).

Figure II. Supply of and demand for opiate raw materials rich in morphine, in morphine equivalent, 2017–2022



^aData for production and demand for 2021 are based on advance data submitted by Governments (as indicated by the dotted line and bar).

^bData for 2022 are based on estimates submitted by Governments (as indicated by the dotted line and bar).

Balance between the supply of and demand for opiate raw materials

Morphine

33. 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 decline in global stocks. However, in 2019, production (421 tons) was higher than demand (355 tons), and consequently, stocks increased from the level of 2018. In 2020, both the global production and the global demand decreased, but stocks grew significantly, to about 767 tons in morphine equivalent, a level sufficient to cover for about 24 months of expected global demand at the 2021 level of demand, which is expected to be about 380 tons (see figure II).⁷ Global production of opiate raw materials rich in morphine is expected to increase significantly in 2021, but as demand is expected to increase as well, the stocks are expected to decrease notably, from 767 tons to 675 tons. The estimated

⁷Because 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.

global stocks at the end of 2021 (675 tons) will be sufficient to cover for about 21 months the expected global demand at the projected 2022 level of demand (382 tons). For 2022, producing countries have indicated that they plan to increase production, from 451 tons to 471 tons, whereas the demand for raw materials is expected to increase only slightly, from 380 tons to 382 tons. Accordingly, stocks are expected to increase somewhat in 2022, reaching 695 tons at the end of 2022, a level considered to be sufficient to cover expected global demand in 2022 for about 17 months.

34. 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.

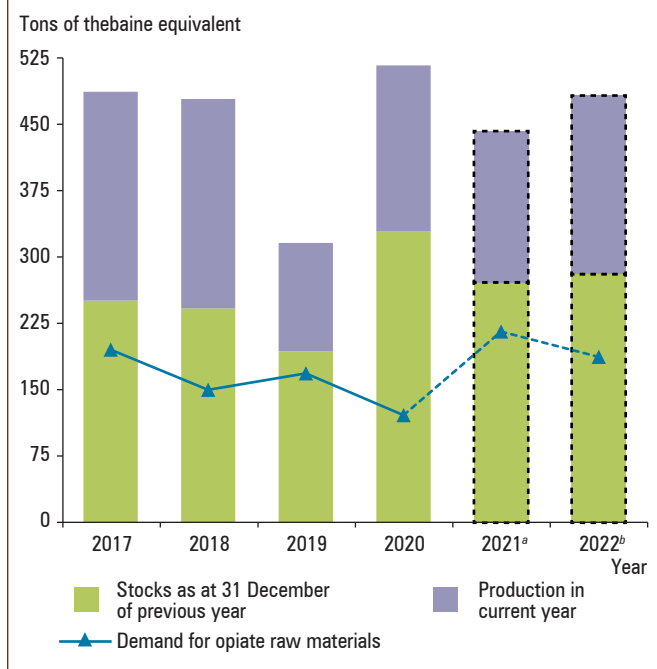
Thebaine

35. In 2020, global production of opiate raw materials rich in thebaine amounted to 182 tons in thebaine equivalent, a significant increase from 2019 (119 tons). Demand for opiate raw materials rich in thebaine followed a decreasing trend until 2018, and, after an increase in global demand in 2019 (164 tons), it decreased again in 2020, to about 118 tons. This decrease in demand led to a significant increase in the level of stocks held at the end of 2020, which were at 320 tons (up from 188 tons in 2019). Those stocks were sufficient to meet global demand for 18 months at the projected level for 2021 (210 tons). Global production is expected to decrease somewhat in 2021, to 166 tons. By the end of 2021, global stocks of opiate raw materials rich in thebaine are expected to decrease, to 264 tons, because demand is expected to increase, and they will be at a level sufficient to cover global demand at the 2022 level (182 tons) for about 17 months. In 2022, production is expected to increase to 196 tons, based on the estimates provided by Governments. Demand for opiate raw materials rich in thebaine is, however, expected to decrease, to 182 tons, leading to a slight increase in stocks (projected at about 273 tons in thebaine equivalent). Those stocks at the end of 2022 were sufficient to cover global demand for about 18 months at the 2022 demand projections.

36. In 2021 and 2022, the global supply of opiate raw materials rich in thebaine (stocks and production) will be more than sufficient to cover annual global demand (see figure III).

37. Although the supply of opiate raw material rich in morphine and thebaine is considered to be sufficient to cover global demand according to the estimates submitted by countries, the Board highlights that there are significant disparities between countries in the availability of narcotic drugs because many countries do not accurately estimate their medical need for opiate analgesics or have limited access to them. Consequently, and in line with the

Figure III. Supply of and demand for opiate raw materials rich in thebaine, in thebaine equivalent, 2017–2022



^aData for production and demand for 2021 are based on advance data submitted by Governments (as indicated by the dotted line and bar).

^bData for 2022 are based on estimates submitted by Governments (as indicated by the dotted line and bar).

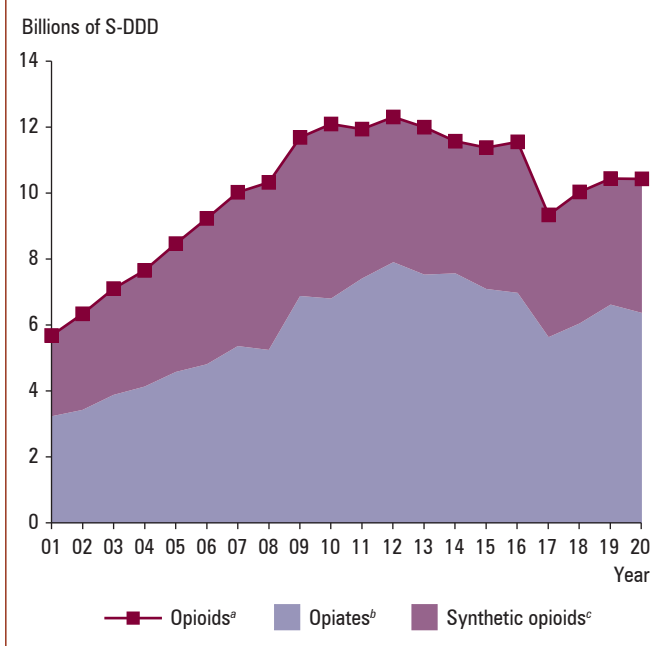
provisions and objectives of the 1961 Convention as amended, the Board reminds Governments of the importance of ensuring sufficient availability at the global level and calls on countries with greater availability of and access to opiate raw materials and opiates to assist countries with limited access and availability in their efforts to increase access to and the availability of such substances and raw materials.

Trends in consumption levels of opioids

38. The global consumption levels of opiates and synthetic opioids over the 20-year period 2001–2020 are presented in figure IV. The figure reflects data on opioids, including buprenorphine and pentazocine, which are opioids 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.⁸

⁸See 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), 2001–2020



^aOpioids: opiates and synthetic opioids.

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

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

39. Over the past 20 years, global consumption of opioids has more than doubled. The share of consumption of opiates in total consumption of opioids fluctuated, rising from 51 per cent in 2008 (the lowest share) to 65 per cent in 2014 (the highest share). In 2020, the share of opiates decreased to 61 per cent, compared with 63 per cent in 2019. This indicates that the use of synthetic opioids, which are used for the same indications as opiates, increased in 2020 to 39 per cent, compared with 37 per cent share in 2019. The overall trend indicates that the demand for opiates might increase in the future, but it is not clear whether their share in total consumption of opioids will increase or decrease in relation to the consumption of synthetic opioids.