

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

## Summary

The present analysis has been prepared by examining the data on opiate raw materials and the opiates manufactured from those raw materials. On the basis of data submitted by countries, the cultivation and production of opium poppy showed a significant decrease in 2017. Several factors contributed to the decline in production, including a fall in the demand for opiate raw materials, stricter control measures on codeine preparations in some countries, and the introduction in some countries of stricter control measures for strong opioids as a result of the opioid crisis.

## 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.<sup>1</sup>

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

The global stock of opiates has been stable for the past three years, which is a good indication of the balance between supply and demand. The demand for opiates and opiate raw materials decreased in 2017. However, stocks of opiate raw materials are expected to cover the demand for about a year and half, which indicates that the supply of these substances is still higher than the demand.

Cultivating and producing countries are urged to take into consideration article 29, paragraph 3, and article 30, paragraph 2, of the Single Convention on Narcotic Drugs of 1961, in which parties are required to prevent the accumulation of quantities of poppy straw in excess of those required for the normal conduct of business, taking into account the prevailing market conditions.

total utilization of opiate raw materials for the manufacture of all opiates (see para. 23 below). Data concerning total consumption (including global use for Schedule III preparations) and stocks of opiates are also included, as appropriate. 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 (2014 to 2017). For 2018 and 2019, the data on production are based on advance statistical information and estimates received from the main producing countries,<sup>2</sup> 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, INCB examines the trends in global consumption of all opiates and synthetic opioids over the 20-year period from 1998 to 2017. This analysis provides a historical perspective on the relative importance of opiates, which are derived from opium poppy, in the global consumption of opioids.

<sup>1</sup>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.

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

## 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 2017 declined for both morphine and thebaine. That decrease in cultivation can be attributed to the fall in demand for opiate raw material due to several factors, one of which is the opioid crisis in the United States. Another such factor is the rescheduling in Australia and France of codeine, which is now available by prescription only in those countries. That change has contributed to a fall in demand on the local markets.

#### Morphine

6. The total area estimated to be cultivated in 2017 increased to 120,658 ha compared with 111,525 ha in 2016. However, the actual area sown in 2017 decreased to 78,044 ha from 85,354 ha in 2016, and the actual area harvested in 2017 decreased to 46,025 ha from 53,765 ha in 2016. In 2017, the actual area harvested with opium poppy rich in morphine decreased in all major producing countries except India. Compared with 2016, the actual area harvested in 2017 decreased in Australia by 53 per cent, followed by Hungary and Spain (43 per cent each) and France (28 per cent). India is the only opium-producing country included in the present analysis.

7. On the basis of the advance data for 2018, it is anticipated that the total area to be harvested of opium poppy rich in morphine in major producing countries will increase by 38 per cent compared with 2017 figures. That growth can be attributed to expected increases in the harvested area in France and Turkey. In 2019, the cultivation of opium poppy straw is also expected to increase by about 16 per cent relative to 2018.

#### Thebaine

8. The total estimated area to be cultivated by major producing countries with opium poppy rich in thebaine showed a declining trend based on the data from 2014 to 2017. In 2017, the total area estimated to be cultivated decreased to 12,076 ha from 16,800 ha in 2016. Similarly, there were

decreases in the actual area sown (16 per cent) and the actual area harvested (17 per cent) in 2017, compared with 2016. The actual harvested area of opium poppy rich in thebaine decreased by 36 per cent in Spain and 31 per cent in Australia, but increased by 74 per cent in France.

9. The total area of opium poppy rich in thebaine estimated to be harvested in 2018 is expected to decrease from previous years based on advanced data submitted by major producing countries. The actual harvested area is expected to decrease in France (77 per cent) and Australia (18 per cent) in 2018, compared with 2017, while Spain is expected to see an increase of 1.4 per cent. Hungary ceased cultivation of this variety in 2018. The estimated cultivation area of opium poppy rich in thebaine is projected to decrease by 48 per cent in 2019, compared with the previous year. Australia and Spain are the only countries that are planning to plant opium poppy rich in thebaine in 2019.

#### Codeine

10. In 2017, the actual area harvested of opium poppy rich in codeine increased by 39 per cent in Australia. France discontinued the cultivation of opium poppy rich in codeine whereas Spain harvested 2,001 ha of opium poppy rich in codeine for the first time.<sup>3</sup> Australia is expected to increase the harvested area of this variety to 6,795 ha in 2018, up a considerable amount from 960 ha in 2017. Spain, however, is expecting a harvest similar to 2017. The projected data for 2019 shows a significant increase in the estimated cultivation of opium poppy rich in codeine in Australia; in Spain, cultivation will remain stable.

#### Oripavine<sup>4</sup>

11. Some countries have recently begun reporting the cultivation and harvest of opium poppy rich in oripavine. Opium poppy rich in oripavine is under international control; however, oripavine was usually obtained from other varieties in the past. In 2017, Spain harvested 846 ha of opium poppy rich in oripavine for the first time. Australia is expected to harvest 1,505 ha of the same variety in 2018. Spain has projected that it will cultivate the same amount of oripavine in 2019 as it did in 2017.

#### Noscapine

12. In 2017, Hungary was the only country that reported the cultivation of opium poppy rich in noscapine. The

<sup>3</sup>Harvested area of codeine in Spain is included in the harvested area of morphine to avoid inconsistency of comparisons.

<sup>4</sup>The data for harvested and estimated areas for oripavine are included in the values for thebaine in table 1.

**Table 1. Area cultivated with opium poppy rich in morphine, opium poppy rich in thebaine and opium poppy rich in codeine, 2014–2019**

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

	2014	2015	2016	2017	2018 <sup>a</sup>	2019 <sup>b</sup>
<b>Australia</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	11 008	15 080	11 410	8 160	3 469	3 904
Area sown	8 890	8 509	8 280	4 027	2 730	
Actual area harvested	7 210	6 947	7 293	3 445	2 566	
<b>Opium poppy rich in thebaine</b>						
Estimated area	17 600	9 700	7 375	4 650	7 577	4 760
Area sown	14 015	9 867	6 921	4 629	5 260 <sup>c</sup>	
Actual area harvested	12 135	9 104	6 073	4 215	4 970 <sup>c</sup>	
<b>Opium poppy rich in codeine</b>						
Estimated area	2 900	5 220	662	1 210	2 849	7 630
Area sown	2 549	5 652	712	1 022	6 795	
Actual area harvested	2 117	4 447	687	960	6 795	
<b>Opium poppy rich in morphine, thebaine and codeine</b>						
<b>Total estimated area</b>	<b>31 508</b>	<b>30 000</b>	<b>19 447</b>	<b>14 020</b>	<b>13 895</b>	<b>16 294</b>
<b>Total area sown</b>	<b>25 454</b>	<b>24 028</b>	<b>15 913</b>	<b>9 678</b>	<b>13 280</b>	
<b>Total actual area harvested</b>	<b>21 462</b>	<b>20 498</b>	<b>14 053</b>	<b>8 620</b>	<b>12 826</b>	
<b>France</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	11 000	8 700	5 895	5 490	5 550	7 600
Area sown	9 900	8 827	7 140	5 014	6 030	
Actual area harvested	9 060	8 450	6 780	4 893	5 760	
<b>Opium poppy rich in thebaine</b>						
Estimated area	2 000		945	2 230	2 950	
Area sown	950		1 837	3 378	752	
Actual area harvested	908		1 820	3 161	740	
<b>Opium poppy rich in codeine<sup>c</sup></b>						
Estimated area	2 050	3 000	3 500			
Area sown	2 050	2 994	1 113			
Actual area harvested	1 859	2 827	875			
<b>Opium poppy rich in morphine, thebaine and codeine</b>						
<b>Total estimated area</b>	<b>15 050</b>	<b>11 700</b>	<b>10 340</b>	<b>7 720</b>	<b>8 500</b>	<b>7 600</b>
<b>Total area sown</b>	<b>12 900</b>	<b>11 821</b>	<b>10 090</b>	<b>8 392</b>	<b>6 782</b>	
<b>Total actual area harvested</b>	<b>11 827</b>	<b>11 277</b>	<b>9 475</b>	<b>8 054</b>	<b>6 500</b>	
<b>Hungary</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	8 500	11 000	7 300	13 800	6 800	20 100
Area sown	6 534	6 085	5 500	2 451	2 578	
Actual area harvested	5 560	5 302	3 520	2 003	876	
<b>Opium poppy rich in thebaine</b>						
Estimated area		2 500	2 500	400	220	
Area sown		24	20	20		
Actual area harvested		24	20	20		

**Table 1. (continued)**

	2014	2015	2016	2017	2018 <sup>a</sup>	2019 <sup>b</sup>
<b>Opium poppy rich in morphine and thebaine</b>						
Total estimated area	8 500	13 500	9 800	14 200	7 020	20 100
Total area sown	6 534	6 109	5 520	2 471	2 578	
Total actual area harvested	5 560	5 326	3 540	2 023	876	
<b>India</b>						
<b>Opium poppy rich in morphine</b>						
Total estimated area	5 893	16 000	6 900	10 900	5 134	6 500
Total area sown	5 794	6 172	6 639	9 704	5 165	
Total actual area harvested	5 329	5 422	557	8 721	5 165	
<b>Spain</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	9 742	9 790	10 020	9 108	5 182	3 239
Area sown	8 521	2 867	5 694	3 232	3 228	
Actual area harvested	8 521	2 867	5 694	3 232	3 228	
<b>Opium poppy rich in thebaine</b>						
Estimated area	4 306	4 551	5 980	4 796	2 980	2 423 <sup>c</sup>
Area sown	5 201	4 518	3 811	2 423 <sup>c</sup>	2 457	
Actual area harvested	5 201	4 518	3 811	2 423 <sup>c</sup>	2 457	
<b>Opium poppy rich in morphine and thebaine</b>						
Total estimated area	14 048	14 341	16 000	13 904	8 162	5 662
Total area sown	13 722	7 385	9 505	5 655	5 685	
Total actual area harvested	13 722	7 385	9 505	5 655	5 685	
<b>Turkey</b>						
<b>Opium poppy rich in morphine</b>						
Total estimated area <sup>d</sup>	70 000	70 000	70 000	73 200	70 000	70 000
Total area sown	39 976	66 912	52 101	53 616	49 411	
Total actual area harvested	26 621	61 591	29 921	23 731	45 135	

*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.

<sup>a</sup>Figures for area sown and actual area harvested in 2017 are based on advance data submitted by Governments to the Board.

<sup>b</sup>Figures for 2019 are based on estimates submitted by Governments to the Board.

<sup>c</sup>Data for the area sown and actual area harvested of opium poppy rich in thebaine include oripavine in the following quantities: 1,505 ha in Australia, in 2018, and 846 ha in Spain, in 2017. The data for the estimated area of opium poppy rich in thebaine to be cultivated in Spain in 2019 also include 846 ha of oripavine.

<sup>d</sup>Estimate referring to the maximum area available for cultivation.

actual area harvested in Hungary was 254 ha, yielding 70 tons in gross weight of opium poppy. According to the advance data for 2018, France expects to harvest 2,000 ha of this variety and to produce 1,300 tons. The area to be harvested in Australia in 2018 is expected to be 732 hectares. Hungary is not expecting to harvest opium poppy rich in noscapine 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 2014–2019.

As in previous years, the actual production of opiate raw materials in 2018 and 2019 may differ considerably from the estimates, depending on weather and other conditions.

## Morphine

14. The total production of morphine-rich opiate raw materials in the main producing countries decreased to 282 tons<sup>5</sup> in morphine equivalent in 2017 from 463 tons

<sup>5</sup>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.

in 2016 (see table 2). Australia continued to be the largest producer in 2017 (67 tons), followed by France, Turkey, Spain, Hungary and India, in descending order. Production in Australia declined in 2017 by more than 63 per cent compared with 2016, mainly owing to a decrease in demand. Australia, France, India and Turkey accounted for 83 per cent of global production in 2017.

15. Global production of opiate raw materials rich in morphine is expected to increase again in 2018, to about 449 tons in morphine equivalent; however, actual production has historically tended to be less than estimates. Of that quantity, poppy straw is expected to account for 423 tons (94 per cent) and opium for 26 tons (6 per cent). The main producers in 2018 are expected to be Australia (36 per cent of total production), followed by Turkey (29 per cent), Spain (17 per cent) and France (11 per cent). Those four countries together are expected to account for approximately 92 per cent of global production of opiate raw materials rich in morphine in 2018.

16. According to the information submitted by the Governments of the main producing countries in form B for 2019, it is estimated that global production of opiate raw materials rich in morphine will increase to 690 tons in morphine equivalent in 2019, mainly as a result of the increase in the estimates for Australia, France, Hungary and Spain. Projections for 2019 are likely to be adjusted considerably downward when the actual data become available.

## Thebaine

17. In 2017, the global production of opiate raw materials rich in thebaine was 229 tons<sup>6</sup> in thebaine equivalent (see table 3), all of which was accounted for by Australia (approximately 82 per cent), France and Spain (approximately 8 per cent each) and India (2 per cent). Production in 2017 increased by 22 per cent relative to 2016. India did not produce opiate raw materials rich in thebaine in 2016 owing to a production failure; however, that country produced 5 tons in 2017. Compared with 2016, production increases were reported in 2017 by Australia (27 per cent) and France (260 per cent), while a decrease in production was expected in Spain (47 per cent).

18. Global production of opiate raw materials rich in thebaine is expected to increase to about 254 tons in thebaine equivalent in 2018 as a result of an expected production increase in Spain. Australia and Spain are expected to account for about 96 per cent of the global production of

opiate raw materials rich in thebaine in 2018. Production of thebaine-rich raw materials in 2019 is expected to decrease to 186 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 725 tons in morphine equivalent at the end of 2017, decreasing slightly from the level in 2016. Those stocks were considered to be sufficient to cover 19 months of expected global demand by manufacturers at the 2018 level of demand. In 2017, Turkey was the country with the largest stocks of opiate raw materials (161 tons in morphine equivalent, mainly in the form of poppy straw and concentrate of poppy straw), followed by France (128 tons), Australia (106 tons), Spain (99 tons), India (66 tons, all in the form of opium), the United Kingdom (66 tons), the United States (39 tons), Slovakia (27 tons), Belgium (17 tons) and Japan (11 tons). Those 10 countries together accounted for 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 2017, global stocks of opiates based on morphine-rich raw materials (517 tons in morphine equivalent), mainly in the form of codeine and morphine, were sufficient to cover global demand for those opiates for about 14 months. On the basis of data reported by Governments, total stocks of both opiates and opiate raw materials were fully sufficient to cover demand for medical and scientific purposes for morphine-based opiates.

### Thebaine

21. Stocks of opiate raw materials rich in thebaine (poppy straw, concentrate of poppy straw and opium) increased to 244 tons in thebaine equivalent at the end of 2017 from 224 tons in 2016. Those stocks were sufficient to cover the expected global demand by manufacturers in 2018 for about 13 months (see table 3). Australia (100 tons), the United States (68 tons), France (41 tons) and Spain (25 tons) accounted for about 96 per cent of global stocks in 2017, while countries with lower production levels and countries importing those raw materials held the remaining stocks.

<sup>6</sup>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.



**Table 2. Opiate raw materials rich in morphine: production, demand, balance between the two<sup>a</sup> and stocks, in tons of morphine equivalent, 2014-2019**

	2014	2015	2016	2017	2018 <sup>b</sup>	2019 <sup>c</sup>
<b>Australia</b>						
Production	176	152	180	67	160	267
<b>France</b>						
Production	119	168	91	63	49	104
<b>Hungary</b>						
Production	15	22	9	3	2	98
<b>India</b>						
Production	31	37	3	48	26	30
<b>Spain</b>						
Production	87	33	56	23	77	85
<b>Turkey</b>						
Production	43	98	63	55	128	96
<b>Other countries</b>						
Production	63	76	61	23	7	10
<b>(1) Total production</b>	<b>534</b>	<b>586</b>	<b>463</b>	<b>282</b>	<b>449</b>	<b>690</b>
<b>Demand for</b>						
Opium	49	30	16	12	34 <sup>d</sup>	30 <sup>d</sup>
Poppy straw and concentrate of poppy straw	422	407	351	327	416 <sup>d</sup>	429 <sup>d</sup>
<b>(2) Total demand for opiate raw materials</b>	<b>471</b>	<b>437</b>	<b>367</b>	<b>339</b>	<b>450<sup>d</sup></b>	<b>459<sup>d</sup></b>
<b>(3) Total demand for opiates for medical and scientific purposes<sup>e</sup></b>	<b>416</b>	<b>410</b>	<b>388</b>	<b>325</b>	<b>442<sup>d</sup></b>	<b>450<sup>d</sup></b>
<b>Balance, (1) minus (2)</b>	<b>63</b>	<b>149</b>	<b>96</b>	<b>-57</b>	<b>-1<sup>d</sup></b>	<b>231<sup>d</sup></b>
<b>Balance, (1) minus (3)</b>	<b>118</b>	<b>176</b>	<b>75</b>	<b>-43</b>	<b>7<sup>d</sup></b>	<b>240<sup>d</sup></b>
<b>Stocks of</b>						
Opium	77	77	43	79	..	..
Poppy straw	277	484	523	389	..	..
Concentrate of poppy straw	141	185	181	257	..	..
<b>Total stocks of opiate raw materials</b>	<b>495</b>	<b>746</b>	<b>747</b>	<b>725</b>	<b>724</b>	<b>955</b>
<b>Total stocks of all opiates</b>	<b>574</b>	<b>558</b>	<b>534</b>	<b>517</b>	<b>..</b>	<b>..</b>

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

<sup>a</sup>For more information about the balance between supply (stocks and production) of and demand for opiate raw materials rich in morphine, see para. 28.

<sup>b</sup>Figures for 2018 are based on advance data submitted by Governments to the Board.

<sup>c</sup>Figures for 2019 are based on estimates submitted by Governments to the Board.

<sup>d</sup>Estimated by the secretariat of the Board.

<sup>e</sup>Excluding demand for substances not covered by the 1961 Convention as amended by the 1972 Protocol.

22. Global stocks of opiates based on thebaine-rich raw materials (oxycodone, thebaine and a small quantity of oxymorphone) increased to 269 tons in thebaine equivalent at the end of 2017 from 242 tons in 2016. Those stocks were sufficient to cover global demand for thebaine-based opiates for medical and scientific purposes for about 21 months.

## Demand for opiates

23. As described below, INCB measures the 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 of all opiates

**Table 3. Opiate raw materials rich in thebaine: production, demand, balance between the two<sup>a</sup> and stocks, in tons of thebaine equivalent, 2014-2019**

	2014	2015	2016	2017	2018 <sup>b</sup>	2019 <sup>c</sup>
<b>Australia</b>						
Production	268	172	147	187	181	113
<b>France<sup>d</sup></b>						
Production	12	6	5	18	7	0
<b>Hungary</b>						
Production	2	0	0	0	0	5
<b>Spain<sup>d</sup></b>						
Production	77	33	34	18	62	64
<b>India</b>						
Thebaine extracted from opium	3	4	0	5	3	3
<b>Other countries</b>						
Thebaine extracted from poppy straw (M)	1	1	1	1	1	1
<b>(1) Total production</b>	<b>363</b>	<b>216</b>	<b>187</b>	<b>229</b>	<b>254</b>	<b>186</b>
<b>Demand for</b>						
Opium	5	3	2	1	3 <sup>e</sup>	4 <sup>e</sup>
Poppy straw and concentrate of poppy straw	197	180	208	189	218 <sup>e</sup>	228 <sup>e</sup>
<b>(2) Total demand for opiate raw materials</b>	<b>202</b>	<b>183</b>	<b>210</b>	<b>190</b>	<b>221<sup>e</sup></b>	<b>232<sup>e</sup></b>
<b>(3) Total demand for opiates for medical and scientific purposes<sup>f</sup></b>	<b>151</b>	<b>151</b>	<b>133</b>	<b>104</b>	<b>155<sup>e</sup></b>	<b>156<sup>e</sup></b>
<b>Balance, (1) minus (2)</b>	<b>161</b>	<b>33</b>	<b>-23</b>	<b>39</b>	<b>33<sup>e</sup></b>	<b>-46<sup>e</sup></b>
<b>Balance, (1) minus (3)</b>	<b>212</b>	<b>65</b>	<b>54</b>	<b>125</b>	<b>99<sup>e</sup></b>	<b>30<sup>e</sup></b>
<b>Stocks</b>						
Opium	8	8	4	8	..	..
Poppy straw	127	112	89	111	..	..
Concentrate of poppy straw	152	154	131	125	..	..
<b>Total stocks of opiate raw materials</b>	<b>287</b>	<b>274</b>	<b>224</b>	<b>244</b>	<b>277</b>	<b>231</b>
<b>Total stocks of all opiates</b>	<b>225</b>	<b>241</b>	<b>242</b>	<b>269</b>	<b>..</b>	<b>..</b>

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

<sup>a</sup>For more information about the balance between supply (stocks and production) of and demand for opiate raw materials rich in thebaine, see para. 29.

<sup>b</sup>Figures for 2018 are based on advance data submitted by Governments to the Board.

<sup>c</sup>Figures for 2019 are based on estimates submitted by Governments to the Board.

<sup>d</sup>In France and Spain, large quantities of thebaine alkaloid are extracted from poppy straw rich in morphine in addition to those derived from poppy straw rich in thebaine.

<sup>e</sup>Estimated by the secretariat of the Board.

<sup>f</sup>Excluding demand for substances not covered by the 1961 Convention as amended by the 1972 Protocol.

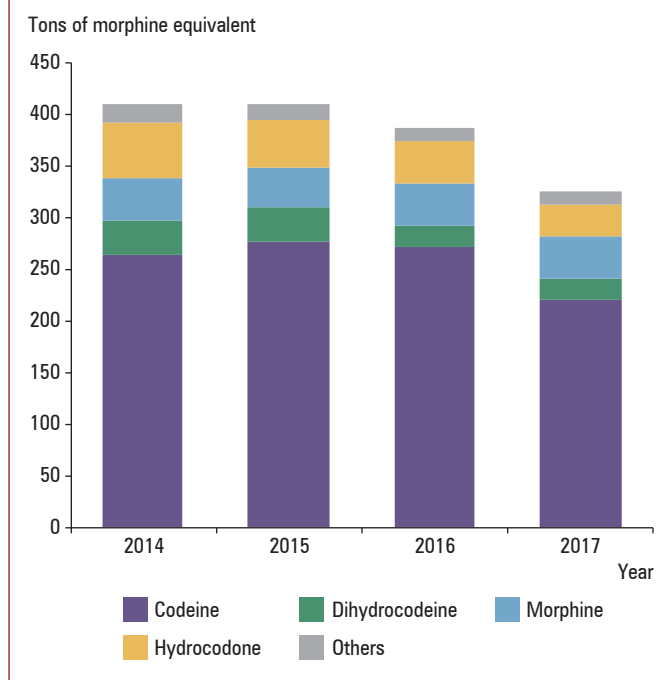
controlled under the 1961 Convention for medical and scientific purposes.<sup>7</sup>

<sup>7</sup>Prior to 2003, INCB measured the global demand only by global consumption of major opiates controlled under the 1961 Convention, 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 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.

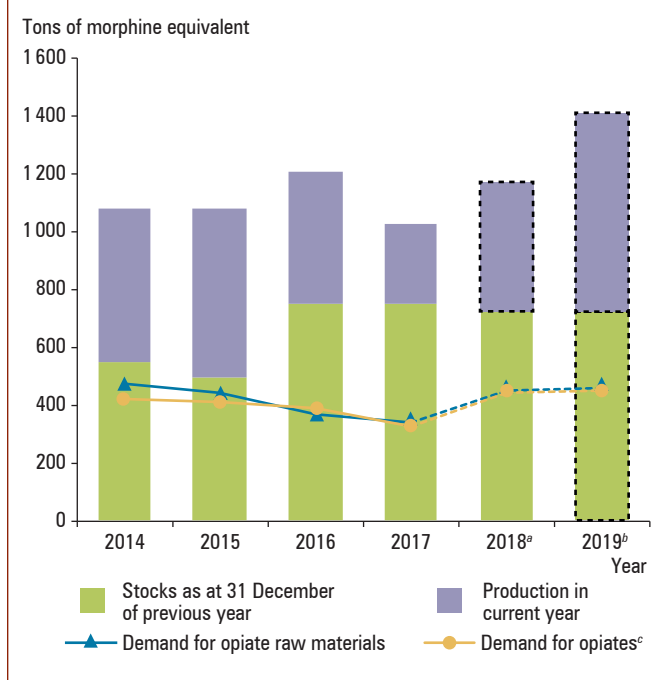
## Demand for opiate raw materials by manufacturers measured as utilization of raw materials

24. The global demand for opiate raw materials rich in morphine (in particular opium and poppy straw) has been decreasing since 2014. In 2017, it decreased to 339 tons in morphine equivalent. However, it is expected to increase again in 2018 and 2019, to 450 tons and 459 tons, respectively.

**Figure I. Consumption of morphine and opiates derived from morphine, in morphine equivalent, 2014–2017**



**Figure II. Supply of and demand for opiate raw materials rich in morphine, in morphine equivalent, 2014–2019**



<sup>a</sup>Data for production and demand for 2018 are based on advance data (dotted line) submitted by Governments.

<sup>b</sup>Data for 2019 are based on estimates (dotted line) submitted by Governments.

<sup>c</sup>Excluding substances not covered by the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol.

25. Global demand by manufacturers for opiate raw materials rich in thebaine decreased to 190 tons in 2017 from 210 tons in 2016; however, it is expected to increase to 221 tons in thebaine equivalent in 2018, and to 232 tons in 2019.

## 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 325 tons in morphine equivalent in 2017 from 388 tons in 2016.

27. Demand for thebaine-based opiates is concentrated mainly in the United States and has increased sharply since the late 1990s; however, in 2013 the demand started to decline, owing to a decrease in demand from the United States. The global demand for thebaine-based opiates decreased from 133 tons in 2016 to 103 tons in 2017. However, demand is expected to increase to 155 tons and 156 tons in 2018 and 2019, respectively, owing to an anticipated growth in the consumption of such opiates in countries other than the United States.

## Balance between the supply of and demand for opiate raw materials

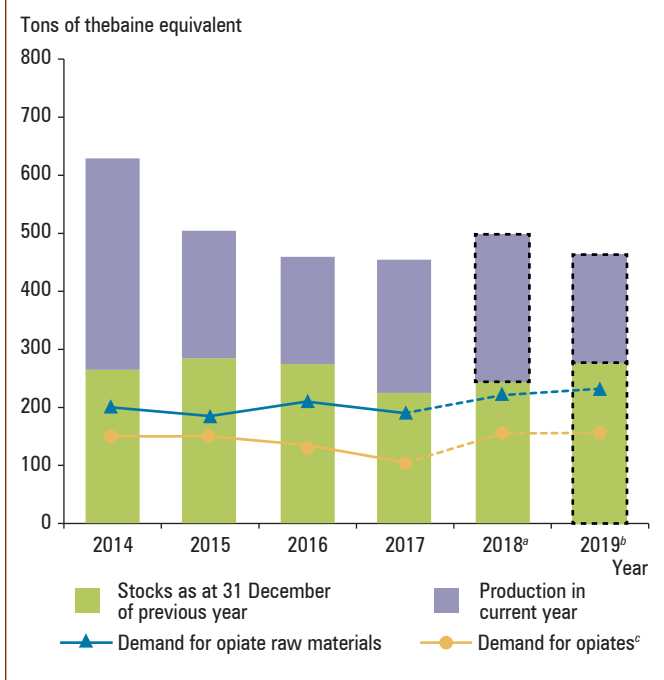
### Morphine

28. In the period 2009–2016, the 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, production of those materials was less than the demand for the first time since 2009, which led to a decrease in stocks to 725 tons in morphine equivalent at the end of the year. The 2017 stocks were sufficient to cover the expected global demand in 2018 for about 19 months (see figure II).<sup>8</sup> In 2018, global production of opiate raw materials rich in morphine is expected to be at the same level as global demand. As a result, global stocks of those raw materials at the end of 2018 are anticipated to be at a similar level with that of 2019. Stocks are expected to be 724 tons by the end of 2018, which is sufficient to cover about 19 months of expected global demand at the 2019 level (although not all data are available for a complete forecast). For 2019,

<sup>8</sup>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, 2014–2019**



<sup>a</sup>Data for production and demand for 2018 are based on advance data (*dotted line*) submitted by Governments.

<sup>b</sup>Data for 2019 are based on estimates (*dotted line*) submitted by Governments.

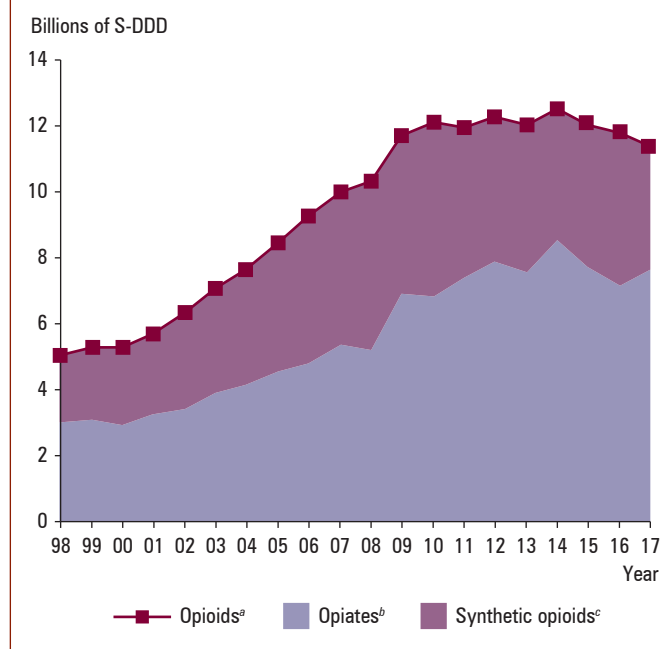
<sup>c</sup>Excluding substances not covered by the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol.

producing countries have indicated that they plan to increase production considerably while demand is expected to increase at a slower pace than in previous years. As a result, stocks are anticipated to reach about 955 tons at the end of 2019, sufficient to cover about two years of expected global demand. The global supply of opiate raw materials rich in morphine (stocks and production) will remain fully sufficient to cover global demand.

## Thebaine

29. The global production of opiate raw materials rich in thebaine increased to 229 tons in 2017 from 187 tons in 2016. At the same time, the demand declined to 190 tons in 2017 from 210 tons in 2016. This has resulted in an increase in stocks to 244 tons at the end of 2017. Those stocks were equivalent to global demand for 13 months (see figure III). Production is expected to increase in 2018 to 254 tons. By the end of 2018, global stocks of opiate raw materials rich in thebaine are expected to reach 277 tons, sufficient to cover global demand for about 14 months. In 2019, production is expected to decrease, based on the estimate provided by countries. As a result, global stocks are also expected to decrease, to 231 tons at the end of 2019, which is sufficient to cover global demand for more than one year. The global supply of opiate raw materials

**Figure IV. Global consumption of opioids,<sup>a</sup> expressed in billions of defined daily doses for statistical purposes (S-DDD), 1998–2017**



<sup>a</sup>Opioids: opiates and synthetic opioids.

<sup>b</sup>Including buprenorphine, an opiate controlled under the Convention on Psychotropic Substances of 1971.

<sup>c</sup>Including pentazocine, a synthetic opioid controlled under the Convention on Psychotropic Substances of 1971.

rich in thebaine (stocks and production) will be more than sufficient to cover global demand in 2018 and 2019.

## Trends in consumption levels of opioids

30. The global consumption levels of opiates and synthetic opioids over the 20-year period 1998–2017 are presented in figure IV. The figure reflects data on opioids including buprenorphine and pentazocine, which are controlled under the Convention on Psychotropic Substances of 1971.<sup>9</sup> 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 (S-DDD).<sup>10</sup>

31. Over the past 20 years, the 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). Since then, the share has continued to fluctuate, dropping to 64 per cent in 2015 and

<sup>9</sup>United Nations, *Treaty Series*, vol. 1019, No. 14956.

<sup>10</sup>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.

61 per cent in 2016, before increasing again in 2017 to 67 per cent. As a result, the share of synthetic opioids, which are used for the same indications as opiates, decreased from 39 per cent in 2016 to 33 per cent in 2017. 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.<sup>11</sup>

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<sup>11</sup>For details, see table XIV.3.