

# 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 1961 Convention 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 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 rich in morphine. 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 total utilization of opiate raw materials for the manufacture of all opiates (see para. 23 below). Data concerning total consumption and stocks of opiates are also included, as appropriate.

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 pages 21-44 above). The main focus of the analysis is on the present situation and on the last four years for which statistical data are available. For 2014 and 2015, 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 and taking into account relevant estimates furnished by Governments.

4. Finally, in this section INCB examines the trends in global consumption of all opiates and synthetic opioids over the 20-year period from 1994 to 2013. 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 materials, 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.

6. In 2013, the area sown with opium poppy rich in morphine in major producing countries increased over the levels of the previous year in Australia and France, but decreased in Hungary and stayed at the same level in Spain and Turkey. The actual area harvested in Australia increased by 38 per cent compared with the previous year. This is to be attributed mostly to the increase in the cultivation of opium poppy rich in morphine and codeine in Australia. In 2013, the actual area harvested in Turkey increased by 138 per cent compared with the previous year, during which unfavourable climate conditions had caused a big decrease in the harvest. The decrease in the cultivation of opium poppy rich in morphine in Hungary was 34 per cent compared with the previous year.

7. India is the only opium-producing country included in the present analysis.<sup>3</sup> Starting from 2013, India reduced its cultivation of opium poppy by 75 per cent to about 5,240

<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.

<sup>3</sup>The statistical report with the actual data for the year 2013 had not been submitted by 1 November 2014, therefore the total estimated area, communicated to INCB in September 2014, was used in the calculations.

**Table 1. Area cultivated with opium poppy rich in morphine, opium poppy rich in thebaine and opium poppy rich in codeine, 2010-2015**  
(Estimated area, as confirmed by the International Narcotics Control Board, area sown and area harvested, in hectares)

	2010	2011	2012	2013	2014 <sup>a</sup>	2015 <sup>b</sup>
<b>Australia</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	12 770 <sup>c</sup>	14 050 <sup>c</sup>	15 960 <sup>c</sup>	11 100 <sup>c</sup>	11 008	11 380
Area sown	10 462 <sup>c</sup>	11 832 <sup>c</sup>	11 194 <sup>c</sup>	12 407 <sup>c</sup>	8 570	..
Actual area harvested	9 127 <sup>c</sup>	10 973 <sup>c</sup>	10 279 <sup>c</sup>	11 484 <sup>c</sup>	7 210	..
<b>Opium poppy rich in thebaine</b>						
Estimated area	11 650	13 580	12 390	12 000	17 600	8 275
Area sown	11 441	13 165	12 191	16 139	13 933	..
Actual area harvested	10 922	13 024	11 559	15 399	12 090	..
<b>Opium poppy rich in codeine</b>						
Estimated area <sup>c</sup>	—	—	—	—	2 900	4 535
Area sown <sup>c</sup>	—	—	—	—	2 671	..
Actual area harvested <sup>c</sup>	—	—	—	—	2 117	..
<b>Opium poppy rich in morphine, thebaine and codeine</b>						
Total estimated area	24 420	27 630	28 350	23 100	31 508	24 190
Total area sown	21 903	24 997	23 385	28 546	25 174	..
Total actual area harvested	20 049	23 997	21 838	26 883	21 417	..
<b>France</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	8 000	8 978	11 000	11 000 <sup>c</sup>	9 900	8 000
Area sown	9 800	9 370	8 960	10 625 <sup>c</sup>	9 060	..
Actual area harvested	9 400	8 592	8 680	10 209 <sup>c</sup>	..	..
<b>Opium poppy rich in thebaine</b>						
Estimated area	5 000	3 922	2 000	2 000	950	1 000
Area sown	700	930	1 210	900	908	..
Actual area harvested	700	110	1 190	741	..	..
<b>Opium poppy rich in codeine</b>						
Estimated area <sup>c</sup>	—	—	—	—	2 050	3 000
Area sown <sup>c</sup>	—	—	—	—	1 859	..
Actual area harvested <sup>c</sup>	—	—	—	—	..	..
<b>Opium poppy rich in morphine, thebaine and codeine</b>						
Total estimated area	13 000	12 900	13 000	13 000	12 900	12 000
Total area sown	10 500	10 300	10 170	11 525	11 827	..
Total actual area harvested	10 100	8 702	9 870	10 950	..	..
<b>Hungary</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	8 000	7 000	9 500	11 800	8 500	11 000
Area sown	11 289	7 972	10 005	7 008	6 945	..
Actual area harvested	7 308	6 025	3 929	2 600	5 520	..
<b>Opium poppy rich in thebaine</b>						
Estimated area	3 000	3 720	3 000	5 100	..	2 500
Area sown	..	2 399	3 351	3 252	..	..
Actual area harvested	..	1 532	911	1 300	..	..

Table 1. (continued)

	2010	2011	2012	2013	2014 <sup>a</sup>	2015 <sup>b</sup>
<b>Opium poppy rich in morphine and thebaine</b>						
Total estimated area	11 000	10 720	12 500	16 900	8 500	13 500
Total area sown	11 289	10 371	13 356	10 260	6 945	..
Total actual area harvested	7 308	7 557	4 840	3 900	5 520	..
<b>India</b>						
<b>Opium poppy rich in morphine</b>						
Total estimated area	22 000	22 000	21 220	5 240	5 893	16 000
Total area sown	15 851	17 262	16 021	— <sup>d</sup>	5 794	..
Total actual area harvested	12 237	16 518	12 092	— <sup>d</sup>	5 329	..
<b>Spain</b>						
<b>Opium poppy rich in morphine</b>						
Estimated area	7 000	8 500	10 000	10 100	9 742	9 790
Area sown	8 383	9 771	8 762	8 700	8 736	..
Actual area harvested	6 439	9 488	8 762	8 700	8 521	..
<b>Opium poppy rich in thebaine</b>						
Estimated area	5 000	5 500	2 000	3 800	4 306	6 210
Area sown	3 529	186	3 572	3 574	5 312	..
Actual area harvested	3 528	186	3 572	3 574	5 201	..
<b>Opium poppy rich in morphine and thebaine</b>						
Total estimated area	12 000	14 000	12 000	13 900	14 048	16 000
Total area sown	11 912	9 957	12 334	12 274	14 048	..
Total actual area harvested	9 967	9 674	12 334	12 274	13 722	..
<b>Turkey</b>						
<b>Opium poppy rich in morphine</b>						
Total estimated area <sup>e</sup>	70 000	70 000	70 000	70 000	70 000	70 000
Total area sown	55 296	61 368	37 252	36 576	39 976	..
Total actual area harvested	51 987	54 911	13 511	32 277	26 621	..

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. Two dots (..) indicate that data are not available. 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 2014 are based on advance data submitted by Governments to the International Narcotics Control Board.

<sup>b</sup>Figures for 2015 are based on estimates submitted by Governments to the Board.

<sup>c</sup>Figures for the area cultivated with morphine-rich opium poppy in Australia and France include cultivation of an opium poppy variety rich in codeine. For 2014 and 2015, given the increase in the cultivation of opium poppy rich in codeine, these data are presented separately.

<sup>d</sup>The statistical report with the actual data for the year 2013 had not been submitted by 1 November 2014, therefore the total estimated area, communicated to INCB in September 2014, was used in the calculations.

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

hectares, which was below the level of 5,913 hectares that it had reached in 2007. The total area sown in the main producing countries was 68 per cent of the total estimated area.

8. In 2013, the cultivation of opium poppy rich in thebaine increased in Australia and Hungary (by 33 per cent and 43 per cent, respectively, in the area actually harvested) and decreased in France (by 38 per cent). With 3,574 hectares under cultivation, the level in Spain stayed the same as the previous year. The total area sown in the main producing countries was 4 per cent more than the total estimated area.

9. While France had previously cultivated only opium poppies rich in morphine and in thebaine, it started the cultivation of opium poppy rich in codeine in 2013. Currently, Australia and France are the only producers of opium poppy rich in codeine and an extra row has been added to table 1 to reflect the cultivation data of those two countries for opium poppy rich in codeine. The estimated area for opium poppy rich in codeine in 2014 is 2,900 hectares for Australia and 2,050 hectares for France. Both countries are expected to increase their cultivation further in 2015.

10. The advance data for 2014 show a 12 per cent decrease in the actual area of opium poppy rich in morphine harvested in major producing countries for which advance data were available. This was due to the expected decrease in the area harvested in Australia (37 per cent), Turkey (18 per cent), France (12 per cent) and Spain (2 per cent) in 2014. India is expected to keep the same level of the cultivation in 2014. Hungary, being the only country where cultivation rose in 2014, is expected to increase the actual area harvested by 112 per cent. Cultivation of opium poppy rich in thebaine measured in terms of area harvested is expected to decrease in Australia by 21 per cent and increase in Spain by 46 per cent. It is expected that the level of cultivation will stay the same in France.

11. For 2015, estimates for cultivation of opium poppy rich in morphine will increase relative to 2014 in Australia, Hungary and India and will decrease in France. In Spain, it is expected that the level of cultivation will stay the same in 2015. With regard to the cultivation of opium poppy rich in thebaine, Australia estimated a decrease, whereas Hungary and Spain estimated an increase in the area to be used for the cultivation of that variety of opium poppy. The estimates for France for 2015 are almost the same as the estimated area in 2014.

## Production of opiate raw materials

12. 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 2010-2015.

13. The total production of morphine-rich opiate raw materials in the main producing countries increased to 516 tons<sup>4</sup> in morphine equivalent in 2013, which is below the level reached in 2011 (541 tons), when Turkey was the largest producer (see table 2). A planned, substantial one-year decrease in production in Turkey for 2012 was counterbalanced by increases in production in other countries. In 2013, the total production of Turkey returned to 67 tons (up from 14 tons in the previous year). Australia continued to be the largest producer in 2013, with 190 tons, followed by France, Spain and Turkey. Australia accounted for 37 per cent of global production in terms of morphine equivalent.

14. Global production of opiate raw materials rich in morphine is expected to be about 635 tons in morphine equivalent in 2014 (see table 2). Of that quantity, poppy

straw will account for 608 tons (96 per cent) and opium will account for 27 tons (4 per cent). The main producers in 2014 will be Australia and Spain (both with 27 per cent of total production), France (21 per cent), Turkey (9 per cent), Hungary (5 per cent) and India (4 per cent). Those six countries together are expected to account for about 93 per cent of global production of opiate raw materials rich in morphine in 2014.

15. According to the information submitted by the Governments of the main producing countries in form B for 2015, it is estimated that global production of opiate raw materials rich in morphine will increase to 715 tons in morphine equivalent in 2015, mainly as a result of the increase in the estimates of Australia, Hungary, India and Turkey.

16. Global production of opiate raw materials rich in thebaine increased continuously from 2010 to 2013, when 364 tons<sup>5</sup> in thebaine equivalent were produced (see table 3). It is expected to increase slightly in 2014 to 368 tons. In 2013, Australia accounted for 86 per cent of the global total, Spain for 9 per cent, France for 2 per cent and India and Hungary 1 per cent each. Australia increased its production to 312 tons in 2013, which was an increase of 35 per cent compared with the previous year. While production dropped to 9 tons in France in 2013, it stayed at about the same level in Hungary (4 tons) and Spain (34 tons). In India, concomitantly with the reduction in the cultivation of opium poppy, thebaine obtained directly from opium dropped to 4 tons in 2013.

17. Global production of opiate raw materials rich in thebaine is expected to slightly increase to about 368 tons in thebaine equivalent in 2014. An expected decrease of 14 per cent in Australia would be offset by an increase in production of 94 per cent in Spain and 144 per cent in France. Australia, France and Spain are expected to account for about 97 per cent of the global production of opiate raw materials rich in thebaine in 2014.

18. Global production of thebaine-rich materials in 2015 is expected to decrease to 325 tons. This will mainly be due to the continuing decrease (approximately 35 per cent) in the production in Australia. As in previous years, the actual production of opiate raw materials in 2014 may differ considerably from the estimates, depending on weather and other conditions.

<sup>4</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.

<sup>5</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.

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

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 546 tons in morphine equivalent at the end of 2013. Those stocks were considered to be sufficient to cover 14 months of expected global demand at the 2014 level of demand. In 2013, Spain was the country with the largest stocks of opiate raw materials (120 tons in morphine equivalent, mainly in the form of poppy straw and concentrate of poppy straw), followed by

France (98 tons), India (79 tons, all in the form of opium), Australia (76 tons), Turkey (70 tons) and the United States of America (37 tons). Those six countries together accounted for 89 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. Stocks of opiate raw materials rich in thebaine (poppy straw, concentrate of poppy straw and opium) increased to about 265 tons in thebaine equivalent by the end of 2013 (see table 3). Those stocks are sufficient to cover the

**Table 2. Opiate raw materials rich in morphine: production, demand, balance between the two<sup>a</sup> and stocks, in tons of morphine equivalent, 2010-2015**

	2010	2011	2012	2013	2014 <sup>b</sup>	2015 <sup>c</sup>
<b>Australia</b>						
Production	97	113	174	190	174	230
<b>France</b>						
Production	89	71	92	101	134	134
<b>Hungary</b>						
Production	18	13	9	7	31	61
<b>India</b>						
Production	63	87	83	44	27	65
<b>Spain</b>						
Production	47	73	83	83	171	118
<b>Turkey</b>						
Production	140	164	14	67	58	81
<b>Other countries</b>						
Production	25	20	22	24	40	26
<b>(1) Total production</b>	<b>479</b>	<b>541</b>	<b>477</b>	<b>516</b>	<b>635</b>	<b>715</b>
<b>Demand for</b>						
Opium	49	59	59	57	60 <sup>d</sup>	60 <sup>d</sup>
Poppy straw and concentrate of poppy straw	352	354	397	395	400 <sup>d</sup>	420 <sup>d</sup>
<b>(2) Total demand for opiate raw materials</b>	<b>401</b>	<b>413</b>	<b>456</b>	<b>452</b>	<b>460<sup>d</sup></b>	<b>480<sup>d</sup></b>
<b>(3) Total demand for opiates for medical and scientific purposes<sup>e</sup></b>	<b>378</b>	<b>391</b>	<b>415</b>	<b>373</b>	<b>400<sup>d</sup></b>	<b>410<sup>d</sup></b>
<b>Balance (1) minus (2)</b>	<b>78</b>	<b>128</b>	<b>21</b>	<b>64</b>	<b>175<sup>d</sup></b>	<b>235<sup>d</sup></b>
<b>Balance (1) minus (3)</b>	<b>101</b>	<b>150</b>	<b>62</b>	<b>143</b>	<b>235<sup>d</sup></b>	<b>305<sup>d</sup></b>
<b>Stocks of</b>						
Opium	78	113	132	97	..	..
Poppy straw	266	285	241	321	..	..
Concentrate of poppy straw	74	95	110	128	..	..
<b>Total stocks of opiate raw materials</b>	<b>418</b>	<b>493</b>	<b>483</b>	<b>546</b>	<b>721</b>	<b>956</b>
<b>Total stocks of all opiates</b>	<b>378</b>	<b>369</b>	<b>428</b>	<b>509</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 above.

<sup>b</sup>Figures for 2014 are based on advance data submitted by Governments to the Board.

<sup>c</sup>Figures for 2015 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 controlled under the 1961 Convention as amended by the 1972 Protocol.

**Table 3. Opiate raw materials rich in thebaine: production, demand, balance between the two<sup>a</sup> and stocks, in tons of thebaine equivalent, 2010-2015**

	2010	2011	2012	2013	2014 <sup>b</sup>	2015 <sup>c</sup>
<b>Australia</b>						
Production	156	230	231	312	268	173
<b>France<sup>d</sup></b>						
Production	2	10	14	9	22	28
<b>Hungary</b>						
Production	0	3	3	4	7	26
<b>Spain<sup>d</sup></b>						
Production	47	22	31	34	66	88
<b>India</b>						
Thebaine extracted from opium	6	9	8	4	3	8
<b>Other countries</b>						
Thebaine extracted from poppy straw (M)	1	1	1	1	2	2
<b>(1) Total production</b>	<b>212</b>	<b>275</b>	<b>288</b>	<b>364</b>	<b>368</b>	<b>325</b>
<b>Demand for</b>						
Opium	5	6	6	6	6 <sup>e</sup>	6 <sup>e</sup>
Poppy straw and concentrate of poppy straw	195	220	255	229	254 <sup>e</sup>	264 <sup>e</sup>
<b>(2) Total demand for opiate raw materials</b>	<b>200</b>	<b>226</b>	<b>261</b>	<b>235</b>	<b>260<sup>e</sup></b>	<b>270<sup>e</sup></b>
<b>(3) Total demand for opiates for medical and scientific purposes<sup>f</sup></b>	<b>96</b>	<b>107</b>	<b>124</b>	<b>108</b>	<b>130<sup>e</sup></b>	<b>140<sup>e</sup></b>
<b>Balance (1) minus (2)</b>	<b>12</b>	<b>49</b>	<b>27</b>	<b>129</b>	<b>108<sup>e</sup></b>	<b>55</b>
<b>Balance (1) minus (3)</b>	<b>116</b>	<b>168</b>	<b>164</b>	<b>256</b>	<b>238<sup>e</sup></b>	<b>185</b>
<b>Stocks</b>						
Opium	8	11	13	10	..	..
Poppy straw	88	85	81	160	..	..
Concentrate of poppy straw	82	83	89	95	..	..
<b>Total stocks of opiate raw materials</b>	<b>178</b>	<b>179</b>	<b>183</b>	<b>265</b>	<b>373</b>	<b>428</b>
<b>Total stocks of all opiates</b>	<b>172</b>	<b>196</b>	<b>225</b>	<b>233</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 above.

<sup>b</sup>Figures for 2014 are based on advance data submitted by Governments to the Board.

<sup>c</sup>Figures for 2015 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.

expected global demand in 2014 for about 12 months. Australia and the United States accounted for about 80 per cent of the world total in 2013, while countries with lower production levels and countries importing those raw materials held the remaining stocks.

21. Global stocks of opiates based on morphine-rich raw material, mainly in the form of codeine and morphine, held at the end of 2013 (509 tons in morphine equivalent) (see table 2) were sufficient to cover global demand for those

opiates for 15 months. On the basis of data reported by Governments, total stocks of both opiates and opiate raw materials are fully sufficient to cover demand for opiates.

22. Global stocks of opiates based on thebaine-rich raw material (oxycodone, thebaine and a small quantity of oxymorphone) continued to increase in 2013. At the end of 2013, those stocks stood at 233 tons in thebaine equivalent (see table 3) and were sufficient to cover global demand for such opiates for about 22 months.



## 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 of all opiates controlled under the 1961 Convention.<sup>6</sup>

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

24. Global demand by manufacturers for opiate raw materials rich in morphine has increased, with fluctuations since 2000, reaching 456 tons in morphine equivalent in 2012. In 2013, global demand for opiate raw materials rich in morphine decreased to 452 tons in morphine equivalent but is expected to increase again in 2014 and 2015: it is anticipated to be about 460 tons in 2014 and about 480 tons in 2015 (see table 2).

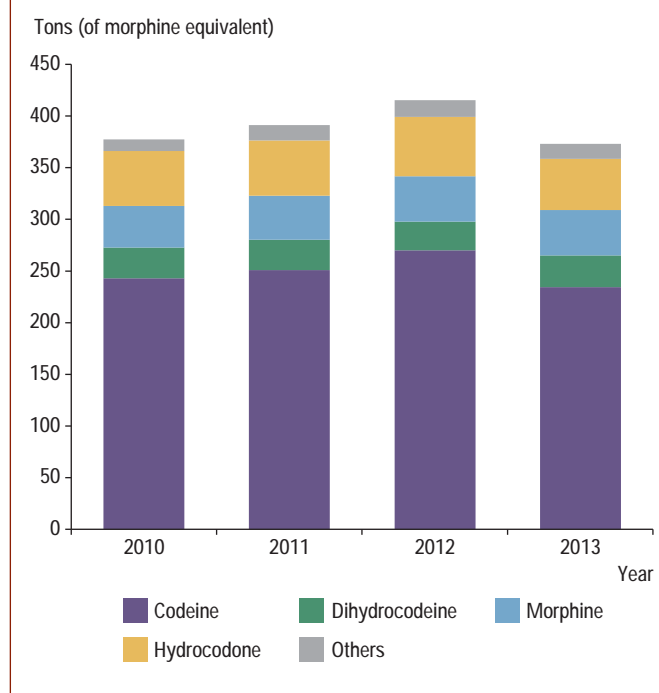
25. Global demand by manufacturers for opiate raw materials rich in thebaine has also been increasing in recent years, albeit also with fluctuations. In 2013, total demand decreased to 235 tons of thebaine equivalent, from 261 tons in 2012. Global demand for raw materials rich in thebaine is expected to rise to about 260 tons of thebaine equivalent in 2014 and to reach 270 tons in 2015 (see table 3).

### 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 continuously between 2010 and 2012. However, in 2013, global demand for morphine-based opiates for medical and scientific purposes decreased to 373 tons, which was slightly lower than the level reached in 2010 (378 tons). That demand is expected to increase moderately and, as a result, global demand for opiates based on morphine may reach 400 tons in 2014.

<sup>6</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.

Figure I. Consumption of opiates manufactured from morphine, in tons of morphine equivalent, 2010-2013



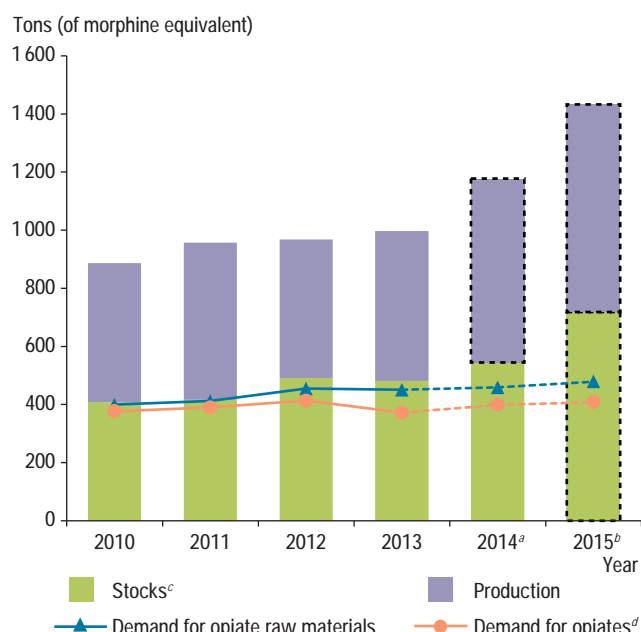
27. Demand for thebaine-based opiates is concentrated mainly in the United States and has increased sharply since the late 1990s. Similar to morphine-based opiates, the global demand for thebaine-based opiates decreased in 2013, to 108 tons. It is likely to rise in future years, partly because the consumption of such opiates is expected to increase in countries other than the United States. Global demand is anticipated to reach approximately 130 tons of thebaine equivalent in 2014 and 140 tons in 2015 (see figure III).

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

28. The global production of opiate raw materials rich in morphine has exceeded the global demand for those raw materials since 2009. As a result, stocks have been increasing, albeit also with fluctuations. In 2013, stocks increased to 546 tons in morphine equivalent and were sufficient to cover the expected global demand for about 14 months (see figure II).<sup>7</sup> In 2014, global production of opiate raw materials rich in morphine is expected to exceed global demand again, with the result that global stocks of those raw materials will further increase in 2014. Stocks are expected to reach 721 tons by the end of 2014, which is equivalent to about 18 months of expected global demand at the 2015 level of demand (although not all data are available to have a complete forecast). For 2015, producing

<sup>7</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 II. Supply of and demand for opiate raw materials rich in morphine, in morphine equivalent, 2010-2015**



<sup>a</sup>Data for production and demand for 2014 are based on advance data (dotted line) submitted by Governments.

<sup>b</sup>Data for 2015 are based on estimates (dotted line) submitted by Governments.

<sup>c</sup>Stocks as at 1 January of each year.

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

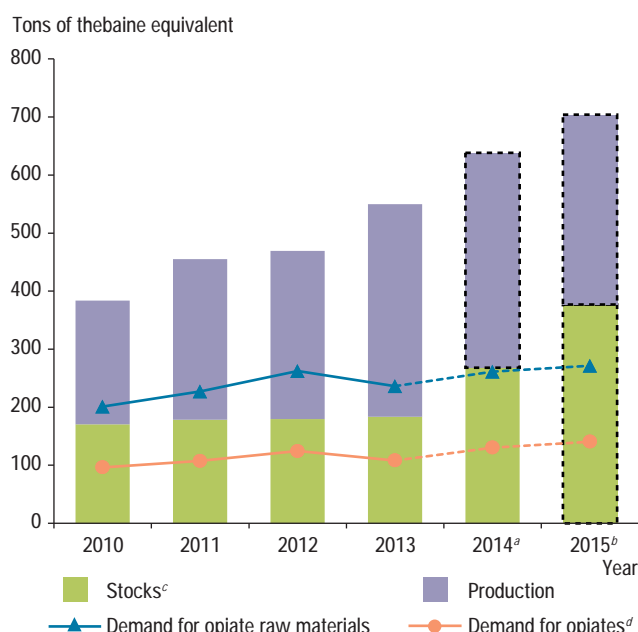
countries indicated that they plan to increase production. Stocks are anticipated to reach about 956 tons at the end of 2015, sufficient to cover several months of expected global demand. The global supply of opiate raw materials rich in morphine (stocks and production) will remain fully sufficient to cover global demand.

29. In 2013, global production of opiate raw materials rich in thebaine was again higher than demand, leading to an increase in stocks (265 tons) at the end of 2013, equivalent to global demand for 12 months (see figure III). Production is expected to stay at the same level in 2014 and to decrease in 2015. By the end of 2014, global stocks of opiate raw materials rich in thebaine will likely reach 373 tons, sufficient to cover global demand for about 16 months, and at the end of 2015 may reach 428 tons, sufficient to cover global demand for several months. The global supply of opiate raw materials rich in thebaine (stocks and production) will be more than sufficient to cover global demand in 2014 and 2015.

## Trends in consumption levels of opioids

30. Figure IV presents the global consumption levels of opiates and synthetic opioids over the 20-year period from 1994 to 2013. The figure reflects data including

**Figure III. Supply of and demand for opiate raw materials rich in thebaine, in tons of thebaine equivalent, 2010-2015**



<sup>a</sup>Data for production and demand for 2014 are based on advance data (dotted line) submitted by Governments.

<sup>b</sup>Data for 2015 are based on estimates (dotted line) submitted by Governments.

<sup>c</sup>Stocks as at 1 January of each year.

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

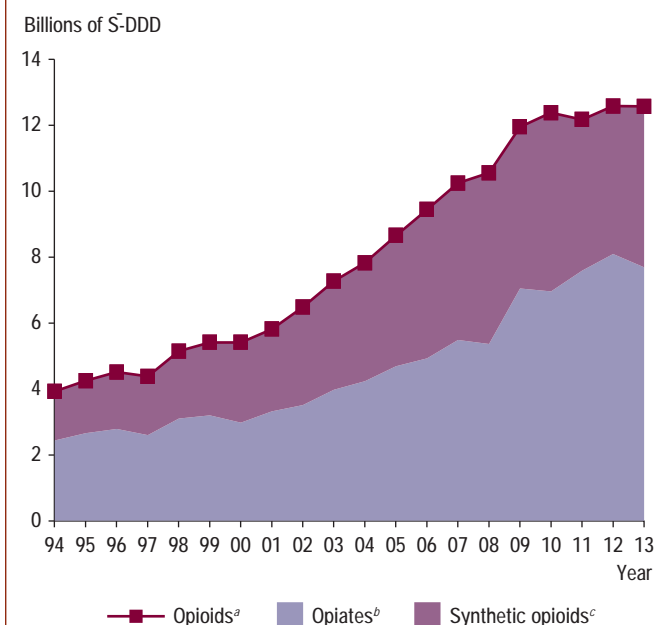
buprenorphine and pentazocine, which are opioids controlled under the 1971 Convention. To allow the aggregation of consumption data for substances having different potencies, the consumption levels are expressed in billions of defined daily doses for statistical purposes (S-DDD).<sup>8</sup>

31. Over the past 20 years, the global consumption of opioids has more than tripled. The share of consumption of opiates in the total consumption of opioids fluctuated from 62 per cent in 1994 to 52 per cent in 2006 and rose again to 61 per cent in 2013. As a result, the share of synthetic opioids, which are used for the same indications as opiates, increased from 29 per cent in 1992 to 48 per cent in 2008 but declined to 39 per cent in 2013. Between 2010 and 2013, the ratio between the consumption of opiates and synthetic opioids stabilized at about 60 per cent for opiates and 40 per cent for synthetic opioids. Throughout the period, the supply of opiate raw materials from which opiates were obtained was sufficient to cover the increasing demand. It is expected that the demand for opiates will increase again in the future, while their share in the total consumption of opioids may decline, owing to the expected

<sup>8</sup>See the explanatory notes to tables XIV.1-XIV.3 for an explanation of S-DDD 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,<sup>a</sup> expressed in billions of defined daily doses for statistical purposes (S-DDD), 1994-2013**



<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.

growth in the consumption of synthetic opioids.

32. The available data indicate that the amount of opiate raw material available for the manufacturing of narcotic drugs for pain relief is more than sufficient to satisfy the current level of demand as estimated by Governments. In addition, both production and stocks continue to increase. However, the data collected and analysed by INCB show that the consumption of drugs for pain relief and other medical purposes is still low in most countries. Access to these drugs is very uneven, with consumption concentrated primarily in countries in North America, Western Europe and Oceania. This imbalance is particularly worrying as the latest data show that many of the conditions requiring pain management are increasing in low- and middle-income countries. At the same time, in recent years there has been an increase in the abuse of prescription drugs and related overdose deaths in countries with a high per capita consumption of opioid analgesics.

33. The overall goal of the international drug control conventions is a well-functioning national and international system for managing the availability of narcotic drugs that provide relief from pain and suffering by ensuring the safe delivery of the best affordable drugs to those patients who need them and, at the same time, preventing the diversion of drugs for the purpose of abuse.