INTERNATIONAL NARCOTICS CONTROL BOARD

Narcotic Drugs
Stupéfiants
Estupefacientes

2024

Estimated World Requirements for 2025
Statistics for 2023

Évaluations des besoins du monde pour 2025
Statistiques pour 2023

Previsiones de las necesidades mundiales para 2025
Estadísticas de 2023

United Nations

Reports published by the International Narcotics Control Board for 2024

The *Report of the International Narcotics Control Board for 2024* (E/INCB/2024/1) is supplemented by the following reports:

Narcotic Drugs: Estimated World Requirements for 2025; Statistics for 2023 (E/INCB/2024/2)

Psychotropic Substances: Statistics for 2023; Assessments of Annual Medical and Scientific Requirements for Substances in Schedules II, III and IV of the Convention on Psychotropic Substances of 1971 for 2025 (E/INCB/2024/3)

Precursors, Chemicals and Equipment Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2024 on the Implementation of Articles 12 and 13 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988 (E/INCB/2024/4)

The updated lists of substances under international control, comprising narcotic drugs, psychotropic substances and substances frequently used in the illicit manufacture of narcotic drugs and psychotropic substances, are contained in the latest editions of the annexes to the statistical forms ("Yellow List", "Green List" and "Red List"), which are also issued by the Board.

Rapports publiés par l'Organe international de contrôle des stupéfiants pour 2024

Le *Rapport de l'Organe international de contrôle des stupéfiants pour 2024* (E/INCB/2024/1) est complété par les rapports suivants:

Stupéfiants: Évaluations des besoins du monde pour 2025 — Statistiques pour 2023 (E/INCB/2024/2)

Substances psychotropes: Statistiques pour 2023 — Prévisions des besoins annuels médicaux et scientifiques concernant les substances des Tableaux II, III et IV de la Convention sur les substances psychotropes de 1971 pour 2025 (E/INCB/2024/3)

Précurseurs, produits chimiques et équipements fréquemment utilisés dans la fabrication illicite de stupéfiants et de substances psychotropes : Rapport de l'Organe international de contrôle des stupéfiants pour 2024 sur l'application des articles 12 et 13 de la Convention des Nations Unies contre le trafic illicite de stupéfiants et de substances psychotropes de 1988 (E/INCB/2024/4)

Les listes à jour des substances sous contrôle international, comprenant les stupéfiants, les substances psychotropes et les substances fréquemment utilisées dans la fabrication illicite de stupéfiants et de substances psychotropes, figurent dans les dernières éditions des annexes aux rapports statistiques annuels ("Liste jaune", "Liste verte" et "Liste rouge") publiées également par l'Organe.

Informes publicados por la Junta Internacional de Fiscalización de Estupefacientes correspondientes a 2024

El *Informe de la Junta Internacional de Fiscalización de Estupefacientes correspondiente a 2024* (E/INCB/2024/1) está complementado por los siguientes informes:

Estupefacientes: Previsiones de las necesidades mundiales para 2025; Estadísticas de 2023 (E/INCB/2024/2)

Sustancias Sicotrópicas: Estadísticas de 2023; Previsiones de las necesidades anuales para fines médicos y científicos de las sustancias de las Listas II, III y IV del Convenio sobre Sustancias Sicotrópicas de 1971 para 2025 (E/INCB/2024/3)

Precursores, sustancias químicas y equipo frecuentemente utilizados para la fabricación ilícita de estupefacientes y sustancias sicotrópicas: Informe de la Junta Internacional de Estupefacientes correspondiente a 2024 sobre la aplicación de los artículos 12 y 13 de la Convención de las Naciones Unidas contra el Tráfico Ilícito de Estupefacientes y Sustancias Sicotrópicas de 1988 (E/INCB/2024/4)

Las listas actualizadas de las sustancias sometidas a fiscalización internacional, que comprenden estupefacientes, sustancias sicotrópicas y sustancias frecuentemente utilizadas para la fabricación ilícita de estupefacientes y sustancias sicotrópicas, figuran en las ediciones más recientes de los anexos de los formularios estadísticos ("Lista Amarilla", "Lista Verde" y "Lista Roja"), también publicados por la Junta.

Contacting the International Narcotics Control Board

Vienna International Centre
Room E-1319
P.O. Box 500
1400 Vienna
Austria

Telephone: (+43-1) 26060
Fax: (+43-1) 26060-5867 or 26060-5868
E-mail: incb.secretariat@un.org

The present report is also available on the website of the Board (www.incb.org).
Le présent rapport est également disponible sur le site Web de l'OICS (www.incb.org).
El presente informe también se puede consultar en el sitio web de la Junta (www.incb.org).

INTERNATIONAL NARCOTICS CONTROL BOARD
ORGANE INTERNATIONAL DE CONTRÔLE DES STUPÉFIANTS
JUNTA INTERNACIONAL DE FISCALIZACIÓN DE ESTUPEFACIENTES

Narcotic Drugs

Estimated World Requirements for 2025

Statistics for 2023

Stupéfiants

Évaluations des besoins du monde pour 2025

Statistiques pour 2023

Estupefacientes

Previsiones de las necesidades mundiales para 2025

Estadísticas de 2023

UNITED NATIONS
NATIONS UNIES
NACIONES UNIDAS
Vienna, 2025

E/INCB/2024/2

UNITED NATIONS PUBLICATION
Sales No.: T.25.XI.2
ISBN: 978-92-1-003416-6
e-ISBN: 978-92-1-107122-1
ISSN: 1013-3453
e-ISSN: 2412-4621

CONTENTS

Annexes

Part one
General Information

Notes:

Part one provides general information for users of the present technical report on narcotic drugs. It consists of a section entitled “Introduction”, a section entitled “Remarks on the statistical tables” and two indexes:

(a) An English-French-Spanish index of names of countries and non-metropolitan territories;

(b) An English-French-Spanish index of names of narcotic drugs.

In 2012, the Board decided to modify the structure of the technical report on narcotic drugs by moving some information to the annexes. In 2024, the Board further decided to make Part IV. “Statistical information” available only online. As of 2024, the report in its entirety, including statistical information and annexes, is available on the INCB website (www.incb.org).

The section entitled “Introduction” contains explanations on the purpose of the technical report and on the main modifications to the structure and content of the report made last year.

The section entitled “Remarks on the statistical tables” provides general clarifications on the statistical tables.

The indexes facilitate referencing, since countries, non-metropolitan territories and narcotic drugs are listed in the tables in English alphabetical order.

INTRODUCTION

1. *Narcotic Drugs: Estimated World Requirements for 2025; Statistics for 2023* is one of the three annual technical reports published by the International Narcotics Control Board this year.[1]

2. The technical report on narcotic drugs is published in accordance with the provisions of article 15 (Reports of the Board) of the Single Convention on Narcotic Drugs of 1961, which stipulates that:

> "1. The Board shall prepare an annual report on its work and such additional reports as it considers necessary containing also an analysis of the estimates and statistical information at its disposal, and, in appropriate cases, an account of the explanations, if any, given by or required of Governments, together with any observations and recommendations which the Board desires to make. These reports shall be submitted to the [Economic and Social] Council through the Commission, which may make such comments as it sees fit.
>
> "2. The reports shall be communicated to the Parties and subsequently published by the Secretary-General. The Parties shall permit their unrestricted distribution."

3. Furthermore, article 12 (Administration of the estimate system), paragraph 6, of the 1961 Convention stipulates that:

> "In addition to the reports mentioned in article 15, the Board shall, at such times as it shall determine but at least annually, issue such information on the estimates as in its opinion will facilitate the carrying out of this Convention."

4. The technical data on narcotic drugs are published for control purposes and to meet the needs of researchers, enterprises and the general public. They are based on information furnished by Governments to the Board in accordance with the relevant provisions of the 1961 Convention. The adherence by countries and territories to that Convention and the status of receipt of information (statistics and estimates) by the Board from their Governments are reflected in part two of this technical report.

5. The publication of statistical data (part four of this technical report) provides information for analytical purposes, inter alia, on the availability and use of narcotic drugs in various countries and territories. The publication of estimates and statistics on production, manufacture, stocks and utilization of narcotic drugs is also intended to furnish producing and manufacturing countries with information on prospective trends, in order to encourage them to adjust their plans in a manner that will enable them to maintain a balance between supply and demand.

6. The preparation of estimates and statistics for submission to the Board requires the participation of several national administrative departments (health, police, customs, justice etc.), and the furnishing of coherent data is frequently a positive sign that good national control exists. The degree of effectiveness with which national authorities are operating can be assessed by analysing the information they furnish to the Board, for example by comparing their estimates and statistics for a particular year, as is done for all countries and territories in annex III of this technical report.

---

[1]The other two technical reports are: *Psychotropic Substances: Statistics for 2023; Assessments of Annual Medical and Scientific Requirements for Substances in Schedules II, III and IV of the Convention on Psychotropic Substances of 1971 for 2025* (United Nations publication, Sales No. E/INCB/2024/3); and *Precursors, Chemicals and Equipment Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2024 on the Implementation of Articles 12 and 13 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988* (United Nations publication, Sales No. E/INCB/2024/4).

Remarks on the statistical tables

7. The following general remarks refer to statistical tables contained in part four and annexes II, III, IV and V of the present publication:

(a) The data appearing in the tables are those available to the Board as at 1 November 2024.

(b) Fractions of measurement units are not displayed in the quantities appearing for each country. However, fractions of a kilogram are accounted for in the total; the sums of those fractions, rounded to the nearest whole number, are then included in the total.

(c) In part four, with the exception of tables XIII.1 and XIV.1, fractions of a kilogram that are equal to or higher than 500 grams have been rounded up to the next kilogram; if fractions of a kilogram are smaller than 500 grams, they are rounded down. In table XIII.1, amounts are displayed to the milligram level and are not rounded up. In table XIV.1.a through table XIV.1.i the symbol << is used in cases where countries or regions have reported consumption of narcotic drugs not reaching 1 S-DDD per million inhabitants per day.

(d) The totals appearing in the statistical tables represent the sum of only the figures furnished to the Board and do not necessarily represent complete world totals. For the reasons indicated in subparagraphs *(b)* and *(c)* above, the totals are sometimes higher or lower than the sums of the amounts.

(e) Decimal fractions: in part four of this publication, when decimal fractions appear in tables I-VII and XI (in the yields) or in table XIII.1 (where consumption data are expressed in grams), such fractions are separated from the whole numbers by a decimal point.

(f) In tables III-VII of part four, the manufacturing yields vary from one year to another, sometimes to a considerable degree, because of the fact that the manufacturing process extends from one year to another. Manufacture may take place at the beginning of a year on the basis of raw materials that were in use at the end of the preceding year. An average relating to several successive years gives a clearer indication of actual yields. Certain yields, however, necessitate investigation by the Board.

(g) A question mark "?" signifies that the statistical data were not received by 1 November 2024. The sign "—" signifies "nil". The sign "<<" signifies that the value is smaller than half of the unit of measurement in the table in question but not "nil". Two dots (. .) signify that a statistical report was furnished but data were not submitted for the item in question.

(h) Countries and non-metropolitan territories are listed in English alphabetical order. The names of non-metropolitan territories are shown in italics.

INDEX OF NAMES OF COUNTRIES AND NON-METROPOLITAN TERRITORIES

Name of country or non-metropolitan territory

Name of country or non-metropolitan territory

Indonesia
Iran (Islamic Republic of)
Iraq
Ireland
Israel
Italy
Jamaica
Japan
Jordan
Kazakhstan
Kenya
Kiribati
Kuwait
Kyrgyzstan
Lao People's Democratic Republic
Latvia
Lebanon
Lesotho
Liberia
Libya
Liechtenstein
Lithuania
Luxembourg
Madagascar
Malawi
Malaysia
Maldives
Mali
Malta
Marshall Islands
Mauritania
Mauritius
Mexico
Micronesia (Federated States of)
Monaco
Mongolia
Montenegro
Montserrat
Morocco
Mozambique
Myanmar
Namibia
Nauru
Nepal
Netherlands (Kingdom of the)[a]
New Caledonia
New Zealand
Nicaragua
Niger
Nigeria
Niue
Norfolk Island
North Macedonia
Norway
Oman
Pakistan
Palau
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Qatar
Republic of Korea
Republic of Moldova
Romania
Russian Federation
Rwanda
Saint Helena
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Samoa
San Marino
Sao Tome and Principe
Saudi Arabia
Senegal
Serbia
Seychelles
Sierra Leone
Singapore
Sint Maarten
Slovakia
Slovenia
Solomon Islands
Somalia
South Africa
South Sudan
Spain
Sri Lanka
State of Palestine
Sudan
Suriname
Sweden
Switzerland
Syrian Arab Republic
Tajikistan
Thailand
Timor-Leste
Togo

[a] Pursuant to the communication dated 3 March 2023 from the permanent mission addressed to the Executive Office of the Secretary-General, the short form of the country name was changed from "Netherlands (the)" to" Netherlands (Kingdom of the)".

Name of country or non-metropolitan territory

Tonga
Trinidad and Tobago
Tristan da Cunha
Tunisia
Türkiye[b]
Turkmenistan
Turks and Caicos Islands
Tuvalu
Uganda
Ukraine
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United Republic of Tanzania
United States of America
Uruguay
Uzbekistan
Vanuatu
Venezuela (Bolivarian Republic of)
Viet Nam
Wallis and Futuna Islands
Yemen
Zambia
Zimbabwe

[b] Since 31 May 2022, "Türkiye" has replaced "Turkey" as the short name used in the United Nations.

INDEX OF NAMES OF NARCOTIC DRUGS

Name of narcotic drug

Name of narcotic drug

Myrophine
Nicocodine
Nicodicodine
Nicomorphine
Noracymethadol
Norcodeine
Norlevorphanol
Normethadone
Normorphine
Norpipanone
Ocfentanil
Opium
Oripavine
Orthofluorofentanyl
Oxycodone
Oxymorphone
Parafluorobutyrylfentanyl
Para-Fluorofentanyl
PEPAP
Pethidine
Pethidine intermediate A
Pethidine intermediate B
Pethidine intermediate C
Phenadoxone
Phenampromide
Phenazocine
Phenomorphan
Phenoperidine
Pholcodine
Piminodine
Piritramide
Proheptazine
Properidine
Propiram
Protonitazene
Racemethorphan
Racemoramide
Racemorphan
Remifentanil
Sufentanil
Tetrahydrofuranylfentanyl
Thebacon
Thebaine
Thiofentanyl
Tilidine
Trimeperidine
U-47700
Valerylfentanyl

Part two

Comments on the reported statistics on narcotic drugs

Notes:

The objective of part two, entitled “Comments on the reported statistics on narcotic drugs”, is to facilitate the use of statistical information on the production, manufacture, consumption, utilization and stocks of the main narcotic drugs under international control and, where applicable, poppy straw, which is presented in the tables of reported statistics. Those data may be used for analytical purposes by Governments, industry, researchers and the general public. The comments focus on developments in the previous year and, where appropriate, take into account the situation during the preceding two decades.

COMMENTS ON THE REPORTED STATISTICS ON NARCOTIC DRUGS

Summary

An analysis of data on the consumption of opioid analgesics, as reported by Governments to the Board, has reconfirmed that the unequal access to and availability of affordable opioid analgesics, such as morphine, is a persistent problem. One factor contributing to this problem is that a significant portion of the morphine manufactured worldwide is not utilized directly for pain relief but rather for other purposes. The consumption of morphine, along with other opioid analgesics, remains concentrated in developed countries within Europe and North America, and the levels of consumption of the substance in other regions are insufficient to adequately address the medical needs of their populations.

The regional imbalance does not stem from a shortage of opiate raw materials. Apart from opium, the production of which has followed an overall decreasing trend over the last 20 years, the overall utilization of poppy straw and concentrate of poppy straw derived from both the morphine-rich and the thebaine-rich varieties of opium poppy remained high in 2023, and stocks increased. That suggests that the supply exceeds the demand, even though the demand expressed by several countries may not accurately reflect the actual medical needs of their populations.

In the 20-year period 2004–2023, the global manufacture of morphine initially increased, from 354.8 tons manufactured in 2004 to 475.3 tons in 2012, when global morphine manufacture reached its peak. After 2012, global manufacture decreased, falling to 178.8 tons in 2023, a considerable decrease from the 218.4 tons manufactured in 2022.

Only a limited amount of the morphine available globally is used for pain relief. In 2023, the amount of morphine used for direct consumption totalled almost 32.5 tons but represented a notably larger share of the total amount manufactured, 18.1 per cent, as compared with 8.1 per cent in 2004. However, many countries continue to report having difficulties in procuring medications containing morphine, even though opiate raw materials are reported to be available in sufficient quantities. Although most countries and territories reported consumption of morphine in 2023, many people still had limited access to it. The differences in consumption levels between countries continues to be significant. Various factors, such as economic and commercial interests, knowledge and training, as well as regulatory frameworks, are influencing the ability of countries to procure and administer morphine for the treatment of pain.

Analysis of data for 2023 on the consumption of opioid analgesics, measured in total defined daily doses for statistical purposes per million inhabitants, by substance and region highlights once again the predominance of fentanyl in most regions of the world. Consumption of oxycodone is highest in North America, Oceania and Western and Central Europe, although the substance is also consumed in other regions. Hydrocodone consumption is significant in the Americas. The share of morphine consumption is less pronounced in most regions.

The production of opium, after decreasing considerably from the level observed in 2004 (847 tons, or 93.2 tons in morphine equivalent), has in recent years been fluctuating between 200 and 300 tons, reaching 288.5 tons (31.5 tons in morphine equivalent) in 2023. Of that amount, 97.8 per cent was produced in India, which continues to report the production of significant quantities of opium, despite having recently started to report the cultivation of opium poppy for the production of poppy straw and despite the global reduction in the demand for opium.

Global thebaine manufacture decreased to 101 tons in 2023, well below the record level of 156 tons in 2016. The demand for medicines derived from thebaine has been fluctuating in past years owing to the restrictions on prescription drugs derived from thebaine imposed in the United States of America, the main market for such medicines, in response to their misuse and the related high number of overdose deaths.

Oxycodone has, over the last 20 years, been one of the drugs commonly associated with overdose deaths in relation to the misuse of prescription drugs, in particular in North America. Global manufacture of oxycodone increased after 2004, reaching a record high of 138.1 tons in 2013. Since then, manufacture has followed a decreasing trend, dropping to 69.5 tons in 2022; however, it increased again, to 85 tons, in 2023. The overall decreasing trend in manufacture may be attributable to stricter control measures introduced in some countries where the risk of overdose deaths and misuse of oxycodone is significant. Similar to oxycodone, global manufacture of hydromorphone increased in 2023, to 5.3 tons, from 4.8 tons in 2022. Notably, the United States continues to be the country reporting the highest level of hydromorphone consumption.

With regard to synthetic opioids, global manufacture of fentanyl increased rapidly in the period 2000–2010, reaching a record level of 4.3 tons in 2010. After that, manufacture followed an overall decreasing trend, dropping to 1.9 tons in 2018, then further, to 1.1 tons, in 2022. However, it increased again in 2023, reaching 2.6 tons.

Over the past 20 years, the global quantity of licitly manufactured heroin averaged approximately 800 kg per year, amounting to more than 1,000 kg in some years. In 2023, a total of 944.1 kg of heroin were licitly manufactured. A number of countries have introduced opioid agonist therapy services aimed at assisting individuals with long-term opioid dependency.

Until 2010, the United States was the only country reporting the licit use of cannabis for medical and scientific purposes. Since 2011, however, an increasing number of countries have started to use cannabis and cannabis extracts for those purposes (in 2023, 27 countries reported such use); global cannabis production has consequently seen an overall increase, amounting to 568.6 tons in 2023. In view of the changes in the requirements for reporting on cannabis and cannabis-related substances (see below), the data on such substances need to be considered with caution.

The Board has worked with Governments to achieve greater uniformity in reporting and monitoring standards regarding the cultivation, manufacture and distribution of, and global trade in, cannabis and cannabis-derived products for medical and scientific purposes. In December 2020, the Board held various consultations with experts and Member States to revise the reporting requirements for cannabis and cannabis-related substances with a view to achieving harmonization. As a result of those consultations, the Board introduced new reporting requirements, effective as of 2024. Information on cannabis and cannabis resin must therefore be reported using the forms provided to Governments for reporting under the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol. In addition to cannabis and cannabis resin, extracts and tinctures of cannabis are listed in Schedule I of the 1961 Convention as amended. However, INCB now recommends that Governments reporting any preparation or by-product derived from cannabis in terms of the cannabinoids it contains do so using the forms provided for reporting under the Convention on Psychotropic Substances of 1971. Owing to these changes, it is expected that, in the coming years, the data relating to cannabis presented in the reports of the Board on narcotic drugs will change noticeably, as more countries will report data on controlled cannabinoids on separate forms provided for reporting under the 1971 Convention, rather than the forms for reporting under the 1961 Convention as amended.

For 2023, the Plurinational State of Bolivia reported the production of 25,343 tons of coca leaf obtained from licit coca bush cultivation. Peru reported the production of 1,259.3 tons. Despite having fluctuated for more than 20 years, global licit cocaine manufacture remained relatively stable in 2023, amounting to 50.7 kg, compared with the 47.4 kg reported in 2022. The global licit consumption of cocaine continued to remain relatively stable, standing at 146.5 kg in 2023.

INTRODUCTION TO THE COMMENTS ON THE REPORTED STATISTICS ON NARCOTIC DRUGS

1. The present comments are intended to facilitate the use of the statistical information on the licit production, manufacture, consumption,[1] utilization[2] and stocks of, as well as trade in, opiate raw materials, the main opioids, including synthetic narcotic drugs under international control, and cannabis, coca leaf and cocaine that is presented in the tables of reported statistics. Unless otherwise indicated, the comments refer to developments during the period 2004–2023.

2. The tables of reported statistics in part four and annexes IV and V of the present report contain data furnished by Governments to the International Narcotics Control Board (INCB) in accordance with article 20 of the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol.[3] The most recent statistical data reflected in the comments are those relating to 2023. The failure by some Governments to submit reports or to provide precise and complete reports, which in some cases has been notable, may have a bearing on the accuracy of some of the information presented in the present report.[4] The most pertinent conclusions and recommendations of INCB based on the analysis of statistical data are included in chapter II of its annual report.[5]

Opiate raw materials

3. Opium and poppy straw are the raw materials obtained from the opium poppy plant (*Papaver somniferum*), from which alkaloids such as morphine, thebaine, codeine and oripavine are extracted. Concentrate of poppy straw is a product obtained in the process of extracting alkaloids from poppy straw. It is controlled under the 1961 Convention as amended. Detailed information on the supply of opiate raw materials and the demand for opiates for medical and scientific purposes is provided in part three of the present publication.

Opium

4. Opium (also called "raw opium") is the latex obtained by making incisions on the green capsules of opium poppy plants. For statistical and comparison purposes, data on the production of and trade in opium are reported at 10 per cent moisture content. When appropriate, the data on opium are also expressed in morphine equivalent,[6] in order to enable comparison between opium and poppy straw. Figure 1 shows the levels of licit production, stocks and use (consumption and utilization) of opium during the period 2004–2023, expressed in morphine equivalent.

[1] For the purposes of the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol, a drug is regarded as "consumed" when it has been supplied to any person or enterprise for retail distribution, medical use or scientific research; and "consumption" is construed accordingly (art. 1, para. 2, of the Convention).

[2] Pursuant to article 20 of the 1961 Convention as amended, the parties furnish the International Narcotics Control Board (INCB) with statistical returns on the utilization of narcotic drugs for the manufacture of other drugs, of preparations in Schedule III of the Convention and of substances not covered by the Convention and on the utilization of poppy straw for the manufacture of drugs.

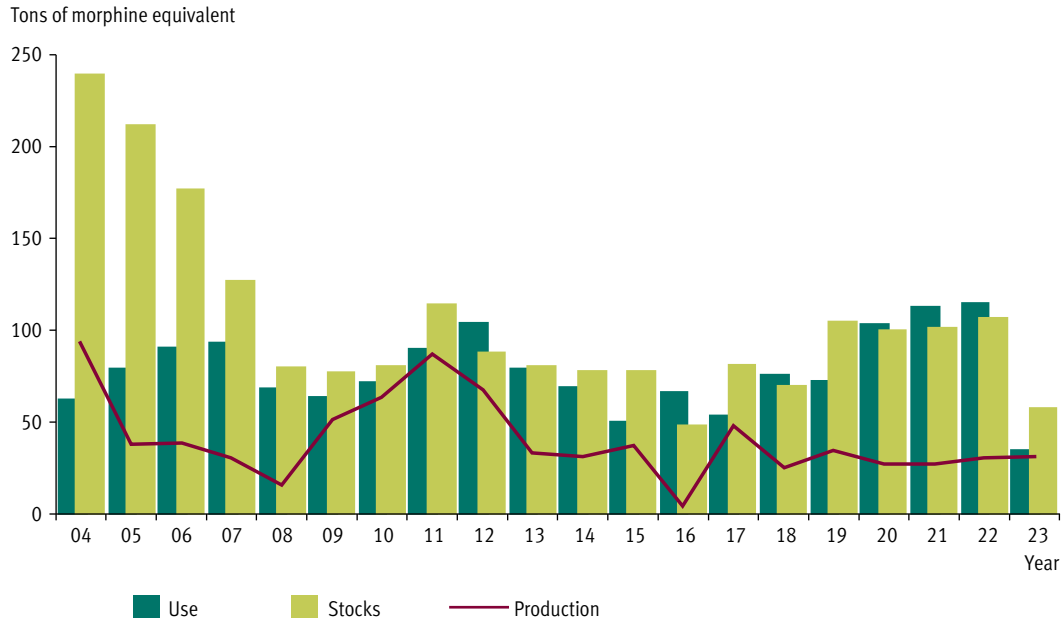
[3] United Nations, *Treaty Series*, vol. 976, No. 14152.

[4] Details on the submission of statistical reports by individual Governments are contained in annex I to the present report.

[5] E/INCB/2024/1.

[6] The morphine or thebaine equivalent is calculated by INCB on the basis of the industrial yield of each alkaloid obtained from opium or poppy straw. Lesser alkaloids contained in opium or poppy straw that are convertible into morphine or thebaine have also been included, adjusted using the appropriate conversion rates, whenever the Board has been informed of their extraction in commercially significant quantities.

Figure 1. Opium: global production, stocks,[a] and use (consumption and utilization), in morphine equivalent, 2004–2023

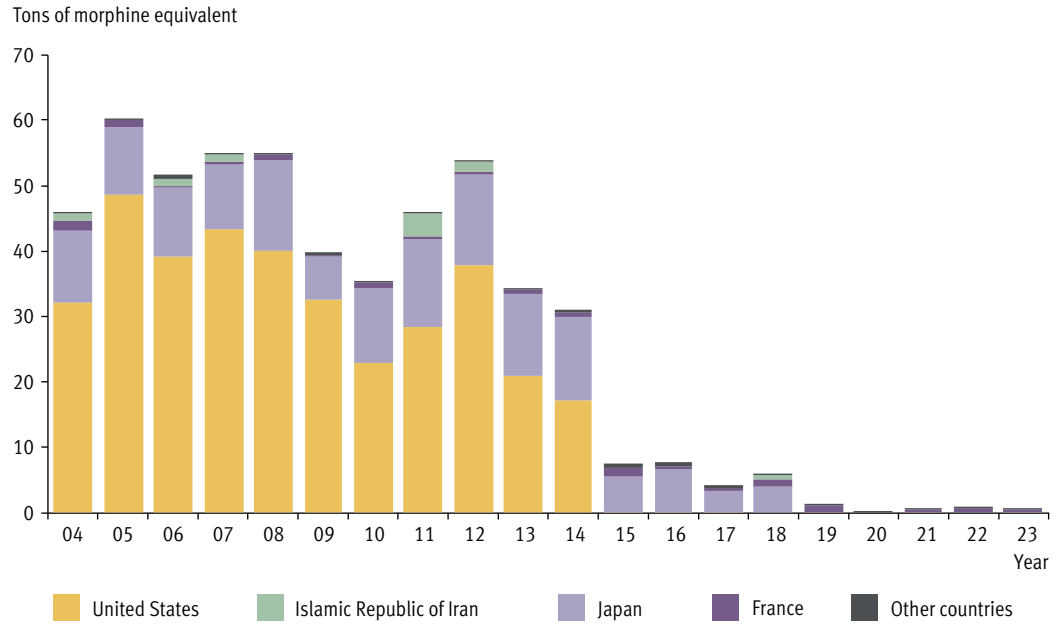


[a] Stocks as at 31 December of each year.

5. In the last 20 years, opium production has decreased considerably. In 2004, more than 847 tons (93.2 tons in morphine equivalent) of opium were produced. Since then, the amount produced each year has followed an overall decreasing trend. In 2023, 288.5 tons (31.5 tons in morphine equivalent) were produced. Apart from 2004, the highest levels of opium production were in 2011 (789.1 tons, or 86.8 tons in morphine equivalent) and 2012 (618 tons, or 67.9 tons in morphine equivalent). India has been the main country reporting production, and the only country reporting licit exports, of raw opium for many years and continued to be in 2023, accounting for the production of 280.7 tons (30.8 tons in morphine equivalent), or 97.8 per cent of total global production. It was followed by China, which reported the production of 5.3 tons (0.5 tons in morphine equivalent), or 1 per cent. India has recently started to report the cultivation of opium poppy for the production of poppy straw. In China, poppy straw has replaced opium as the main raw material used in the manufacture of alkaloids since 2000. Small quantities of opium were also produced in the Democratic People's Republic of Korea and Japan.

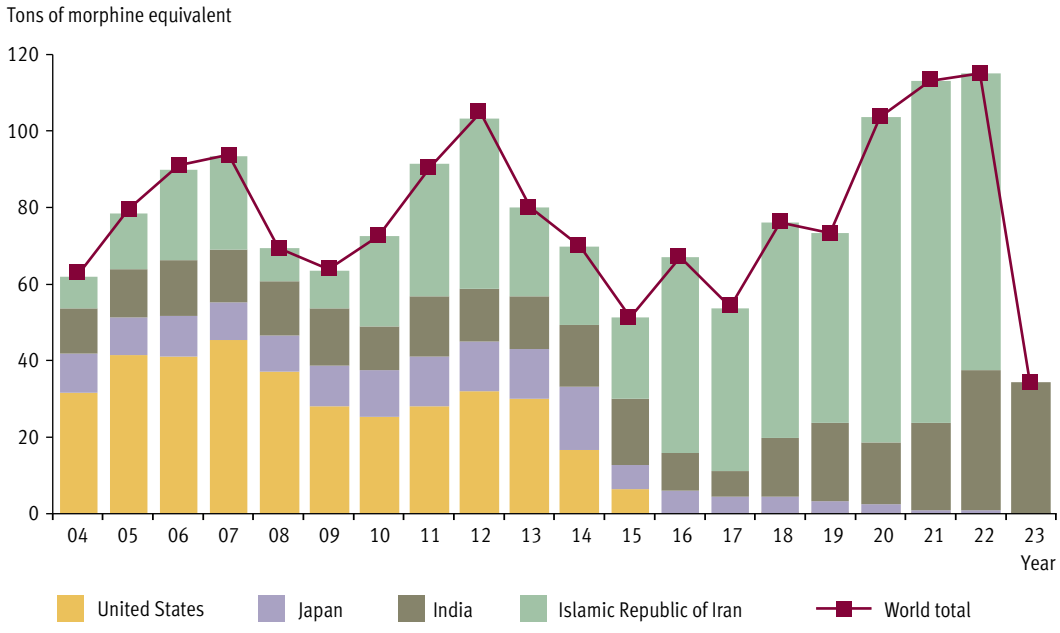
6. Imports of opium from India (see figure 2) have continued the sharp downward trend that started in 2015. Imports amounted to 5 tons (0.5 tons in morphine equivalent) in 2023, representing a very low level of imports compared with 2003 (419 tons, or 46.1 tons in morphine equivalent). The country importing the largest amount of opium in 2023 was France (4 tons, or 78.7 per cent of all imports), followed by Germany (0.4 tons, or 7.5 per cent), the United States (0.3 tons, or 7 per cent) and Spain (0.1 ton, or 2.9 per cent). A number of other countries imported quantities of less than 0.1 tons each. It should be noted that in 2019 Japan ceased importing opium altogether and switched to importing concentrate of poppy straw. That, in turn, had an impact on the decreases in both imports and exports, as well on the increase in stocks held in India.

Figure 2. Opium: imports from India, in morphine equivalent, 2004–2023



7. As in previous years, in 2023, most of the opium produced was used for the extraction of alkaloids, while only a small amount (11.1 tons, or 1.2 tons in morphine equivalent) was used for the manufacture of preparations included in Schedule III of the 1961 Convention as amended. The Islamic Republic of Iran did not submit the required information on the utilization of seized opium for 2023. In 2023, the main country reporting utilization of opium for the extraction of alkaloids was India (311.8 tons, or 34 tons in morphine equivalent) (see figure 3). Details on the utilization of opium for the extraction of alkaloids and the alkaloids obtained are provided in table III of part four of the present publication.

Figure 3. Opium: utilization[a] for the extraction of alkaloids, in morphine equivalent, 2004–2023



[a] Including the utilization of seized opium in Iran (Islamic Republic of) and Myanmar, except for the data for 2023.

8. While most of the opium produced is used for the extraction of alkaloids, opium is also consumed in some countries in the form of preparations, mainly for the treatment of diarrhoea and coughs. Most of those preparations are included in Schedule III of the 1961 Convention as amended.[7] Global consumption of opium for those purposes has fluctuated since 2004 but declined significantly starting in 2017. In 2023, the consumption of opium and its utilization for the manufacture of preparations in Schedule III amounted to 11.1 tons (1.2 tons in morphine equivalent), including 6 tons (0.6 tons in morphine equivalent) in India and 4.8 tons (0.5 tons in morphine equivalent) in China, together accounting for 97.3 per cent of all consumption, including of schedule III preparations.

9. Global stocks of opium reached a peak in 2004 (2,176.2 tons, or 239.3 tons in morphine equivalent). The stocks began to decrease thereafter until 2018, when they stood at 640.1 tons (70.4 tons in morphine equivalent). However, in 2019, the stocks increased again and reached a level of 954.9 tons (105.5 tons in morphine equivalent), subsequently decreasing slightly in 2020, to 879.6 tons (100.6 tons in morphine equivalent), and then increasing again in 2021, to 927.9 tons (102.1 tons in morphine equivalent). In 2023, the stocks almost halved from the level in 2022 (973.3 tons or 107.1 tons in morphine equivalent), decreasing to 530.7 tons (58.4 in morphine equivalent) (see figure 1). India continued to report the largest stocks of opium, at 519.3 tons (57.1 tons in morphine equivalent), constituting 97.8 per cent of the global total. Reflecting the decrease in global stocks, that level of stocks represented a considerable decrease from the level in 2022 (952.5 tons or 104.7 tons in morphine equivalent). Most of the countries that have been reporting the utilization of opium for the manufacture of opiates have reported a reduction in stocks of the substance in recent years and a switch to the use of concentrate of poppy straw. Only China (5.3 tons, or 0.5 tons in morphine equivalent) and France (3.9 tons, or 0.4 tons in morphine equivalent) continued to report significant stocks of opium in 2023.[8]

Poppy straw

10. Poppy straw consists of all parts of the opium poppy plant after mowing except the seeds. Morphine is the predominant alkaloid found in the varieties of opium poppy plant cultivated in most producing countries. Commercial cultivation of the opium poppy plant with high thebaine content started in the second half of the 1990s. In the present report, poppy straw produced from varieties of opium poppy plant rich in morphine is referred to as "poppy straw (M)", poppy straw produced from varieties of opium poppy plant rich in thebaine is referred to as "poppy straw (T)", poppy straw produced from varieties of opium poppy plant rich in codeine is referred to as "poppy straw (C)", poppy straw produced from varieties of opium poppy plant rich in oripavine is referred to as "poppy straw (O)" and poppy straw produced from varieties of opium poppy plant rich in noscapine is referred to as "poppy straw (N)". Some of those varieties contain, in addition to the main alkaloid (morphine, thebaine, codeine, oripavine or noscapine), other alkaloids that can be extracted.

11. The concentration of alkaloids in poppy straw varies significantly among the producing countries. The levels of production of poppy straw among those countries can be compared only by use of a common denominator, which is the morphine or thebaine equivalent of the quantity of poppy straw produced in each country. Commercial cultivation of varieties of opium poppy containing a high codeine content started in Australia in 2009 and in France in 2013.

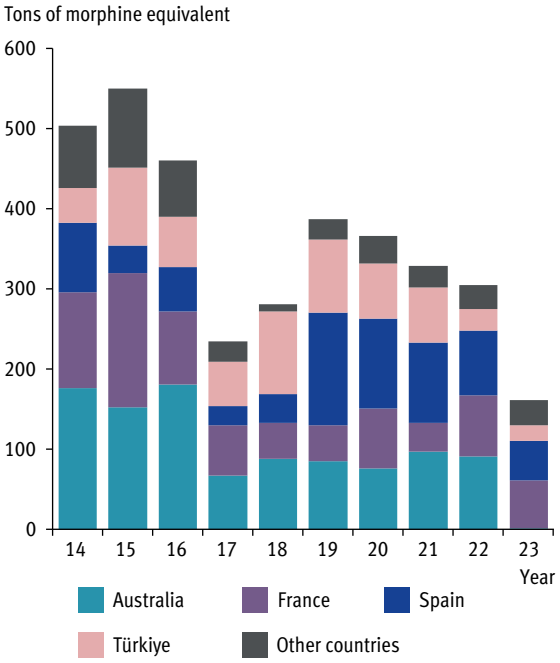
[7] Preparations included in Schedule III of the 1961 Convention as amended are exempt from several control measures that are otherwise mandatory for preparations containing narcotic drugs, including reporting on their consumption and international trade.

[8] For further information on the production and stocks of and demand for opium, see part three of the present publication.

Poppy straw produced mainly from opium poppy rich in morphine[9]

12. Although the submission of statistics on the production of poppy straw is voluntary, most countries cultivating opium poppy plants for the extraction of alkaloids provided such statistics in 2023. Over the years, global production of poppy straw (M) has fluctuated sharply, mainly because of unstable weather conditions and in response to the demand in manufacturing countries. Global production reached 47,736.8 tons in gross weight in 2004, decreased to 26,795.3 tons in 2008, but then increased again, significantly, to 56,779.6 tons in 2015, before decreasing again, to 28,264.8 tons, in 2017. In 2023, global production dropped to 15,122 tons (161 tons in morphine equivalent) (see figure 4). Throughout the two decades prior to 2023, Australia, France, Spain and Türkiye had been the main producer countries. In 2023, the leading producer country was Türkiye, accounting for 7,901.7 tons in gross weight (corresponding to 20 tons in morphine equivalent because of the low yield reported) followed by France (4,185 tons, or 59 tons in morphine equivalent) and India (1,518.9 tons, or 31 tons in morphine equivalent). China, Spain, Australia, Hungary, North Macedonia and Czechia, in descending order of the quantities produced, each reported production of less than 1,000 tons. Changes in the area cultivated with opium poppy plant, the amounts of poppy straw (M) harvested and the yields obtained in producing countries are shown in table II of part four.

Figure 4. Total anhydrous morphine alkaloid contained in all poppy straw varieties: production in the main producing countries, in morphine equivalent, 2014–2023



13. International trade in poppy straw (M) as a raw material continued to be limited. In 2023, Slovakia accounted for almost all exports of poppy straw (M) for the extraction of alkaloids (102.6 tons, or 99.8 per cent of global exports). Türkiye and the United States reported the export of negligible amounts (see annex IV, table 1).

14. The utilization of poppy straw (M) continued to decrease in 2023, dropping to 21,530 tons in gross weight. The main countries reporting the utilization of poppy straw (M) in 2023 were Türkiye (14,336 tons in gross weight), France (4,281.5 tons), Spain (1,329.5 tons), China (784.7 tons), Australia (695.4 tons) and North Macedonia (102.9 tons). Further details on the utilization of poppy straw (M) for the extraction of alkaloids and the yields obtained are contained in table IV of part four.

15. Global stocks of poppy straw (M) in 2023 amounted to 3,230.9 tons in gross weight, of which 52.2 per cent were held in India, 38.7 per cent in Hungary and 8.5 per cent in Spain.

Poppy straw produced mainly from opium poppy rich in thebaine[10]

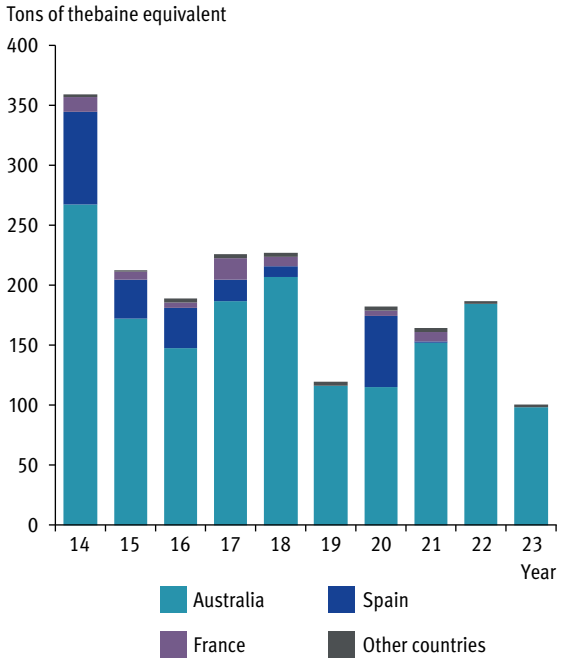
16. Australia and France started to report the production of poppy straw (T) to INCB in 1999. Spain reported the production of poppy straw (T) for the first time in 2004. Canada, China, Hungary and New Zealand have reported sporadic production in recent years. More details on the production of poppy straw (T) can be found in table II of part four.

[9] Morphine and codeine alkaloids (expressed in morphine equivalent) contained in other varieties of poppy straw, such as poppy straw (T) and poppy straw (C), are also included in the total production figures in this subsection, where applicable.

[10] The quantities in thebaine equivalent of the thebaine and oripavine alkaloids contained in other varieties of poppy straw, such as poppy straw (M) and poppy straw (C), are also included in the total production figures in this subsection, where applicable.

17. Production of poppy straw (T) in the main producing countries during the period 2014–2023, expressed in thebaine equivalent, is shown in figure 5. Total production, expressed in gross weight, decreased considerably from 2016 (11,837.9 tons, or 190 tons in thebaine equivalent) to 2023 (3,570.6 tons, or 101 tons in thebaine equivalent). In 2023, Australia was the main producer country, accounting for 93.2 per cent of global production (98 tons in thebaine equivalent), while China accounted for 6.8 per cent of global production in terms of gross weight (the amount in thebaine equivalent has not been calculated because the amount produced was not for export and the information on yield was not available) (see figure 5).

Figure 5. Total anhydrous thebaine alkaloid contained in all poppy straw varieties: production in the main producing countries, in thebaine equivalent, 2014–2023



18. All poppy straw (T) is used in the producing and manufacturing countries for the extraction of alkaloids. The quantities of poppy straw (T) used, the alkaloids obtained from it and the yields are shown in table V of part four. Stocks of poppy straw (T) stood at 3,434.2 tons in gross weight in 2023 and most were held in Spain (85.8 per cent of the global total) and Australia (13.7 per cent).

Poppy straw produced from opium poppy rich in codeine

19. Australia reported the cultivation of poppy straw (C), rich in codeine, for commercial purposes for the first time in 2009, and France did so in 2013. This variety was cultivated specifically to meet the high global demand for codeine. Its production, expressed in gross weight, increased steadily, from 415.3 tons in 2010 to 6,705.9 tons in 2015, but dropped considerably, to 1,313.2 tons, in 2016, subsequently increasing year on year to 8,045.4 tons in 2022 but dropping again, to 2,029.7 tons, in 2023. In that year, Spain accounted for all of the poppy straw produced and the largest share of its utilization (50.5 per cent); it was followed closely by Australia (49.5 per cent). Stocks of poppy straw (C) were held in Spain (5,759.3 tons, or 84.2 per cent of global stocks) and Australia (1,077.1 tons, or 15.8 per cent).

Poppy straw produced from opium poppy rich in noscapine

20. In recent years, an increase in the cultivation of poppy straw (N) has been reported by some countries. Noscapine is not under international control. However, opium poppy rich in noscapine also contains opiates that are under international control; it therefore must be monitored in accordance with the requirements of the 1961 Convention as amended. In 2023, the only countries that reported production of poppy straw (N) were Spain, accounting for a total of 3 tons (expressed in gross weight), and Australia (1.1 tons). Spain also reported the largest stocks of poppy straw (N) (315.8 tons), followed by Hungary (47.5 tons) and Australia (20.6 tons).

Poppy straw used for decorative purposes

21. In some countries, the poppy plant is cultivated for purposes other than the production or manufacture of narcotic drugs, such as culinary and decorative purposes.

Concentrate of poppy straw

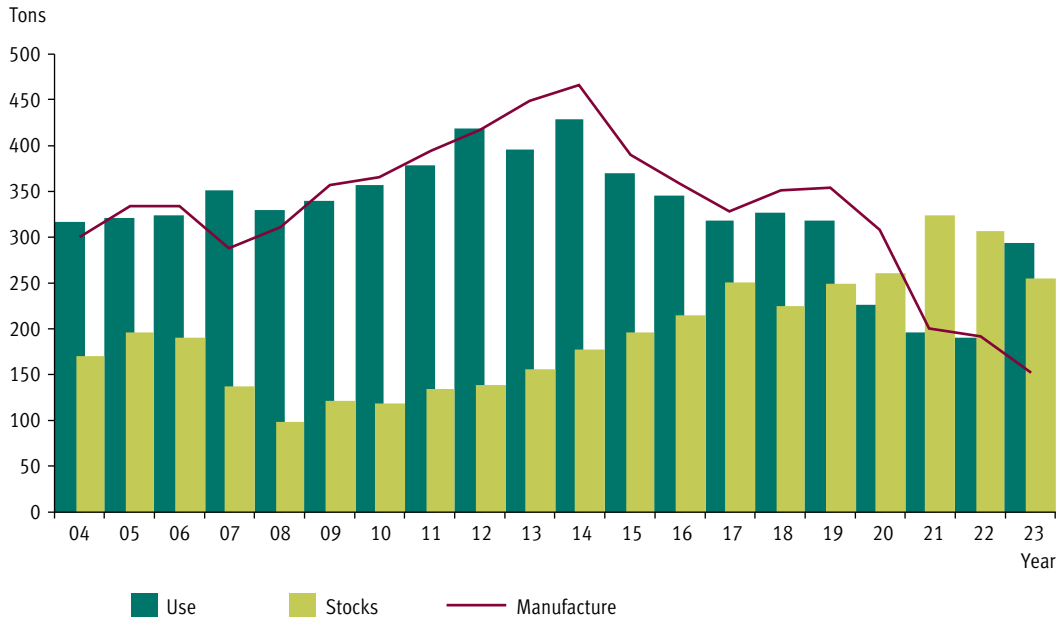
22. Most countries using poppy straw for the extraction of alkaloids first manufacture an intermediate product referred to as "concentrate of poppy straw", although in some countries, morphine or thebaine is manufactured directly from poppy straw in a continuous process, which may involve a number of other intermediate products (for details, see part four, tables IV and V). Until the second half of the 1990s, only concentrate of poppy straw containing morphine as the main alkaloid was manufactured. Since then, concentrate of poppy straw containing mainly thebaine, oripavine or codeine has also been manufactured. Concentrate of poppy straw may contain a mixture of alkaloids, and in addition to the main alkaloid, other alkaloids may be extracted in industrial processes. The different types of concentrate of poppy straw are distinguished by the main alkaloid contained in them.[11]

23. Since the actual content of alkaloids in concentrate of poppy straw may vary significantly, in the present report, for the purposes of comparison and for statistical purposes, all data referring to concentrate of poppy straw are expressed in terms of the quantity of the relevant anhydrous alkaloid contained in the material. The quantities of anhydrous morphine alkaloid contained in concentrate of poppy straw are referred to as AMA (CPS), those of anhydrous thebaine alkaloid as ATA (CPS), those of anhydrous oripavine alkaloid as AOA (CPS) and those of anhydrous codeine alkaloid as ACA (CPS). The totals of all the individual alkaloids contained in concentrate of poppy straw are examined below, expressed in terms of 100 per cent of anhydrous alkaloid content.

Anhydrous morphine alkaloid contained in concentrate of poppy straw

24. AMA (CPS) continues to be the most important and most widely used of the alkaloids contained in concentrate of poppy straw. Figure 6 shows the trends in its manufacture, stocks and utilization during the period 2004–2023.

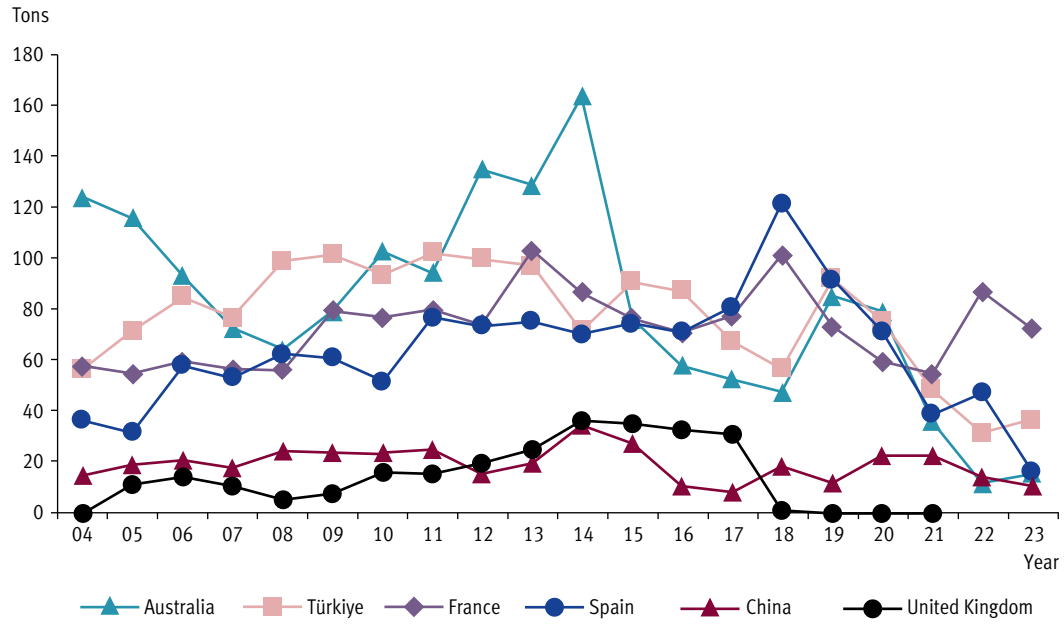
Figure 6. Total anhydrous morphine alkaloid contained in all varieties of concentrate of poppy straw: global manufacture, stocks[a] and utilization, 2004–2023



[a] Stocks as at 31 December of each year.

[11] Currently, the following types are traded: (a) concentrate of poppy straw containing morphine as the main alkaloid; (b) concentrate of poppy straw containing thebaine as the main alkaloid; (c) concentrate of poppy straw containing oripavine as the main alkaloid; and (d) concentrate of poppy straw containing codeine as the main alkaloid.

Figure 7. Total anhydrous morphine alkaloid contained in all varieties of concentrate of poppy straw: manufacture in the main manufacturing countries, 2004–2023



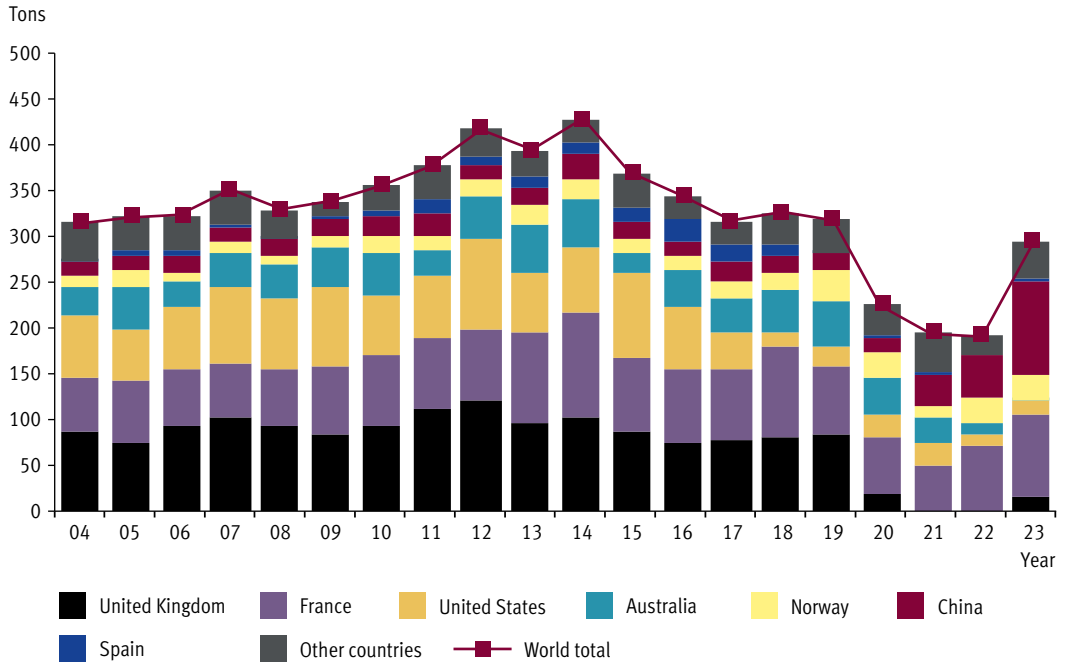
25. Global manufacture of AMA (CPS) increased gradually after 2001, reaching its highest level ever in 2014 (466 tons). Since then, manufacture of AMA (CPS) has followed an overall decreasing trend, falling to 153.2 tons in 2023 (see figure 6). Trends in the manufacture of AMA (CPS) in the main manufacturing countries in the period 2004–2023 are presented in figure 7.

26. France was the main country reporting the manufacture of AMA (CPS) in 2023, reporting 72.3 tons (47.2 per cent of global manufacture), followed by Türkiye, accounting for 36.8 tons (24 per cent), Spain, for 16.2 tons (10.6 per cent), Australia, for 15.7 tons (10.2 per cent) and China, for 10.5 tons (6.8 per cent) (see figure 7).

27. After reaching a record high of 239 tons in 2012, global exports of AMA (CPS) have decreased, standing at 132.2 tons in 2023. Türkiye exported the largest quantity of AMA (CPS) in 2023 (90.9 tons, or 68.8 per cent of the global total), followed by Spain (39.7 tons, or 30 per cent) and Australia (1.4 tons, or 1.1 per cent). Spain was the main importer of AMA (CPS), accounting for 40.4 per cent of global imports, followed by Norway (19.3 per cent), the United States (10.2 per cent), Japan (9 per cent), the United Kingdom of Great Britain and Northern Ireland (8.4 per cent), Slovakia (5.8 per cent), France (3.8 per cent) and Italy (1.2 per cent). Further details on international trade in AMA (CPS) can be found in annex IV, tables 1 and 2.

28. AMA (CPS) is an intermediate product for the manufacture of morphine. It is also used in continuous manufacturing processes for the manufacture of codeine. Utilization of AMA (CPS) followed an increasing trend until 2014 but has decreased overall since then (see figure 6). In 2023, total global utilization amounted to 294.3 tons, a significant increase from 191.4 tons in 2022. In 2023, China was the country reporting the largest utilization of AMA (CPS), accounting for 102.9 tons (34.9 per cent of the global total). France was second, accounting for 89.5 tons (30.4 per cent), followed by Norway (27.3 tons, or 9.3 per cent), the United States (15.6 tons, or 5.3 per cent), the United Kingdom (15.1 tons, or 5.1 per cent), Slovakia (12.5 tons, or 4.3 per cent), Japan (9.7 tons, or 3.3 per cent), South Africa (6.9 tons, or 2.3 per cent), Türkiye (4.7 tons, or 1.6 per cent), Spain (3.8 tons, or 1.3 per cent) and Australia (1.8 tons, or 0.6 per cent) (see figure 8).

Figure 8. Total anhydrous morphine alkaloid contained in all varieties of concentrate of poppy straw: utilization for the manufacture of opiates, 2004–2023

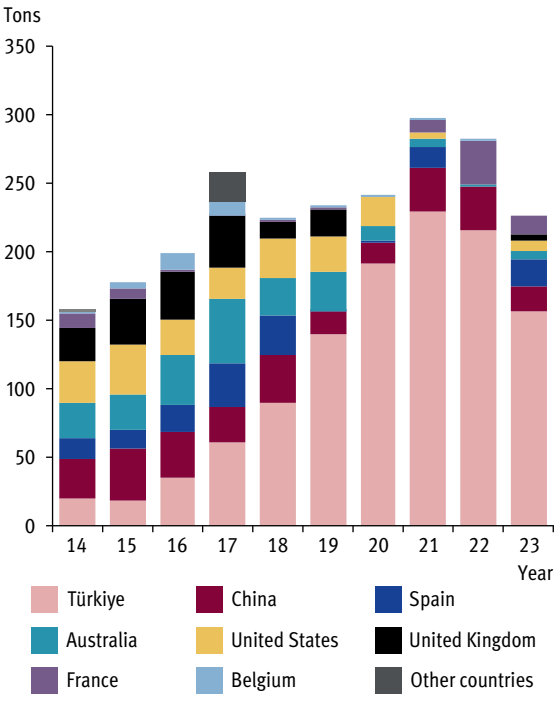


29. Global stocks of AMA (CPS) have, overall, increased in the past 10 years. In 2023 they stood at 255 tons, representing a decrease from 308.6 tons in 2022. Türkiye reported the largest stocks (157.2 tons, or 61.7 per cent of the global total), followed by Spain (20.1 tons, or 7.9 per cent), Japan (19.9 tons, or 7.8 per cent), China (17.9 tons, or 7 per cent) and France (14.7 tons, or 5.8 per cent) (see figure 9). The other countries reporting stocks of AMA (CPS), each accounting for less than 5 per cent of the global total, were, in descending order of the amounts held, the United States, Australia, Norway, the United Kingdom, Slovakia and Denmark.

Anhydrous thebaine alkaloid contained in concentrate of poppy straw

30. Figure 10 provides an overview of the manufacture, stocks and utilization of ATA (CPS) during the period 2014–2023. Industrial manufacture of ATA (CPS), which started in 1998, increased rapidly until 2012, when it reached 248 tons. In the following years, it decreased and then stabilized at more than 100 tons. It then dropped to 32.5 tons in 2022, but increased again, to 131.9 tons, in 2023. The only countries reporting the manufacture of ATA (CPS) in 2023 were Australia (104.9 tons, or 79.5 per cent of global

Figure 9. Total anhydrous morphine alkaloid contained in all varieties of concentrate of poppy straw: stocks,[a] 2014–2023

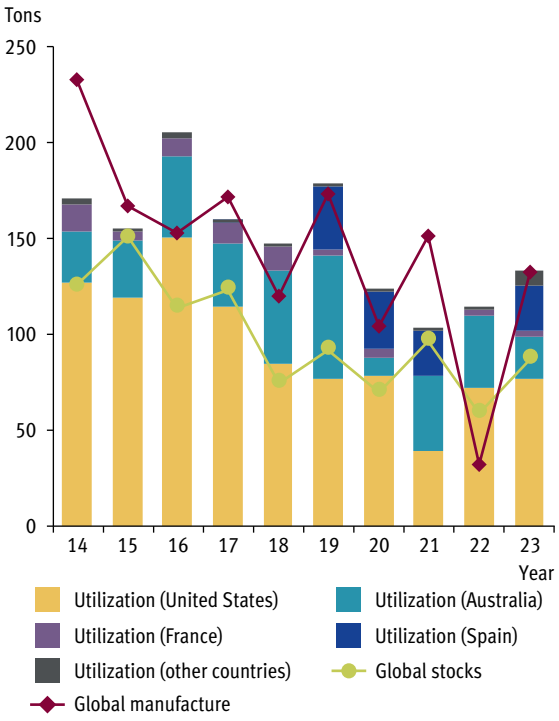


[a] Stocks as at 31 December of each year.

manufacture), Spain (20.6 tons, or 15.6 per cent), China (4.8 tons, or 3.6 per cent) and Italy (1.5 tons, or 1.2 per cent). Australia was the only country reporting exports of ATA (CPS), accounting for 52.4 tons. The United States has been the country importing the largest quantities of ATA (CPS) for many years; in 2023, the country reported the import of 61.9 tons, or 95.7 per cent of global imports, while Denmark reported the import of 1.9 tons, or 3.1 per cent. Japan, Australia and Italy each reported the import of less than 1 per cent of global imports.

31. ATA (CPS) is an intermediate product for the manufacture of thebaine. Global utilization of ATA (CPS) increased sharply from 2001 to 2011, when it peaked at 225.9 tons. After that, it followed a decreasing trend, dropping to 133.4 tons in 2023. This trend reflects the reduction in the demand for thebaine and for narcotic drugs obtained from it, such as oxycodone and hydrocodone, in particular in the North American market. However, despite that reduction, in 2023, the United States continued to be the country with the highest level of utilization of thebaine (accounting for 57.9 per cent of global utilization, or 77.2 tons). It was followed by Spain (17.3 per cent, or 23.1 tons), Australia (16 per cent, or 21.4 tons), China (4.4 per cent, or 5.8 tons) and France (2.6 per cent, or 3.4 tons). Three other countries utilized minor quantities of thebaine. Global stocks of ATA (CPS) increased from 58.6 tons in 2022 to 87 tons in 2023 and were held primarily in the United States (38.1 tons, or 43.8 per cent of the global total) and Australia (37.3 tons, or 42.8 per cent). Stocks in smaller amounts were held in Spain, China, France and Japan, in descending order of the amounts held (see figure 10).

Figure 10. Total anhydrous thebaine alkaloid contained in all varieties of concentrate of poppy straw: utilization and global manufacture and stocks,[a] 2014–2023



[a] Stocks as at 31 December of each year.

Anhydrous oripavine alkaloid contained in concentrate of poppy straw

32. Manufacture of AOA (CPS) in commercially usable quantities started in 2001. The only manufacturing countries in 2023 were Australia, accounting for 18.8 tons, Spain, for 7 tons, and Italy, for 0.8 tons. Total utilization of AOA (CPS) dropped to 20.2 tons in 2023, a considerable decrease from the 62.3 tons utilized in the previous year. Global stocks of AOA (CPS) have been fluctuating since 2001. In 2022, stocks decreased to 12.5 tons, from 34.7 tons in 2021. The stocks were held almost exclusively in Australia (12.4 tons, or 99.9 per cent of the global total).

Anhydrous codeine alkaloid contained in concentrate of poppy straw

33. Manufacture of ACA (CPS) increased between 2001 and 2015, when it reached a record level of 108.9 tons, which was nearly double the amount manufactured in 2014 (57.7 tons). After decreasing to 56.1 tons in 2016, manufacture increased again, reaching 95.3 tons in 2020, a notable increase from the 69.9 tons reported in 2018. In 2021, the amount manufactured decreased to 45.7 tons, but increased again, to 77.9 tons, in 2022, and further, to 113.1 tons, in 2023. ACA (CPS) is used for the extraction of codeine. The only countries that reported the manufacture of ACA (CPS) in 2023 were Australia (accounting for 61.1 per cent of global manufacture), Spain (36.5 per cent), Türkiye (1.3 per cent) and Italy (1.1 per cent). Global utilization of ACA (CPS) increased steadily between 2001 and 2015, when it reached 79.2 tons. It then decreased notably, to 35.8 tons, in 2018, but almost doubled in 2019, reaching 66 tons, and then almost doubled again in 2020, reaching 110.6 tons. In 2021, it decreased again, to 63 tons, then in 2022 increased to 135.8 tons. In 2023, it reached a record level of 226.4 tons.

China was the country reporting the largest utilization of ACA (CPS) in 2023 (31.4 per cent of the global total, or 70.9 tons); it was followed by Spain (23.6 per cent, or 53.3 tons), Australia (14.5 per cent, or 32.9 tons), the United Kingdom (12.3 per cent, or 27.9 tons), Italy (7.5 per cent, or 15 tons) and the United States (6.7 per cent, or 15 tons). Four other countries, South Africa, Norway, Japan and Türkiye, in descending order of the amounts utilized, each reported the utilization of less than 4 per cent of the global total, or less than 9.2 tons. Global stocks of ACA (CPS) stood at 39.5 tons in 2023, up from 34 tons in 2022. The stocks were held in Australia (12.4 tons, or 31.4 per cent of the global total), the United States (8.8 tons, or 22.3 per cent), Spain (8.5 tons, or 21.5 per cent), Türkiye (7.3 tons, or 18.4 per cent) and South Africa (2.1 tons, or 5.4 per cent). Norway and Japan each reported stocks in quantities of less than 1 ton.

Opiates and opioids

34. "Opiate" is the term generally used to designate drugs derived from opium and their chemically related derivatives, such as semi-synthetic alkaloids, while "opioid" is a more general term for both natural and synthetic drugs with morphine-like properties, although the chemical structure may differ from that of morphine.[12]

35. Opioids are used mostly for their analgesic properties to treat severe pain (fentanyl, hydromorphone, methadone, morphine and pethidine), moderate to severe pain (buprenorphine[13] and oxycodone) and mild to moderate pain (codeine, dihydrocodeine and dextropropoxyphene), as well as to induce or supplement anaesthesia (fentanyl and fentanyl analogues such as alfentanil and remifentanil). They are also used as cough suppressants (codeine, dihydrocodeine and, to a lesser extent, pholcodine and ethylmorphine), to treat gastrointestinal disorders, mainly diarrhoea (codeine and diphenoxylate), and to treat opioid dependence (buprenorphine and methadone).

Natural alkaloids

36. Morphine, codeine, thebaine, noscapine, oripavine, papaverine and narceine are alkaloids contained in opium or poppy straw. Morphine and codeine are under international control because of their potential for misuse, while thebaine and oripavine are under such control because they can be converted into opioids that are subject to misuse. Noscapine, papaverine and narceine are not under international control. Morphine is the prototype of natural opiates and many opioids and, because of its strong analgesic potency, is used as a reference parameter for comparative purposes.

Morphine

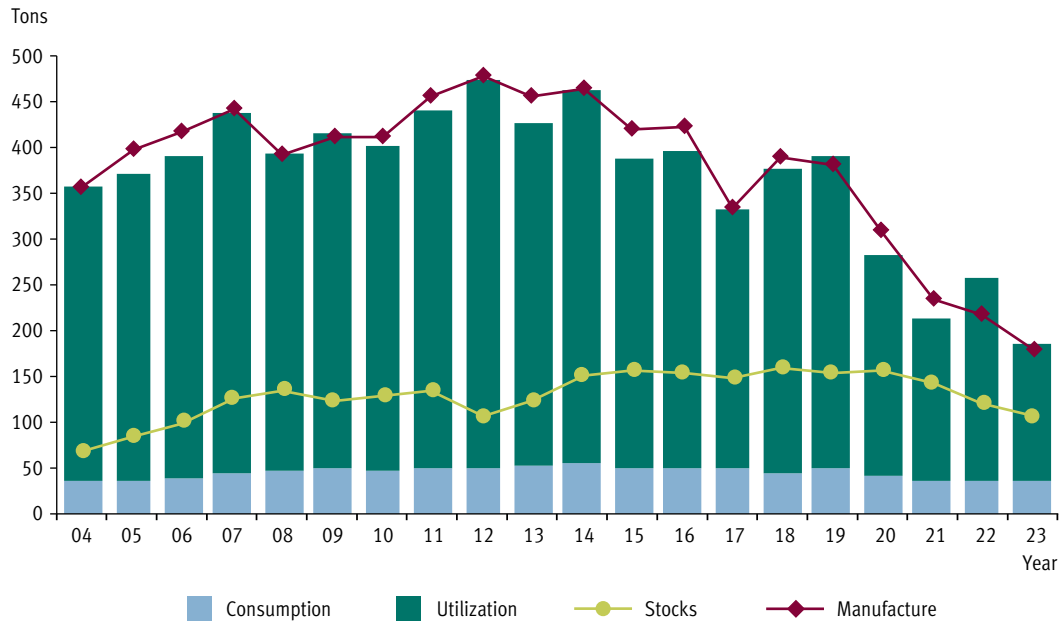
37. In the 20-year period 2004–2023, the global manufacture[14] of morphine initially increased, from 354.8 tons manufactured in 2004 to 475.3 tons in 2012, when global morphine manufacture reached its peak. After 2012, global manufacture followed a decreasing trend, falling to 178.8 tons in 2023, a considerable decrease from the 218.4 tons manufactured in 2022 (see figure 11). Stocks available at the beginning of 2023 stood at 107.2 tons, representing a decrease from the 121.5 tons available at the beginning of 2022. During the year, of the total quantity of morphine available (300.5 tons, including quantities manufactured and opening stocks), more than half (156.2 tons, or 51.9 per cent) was utilized for the manufacture of other drugs (mostly codeine) and of substances not covered by the 1961 Convention as amended and for preparations included in Schedule III of that Convention. A large amount, 107.2 tons, or 35.6 per cent, of the total amount of morphine available at the beginning of 2023 remained in stock at the end of the year. Only 32.5 tons, or 10.8 per cent, were consumed directly for palliative care.

[12] From a clinical point of view, opioids may be classified according to their actions compared with those of morphine: similar affinity (agonist), competitive (antagonist) or mixed (agonist/antagonist) for the same receptor sites (the so-called "opioid receptors") in the central and peripheral nervous systems.

[13] Buprenorphine is controlled under the Convention on Psychotropic Substances of 1971.

[14] In Australia, China, Italy, Norway, Türkiye and the United Kingdom, concentrate of poppy straw is used in continuous industrial processes for the manufacture of other narcotic drugs, without first separating morphine. For statistical and comparative purposes, the theoretical quantity of morphine involved in such conversions is calculated by INCB and included in the present publication in the statistics on global manufacture and utilization of morphine.

Figure 11. Morphine: global manufacture, stocks,[a] consumption and utilization, 2004–2023



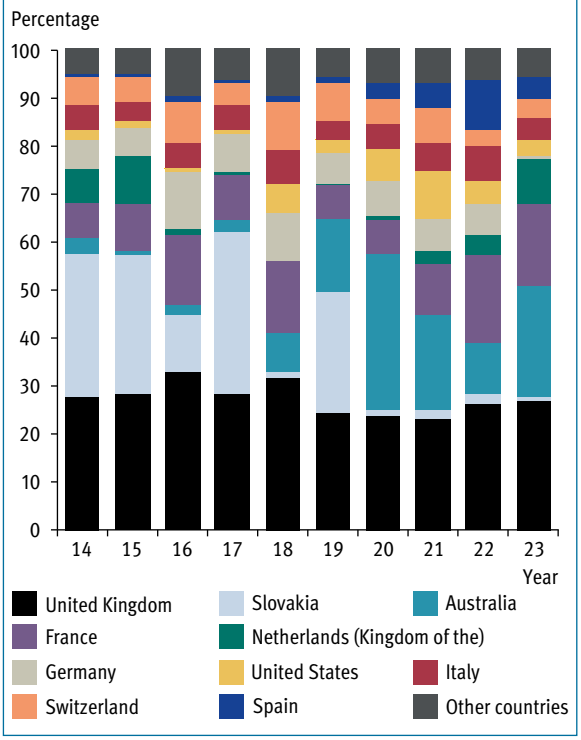
[a] Stocks as at 31 December of each year.

38. In 2023, the leading morphine manufacturing countries were France (75.3 tons of morphine, or 42.1 per cent of global manufacture), Norway (34.7 tons, or 19.4 per cent), India (25.6 tons, or 14.3 per cent), the United Kingdom (11.9 tons, or 6.7 per cent), the United States (10.5 tons, or 5.9 per cent), Japan (9.9 tons, or 5.5 per cent) and Spain (3.2 tons, or 1.8 per cent). Switzerland, Australia, Italy, Hungary and China, in descending order of the quantities manufactured, all reported the manufacture of quantities between 1 and 2 tons.

39. Despite the decrease in the manufacture of morphine, exports of the substance increased slightly to 35.5 tons in 2023, from 32.3 tons in 2022. The main exporting countries in 2023 were the United Kingdom (9.5 tons, or 26.8 per cent of the global total), Australia (8.2 tons, or 23 per cent), France (6 tons, or 17.1 per cent), the Kingdom of the Netherlands (3.2 tons, or 9.2 per cent), Spain (1.7 tons, or 4.7 per cent), Italy (1.6 tons, or 4.5 per cent) and the United States and Switzerland (1.3 tons, or 3.7 per cent, each). Other countries reported exports amounting to less than 1 ton each (see figure 12).

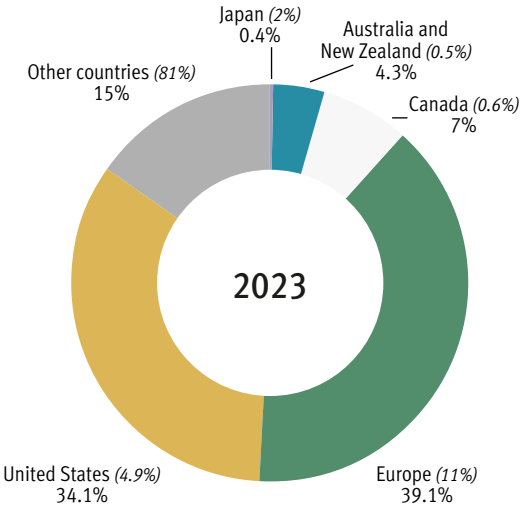
40. The main importing countries in 2023 were Hungary (7.6 tons, or 25.3 per cent of the global total), Austria and the Kingdom of the Netherlands (3.4 tons, or 11.4 per cent, each), Canada (2.5 tons, or 8.2 per cent), the United Kingdom (1.9 tons, or 6.2 per cent), Germany (1.8 tons, or 6 per cent), Switzerland (1.5 tons, or 4.9 per cent), Australia (1.4 tons, or 4.6 per cent) and Denmark (1.1 tons, or 3.7 per cent). Other countries reported imports amounting to less than 1 ton each. Further details on exports and imports of morphine can be found in annex IV, tables 3 and 4.

Figure 12. Morphine: percentage share of total exports, by country, 2014–2023



41. In 2004, the amount of morphine used for direct consumption had totalled 28.9 tons, or 8.1 per cent of the amount of morphine manufactured globally. In 2023, it totalled almost 32.5 tons but represented a notably larger share of the total amount manufactured, 18.1 per cent, as compared with 2004. However, the amount manufactured globally in 2023 (178.8 tons) was considerably less than in 2004 (354.8 tons). Many countries continue to report having difficulties in procuring medications containing morphine, even though opiate raw materials are reported to be available in sufficient quantities. Although most countries and territories reported consumption of morphine in 2023, many people still had limited access to it. The differences in consumption levels between countries continue to be significant (see figure 13, and table XIV of part four). Various factors, such as economic and commercial interests, knowledge and training, as well as regulatory frameworks, are influencing the ability of countries to procure and administer morphine for the treatment of pain.

Figure 13. Morphine: distribution of consumption in relation to the share of the world population, 2023



Note: Percentages in parentheses refer to share of the total population of all reporting countries worldwide.

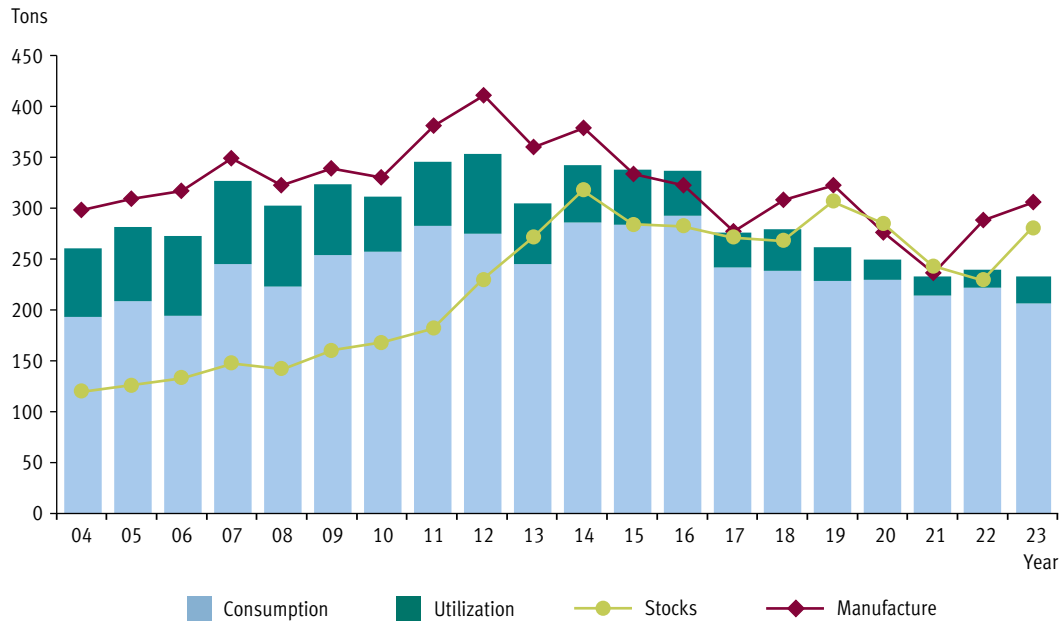
42. In 2023, 81 per cent of the world population, mainly in low- and middle-income countries (represented by the category "Other countries" in figure 13), consumed only 15 per cent of the total amount of morphine used for the management of pain and suffering. The remaining 85 per cent of the total consumption of morphine, excluding Schedule III preparations, continued to be concentrated in a small number of countries located mainly in Europe and North America. The disparity in the consumption of narcotic drugs for palliative care continues to be a matter of concern, particularly in relation to access to and the availability of affordable opioid analgesics such as morphine. The United States continued to be the country reporting the highest level of consumption, accounting for 11.1 tons. It was followed by the United Kingdom (3.3 tons), Austria and China (2.2 tons each), Canada (2 tons), France and Germany (1.8 tons each) and Australia (1.4 tons). All other countries reported levels of consumption below 1 ton in 2023.

43. In some countries, morphine is used for the manufacture of preparations included in Schedule III of the 1961 Convention as amended. In 2023, 5.3 tons of morphine were used for that purpose, mainly in China (60.3 per cent of the global total), followed by Italy (20.1 per cent) and the United Kingdom (19 per cent).

44. The largest share of morphine is used for conversion into other opiates, such as codeine, ethylmorphine and pholcodine (see table VI of part four), although it is important to note that codeine is increasingly obtained directly from opium poppy rich in codeine. The total amount utilized globally for conversion into other opiates stood at 313.5 tons in 2004 but increased over subsequent years, peaking at 419.8 tons in 2012, after which it started to decrease, dropping to 149.4 tons in 2023. Morphine is also used for the manufacture of substances not controlled under the 1961 Convention as amended, such as noroxymorphone and apomorphine. The total amount of morphine utilized globally for that purpose fluctuated in the period 2004–2023, decreasing in recent years to 1.4 tons. In 2023, France and the United Kingdom were the only countries reporting the utilization of morphine for that purpose.

45. Global stocks of morphine stood at 107.2 tons in 2023, representing a decrease from 121.5 tons in 2022. The largest stocks were held in France (40.2 tons, or 37.5 per cent of global stocks), followed by the United States (15.2 tons, or 14.2 per cent), Japan (11.4 tons, or 10.7 per cent), the United Kingdom (7.6 tons, or 7.1 per cent), Hungary (4.8 tons, or 4.5 per cent), Italy (4.2 tons, or 3.9 per cent), Austria (4.2 tons, or 3.8 per cent), Switzerland (3 tons, or 2.8 per cent), Slovakia (2.4 tons, or 2.3 per cent) and Canada (2 tons, or 1.9 per cent). Other countries reported the holding of stocks in quantities of less than 2 tons each.

Figure 14. Codeine: global manufacture, stocks,[a] consumption and utilization, 2004–2023



[a] Stocks as at 31 December of each year.

Codeine

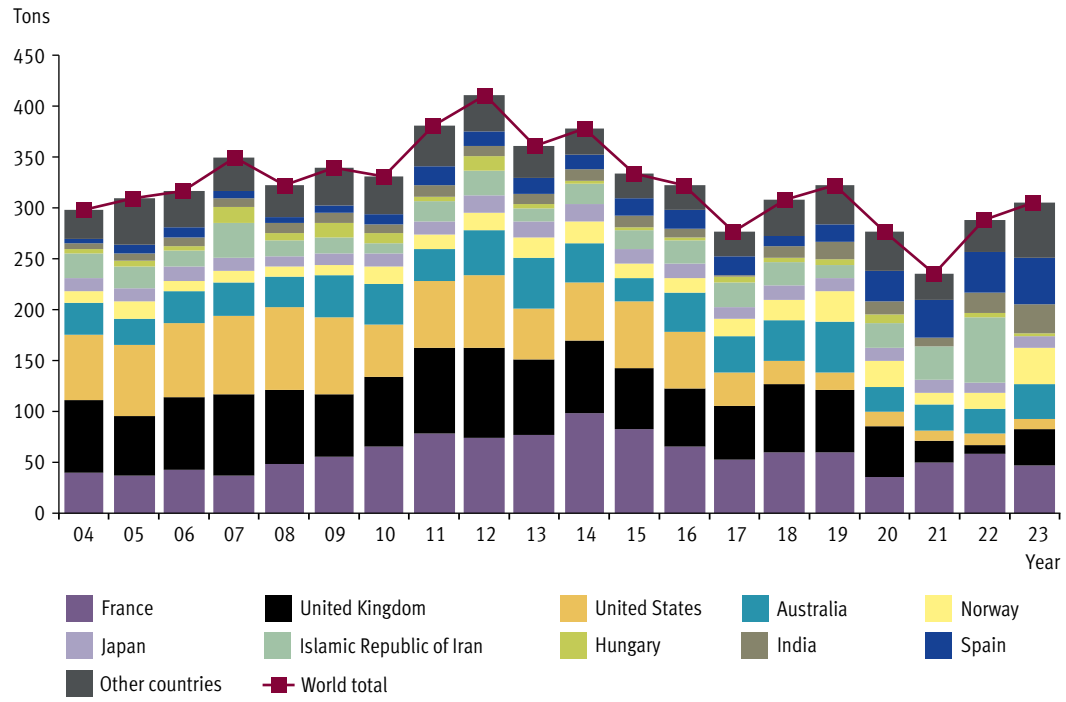
46. Codeine is a natural alkaloid of the opium poppy plant, but most of the codeine currently being manufactured is obtained from morphine through a semi-synthetic process. As reported above, there has been an increase in the cultivation of the opium poppy variety that is rich in codeine, and in the manufacture of ACA (CPS), which is used for the extraction of codeine. Codeine is used almost entirely for the manufacture of preparations in Schedule III of the 1961 Convention as amended, while a smaller quantity is used for the manufacture of other narcotic drugs, such as dihydrocodeine and hydrocodone. The trends in global manufacture, consumption, utilization and stocks of codeine during the period 2004–2023 are shown in figure 14.

47. Global manufacture of codeine followed an increasing trend from 2004 until 2012, when it reached a peak of 411.9 tons. Since then, global manufacture has followed a decreasing trend, amounting to 306 tons in 2023. In 2023, the main countries reporting the manufacture of codeine were France (48.2 tons, or 15.8 per cent of global manufacture), Spain (46.4 tons, or 15.2 per cent), the United Kingdom (34.9 tons, or 11.4 per cent), Australia (34.7 tons, or 11.3 per cent), Norway (34.6 tons, or 11.3 per cent), India (27.9 tons, or 9.1 per cent), Italy (16.9 tons, or 5.5 per cent), South Africa (13.6 tons, or 4.4 per cent), Japan (11.4 tons, or 3.7 per cent) and the United States (10.2 tons, or 3.4 per cent). Smaller quantities, of less than 10 tons each, were manufactured in a number of other countries (see figure 15).

48. The trend of codeine stocks follows that of codeine manufacture. After having increased since 2004, global stocks of codeine peaked in 2014 (318.2 tons) and have followed a decreasing trend since then, amounting to 281.2 tons in 2023. Global stocks were mostly concentrated in France (48.2 tons, or 15.7 per cent of the global total), Spain (46.4 tons, or 15.2 per cent), the United Kingdom (34 tons, or 11.4 per cent), Australia and Norway (34.7 tons, or 11.3 per cent each), India (27.9 tons, 9.1 per cent), Italy (16.9 tons, or 5.5 per cent), South Africa (13.6 tons, or 4.4 per cent), Japan (11.4 tons, or 3.7 per cent) and the United States (10.2 tons, or 3.3 per cent). Other countries reported stocks of less than 10 tons each.

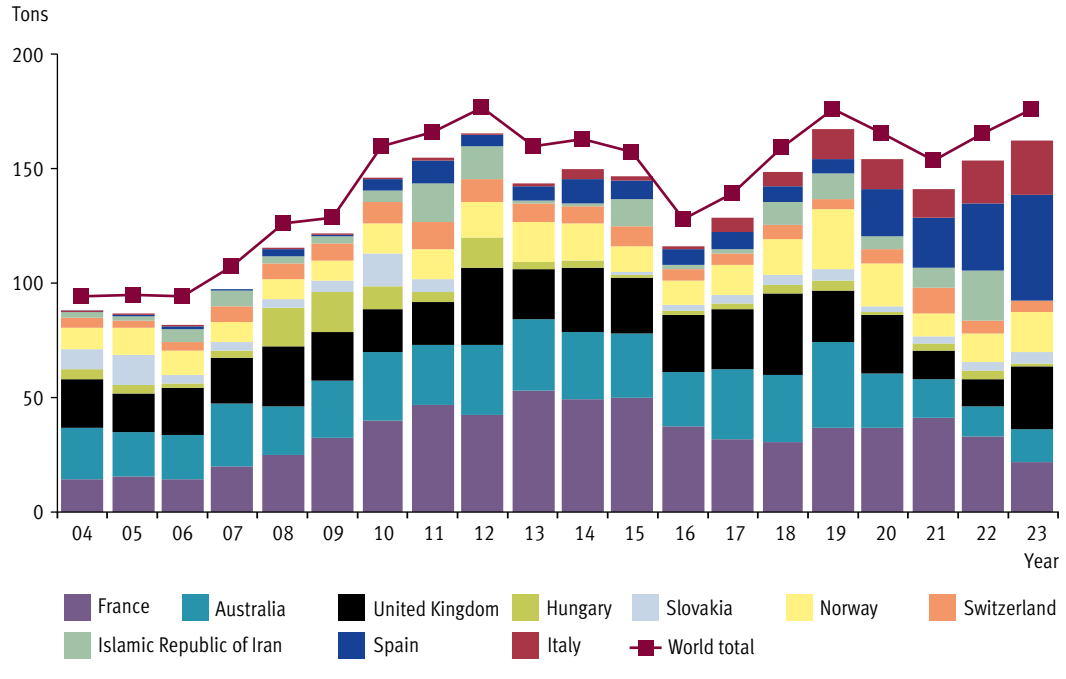
49. In 2023, global exports of codeine reached 175.8 tons, a slight increase compared with the previous year (165.3 tons) (see figure 16). The leading exporting country for codeine in 2023 was Spain (45.7 tons, or 26 per cent of the global total), followed by the United Kingdom (27.8 tons, or 15.8 per cent), Italy (24 tons, or 13.6 per cent), France (21.8 tons, or 12.4 per cent), Norway (17.7 tons, or 10 per cent) and Australia (14 tons, or 8 per cent), The other exporting countries accounted for less than 6 tons each.

Figure 15. Codeine: manufacture, 2004–2023



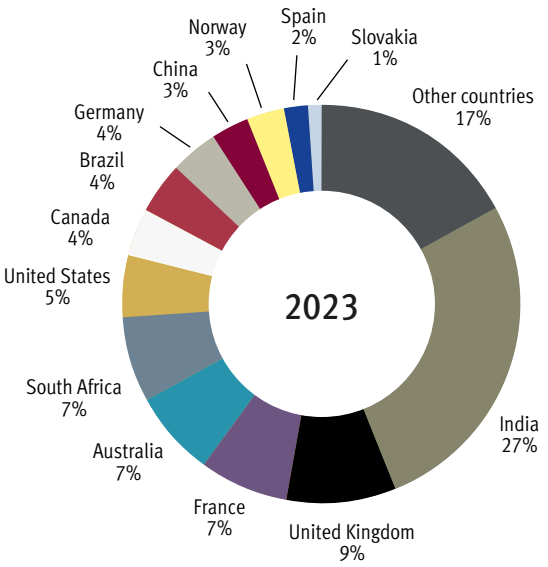
50. The countries reporting the largest imports of codeine in 2023 were Italy (20.7 tons, or 14.9 per cent), the United Kingdom (19.8 tons, or 14.3 per cent), India (15.9 tons, or 11.4 per cent), Brazil (12.2 tons, or 8.7 per cent), Canada (9.9 tons, or 7.1 per cent), Germany (7.4, or 5.3 per cent), Hungary (6.3 tons, or 4.5 per cent), Switzerland (5.5 tons, or 4 per cent) and Denmark (4.3 tons, or 3.1 per cent). A number of other countries reported the import of less than 3 per cent each. More details on the international trade in codeine can be found in annex IV, tables 3 and 4.

Figure 16. Codeine: exports, 2004–2023



51. In 2023, codeine used for the manufacture of preparations listed in Schedule III accounted for 98.6 per cent of the global consumption of codeine.[15] The use of codeine for that purpose grew from 189.3 tons in 2003 to 203.8 tons in 2023. Countries reporting the utilization of codeine for the manufacture of such preparations are not necessarily the countries in which the preparations are consumed. The countries manufacturing such preparations in larger quantities for subsequent export are shown in figure 17.

Figure 17. Codeine: utilization for the manufacture of preparations listed in Schedule III, 2023



52. Global consumption of codeine, including in the form of Schedule III preparations, has been decreasing since it peaked in 2016 at 293.7 tons; in 2023, it stood at 206.5 tons (see figure 14). The main countries reporting data in that respect were India (54.8 tons, or 26.5 per cent of the global total), the United Kingdom (19 tons, or 9.2 per cent), France (15.3 tons, or 7.4 per cent), Australia (15.2 tons, or 7.3 per cent) and South Africa (14.3 tons, or 6.9 per cent). Countries reporting a level of codeine consumption below 14 tons, in descending order of the amounts consumed, were the United States, Canada, Brazil, Germany, China, Norway, Spain, Slovakia, Tunisia, Türkiye, Italy, Oman, Morocco, Ireland and Indonesia.

53. Utilization of codeine for the manufacture of other narcotic drugs, mainly dihydrocodeine and hydrocodone, increased steadily until reaching its highest level in 2007 (81.8 tons). Since then, utilization has gradually declined and stood at 26.5 tons in 2023. Only five countries reported the utilization of codeine for the manufacture of other narcotic drugs; they were, in descending order of the amounts utilized, Japan, Italy, the United Kingdom, Hungary and Slovakia.

Thebaine

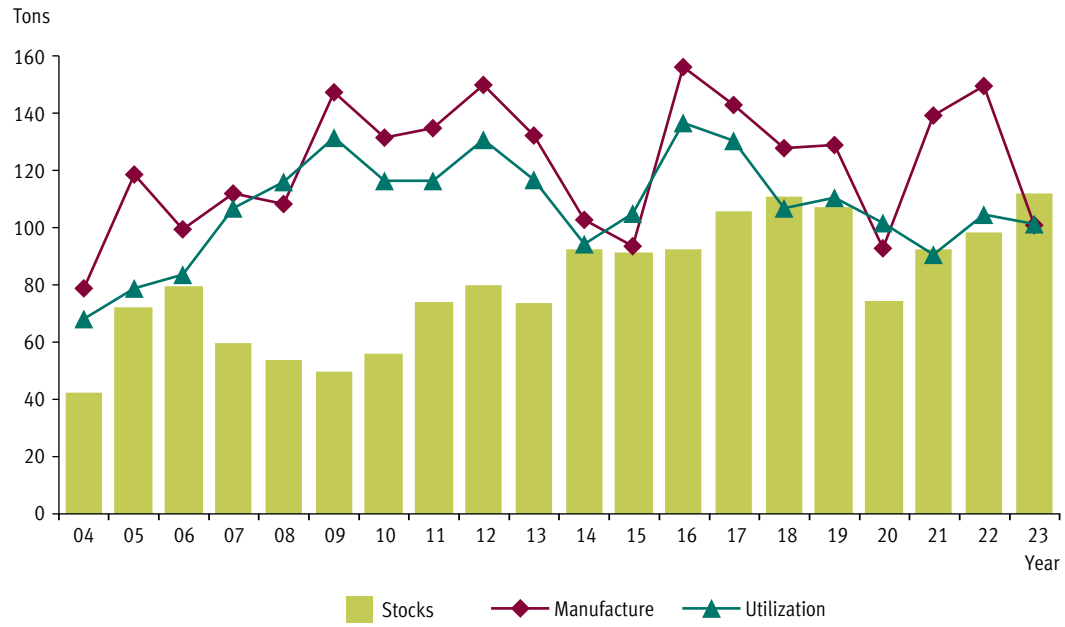
54. Until the 1990s, thebaine was manufactured mainly from opium; since 1999, it has been obtained primarily from poppy straw. Thebaine may also be obtained through the conversion of oripavine or from semi-synthetic opioids, such as hydrocodone. Thebaine itself is not used in therapy, but it is an important starting material for the manufacture of a number of opioids, mainly codeine, dihydrocodeine, etorphine, hydrocodone, oxycodone and oxymorphone (all of which are substances controlled under the 1961 Convention as amended) and buprenorphine (which is a substance controlled under the Convention on Psychotropic Substances of 1971[16]), as well as of substances not under international control, such as the derivatives naloxone, naltrexone, nalorphine and nalbuphine.

55. Global manufacture of thebaine has increased sharply since the late 1990s because of the growing demand for oxycodone and other drugs and substances that may be derived from it. In 2023, after some fluctuations in the preceding years, global manufacture of thebaine decreased again, to 101 tons, well below the record level of 156 tons manufactured in 2016 (see figure 18). The demand for medicines derived from thebaine has been fluctuating in past years owing to the restrictions on prescription drugs derived from thebaine imposed in the United States, the main market for such medicines, in response to their misuse and the related high number of overdose deaths. Australia was the main manufacturing country for thebaine in 2023 (43.3 tons, or 43 per cent of the global total), followed by the United States (29.7 tons, or 29.5 per cent), Spain (17 tons, or 16.9 per cent),

[15] "Global consumption" is a term used by INCB to reflect the total of the amount of a drug that is directly consumed and the amount that is utilized for the manufacture of preparations listed in Schedule III of the 1961 Convention as amended.

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

Figure 18. Thebaine: global manufacture, utilization and stocks,[a] 2004–2023



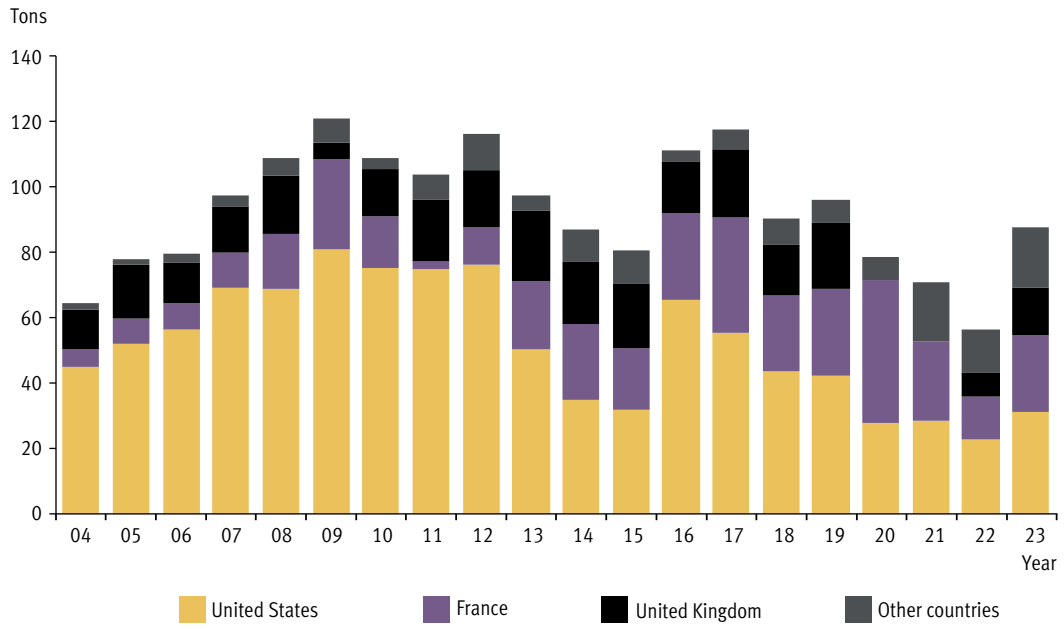
[a] Stocks as at 31 December of each year.

China (4.8 tons, or 4.8 per cent), France (3.1 tons, or 3.1 per cent), India (1.5 tons, or 1.5 per cent) and Italy (1.2 tons, or 1.2 per cent). In 2023, exports of thebaine decreased to 62.4 tons, compared with 91.4 tons in 2021. The main exporting countries in 2023 were Australia (34.6 tons, or 55.4 per cent of total exports) and Spain (27.7 tons, or 44.5 per cent). The export of a minimal quantity of thebaine was reported by France. The main countries reporting the import of thebaine were the United Kingdom (30.6 tons, or 53.2 per cent of the global total), France (15.4 tons, or 26.8 per cent), Hungary (7.9 tons, or 12.7 per cent), Slovakia and Czechia (1.2 tons, or 2.1 per cent, each), the United States (0.9 tons, or 1.7 per cent) and India (0.7 tons, or 1.2 per cent). Other countries reported imports of less than 1 ton each.

56. The utilization of thebaine for the manufacture of other narcotic drugs increased from 56.4 tons in 2022 to 87.8 tons in 2023 (see figure 19 and table VII of part four). In 2023, the United States accounted for 31.3 tons, or 35.6 per cent, of the global utilization of thebaine for that purpose; it was followed by France (23.4 tons, or 26.6 per cent), the United Kingdom (14.7 tons, or 16.7 per cent), (Hungary (10 tons, or 11.4 per cent), Slovakia (5.9 tons, or 6.7 per cent) and India (1.8 tons, or 2 per cent). Other countries reported the utilization of much smaller quantities. The quantity of thebaine reported to have been used for the manufacture of substances not covered under the 1961 Convention as amended (mainly buprenorphine) fluctuated during the period 2004–2023: from the peak of 29.1 tons in 2020, it decreased to 13.1 tons in 2023; the United Kingdom, Denmark, India, Czechia, the United States, China and Germany, in descending order of the amounts utilized, together accounted for 100 per cent of the world total in 2023.

57. After a fluctuating but overall upward trend in the period since 2000, reaching a record level of 110.6 tons in 2018, global stocks of thebaine increased further, to 111.9 tons, in 2023. Major stocks were held in Australia (50.3 tons, or 45 per cent of the global total), France (16.3 tons, or 14.5 per cent), the United Kingdom (14.6 tons, or 13 per cent), the United States (6 tons, or 5.3 per cent), Slovakia (5.3 tons, or 4.8 per cent), Spain (4.8 tons, or 4.3 per cent), Switzerland (4.6 tons, or 4.1 per cent), Hungary (3.4 tons, or 3 per cent), China (3.1 tons, or 2.8 per cent), Italy (1.3 tons, or 1.2 per cent) and India (1.1 tons, or 1 per cent). Other countries each reported stocks representing less than 1 per cent of the global total.

Figure 19. Thebaine: utilization for the manufacture of opioids, 2004–2023



Oripavine

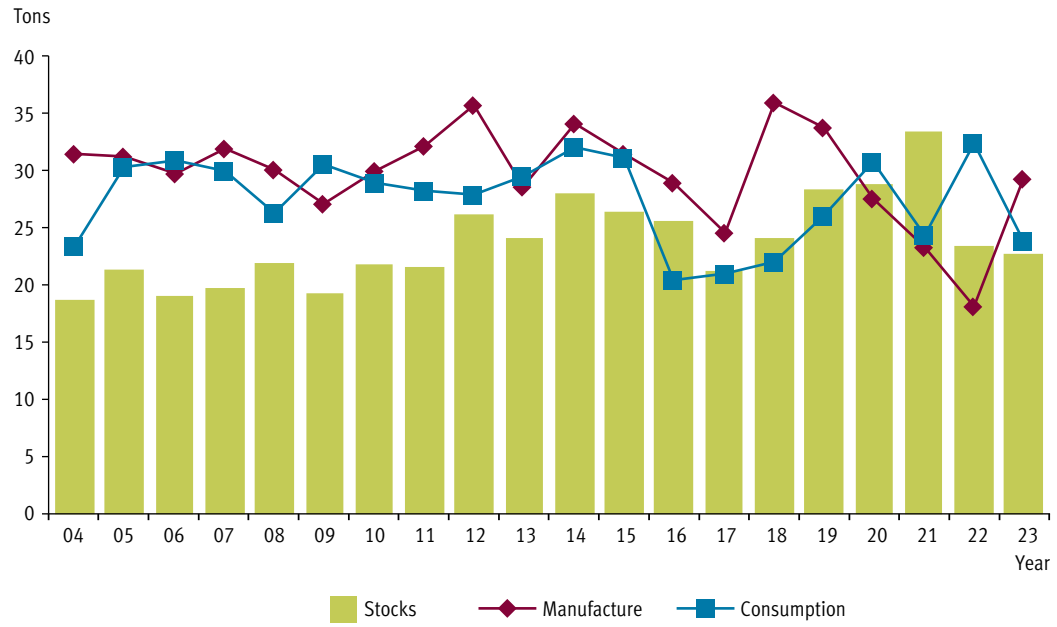
58. In 2007, oripavine was included in Schedule I of the 1961 Convention as amended. The amount of oripavine manufactured globally has followed an increasing trend since 2008 and in 2021 it reached 57.8 tons, the highest level ever recorded, but by 2023 it had decreased from that level by about a half, to 22.8 tons. In 2023, manufacture of the substance was concentrated in a small number of countries: the United States (18.6 tons, or 81.4 per cent of global manufacture), Spain (3.3 tons, or 14.7 per cent), Portugal (0.4 tons, or 2 per cent) and Australia (0.2 tons, or 1.1 per cent). Germany and Switzerland reported the manufacture of insignificant quantities. The use of oripavine in significant quantities for the manufacture of other drugs was reported in 2023 by the main manufacturing country, the United States (18.3 tons, or 83.6 per cent of the global total). In the United States and Germany, oripavine has been used mainly to manufacture oxymorphone. Consumption of oripavine in negligible amounts was reported by Germany and Ireland. In 2023, global stocks of oripavine stood at 16.2 tons, representing a decrease from the 24.3 tons reported in 2022. Of the global stocks reported held in 2023, Australia reported the holding of 11.7 tons, or 71.8 per cent, followed by India (2.3 tons, or 14.6 per cent), Spain (1.2 tons, or 7.5 per cent), the United States (0.5 tons, or 3.3 per cent) and Switzerland (0.3 tons, or 2.4 per cent). Quantities of less than 1 per cent were reported held by a number of other countries.

Semi-synthetic opioids

59. Semi-synthetic opioids are made by means of relatively simple chemical modifications of natural opiates such as morphine, codeine and thebaine. Some examples of semi-synthetic opioids are dihydrocodeine, ethylmorphine, heroin, hydrocodone, oxycodone and pholcodine. Some of the main manufacturing countries have reported that large losses occur during the processing of some semi-synthetic opioids.[17] Those manufacturing losses account for the difference between the total quantities of hydrocodone and oxycodone manufactured and those consumed, which are reflected in figures 22 and 23, respectively.

[17] Manufacturing losses are those occurring: (a) during the process of refining a drug; (b) during the process of transformation of a drug into its salts, isomers, esters and ethers, as applicable according to the schedules; and (c) during the manufacture of preparations other than those included in Schedule III of the 1961 Convention as amended. They may also be due to the chemical decomposition of a drug, leakage, evaporation, quality requirements or accidents.

Figure 20. Dihydrocodeine: global manufacture, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

Dihydrocodeine

60. The level of global manufacture of dihydrocodeine has remained relatively stable for the last 20 years, averaging about 30 tons per year, and peaked in 2018, at 35.9 tons. In 2023, the quantity manufactured worldwide stood at 29.2 tons, in line with the average of the last 20 years (see figure 20). The countries reporting the manufacture of dihydrocodeine in 2023 were Japan (9 tons, or 30.9 per cent of the global total), Italy (8.7 tons, or 29.9 per cent), the United Kingdom (4.8 tons, or 16.8 per cent), Hungary (3.5 tons, or 12.1 per cent), Slovakia (2.1 tons, or 7.4 per cent), China (0.5 tons, or 1.5 per cent) and Türkiye (0.4 tons, or 1.4 per cent). Global exports of dihydrocodeine amounted to 15.6 tons in 2023. The main exporting country was Italy (8.9 tons, or 56.9 per cent of global exports); it was followed by Hungary (3.5 tons, or 22.6 per cent), and Slovakia and the United Kingdom (1.5 tons, or 10.1 per cent, each). Other countries each reported exports of less than 1 ton. In 2023, the United Kingdom continued to be the leading importing country for dihydrocodeine (6.8 tons, or 43.3 per cent of global imports), followed by the Republic of Korea (5.6 tons, or 36.3 per cent), Colombia (1 ton, or 6.6 per cent), Australia (0.4 tons, or 3.1 per cent) and Italy (0.3 tons, or 2.4 per cent). Other countries each reported imports of less than 2 per cent of the global total.

61. Dihydrocodeine is consumed mainly in the form of preparations included in Schedule III of the 1961 Convention as amended, which accounted for 99.6 per cent of the total consumption of dihydrocodeine in 2023. The main user country for that purpose was the United Kingdom (45.2 per cent of the global total), followed by Japan (43.1 per cent), China (4.2 per cent), India (2.2 per cent) and Australia (2 per cent). A number of other countries reported the consumption of smaller amounts of the substance. In 2023, the amount of dihydrocodeine used for direct consumption totalled 87 kg. Global stocks of dihydrocodeine amounted to 22.6 tons, in line with the average of the last 20 years. Major stocks were held in Japan (12.3 tons, or 54.2 per cent of the global total), the United Kingdom (6 tons, or 26.7 per cent) and Italy (2.3 tons, or 10.2 per cent).

Ethylmorphine

62. The manufacture of ethylmorphine fluctuated over the 20-year period 2004–2023. In 2023, no manufacture of the substance was reported. Both exports (532 kg) and imports (532.2 kg) were limited. The countries exporting ethylmorphine in 2023 were, in descending order of the amounts exported, France, Hungary, Türkiye, the Kingdom of the Netherlands, Germany and Switzerland. The importing countries and territories were, in descending order of

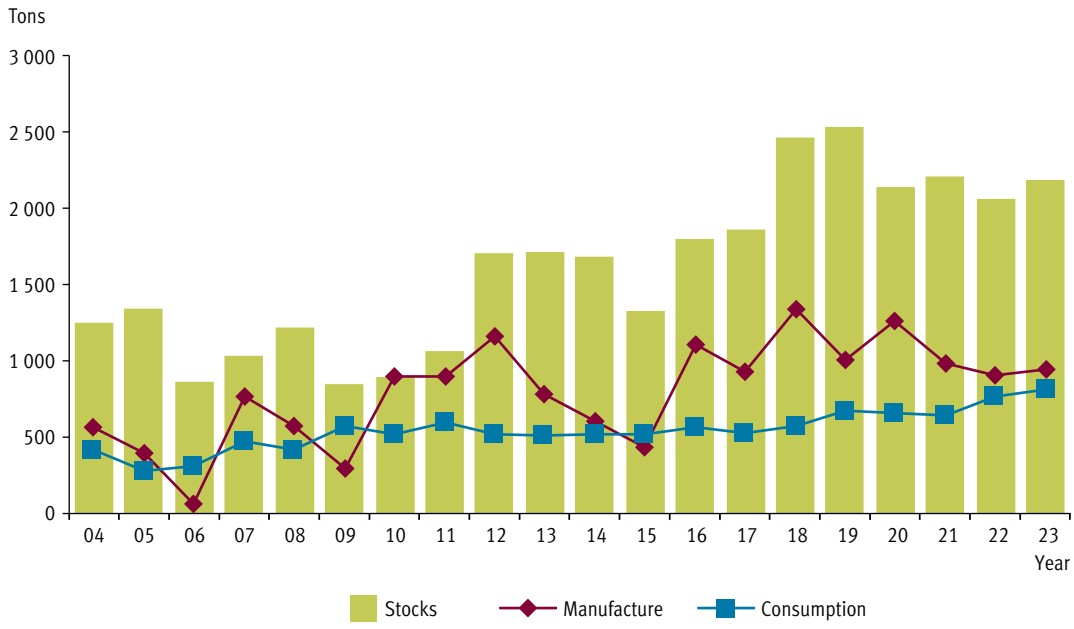
the amounts imported, Sweden; Belgium; Poland; Hong Kong, China; Finland; Bulgaria; Germany; the Kingdom of the Netherlands; Norway; Uruguay; Switzerland; and France. About 97.5 per cent of the total amount of ethylmorphine consumed was in the form of preparations listed in Schedule III of the 1961 Convention as amended. Global consumption of ethylmorphine decreased to 19.5 kg in 2023. In the same year, global stocks of the substance totalled 1,857 kg. The largest stocks were held in Belgium, France and Sweden, in descending order of the amounts held in stock. Each of those countries reported the holding of more than 100 kg of the substance.

Heroin

63. Over the past 20 years, the global quantity of licitly manufactured heroin averaged approximately 800 kg per year, amounting to more than 1,000 kg in some years. In 2023, a total of 944.1 kg of heroin were licitly manufactured, exclusively in Switzerland (550.3 kg, or 58.3 per cent of the global total) and the United Kingdom (393.8 kg, or 41.7 per cent) (see figure 21). The main countries exporting heroin in 2023 were Switzerland (356 kg, or 37.1 per cent of total exports), the United Kingdom (348.5 kg, or 36.3 per cent) and the Kingdom of the Netherlands (184.4 kg, or 19.2 per cent). In 2023, the main importing country was the Kingdom of the Netherlands (435.3 kg, or 45.2 per cent of total imports), followed by Switzerland (358.4 kg, or 37.2 per cent), Canada (69.7 kg, or 7.2 per cent), Germany (59 kg, or 6.1 per cent), Luxembourg (12 kg, or 1.3 per cent), Norway (11.9 kg, or 1.2 per cent) and Denmark (10.7 kg, or 1.1 per cent). A number of other countries reported the import of minimal amounts of the substance.

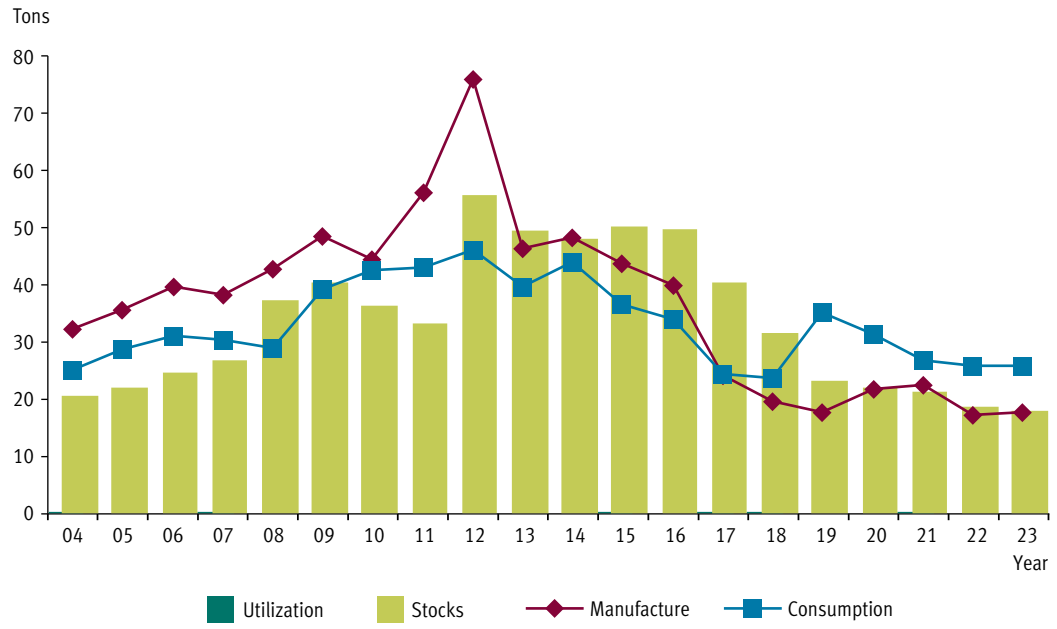
64. Global consumption of heroin has followed an increasing trend over the last 20 years, rising from 425.1 kg in 2004 to 813.3 kg in 2023. Switzerland, where heroin is prescribed for individuals with long-term opioid dependency, reported the consumption of 439.7 kg of heroin in 2023 (54 per cent of global consumption). Other countries reporting significant heroin consumption for medical purposes in 2023 were Germany (219.8 kg, or 27 per cent), the Kingdom of the Netherlands (66.9 kg, or 8.2 per cent), Denmark (26.7 kg, or 3.2 per cent), Canada (24.1 kg, or 2.9 per cent), the United Kingdom (15.2 kg, or 1.8 per cent) and Norway (12.1 kg, or 1.5 per cent). Global stocks of heroin remained stable at 2.1 tons in 2023. The countries in which significant stocks were held in 2023 were Switzerland (1,187.9 kg, or 54.3 per cent of global stocks), the Kingdom of the Netherlands (525.4 kg, or 24 per cent), Spain (165.5 kg, or 7.5 per cent), Canada (154.7 kg, or 7 per cent) and the United Kingdom (127.3 kg, or 5.8 per cent). Other countries each reported the holding of stocks amounting to less than 1 per cent of the global total.

Figure 21. Heroin: global manufacture, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

Figure 22. Hydrocodone: global manufacture, consumption, utilization[a] and stocks,[b,c] 2004–2023



[a] Utilization for the manufacture of other drugs.
[b] Stocks as at 31 December of each year.
[c] Considerable losses occur in the manufacturing process of this substance, which explains some of the gaps between the figures for manufacture and those for consumption and stocks.

Hydrocodone

65. Global manufacture of hydrocodone remained stable at 17.6 tons in 2023, a level similar to that of 2022, 17 tons, which was the lowest level in the past 20 years and well below the peak of 75.9 tons manufactured in 2012 (see figure 22). As in the previous year, the United States was the only country that reported the manufacture of the substance in 2023.

66. In 2023, global consumption of hydrocodone remained stable at 25.6 tons. The United States accounted for almost all (98.7 per cent) of the global consumption of the substance. Colombia reported the consumption of 293.8 kg, or 1.1 per cent. Several other countries reported consumption in minimal amounts.

67. In the past, hydrocodone had been used in the United States in the manufacture of thebaine for the purpose of manufacturing other narcotic drugs; no such use has been reported since 2003, as direct extraction of thebaine from poppy straw has been gradually replacing the use of hydrocodone in the manufacture of thebaine since the late 1990s. In 2023, most consumption of hydrocodone took place in the United States, which also exported 0.4 tons of the substance, or 91 per cent of global exports. In the same year, the Islamic Republic of Iran, Switzerland and the United Kingdom reported the export of minimal quantities.

Hydromorphone

68. Global manufacture of hydromorphone increased in 2023 to 5.3 tons, from 4.8 tons in 2022. The leading manufacturing countries in 2023 were the United Kingdom (1.7 tons, or 32.4 per cent of the global manufacture), the United States (1.5 tons, or 27.8 per cent), Slovakia (1.1 tons, or 21.3 per cent) and Denmark (0.7 tons, or 13.3 per cent). Total exports of hydromorphone remained relatively stable, at 3.5 tons, in 2023. The leading exporting countries were the United Kingdom (1.6 tons, or 44.9 per cent of global exports), Slovakia (0.6 tons, or 16.3 per cent), Switzerland (0.5 tons, or 12.4 per cent), Denmark (0.4 tons, or 11.2 per cent), the United States (0.2 tons, or 6.4 per cent) and the Kingdom of the Netherlands (0.2 tons, or 5.5 per cent). A number of countries reported the export of quantities amounting to less than 5 per cent each. In 2023, Germany was the main importing country (1.2 tons, or 33.9 per cent of global imports), followed by Canada (1 ton, or 28.1 per cent)

and Switzerland and the United Kingdom (0.6 tons, or 17.2 per cent, each). Other countries reported imports of less than 9 per cent each.

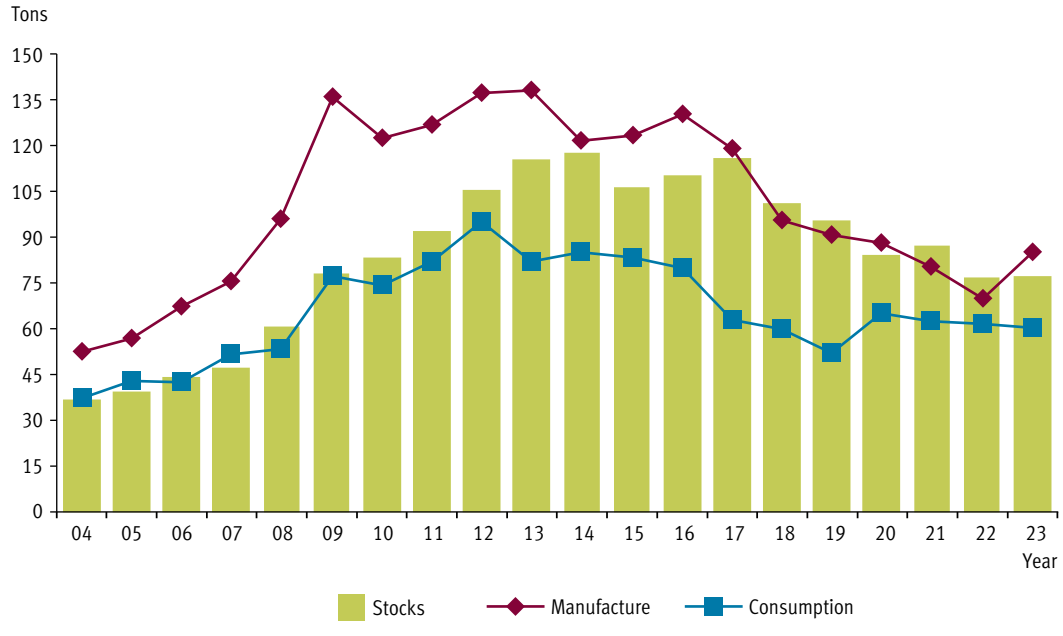
69. In 2023, consumption of hydromorphone remained stable at 3.4 tons. The United States continued to be the main consumer country in 2023 (1.3 tons, or 38.4 per cent of global consumption), followed by Canada (0.9 tons, or 29 per cent), Germany (0.7 tons, or 22.7 per cent) and Austria (0.1 tons, or 3.4 per cent). A number of other countries reported consumption of less than 0.1 tons each. Global stocks of hydromorphone in 2023 stood at 6.5 tons, of which 1.7 tons (26.8 per cent) were held in the United States, 1 ton (16.1 per cent) in Germany, 0.8 tons (13.5 per cent) in Canada and 0.7 tons (11.6 per cent) in the United Kingdom. Other countries reported stocks amounting to less than 10 per cent each.

Oxycodone

70. Oxycodone has, over the last 20 years, been one of the drugs commonly associated with overdose deaths in relation to the misuse of prescription drugs, in particular in North America. Global manufacture of oxycodone increased after 2004, reaching a record high of 138.1 tons in 2013. Since then, manufacture has followed a decreasing trend, dropping to 69.5 tons in 2022; however, it increased again, to 85 tons, in 2023 (see figure 23). The overall decreasing trend in manufacture may be attributable to stricter control measures introduced in some countries where the risk of overdose deaths and misuse of oxycodone is significant. In 2023, the United States accounted for 36.9 tons, or 43.6 per cent of global manufacture, followed by France (18 tons, or 21.2 per cent), the United Kingdom (17.5 tons, or 20.6 per cent), Hungary (8 tons, or 9.4 per cent) and Slovakia (3 tons, or 3.5 per cent). A number of other countries reported the manufacture of smaller quantities of the substance.

71. There have been some fluctuations in global exports of oxycodone over the last 20 years. In 2023, exports amounted to 40.8 tons, a slight increase from 39.2 tons in 2022 and nearly the same level as in 2021, 42.5 tons, the highest level in the last 20 years. The United Kingdom continued to be the main exporting country in 2023 (19.5 tons, or 47.9 per cent of global exports), followed by the Kingdom of the Netherlands (4.4 tons, or 10.9 per cent), the United States (3.7 tons, or 9.2 per cent), Switzerland (2.2 tons, or 5.4 per cent), Austria (2 tons, or 5 per cent), France (1.9 tons, or 4.7 per cent), Slovakia (1.8 tons, or 4.6 per cent), Germany (1.5 tons, or 3.7 per cent)

Figure 23. Oxycodone: global manufacture, consumption and stocks,[a,b] 2004–2023



[a] Stocks as at 31 December of each year.
[b] Considerable losses occur in the manufacturing process of this substance, which explains some of the gaps between the figures for manufacture and those for consumption and stocks.

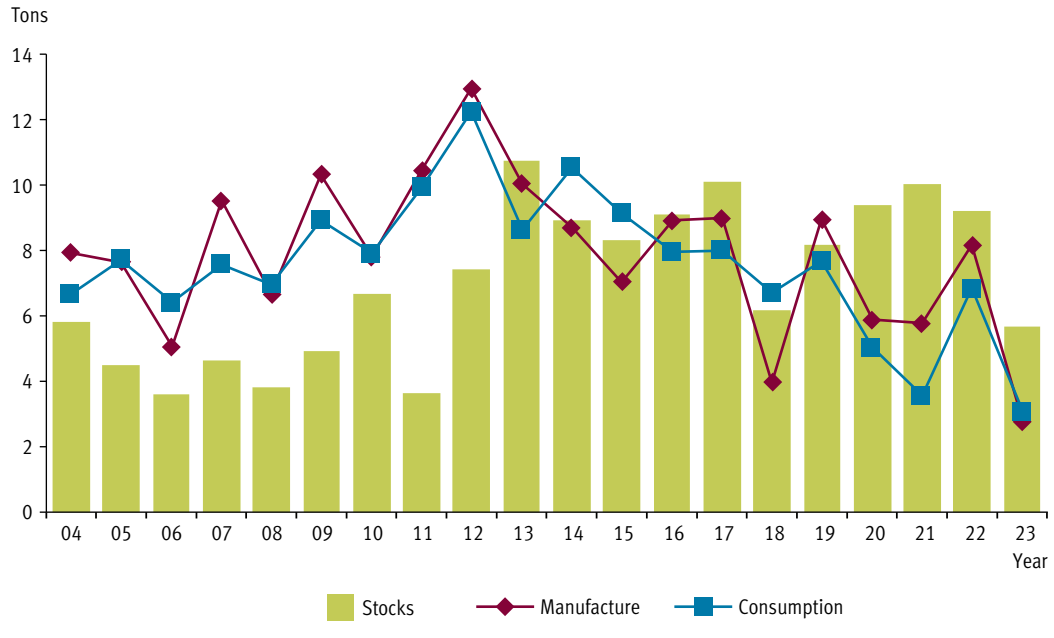
and Bulgaria (1.4 tons, or 3.6 per cent). A number of other countries exported smaller quantities of the substance. Global imports of oxycodone rose to 38.2 tons in 2023, after dropping to 33.9 tons in 2022. The countries importing the most significant quantities were the Kingdom of the Netherlands (5.2 tons, or 13.6 per cent of the global total), Germany (4.9 tons, or 13 per cent), the United Kingdom (4.5 tons, or 11.9 per cent), Switzerland (3.3 tons, or 8.6 per cent), Austria (3.1 tons, or 8.1 per cent), France (2.2 tons, or 5.7 per cent), Canada (1.9 tons, or 5.1 per cent), Bulgaria (1.5 tons, or 4 per cent), Italy (1.4 tons, or 3.7 per cent) and Australia (1.2 tons, or 3.1 per cent). Further details on exports and imports of oxycodone are contained in annex IV, tables 3 and 4.

72. Despite the decrease in manufacture in recent years, global consumption of oxycodone remained relatively stable, at 60.2 tons, in 2023. Consumption of oxycodone was concentrated in the United States (40.8 tons, or 67.7 per cent of the global total). Other major consumer countries in 2023 were Germany (2.9 tons, or 4.9 per cent), Canada (2.1 tons, or 3.5 per cent), the United Kingdom (1.7 tons, or 2.8 per cent), Italy (1.6 tons, or 2.7 per cent), France (1.5 tons, or 2.6 per cent), Australia (1.3 tons, or 2.3 per cent) and China (1.1 tons, or 1.8 per cent). Global stocks of oxycodone also remained relatively stable, at 77 tons, with the United States reporting the holding of 36 tons, or 46.7 per cent of the world total, followed by France (8.4 tons, or 10 per cent) and the United Kingdom (7.2 tons, or 9.3 per cent). Other countries reported stocks of less than 4 tons each.

Pholcodine

73. During the 20-year period 2004–2023, global manufacture and consumption of pholcodine were characterized by volatile trends. Manufacture dropped from its peak of 13 tons in 2012 to 2.7 tons in 2023 (see figure 24). The fluctuations may be related to health concerns about the use of pholcodine that were not confirmed by a review carried out in 2012 by the European Medicines Agency. The main manufacturing countries in 2023 were China (1 ton, or 39.3 per cent of the global total), Hungary (0.8 tons, or 31 per cent) and Slovakia (0.7 tons, or 27.1 per cent). South Africa reported the manufacture of less than 3 per cent of the global total. Total exports of pholcodine decreased from 8.5 tons in 2022 to 2.8 tons in 2023. The exports were mostly from France (1.6 tons, or 58.3 per cent of global exports) and Hungary (1.1 tons, or 40.7 cent). Slovakia, Belgium, Egypt, Switzerland, Germany and the United Kingdom, in descending order of the quantities exported, reported exports in smaller quantities. The main destinations were China (1.5 tons, or 55.6 per cent of global imports) and Hong Kong, China (1.1 tons, or 41.7 per cent). Egypt, Slovakia, Zambia, Singapore, Germany, the United Kingdom and Ireland, in

Figure 24. Pholcodine: global manufacture, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

descending order of the quantities imported, accounted for less than 3 per cent of total global imports. Further details on exports and imports of pholcodine are provided in annex IV, tables 3 and 4.

74. In 2023, global consumption of pholcodine (the total of the amount directly consumed and the amount utilized for the manufacture of preparations in Schedule III of the 1961 Convention as amended) decreased to 3 tons, almost the same level as in 2021. The main consumer countries and territories were Hong Kong, China (2.1 tons, or 69.2 per cent of the global total) and China (0.7 tons, or 23.2 per cent). In 2023, global stocks of pholcodine decreased to 5.7 tons. Major stocks were held in France; China; Hungary; Hong Kong, China; Slovakia; Norway; and the United Kingdom, in descending order of the amounts held.

Synthetic opioids

75. Synthetic opioids are used in the treatment of chronic, moderate and severe pain. They are also used for the induction of general anaesthesia and in the treatment of specific conditions such as gastrointestinal disorders. In addition, methadone is used in treatment related to drug dependency.

Dextropropoxyphene

76. Global manufacture of dextropropoxyphene followed a strong downward trend from 2005, when 314 tons were manufactured, to 2014, when there was no reported manufacture of the substance. Since then, global manufacture has continued to be nil or negligible, and this trend continued in 2020 and 2021, when no manufacture of the substance was reported. In 2023, only 85.2 kg were manufactured. The trend is attributable to the fact that the drug has been withdrawn from the market in several countries owing to concerns over serious side effects, including the risk of death from overdose. Consequently, little or no consumption, exports or imports of the substance have been reported, although in 2023, 15.8 tons were reported held in stock, mostly in India (93.1 per cent of global stocks).

Diphenoxylate

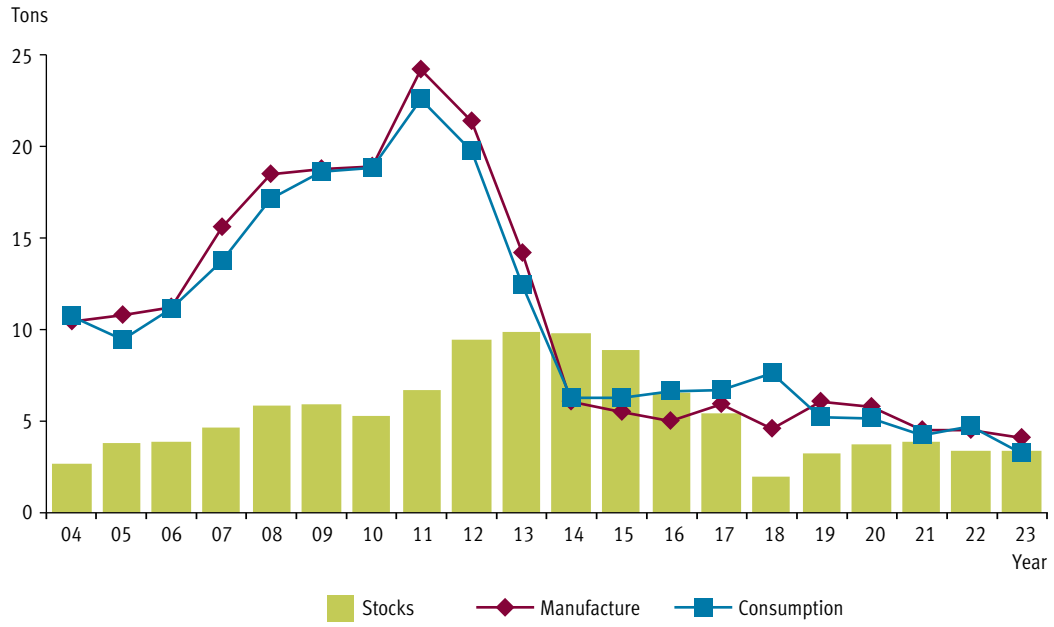
77. Diphenoxylate is used mostly as an antidiarrhoeal agent. Global manufacture of diphenoxylate trended upward after 2003, reaching a peak of 24.2 tons in 2011, dropping significantly in 2014 and then remaining at an annual level of manufacture of about 5 tons. In 2022, global manufacture stood at 4.5 tons (see figure 25). Most of the drop in manufacture from the peak in 2011 may be attributable to a regulatory measure introduced in India following the raising of concerns related to potential misuse of the substance. In 2023, most of the global amount manufactured (4.1 tons) was reported by China (1.9 tons, or 47.8 per cent), India (1.7 tons, or 43.7 per cent) and the United States (0.3 tons, or 8.3 per cent). India remained the leading exporter of diphenoxylate (0.7 tons, or 96.4 per cent of global exports). The main importing countries in 2023 were the Islamic Republic of Iran (0.3 tons, or 63.4 per cent of global imports), Malysia (0.06 tons, or 12.8 per cent) and Singapore (0.05 tons, or 11.1 per cent).

78. Diphenoxylate was consumed in the form of preparations listed in Schedule III of the 1961 Convention as amended. Global consumption decreased to 3.2 tons in 2023, from 4.7 tons in 2022. The countries reporting the highest consumption (the total of the amount directly consumed and the amount utilized for the manufacture of preparations in Schedule III) in 2023 were China (1.5 tons, or 48.1 per cent of the global total) and India (1.1 tons, or 36 per cent). In 2023, global stocks of diphenoxylate stood at 3.4 tons, most of which were held in China (2 tons, or 60.6 per cent of the global total) and India (0.9 tons, or 28.2 per cent).

Fentanyl

79. Fentanyl, when used as an analgesic, is about 100 times more potent than morphine and is therefore used only in very small doses (for example, 0.005–0.1 mg in injectable form). Until the 1980s, fentanyl was used mainly for the induction of anaesthesia and, in combination with other substances, for balanced anaesthesia in short-term surgical interventions. Since the early 1990s, however, controlled-release preparations (patches) of fentanyl and new delivery methods, including a sublingual spray for cancer patients, have been increasingly used in all parts of the world for the treatment of severe pain.

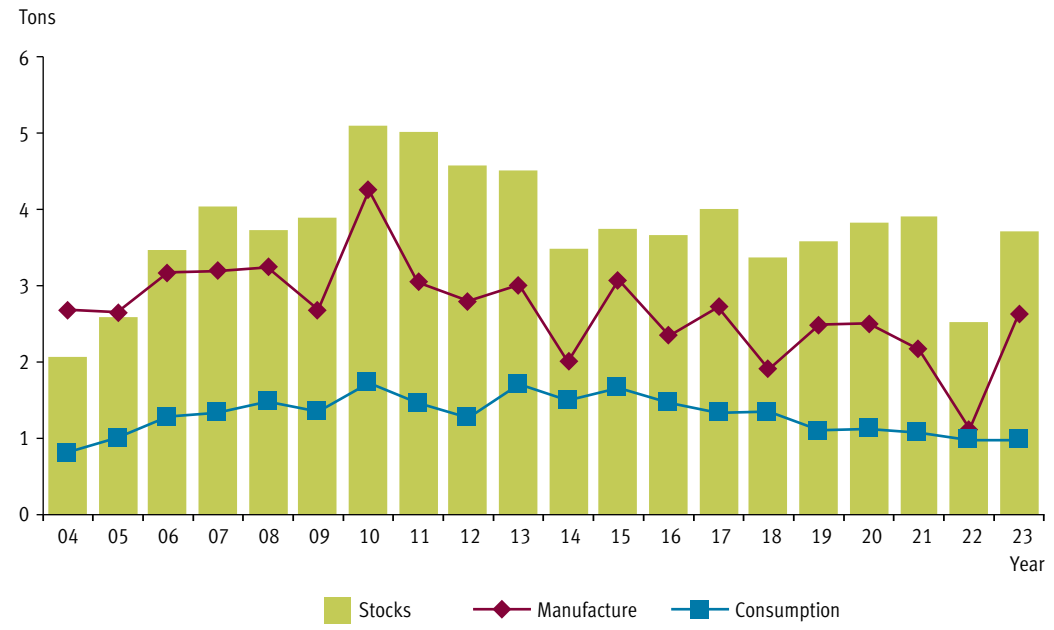
Figure 25. Diphenoxylate: global manufacture, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

80. Global manufacture of fentanyl increased rapidly in the period 2000–2010, reaching a record level of 4.3 tons in 2010. After that, manufacture followed an overall decreasing trend, dropping to 1.9 tons in 2018, then further, to 1.1 tons, in 2022. However, it increased again in 2023, reaching 2.6 tons (see figure 26). Germany was the country reporting the highest level of fentanyl manufacture in 2023 (1,109.3 kg, or 42.2 per cent of the global total), followed by the United States (807.3 kg, or 30.7 per cent), Belgium (458.8 kg, or 17.4 per cent) and South Africa (144.4 kg, or 5.5 per cent). Other countries reported the manufacture of less than 100 kg each.

Figure 26. Fentanyl: global manufacture, consumption and stocks,[a] 2004–2023

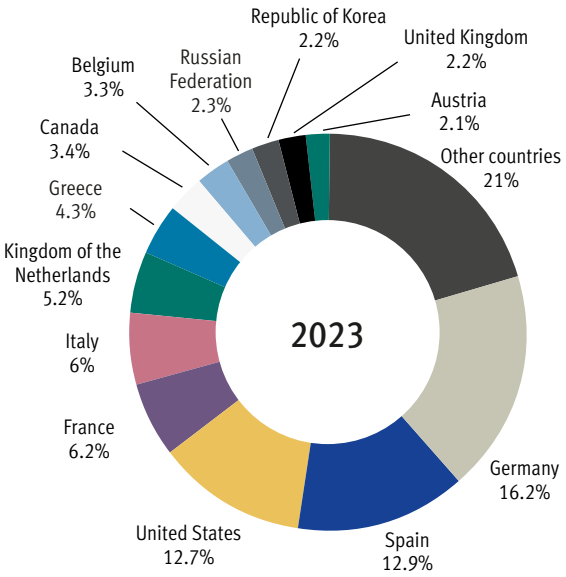


[a] Stocks as at 31 December of each year.

81. Total exports of fentanyl remained stable in 2023, at slightly more than 1 ton, in line with the trend of past years. The principal exporting countries were Germany (404 kg, or 37.2 per cent of global exports), the United States (319 kg, or 29.4 per cent), Belgium (185.1 kg, or 17 per cent), Greece (53.5 kg, or 4.9 per cent) and the United Kingdom (22.2 kg or 2 per cent). Other countries each reported exports in quantities of less than 2 per cent of the global total. Germany was also the principal importing country for fentanyl in 2023 (380.1 kg, or 30.9 per cent of the global total), followed by Spain (158.7 kg, or 12.9 per cent), Greece (98.2 kg, or 8 per cent), France (75.6 kg, or 6.1 per cent), Italy (61.1 kg, or 5 per cent), the United Kingdom (60.1 kg, or 4.9 per cent), the Kingdom of the Netherlands (59.9 kg, or 4.8 per cent), Canada (34.1 kg, or 2.7 per cent) and Japan (27.4 kg, or 2.2 per cent). A few other countries each reported imports in quantities of less than 2 per cent of the global total. Further details on exports and imports of fentanyl are contained in annex IV, tables 3 and 4.

82. Since 2005, global consumption of fentanyl has fluctuated between about 1 ton and 1.7 tons, with an average annual consumption of 1.2 tons in the period 2004–2023. In 2023, global consumption decreased to 1 ton. A gradual downward trend has been observed since 2013, when global consumption peaked at 1.7 tons, and may be associated with continued concerns about the number of overdose deaths attributed to the misuse of fentanyl or fentanyl-type substances, mainly in North America. However, in many cases, the substances causing overdose deaths are illicitly manufactured and trafficked and are not necessarily licitly prescribed medications that are diverted. In 2023, 20 countries accounted for most (89.4 per cent) of the global consumption of fentanyl; they are all high-income countries, except for China (see figure 27). The three countries reporting the highest levels of consumption (more than 120 kg) were Germany (160.4 kg, or 16.2 per cent of the global total), Spain (127.6 kg, or 12.9 per cent) and the United States (125.7 kg, or 12.7 per cent). Other countries reporting significant consumption of fentanyl were, in descending order of the amounts reported consumed, France, Italy, the Kingdom of the Netherlands, Greece, Canada, Belgium, the Russian Federation, the Republic of Korea, the United Kingdom and Austria.

Figure 27. Fentanyl: distribution of consumption, 2023



83. In 2023, global stocks of fentanyl stood at 3.7 tons, more than the 2.5 tons reported in 2022. The largest stocks were reported by Germany (1,569.2 kg, or 42.1 per cent of the global total), the United States (712.3 kg, or 19.1 per cent), South Africa (346.3 kg, or 9.3 per cent), Belgium (313.4 kg, or 8.4 per cent) and the United Kingdom (252.7 kg, or 6.7 per cent). Other countries reported stocks of less than 100 kg each.

Fentanyl analogues

84. The fentanyl analogues alfentanil, remifentanil and sufentanil are used mainly as anaesthetics. Their use increased in some countries during the coronavirus disease (COVID-19) pandemic, as reported below.

Alfentanil

85. Alfentanil is a potent opioid analgesic indicated for analgesia and suppression of respiratory activity in mechanically ventilated patients in intensive care and to provide analgesic cover for painful manoeuvres.

86. The manufacture of alfentanil has fluctuated significantly in the last 20 years. In 2012, global manufacture reached 78.3 kg, after having dropped to its lowest level in 2009, when only 5.6 kg of the substance were manufactured. Global manufacture of alfentanil increased to 92.7 kg in 2021, but then decreased considerably, to 40.5 kg, in 2022 and further, to 31.8 kg, in 2023. The increase in 2021 may have been due to the increased demand related to the use of alfentanil for the treatment of people affected by COVID-19 in intensive care. Most of the global amount manufactured in 2023 was reported by Slovakia (21.2 kg, or 66.6 per cent), China (5.8 kg, or 18.2 per cent) and the United States (2.5 kg, or 8.1 per cent).

87. In 2023, global consumption of alfentanil amounted to 34.8 kg, marking a slight decrease compared with the 37.5 kg consumed in 2022. The United Kingdom was the main consumer country, accounting for 22.7 kg, which constituted 65.3 per cent of the global total. It was followed by China, which accounted for 4.3 kg, or 12.4 per cent of the global total. France, Italy, Germany, Australia and Brazil, in descending order of the amounts reported consumed, were the other countries reporting levels of consumption of the substance above 2 per cent. Detailed information on the consumption of fentanyl analogues is provided in table XIII.1 of part four. In 2023, global stocks of alfentanil increased to 118.1 kg, possibly indicating the persistence of increasing demand related to the COVID-19 pandemic. Having reported stocks of 41.4 kg, or 35.1 per cent of the global total, Greece was the country reporting the largest share of global stocks of alfentanil, followed by Slovakia (22.2 kg, or 18.8 per cent), the United Kingdom (19.6 kg, or 16.6 per cent), China (10.6 kg, or 9 per cent) and Germany (4.1 kg, or 3.4 per cent). Other countries reported the holding of stocks of less than 4 kg each.

Remifentanil

88. Remifentanil is a potent, short-acting synthetic opioid analgesic given to patients during surgery to relieve pain and as an adjunct to an anaesthetic. It is approximately twice as potent as fentanyl and 100 to 200 times more potent than morphine. As in the case of alfentanil, there were increases in the manufacture, consumption and stocks of remifentanil, probably related to increasing demand created by COVID-19-related health needs. In 2004, global manufacture of remifentanil was negligible (0.2 kg). The highest level in the last two decades, 211.8 kg, was recorded in 2021. In 2023, the level of global manufacture was close to that of 2021, amounting to 182.6 kg. In 2023, China continued to be the main manufacturing country, accounting for 64.5 kg, or 35.3 per cent of total manufacture. It was followed by Belgium (31 kg, or 16.9 per cent), Spain (29.4 kg, or 16.1 per cent), Slovakia (25.6 kg, or 14 per cent), Germany (13.9 kg, or 7.6 per cent) and the United Kingdom (11.9 kg, or 6.5 per cent). Four other countries reported the manufacture of less than 10 kg each. The main exporting countries for remifentanil in 2023 were, in descending order of the amounts exported, Belgium, Spain, Germany, Slovakia, Serbia, Italy and China, together accounting for a total of 85.7 kg, or 88.6 per cent of global exports. Italy was the main importing country, accounting for 22.4 kg, or 23.6 per cent of global imports, and was followed by Japan (9.8 kg, or 10.4 per cent), Germany (8.5 kg, or 9 per cent) and Türkiye (7.3 kg, or 7.7 per cent). A number of other countries reported imports of less than 7 kg of the substance.

89. In 2023, global consumption of remifentanil decreased to 94.6 kg, from 124.7 kg in 2022. The countries reporting the highest level of consumption of the substance were China (54.9 kg, or 43.9 per cent of global consumption), Italy (9.7 kg, or 7 per cent), Japan (8.2 kg, or 6.6 per cent), Germany (6.6 kg, or 5.3 per cent), Brazil (6.3 kg, or 5 per cent), the Republic of Korea (5.5 kg, or 4.4 per cent) and Spain (3.9 kg, or 3.1 per cent). A number of other countries reported consumption in quantities of less than 3 per cent each. As mentioned above, likely because of the demand for remifentanil related to the COVID-19 pandemic, stocks of the substance increased in 2021, reaching 257.4 kg, up from 206.7 kg in 2020. Although stocks subsequently decreased to 152.6 kg in 2022, they increased again in 2023, reaching a record amount of 364.7 kg. Most of the global stocks were held in Brazil (215.4 kg, or 59 per cent of global stocks), Italy (31.4 kg, or 8.6 per cent), Belgium (20.1 kg, or 5.5 per cent), Germany (15.4 kg, or 4.2 per cent), Spain (14.3 kg, or 3.9 per cent) and the United Kingdom (14.1 kg, or 3.8 per cent). A number of other countries reported the holding of stocks of less than 8 kg each.

Sufentanil

90. Global manufacture of sufentanil remained above 10 kg per year between 2019 and 2022 but decreased to 7.8 kg in 2023. The main manufacturing countries were China (4.7 kg, or 59.6 per cent of the global total), Slovakia (2 kg, or 26.6 per cent), the United States (0.8 kg, or 10.9 per cent) and Brazil (0.2 kg, or 2.9 per cent). The main exporting countries were Slovakia (1.2 kg, or 39.1 per cent of global exports), the United States (0.5 kg, or 17.1 per cent), Greece (0.4 kg, or 14.1 per cent), Serbia (0.3 kg, or 12.3 per cent) and the United Kingdom (0.1 kg, or 5.1 per cent). Other countries reported the export of less than 5 per cent each. In 2023, global consumption of sufentanil remained relatively stable, at 5.7 kg. The countries reporting the highest levels of consumption of sufentanil were, in descending order of the amounts consumed, China, Germany, France, Italy, the United States, South Africa, Slovakia and Czechia. In 2023, global stocks of sufentanil increased to 35.5 kg, most of which were held in China (22.7 kg, or 64 per cent), Slovakia (2.6 kg, or 7.5 per cent), the United Kingdom (2.5 kg, or 7.1 per cent), Germany (1.5 kg, or 4.4 per cent), Spain (1.4 kg, or 4 per cent) and the United States (1 kg, or 3 per cent).

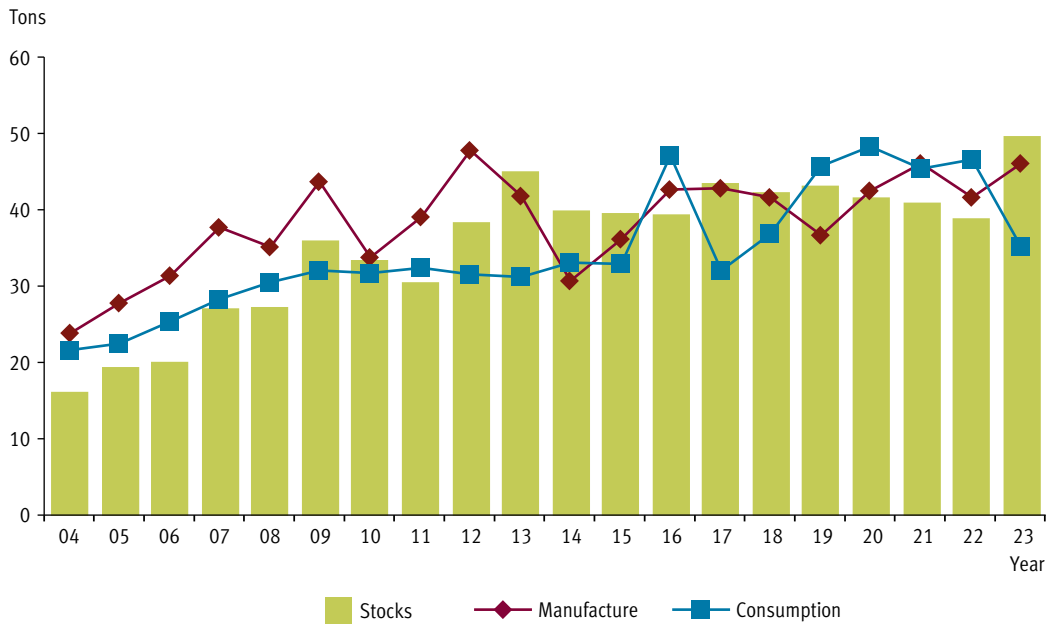
Ketobemidone

91. Ketobemidone is a powerful opioid analgesic with an effectiveness against pain similar to that of morphine. The drug is mostly manufactured and used in a small number of countries, most of which are in Northern Europe. It appears to be manufactured only every third year, manufacture having been reported in 2015 (365.9 kg) and in 2018 (279.8 kg). No manufacture was reported in 2016, 2017, 2019 or 2020. In 2021, only 0.6 kg were reported as having been manufactured, but in 2023, once again, no manufacture of the substance was reported. Global stocks of ketobemidone amounted to 11.5 kg in 2023, down from 32 kg in 2022. Norway reported the holding of 6.6 kg of the substance, or 57.8 per cent of global stocks, followed by Sweden (2.8 kg, or 24.9 per cent) and Denmark (1.4 kg, or 12.9 per cent). In 2023, a total of 0.8 kg of the substance were exported, from Denmark, Germany and Sweden.

Methadone

92. Methadone, together with buprenorphine (which is controlled under the 1971 Convention), is sometimes used for pain management, but is primarily used in the treatment of opioid dependence. As shown in figure 28, the trends related to its consumption, manufacture and stocks show an overall gradual increase over the 20-year period 2004–2023, albeit with some fluctuations. The manufacture of methadone remained stable in 2023, at

Figure 28. Methadone: global manufacture, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

46.1 tons. The main manufacturing country was the United States (18.5 tons, or 40.2 cent of global manufacture), followed by Switzerland (16.6 tons, or 36 per cent), India (4.7 tons, or 10.3 per cent), Slovakia (2.5 tons, or 5.4 per cent), Spain (1.6 tons, or 3.5 per cent) and China (1.2 tons, or 2.6 per cent). Two other countries reported the manufacture of smaller amounts. In 2023, Switzerland continued to be the main exporter of methadone (11.1 tons, or 47.7 per cent of global exports), followed by India (3.9 tons, or 16.7 per cent), Slovakia (2.4 tons, or 10.5 per cent), Czechia (1.1 tons, or 4.7 per cent) and the United States (1 ton, or 4.4 per cent). Other countries reported the export of smaller amounts. The main importing countries were the United Kingdom (3.7 tons, or 15.7 per cent of global imports), Canada (2.3 tons, or 9.8 per cent), Italy (2.2 tons, or 9.7 per cent) and Germany (2 tons, or 8.8 per cent). A number of other countries reported the import of less than 2 tons each.

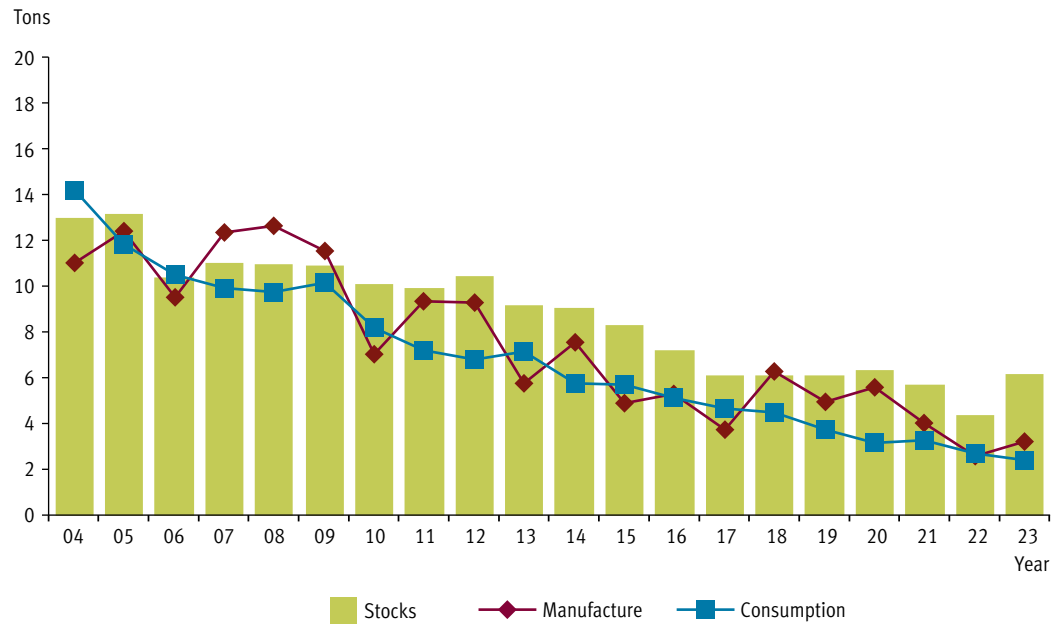
93. Consumption of methadone was concentrated in a few countries, and there were large differences among countries with regard to consumption patterns. Global consumption of the substance decreased to 35.2 tons in 2023, from 46.6 tons in 2022. The country reporting the highest level of consumption was the United States (19.6 tons, or 55.9 per cent of global consumption), followed by Canada (1.7 tons, or 5 per cent), the United Kingdom (1.6 tons, or 4.5 per cent), Germany (1.5 tons, or 4.2 per cent), Italy (1.4 tons, or 4.1 per cent), France (1.3 tons, or 3.9 per cent), Ukraine (1.1 tons, or 3.3 per cent) and Spain (1 ton, or 3 per cent). A number of countries reported consumption of less than 1 ton of methadone each. In most cases, the countries reporting the highest consumption were those with a high number of people who inject drugs. In other cases, even though there was a significant number of people who inject drugs, little or no methadone consumption was reported, indicating that opioid agonist therapy services for drug-dependent persons were not available.

94. In 2023, stocks of methadone amounted to 49.5 tons. They were mainly held in the United States (15.2 tons, or 30.8 per cent of global stocks), Switzerland (6.8 tons, or 13.7 per cent), the United Kingdom (5.1 tons, or 10.4 per cent), Germany (2.8 tons, or 5.6 per cent), China (2.7 tons, or 5.5 per cent) and Italy (2.2 tons, or 4.4 per cent). A number of countries reported the holding of stocks of less than 2 tons each.

Pethidine

95. The manufacture of pethidine has trended downward over the past 20 years, falling to 3.2 tons in 2023 (see figure 29). Pethidine is used mostly for pain relief in childbirth. The decrease in consumption is attributable to several factors, such as its low potency, short duration of action and unique toxicity (symptoms of which include

Figure 29. Pethidine: global manufacture, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

seizures, delirium and other neuropsychological effects) compared with other available opioid analgesics. It is considered an effective analgesic for acute pain but not useful for chronic pain. For these reasons, several countries have placed strict limits on its use, but some physicians continue to use it as a strong first-line opioid.

96. In 2023, pethidine was mostly manufactured in Slovakia (2.1 tons, or 68.2 per cent of global manufacture) and Spain (0.4 tons, or 13 per cent). The main exporting countries were Slovakia (2.2 tons, or 61.4 per cent of global exports), the United Kingdom (0.4 tons, or 12.6 per cent) and Singapore (0.3 tons, or 8.2 per cent). Further details on exports and imports of pethidine are contained in annex IV, tables 3 and 4.

97. Global consumption of pethidine, which stood at 14.1 tons in 2003, has followed a decreasing trend since then and stood at 2.4 tons in 2023. The countries reporting the highest consumption of the substance in 2023 were the United States (313 kg, or 12.9 per cent of the global total), China (293.3 kg, or 12.1 per cent), Bangladesh (224 kg, or 9.2 per cent) and Türkiye (154.7 kg, or 6.3 per cent). Consumption in smaller quantities was reported by a number of other countries. Global stocks of pethidine stood at 6.2 tons in 2023. The largest stocks were held in the United Kingdom (1.3 tons, or 21.5 per cent of global stocks), Slovakia (0.9 tons, or 14.5 per cent) and China (0.7 tons, or 11.9 per cent). A number of other countries reported stocks in quantities of less than 0.6 tons each.

Tilidine

98. Global manufacture of tilidine decreased to 47.5 tons in 2023, continuing the volatile pattern of the past 20 years. In 2023, Germany was the only country that reported the manufacture of the substance. Exports of tilidine increased to 75.8 tons in 2023. The main exporting countries were Germany (37.6 tons, or 49.6 per cent of global exports) and Serbia (37.4 tons, or 49.3 per cent).

99. Consumption of tilidine has fluctuated in the last 20 years. It was highest in 2012, at 59.1 tons, dropped to 20 tons in 2013, then rose gradually to 46.4 tons in 2018. It dropped again, to 28.5 tons, in 2019, rose to 45.7 tons in 2020, then dropped once again, to 39.1 tons, in 2022, rising again, to 41.8 tons, in 2023. Germany reported the highest consumption of tilidine in 2023 (32.7 tons, or 92 per cent of global consumption). In the same year, most of the global stocks of tilidine (32.7 tons, or 92 per cent of the global total) were held in Germany, followed by Serbia (2 tons, or 5.6 per cent).

Trimeperidine

100. In the period from 2012 to 2021, the level of trimeperidine manufacture remained more or less stable, at about 200 kg per year. In 2022, manufacture decreased to 35 kg, but increased again in 2023, to 155.5 kg. The only countries reporting the manufacture of trimeperidine in 2023 were India (144.5 kg, or 93 per cent) and Kazakhstan (11 kg, or 7 per cent). Trimeperidine was developed around 1945 in the former Union of Soviet Socialist Republics, and historically, manufacture and consumption were concentrated there. India has been reporting the manufacture of trimeperidine since 2002.

101. In 2023, global consumption of trimeperidine reached 190.1 kg, with the Russian Federation reporting consumption of 136.4 kg, or 71.7 per cent of the global total, followed by Kazakhstan (22.7 kg, or 11.9 per cent), Belarus (10.9 kg, or 5.7 per cent) and other countries reporting smaller amounts. Imports and exports of trimeperidine decreased considerably in 2023 as compared with 2022: imports decreased from 337.4 kg in 2022 to 178.4 kg in 2023 and exports decreased from 203.2 kg in 2022 to 53.7 kg in 2023. The country reporting the largest exports of trimeperidine in 2023 was the Russian Federation (32.5 kg, or 74.4 per cent of global exports), followed by Czechia (7.9 kg, or 18.1 per cent) and Ukraine (2.7 kg, or 6.3 per cent). Latvia exported a small amount. The main importing country in 2023 was the Russian Federation (132 kg, or 73.9 per cent of global exports), followed by Uzbekistan (13.3 kg, or 7.5 per cent), Belarus (9.6 kg, or 5.4 per cent), Kazakhstan (9 kg, or 5 per cent) and Czechia (7.9 kg, or 4.4 per cent). A number of other countries reported imports of less than 7 kg each. In 2023, global stocks of trimeperidine decreased to 321.8 kg; they were mainly held in the Russian Federation (248.8 kg, or 77.3 per cent of the global total), Kazakhstan (28.4 kg, or 8.8 per cent), Ukraine (16.4 kg, or 5.1 per cent) and India (12.5 kg, or 3.3 per cent). A number of other countries reported stocks of less than 12 kg each.

Opioid analgesics controlled under the 1971 Convention

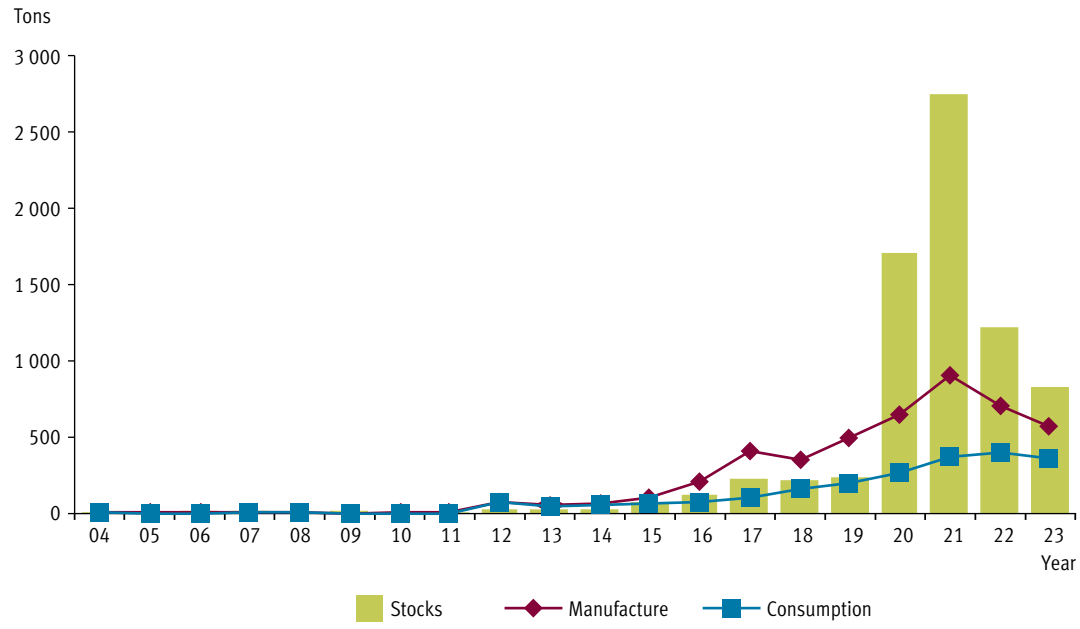
102. Buprenorphine and pentazocine are opioid analgesics controlled under the 1971 Convention. Detailed comments on statistics on buprenorphine and pentazocine can be found in the technical report of the Board for 2024 on psychotropic substances.[18]

Cannabis

103. Until 2010, the United States was the only country reporting the licit use of cannabis for medical and scientific purposes. Since 2011, however, an increasing number of countries have started to use cannabis and cannabis extracts[19] for those purposes, and global production of cannabis has consequently seen an overall increase. However, production amounted to 707.4 tons in 2022, representing a decrease compared with the 907.9 tons recorded for 2021. In 2023, production decreased further, to 568.7 tons (see figure 30). In view of the changes in the requirements for reporting on cannabis and cannabis-related substances (see below), the data on such substances need to be considered with caution.

104. As of 2024, acknowledging the potential medical use of cannabis and its active components, the Board has worked with Governments to achieve greater uniformity in reporting and monitoring standards regarding the cultivation, manufacture and distribution of and global trade in cannabis and cannabis-derived products for medical and scientific purposes. In December 2020, the Board held various consultations with experts and Member States to revise the reporting requirements for cannabis and cannabis-related substances with a view to achieving harmonization. As a result of those consultations, the Board introduced new reporting requirements, effective as of 2024.

Figure 30. Cannabis: global production, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

[18] E/INCB/2024/3.

[19] In statistical reports to INCB, data on cannabis extracts are expressed in terms of cannabis, using the conversion factors published by INCB in the list of narcotic drugs under international control ("Yellow List").

105. Pursuant to the new reporting requirements, information on cannabis and cannabis resin must be reported using the forms provided to Governments for reporting under the 1961 Convention as amended. In addition to cannabis and cannabis resin, extracts and tinctures of cannabis are listed in Schedule I of the 1961 Convention as amended. However, INCB now recommends that Governments reporting any preparation or by-product derived from cannabis in terms of the cannabinoids it contains do so using the forms provided for reporting under the 1971 Convention. Owing to these changes, it is expected that, in the coming years, the data relating to cannabis presented in the reports of the Board on narcotic drugs will change noticeably, as more countries will report data on controlled cannabinoids on separate forms provided for reporting under the 1971 Convention, rather than the forms for reporting under the 1961 Convention as amended.

106. In accordance with the former reporting requirements, valid until the end of 2023, the production of cannabis in 2023 was reported by Canada (160.8 tons, or 28.8 per cent of global production), the United Kingdom (109.5 tons, or 19.2 per cent), Israel (65.5 tons, or 11.5 per cent), Portugal (42 tons, or 7.4 per cent), Uruguay (28.6 tons, or 5 per cent), Australia (26.5 tons, or 4.7 per cent), North Macedonia (26.3 tons, or 4.6 per cent), Colombia (25.6 tons, or 4.5 per cent), Denmark (16.2 tons, or 2.8 per cent), New Zealand (12.2 tons, or 2.2 per cent), Spain (12 tons, or 2.1 per cent) and South Africa (10 tons, or 1.7 per cent). A number of other countries reported production of less than 10 tons of cannabis.

107. In 2023, the main exporter of cannabis was Canada (141 tons, or 41.4 per cent of the global total), followed by the United Kingdom (124.1 tons, or 36.4 per cent), Portugal (21.7 tons, or 6.3 per cent), Finland (20.1 tons, or 5.9 per cent), the Kingdom of the Netherlands (7.6 tons, or 2.2 per cent), Denmark (5.1 tons, or 1.5 per cent), Spain (4.9 tons, or 1.4 per cent) and Germany (4.4 tons, or 1.2 per cent). Exports each amounting to less than 1 per cent of the global total were reported by, in descending order of the amounts exported, North Macedonia, South Africa, Australia, Uruguay, Austria, Israel, Malta, New Zealand, Poland, Greece and Zimbabwe.

108. In 2023, Germany reported the import of 35.6 tons of cannabis, or 25 per cent of total global imports; it was followed by the United Kingdom (27.3 tons, or 19.2 per cent), Australia (25 tons, or 17.6 per cent), Israel (15.9 tons, or 11.2 per cent), Portugal (13.2 tons, or 9.3 per cent), Poland (4.6 tons, or 3.2 per cent), Spain (4.1 tons, or 2.9 per cent) and the Kingdom of the Netherlands (3.8 tons, or 2.6 per cent). Countries importing amounts of less than 3 tons were, in descending order of the amounts imported, Peru, Italy, New Zealand, Malta, the Republic of Korea, Norway, Czechia, Luxembourg, Brazil, Uruguay, Canada and Denmark.

109. The main countries reporting significant consumption of cannabis for medical purposes in 2023 were Canada (155.1 tons, or 43.4 per cent), Australia (70.2 tons, or 19.7 per cent), Israel (65.7 tons, or 18.3 per cent), Portugal (13.3 tons, or 3.7 per cent), Germany (12.2 tons, or 3.4 per cent), Uruguay (6.7 tons, or 1.9 per cent), Thailand and Colombia (5 tons, or 1.4 per cent, each), the United Kingdom (4.6 tons, or 1.3 per cent), Poland (4 tons, or 1.1 per cent) and Brazil (3.7 tons, or 1 per cent).

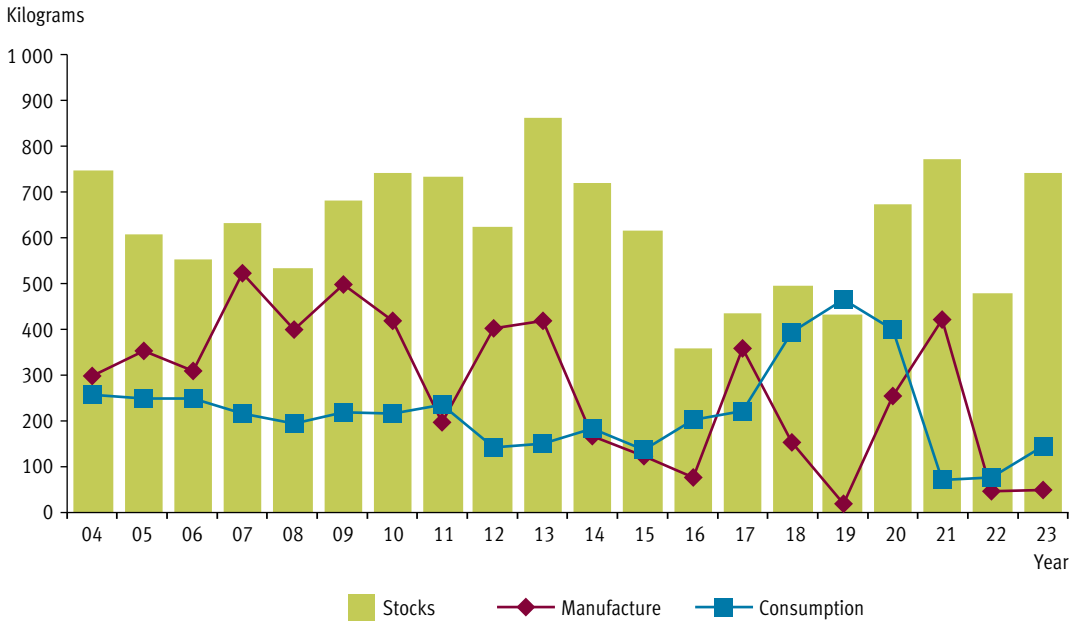
110. Global stocks of cannabis amounted to 826.5 tons in 2023, most of which were held in the United Kingdom (507 tons, or 61.3 per cent of the global total), followed by Colombia (81.3 tons, or 9.8 per cent), North Macedonia (55.9 tons, or 6.7 per cent), Australia (38 tons, or 4.6 per cent), Israel (23.8 tons, or 2.8 per cent), New Zealand (16.7 tons, or 2 per cent), Denmark (14.8 tons, or 1.8 per cent), Spain and Uruguay (14.6 tons, or 1.7 per cent, each) and Zimbabwe (10.9 tons, or 1.3 per cent). Other countries each reported stocks amounting to less than 1 per cent of the global total.

Coca leaf and cocaine

Coca leaf

111. The cultivation of coca bush in the Plurinational State of Bolivia for the chewing of coca leaf and the consumption and use of coca leaf in its natural state for cultural and medicinal purposes, such as preparing infusions, is allowed in accordance with the reservation made by the country in 2013, when it reacceded to the 1961 Convention as amended by the 1972 Protocol. In that connection, the Plurinational State of Bolivia reported the production of 25,343 tons of coca leaf in 2023. Peru reported the production of 1,259.3 tons.

Figure 31. Cocaine: global manufacture, consumption and stocks,[a] 2004–2023



[a] Stocks as at 31 December of each year.

112. Peru has been the only country exporting coca leaf for the global market since 2000. Most of the coca leaf is exported to the United States, where it is utilized for the extraction of flavouring agents and the manufacture of cocaine as a by-product. In 2023, Peru reported the export of 169.4 tons of coca leaf and the United States reported the import of 147.4 tons. In the same year, Peru reported the utilization of 23.4 tons of coca leaf, while the United States reported the utilization of 13.4 tons. Stocks of coca leaf were reported held by Peru (1,146.5 tons, or 62.6 per cent of global stocks) and the United States (686.5 tons, or 37.4 per cent).

Cocaine

113. The level of global licit manufacture of cocaine has fluctuated for more than 20 years. In 2023, manufacture remained relatively stable, amounting to 50.7 kg, compared with the 47.4 kg reported in 2022 (see figure 31). The main exporting country in 2023 was the United Kingdom (74 kg, or 70.9 per cent of global exports), followed by the Kingdom of the Netherlands (18.4 kg, or 17.6 per cent) and other countries that reported the export of minimal quantities of the substance. Imports of cocaine were reported by the Kingdom of the Netherlands (34.7 kg, or 35.1 per cent of global imports), followed by Germany (14.2 kg, or 14.4 per cent), Australia (8.7 kg, or 8.8 per cent), Canada (8 kg, or 8.1 per cent), Belgium (7.7 kg, or 7.8 per cent) and Switzerland (7.1 kg, or 7.2 per cent). A number of other countries reported imports totalling less than 6 kg each.

114. The global licit consumption of cocaine, which has remained relatively stable for the past 20 years, on average between 100 kg and 300 kg per year, stood at 146.5 kg in 2023. The countries reporting the highest consumption of cocaine in 2023 were the United Kingdom (55.1 kg, or 37.6 per cent of global consumption), the United States (28.3 kg, or 19.3 per cent), the Kingdom of the Netherlands (13.6 kg, or 9.3 per cent) and Australia (11.4 kg, or 7.7 per cent). A few other countries reported consumption of less than 10 kg each. Stocks of cocaine were held in the United Kingdom (358.7 kg, or 48.4 per cent of the global total), Peru (218 kg, or 29.4 per cent), the United States (52.3 or 7 per cent), the Russian Federation (46.3 kg, or 6.2 per cent) and Türkiye (10.2 kg, or 1.3 per cent). A number of other countries reported the holding of stocks of less than 10 kg each.

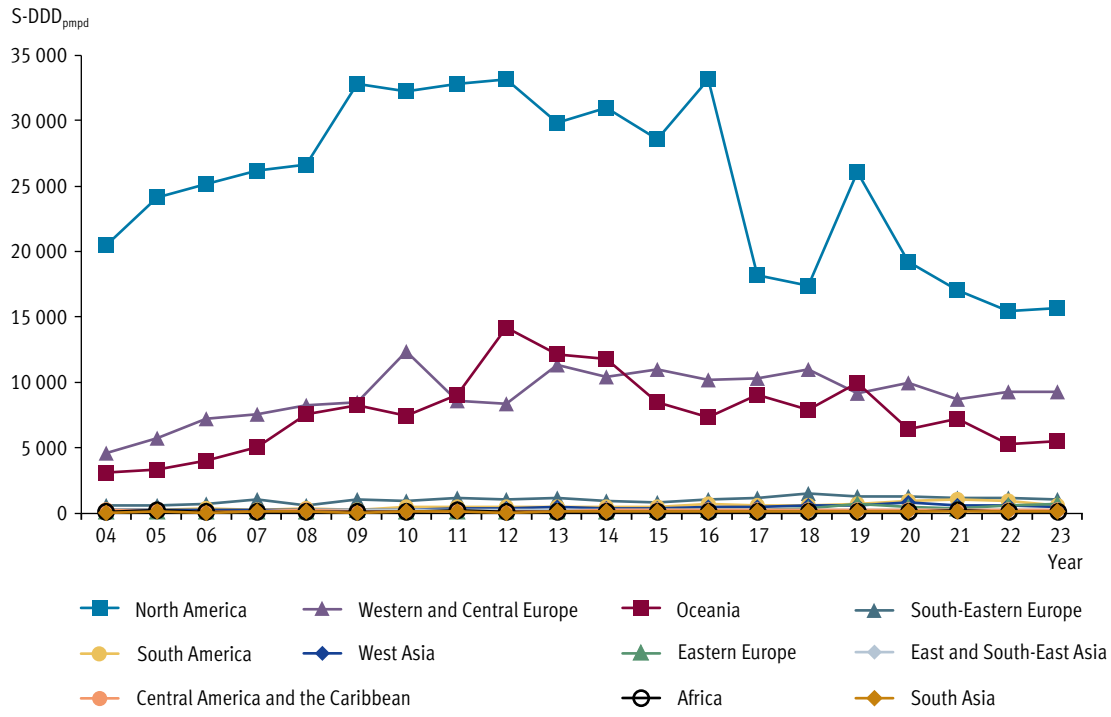
Comparative trends in the consumption of opioid analgesics

115. The previous section highlighted the most salient trends in the manufacture, export, import and consumption of the individual drugs. To gain an overview of the trends of the various substances and to analyse how and why the consumption of some drugs is increasing or decreasing, it is important to look at them together, particularly in the case of opioid analgesics that are needed for pain management. The following analysis is based on the consumption of the main opioid analgesics (codeine, fentanyl, hydrocodone, hydromorphone, morphine and oxycodone), expressed in defined daily doses for statistical purposes per million inhabitants per day (S-DDD$_{pmpd}$).[20]

116. A regional analysis of the main trends in the consumption of the main opioid analgesics (codeine, dextropropoxyphene, dihydrocodeine, fentanyl, hydrocodone, hydromorphone, ketobemidone, morphine, oxycodone, pethidine, tilidine and trimeperidine), expressed in S-DDD$_{pmpd}$, shows that the highest consumption of these drugs is in developed countries in Europe, North America and Oceania.

117. The regional analysis confirms the persistence of a global disparity in the consumption of opioid analgesics. Regional S-DDD$_{pmpd}$ is calculated on the basis of the total population of the countries reporting consumption and the overall amounts of opioid analgesics reported as consumed. In 2023, the reported consumption in some countries in North America, Oceania and Western and Central Europe resulted in regional averages of 15,723 S-DDD$_{pmpd}$ for North America, 9,222 S-DDD$_{pmpd}$ for Western and Central Europe and 5,509 S-DDD$_{pmpd}$ for Oceania. North America remains the region with the highest consumption of opioids in the world (see figures 32 and 33).

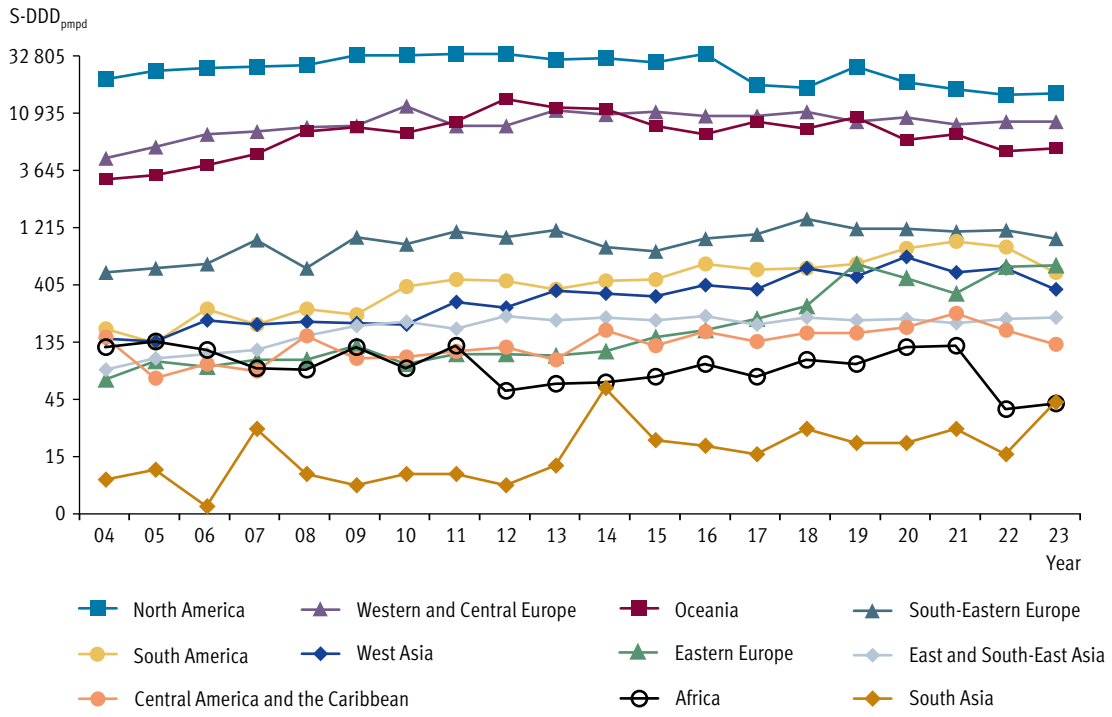
Figure 32. Consumption of opioids for pain management in all regions, expressed in S-DDD per million inhabitants per day,[a] 2004–2023



[a] The regional consumption of a drug is calculated as the average consumption of all countries reporting consumption of the drug in the region.

[20] The list of defined daily doses for statistical purposes (S-DDD) and an explanation of that concept are contained in part four, in the notes to tables XIV.1.a–i, XIV.2 and XIV.3.

Figure 33. Consumption of opioids for pain management in all regions, expressed in S-DDD per million inhabitants per day,[a] 2004–2023 (semi-logarithmic scale)



[a] The regional consumption of a drug is calculated as the average consumption of all countries reporting consumption of the drug in the region.

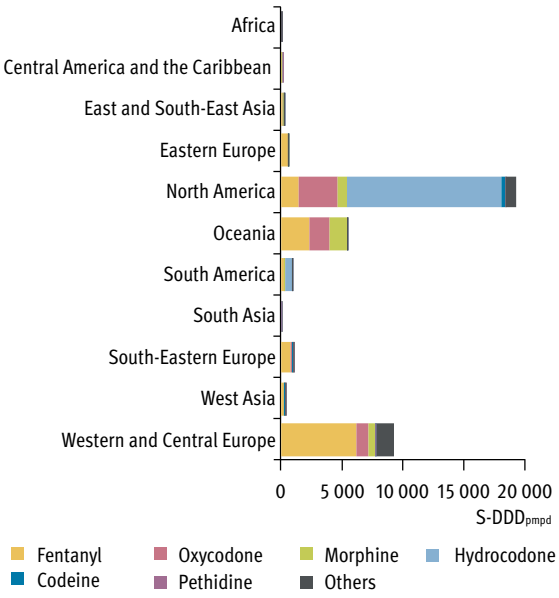
118. The levels of opioid consumption in North America, Oceania and Western and Central Europe are far higher than in all other regions in the world. A general upward trend in consumption was evident in South-Eastern Europe until 2018, when it reached 1,415 S-DDD$_{pmpd}$, but it has slowly decreased since then, falling to 995 S-DDD$_{pmpd}$ in 2023, the lowest level since 2016. In Eastern Europe, opioid consumption reached an all-time high level in 2019, 601 S-DDD$_{pmpd}$, but after that, consumption decreased, falling to 344 S-DDD$_{pmpd}$ in 2021. However, it has since increased again, reaching 588 S-DDD$_{pmpd}$ in 2023. Consumption in South America has seen an overall increase in the past 20 years and peaked at 935 S-DDD$_{pmpd}$ in 2021. However, consumption in the region subsequently dropped to 833 S-DDD$_{pmpd}$ in 2022 and further, to 517 S-DDD$_{pmpd}$, in 2023. A similar trend is observed in West Asia, where consumption reached an all-time high level (702 S-DDD$_{pmpd}$) in 2020 but decreased again, to 509 S-DDD$_{pmpd}$, in 2021 and further, to 373 S-DDD$_{pmpd}$, in 2023.

119. The Board considers levels of consumption of opioid analgesics in quantities between 100 and 200 S-DDD$_{pmpd}$ to be inadequate, and in quantities of less than 100 S-DDD$_{pmpd}$ to be very inadequate. In this context, the average levels of consumption reported in 2023 in East and South-East Asia (220 S-DDD$_{pmpd}$), Central America and the Caribbean (130 S-DDD$_{pmpd}$), South Asia (43 S-DDD$_{pmpd}$) and Africa (42 S-DDD$_{pmpd}$) are of particular concern.

120. Figures 34 and 35 show data for 2023 on consumption of opioid analgesics in total S-DDD$_{pmpd}$ by substance and region. This analysis highlights once again the predominance of fentanyl in most regions of the world. Consumption of oxycodone is highest in North America, Oceania and Western and Central Europe, although the substance is also consumed in other regions. Hydrocodone consumption is significant in the Americas. The share of morphine consumption is less pronounced in most regions.

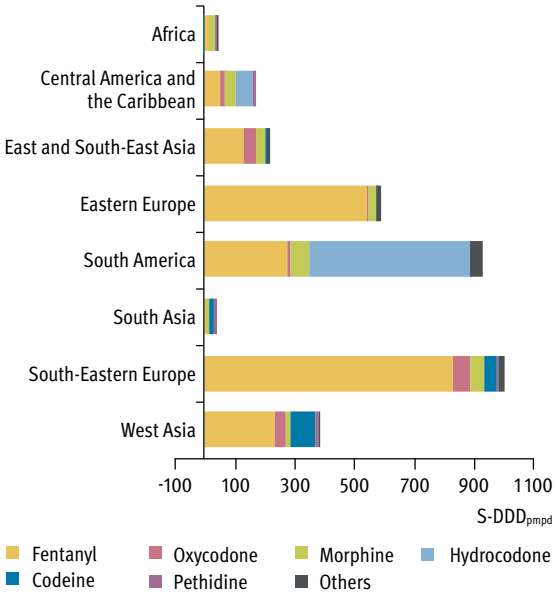
121. **The Board reiterates that there is an urgent need to increase access to and the availability of opioid analgesics and to improve the prescription and use of opioid analgesics in all countries reporting inadequate and very inadequate levels of consumption, and calls for targeted public policies supported by Governments, health systems and health professionals, civil society, the pharmaceutical industry and the international community.**

Figure 34. Consumption of codeine, fentanyl, hydrocodone, morphine, oxycodone, pethidine and other opioids, all regions, expressed in S-DDD per million inhabitants per day,[a] 2023



[a] The regional consumption of a drug is calculated as the average consumption of all countries reporting consumption of the drug in the region.

Figure 35. Consumption of codeine, fentanyl, hydrocodone, morphine, oxycodone, pethidine and other opioids, by regions with lowest consumption, expressed in S-DDD per million inhabitants per day,[a] 2023



[a] The regional consumption of a drug is calculated as the average consumption of all countries reporting consumption of the drug in the region.

Part three

Supply of opiate raw materials and demand for opiates for medical and scientific purposes

Notes:

Part three, entitled “Supply of opiate raw materials and demand for opiates for medical and scientific purposes”, contains an analysis of the current situation regarding that area of supply and demand. The analysis serves as background information for the conclusions and recommendations on the subject made by the Board in its annual report, with a view to maintaining a lasting balance between the supply of and demand for opiate raw materials. The data used in the analysis are based on statistical reports on the cultivation of opium poppy, the production and utilization of opiate raw materials and the consumption of opiates furnished by Governments in respect of 2023, as well as advance data for 2025 on the cultivation of opium poppy and production of opiate raw materials, submitted on a voluntary basis by the major producing countries and supplemented by the relevant estimates for 2025. The data for 2023 are provisional, and those for 2025 are projections based on the information available. All data relating to production, utilization, consumption, trade and stocks are expressed in terms of morphine or thebaine equivalent, for ease of comparison. The text is supplemented by tables and figures.

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 and of opium poppy rich in oripavine is currently reported separately for two countries, but in table 2, in the calculations of global supply and demand, opium poppy rich in codeine is included in the totals for opium poppy rich in morphine and opium poppy rich in oripavine is included in the totals for opium poppy rich in thebaine, pending the development of a system for the calculation of codeine and oripavine 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 which statistical data are available (2020–2023). For 2024 and 2025, 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. Lastly, the trends in global consumption of all opiates and synthetic opioids over the 20-year period 2004–2023 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. The Board's annual report for 2024 contains, as a global issue, a section entitled "Longitudinal analysis of the balance between the supply of and demand for opioids and opiate raw materials", which readers of the present analysis are invited to read for the broader context of the historical perspective referred to above.

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

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

5. **The Board highlights that, although data from producing and manufacturing countries point 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, owing, among other reasons, to the fact that many countries do not accurately estimate their medical need for opioid 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 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.

7. In 2023, there was an overall decrease of 27 per cent in the total harvested area of all varieties of opium poppy for the extraction of alkaloids, the total area decreasing from 51,693 ha in 2022 to 37,447 ha in 2023. In terms of opium poppy varieties, compared with 2022, there was a decrease of approximately 27 per cent in the total area cultivated with opium poppy rich in morphine. The area cultivated with opium poppy rich in thebaine decreased by 7 per cent; the area cultivated with opium poppy rich in codeine decreased by 38 per cent; and the area cultivated with opium poppy rich in oripavine decreased by nearly 68 per cent.

8. As indicated by the available data, the decrease in the total area under cultivation with opium poppy for the extraction of alkaloids does not appear to be a reason for concern in terms of the balance between supply and demand and the overall availability of opiate raw materials on the world market. Taking this decrease into consideration, together with the high level of stocks, described further below, the supply of opiate raw materials remains fully sufficient to cover the demand as expressed by countries for the period 2024–2025.

Morphine

9. In 2023, the total harvested area of opium poppy rich in morphine was 31,944 ha, which was 23 per cent smaller than the estimated area under cultivation with that variety of opium poppy, 41,547 ha. Compared with 2022, annual changes in the total area harvested in 2023 varied among the major cultivating countries. Cultivation in Australia continued to decrease significantly, after a nearly tenfold decrease in 2022 compared with 2021, declining from 270 ha in 2022 to just 50 ha in 2023. Cultivation of the morphine-rich variety of opium poppy in Hungary, which had been decreasing for a number of years, increased to 90 ha in 2023, compared with 46 ha in 2022. Cultivation in France stayed at virtually the same level as in 2022, amounting to 5,100 ha in 2023, compared with 4,929 ha in 2022. Cultivation in Spain decreased sharply, from 3,041 ha in 2022 to 725 ha in 2023, continuing the trend of year-to-year fluctuation observed in recent years. The largest decrease in comparison with 2022 was seen in Türkiye, where the harvested area of opium poppy rich in morphine decreased from 26,499 ha in 2022 to 17,823 ha in 2023, continuing the downward trend that has been noted in recent years and that is expected to continue into 2024. India reported a decrease in the area under cultivation, from 8,500 ha in 2022 to 8,156 ha in 2023, with a similar level expected in 2024. In 2022, India has started to report the cultivation of opium poppy rich in morphine for the production of poppy straw, in addition to its traditional cultivation for the production of opium. In 2023, India cultivated 5,834 ha of opium poppy rich in morphine for the production of opium and 2,322 ha for the production of poppy straw rich in morphine. In that country, cultivation for the production of

opium is expected to remain at a similar level in the coming years, but there may be an increase in cultivation for the production of poppy straw. The annual increases and decreases in each major producing country are shown in table 1 below.

10. According to data-based projections and advance data shared by countries for 2024, the total actual area of opium poppy rich in morphine harvested in major producing countries is expected to decrease by 5 per cent compared with the actual area harvested in 2023, declining to 30,355 ha in 2024, from 31,944 ha harvested in 2023. Reversing the trend of overall decline in the global area cultivated with opium poppy rich in morphine that started in 2020, it is estimated that in 2025 the area may increase significantly, to 71,337 ha, depending on whether there is an increase in cultivation of that variety of opium poppy in India and Türkiye, while cultivation of that variety in other countries is expected to continue to decline. The projections for expected cultivation in each major producing country are shown in table 1 below.

Table 1. Area cultivated with varieties of opium poppy rich in morphine, thebaine, codeine and oripavine, 2020–2025

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

	2020	*2021*	*2022*	*2023[a]*	*2024[b]*	*2025[c]*
Australia						
Opium poppy rich in morphine						
Estimated area	5 766	3 900	600	330	—	*200*
Area sown	2 739	2 698	345	175	—	*n/a*
Actual area harvested	2 263	2 420	270	50	—	*n/a*
Opium poppy rich in thebaine						
Estimated area	5 606	5 993	3 750	4 050	*4 050*	*2 425*
Area sown	4 326	5 480	3 154	3 931	*2 743*	*n/a*
Actual area harvested	3 817	4 989	2 910	2 718	*2 517*	*n/a*
Opium poppy rich in codeine						
Estimated area	6 040	3 649	1 800	—	*935*	*1 400*
Area sown	4 625	2 286	1 421	—	*823*	*n/a*
Actual area harvested	4 236	1 954	1 314	—	*712*	*n/a*
Opium poppy rich in oripavine						
Estimated area	4 923	1 450	1 700	—	*2 400*	*5 150*
Area sown	3 784	727	1 678	—	*1 169*	*n/a*
Actual area harvested	3 721	641	1 394	—	*1 063*	*n/a*
Opium poppy rich in morphine, thebaine, codeine and oripavine						
Total estimated area	**22 335**	**14 992**	**7 850**	**4 380**	***7 385***	***9 175***
Total area sown	**15 474**	**11 191**	**6 598**	**4 106**	***4 735***	***n/a***
Total actual area harvested	**14 037**	**10 004**	**5 888**	**2 768**	***4 292***	***n/a***
France						
Opium poppy rich in morphine						
Estimated area	8 750	5 400	5 347	5 100	*4 642*	*5 300*
Area sown	8 565	5 253	5 347	5 100	*4 440*	*n/a*
Actual area harvested	7 345	4 921	4 929	5 100	*3 866*	*n/a*

Table 1. Area cultivated with varieties of opium poppy rich in morphine, thebaine, codeine and oripavine, 2020–2025 *(continued)*

	2020	*2021*	*2022*	*2023[a]*	*2024[b]*	*2025[c]*
Opium poppy rich in thebaine						
Estimated area	—	800	—	—	*1 588*	*2 000*
Area sown	94	1 079	—	—	*1 558*	*n/a*
Actual area harvested	92	1 075	—	—	*1 519*	*n/a*
Opium poppy rich in morphine and thebaine						
Total estimated area	**8 750**	**6 200**	**5 347**	**5 100**	***6 230***	***7 300***
Total area sown	**8 659**	**6 332**	**5 347**	**5 100**	***5 998***	***n/a***
Total actual area harvested	**7 437**	**5 996**	**4 929**	**5 100**	***5 385***	***n/a***
Hungary						
Opium poppy rich in morphine						
Estimated area	11 005	8 000	1 700	500	*600*	*600*
Area sown	2 221	682	182	137	*479*	—
Actual area harvested	1 395	367	46	90	*240*	—
Opium poppy rich in thebaine						
Estimated area	—	—	—	—	—	—
Area sown	2	—	—	—	—	—
Actual area harvested	—	—	—	—	—	—
Opium poppy rich in morphine and thebaine						
Total estimated area	**11 005**	**8 000**	**1 700**	**500**	***12 702***	***600***
Total area sown	**2 223**	**682**	**182**	**137**	**—**	***n/a***
Total actual area harvested	**1 395**	**367**	**46**	**90**	**—**	***n/a***
India						
Opium poppy rich in morphine						
Total estimated area	**4 959**	**5 498**	**8 500**	**11 000**	***12 406***	**..**
Total area sown	**4 799**	**5 498**	**8 500**	**8 446**	***12 406***	**..**
Total actual area harvested	**4 941**	**5 406**	**8 500**	**8 156**	***11 429***	**..**
Slovakia						
Opium poppy rich in morphine						
Total estimated area	**3 483**	**3 500**	**100**	**2 000**	***100***	***500***
Total area sown	**3 297**	**2 768**	**158**	**30**	***20***	***n/a***
Total actual area harvested	**4 822**	**2 540**	**67**	**—**	**—**	***n/a***
Spain						
Opium poppy rich in morphine						
Estimated area	9 441	525	3 400	863	*624*	*137*
Area sown	4 179	510	3 049	750	*619*	*n/a*
Actual area harvested	4 179	510	3 041	725	*619*	*n/a*
Opium poppy rich in thebaine						
Estimated area	2 809	20	—	—	—	—
Area sown	2 695	20	—	—	—	*n/a*
Actual area harvested	2 695	20	—	—	—	*n/a*

	2020	2021	2022	2023[a]	2024[b]	2025[c]
Opium poppy rich in codeine						
Estimated area	863	6 705	2 389	3 022	*4 244*	*7 122*
Area sown	2 532	6 540	2 162	2 216	*4 104*	*n/a*
Actual area harvested	2 532	6 540	2 142	2 154	*3 928*	*n/a*
Opium poppy rich in oripavine						
Estimated area	1 480	3 900	581	844	*2 052*	*5 216*
Area sown	1 515	3 495	581	734	*2 041*	*n/a*
Actual area harvested	*1 515*	3 495	581	631	*2 036*	*n/a*
Opium poppy rich in morphine, thebaine, codeine and oripavine						
Total estimated area	**14 593**	**11 150**	**6 370**	**4 729**	***18 405***	***12 338***
Total area sown	**10 921**	**10 565**	**5 792**	**3 700**	**—**	***n/a***
Total actual area harvested	**10 921**	**10 565**	**5 764**	**3 510**	**—**	***n/a***
Türkiye[d]						
Opium poppy rich in morphine						
Total estimated area	**70 000**	**51 673**	**41 162**	**21 754**	***16 257***	***64 600***
Total area sown	**46 125**	**51 673**	**41 159**	**21 065**	***15 908***	***n/a***
Total actual area harvested	**35 012**	**41 893**	**26 499**	**17 823**	***14 201***	***n/a***

Notes: A field shaded in red signifies that the given area exceeds the estimated area or the total estimated area. 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 2023 are based on annual statistics furnished by Governments on form C, or where such information is not available, on advance data provided by Governments during consultations with the Board.

[b] Figures for 2024 are based on advance data provided by Governments during consultations with the Board.

[c] Figures for 2025 are based on estimates (form B) furnished by Governments to the Board.

[d] Since 31 May 2022, "Türkiye" has replaced "Turkey" as the short name used in the United Nations.

Thebaine

11. In 2023, as in the previous year, Australia was the sole country cultivating opium poppy rich in thebaine, and its cultivation decreased slightly, from 2,910 ha harvested in 2022 to 2,718 ha harvested in 2023. Consequently, global cultivation of opium poppy rich in thebaine decreased by 7 per cent in 2023. Notwithstanding that decrease in cultivation and the overall decrease in stocks of opiate raw materials rich in thebaine, expressed in thebaine equivalent, as well as the increased demand for such raw materials in 2023, as described in greater detail below, it seems that there was no shortage of opiate raw materials rich in thebaine in 2023 and that the supply remained sufficient to cover the demand. The annual increases and decreases in each major producing country are shown in table 1 above.

12. According to data-based projections and advance data shared by countries, Australia, as the main country cultivating opium poppy rich in thebaine, will be joined by France when France resumes cultivation of that variety of opium poppy in 2024, with an estimated harvest of 1,519 ha. In 2024, Australia is expected to cultivate 2,517 ha of thebaine-rich opium poppy, a level similar to that in 2023. **The Board is in communication with all major cultivating countries to ensure that there are no shortages of opiate raw materials rich in thebaine on global markets.** The projections for cultivation in each major producing country are shown in table 1.

Codeine

13. In 2023, the total area sown with opium poppy rich in codeine decreased by 38 per cent, to 2,154 ha, from 3,456 ha in 2022, and the size of the harvested area remained close to that of the estimated area of 3,022 ha. Spain was the only country to cultivate that variety of opium poppy in 2023. Cultivation of that variety in Spain is expected to increase to 3,928 ha in 2024, whereas it is expected to nearly double in 2025, to 7,122 ha. Australia

was to resume cultivation of the codeine-rich variety of opium poppy in 2024, cultivating 712 ha, and expected that 1,400 ha of that variety would be sown in 2025. **The Board is in communication with all major cultivating countries to ensure that there are no shortages of opiate raw materials rich in codeine on global markets.** The projections for cultivation in each major producing country are shown in table 1.

Oripavine

14. In 2023, the cultivation of opium poppy rich in oripavine continued to follow the trend of decline that began in 2020, decreasing by more than a half, from 1,975 ha in 2022 to 631 ha in 2023. The main reason for the decrease was that Australia did not cultivate that variety of opium poppy in 2023; however, it planned to resume cultivation of that variety in 2024, when it expected to harvest 1,063 ha, and to continue such cultivation in 2025, when it expected to sow nearly five times more, for a total of 5,150 ha. Spain was the only country that cultivated the variety of opium poppy rich in oripavine in 2023 and expected a significant increase in the cultivation of that variety in 2024, projecting the cultivation of 2,032 ha, and a further nearly threefold increase in cultivation, to 5,216 ha, in 2025. Bearing this in mind, no shortages of raw materials rich in oripavine are expected in the future. **The Board is in communication with all major cultivating countries to ensure that there are no shortages of opiate raw materials rich in oripavine on global markets.** The projections for cultivation in each major producing country are shown in table 1.

Noscapine

15. No cultivation of opium poppy rich in noscapine in 2023 has been reported. Utilization of noscapine-rich opium poppy[3] for the purpose of opiate production in 2023 was reported by Australia, where 3 tons of the morphine alkaloid from the noscapine-rich opium poppy were extracted. Australia reported no cultivation of poppy straw rich in noscapine in 2023, but only stocks of that variety, from which the morphine alkaloid was extracted. According to advance data provided by the major manufacturing countries, in 2024, Australia is expected to harvest 339 ha of opium poppy rich in noscapine and France is expected to harvest 1,817 ha. France is conducting research in the period 2024–2025 on the possible extraction of morphine and codeine alkaloids from noscapine-rich opium poppy in the future. France and Australia foresee cultivating the noscapine-rich variety of opium poppy in 2025, expecting to sow 1,700 ha and 490 ha, respectively, with that variety. France is planning to extract 9.5 tons of the morphine alkaloid from opium poppy rich in noscapine in 2025, whereas Australia has not reported any plans for such extraction in 2025.

16. 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 manufacture of morphine, the Board requests the countries that cultivate opium poppy rich in noscapine to provide information in a consistent and regular manner about its cultivation and intended use and to report to the Board on any extraction and use of the morphine alkaloid obtained from it.**

Production of opiate raw materials

17. Tables 2 and 3 provide an overview of the global production of and demand for morphine-rich and thebaine-rich opiate raw materials, respectively, for the period 2020–2025. As in previous years, the actual production of opiate raw materials in 2024 and 2025 may differ from the projections, depending on the weather and other factors. In the current reporting period, the projections have been affected by missing or incomplete statistics or projections from countries. Overall, there was a 47 per cent decrease in the production of raw materials rich in morphine and a 46 per cent increase in the production of raw materials rich in thebaine in 2023. It is expected that the production both of raw materials rich in morphine and of raw materials rich in thebaine will double in 2024 and continue to increase significantly in 2025, with virtually all the major producers significantly increasing their production. Therefore, there is likely to be no shortage of opiate raw materials in the coming years.

[3] The 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.

Morphine

18. Global production of morphine-rich opiate raw materials[4] in the main producing countries decreased from 304 tons in morphine equivalent in 2022 to 161 tons in 2023 (see table 2). The decrease was mainly due to the reduction in Australia, the leading producer in 2022 (91 tons), of its production to just 1 ton in morphine equivalent, as no cultivation of opium poppy rich in morphine took place in 2023, a development anticipated in the report of the Board for 2023 on narcotic drugs. The leading producer in 2023 was France, which produced 59 tons in morphine equivalent, followed by Spain (50 tons), India (31 tons) and Türkiye (20 tons), whose combined production represented a continuation of the downward trend that started in 2021. Other producing countries did not report production of morphine-rich opiate raw materials at levels significant enough to be included in the present report.[5]

19. The decreasing trend in the global production of opiate raw materials rich in morphine observed since 2020 is expected to reverse in 2024 and 2025, as production is expected to double to 324 tons in 2024 and to increase by a further 42 per cent, to a total of 459 tons, in 2025.

20. The main producer in 2024 is expected to be Spain, followed by India, France, Australia and Türkiye, in descending order of the amounts expected to be produced, and similar increasing trends are expected for all five of those countries in 2025. More details on the projected production of opiate raw materials rich in morphine in 2024 and 2025 are provided in table 2 below.

Table 2. Opiate raw materials rich in morphine: production, demand, balance between production and demand, and stocks, in tons of morphine equivalent, 2020–2025

	2020	*2021*	*2022*	*2023[a]*	*2024[b]*	*2025[c]*
Australia						
Production	75	96	91	1	*35*	*58*
France						
Production	75	37	76	59	*58*	*89*
Hungary						
Production	6	0	0	0	*2*	*4*
India						
Production	27	27	30	31	*65*	*n/a*
Spain						
Production	113	100	81	50	*146*	*222*
Türkiye[d]						
Production	69	69	26	20	*18*	*82*
Other countries						
Production	15	0	0	0	*0*	*4*
(1) Total production	**380**	**329**	**304**	**161**	***324***	***459***
Demand for:						
Opium	19	24	38	34	*31*	*32*
Poppy straw and concentrate of poppy straw	308	201	267	385	*328*	*328*
(2) Total demand for opiate raw materials	**327**	**225**	**305**	**419**	***359***	***360***
(3) Total demand for opiates for medical and scientific purposes[e]	**307**	**280**	**268**	**306**	***332***	***328***
Balance, (1) minus (2)	**53**	**104**	**–1**	**–258**	***–35***	***99***
Balance, (1) minus (3)	**73**	**49**	**36**	**–145**	***–8***	***131***

[4]The present 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.

[5]The combined production of the other producing countries was below half a ton, which, in accordance with the Board's methodology, would be rounded up to 1 ton.

Table 2. Opiate raw materials rich in morphine: production, demand, balance between production and demand, and stocks, in tons of morphine equivalent, 2020–2025 *(continued)*

	2020	*2021*	*2022*	*2023[a]*	*2024[b]*	*2025[c]*
Stocks of:						
Opium	96	94	105	58	*n/a*	*n/a*
Poppy straw	367	496	431	353	*n/a*	*n/a*
Concentrate of poppy straw	304	298	303	254	*n/a*	*n/a*
Total stocks of opiate raw materials	**767**	**888**	**839**	**665**	***837***	***879***
Total stocks of all opiates	**523**	**458**	**500**	**514**	*n/a*	*n/a*

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

[a] Figures for 2023 are based on annual statistics furnished by Governments on form C, or where such information is not available, on advance data provided by Governments during consultations with the Board.

[b] Figures for 2024 are based on advance data provided by Governments during consultations with the Board.

[c] Figures for 2025 are based on estimates (form B) furnished by Governments to the Board.

[d] Since 31 May 2022, "Türkiye" has replaced "Turkey" as the short name used in the United Nations.

[e] Excluding demand for substances not covered by the 1961 Convention as amended.

Thebaine

21. Global production of opiate raw materials rich in thebaine[6] fell from 187 tons in thebaine equivalent in 2022 to 101 tons in 2023 (see table 3 below), a decrease anticipated in the report of the Board for 2023 on narcotic drugs. As in 2022, Australia was the sole producer, producing 98 tons of opiate raw materials rich in thebaine. The remaining 3 tons were derived from the production of opium in India.

22. Global production of opiate raw materials rich in thebaine is expected to double to about 235 tons in 2024 and to increase even further, to 342 tons, in 2025, a year-on-year increase of 46 per cent. Australia is expected to remain the main producer (130 tons in 2024 and 167 tons in 2025), followed by Spain (70 tons in 2024 and 145 tons in 2025) and by France (32 tons in 2024 and 30 tons in 2025), when production of thebaine resumes in the latter two countries after a two-year hiatus. Production of opium in India is expected to amount to 3 tons in thebaine equivalent. More details on the projected production of opiate raw materials rich in thebaine in 2024 and 2025 are provided in table 3 below.

Table 3. Opiate raw materials rich in thebaine: production, demand, balance between production and demand, and stocks, in tons of thebaine equivalent, 2020–2025

	2020	*2021*	*2022*	*2023[a]*	*2024[b]*	*2025[c]*
Australia						
Production	115	152	184	98	*130*	*167*
France						
Production	5	8	0	0	*32*	*30*
Hungary						
Production	0	0	0	0	*0*	*0*
India						
Thebaine extracted from opium	3	3	3	3	*3*	*n/a*
Spain						
Production	59	1	0	0	*70*	*145*
Other countries						
Thebaine extracted from poppy straw (M)	0	0	0	0	*0*	*0*
(1) Total production	**182**	**164**	**187**	**101**	***235***	***342***

[6] The present analysis is based predominantly on raw materials obtained from opium poppy rich in thebaine and oripavine but includes the thebaine alkaloid contained in opium poppy rich in morphine wherever appropriate.

	2020	2021	2022	2023[a]	2024[b]	2025[c]
Demand for:						
Opium	2	2	2	3	*2*	*3*
Poppy straw and concentrate of poppy straw	116	120	103	130	*139*	*134*
(2) Total demand for raw materials	**118**	**122**	**105**	**133**	***141***	***137***
(3) Total demand for opiates for medical and scientific purposes[d]	**111**	**104**	**109**	**114**	***118***	***122***
Balance, (1) minus (2)	**64**	**42**	**82**	**–32**	***94***	***205***
Balance, (1) minus (3)	**71**	**60**	**78**	**–13**	***117***	***220***
Stocks of:						
Opium	10	9	0	0	*n/a*	*n/a*
Poppy straw	234	266	248	170	*n/a*	*n/a*
Concentrate of poppy straw	76	98	54	74	*n/a*	*n/a*
Total stocks of opiate raw materials	**320**	**373**	**302**	**244**	**314**	**342**
Total stocks of all opiates	**194**	**218**	**208**	**213**	**n/a**	**n/a**

Notes: Data in italics reflect advance data and projected data; "n/a" indicates that data are not yet available.

[a] Figures for 2023 are based on annual statistics furnished by Governments on form C, or where such information is not available, on advance data provided by Governments during consultations with the Board.

[b] Figures for 2024 are based on advance data provided by Governments during consultations with the Board.

[c] Figures for 2025 are based on estimates (form B) furnished by Governments to the Board.

[d] Excluding demand for substances not covered by the 1961 Convention as amended.

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 665 tons in morphine equivalent at the end of 2023,[7] a significant decrease from 839 tons in 2022. This decrease is in line with suggestions made by the Board with regard to ensuring that stocks are not accumulated in excess but remain fully sufficient to cover the global demand as expressed by countries. Türkiye was the country with the largest stocks of opiate raw materials rich in morphine (217 tons); it was followed by Spain (197 tons), India (74 tons), France (66 tons), Australia (47 tons), Japan (18 tons), Hungary and the United States (17 tons each), and Norway and South Africa (4 tons each). Those countries together accounted for about 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.

24. At the end of 2023, global stocks of opiates of morphine-based opiate raw materials, mainly in the form of codeine and morphine, amounted to 514 tons in morphine equivalent, an increase from 500 tons at the end of 2022.

Thebaine

25. Stocks of opiate raw materials rich in thebaine (poppy straw, concentrate of poppy straw and opium) decreased from 302 tons in thebaine equivalent at the end of 2022 to 244 tons at the end of 2023.[7] Spain held the largest stocks of opiate raw materials rich in thebaine (142 tons), followed by Australia (48 tons), the United States (33 tons) and France (21 tons). The stocks of opiate raw materials rich in thebaine held in those four countries together accounted for nearly 100 per cent of global stocks in 2023.

[7] Data on stocks are collected from the annual statistics on production, manufacture, consumption, stocks and seizures of narcotic drugs (form C) relating to concentrate of poppy straw and opium or from advance data submitted by the major producing and importing countries in consultation with the Board.

26. Global stocks of thebaine-based opiates (oxycodone, thebaine and a small quantity of oxymorphone) increased from 208 tons in thebaine equivalent by the end of 2022 to 213 tons in 2023.

Demand for opiates

27. As described below, the Board 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 for medical and scientific purposes of all opiates controlled under the 1961 Convention as amended.[8]

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

28. Global demand for opiate raw materials rich in morphine (in particular opium) had been decreasing since 2014 but increased sharply from 225 tons in morphine equivalent in 2021 to 305 tons in 2022. In 2023, global demand increased further, to 419 tons, but is expected to decrease to 359 tons in 2024 and stay at virtually the same level (360 tons) in 2025 (see table 2).

29. Similar to the global demand for opiate raw materials rich in morphine, global demand by manufacturers for opiate raw materials rich in thebaine followed a decreasing trend beginning in 2016, with the exception of 2019, when it rose to 164 tons, the highest level in recent years. It has since remained at notably lower levels, amounting to 122 tons in 2021, 105 tons in 2022 and 133 tons in 2023. Global demand for opiate raw materials rich in thebaine is expected to amount to 141 tons in 2024 and 137 tons in 2025 (see table 3).

Demand for opiates measured as consumption

30. Figure I below presents a breakdown of the demand for opiates 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 from 268 tons in 2022 to 306 tons in 2023.

31. Demand for thebaine-based opiates is concentrated mainly in the United States and increased sharply after the late 1990s. However, in 2013, global demand started to decline, owing to the decrease in demand in the United States. It nevertheless grew again in 2020, reaching a level of 111 tons in thebaine equivalent, but declined again in 2021 to a total of 104 tons in thebaine equivalent before increasing yet again, to 109 tons in 2022 and further, to 114 tons, in 2023. Demand is expected to increase to a total of 118 tons in thebaine equivalent in 2024 and to 122 tons in 2025 (see table 3).

Balance between the supply of and demand for opiate raw materials

Morphine

32. 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

[8] Prior 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 expected 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, 2020–2023

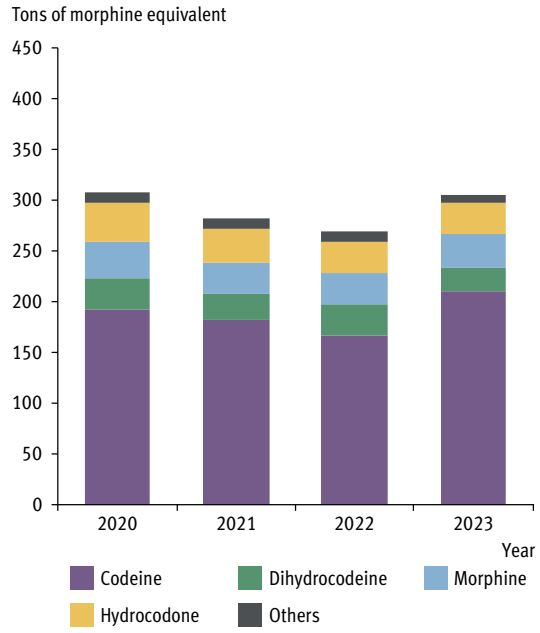
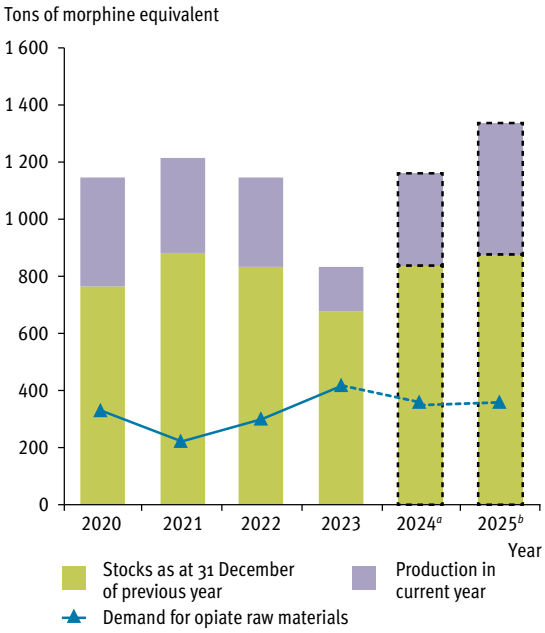


Figure II. Supply of and demand for opiate raw materials rich in morphine, in morphine equivalent, 2020–2025



[a] Data for 2024 are based on advance data (dotted line) submitted by Governments.

[b] Data for 2025 are based on estimates (dotted line) submitted by Governments.

production was lower than global demand, leading to a decline in global stocks. In 2022 and 2023, global demand for such raw materials once again started to exceed global supply, differing by 1 ton in 2022 and as much as 258 tons in 2023. In 2024, global demand is expected to exceed global supply by 35 tons, whereas in 2025 global production is expected to exceed global demand by about 100 tons (see figure II).

33. Stocks of opiate raw materials, expressed in morphine equivalent, decreased after several years of increase, to 839 tons in 2022, compared with 888 tons in 2021, and then decreased sharply to 665 tons in 2023. Stocks are expected to increase again, to 837 tons, in 2024 and further, to 879 tons, in 2025 (see table 2). The stocks projected for 2024 and 2025 would be sufficient to cover the global demand at the expected levels, as expressed by countries, for those years for a period of about two years (see figure II[9]), well over the 12 months required by the Board.[10] Global production of opiate raw materials rich in morphine is expected to increase significantly in 2024; consequently, global stocks are also expected to increase, to 837 tons. In 2025, a further increase in production, and thus a corresponding increase in global stocks, is expected.

34. The global supply of opiate raw materials rich in morphine (stocks and production) is expected to continue to be fully sufficient to cover global demand for more than one year.

Thebaine

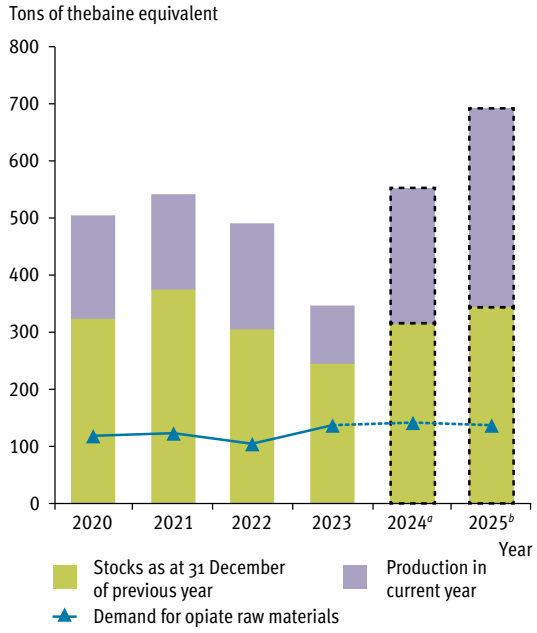
35. As can be seen in table 3 above, global production of opiate raw materials rich in thebaine amounted to 101 tons in thebaine equivalent in 2023, down from 187 tons in 2022. With the exception of 2019, demand

[9] 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 report published before 2008.

[10] In order to ensure that the supply can cover the expected demand for at least one year in case of unforeseen supply issues, such as crop failure, the Board assesses the stocks at the end of year to calculate whether they are sufficient to cover the projected demand for the following year. For the calculation, the Board determines the total amount of stocks at the end of the year and divides that number by the total amount of projected demand, then multiplies the resulting number by 12 to arrive at the total number of months for which the stocks would be able cover the following year's demand at the projected level.

for opiate raw materials rich in thebaine followed a decreasing trend until 2023, when demand increased to 133 tons, an amount that was nevertheless well below the 164 tons recorded in 2019, the highest level observed in recent years. After increasing in 2021, stocks of opiate raw materials rich in thebaine decreased once again, from 302 tons in thebaine equivalent in 2022 to 244 tons at the end of 2023. As production is expected to more than double, to 235 tons, in 2024 and to increase further, to 342 tons, in 2025, a corresponding increase in stocks is also expected in those years, to 314 tons in 2024 and further, to 342 tons, in 2025. The levels of stocks projected for 2024 and for 2025 (see figure III[11]) are each considered sufficient to cover global demand for a period of about two years and, combined with the expected levels of production, will each be sufficient to cover global demand for well over the 12 months required by the Board.[10]

Figure III. Supply of and demand for opiate raw materials rich in thebaine, in thebaine equivalent, 2020–2025



[a] Data for 2024 are based on advance data (dotted line) submitted by Governments.
[b] Data for 2025 are based on estimates (dotted line) submitted by Governments.

36. It is estimated that in 2024 and 2025 the global supply of opiate raw materials rich in thebaine (stocks and production) will be more than sufficient to cover the annual global demand (see figure III).

37. Although the supply of opiate raw materials rich in morphine and thebaine is considered to be sufficient to cover global demand, in view of the statistical data and estimates submitted by countries, the Board highlights that there are significant disparities between countries in the availability of narcotic drugs, as many countries do not accurately estimate 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 reminds Governments of the importance of ensuring sufficient availability at the global level. In that regard, and with reference to the World Health Organization publication of 2023 entitled *Left Behind in Pain: Extent and Causes of Global Variations in Access to Morphine for Medical Use and Actions to Improve Safe Access* and the proposed actions outlined therein, the Board urges opioid-manufacturing countries to allocate an increasing amount of morphine for utilization in the production of oral morphine preparations to be used for the treatment of pain and palliative care, particularly in low- and middle-income countries.**

Trends in consumption levels of opioids

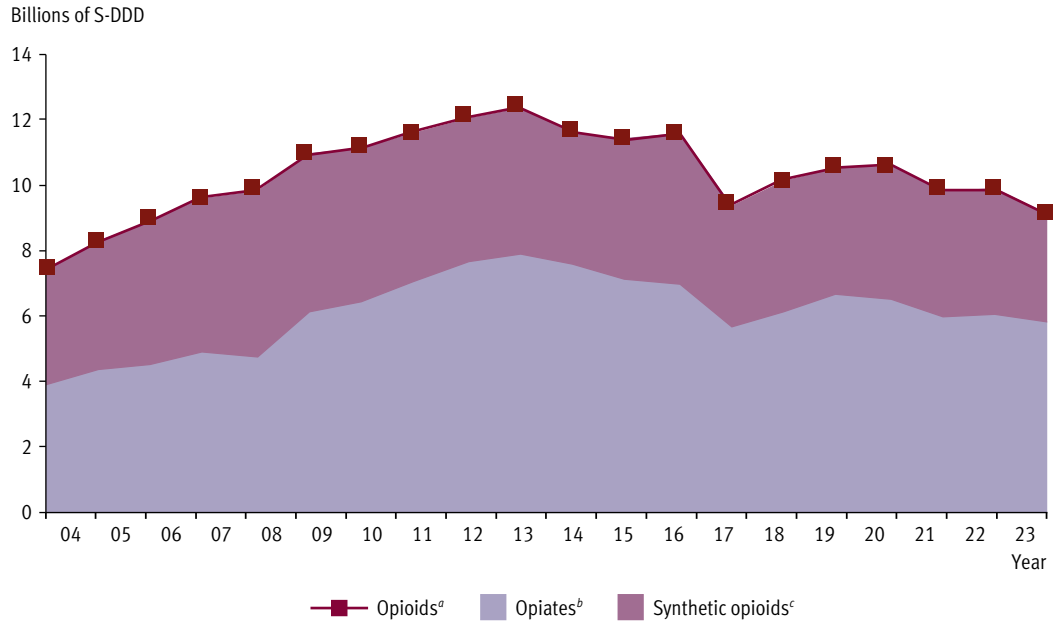
38. The global levels of consumption of opiates and synthetic opioids over the 20-year period 2004–2023 are presented in figure IV. The figure reflects data on opioids, including buprenorphine and pentazocine, which are opioids controlled under the Convention on Psychotropic Substances of 1971. To allow the aggregation of consumption data for substances having different potencies, the consumption levels are expressed in billions of defined daily doses for statistical purposes.[12]

[11] 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 report published before 2008.

[12] 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.

39. Global consumption of opioids more than doubled between 2002 and 2013, a significant increase. After that, it followed an overall decreasing trend until 2018, when it started to rise again. Although it has once again followed an overall downward trend since 2020, it has nevertheless remained at a much higher level than the levels observed in previous decades. For well over a decade, the share of consumption of opiates in the total consumption of opioids has fluctuated, rising from 51 per cent in 2008 (the lowest share) to 65 per cent in 2014 (the highest share). In 2023, the share of opiates increased in comparison with 2022, amounting to 64 per cent. The share of consumption of synthetic opioids, which are used for the same indications as opiates, amounted to 36 per cent. The overall trend in the past decade points to a possible decline in the demand for opiates in the future, but it is not clear whether their share in the total consumption of opioids will increase or decrease in relation to the consumption of synthetic opioids.

Figure IV. Global consumption of opioids,[a] expressed in billions of defined daily doses for statistical purposes (S-DDD), 2004–2023



[a] Opioids: opiates and synthetic opioids.
[b] Including buprenorphine, an opiate controlled under the 1971 Convention.
[c] Including pentazocine, a synthetic opioid controlled under the 1971 Convention.

International Narcotics Control Board

L'Organe international de contrôle des stupéfiants

Junta Internacional de Fiscalización de Estupefacientes

About the International Narcotics Control Board

The International Narcotics Control Board (INCB) is an independent and quasi-judicial control organ, established by treaty, that monitors the implementation of the international drug control treaties. It had predecessors under the former drug control treaties as far back as the time of the League of Nations.

Composition

INCB consists of 13 members who are elected by the Economic and Social Council and who serve in their personal capacity, not as government representatives. Three members with medical, pharmacological or pharmaceutical experience are elected from a list of persons nominated by the World Health Organization (WHO) and 10 members are elected from a list of persons nominated by Governments. Members of INCB are persons who, by their competence, impartiality and disinterestedness, command general confidence. The Council, in consultation with INCB, makes all arrangements necessary to ensure the full technical independence of the Board in carrying out its functions. INCB has a secretariat that assists it in the exercise of its treaty-related functions. The INCB secretariat is an administrative entity of the United Nations Office on Drugs and Crime, but it reports solely to the Board on matters of substance. INCB closely collaborates with the Office in the framework of arrangements approved by the Council in its resolution 1991/48. INCB also cooperates with other international bodies concerned with drug control, including not only the Council and its Commission on Narcotic Drugs, but also the relevant specialized agencies of the United Nations, particularly WHO. It also cooperates with bodies outside the United Nations system, especially the International Criminal Police Organization (INTERPOL) and the World Customs Organization (WCO).

Functions

The functions of INCB are laid down in the following treaties: the Single Convention on Narcotic Drugs of 1961 as amended by the 1972 Protocol; the Convention on Psychotropic Substances of 1971; and the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988. Broadly speaking, INCB deals with the following:

(a) As regards the licit manufacture of, trade in and use of drugs, INCB endeavours, in cooperation with Governments, to ensure that adequate supplies of drugs are available for medical and scientific uses and that the diversion of drugs from licit sources to illicit channels does not occur. INCB also monitors Governments' control over chemicals used in the illicit manufacture of drugs and assists them in preventing the diversion of those chemicals into illicit traffic.

(b) As regards the illicit manufacture of, trafficking in and use of drugs, INCB identifies weaknesses in national and international control systems and contributes to correcting such situations. INCB is also responsible for assessing chemicals used in the illicit manufacture of drugs in order to determine whether they should be placed under international control.

In the discharge of its responsibilities, INCB:

(a) Administers a system of estimates for narcotic drugs and a voluntary assessment system for psychotropic substances and monitors licit activities involving drugs through a statistical returns system, with a view to assisting Governments in achieving, inter alia, a balance between supply and demand;

(b) Monitors and promotes measures taken by Governments to prevent the diversion of substances frequently used in the illicit manufacture of narcotic drugs and psychotropic substances and assesses such substances to determine whether there is a need for changes in the scope of control of Tables I and II of the 1988 Convention;

(c) Analyses information provided by Governments, United Nations bodies, specialized agencies and other competent international organizations, with a view to ensuring that the provisions of the international drug control treaties are adequately carried out by Governments, and recommends remedial measures;

(d) Maintains a permanent dialogue with Governments to assist them in complying with their obligations under the international drug control treaties and, to that end, recommends, where appropriate, the provision of technical or financial assistance.

INCB is called upon to ask for explanations in the event of apparent violations of the treaties, to propose appropriate remedial measures to Governments that are not fully applying the provisions of the treaties or are encountering difficulties in applying them and, where necessary, to assist Governments in overcoming such difficulties. If, however, INCB notes that the

measures necessary to remedy a serious situation have not been taken, it may bring the matter to the attention of the parties concerned, the Commission on Narcotic Drugs and the Economic and Social Council. As a last resort, the treaties empower INCB to recommend to parties that they stop importing drugs from a defaulting country, exporting drugs to it or both. In all cases, INCB acts in close cooperation with Governments.

INCB assists national administrations in meeting their obligations under the conventions. To that end, it proposes and participates in regional training seminars and programmes for drug control administrators.

Reports

The international drug control treaties require INCB to prepare an annual report on its work. The annual report contains an analysis of the drug control situation worldwide so that Governments are kept aware of existing and potential situations that may endanger the objectives of the international drug control treaties. INCB draws the attention of Governments to gaps and weaknesses in national control and in treaty compliance; it also makes suggestions and recommendations for improvements at both the national and international levels. The annual report is based on information provided by Governments to INCB, United Nations entities and other organizations. It also uses information provided through other international organizations, such as INTERPOL and WCO, as well as regional organizations.

The annual report of INCB is supplemented by detailed technical reports, which contain data on the licit movement of narcotic drugs and psychotropic substances required for medical and scientific purposes, together with an analysis of those data by INCB. Those data are required for the proper functioning of the system of control over the licit movement of narcotic drugs and psychotropic substances, including their diversion to illicit channels. More-over, under the provisions of article 12 of the 1988 Convention, INCB reports annually to the Commission on Narcotic Drugs on the implementation of that article. That report, which gives an account of the results of the monitoring of precursors and of the chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances, is also published as a supplement to the annual report.

INTERNATIONAL NARCOTICS CONTROL BOARD

The International Narcotics Control Board (INCB) is the independent monitoring body for the implementation of United Nations international drug control conventions. It was established in 1968 in accordance with the Single Convention on Narcotic Drugs, 1961. It had predecessors under the former drug control treaties as far back as the time of the League of Nations.

Based on its activities, INCB publishes an annual report that is submitted to the United Nations Economic and Social Council through the Commission on Narcotic Drugs. The report provides a comprehensive survey of the drug control situation in various parts of the world. As an impartial body, INCB tries to identify and predict dangerous trends and suggests necessary measures to be taken.

ISBN 978-92-1-003416-6

2424608