

### III. Extent of licit trade and latest trends in trafficking in precursors

69. The present chapter is based primarily on data provided by Governments on form D and through the PEN Online system. Other sources of information include national reports, Project Prism, Project Cohesion and PICS. The analysis covers the period up to 1 November 2018.

70. Information about chemicals not included in Table I or Table II of the 1988 Convention but nonetheless used in the illicit manufacture of controlled drugs is shared with INCB pursuant to article 12, subparagraph 12 (b), of that Convention. While such reporting is mandatory, Governments have some leeway in what they consider “sufficiently significant to be brought to the attention of the Board”. In addition, the identification of non-scheduled chemicals presents challenges in that products found in clandestine laboratories often lack labelling and that smuggled consignments are often mislabelled and/or misdeclared. In addition, there are forensic challenges. **Nevertheless, INCB would like to remind Governments that comprehensive reporting on form D of information regarding non-scheduled substances and of circumstantial information is critical to establishing trends. Without the sharing of such information, new trends in precursor trafficking and illicit drug manufacture cannot be identified and addressed at an early stage and globally.**

#### A. Substances used in the illicit manufacture of amphetamine-type stimulants

##### 1. Substances used in the illicit manufacture of amphetamines

71. Ephedrine and pseudoephedrine are precursors used in the illicit manufacture of methamphetamine. They also account for a significant proportion of legitimate trade in substances included in Table I of the 1988 Convention in the form of both raw materials and pharmaceutical preparations. As alternative methamphetamine precursors criminal groups may use P-2-P, phenylacetic acid, APAAN and a number of non-scheduled substances, although those are more often associated with the illicit manufacture of amphetamine (see also paras. 116–129 and annex VIII).

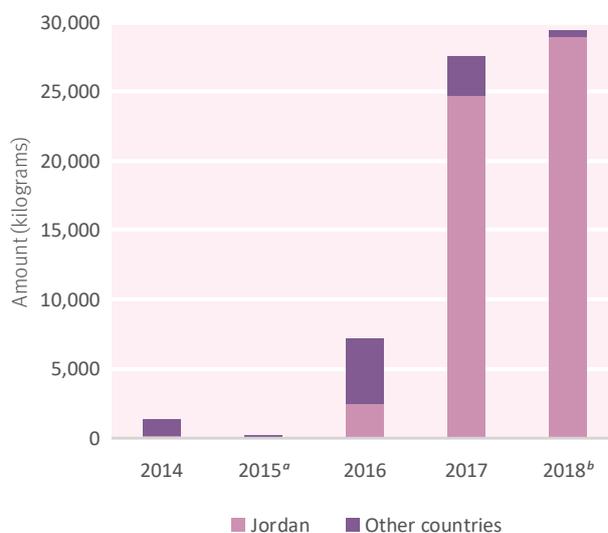
#### (a) Ephedrine and pseudoephedrine

##### *Licit trade*

72. During the reporting period, details regarding 5,200 planned shipments of ephedrine and pseudoephedrine were submitted through the PEN Online system. The shipments consisted of approximately 1,220 tons of pseudoephedrine and almost 100 tons of ephedrine. As in the past, India was the largest exporter in terms of volume, followed by Germany. The largest importer was the United States, followed by Switzerland. In total, shipments originated in 43 exporting countries and territories and were destined for 173 importing countries and territories.

73. Of all pre-export notifications, 35 per cent involved ephedrine and pseudoephedrine in bulk and 65 per cent involved pharmaceutical preparations. In 2017, of all shipments in the form of pharmaceutical preparations (about 260 tons), about 30 per cent were proposed imports for countries in West Asia and another 30 per cent for countries in Western and Central Europe, followed by 20 per cent for countries in North America, 10 per cent for countries in Africa, 5 per cent for countries in East and South-East Asia and another 5 per cent for countries in South America. Within West Asia, in the past few years, INCB has noted a substantial increase in the number of proposed exports to Iraq of pharmaceutical preparations containing pseudoephedrine. The main source is Jordan (see figure V).

Figure V. Amounts of preparations containing pseudoephedrine notified through the PEN Online system for export to Iraq, 2014–2018



<sup>a</sup>No data available for Jordan.

<sup>b</sup>First 10 months of 2018.

74. The competent national authority of Iraq systematically objects to proposed exports destined for the Kurdistan region of the country that are notified through the PEN Online system. In the past, INCB has expressed concern at the risk that traffickers exploit the lack of effective governmental control of certain territories in order to divert precursors. **INCB urges all Governments concerned to make every effort to address loopholes of this kind in international precursor control efforts.**

75. The situation is further complicated by the fact that pharmaceutical preparations containing pseudoephedrine or other controlled precursors are not under international control and that the sending of pre-export notifications for such preparations, although highly recommended,<sup>20</sup> is not mandatory. It will therefore be particularly important to gather information and hard evidence to prove any diversion and actual use of a particular pharmaceutical product in the illicit manufacture of drugs and provide the authorities of the countries concerned with a factual basis to deny shipments of such products. As in similar situations in the past, for example, in relation to the alleged end-use of P-2-P in a cleaning product, chemical analysis of the final product could be particularly useful.<sup>21</sup>

76. No thefts of ephedrine or pseudoephedrine were reported on form D for 2017.

### Trafficking

77. Use of ephedrines in the illicit manufacture of methamphetamine is predominant in Asia and Oceania, in Africa and in some regions in Europe. In North America, the bulk of illicitly manufactured methamphetamine is made using P-2-P-based methods.

### East and South-East Asia

78. On form D for 2017, Thailand reported the second-largest amount of pseudoephedrine preparations ever seized in that country in one year, totalling more than 1.1 tons. The largest amount ever seized in one year had been reported for 2016 (more than 3.8 tons). Unfortunately, no additional information was available that could have helped to contextualize the amount, such as the sources of the preparations and the methods of diversion. In addition to Thailand, five countries in East and South-East Asia reported seizures of ephedrines and their preparations. Together with seizures in Thailand and Myanmar (420 kg), the total added up to about 2 tons, the lowest amount reported in a decade. This was explained in part by the fact

that no form D was received from several countries in the region, and in part by a decrease in the size of reported seizures. In its annual report, China reported seizures of 68.5 tons of ephedrine.<sup>22</sup>

79. INCB has previously expressed its concern at the discrepancy between the low number of seizures of methamphetamine precursors and the limited amounts seized on the one hand, and seizures reported for methamphetamine end-product (both crystalline methamphetamine and methamphetamine tablets) on the other.<sup>23</sup> That situation has not improved. For example, if all methamphetamine reported seized in East and South-East Asia<sup>24</sup> were to have been manufactured from either ephedrine or pseudoephedrine, an average of about 70 tons per year of either substance would have been required for the period 2014–2016. Reported seizures during that period amounted to an average of less than 25 tons per year; they were even lower in 2017 despite a further increase in methamphetamine seizures. At the same time, with the exception of China and to some extent the Philippines, no country in the region has ever reported any notable seizures of substitute chemicals. In 2017, the first indications were found that non-scheduled P-2-P pre-precursors, in particular APAA, had become available for the illicit manufacture of methamphetamine in the Golden Triangle area (see para. 118 below).

80. Given the continuously increasing amounts of methamphetamine seized, the exacerbation of the methamphetamine problem in East and South-East Asia, the scarcity of information about precursor incidents – including about the extent of backtracking investigations and their outcomes – and the limited response the Board receives to its enquiries about this issue, **INCB once again calls on the countries concerned to fulfil their obligations under the 1988 Convention and cooperate with each other and the Board to identify the type and sources of precursors, address their diversion and use in the illicit manufacture of methamphetamine, and allow for related criminal activities to be fully investigated and prosecuted. INCB also calls on the United Nations Office on Drugs and Crime and countries that provide technical assistance and mentoring to countries in East and South-East Asia, to support those efforts and improve the overall**

<sup>20</sup>See, for example, resolution 54/8 of the Commission on Narcotic Drugs.

<sup>21</sup>See E/INCB/2011/4, para. 70.

<sup>22</sup>*Annual Report on Drug Control in China 2018*, p. 24.

<sup>23</sup>See E/INCB/2016/4, para. 61 and E/INCB/2017/4, paras. 80–82.

<sup>24</sup>*World Drug Report 2018: Analysis of Drug Markets—Opiates, Cocaine, Cannabis, Synthetic Drugs* (United Nations publication, Sales No. E.18.XI.9 (Booklet 3)), three-year average over the period 2014–2016. There are indications that seizures and the availability of methamphetamine in the region, in particular in the countries participating in the Safe Mekong Initiative, have meanwhile significantly increased. However, information about the precursors involved, as well as about their sources, remains wholly insufficient.

### capacity in the region to prevent the diversion of precursors and investigate cases related to the diversion of precursors.

81. While many countries in East and South-East Asia share very limited information on precursors and their sources on form D, INCB is aware that clandestine methamphetamine laboratories of varying size and capacity have been dismantled in Malaysia, Myanmar and the Republic of Korea.

### West Asia

82. The situation with regard to precursors of methamphetamine in West Asia continues to be unclear, and insufficient information has been provided to enable INCB to assess it. With the exception of the Islamic Republic of Iran for 2010 and 2011, countries in the region have consistently reported low amounts of ephedrines seized on form D. For 2017, the amount was less than 50 grams in the entire region, all of it seized in Georgia. In 2018, a seizure in Afghanistan of 50 kg of pseudoephedrine was communicated through PICS. INCB is also aware of seizures in Afghanistan in 2018 of locally grown ephedra, a new development that deserves close monitoring. According to media reports, there has also been a seizure of one ton of unspecified methamphetamine precursors in the north-western part of the Islamic Republic of Iran in late December 2017.

83. By forensically analysing samples of street methamphetamine, authorities can obtain evidence indicating the specific precursors used in its illicit manufacture. To shed light on the situation, INCB regularly requests information from Governments of countries for which such analyses have been conducted. The scientific literature provides evidence that the illicit manufacturing methods and related precursor requirements in the Islamic Republic of Iran are diversifying. In particular, INCB is aware of three studies conducted on samples of street methamphetamine in 2010,<sup>25</sup> in 2012 and 2013 (Tehran)<sup>26</sup> and in 2014 (western part of the country).<sup>27</sup> These studies suggest that, in addition to the traditional methods, whose starting materials are ephedrine, pseudoephedrine or preparations containing those substances, P-2-P-based methods, in particular the Leuckart method, may have been gaining in importance.

<sup>25</sup> Ali Reza Khajeamiri and others, "Determination of impurities in illicit methamphetamine samples seized in Iran", *Forensic Science International*, vol. 217, Nos. 1–3 (April 2012), pp. 204–206.

<sup>26</sup> Ahmad Shekari and others, "Impurity characteristics of street methamphetamine crystals seized in Tehran, Iran", *Journal of Substance Use*, vol. 21, No. 5 (January 2016), pp. 501–505.

<sup>27</sup> Neda Amini, Afshar Etemadi-Alegha and Maryam Akhgari, "Impurity profiling of street methamphetamine samples seized in Kermanshah, Iran, with special focus on methamphetamine impurities health hazards", *Journal of Clinical Toxicology*, vol. 5, No. 4 (July 2015).

### South Asia

84. For 2017 as for previous years, India was the only country that reported seizures of ephedrines on form D (see figure VI). India reported 15 incidents that together amounted to 1.1 tons of preparations containing ephedrine, about 5 per cent of the record seizures of 2016. In addition, there were 11 incidents involving a total of 1.9 tons of preparations containing pseudoephedrine.

**Figure VI Seizures of ephedrine and pseudoephedrine (combined), reported by India on form D and in national reports, 2013–2018**



<sup>a</sup>January–August 2018.

85. Notable seizures in 2017 included 260 kg of ephedrine manufactured in a clandestine laboratory on the premises of a chemical supplier in the southern Indian state of Karnataka. In another instance, 179 kg of ephedrine were seized in an illicit laboratory in Hyderabad. INCB understands that the ephedrine was found at a chemical factory in an industrial part of the city that the suspects had leased for 15 days by providing false information to the owner. According to Indian authorities,<sup>28</sup> south India (mainly Bangalore, Hyderabad and Chennai) is a major centre for trafficking in ephedrines to other countries, mainly through the airports of Delhi, Chennai, Cochin and Bangalore. Malaysia is the main destination country, followed by countries in Africa including South Africa and Zambia. Trafficking in ephedrines across the border between India and Myanmar is linked with reverse trafficking in methamphetamine.

<sup>28</sup> India, Ministry of Home Affairs, Narcotics Control Bureau, *Annual Report 2017* (New Delhi, n.d.), p. 35.

86. Media reports suggest that the recent increase in the illicit manufacture of methamphetamine in India is linked to international criminal groups. The same reports suggest that the manufacturing takes place in the Mumbai area, with the possible involvement of pharmaceutical companies in the west Indian states of Maharashtra and Gujarat. Another manufacturing area is south India. Much of the methamphetamine is smuggled abroad, often to destinations in South-East Asia, Oceania, Europe and Africa. The laboratories are supplied with ephedrine and pseudoephedrine diverted from within India. The situation in India is a reflection of the illicit market economy, with organized criminal groups moving their laboratories between countries and regions depending on their access to key precursor chemicals and the risk of detection.

87. Also in India, in June 2018, authorities disposed of more than 20 tons of ephedrine and 2.5 tons of acetic anhydride in what is considered to be the biggest drug disposal event to date. The chemicals had been seized from a pharmaceutical company in Solapur and in other locations in the west Indian states of Maharashtra and Gujarat more than two years earlier.

88. In 2018, India continued to communicate seizures of ephedrines through PICS. As in the past, the seizures represented small amounts, typically less than 10 kg, which were destined for countries in Africa and East and South-East Asia. In one incident, the destination was Oman. One notable incident involved reverse trafficking in 123 kg of pseudoephedrine from Myanmar to India.

## Oceania

89. Australia reported its largest ever ephedrine seizures on form D for 2017, amounting to almost 6 tons. When looked at by number, the vast majority of the shipments seized, more than 80 per cent, had originated in China, including Hong Kong, China. By amount, nearly two-thirds had entered Australia from Thailand, including a single seizure of 3.9 tons of liquid ephedrine in bottles labelled as iced tea. Depending on the concentration of ephedrine in the liquid, the amount involved in that seizure could have been used to produce an estimated 900 kg to 3,600 kg of methamphetamine. By contrast, authorities in Australia seized less than 150 kg of pseudoephedrine, with the bulk reportedly originating in the Republic of Korea. This confirms the shift observed earlier from pseudoephedrine to ephedrine, which is probably linked to the emergence of ephedrine illicitly manufactured in China using the 2-bromopropiophenone method.

90. Reported seizures in New Zealand amounted to about 560 kg of ephedrine and 25 kg of pseudoephedrine.

This continued the shift from pseudoephedrine to ephedrine observed since 2014, but, compared with 2016, represented a sizeable decrease in the frequency and amount of ephedrine seizures both at the border and inside the country. By weight, most ephedrine of which the origin could be determined had originated in China. However, there are indications of an increase in trans-shipments, presumably to disguise the actual geographical source. Specifically, the New Zealand Customs Service observed an increase in both the frequency and the amounts involved in seizures from the United Kingdom of Great Britain and Northern Ireland. In March 2018, the United Kingdom made up nearly 40 per cent of ephedrine seizures by weight, up from 26 per cent in the same period in 2017.

91. With 79 clandestine laboratories dismantled in New Zealand in 2017, the illicit manufacture of methamphetamine remained at levels comparable to the previous five years. In addition to ephedrine, the most common precursor chemicals seized were iodine and hypophosphorous acid. Since 2014, when ephedrine, rather than pseudoephedrine, became the main precursor seized at the border, the price of ephedrine on the black market has barely fluctuated. This continued to make the domestic manufacture of methamphetamine from ephedrine a lucrative business for suppliers, even though the risk and effort involved appeared to make it more attractive for criminals to import methamphetamine as a finished product. In 2018, seizures of ephedrine and pseudoephedrine again showed an upward trend; there were indications that the amounts might surpass those of 2017.

## Africa

92. In the past five years, seizures of ephedrines larger than 100 kg were reported on form D by only three countries in Africa: Benin, Nigeria and Zimbabwe. Nigeria also reported cases of illicit methamphetamine manufacture on its territory. Illicit manufacture typically started from ephedrine, although in 2016, an industrial-scale illicit laboratory was dismantled at which the so-called nitrostyrene method had been used (see para. 126–129 below).

93. Nigeria reported no ephedrine seizures on form D for 2017. However, nine incidents were communicated through PICS, each involving between 3 kg and 25 kg of ephedrine. As in the past, most seizures in 2017 involved ephedrine intended for South Africa. In 2018, however, Mozambique was the destination cited most frequently. Moreover, Nigeria made seizures of methamphetamine whose alleged origin was also Mozambique. These facts further indicate that methamphetamine is possibly being manufactured illicitly in that country. In addition, intelligence suggests that Nigerian nationals may be operating

illicit methamphetamine laboratories in Mozambique and South Africa. Within Nigeria, three illicit methamphetamine laboratories were dismantled in the first 10 months of 2018. Although no ephedrine was recovered, the other chemicals found suggested that ephedrine-based manufacturing methods had been used.

94. In Nigeria, the authorities have developed a methodology to estimate the country's legitimate needs for ephedrine (see also para. 40 above), on the basis of which they have determined that the quantities imported in the past exceeded legitimate needs. The authorities therefore expect legitimate imports to decrease. The illicit market will likely adapt to the new situation; new precursor trafficking routes are likely to emerge, and ephedrine is likely to be smuggled into Nigeria from other countries in West Africa. **INCB encourages the authorities of countries in West Africa to share experiences and best practices to prevent diversion schemes from repeating themselves and to deny traffickers access to the precursors they require. Specifically, INCB encourages the Nigerian authorities to share with interested countries their methodology for estimating legitimate needs, as well as known *modi operandi* and ephedrine diversion schemes used by traffickers.**

95. In 2017, Benin reported seizures totalling more than 150 kg of preparations containing ephedrine, about half the amount reported for 2016; information on the sources of the products was not provided. The last incident in Benin that INCB is aware of was communicated through PICS in mid-2013 and involved 226 kg of ephedrine allegedly originating in China and destined for Nigeria.

## Europe

96. In 2017, the situation in Europe remained unchanged compared with 2015 and 2016, with only very small amounts of ephedrine, pseudoephedrine and their preparations having been seized. Seizures were reported by 15 countries and totalled around 40 kg of ephedrine and 50 kg of pseudoephedrine, including in the form of preparations containing them. Where such information was provided, the origin of the seized substances lay, with few exceptions, within Europe. This contrasts with the situation that existed some years ago, when Turkey was frequently alleged to be the origin, and suggests that the controls implemented in Turkey are having the desired effect.<sup>29</sup>

97. Within Europe, Czechia is the country with the longest history of illicit methamphetamine manufacture. On form D for 2017, a total of 264 illicit methamphetamine

laboratories were reported dismantled, about the same number as in 2016. Laboratories in Czechia are typically small and their supply is intended for local consumption. They use pseudoephedrine extracted from preparations smuggled from abroad, mainly from or through Poland. In 2017, about 30 kg of preparations containing pseudoephedrine were reported seized. At the same time, the authorities noted an increase in large-scale facilities with an estimated annual capacity of 10 to 12 tons of methamphetamine; such facilities were reported to involve Vietnamese organized criminal groups that manufactured methamphetamine for a larger regional market. Another trend observed by authorities in Czechia in 2017 was that the illicit manufacture of methamphetamine shifted across the border into neighbouring Poland and Germany, as well as to the Netherlands. INCB is also aware of the dismantling of illicit methamphetamine laboratories in Slovakia, including a laboratory of considerable capacity that was dismantled in 2018.

## Americas

98. Notable seizures of ephedrines in the Americas in 2017 were once again limited to the United States. Authorities in that country seized about 200 kg in total, of which 97 per cent was pseudoephedrine. Information from the United States confirms that the illicit domestic manufacture of methamphetamine, in which ephedrines are typically used, continues to decrease. Meanwhile, the increasing demand for methamphetamine in the United States continues to be met from illicit manufacture that takes place in Mexico, where P-2-P-based manufacturing methods prevail.

### (b) Norephedrine and ephedra

#### *Licit trade*

99. Between 1 November 2017 and 1 November 2018, 13 exporting countries notified through the PEN Online system a total of 182 exports of norephedrine, a substance that can be used in the illicit manufacture of amphetamine. These exports were destined for 36 importing countries and territories and amounted to more than 26 tons of raw material and nearly 1.7 tons of pharmaceutical preparations. As in the past, the largest exporters by volume were India and Indonesia, followed, in descending order, by Switzerland and Japan, and the largest importers were the United States, Myanmar and Algeria, followed by Cambodia. On form D for 2017, Germany reported small imports of ephedra.

#### *Trafficking*

100. On form D for 2017, only four countries reported seizures of norephedrine. Seizures in Australia were the

<sup>29</sup>See E/INCB/2015/4, para. 18.

largest worldwide in more than five years. They amounted to nearly 250 kg, of which two-thirds originated in Indonesia. Other origins included the Philippines and Hong Kong, China. The United Kingdom reported one seizure of just above 20 kg, smuggled from the Netherlands. The incident had previously been communicated through PICS, together with operational details. In the first 10 months of 2018, no norephedrine or ephedra incident was communicated through PICS (see, however, para. 82 above).

### (c) 1-Phenyl-2-propanone, phenylacetic acid and *alpha*-phenylacetoacetonitrile

101. P-2-P, phenylacetic acid and APAAN are precursors that can be used in the illicit manufacture of amphetamine and methamphetamine. P-2-P is an immediate precursor of both amphetamine and methamphetamine, while phenylacetic acid and APAAN are precursors of P-2-P. Of the three substances, phenylacetic acid is the most widely traded, while trade in APAAN is almost non-existent. When P-2-P is seized, it has usually been illicitly manufactured, as P-2-P is rarely diverted from legitimate trade. Non-scheduled substitutes for P-2-P used in the illicit manufacture of amphetamine and methamphetamine are discussed in paragraphs 116–129 below.

#### *Licit trade*

102. P-2-P, phenylacetic acid and APAAN differ quite significantly in terms of the volume and extent of their legitimate international trade and the number of countries involved in that trade. Between 1 November 2017 and 1 November 2018, there were 35 pre-export notifications involving P-2-P, from six exporting countries to nine importing countries. During the same period, there were no transactions involving APAAN. By contrast, legitimate international trade in phenylacetic acid involved 11 exporting countries. They notified 47 importing countries and territories about more than 620 proposed shipments of phenylacetic acid.

#### *Trafficking*

103. Seizures of P-2-P reported on form D for 2017 were the lowest in five years, amounting to approximately 4,200 litres. Importantly, those seizures almost certainly included P-2-P illicitly manufactured from controlled and non-scheduled pre-precursors such as APAAN and APAA, and by means of the nitrostyrene method. For that reason, information on P-2-P seizures is of no more than limited value to efforts to prevent diversion, especially when no circumstantial information is provided.

104. The situation with regard to seizures of phenylacetic acid was dominated by an amount of almost 19.5 tons

seized in clandestine methamphetamine laboratories in Mexico. The origin of the phenylacetic acid was unknown. Also, no information was provided on whether it had been illicitly manufactured from one of its precursors, such as 2-phenylacetamide. 2-Phenylacetamide is controlled in Mexico and was, moreover, seized in that country in an incident involving nearly 6.5 tons. In Australia, about 225 kg of phenylacetic acid was reported seized that had allegedly originated in China. In 2018, Poland communicated through PICS a seizure of more than 13.6 tons of phenylacetic acid.

105. With 2,500 litres, Mexico also reported the largest seizures of P-2-P. The seizures took place in illicit methamphetamine laboratories. The P-2-P was presumed to have been illicitly manufactured from one of its precursors, several of which are controlled in Mexico. P-2-P seized in Belgium (about 40 litres) was assumed to have been an intermediate in the illicit manufacture of amphetamine from APAAN.

106. The United Kingdom reported two seizures totaling almost 600 litres of P-2-P in 2017. Both shipments were misdeclared and had allegedly originated in China, including Hong Kong, China. In one case, P-2-P may have been an impurity in a chemically related, non-scheduled “designer” precursor.

107. Impurity profiling of street methamphetamine seized in the western part of the Islamic Republic of Iran suggest that a significant share of the samples involved may have been manufactured using P-2-P-based methods.<sup>30</sup>

108. For the first time in five years, on form D for 2017, countries in West Asia reported seizures of P-2-P. Specifically, in December 2016, authorities in Jordan seized almost 3,300 litres of P-2-P at a large clandestine laboratory together with 1,500 litres of methamphetamine and a number of other chemicals, such as formamide (more than 250,000 litres), suggesting that the Leuckart method was being used. In addition, caffeine and other cutting agents, excipients and tableting aids were seized. Although no pre-precursors were found at the site, authorities believe that the P-2-P had been the product of illicit manufacture.

109. In January 2018, law enforcement authorities in Jordan dismantled a facility in an industrial area of the capital Amman and found indications that the facility had

<sup>30</sup> Amini, Etemadi-Aleagha and Akhgari, “Impurity profiling of street methamphetamine samples seized in Kermanshah, Iran, with special focus on methamphetamine impurities health hazards”, *Journal of Clinical Toxicology*, vol.5, No. 4 (July 2015).

been used for the illicit manufacture of “captagon”.<sup>31</sup> The suspects had rented the facility under the pretext of using it as a factory for cleaning products. The Board understands that significant quantities of APAAN were found among the chemicals seized at the premises. This confirmed the finding, made in 2017 under operation “Missing links”, that APAAN was being used as a precursor in the illicit manufacture of amphetamine for use in “captagon” tablets. In 2017, forensic analysts had identified APAAN in more than 80 per cent of the seized “captagon” tablets analysed under that operation.<sup>32</sup>

110. INCB has previously noted the discrepancy between seizures of amphetamine and “captagon” tablets, in particular in countries in the Near and Middle East, and the lack of information about the sources of the amphetamine and its precursors. On the basis of data from 2016, if all amphetamine that was reported seized in the subregion of the Near and Middle East/South-West Asia — 46 tons in 2016<sup>33</sup> — had been synthesized from APAAN, 70 to 100 tons of APAAN would have been required (for conversion figures, see annex VIII, figure II). However, no seizures of APAAN have ever been reported outside Europe and North America.

111. In Europe, three countries reported seizures of APAAN on form D for 2017. Poland made one seizure of 5 tons, the remainder, seized in other countries, totalled about 70 kg. In addition, INCB is aware of APAAN seizures totalling 1.3 tons in Albania in 2017. Incidents communicated through PICS in the first 10 months of 2018 indicate a resurgence of APAAN, a development that precursor experts also believe is occurring. Nine APAAN incidents were communicated during this period, including several large seizures of between 500 kg and 4.4 tons each. Although some APAAN is trafficked by air, most is trafficked by sea. One of the reasons for the reappearance of APAAN in Europe may be the availability of stocks in the countries of origin. Another may be the increasing attention law enforcement has been paying to APAA, which emerged as the main substitute for APAAN after APAAN came under international control. Now that APAA has come under closer scrutiny, the risk associated with trafficking in either substance may be similar.

<sup>31</sup>The term “captagon” is used to refer to the illicit drug currently available on the illicit market in countries in the Middle East. The composition of the product has nothing in common with Captagon, the pharmaceutical product that was available from the early 1960s and that contained fenethylline.

<sup>32</sup>E/INCB/2017/4, para. 112.

<sup>33</sup>*World Drug Report 2018: Analysis of Drug Markets* (Booklet 3), p. 58.

112. The emergence and subsequent decline in Europe of APAAN in the period 2010–2016, and its use as a precursor in the illicit manufacture of amphetamine, were also confirmed by retrospective forensic profiling of amphetamine samples seized in Germany and the Netherlands between 2009 and 2016. The analysis confirmed that APAAN had been used in Europe since 2010 and that it had been the main precursor between 2013 and 2015, with nearly 100 per cent of amphetamine samples analysed showing evidence of synthesis from APAAN. The use of APAAN declined from 2016 onward. Because the use of APAAN remained high after it had been scheduled in Europe in December 2013 and internationally in October 2014, the authors of one study concluded that it might have been stockpiled; the subsequent decline coincided with the widespread availability of APAA (see paras. 116–120 below).<sup>34</sup>

#### (d) Use of non-scheduled substances and other trends in the illicit manufacture of amphetamine and methamphetamine

##### *Precursors for the illicit manufacture of ephedrine and pseudoephedrine*

113. In recent years, authorities in China have observed the widespread illicit manufacture of ephedrine from 2-bromopropiophenone, a substance not scheduled internationally but placed under control in China in May 2014. In 2017, China seized 206 tons of 2-bromopropiophenone.<sup>35</sup> After it had been put under national control, the authorities observed a gradual shift to its precursors and other chemicals not yet controlled in China, whose imports increased. One example of a chemical that can be used to produce 2-bromopropiophenone is 1-phenyl-1-propanone, a substance that is not under international control, but is on the INCB limited international special surveillance list of non-scheduled substances. The authorities in China estimated that only about 20 per cent of the 1-phenyl-1-propanone being imported was required for legitimate uses, for example as a raw material in the pharmaceutical industry or in the production of liquid crystal displays. A case of large-scale imports into China is currently under investigation.

114. While more recently, China has observed a further shift towards precursors of 1-phenyl-1-propanone, the first seizures of 2-bromopropiophenone outside China

<sup>34</sup>Frank M. Hauser and others, “Identification of specific markers for amphetamine synthesised from the pre-precursor APAAN following the Leuckart route and retrospective search for APAAN markers in profiling databases from Germany and the Netherlands” *Drug Testing and Analysis*, vol. 10, No. 4 (April 2018), pp. 671–680.

<sup>35</sup>*Annual Report on Drug Control in China 2018*, p. 24.

have been brought to the attention of INCB. They took place in Australia in 2017 and early 2018.

115. The shift observed in China in the precursors used in the illicit manufacture of methamphetamine following the gradual tightening of national controls over individual products and substances once again illustrates the limitations of a substance-by-substance scheduling approach. This is particularly true in the light of evidence that in China, and probably elsewhere, certain organized criminal groups specialize in supplying custom-made chemicals and, in some cases, equipment on demand.<sup>36</sup>

### *Alpha-phenylacetoacetamide*

116. APAA is a substitute chemical for P-2-P and APAAN and is as yet non-scheduled. APAA replaced APAAN on the illicit market after APAAN was included in Table I of the 1988 Convention in October 2014. In November 2018, INCB recommended the international scheduling of APAA.

117. Seizures of APAA were reported on form D for 2017 by a number of European countries. The largest amounts were seized in the Netherlands (more than 10 tons), followed by France (more than 600 kg) and Belgium (250 kg). Information on the origin was usually not provided; where it was, the APAA had originated in China, including Hong Kong, China, had transited through European countries, such as Belgium, and had been destined for the Netherlands. The Russian Federation was also mentioned as a transit country, and Belarus and Poland as countries of destination. In most instances, APAA was mislabelled or misdeclared, a further indication that it was intended for illicit purposes. In 2018, APAA incidents continued to occur in high numbers and amounts. Many seizures were made in laboratories, in particular in the Netherlands, and APAA was found along with a variety of other “designer” precursors for both amphetamine and MDMA.

118. INCB is also aware of APAA seizures outside Europe, namely in East and South-East Asia. Those suggest the possibility of a gradual change in the manufacturing methods in that subregion, and more in particular in the Golden Triangle, from methods using ephedrine or pseudoephedrine and pharmaceutical preparations containing them, to P-2-P-based methods.

119. One of the largest schemes involving trafficking in APAA to Europe was identified in January 2018, when a consignment of 900 kg was intercepted at Copenhagen airport en route from Hong Kong, China, to Lithuania.

Follow-up investigations revealed that in 2017, the same importer in Lithuania had brought in 12 shipments totalling almost 9 tons of APAA exported by the same manufacturer in China. Investigations further indicated that, after arriving in Lithuania, those consignments had been transported by truck to a company in the Netherlands. Another 900 kg were seized at another Danish airport later in January 2018; the consignment had been sent by the same Chinese supplier but was destined for a consignor in the United Kingdom. INCB understands that investigations are currently ongoing in a number of European countries and China. The findings are expected to afford valuable insights into the *modi operandi* used by traffickers to feed illicit laboratories with non-scheduled chemicals. This is expected to help in the prevention of future shipments using similar *modi operandi*.

120. The first conviction for possession of APAA was handed down in the Netherlands in August 2017. The suspect had received money to transport 600 kg of APAA and was found guilty under the Opium Act of knowingly committing acts to prepare the production of amphetamine. He was sentenced to 12 months’ imprisonment. Six months of his term were conditional.

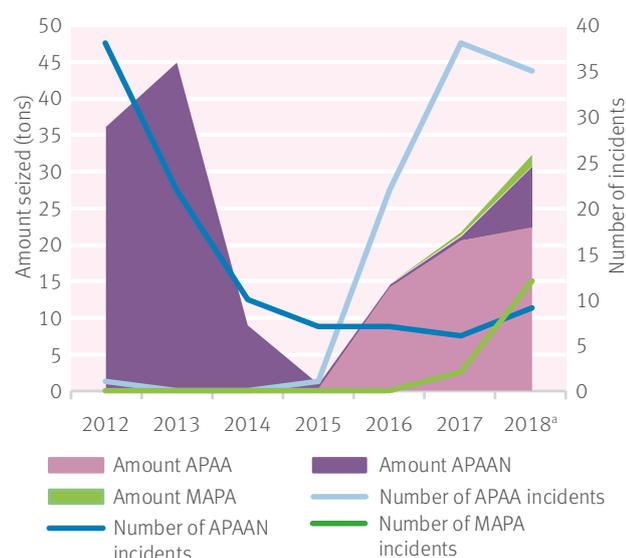
### *Methyl alpha-phenylacetoacetate*

121. The emergence of APAA in 2015 was closely correlated with a decrease in the number of incidents involving APAAN (see figure VII below). In 2017, two additional developments occurred: a limited resurgence of APAAN and the emergence of MAPA as a substitute for APAA. MAPA is the methyl ester of *alpha*-phenylacetoacetic acid. Given the challenges associated with the proliferation of series of closely related chemicals (to which INCB has drawn attention in the past), the limited international special surveillance list was amended in 2013 to include the concept of extended definitions for such derivatives. MAPA is covered by that definition and **INCB encourages competent national authorities to make full use of the international special surveillance list and alert relevant sectors of industry to the possible misuse in illicit drug manufacture of chemicals on the list.**

122. Seizures of MAPA were first reported on form D in 2017, by the Netherlands (nearly 490 kg). In 2018, Belgium followed by communicating MAPA seizures through PICS of more than 550 kg. In all incidents in Belgium and the Netherlands for which the origin of the MAPA was provided, China was reported as the alleged origin; the destination was mostly the Netherlands, although Belgium, Bulgaria, Spain and the United Kingdom were mentioned as well. One consignment had transited through Turkey. The majority of shipments had been mislabelled and/or

<sup>36</sup>Ibid., p. 52.

**Figure VII. Incidents involving APAAN, APAA and MAPA communicated through the Precursors Incident Communication System, 2012–2018**



<sup>a</sup>First 10 months of 2018.

misdeclared. Individual seizures ranged in size from 1 kg to more than 500 kg.

123. Additional considerations related to the evolution in the occurrence of non-scheduled chemicals, including “designer” precursors, are discussed in chapter IV, together with possible ways to address the proliferation of those chemicals at the global level.

### *P-2-P methyl glycidic acid derivatives*

124. Methyl glycidic acid derivatives are purpose-made chemicals that can be converted into P-2-P at an approximate ratio of 2 to 1. Such derivatives have been seized on a regular basis in Belgium and the Netherlands. To date, the only seizures that have occurred outside Europe were reported by Lebanon in 2016. In 2017, seizures in Belgium amounted to more than 4 tons of the methyl ester of P-2-P methyl glycidic acid; during the same year, the Netherlands seized 1,625 kg. Both Belgium and the Netherlands communicated those seizures through PICS in real time. Incidents in both countries continued to occur in 2018 and often involved seizures at illicit laboratories or warehouses. Those seizures also included APAA and other “designer” chemicals, suggesting that multiple drugs were being manufactured at the same site.

125. It is worth noting that P-2-P methyl glycidic acid derivatives appear to be encountered less frequently than 3,4-MDP-2-P methyl glycidic acid derivatives, whose use in the illicit manufacture of MDMA corresponds to that of

P-2-P methyl glycidic acid derivatives in the illicit manufacture of amphetamine (see paras. 146–149 below). This probably has to do with the availability of alternatives such as APAA, which may currently be even more easily accessible than P-2-P methyl glycidic acid derivatives.

### *Benzaldehyde, nitroethane and 1-phenyl-2-nitropropene*

126. On form D for 2017, several countries reported seizures of benzaldehyde and nitroethane, and/or 1-phenyl-2-nitropropene, key chemicals used in the illicit manufacture of P-2-P and, subsequently, methamphetamine or amphetamine by means of the nitrostyrene method.

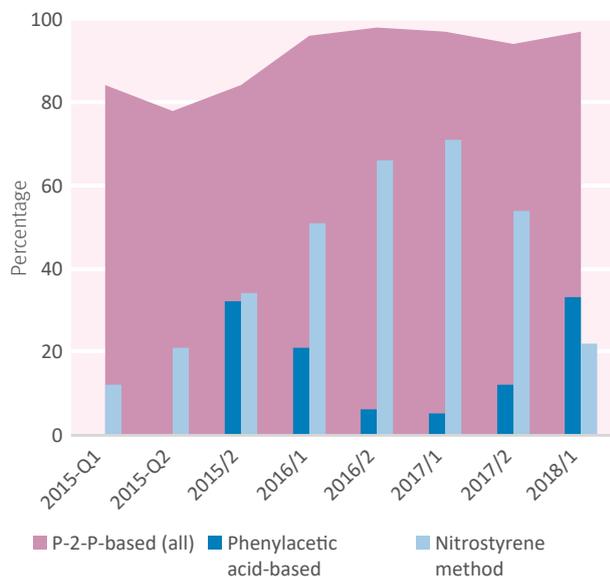
127. The United States reported the largest amount of benzaldehyde seized, nearly 18,500 litres. Ninety-five per cent of that volume was seized in a single incident. The initial reason for the seizure was the lack of trans-shipment documents en route to Haiti. Investigations then revealed that the shipment was to be redirected to a port in Mexico. At that port, an additional 2,000 litres were seized, in two incidents. Within Mexico, a total of about 2,200 litres was seized in two clandestine methamphetamine laboratories. Seizures of benzaldehyde in excess of 500 litres were also reported by Argentina. Reported seizures of nitroethane did not exceed 90 litres in any of these countries. In Germany and Poland, indications were found that the nitrostyrene method was being used in the illicit manufacture of amphetamine.

128. 1-Phenyl-2-nitropropene is the product of the chemical reaction between benzaldehyde and nitroethane. When it is seized in illicit laboratories, it may have been a starting material diverted to serve as such from a legitimate source, or it may be an in-process intermediate produced illicitly in the synthesis of P-2-P. In 2017, seizures of 1-phenyl-2-nitropropene were reported by Estonia, Mexico and Ukraine, and authorities of two of those three countries suggested it was an in-process intermediate.

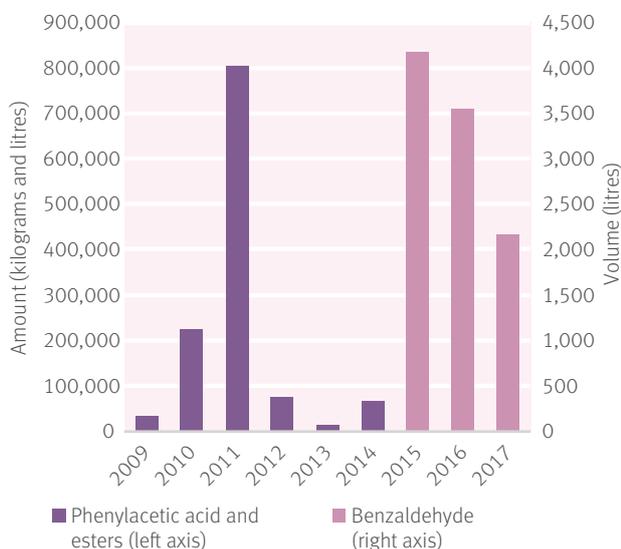
129. In Mexico, the use of the nitrostyrene method for the illicit manufacture of methamphetamine appears to have increased gradually since it broke even with the traditional method (which starts from phenylacetic acid and its esters) in the second half of 2015 (see figure VIII). That conclusion is based on samples analysed as part of the forensic profiling programme of the Special Testing and Research Laboratory of the Drug Enforcement Administration of the United States. However, this increase appears to have been halted and even reverted in the second half of 2017, while a concomitant increase in the number of methamphetamine samples manufactured from or via phenylacetic acid

occurred simultaneously. In line with this, for the first time since 2011, Mexico reported on form D for 2017 significant seizures of almost 20 tons of phenylacetic acid (see para. 104 above). By contrast, there were no seizures of esters of phenylacetic acid in North America. Esters of phenylacetic acid had been the preferred starting materials for the illicit manufacture of methamphetamine in Mexico from approximately 2009 (see figure IX).

**Figure VIII. Methods used in the illicit manufacture of methamphetamine, as determined by the forensic profiling of methamphetamine samples from the United States of America and Mexico submitted for analysis, 2015–2018**



**Figure IX. Seizures of phenylacetic acid and its esters, and of benzaldehyde, reported by Mexico on form D, 2009–2017**



### *Other chemicals not under international control that were seized in relation to the clandestine manufacture of amphetamine or methamphetamine*

130. Similar to previous years, other chemicals not under international control but frequently reported on form D for 2017 were those associated with the illicit manufacture of methamphetamine using ephedrines-based methods, such as the so-called Nagai method and modifications thereof. Those included iodine and red phosphorous, as well as their alternate chemicals, such as hydriodic acid and hypophosphorous acid. Countries that reported seizing one or more of those chemicals included Austria, Czechia, Malaysia, Mexico, the Netherlands, New Zealand, Poland, Portugal, Slovakia, Spain, Sweden and the United States. Seizures of hypophosphorous acid in clandestine methamphetamine laboratories in Mexico suggest that there might still be some limited ephedrines-based manufacture in that country.

131. Incidents involving these chemicals continued in 2018 and included a seizure of 7,000 litres of hypophosphorous acid in the Netherlands, an amount that indicates that there may be illicit manufacture of methamphetamine present in that country and that its scale may be substantial. Also, in May 2018, New Zealand seized 3,024 litres of hypophosphorous acid, the largest in police history. The seizure came after multiple years of investigations during which the amounts being imported and distributed were assessed. It is estimated that between 1.5 and 2.3 tons of methamphetamine could have been manufactured from this quantity of hypophosphorous acid.

132. Seizures of non-scheduled chemicals that can be used in the illicit manufacture of P-2-P via APAAN or phenylacetic acid were reported by Belgium, Brazil, Mexico and the Netherlands. Belgium seized 100 kg of benzyl cyanide originating in China and destined for the Netherlands. Mexico reported seizures of significant amounts of 2-phenylacetamide (6,475 kg), benzyl cyanide (5,450 litres) and its precursor, benzyl chloride (4,627 litres). Incidents continued to occur in 2018 and included a seizure of nearly 50,000 litres of benzyl chloride at the seaport of Manzanillo in Mexico. The consignment was seized after physical inspection of the cargo because the consignee did not have the required permits. The containers had earlier been trans-shipped via the United States and Panama.

133. Seizures of significant amounts of sodium cyanide, a chemical needed to convert benzyl chloride into benzyl cyanide, are regularly reported from the border area between Thailand and Myanmar, although the actual use

of the chemical in the illicit manufacture of methamphetamine in the area has not been established. Seizures of sodium cyanide have also been reported by the United States, although typically in connection with the illicit manufacture of phencyclidine.

134. Unlike several years ago (approximately 2010–2014), when seizures of esters of phenylacetic acid were regularly reported, in particular by countries in North and Central America, only one seizure of methyl phenylacetate was reported on form D for 2017, by the Netherlands, of 458 kg, seized from a mail cargo facility. The incident had previously been communicated through PICS.

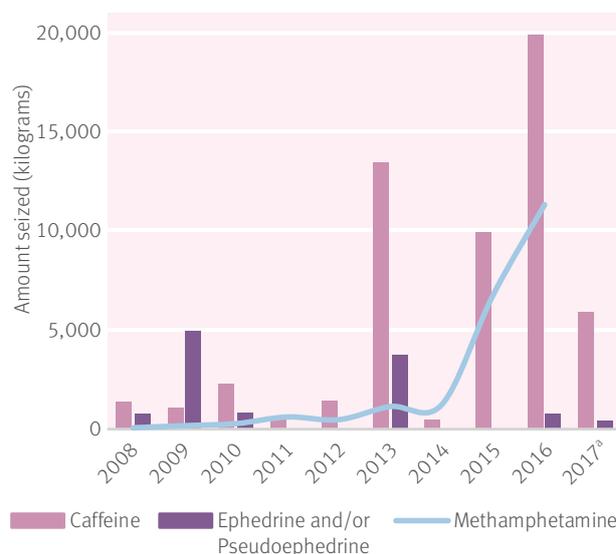
135. A number of other chemical reagents are required in the manufacture of various drugs. Seizures of those chemicals are therefore indicative of illicit drug manufacture and the chemicals are often diverted to the same clandestine laboratory locations as controlled precursors are. Mexico is the country that has most frequently reported seizures of tartaric acid, a chemical that is used to increase the potency of methamphetamine manufactured using P-2-P-based methods. Mexico started reporting seizures in 2009, when it prohibited imports of ephedrine, and P-2-P-based methods started dominating the illicit manufacture of methamphetamine. Annual seizures of tartaric acid have ranged from 2.8 tons (2014) to 60 tons (2011) and more recently have ranged from 5 to 6 tons. In 2017, the amount of tartaric acid seized in individual methamphetamine laboratory incidents ranged from less than 10 kg to 850 kg. As with other chemicals, determination of the source is complicated by the absence of labels on the containers seized in illicit laboratories. However, the more basic chemicals are assumed to be sourced domestically.

136. Seizures of adulterants are also important indicators of illicit drug manufacture. Caffeine, an adulterant known to be used in connection with the illicit manufacture of methamphetamine, has regularly been reported seized on form D, typically by countries in East and South-East Asia. Caffeine is a major ingredient in so-called “yaba” tablets encountered widely in that region. Caffeine accounts for 70 to 75 per cent of the weight of an average “yaba” tablet.

137. A number of countries reported seizures of caffeine on form D for 2017. Myanmar reported the largest seizures in recent years, with nearly 20 tons in 2016 and 6 tons in 2017. The authorities believe that the caffeine is entering Myanmar from Chiang Rai province in Thailand or along the Mekong river from the Lao People’s Democratic Republic. While seizures of ephedrines in Myanmar do not show any discernible trend, seizures of caffeine appear to correlate with seizures of methamphetamine. This shows that, to counter the illicit manufacture of

drugs, it may be useful to monitor ingredients and materials other than precursors, as provided for by article 13 of the 1988 Convention.

**Figure X. Seizures of methamphetamine, methamphetamine precursors and caffeine in Myanmar, 2008–2017**



<sup>a</sup>Methamphetamine seizure data not available.

Source: Form D, the 2016 annual report on narcotics control of the Central Committee for Drug Abuse Control of Myanmar, and raw data underlying the *World Drug Report 2018* (<https://data.unodc.org/drugs/seizures>).

## 2. Substances used in the illicit manufacture of 3,4-methylenedioxyamphetamine and its analogues

138. In 2017, as before, there was no evidence that controlled precursors were being used in the illicit manufacture of MDMA and related substances to any significant extent. This applies to all four MDMA precursors under international control: the immediate precursor, 3,4-MDP-2-P, and its precursors piperonal, safrole and isosafrole. At the same time, a number of “designer” precursors, in particular derivatives of 3,4-MDP-2-P methyl glycidic acid, have been reported seized, in particular in Europe (see paras. 146–149 below).

### (a) 3,4-Methylenedioxyphenyl-2-propanone and piperonal

#### *Licit trade*

139. Piperonal is the most widely traded of the four MDMA precursors, while international trade in 3,4-MDP-2-P is nearly non-existent. Between 1 November 2017 and

1 November 2018, 16 exporting countries and territories notified the authorities of 47 importing countries and territories of more than 750 proposed exports of piperonal amounting to more than 2,700 tons. There was only one pre-export notification for 3,4-MDP-2-P, which involved a significant amount and was objected to by the authorities of the importing country.

### Trafficking

140. On form D for 2017, two countries, Bulgaria and the Netherlands, reported seizures of 3,4-MDP-2-P in amounts above 5,000 litres. INCB understands that these reports may in fact refer to the same consignment, which was subject to a controlled delivery between the two countries. That consignment initially originated in the Lao People's Democratic Republic. It transited Viet Nam by truck to the port of Haipong. From Haipong it went to Greece by sea and then arrived in Bulgaria. Investigations into this incident are still ongoing, both with regard to the actual origin of the chemical in South-East Asia, which may have been different from the origin of the consignment, as well as with regard to the consignee(s) in Europe.

141. In other countries, aggregate annual seizures of 3,4-MDP-2-P remained negligible. Seizures of piperonal were insignificant.

## (b) Safrole, safrole-rich oils and isosafrole

### Licit trade

142. Between 1 November 2017 and 1 November 2018, six exporting countries sent 33 pre-export notifications through the PEN Online system for safrole and safrole-rich oils to the authorities of 12 importing countries. Those notifications concerned a total volume of more than 1,200 litres, including 220 litres in the form of safrole-rich oils. There were no pre-export notifications for isosafrole.

### Trafficking

143. The Netherlands was the only country that reported notable seizures of safrole and safrole-rich oils on form D for 2017. They amounted to almost 3,000 litres in five incidents, of which 2,875 litres were seized in a single incident. In the same incident, significant amounts of other chemicals were seized, including more than 40,000 litres of formamide, which is indicative of the Leuckart method. The incident involved containers and labels similar to those found in another seizure of safrole-rich oils that took place at an illicit laboratory in December 2016. Investigations are ongoing to establish the exact nature of the link between the two incidents, which occurred within 11 months of each other.

144. Seizures of safrole and safrole-rich oils continued to be communicated through PICS in the first 10 months of 2018. The communications included information about the first MDMA laboratory dismantled in the Philippines. No seizures of isosafrole were reported on form D for 2017, nor was any incident communicated through PICS.

145. The availability of non-scheduled substitutes for safrole and safrole-rich oils for use in the illicit manufacture of MDMA and related substances explains the absence of significant seizures of controlled precursors in Europe, but there is not enough information to determine whether the same applies for the rest of the world, in particular countries in East and South-East Asia. The region has long faced the illegal clearing of trees of the *Cinnamomum* genus, which are rich in safrole oils. The current situation in that region can only be assessed from anecdotal information, as information reported on form D has been incomplete (see table in chap. II, sect. C, above, and annex III). **INCB notes that there are difficulties in its communication with several countries, in particular in South-East Asia. It reminds all countries that investigations into seizures and the sharing of information about modi operandi with each other and INCB are critical elements of international precursor control, as they help to identify points of diversion and prevent future diversions.**

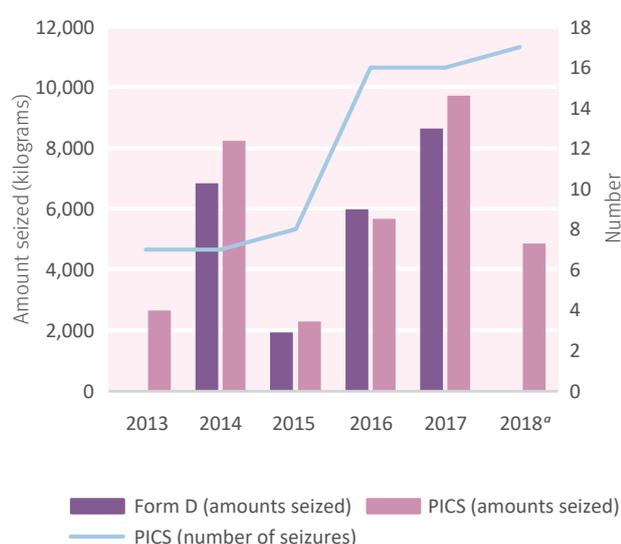
## (c) Use of non-scheduled substances and other trends in the illicit manufacture of 3,4-methylenedioxymethamphetamine and its analogues

146. It has often been suggested that the availability of non-scheduled "designer" precursors that substitute for controlled MDMA precursors has contributed to the increase in potency, or strength, of MDMA tablets (commonly known as "ecstasy" tablets) currently seen on illicit markets. It has been suggested that these substitutes are not only cheaper than the safrole or safrole-rich oils previously trafficked for the same purpose, but, being solid, they are also easier to ship. This may have been, and may continue to be, one of the reasons why they have gone unnoticed by enforcement authorities in some regions.

147. From 2014 to 2017, between three and five Governments reported seizures of non-scheduled substitutes of 3,4-MDP-2-P on form D every year. Incidents have been communicated through PICS since 2013, and both the number of incidents and the amounts communicated were often larger than those reported on form D. In 2017, seizures of non-scheduled substitutes of 3,4-MDP-2-P continued to be made exclusively in countries in Europe. They mainly involved derivatives of 3,4-MDP-2-P

methyl glycidic acid, i.e., “designer” precursors that are not usually available off the shelf.<sup>37</sup> Individual incidents often involved several tons, for example in the Netherlands and Spain. Where border seizures were made and information was available, the alleged origin of the chemicals was China. Seizures of non-scheduled substitutes of 3,4-MDP-2-P continued to be made at a comparable rate in the first 10 months of 2018 (figure XI). INCB is aware that such seizures were also made in Canada in 2018.

**Figure XI. Seizures of substitutes of 3,4-MDP-2-P communicated through the Precursors Incident Communication System and reported on form D, 2013–2018**



<sup>a</sup>First 10 months of 2018; no form D data available.

#### Box 2. National High Court judgment in Spain in 2017<sup>a</sup>

In Spain, the National High Court sentenced two individuals to three years' imprisonment and fines for crimes posing a threat to public health after they had been found guilty of importing 3,4-MDP-2-P methyl glycidate, a pre-precursor to MDMA, from China into Spain and then shipping it to the Netherlands. At the time of writing, an appeal was pending before the Supreme Court.

Since the relevant provision of the Penal Code made express reference only to substances listed in the 1988 Convention, the Court had to determine whether that provision was applicable to unlisted pre-precursors.

Nonetheless, the provision also made reference to manufacturing, transporting, distributing, trading in and possessing equipment and materials used to produce listed substances, thus also criminalizing preparatory acts.

The Court found that 3,4-MDP-2-P methyl glycidate, as a pre-precursor, was a material required to produce an illegal substance. On those grounds, the Court ruled that 3,4-MDP-2-P methyl glycidate was subject to the relevant provision relating to crimes posing a threat to public health.

<sup>a</sup>National High Court of Spain (*Audiencia Nacional*), criminal division, section 2, sentence 12/2017 of 12 June 2017.

<sup>37</sup>In November 2018, INCB recommended the international scheduling of 3,4-MDP-2-P methyl glycidic acid and its methyl ester.

148. It is clear from information available to INCB that the proliferation of non-scheduled chemicals, especially “designer” chemicals and series of chemically related substances, is a challenge for Governments (see also chapter IV). The so-called “catch-all” clause in the European Union precursors regulation allows authorities to prohibit the entry of non-scheduled chemicals into the customs territory of the European Union or their departure from it where there is sufficient evidence that those substances are intended for the illicit manufacture of narcotic drugs or psychotropic substances. However, as the clause has yet to prove its effectiveness in practice, **INCB encourages the Governments of States members of the European Union and other countries to share successful national approaches to addressing the proliferation of non-scheduled chemicals and “designer” precursors, including those that have no recognized legitimate uses.**

149. In addition to 3,4-MDP-2-P methyl glycidic acid derivatives, helional is a notable substitute in the illicit manufacture of MDMA-type drugs. Helional was reported by the Netherlands on form D for 2017. This is the first such report in Europe, as all three previous seizures were reported by Canada, starting in 2014.

### 3. Other trends in the illicit manufacture of amphetamine-type stimulants

#### *Methylamine*

150. Seizures of methylamine in the form of both solutions and methylamine hydrochloride continued to be reported. Methylamine is a versatile chemical that is controlled in many countries, mainly owing to its use in the illicit manufacture of methamphetamine and MDMA. It is also required in certain manufacturing methods for ephedrine, and for a number of new psychoactive substances.

151. Mexico, Honduras, the Netherlands and the United States, in that order, reported the most significant seizures in 2017. In Honduras, about 5,000 kg (in 200 bags) were seized en route to Puerto Barrios, Guatemala. Information about the origin was not provided. In the United States, in a single incident, 1,000 kg of methylamine hydrochloride was seized in transit from China to Canada because the shipper had failed to file an advance notice of importation for trans-shipment as required under United States law. In addition, the importing company in Canada had previously been identified as a source supplying precursor chemicals to a clandestine laboratory, also in Canada.

152. Seizures in Mexico amounted to nearly 900 kg and more than 13,000 litres, and were effected in 12 clandestine methamphetamine laboratories. In the majority of cases, the labels on the containers had been removed, thus making it difficult to determine the origin. The Netherlands made seizures of solid methylamine hydrochloride that amounted to nearly 5 tons in nine incidents. No information on possible sources or points of diversion was provided.

153. Mexico also continued to report seizures of chemicals from which methylamine can be manufactured illicitly. In 2017, authorities seized more than 10,500 litres of formaldehyde and nearly 20 tons of ammonium chloride.<sup>38</sup> Both chemicals were seized in clandestine methamphetamine laboratories.

#### *Hydrogen gas*

154. Germany continued to report thefts of steel gas cylinders containing compressed hydrogen gas, which can be used as a reducing agent in the illicit manufacture of a number of synthetic drugs. The stolen hydrogen was presumed to have been used in the illicit manufacture of amphetamine. Seizures of hydrogen cylinders also continued to be reported by the Netherlands.

<sup>38</sup>From 10,500 litres of formaldehyde, about 1,700 kg of methylamine hydrochloride can be produced.

#### *Other substances not under international control*

155. The Netherlands, Poland and Spain reported seizures of formamide, formic acid and/or ammonium formate on form D for 2017. These chemicals are associated with the so-called Leuckart method, which can be used to illicitly manufacture amphetamine and methamphetamine from P-2-P, or for MDMA and related substances, from 3,4-MDP-2-P.

156. Seizures continued to be made of “designer” precursors in the form of masked derivatives of amphetamine-type stimulants. Specifically, the Netherlands reported a seizure of 25 kg of *N-tert*-butoxycarbonyl-MDMA (*t*-BOC-MDMA), down from 123 kg in 2016.

## B. Substances used in the illicit manufacture of cocaine

### 1. Potassium permanganate

#### *Licit trade*

157. Potassium permanganate is used as an oxidizing agent in illicit cocaine processing. At the same time, it is widely used in organic chemistry, as a disinfectant and for water purification, and hence is widely traded internationally. From 1 November 2017 to 1 November 2018, the authorities of 31 exporting countries sent more than 1,500 pre-export notifications for shipments of potassium permanganate to importing countries, a situation similar to the preceding reporting period. Those shipments were destined for 124 importing countries and territories and involved a total of more than 25,500 tons of potassium permanganate. The three coca-producing countries in South America, Bolivia (Plurinational State of), Colombia and Peru, continued to account for a very limited proportion of that trade (roughly 1.4 per cent). The imports by other countries in South America amounted to 1,300 tons (around 5 per cent of global trade). None of those countries exported or re-exported potassium permanganate in any significant amounts.

#### *Trafficking*

158. The situation with potassium permanganate and other cocaine precursors in South America remains unclear, especially with regard to its sources. The two main sources of the potassium permanganate used for illicit purposes appear to be diversion from licit domestic distribution channels and subsequent smuggling to illicit processing sites either within the same country or across subregional borders, and illicit manufacture. However, the

Board has received insufficient information to assess what the actual sources of potassium permanganate in illicit markets are. Furthermore, INCB is unaware of any back-tracking investigations into the origins of seized potassium permanganate.

159. In 2017, as in past years, a significant proportion of global seizures of potassium permanganate continued to be reported by coca-producing countries. On form D for 2017, the Plurinational State of Bolivia reported seizures of nearly 1,725 kg; an additional 676 kg were seized for administrative reasons. Colombia reported nearly 400 seizures amounting to almost 98 tons,<sup>39</sup> all of which had originated within the country. However, it remained unclear what proportion of the seized potassium permanganate had been illicitly manufactured.

160. Of the remaining countries in South America, only Argentina reported a notable seizure, of 2,650 kg of potassium permanganate. This was the largest amount ever reported by that country. However, no further details were provided, and the origin of the consignment was not known. The amount reported seized in the Bolivarian Republic of Venezuela more than tripled compared with 2016, to 660 kg. No information was available from Peru.

161. Given the recent increases reported in global cocaine manufacture, **INCB encourages Governments of countries concerned in the Americas to devise, individually or through the mechanisms of the Inter-American Drug Abuse Control Commission, appropriate strategies to fill gaps in current knowledge about trafficking trends and modi operandi used by traffickers to obtain potassium permanganate. In addition, INCB again calls on those Governments to review their domestic control mechanisms, in particular the requirements to declare the end use of potassium permanganate, and any thresholds that may be exploited by traffickers. The INCB Precursors Task Force stands ready to support any activities in this area.**

## 2. Use of non-scheduled substances and other trends in the illicit manufacture of cocaine

162. In addition to potassium permanganate, most countries in Central and South America have a variety of other chemicals under national control that are known to

<sup>39</sup>According to the Colombian authorities, this amount included administrative seizures following which the potassium permanganate may have been returned to the owner. On form D, the authorities also clarified that the information provided was based on field testing and measurement only.

have been used in the illicit manufacture of cocaine. Consequently, many of those countries report seizures of those chemicals on form D, such as common acids and bases, oxidizing agents, solvents used for the extraction of cocaine base from coca leaves and for the conversion of cocaine base into cocaine hydrochloride, and precursors of and substitutes for potassium permanganate. In most cases where such information was provided, the chemicals were reported to have come from domestic sources.

### *Precursors of and substitutes for potassium permanganate*

163. In 2017, Colombia seized nearly 1.9 tons of potassium manganate, an immediate precursor of potassium permanganate. Its reported origin was Colombia. However, given the sequence of manufacture, the seized potassium manganate itself may also have been illicitly manufactured from manganese dioxide. No seizures of manganese dioxide were reported in 2017.

164. The Plurinational State of Bolivia reported seizures of 560 litres of nitric acid, down from 845 litres in 2016. A portion of those seizures was made in illicit cocaine laboratories, where nitric acid is allegedly used as a substitute oxidizing agent in the first stages of the cocaine manufacturing process. Another portion was seized for various administrative reasons, such as transportation without authorization.

165. On form D for 2017, only Argentina reported seizures of sodium hypochlorite, another substitute for potassium permanganate in the purification of coca paste. Seizures amounted to 1,440 litres, about the same as in 2016. The Plurinational State of Bolivia, which had previously seized sodium hypochlorite in amounts between 10,000 and 30,000 litres on a regular basis, did not report any seizures in 2017.

### *Other substances not under international control, and trends in the illicit manufacture of cocaine*

166. As to other cocaine precursors not under international control, fewer countries than in previous years reported seizures on form D for 2017, with rare exceptions. The seizures that were reported were for fewer substances and smaller amounts. This could be a reporting issue, although shifts in law enforcement attention may have contributed.

167. With regard to chemicals used in the extraction of cocaine base from coca leaves, Colombia reported seizures in 2017 of nearly 82,000 litres of ammonia. The Plurinational State of Bolivia seized more than 1.6 tons of urea, although it did so in part for administrative reasons.

A similar amount was seized in clandestine laboratories in the Bolivarian Republic of Venezuela.

168. Seizures of other chemicals indicate that the illicit processing of cocaine is becoming more sophisticated and efficient. Sodium metabisulfite is a reducing agent used to standardize the oxidation level of cocaine base sourced from various extraction laboratories prior to further processing. It has regularly been reported on form D since 2008. In 2017, seizures were reported by Colombia (47 tons), the Plurinational State of Bolivia (7.5 tons, of which more than 75 per cent was seized in illicit cocaine laboratories), and the Bolivarian Republic of Venezuela (1.7 tons, seized in illicit laboratories).

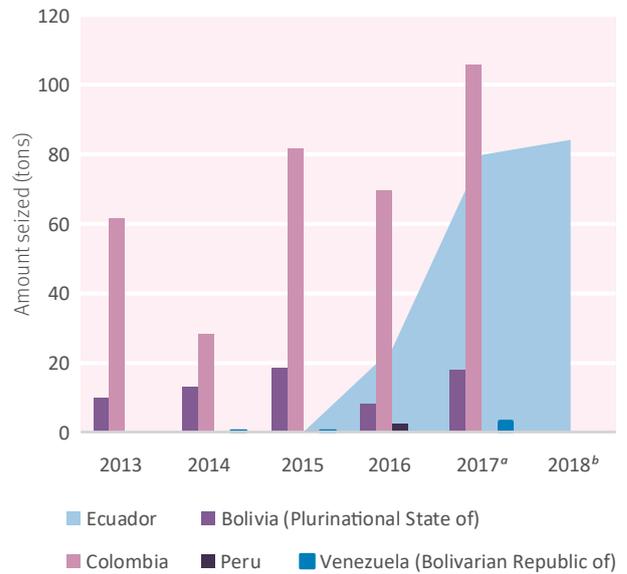
169. Seizures of calcium chloride, a drying agent for solvents, also continued to be reported on form D for 2017 (see figure XII). The Plurinational State of Bolivia reported seizures of more than 18 tons of calcium chloride. About half of those were made in raids of illicit cocaine laboratories, while the other half were made for administrative reasons, such as failure to obtain authorizations or transportation documents. In Colombia, seizures of calcium chloride amounted to more than 105 tons, up from 70 tons in 2016.

170. While both the Plurinational State of Bolivia and Colombia have regularly reported significant, multi-ton seizures since 2013, Ecuador appears to emerge as the third country affected by the large-scale smuggling of calcium chloride for use in illicit cocaine laboratories. Reported seizures in that country increased from less than 100 kg in 2015, to 24 tons in 2016 and 80 tons in 2017. Information provided by the Government of Ecuador suggests that seizures in the first 10 months of 2018 already exceeded 80 tons. Most seizures were made on highways. The calcium chloride originated in Peru and was destined for Colombia for use in the illicit manufacture of cocaine. This contrasts with the information received from other countries, which usually did not specify the origin of the calcium chloride they had seized. Where they did, the origin was recorded as being domestic. Backtracking investigations into the seizures made in Ecuador appear to be difficult to conduct because calcium chloride is not controlled in Peru and, consequently, law enforcement authorities have taken no further action.

171. The situation with regard to seizures of solvents and acids required for cocaine processing remained largely unchanged. Significant seizures of solvents, whether included in Table II of the 1988 Convention or not, continued to be reported by countries in South America. Most seized solvents not included in Table II were acetate solvents used in the final crystallization step,

when cocaine base is converted into cocaine hydrochloride (see figure XIII). Solvents and acids were typically obtained from domestic sources.

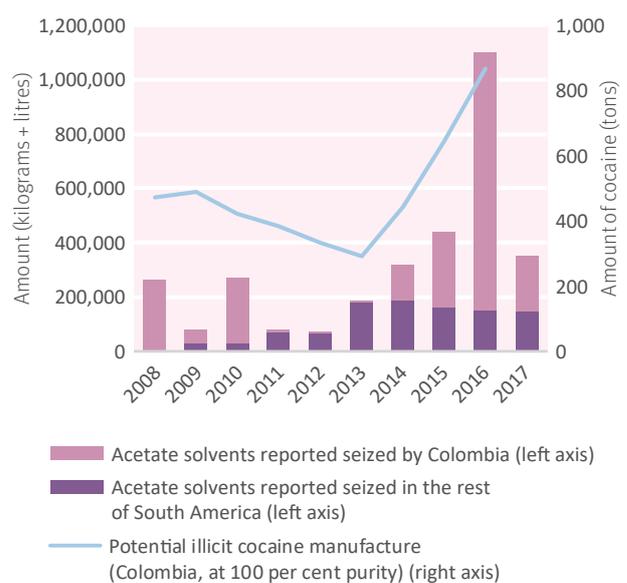
**Figure XII. Seizures of calcium chloride in South America reported by Governments on form D, 2013–2017, and by the Government of Ecuador, 2018**



<sup>a</sup>For 2017, no data were available for Peru.

<sup>b</sup>First 10 months of 2018.

**Figure XIII. Acetate solvents reported seized by countries in South America on form D, 2008–2017, and potential manufacture of cocaine in Colombia, 2008–2016<sup>40</sup>**



<sup>40</sup> *World Drug Report 2018: Global Overview of Drug Demand and Supply—Latest Trends, Cross-Cutting Issues* (United Nations publication, Sales No. E.18.XI.9 (Booklet 2)), p. 53.

172. In terms of geographic spread, there are indications that coca paste (or cocaine base) is increasingly being trafficked and converted into cocaine hydrochloride outside Colombia, in particular in countries in Central and South America. This may in part be brought about by organized criminal networks' gaining greater control over the manufacturing process from start to end and using increasingly sophisticated methods to illicitly manufacture cocaine. For the same reasons there could be changes in the *modi operandi* for the supply of potassium permanganate and other required chemicals.

## C. Substances used in the illicit manufacture of heroin

### 1. Acetic anhydride

173. Acetic anhydride is a key precursor of heroin and a frequently and widely traded chemical that is included in Table I of the 1988 Convention. Acetic anhydride is required not only in the illicit manufacture of heroin, but also in certain P-2-P-based methods used in the illicit manufacture of amphetamine and methamphetamine (see annex VIII).

174. The Board has noted a sharp increase in the demand for acetic anhydride for illicit purposes that started early in 2016, in particular in the European Union. The increase manifested in three ways. Firstly, legitimate chemical trading and distribution companies received an unprecedented number of queries from dubious physical and legal persons about the supply of acetic anhydride. Secondly, through the PEN Online system, importing countries objected to a number of shipments of acetic anhydride purportedly destined for unauthorized companies in their territories. Thirdly, an increasing number of seizures of acetic anhydride have been communicated through PICS.

175. The global upsurge in the number of attempts to divert acetic anhydride continued throughout 2016 and culminated around mid-2017. Since then, attempts by traffickers to source the substance from domestic and international distribution channels have gradually decreased in number, in particular in the European Union, although they did not stop completely. However, suspicious requests for supplies of acetic anhydride continued to be posted on certain online trading platforms. One reason for the decrease in the number of diversion attempts could be that traffickers have succeeded in diverting and stockpiling sufficient amounts for further trafficking to heroin manufacturing regions. That hypothesis appears to be supported by the fact that seizures of acetic anhydride of suspected

European origin continued to be made in Europe and West Asia in 2017 and 2018. In addition to countries in Europe, Japan emerged as a potential new target of acetic anhydride traffickers in 2017.

### *Licit trade*

176. From 1 November 2017 to 1 November 2018, authorities of 23 exporting countries and territories used the PEN Online system to submit more than 1,900 pre-export notifications regarding shipments of acetic anhydride. The shipments were destined for 84 importing countries and territories and involved a total of 611 million litres of acetic anhydride.<sup>41</sup> About 15 per cent were objected to by the authorities of the importing countries, mostly for administrative reasons, the same number as in the previous reporting period (1 November 2016–1 November 2017). However, contrary to the previous reporting period, the number of shipments objected to through the PEN Online system because of suspected diversion attempts has sharply decreased, indicating a likely return by traffickers to their past *modus operandi*, i.e., diversion from domestic distribution channels.

177. In 2017, notable incidents in licit trade monitored through the PEN Online system included a stopped shipment of 900,000 litres of acetic anhydride from Switzerland to Poland. They also included proposed exports of sizeable amounts of acetic anhydride from the United States to the United Arab Emirates. As the receiving party was not an authorized importer, the authorities of the United Arab Emirates objected to the proposed shipments. **The Board would like to remind Governments of the importance of ensuring that shipments in international legitimate trade that have been stopped or objected to receive the same attention and are investigated in the same manner as seizures, with a view to obtaining actionable intelligence to prevent future diversion elsewhere.**

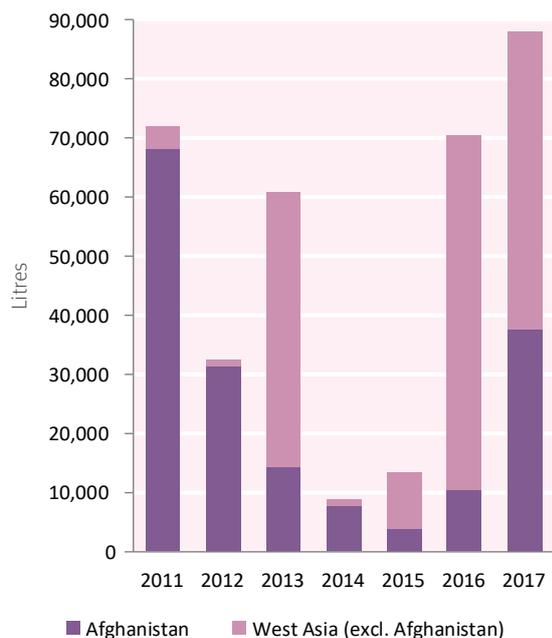
### *Trafficking*

178. According to information provided by Governments on form D for 2017, 20 countries reported seizures of acetic anhydride, amounting to almost 127,000 litres. The largest amount was reported by Afghanistan (37,700 litres), followed by Turkey (23,200 litres) and the Islamic Republic of Iran (20,300 litres). The countries reporting seizures of more than 5,000 litres were Bulgaria (10,600 litres), Mexico (8,600 litres), Japan (7,600 litres), the Netherlands (7,000 litres) and Pakistan (6,900 litres).

<sup>41</sup>This does not include trade among the States members of the European Union.

179. Following a sharp decrease in the amounts of acetic anhydride seized in Afghanistan between 2011 (68,000 litres) and 2015 (3,800 litres), the amounts seized have increased again, tripling in two consecutive years to 10,400 litres in 2016 and 37,700 litres in 2017 (see figure XIV). According to the authorities of Afghanistan, all acetic anhydride seized in 2017, in 13 incidents, had been trafficked through the Islamic Republic of Iran. Preliminary data for 2018, communicated through PICS, suggest that the amount seized in Afghanistan decreased again, although seizures of acetic anhydride with Afghanistan as their suspected destination were also reported elsewhere. **INCB wishes to commend the authorities of Afghanistan for their active sharing of information with counterparts abroad, which has resulted in seizures of acetic anhydride and prosecutions of traffickers elsewhere.**

**Figure XIV. Seizures of acetic anhydride reported by Governments of countries in West Asia on form D, 2011–2017**



180. In Pakistan, seizures of acetic anhydride decreased from 40,000 litres in 2016 to 6,900 litres in 2017; information on the suspected origin was not provided. Seizures communicated through PICS suggest a significant increase in the amount of acetic anhydride seized in 2018; the largest of the seized shipments, amounting to 15.5 tons, originated in Poland.

181. Authorities in the Islamic Republic of Iran seized 20,293 litres of acetic anhydride in 2017 (3 seizures). This represented a minor increase from the 18,520 litres seized

in 2016. The suspected origin or points of departure were China, Taiwan Province of China and Germany.

182. On form D for 2017, the Government of Japan reported a single seizure of 7,647 litres of acetic anhydride that had originated within the country. The only other acetic anhydride seizures reported by Japan date back to 2009, when 8,424 litres were seized in four incidents. At the time, at least one of the trafficking attempts had been facilitated by a national of a West Asian country living in Japan. The shipment in question had been destined for the United Arab Emirates.

183. From 2008 to 2017, the amounts of acetic anhydride seized in Turkey ranged from less than 200 litres in 2011 to more than 14,600 litres in 2013. In 2017, seizures in Turkey increased to 23,238 litres (23 seizures), presumably the result of large-scale diversion in countries in Europe, and subsequent trafficking through Turkey to Afghanistan. To the extent that such information was available, the suspected countries of origin were Belgium, Czechia, Germany, Greece, Iran (Islamic Republic of), the Netherlands and Romania. In 2018, Turkey continued to make seizures of acetic anhydride suspected to have originated in countries in Europe.

184. In China, in the past decade, seizures of acetic anhydride significantly fluctuated, reaching their highest level in 2013 (94,900 litres), and the lowest in 2009 (926 litres). No form D data were available for 2017.

185. In 2016, Taiwan Province of China appeared as a suspected source of acetic anhydride seized in Afghanistan and the Islamic Republic of Iran. INCB is aware of possible links between seizures in the latter two countries, even though the extent of the backtracking investigations was limited. Considering the investigative value of establishing such links, **INCB wishes to encourage the authorities concerned, including the authorities in countries where seizures are made, to further strengthen their cooperation, including by exchanging information in a timely manner, with a view to identifying the criminal organizations involved and preventing future trafficking.**

186. Historically, seizures of acetic anhydride in India have been relatively limited. In 2017, not even 25 litres of acetic anhydride were reported seized in 2 incidents. One of the seizures was linked with the dismantling of a small clandestine heroin laboratory in which a small amount of acetyl chloride was also seized. At the same time, INCB is aware that a number of suspicious requests for supplies of acetic anhydride have been posted on Indian online trading platforms. The authorities of India are currently

### Box 3. Internet-facilitated trade in precursors

In its 2017 report on precursors,<sup>42</sup> INCB voiced its concern about the possible misuse by traffickers of online trading platforms to search for potential suppliers of acetic anhydride. Since then, INCB, in cooperation with several countries and regional intelligence centres, has gathered further evidence showing that its concern was justified. The same evidence shows that online trading platforms can be good sources of intelligence.

Overall, in the period 2016–2017, there were more than 100 suspicious postings asking for at least 700 tons of acetic anhydride. The suspected buyers were purportedly located in Afghanistan, Iran (Islamic Republic of), Iraq, Pakistan and the United Arab Emirates, countries that have only limited legitimate requirements for the substance or none at all. Suspicious requests for supplies were also found in postings suspected to have originated in European countries including Germany, the Netherlands, and Poland, i.e., alleged source countries of acetic anhydride seized in Europe and West Asia.

In one case, a person suspected of having previously organized trafficking in acetic anhydride and whose whereabouts had been unknown to law enforcement agencies, was later found to have posted a request for the supply of acetic anhydride on an online trading platform.

In this and similar incidents, INCB has facilitated case cooperation between the countries concerned. This has helped to raise awareness among regulatory and law enforcement authorities of both the challenges and the opportunities presented by suspicious requests for precursors posted on the Internet. INCB is also aware that some countries in which trading platforms are located are taking steps to confront the issue in cooperation with the private sector.

INCB appreciates the efforts Governments are making in cooperation with industry and encourages all parties concerned to cooperate and exchange best practices to ensure that action by one online trading platform, or by one country, does not result in a shift elsewhere, nor in a loss of the Internet as a source of valuable actionable intelligence.

<sup>42</sup>E/INCB/2017/4, chapter IV.

looking into this development. INCB understands that a seizure of almost 10,000 litres of acetic anhydride in October 2018 may have been linked with those efforts.

187. In 2017, Myanmar reported one seizure of 1,318 litres of acetic anhydride whose suspected country of origin was China. It was the only acetic anhydride seizure of notable size reported by Myanmar since 2009. However, the reported amount, although larger than in previous years, was still small when compared with the size of the country's potential illicit opium production, which was estimated at 550 tons in 2017.<sup>42</sup> Converting the potential illicit opium production of Myanmar into heroin would require between 55,000 and 140,000 litres of acetic anhydride.

188. In Mexico, seizures of acetic anhydride increased from 2,900 litres in 2016 to 8,600 litres in 2017. As in the past, acetic anhydride was reported seized in connection with the illicit manufacture of both methamphetamine and heroin. In 2017, eight illicit heroin laboratories were dismantled in Mexico, six in the north-eastern states of Sinaloa and Sonora and two in the state of Guerrero, in the central part of Mexico.

189. In the period 2016–2018, traffickers seeking new suppliers of acetic anhydride targeted several countries in the European Union, including Belgium, Czechia, Germany, the Netherlands and Poland. These countries identified, investigated and/or prevented traffickers' attempts to source acetic anhydride from their legitimate distribution channels. For example, in 2017, Belgium prevented the delivery of 3,000 litres of acetic anhydride to a company in Suriname that had previously appeared in investigations related to ergot alkaloids in the Netherlands. Belgium also reported a seizure of 1,836 litres of acetic anhydride destined for the Islamic Republic of Iran. In

<sup>42</sup>World Drug Report 2018: Global Overview of Drug Demand and Supply (Booklet 2), pp. 28 and 44. The estimates cover only the states of Shan and Kachir.

**Box 4. Perceived deficiencies in precursor control that may have facilitated the large-scale diversion of acetic anhydride in the period 2016–2017**

Precursor legislation in most countries requires operators intending to trade in chemicals to register with their competent national authorities. As part of the process, before the registration is granted, the legislation usually requires the applicant's bona fides and/or legitimate needs to be verified. If there are reasonable grounds to believe that the applicant fails to fulfil the criteria, registration can and should be refused. While the criteria may be more or less complex to assess, practical experience has shown that the absence of a criminal record and of previous infringements of precursor legislation should not be considered as sufficient indication of the applicant's integrity.

Nonetheless, recently registered operators appeared to have played a central role in recent diversion cases in Europe, as illustrated by the results of investigations into several seizures of acetic anhydride. INCB understands that the authorities of some countries might face difficulties in refusing questionable registration requests, even against the background of well-known and more intense efforts by traffickers to source acetic anhydride during the period 2016–2017. Reasons include the absence of a criminal record and an inability on the part of competent national authorities to prove to other relevant Government agencies that there are reasonable grounds to doubt the suitability and reliability of the operators. In one particular country, the number of applicants registering as traders in acetic anhydride doubled from 2016 to 2017. That country appeared as a suspected source of acetic anhydride found in Europe and West Asia, including Afghanistan.

INCB is aware of cases in which companies, shortly after registering as precursor operators, applied for authorizations to export acetic anhydride to countries that have limited use for the substance. The names of some of those registered companies or their clients also appeared on jerrycans of acetic anhydride seized elsewhere.

Despite their association with shipments seized and/or objected to by authorities in importing countries, those companies kept their registration as precursor operators and could not be properly investigated and/or prosecuted because authorities could not prove that they had knowingly traded in acetic anhydride destined for the illicit manufacture of drugs. Consequently, although seizures and objections did prevent individual consignments from reaching illicit channels, the companies were able to continue their questionable activities and purchase additional quantities of acetic anhydride elsewhere.

In addition to refusing or revoking registrations and to bringing criminal charges (with the associated difficulty of proving intent), competent national authorities can impose administrative penalties on registered precursor operators that do not fully comply with precursor laws and regulations. The severity of those penalties (or lack thereof) may be one of the reasons why diversion attempts are less frequent in some countries and more frequent in others. For example, in a country that was the suspected source of acetic anhydride, the maximum penalty for infringing precursor legislation was less than \$250. Considering that the price on the illicit market for a litre of acetic anhydride in Afghanistan ranged from \$250 to \$1,200 in 2017, that penalty was hardly dissuasive.

**INCB wishes to encourage Governments to consider the above scenarios and address existing weaknesses in their precursor legislation or its implementation to help to improve the identification, prevention and prosecution of precursor-related crimes.**

Germany, authorities, in cooperation with the private sector, foiled more than 50 diversion attempts for a total of 220,000 litres of acetic anhydride destined for dubious potential buyers in Europe and other regions. Individual purchase requests ranged from 100 to 20,000 litres and were purportedly required for the production of cleaning

products, the treatment of wood or leather and for use in other products. Similar attempts had been reported in 2016 for amounts totalling 53,000 litres. Unlike the previous year, no diversion attempt of acetic anhydride was successful in 2017, according to the authorities. However, since 2016, Germany was reported by some countries in

West Asia as a source country or a country of departure of acetic anhydride seized on their territories.

190. The Netherlands rarely used to report seizures of acetic anhydride. In 2017, however, it reported eight seizures totalling almost 7,000 litres. Some of those seizures were reportedly linked with the illicit manufacture of heroin that appears to have emerged in the country.<sup>43</sup> Although the actual magnitude of illicit operations in the Netherlands is not known, seizures made in Bulgaria in 2017 of morphine that was apparently destined for the Netherlands and/or Poland provides further evidence that the illicit manufacture of heroin may now be located closer to consumer markets. The availability and lower cost of acetic anhydride in Europe might also be contributing factors.

191. Since 2017, several countries have reported incidents in which Poland was a suspected source country. Seizures of acetic anhydride linked to Poland were made in Afghanistan, Bulgaria, Iran (Islamic Republic of), the Netherlands, Pakistan and Turkey. Poland itself seized at

least 8,300 litres of acetic anhydride in its territory in 2017 and 2018. Through the PEN Online system, the authorities of Iraq, Ukraine and the United Arab Emirates objected to proposed exports of sizeable amounts of acetic anhydride from Poland. Through the PEN Online system, INCB is also aware that considerable amounts of acetic anhydride were destined for import into Poland. Although at least one shipment from Switzerland did not materialize (see para. 177 above), there are indications that the importing company in Poland eventually purchased the acetic anhydride from other legitimate sources in the internal market of the European Union.

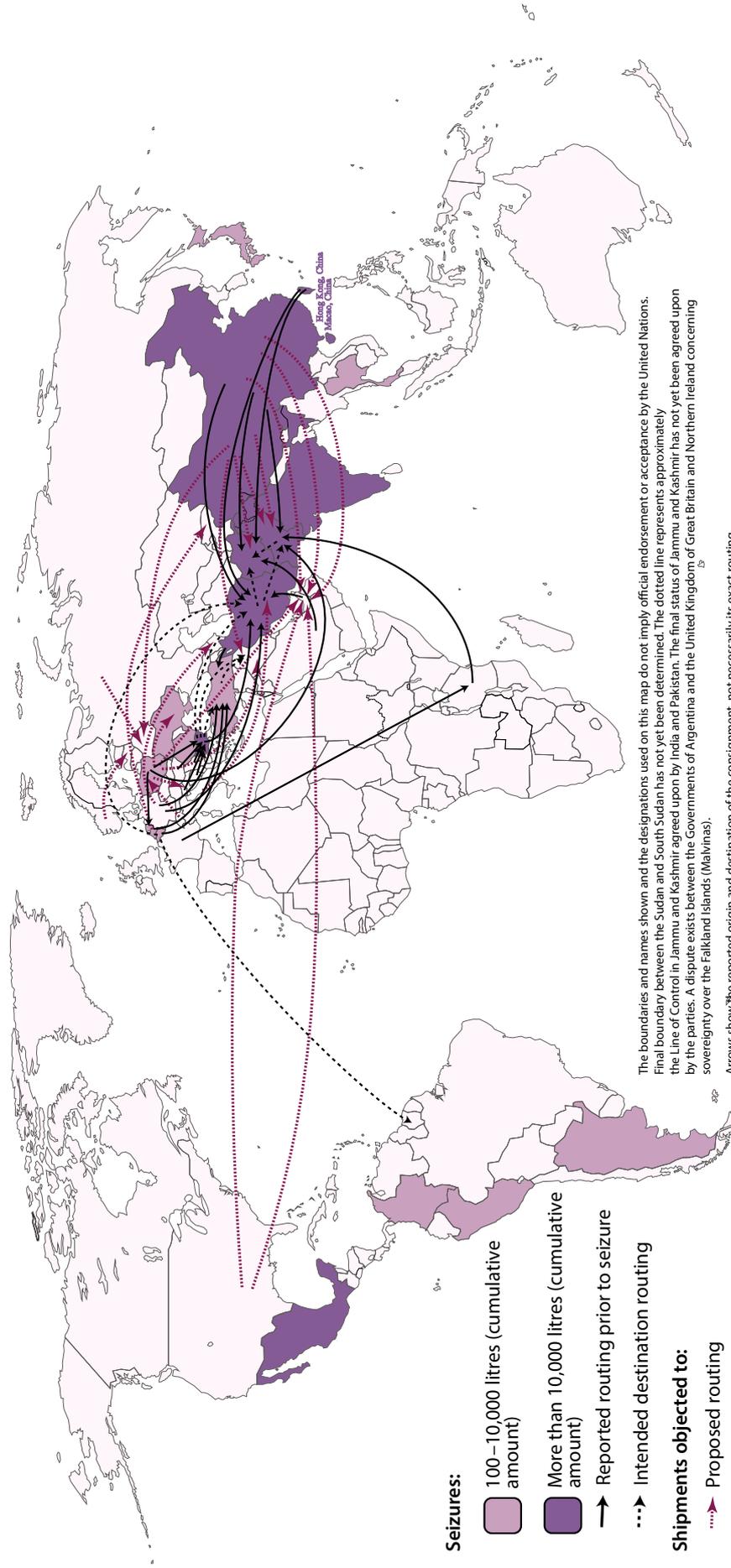
192. Since 2016, suspected countries and territories of origin or departure for acetic anhydride have included, in Europe: Belgium, Bosnia and Herzegovina, Bulgaria, Czechia, France, Germany, Hungary, the Netherlands, Poland, Serbia and Slovenia. Outside Europe they have included China, Taiwan Province of China, Iran (Islamic Republic of), Japan and the United Arab Emirates (see map 2).

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<sup>43</sup>In the past, heroin laboratories have also been reported dismantled in other European countries, in particular in Spain late in 2013 and early in 2014.

**Map 2. Seizures and suspected illicit activities involving acetic anhydride, based on government information provided on form D, through PICS and the PEN Online system, and under Project Cohesion, 2016–2018**

As at 1 November 2018



## 2. Use of non-scheduled substances and other trends in the illicit manufacture of heroin

193. As in previous years, Afghanistan indicated a number of chemicals on form D that are not scheduled internationally, but that are under national control. Among those was ammonium chloride, of which 1.6 tons were encountered at illicit laboratories in five incidents. Both the number of ammonium chloride incidents and the amounts seized fluctuated significantly from one year to another, probably because of large individual seizures. For example, the amount of ammonium chloride reported seized in 2017 was a mere 3.5 per cent of that in 2016 (45 tons).

194. By contrast, seizures of ammonium chloride in Mexico, the only country other than Afghanistan that regularly reports seizing large amounts of ammonium chloride on form D, amounted to nearly 20 tons. This was the second increase since 2016, when Mexico reported the largest amount ever seized up to that point (almost 18 tons). The seizures occurred at illicit laboratories in Mexico where heroin and methamphetamine were being manufactured (see para. 153 above). Neither Afghanistan nor Mexico had information about the origin of the ammonium chloride.

## D. Substances used in the illicit manufacture of other narcotic drugs and psychotropic substances

### 1. Ergot alkaloids and lysergic acid

195. Ergot alkaloids (ergometrine and ergotamine, and their salts) and lysergic acid are the three chemicals in Table I of the 1988 Convention that can be used in the illicit manufacture of LSD. International trade in ergot alkaloids, which are used in the treatment of migraines and as an oxytocic in obstetrics, is limited, as is trade in lysergic acid.

196. Authorities in Italy sought the cooperation of INCB in connection with suspicious exports of ergometrine to Kyrgyzstan. They subsequently stopped the export of 20 kg. In the course of 2017, information that companies in Kyrgyzstan may have been targeted for the diversion of ergot alkaloids had already come to the attention of INCB in connection with suspicious orders placed with companies in the Netherlands. On form D for 2017, authorities in the Netherlands reported stopping the export of 5 kg of ergotamine. However, they did not provide the country of destination. INCB has not been made aware of any investigations into either of those two incidents.

197. Despite attempts to divert ergot alkaloids, very little evidence was reported of any illicit LSD manufacture in 2017, as in past years. Australia reported seizures of nearly 450 grams of ergotamine; about half had originated in Thailand. In addition, the authorities seized almost 3.9 kg of lysergic acid, of which most (in terms of both the amount seized and number of incidents) had originated in European countries, specifically the Netherlands, Poland, Ukraine and the United Kingdom. Seizures in India amounted to almost 350 grams. First-time seizures of small amounts of lysergic acid were also reported by Belarus (0.02 litres) and Georgia (0.03 litres). The United States reported the dismantling of an illicit LSD laboratory.

### 2. N-Acetylanthranilic acid and anthranilic acid

198. N-Acetylanthranilic acid and anthranilic acid can be used for the illicit manufacture of methaqualone, a sedative-hypnotic that is also known under its former brand names “quaalude” and “mandrax”. While there is some international trade in anthranilic acid, trade in N-acetylanthranilic acid continued to be limited to small amounts that were typically intended for analytical and research purposes.

199. Reported seizures of methaqualone and cases of its illicit manufacture are rare and limited to a few countries. No seizures of methaqualone precursors were reported on form D for 2017. An incident involving less than 1 kg of N-acetylanthranilic acid, seized together with about 18 kg of ephedrine at an air cargo complex at the international airport of Cochin, India, was communicated through PICS. The suspected destination was Malaysia. India was also the country with the largest suspected clandestine methaqualone manufacturing operation uncovered in recent years. In the incident, which occurred in November 2016, almost 23.5 tons of loose methaqualone tablets were seized. The tablets had been manufactured in a factory at the Gudli industrial area near Udaipur.<sup>44</sup> Despite the significance of the seizure, INCB was unable to obtain information on the sources, the point of diversion or the modus operandi the traffickers had used to obtain the required precursors. Therefore, **INCB reiterates its request to Governments to make every effort to confirm and provide details of seizures when so requested by the Board. Only by sharing such information can weaknesses in control systems be identified and successfully addressed.**

<sup>44</sup>India, Ministry of Home Affairs, Narcotics Control Bureau, *Annual Report 2016* (New Delhi, n.d.), p. 27.

### 3. Precursors of fentanyl, fentanyl analogues and other synthetic opioids

200. The international scheduling of NPP and ANPP entered into force on 18 October 2017. As at 1 November 2018, six pre-export notifications had been issued for ANPP and seven for NPP. The amounts involved suggested limited research and analytical uses, except in the case of two larger shipments of about 50 kg of ANPP and 60 kg of NPP, respectively.

201. While the so-called opioid crisis lasts, especially in North America, the number of seizures of the required precursors continues to be comparatively low. The illicit manufacture reported is often the final retail processing of smuggled fentanyl and related substances in the regions and countries of final consumption.

202. No seizures of ANPP were reported on form D for 2017. Estonia and the United States reported seizures of NPP; both countries had reported NPP seizures in the preceding year. The United States reported a seizure of 50 kg in May 2017 in what is believed to be the largest seizure of a fentanyl precursor in its north-eastern New England region in recent times. The criminal group associated with it is believed to have illicitly manufactured fentanyl pills marked as 80 mg “OxyContin” in the past. The seizure not only provides evidence that illicitly manufactured fentanyl is being shipped internationally, through postal or courier services; it also provides evidence that the illicit manufacture of fentanyl has moved closer to the areas of consumption. In Estonia, nearly 4.5 kg were seized in two incidents. No further information was provided. INCB is also aware of the dismantling of a mobile fentanyl laboratory in Estonia in 2017, and the seizure of 6 kg of fentanyl and NPP at a storage site associated with the laboratory.

203. Through PICS, INCB is aware of additional incidents involving NPP and ANPP in 2018. One of these was a suspicious enquiry made in France by a purported buyer in the Islamic Republic of Iran for 3 kg of NPP. Eventually, the transaction, which would have involved the sourcing of the NPP in Belgium, did not proceed. In July 2018, after several months of investigations, Royal Canadian Mounted Police dismantled a suspected synthetic opioid laboratory and seized bulk chemicals in Port Coquitlam. At the time of finalization of the present report, INCB had been unable to obtain further details of the incident, in particular on the precursors found and their sources. In India, in September 2018, an illicit laboratory was dismantled where fentanyl was suspected to have been manufactured.

204. There have been reports of trafficking incidents involving analogues of NPP and ANPP, such as methylated

or fluorinated ANPP. There have also been indications of trafficking in potential substitutes for NPP and ANPP. As with the precursors for amphetamine-type stimulants, those substitutes include chemical intermediates in the manufacture of fentanyl and fentanyl analogues (see also chapter IV).

## E. Substances not in Table I or Table II of the 1988 Convention that are used in the illicit manufacture of other narcotic drugs and psychotropic substances or substances of abuse not under international control

### 1. Precursors of *gamma*-hydroxybutyric acid

205. Seizures of GBL continued to be reported on form D for 2017, mostly by countries in Europe. Amounts ranged from 1 litre reported by Hungary to more than 40,000 litres reported by Estonia. In addition to those seizures, Germany reported attempts to purchase GBL intended, allegedly, for different target countries in Europe. The authorities had been alerted by the chemical operators concerned. The GBL had allegedly been intended for the production of cleaning products. Compared to 2016, both the number and volumes involved in individual GBL purchase attempts decreased in 2017.

206. Outside Europe, Australia reported seizures amounting to nearly 555 kg in 164 incidents. China, including Hong Kong, China, was cited as major country of origin, both by number of seizures and by amount seized, followed by Italy (by amount seized) and Lithuania (by number of seizures). Japan reported a small seizure of GBL at an illicit GHB laboratory; the GBL had been diverted from domestic sources. Another country outside Europe that reported seizures of GBL was the United States.

207. Seizures of 1,4-butanediol, a precursor of GBL and a pre-precursor of GHB, have rarely been reported on form D. In 2017, amounts of 200 ml or less were reported by Austria and Finland.

### 2. Precursors of ketamine

208. In its 2018 report on drug control,<sup>45</sup> China reported significant seizures of the two major ketamine precursors, namely “hydroxylimine” (more than 10 tons) and

<sup>45</sup> *Annual Report on Drug Control in China 2018*, p. 24.

*o*-chlorophenyl cyclopentyl ketone (nearly 5 tons). The two substances are intermediates in the manufacture of ketamine. They are not regularly traded legitimately, nor are they typically available off the shelf. As such, they are “designer” precursors of ketamine, similar to APAAN, APAA and the P-2-P methyl glycidic acid derivatives in the context of the manufacture of amphetamine and methamphetamine, and to a number of fentanyl intermediates. The manufacture of the two ketamine intermediates starts from 2-chlorobenzonitrile, a chemical of which 200 litres were reported seized in the Netherlands in 2017.

209. In June 2018, in India, the Directorate of Revenue Intelligence dismantled an international criminal organization involved in the sourcing of raw materials and the illicit manufacture and supply of ketamine. Four manufacturing facilities were dismantled in Goa, Vadodara and Raigad. In addition, a total of 2,000 kg of unspecified raw materials for the manufacture of ketamine were seized, from which, allegedly, about 250 kg of ketamine could have been manufactured.

### 3. Precursors of new psychoactive substances, including substances recently scheduled under the Single Convention on Narcotic Drugs of 1961 or the Convention on Psychotropic Substances of 1971

210. Once again, few seizures of precursors to new psychoactive substances were reported on form D for 2017, suggesting a limited ability to forensically identify non-scheduled chemicals, limited law enforcement focus and/or criminal groups continuing, as before, to traffic end products (i.e. new psychoactive substances) more frequently than the corresponding chemicals. The low number of seizures reported could also be the result of a reporting issue, especially since precursors to new psychoactive substances are, by definition, precursors to end products not listed under the 1961 Convention or the 1971 Convention. Despite these constraints, some countries report seizures of precursors to new psychoactive substances that included, in 2017, 4-chloropropiophenone, a precursor of 4-chloromethcathinone (4-CMC), of which about 110 kg were reported seized in the Netherlands.

211. The Netherlands, on form D for 2017, also reconfirmed the seizure at a warehouse of 1,200 kg of 2-bromo-4'-methylpropiophenone, a mephedrone precursor. The incident had earlier been communicated through PICS in real time. France, another country that had reported seizures of 2-bromo-4'-methylpropiophenone in 2016, again

reported such seizures in 2017. While other “designer” precursors seized in France were destined for other European countries, 2-bromo-4'-methylpropiophenone had France itself as the final destination. As in the past, the alleged origin was Hong Kong, China.

212. Belgium reported a seizure of 1 kg of 2,5-dimethoxybenzaldehyde while it was in transit from China to the Netherlands. 2,5-Dimethoxybenzaldehyde can be used as a precursor for 2,5-dimethoxyamphetamine (DMA), bromamfetamine (DOB) and the 2C-series of controlled psychotropic substances, as well as for new psychoactive substances.

213. China uncovered seven cases of manufacture and supply of various new psychoactive substances in which more than 2.2 tons of unspecified precursors were seized and four clandestine laboratories dismantled.<sup>46</sup> INCB is also aware of clandestine laboratories having been dismantled in the Russian Federation in 2017 that had been manufacturing *alpha*-pyrrolidinopentiophenone (*alpha*-PVP) from valerophenone and pyrrolidine. Other substances manufactured clandestinely in the country included MDMB-CHMINACA, mephedrone and methadone. Some of the laboratories dismantled in the Russian Federation had considerable capacity. Another country in which clandestine methadone laboratories are known to have been dismantled is Latvia.

<sup>46</sup>Ibid., p. 29.