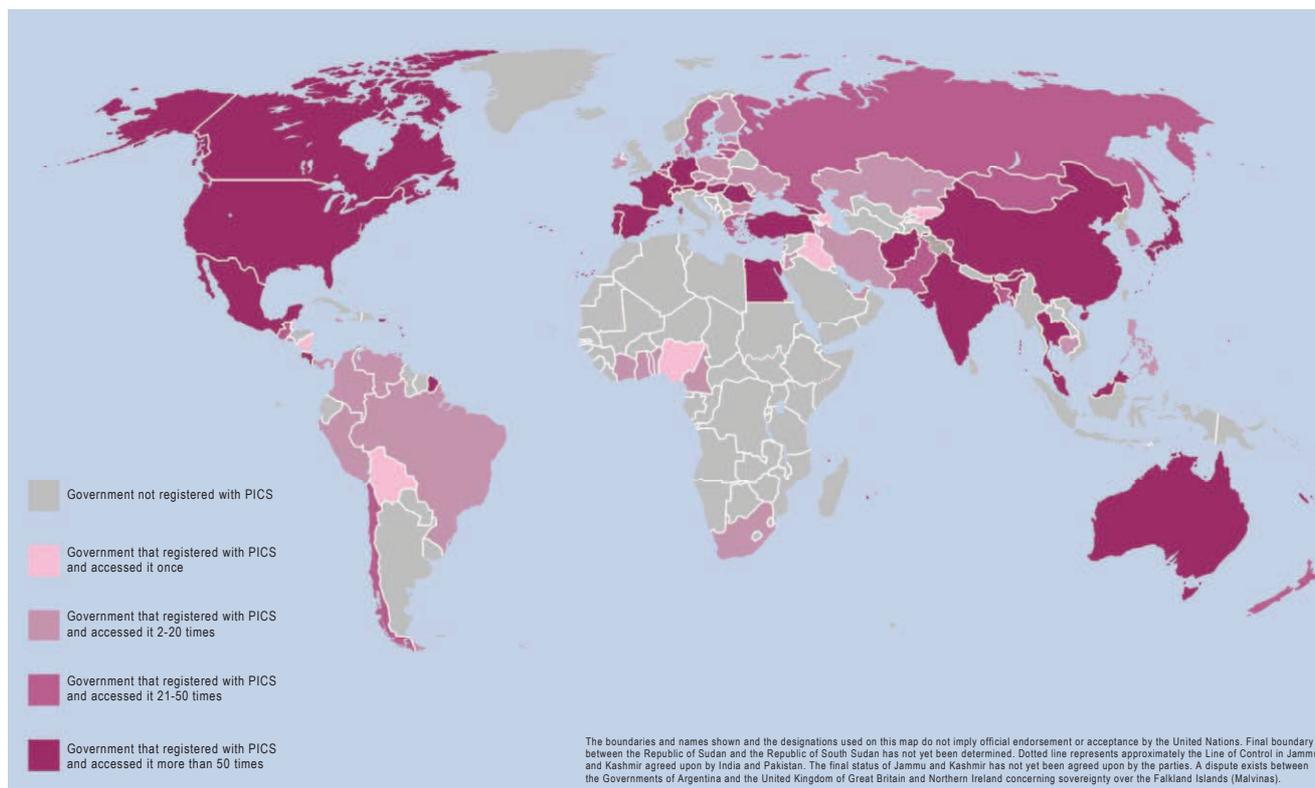


**Map 2. Governments registered with and using the Precursors Incident Communication System (PICS) (As at 1 November 2013)**



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

40. Several of the substances in Table I and II of the 1988 Convention have widespread legitimate uses, and correspondingly large volumes of those substances are traded internationally (for a list of their common uses, see annex XI). The proportion of seized substances in Table I of the 1988 Convention is often small when compared with international trade in those substances as reported by Governments. For example, as stated in the Board's 2012 report on precursors,<sup>14</sup> seizures of acetic anhydride or potassium permanganate account for less than 1 per cent of the international trade in those substances reported by Governments. In the case of some substances, total seizures account for a larger proportion of international trade; for example, seizures of ephedrine, in bulk or in the form of pharmaceutical preparations, account for approximately 15 per cent of all reported trade in that substance. In contrast,

there is almost no legitimate trade in 3,4-MDP-2-P; and total seizures of that substance are far in excess of the volume of licit trade in that substance.

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

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

41. There is significant international trade in many of the precursors used in the illicit manufacture of amphetamines, which include amphetamine and methamphetamine. Several precursors continue to be diverted from international trade for use in the illicit manufacture of drugs. During the reporting period, the authorities of 36 exporting countries used the PEN Online system to report over 5,300 transactions involving shipments of substances in Table I of the 1988 Convention that are precursors of ATS.

##### 1. Ephedrine and pseudoephedrine

42. Ephedrine and pseudoephedrine are both used in illicit methamphetamine manufacture but are also among the most

<sup>14</sup> *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2012*, para. 40.

frequently traded substances in Table I of the 1988 Convention. Cases involving the diversion of ephedrines from international trade channels, often in the form of pharmaceutical preparations, continue to be reported, but in fewer numbers. While large amounts of ephedrines continue to be seized in regions with significant illicit methamphetamine manufacture, the reliance upon those precursor chemicals has decreased as alternative chemicals such as esters of phenylacetic acid are increasingly being used, particularly in North America. Countries in East and South-East Asia have reported significant seizures of ephedrine and pseudoephedrine, while communications via PICS point to domestic diversions of pharmaceutical preparations in manufacturing countries in East and South-East Asia and neighbouring South Asia. Several countries in West Asia have unusually high annual legitimate requirements for the import of ephedrines, and reports of seizures of those substances suggest that controls over the distribution and use of precursors in those countries need to be improved. The increasing number of dismantled clandestine methamphetamine laboratories in Africa suggests that diverted precursors are readily available throughout that region.

43. The type of seized ephedrines reported by Governments on form D varies greatly from region to region. For example, in Africa, South-East Europe, South Asia, West Asia and South America seizures of ephedrines consist almost entirely of ephedrine (see figure I), whereas in Central America and the

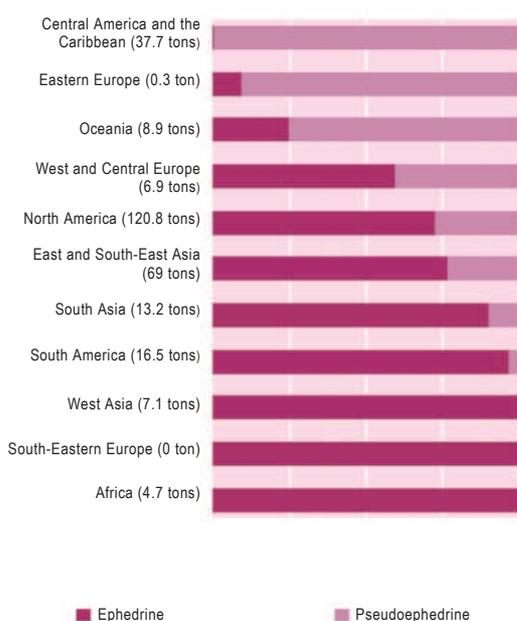
Caribbean and Eastern Europe seizures of ephedrines consist almost entirely of pseudoephedrine. Also, global seizures of ephedrine exceeded those of pseudoephedrine, while legitimate trade in pseudoephedrine far exceeded legitimate trade in ephedrine. This information provides an important starting point for investigations into the sources, modi operandi and possible points of diversion of the seized substances. However, it could be that Governments of countries in regions reporting only seizures of ephedrine may not be able to correctly distinguish between ephedrine and pseudoephedrine or that Governments simply group both substances as ephedrine when reporting. The Board urges Governments to accurately report on form D the specific type and form of ephedrines seized on their territory.

*Licit trade*

44. Exporting countries provided 4,010 notifications through the PEN Online system for shipments of ephedrine and pseudoephedrine, in bulk and in the form of pharmaceutical preparations, during the reporting period. The shipment notifications for pseudoephedrine amounted to 1,202 tons. Shipments totalling 176 tons of ephedrine were notified via PEN Online. The shipments of ephedrine and pseudoephedrine originated in 35 exporting countries and territories and were destined for 144 importing countries and territories.

**Figure I. Proportion of ephedrine and pseudoephedrine seizures and imports reported by Governments on form D, by region, 2008-2012**

**A. Seizures of ephedrine and pseudoephedrine**



**B. Imports of ephedrine and pseudoephedrine**



**Ephedrine and pseudoephedrine: how much is for legitimate end use**

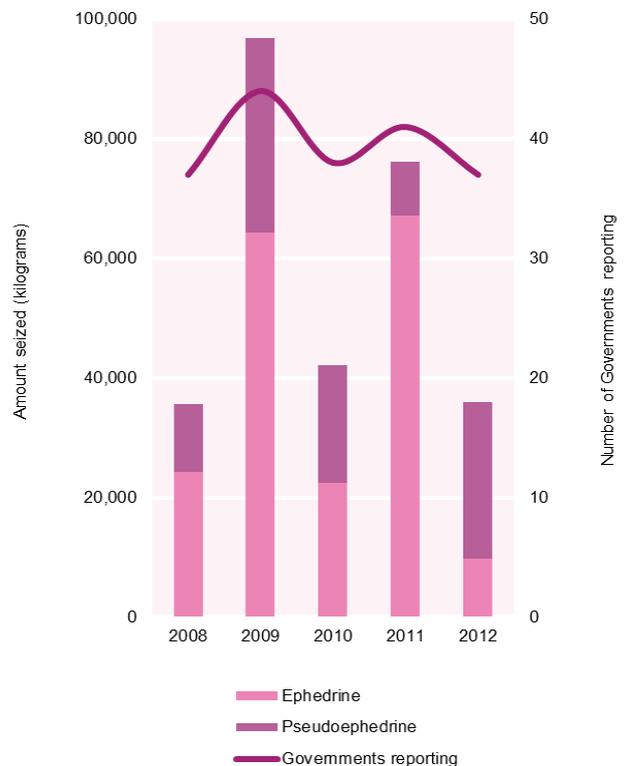
Ephedrines (ephedrine and pseudoephedrine) are widely traded internationally. They are also among the precursors most commonly used in illicit methamphetamine manufacture. As mentioned in the 2012 report of the Board on precursors, between 2007 and 2011 an average of 48.6 tons of ephedrines were seized each year.<sup>a</sup> According to data compiled by the United Nations Office on Drugs and Crime, global seizures of methamphetamine averaged 43 tons annually during that same period. Samples of seized precursors and information on clandestine manufacturing indicate that most of the methamphetamine was manufactured using ephedrines as a starting material, notwithstanding the significant increase in P-2-P-based methamphetamine manufacture since 2007 in Mexico (see figure III). To take into account that change, an average of 32 tons of methamphetamine was estimated to have been seized each year between 2007 and 2011, an amount which would require approximately 47 tons of ephedrines annually to manufacture (excluding a variety of other chemicals). Thus, each year a minimum of 96 tons of ephedrines are diverted for use worldwide in illicit methamphetamine manufacture.

<sup>a</sup> *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2012 on the Implementation of Article 12 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988* (United Nations publication, Sales No. E.13.XI.4), table 1.

**Trafficking**

45. Thirty-seven Governments reported on form D that they had seized a total of 36 tons of ephedrine and pseudoephedrine in bulk and in the form of pharmaceutical preparations; numerous Governments have reported international trafficking in those precursors since 2008 (see maps 3.A and 3.B). Figure II shows a decline in the total amount seized, due in part to changes in illicit methamphetamine manufacturing processes and to the fact that the following countries with a history of significant seizures of those substances failed to submit 2012 seizure data on form D: Guatemala, India and Iran (Islamic Republic of). Of the 36 tons seized, 7 tons (19 per cent) were ephedrine in bulk form; 2.7 tons were ephedrine in the form of pharmaceutical preparations; 24.8 tons (69 per cent) were pseudoephedrine in bulk form; and 1.3 tons were pseudoephedrine in the form of pharmaceutical preparations. In addition, 2.3 million tablets of preparations containing pseudoephedrine and 273,000 tablets containing ephedrine of unknown concentrations were also reported to have been seized.

**Figure II. Seizures of ephedrine and pseudoephedrine reported by Governments on form D, 2008-2012**

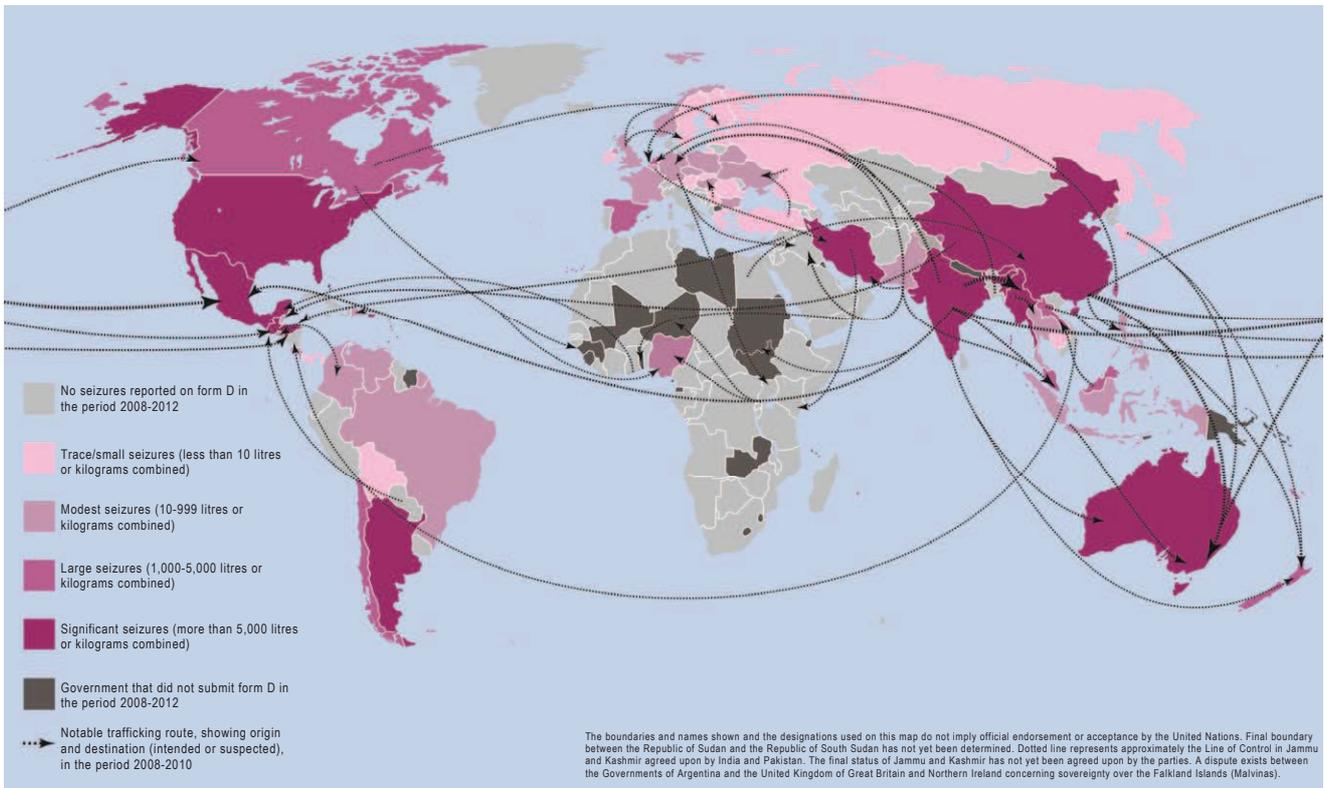


46. In 2012, the region accounting for the largest proportion of global seizures of ephedrines was Central America and the Caribbean (63 per cent), followed by East and South-East Asia (20 per cent) and Western and Central Europe (6 per cent). Seizures of ephedrines in North America totalled just 1,616 kg, the lowest amount ever reported to the Board from that region. Australia, Canada, China, Honduras and Spain each reported multi-ton seizures of ephedrines. Seizures of ephedrine were reported for the first time in Macao, China, and in Serbia; those seizures totalled 167 kg.

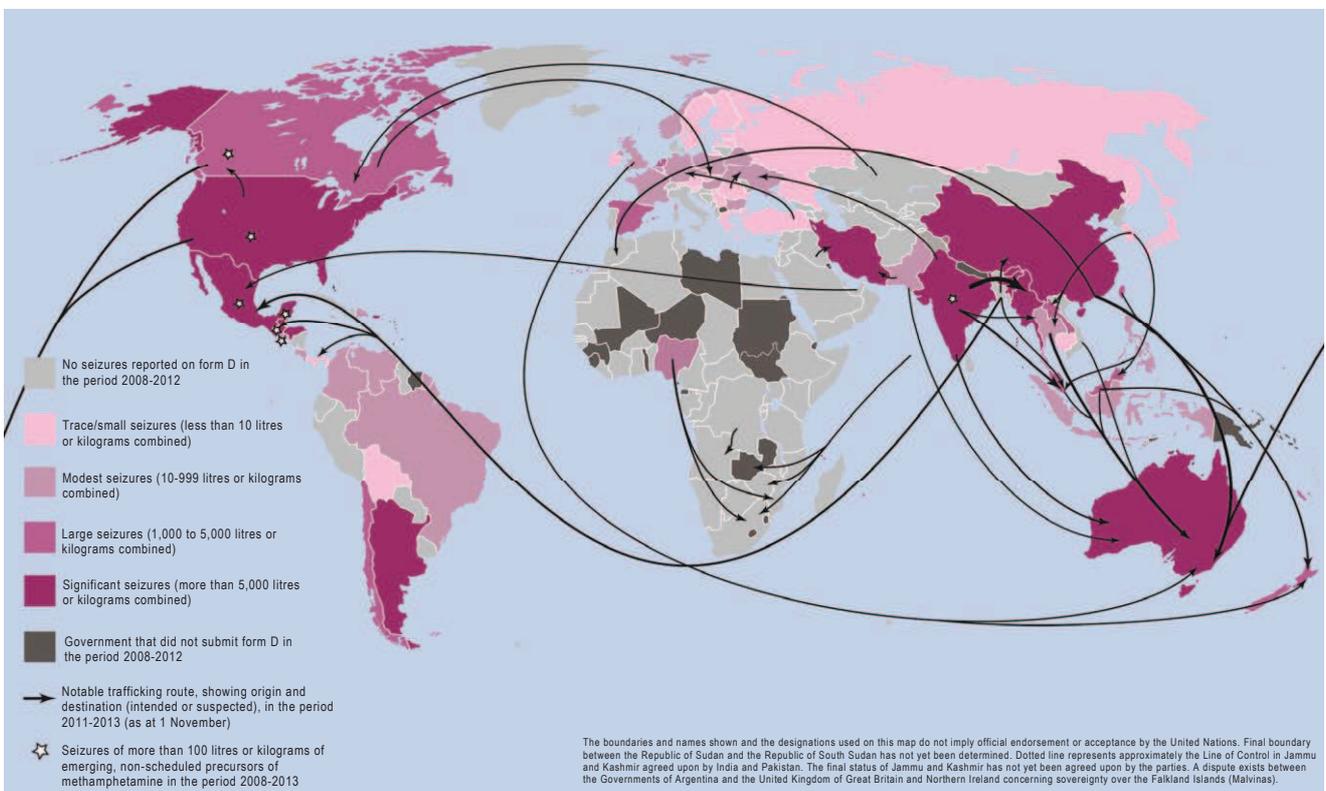
47. Map 3.A shows seizures of ephedrine and pseudoephedrine and recent trafficking routes used for those precursors. Map 3.B shows, in addition to the information provided in map 3.A, the locations of seizures of substitute chemicals used for the illicit manufacture of methamphetamine. The Board notes that incidents involving the smuggling of large amounts of ephedrines into Mexico and neighbouring countries have all but disappeared since 2010, as the illicit manufacture of methamphetamine no longer relies solely on those substances. Information is increasingly becoming available about the diversity of routes used for trafficking within, as well as through, Africa, with several more recent incidents involving the south-eastern part of that region. Trafficking routes leading through East and South-East Asia, as well as Oceania, have remained largely unchanged since 2008.

**Map 3. Ephedrine and pseudoephedrine: seizures reported by Governments and notable trafficking routes**

**A. Ephedrine and pseudoephedrine: seizures, 2008-2012, and notable trafficking routes, 2008-2010**



**B. Ephedrine and pseudoephedrine: seizures, 2008-2012, and notable trafficking routes, 2011-2013**



48. Authorities in China, a country that is one of the largest traders of ephedrines, identify significant diversion of those substances every year. In 2012, 6.5 tons of ephedrines were reported to have been seized in China, including its provinces and special administrative regions. The number of criminal cases involving the illicit manufacture of synthetic drugs has increased for the past three consecutive years. In China, a total of 326 clandestine laboratories for illicit drug manufacture, located in nearly every province, were dismantled in 2012, 228 of which were for illicit methamphetamine manufacture.<sup>15</sup> The amount of methamphetamine seized in the country increased to 16.2 tons in 2012, an increase of 13 per cent over the figure for 2011. The Government has estimated that 55 per cent of the precursors used in illicit methamphetamine manufacture in the country have been obtained from pharmaceutical preparations. The number of people listed on the registry of abusers of synthetic drugs reached 797,600 in 2012, an increase of 36 per cent over 2011. Eighty per cent of those registered had abused ATS, primarily methamphetamine.

49. The Governments of 18 European countries reported on form D seizures of ephedrines totalling 2.3 tons in 2012. The largest single seizure was effected in Spain: a consignment containing 1,500 kg of ephedrine that had originated in China and had been en route to Morocco. Authorities investigating inconsistencies in documents identified a shell company in Morocco that was importing significant amounts of ephedrine for subsequent smuggling into the Americas. Spain communicated the incident through PICS and, after receiving the alert, Canadian investigators contacted Spanish authorities via PICS to exchange information related to a similar ephedrine case that appeared to involve Canada. The Government of Luxembourg reported on form D having seized 300 kg of pseudoephedrine, the largest amount of that substance ever reported seized in that country.

50. Several West Asian countries that have unusually high annual legitimate requirements for ephedrine and pseudoephedrine continue to report significant seizures of those substances, as well as increased availability of methamphetamine. Those developments have been raised by the Board before, and they remain a source of serious concern. Forensic analysis of samples of methamphetamine seized by Iranian authorities in 2010 found that the purity of the methamphetamine hydrochloride in the samples was 33-95 per cent. There

are indications that ephedrine or pseudoephedrine was used as the starting material; in 14 per cent of the samples examined, the precursor had been obtained from pharmaceutical preparations.<sup>16</sup> Iranian authorities also reported seizing 3.9 tons of methamphetamine in 2011; that was one of the highest amounts of methamphetamine reported seized in any country in the world—nearly 6 tons of ephedrine or pseudoephedrine, along with significant amounts of acids and solvents, would be required to synthesize that amount of methamphetamine.

51. Several countries in Africa reported the seizure of modest amounts of ephedrine during the reporting period. Nigeria reported seizing 461 kg of ephedrine in 2012. Illicit methamphetamine laboratories continue to be dismantled in Nigeria—five such clandestine operations (some of which involved foreign nationals) and one chemical warehouse have been dismantled since February 2012. Between November and December 2012, the seizure of three facilities associated with the medium- or large-scale manufacture of methamphetamine was communicated via PICS; trace amounts of ephedrine and red phosphorous, as well as other substances, were identified at the facilities. Although most of the clandestine laboratories have been found in or around Lagos, the discovery of a laboratory in the south central State of Anambra suggests that the illicit manufacture of methamphetamine is shifting to more remote areas, to avoid the increased scrutiny in the Lagos area, or that such illicit manufacture is far more widespread than previously suspected. In April 2013, authorities in Benin seized 226 kg of ephedrine; this represents the first seizure of that substance in Benin that is known to the Board.

52. During the 2013 mission of the Board to Kenya, the authorities reported the dismantling of a laboratory for the illicit manufacture of precursors located outside of Nairobi. The suspects claimed to have been setting up an ethanol manufacturing business; however, the combination of chemicals seized point to the possibility of illicit ephedrine manufacture. The suspects are being prosecuted under the environmental law as current drug control legislation is insufficient to charge the suspects intending to manufacture a controlled substance. More recently, Kenyan authorities also reported, for the first time, the dismantling of an illicit methamphetamine laboratory, the details of which were not available at the time that the present report was issued.

<sup>15</sup> China, National Narcotics Control Commission, *Annual Report on Drug Control in China 2013* (Beijing, Ministry of Public Security, 2013), p. 55.

<sup>16</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 2013), pp. 204-206.

53. During the reporting period, two confirmed incidents involving Zimbabwe and shipments of ephedrine totalling 40 kg were communicated through PICS. Numerous unconfirmed ephedrine trafficking incidents were also communicated via the system: those incidents involved Botswana, the Democratic Republic of the Congo, Namibia and Zimbabwe. As those countries are currently not registered to use PICS, the Board encourages the Governments of those countries to register their relevant law enforcement and regulatory agencies with PICS and to provide confirmation of incidents occurring on their territory without delay.

54. Domestic manufacture of methamphetamine in Canada and the United States is primarily the result of circumventing purchase limits on pharmaceutical preparations or dietary health products containing pseudoephedrine or ephedrine. Illicit methamphetamine manufacturers operating in Canada exploited a loophole in the natural health product regulations, which allowed the unlimited purchase of 50-tablet bottles of dietary health product containing a maximum of 8 mg of ephedrine per tablet (400 mg per bottle). In 2012, evidence of ephedrine obtained from dietary health product tablets was found in half of the 18 laboratories dismantled in Canada for illicitly manufacturing methamphetamine on a medium or larger scale.

55. While it is estimated that 80 per cent of the methamphetamine in the United States enters the country from Mexico,<sup>17</sup> the United States reports more incidents involving illicit methamphetamine manufacture on its territory than any other country in the world. In 2012, 13,767 incidents involving illicit drug laboratories were reported in the United States; those incidents included the seizure of small clandestine laboratories, chemicals, glassware and/or equipment associated with the illicit manufacture of drugs. However, a mere 511 kg of ephedrines were reported to have been seized in the country in 2012, one of the lowest total amounts ever reported for seizures of the substance. A recent study of the United States Government showed that states such as Oregon and Mississippi, which had implemented laws requiring patients to have prescriptions in order to obtain pharmaceutical preparations containing ephedrines, reported significant reductions in the number of

incidents involving illicit methamphetamine laboratories.<sup>18</sup>

56. In Mexico, seizures of ephedrine and pseudoephedrine were almost non-existent in 2012, as the P-2-P-based manufacturing process has become the dominant method used by drug cartels. Mexico reported on form D that in 2012 it had seized just 62 kg of ephedrine and pseudoephedrine, the lowest total seizures of those precursors that it had ever reported to the Board. However, the seizure of 7 tons of pseudoephedrine in a warehouse in Sinaloa, a state in western Mexico, in July 2013 suggests that some stocks may still exist.

57. Honduras reported on form D that it had seized 22.6 tons of pseudoephedrine of unknown origin, an amount far exceeding the largest seizures ever reported by Mexico, the country that accounts for most of the volume of illicitly manufactured methamphetamine in the Americas. Given the size of the pseudoephedrine seizure reported by Honduras and the decreasing demand for ephedrines in that part of the world, it is likely that the amount of that seizure (22.6 tons) represents the gross weight of the seizure and not the amount of pure pseudoephedrine.

58. The illicit manufacture of methamphetamine in Oceania relies on smuggled ephedrine and pseudoephedrine in bulk form and in the form of pharmaceutical preparations. In 2012, Australia reported seizing 1.3 tons of ephedrines and New Zealand reported seizing 432 kg of those substances. In Australia and New Zealand, most seizures of ephedrines continue to occur at the border, where the ephedrines seized are often in the form of a distinct granular pseudoephedrine pharmaceutical formulation known as ContacNT. Australia reported having dismantled 809 clandestine drug manufacturing laboratories in the financial year 2011/12,<sup>19</sup> the highest number ever reported, the vast majority of which had been illicitly manufacturing methamphetamine.

59. In New Zealand, 123 illicit drug manufacturing laboratories were reported to have been dismantled in 2012, a decrease of 41 per cent compared with the figure for 2010. The price of ContacNT on the illicit market has declined by 33 per cent since 2009.

<sup>17</sup> United States of America, Department of Justice, National Drug Intelligence Center, *National Drug Threat Assessment 2011* (August 2011), figure 1.

<sup>18</sup> United States of America, Government Accountability Office, *Drug Control: State Approaches Taken to Control Access to Key Methamphetamine Ingredient Show Varied Impact on Domestic Drug Labs*, GAO-13-204 (Washington, D.C., January 2013).

<sup>19</sup> In Australia, the financial year begins on 1 July and ends the following year on 30 June.

The decrease in clandestine laboratories and prices may reflect decreasing illicit demand for methamphetamine among New Zealanders, as annual prevalence of methamphetamine abuse among the general population (ages 16-64) dropped from 2.2 per cent in 2008 to less than 1 per cent in 2011.

## 2. Norephedrine and ephedra

60. International trade in norephedrine, which can be used in the illicit manufacture of amphetamine, is low compared with trade in other precursors. The Board is aware that ephedrine alkaloids extracted from plants of the genus *Ephedra* have been used in the illicit manufacture of methamphetamine, but there is no requirement to report trade in ephedra or ephedra-based products. Although both norephedrine and ephedra have been found in illicit drug laboratories, such occurrences are unusual, accounting for a very small proportion of the substances found in such laboratories.

### *Licit trade*

61. According to the PEN Online system, during the reporting period, 11 countries exported norephedrine to 20 countries: 126 transactions involving a total of 64 tons of norephedrine.

### *Trafficking*

62. Seizures of norephedrine (mostly small amounts of the substance) were reported on form D for 2012 by the authorities of five countries: Australia, Greece, Indonesia, Philippines and Ukraine. The Board is also aware of such seizures occurring in Taiwan Province of China. The largest seizure was in the Philippines, where 273 kg of the substance were recovered in the metropolitan Manila area from a large laboratory used for the illicit manufacture of methamphetamine.

63. Seizures of ephedra totalling 28 tons were reported in 2011; however, there were no ephedra seizures reported on form D for 2012. Additionally, no PICS communications relating to ephedra occurred during the reporting period.

## 3. 1-Phenyl-2-propanone and phenylacetic acid

64. P-2-P can be used in the illicit manufacture of amphetamine or methamphetamine and can be synthesized from phenylacetic acid and its esters, as well as other “pre-precursors”. International trade in P-2-P is limited in both the volume and the number of countries involved, while trade in phenylacetic acid is far more significant. P-2-P-based methods are used by criminal

groups for the illicit manufacture of methamphetamine in Mexico and amphetamine in European countries.

### *Licit trade*

65. Only 25 shipments of P-2-P, totalling 18,700 litres, were notified via the PEN Online system during the reporting period. Three quarters of Governments reported that they had no requirements for the substance or had prohibited its import. Seven Governments reported that their annual legitimate requirements for the import of the substance was greater than 1 kg per year. During the reporting period, 518 notifications of shipments of phenylacetic acid, amounting to 395 tons, were submitted through the PEN Online system. Phenylacetic acid is not one of the four precursors for which the Commission on Narcotic Drugs, in its resolution 49/3, requested Governments to provide to the Board their annual legitimate requirements for imports.

### *Trafficking*

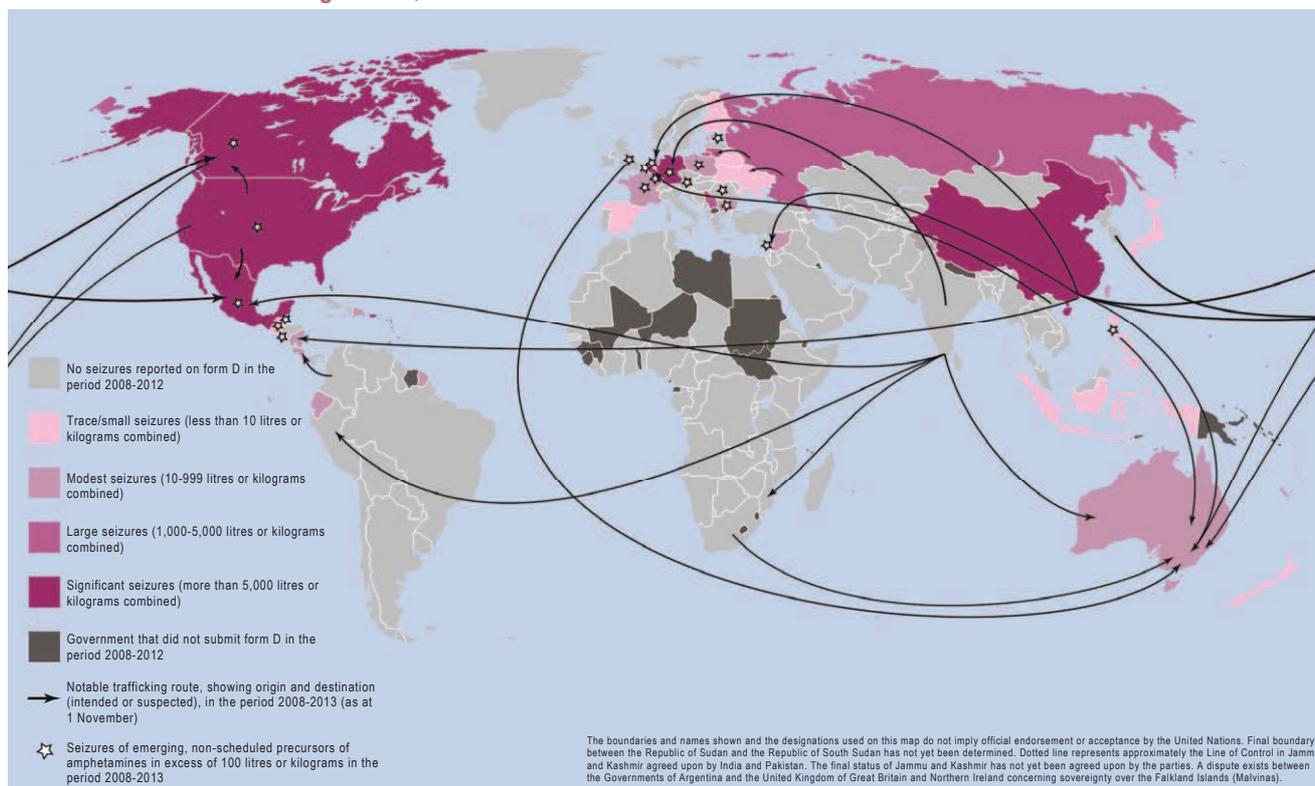
66. Thirteen Governments reported on form D the seizure of a total of 6,818 litres of P-2-P. The Governments of nine countries in Europe reported the seizure of a total of 836 kg (accounting for only 12 per cent of global seizures of the substance), as alternatives to P-2-P are increasingly being used as starting materials (see para. 82). In 2012, the Syrian Arab Republic reported for the first time seizures of P-2-P; those seizures totalled 498 litres (see map 4).

67. The year 2012 was the third consecutive year in which Mexico reported the world’s largest seizures of P-2-P: 4,699 litres. However, that figure is not reflective of the extent in that country of the illicit methamphetamine manufacture using the P-2-P-based method, because the starting material used in that process is primarily “pre-precursors” of P-2-P, namely esters or derivatives of phenylacetic acid.

68. The Board was informed of the seizure of 5.8 tons of P-2-P as a result of cooperation between China and Belgium in 2012.<sup>20</sup> Three seizures of P-2-P were communicated via PICS during the reporting period: P-2-P was seized when clandestine amphetamine laboratories were dismantled in Germany (70 litres) and Poland (1,400 litres); and, for the first time, India reported the seizure of P-2-P (though it did not disclose the amount seized).

<sup>20</sup> China, National Narcotics Control Commission, *Annual Report on Drug Control in China 2013* (Beijing, Ministry of Public Security, 2013).

**Map 4. 1-Phenyl-2-propanone and phenylacetic acid: seizures reported by Governments, 2008-2012, and notable trafficking routes, 2008-2013**

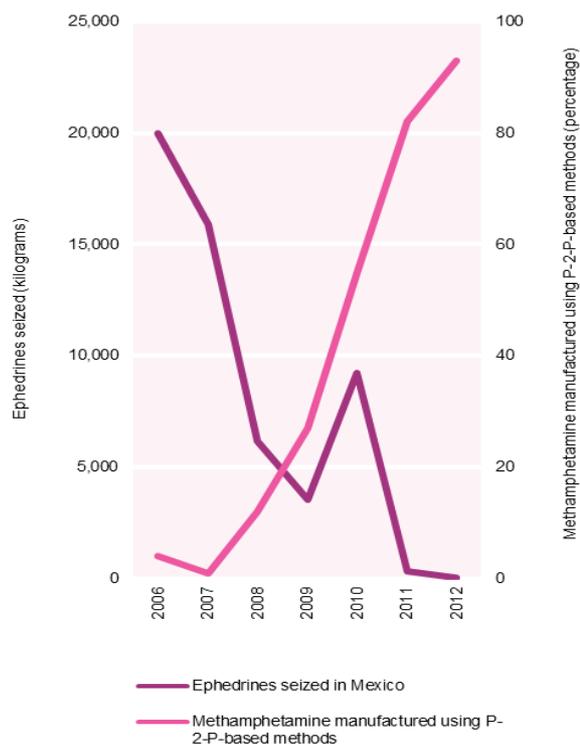


69. In 2012, seven Governments reported on form D seizures of phenylacetic acid totalling 1,700 kg. That was the lowest figure reported since 2010, reflecting large declines over the figures reported by China, Mexico and the United States in 2011. In 2012, Nicaragua reported for the first time seizures of phenylacetic acid totalling 54 kg.

70. In 2012, 16,000 kg of ethyl phenylacetate, a non-scheduled ester of phenylacetic acid, were seized in a warehouse in Guatemala. As in previous incidents, the substance originated in China. Guatemalan authorities have informed the Board that they lack the resources necessary to safely handle, store and dispose of seized chemicals.

71. Methamphetamine enters the United States largely from Mexico. Forensic profiling is regularly performed on samples of the methamphetamine seized in the United States. The profiling showed that after 2010, the majority of the seized methamphetamine has been manufactured using P-2-P-based methods; and that in mid-2013, more than 90 per cent of the seized methamphetamine had been manufactured using P-2-P. At the same time, seizures of ephedrine and pseudoephedrine—precursors used in the previously preferred method of illicit methamphetamine manufacture—declined precipitously in Mexico, as drug traffickers switched to P-2-P-based methods (see figure III).

**Figure III. Analysis of seized methamphetamine in the United States, identifying methamphetamine manufactured with methods not based on the use of ephedrines; and seizures of ephedrines in Mexico, 2006-2012**



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

### 1. 3,4-Methylenedioxyphenyl-2-propanone and piperonal

72. There is almost no legitimate industrial use for 3,4-MDP-2-P, and subsequently there is little international trade in the substance. The opposite is true for piperonal. Both 3,4-MDP-2-P and piperonal can be used in the illicit manufacture of 3,4-methylenedioxyamphetamine (MDMA, commonly known as “ecstasy”) and its analogues. Of those Governments that report a legitimate need for the import of 3,4-MDP-2-P, only five need more than 1 kg of the substance per year (see annex II), for use in limited research, educational and/or chemical analysis settings. Piperonal is not one of the four precursors for which the Commission on Narcotic Drugs, in its resolution 49/3, requested Governments to provide to the Board annual legitimate requirements for imports.

#### Licit trade

73. Only one shipment of 0.5 litre of 3,4-MDP-2-P and 590 shipments of piperonal, totalling 2,015 tons, were notified through the PEN Online system during the reporting period. Pursuant to Commission on Narcotic Drugs resolution 49/3, 12 Governments informed the Board of their annual legitimate requirements for the import of 3,4-MDP-2-P (totalling 131 kg annually), while 87 indicated that they had no legitimate need for the substance (see para. 24 above).

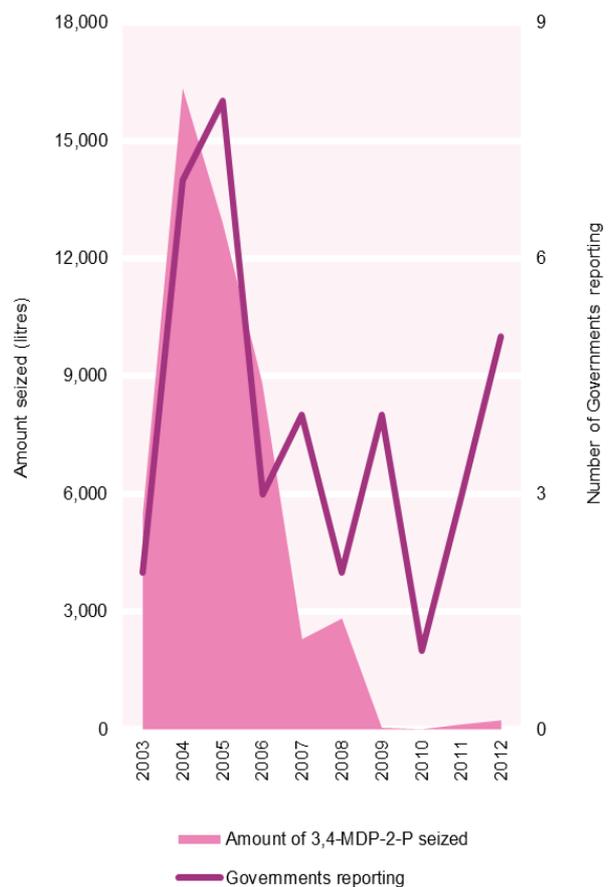
#### Trafficking

74. After a protracted lull in global seizures of 3,4-MDP-2-P in the period 2009-2011, during which only 166 litres of the substance were seized, there are indications that 3,4-MDP-2-P is becoming increasingly available to traffickers (see figure IV). In 2012, Australia, Ireland, Slovenia and, for the first time, both Nicaragua and the Philippines, reported on form D seizures of 3,4-MDP-2-P; those seizures totalled 229 litres. Six Governments reported for 2012 on form D seizures of piperonal totalling 336 kg; two of those Governments—the Philippines and Serbia—reported seizures of that substance for the first time (total: 1 kg).

75. Traffickers may be using India as a new source of 3,4-MDP-2-P, according to a number of incidents

reported in 2012 and 2013. Nicaragua reported on form D for 2012 the seizure of 13.9 litres of 3,4-MDP-2-P, and India was identified as the source of the substance; that was a first for both countries. In India, two seizures of 3,4-MDP-2-P totalling 137 kg were communicated via PICS between April and May 2013. In the information provided on form D, Governments often identified China as the most common source of seized 3,4-MDP-2-P; however, it appears that in recent years, strengthened controls in China, together with decreased availability of the substance worldwide (as evidenced by reduced seizures of 3,4-MDP-2-P and its end product MDMA), have forced chemical trafficking organizations to turn to new sources of 3,4-MDP-2-P, as well as substitute chemicals (see map 5).

Figure IV. Seizures of 3,4-methylenedioxyphenyl-2-propanone reported by Governments on form D, 2003-2012



76. During the reporting period, other incidents involving 3,4-MDP-2-P were communicated via PICS. A single consignment of 1,000 litres of 3,4-MDP-2-P originating in China and destined for the Netherlands was seized while transiting Slovenia. The substance was

smuggled in a container mixed with piperonal and seized at the Slovenian seaport of Koper. Authorities in the Netherlands seized 100 litres of 3,4-MDP-2-P in a clandestine laboratory that had been used to convert the substance from piperonal and/or 3,4-MDP-2-P methyl glycidate. The Board commends those Governments for communicating incidents via PICS and encourages authorities in the countries directly involved in those incidents to support backtracking investigations and controlled or monitored deliveries of shipments of precursors.

## 2. Safrole, safrole-rich oils and isosafrole

### *Licit trade*

77. During the reporting period, the Board was notified via PEN Online of 50 shipments of safrole, including in the form of safrole-rich oils, with a total volume of 5,767 litres. Only one shipment of 1 litre of isosafrole was notified via PEN Online. There were no suspended shipments of isosafrole communicated via the PEN Online system, again reflecting the limited international trade in the substance. Governments are not required to provide the Board with their annual legitimate requirements for the import of those substances.

78. One shipment of 210 kg of safrole in the form of sassafras oil—from the United States and destined for Malaysia—was stopped. The notification to stop was sent through the PEN Online system, informing authorities that the importer had failed to request an import authorization and that discrepancies in the address of the final consignee had been noted. Investigations have been launched by authorities in both countries.

### *Trafficking*

79. Four Governments reported on form D for 2012 seizures of safrole, including in the form of safrole-rich oils, totalling 2,028 litres; and there are indications of a significant resurgence of seizures of safrole in 2013. Australia and the Netherlands also reported on form D for 2012 seizures of small amounts of isosafrole, totalling just 10 litres. Chinese authorities, in cooperation with Australian authorities, reportedly seized 3.35 tons of safrole in April 2012, after intercepting a shipment intended for Australia.<sup>21</sup>

80. Thirteen confirmed incidents involving seizures of safrole totalling 15,970 litres and 217 kg were communicated via PICS during the reporting period: Australia communicated three incidents, Canada and Indonesia each communicated

one, the Netherlands three, and the United States five. The largest shipments of safrole were seized in or destined for Western Europe (see map 5). Authorities in the Netherlands made three seizures of safrole (the two larger seizures were made in the port of Rotterdam): 12,000 litres in a shipment mislabelled as palm oil and arriving from Thailand; 1,800 litres in a shipment from Cambodia; and 25 litres from Indonesia in a shipment sent via courier service. In addition, two industrial-scale illicit MDMA laboratories were dismantled in Belgium in 2013; however, the amounts of safrole seized have not yet been communicated. Such large seizures in Western Europe suggest that, while there are numerous reports of the emergence of new psychoactive substances, illicit demand for MDMA continues to be high.

## Use of non-scheduled substances and other trends in the illicit manufacture of amphetamine-type stimulants

81. Decreases in seizures of internationally controlled precursors are the result of: (a) shipments of precursors being notified and subsequently halted through the PEN Online system before they can be diverted; (b) trafficking routes shifting to more vulnerable regions, with weak or non-existent precursor control mechanisms; (c) increased diversion of under-regulated pharmaceutical preparations; and (d) traffickers increasingly relying on a wider array of non-scheduled precursor chemicals.

### 1. *alpha*-Phenylacetonitrile

82. In Europe, APAAN, a non-scheduled substance that can be easily converted into P-2-P at a ratio of about 1.4 to 1, continues to be the preferred substitute used in illicit amphetamine manufacture. In 2012, the Governments of six European countries reported on form D the seizure of shipments of APAAN totalling 17.5 tons. Those seizures included 7 tons in Belgium, 6.8 tons in the Netherlands and 3 tons in Hungary.

83. Since March 2012, when PICS was launched, there have been 57 communications via PICS involving APAAN, totalling 79.4 tons. Although incidents involving APAAN have been communicated primarily by European countries, Canada has also communicated several significant seizures of the substance. Incidents communicated via PICS have involved not only seizures but also suspicious shipments of non-scheduled precursor chemicals that were temporarily stopped but subsequently released because the countries in question did not have in place domestic legislation to enable the authorities to seize the chemicals. When substitute chemicals such as APAAN are stopped or seized in international trade, it is important for the authorities involved

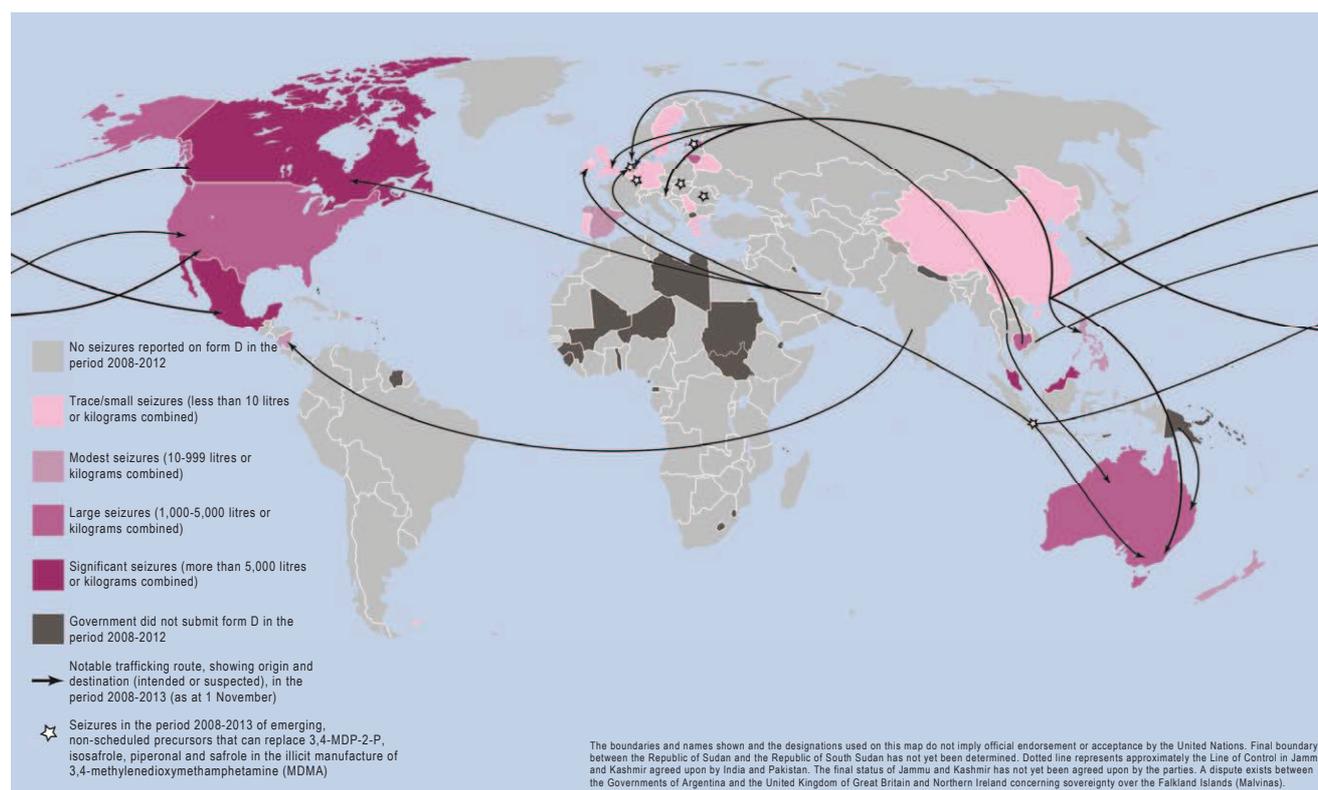
<sup>21</sup> China, National Narcotics Control Commission, *Annual Report on Drug Control in China 2013* (Beijing, Ministry of Public Security, 2013), p. 55.

to widely communicate the reasons so that their counterparts are alerted and future shipments containing those chemicals and routed through different border crossings, ports or countries can be identified.

84. Shipments of APAAN typically originate in China and transit numerous European countries, the intended

destination being the Netherlands. Authorities in China have been working to address the issue of exports of APAAN to Europe. The Board began the scheduling process for APAAN in February 2013, and the Commission on Narcotic Drugs is expected to take a decision on the matter at its fifty-seventh session, in March 2014 (see para. 9 above).

**Map 5. 3,4-Methylenedioxyphenyl-2-propanone, isosafrole, piperonal, safrole and safrole-rich oils: seizures reported by Governments, 2008-2012, and notable trafficking routes, 2008-2013**



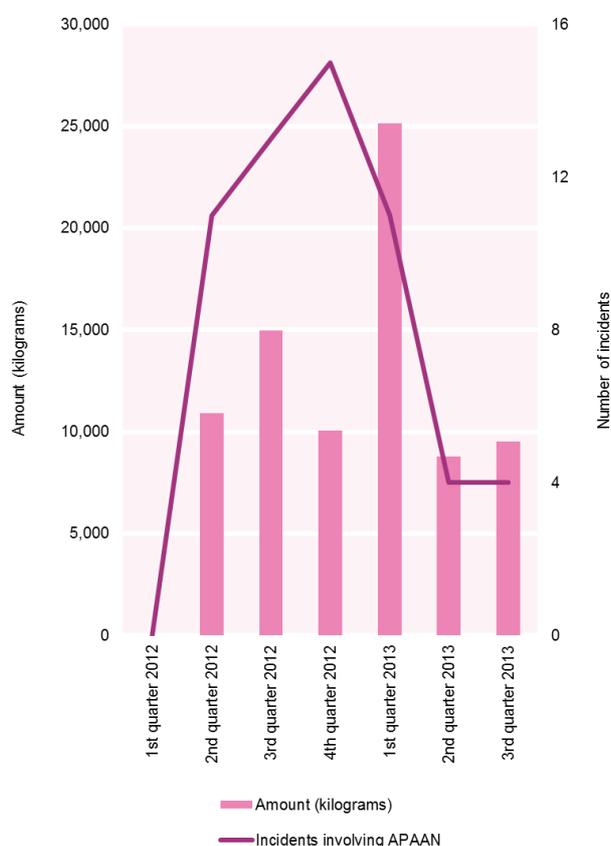
85. Although seizures of APAAN continue to be communicated via PICS, the frequency and total amounts declined somewhat after the first quarter of 2013 (see figure V). Since November 2012, 29 incidents involving APAAN were communicated via PICS by the Governments of the following countries: Austria, Belgium, Estonia, France, Germany, Latvia, Luxembourg and Netherlands (13 incidents). The misdeclaration and mislabelling of shipments have been identified as the main modi operandi used by traffickers of APAAN. Germany reported seizing the substance in a clandestine amphetamine laboratory. In the incident communicated by France, the shipment was destined for the Netherlands. In the incident involving Luxembourg, a company in Latvia was specified as the final destination; however, it is suspected that the intended

destination was actually in the Netherlands. The Board is also aware of other incidents not communicated via PICS and involving shipments of APAAN that were later released because there was no national legislation enabling the seizure of such shipments. While such incidents continue to occur, the Board would like to re-emphasize the importance of early communication of suspicions or concerns about a shipment, even if the shipment cannot be seized for lack of the relevant national legislation. Such communications alert the authorities of other countries about the modus operandi used, thus allowing a case to be built up and/or action to be taken against similar shipments in the future. In addition, early communication about a new substance not previously encountered in a jurisdiction may help to establish or

confirm emerging trends and contribute to the development of countermeasures.

86. While APAAN is usually a white, off-white or light yellow crystalline powder, authorities have recently encountered the substance in liquid form or as a two-phase mixture consisting of undissolved APAAN crystals in ethanol or an ethanol-water mixture. One of the practical implications that this development may have for regulatory and law enforcement agencies is that liquid APAAN may not be identified using the more common, portable on-site testing equipment.

**Figure V. Incidents involving *alpha*-phenylacetonitrile communicated via the Precursors Incident Communication System (PICS), by quarter, 2012-2013**



## 2. Sodium salts of P-2-P glycidic acid and of 3,4-MDP-2-P glycidic acid

87. In 2012, authorities in the United Kingdom of Great Britain and Northern Ireland dismantled a laboratory that had been illicitly manufacturing P-2-P using a previously unknown “pre-precursor”, the sodium salt of P-2-P glycidic acid, which can be converted into P-2-P at a practical ratio of about 2 to 1.

During the search of the laboratory, 100 kg of the substance, which had been imported from China, was recovered. Five persons, including two chemists from China, were arrested in connection with the laboratory, which would have ultimately been capable of illicitly manufacturing significant quantities of amphetamine. The leader of the group had travelled to China, where the two experienced chemists had given him a demonstration, and subsequently sponsored the chemists’ visa applications, enabling them to go to the United Kingdom to supervise the setting up of the laboratory and the provision of training on how to convert the sodium salt of P-2-P glycidic acid to P-2-P, for use in the illicit manufacture of amphetamine.

88. The authorities of Luxembourg communicated via PICS seizures of a new “pre-precursor” of MDMA, the sodium salt of 3,4-MDP-2-P glycidic acid, which can be converted into 3,4-MDP-2-P at a practical ratio of about 2 to 1. A shipment containing 420 kg of the substance originating in China had arrived in Luxembourg by air from Hong Kong, China, and had been destined for the Netherlands. The contents of the shipment had been misdeclared as an organic surface active preparation. Additional incidents involving the substance were subsequently communicated by the authorities in Luxembourg; other incidents involving the substance were also reported to have occurred in Estonia and Romania. National authorities should be alerted to the fact that chemical analysis of the sodium salts of P-2-P glycidic acid and 3,4-MDP-2-P glycidic acid may pose challenges regarding identification, as it is possible that P-2-P and 3,4-MDP-2-P may be detected incorrectly as the main component.

## 3. 3,4-MDP-2-P methyl glycidate

89. The substance 3,4-MDP-2-P methyl glycidate, first described in the Board’s 2010 report on precursors,<sup>22</sup> continues to be seized in Europe, albeit at much lower levels than previously reported. During the reporting period, authorities in the Netherlands communicated via PICS the seizure of only 690 grams of 3,4-MDP-2-P methyl glycidate. The substance had been seized at the international airport at Amsterdam, in a package sent

<sup>22</sup> *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2010 on the Implementation of Article 12 of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988* (United Nations publication, Sales No. E.11.XI.4), para. 62.

from China via courier services. The substance had been mislabelled and misdeclared as methyl cellulose.

#### 4. Methylamine

90. Seizures of non-scheduled precursor chemicals continued to occur in the Americas, although the amounts reported in 2012 were smaller than in 2011. Methylamine, together with P-2-P, can be used in the illicit manufacture of methamphetamine; and, together with 3,4-MDP-2-P, methylamine can be used in the illicit manufacture of MDMA. In 2012, four Governments reported seizures of methylamine: Honduras, reporting such seizures for the first time (51,000 litres); Mexico (197 tons and 150,000 litres); Poland (403 litres); and United States (6,929 litres). Other incidents involving methylamine were communicated via PICS, including the seizure of 800 litres of the substance, together with other chemicals and laboratory equipment, in a truck in Mexico.

#### 5. Esters of phenylacetic acid

91. Seizures of esters of phenylacetic acid continued through 2012. Authorities in Mexico—where the substances have been under national control since November 2009—reported on form D for 2012 the seizure of 72.8 tons and 46,000 litres of ethyl phenylacetate. The frequency and amount of seizures of esters of phenylacetic acid effected in Central American countries and Mexico have decreased since 2011, when record levels were reached. That may be attributed in part to increased efforts in cooperation with industry in source countries; that cooperation, while voluntary, is aimed at monitoring more closely, or restricting, the export of esters of phenylacetic acid to risk areas. However, considering the scale of trade in those substances and the ease with which they can be converted into phenylacetic acid, continued vigilance on the part of Governments and the industries concerned is warranted.

#### 6. Other non-scheduled substances used in the illicit manufacture of amphetamine-type stimulants

92. Benzaldehyde and benzyl cyanide are two additional “pre-precursors” of P-2-P. Five Governments reported on form D the seizure of benzaldehyde in 2012: Estonia (11 kg), Germany (94 kg), Hungary (5 kg), Poland (15 litres) and Russian Federation (6 kg). The Philippines reported seizing 2,400 litres of benzyl cyanide while Serbia reported trace amounts of that

substance. Authorities in Lebanon communicated via PICS several incidents involving attempts to smuggle into the country in 2012 substances and equipment used for illicit amphetamine manufacture, including 520 litres of benzyl cyanide.

93. Australian authorities reported on form D for 2012 the seizure of 11 tons of hypophosphorous acid, a substance that can be used in the illicit manufacture of methamphetamine. The single seizure occurred in New South Wales and was the largest amount of seized hypophosphorous acid ever reported to the Board, eclipsing the previous record amount of 1,941 litres, reported by Mexico in 2009.<sup>23</sup> Canada also reported significant seizures of hypophosphorous acid totalling 9.8 tons; 9.6 tons of the substances were found after being smuggled with other chemicals in a shipping container originating in China. While the United States reported the seizure of 1 litre of the substance.

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

#### 1. Potassium permanganate

94. Potassium permanganate is an oxidizer that is commonly used in the illicit manufacture of cocaine hydrochloride. It is also one of the most commonly traded licit substances in Table I of the 1988 Convention. Coca-producing countries engage in limited licit international trade in potassium permanganate; at the same time, however, those countries continue to account for the vast majority of reported seizures of that substance (see figure VI). Alternatives to potassium permanganate are increasingly being used in illicit cocaine manufacture. In addition, potassium permanganate is diverted from domestic distribution and subsequently smuggled into illicit channels; the substance is also illicitly manufactured, often at the same locations as cocaine-processing laboratories.

#### *Licit trade*

95. During the reporting period, 1,477 shipments of potassium permanganate, totalling 22,740 tons, were reported through the PEN Online system. Thirty-three countries exported potassium permanganate to 127 countries. The three coca-producing countries in South America—Bolivia (Plurinational State of), Colombia and Peru—continue to engage in little

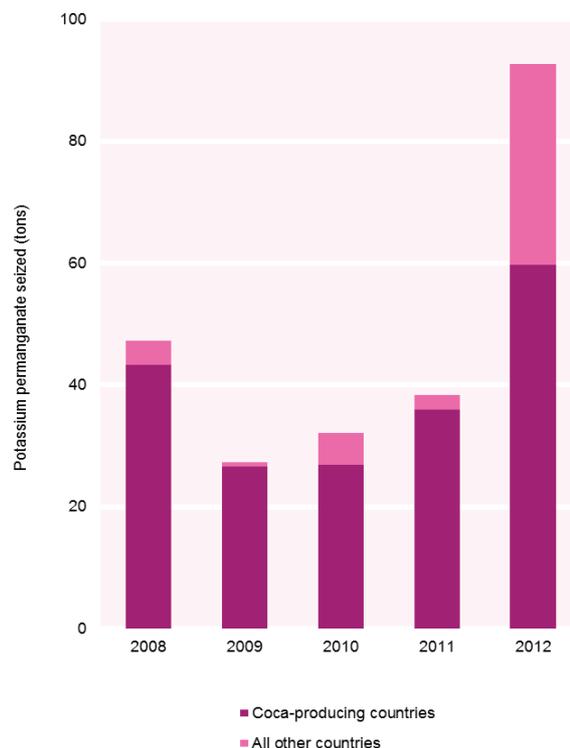
<sup>23</sup> Australian Crime Commission. *Illicit Drug Data Report 2011-12* (2012).

international trade in potassium permanganate, accounting for less than 1 per cent of global imports notified through the PEN Online system. However, according to estimates of cocaine manufacture, between 186 and 233 tons of potassium permanganate are used annually in coca-producing countries to illicitly manufacture cocaine.

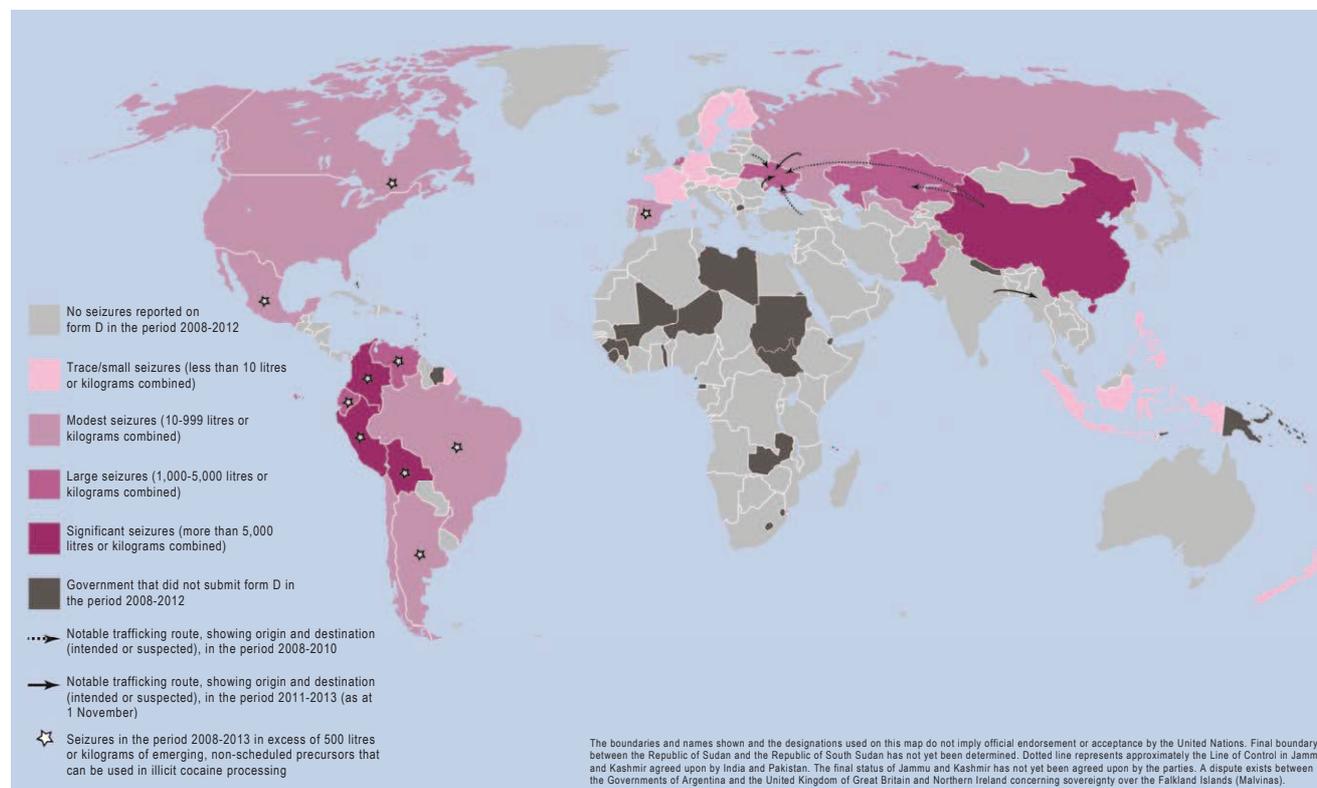
### Trafficking

96. Fifteen Governments reported on form D for 2012 seizures of potassium permanganate totalling 92.7 tons, twice the average annual amount reported since 2008 (see figure VI). That increase was largely attributable to significant amounts reported seized by China (see map 6). Colombia again reported the largest amount of seized potassium permanganate (56 tons), accounting for 60 per cent of the global total; that was twice the amount that that country had reported seizing in the previous year. China seized 30 tons of the substance—the highest amount ever reported by a country outside the Americas—but provided no details relating to that unusual development. Bolivia (Plurinational State of) and Peru accounted for only 4 per cent of global seizures of potassium permanganate in 2012.

**Figure VI. Seizures of potassium permanganate reported by Governments on form D, 2008-2012**



**Map 6. Potassium permanganate: seizures reported by Governments, 2008-2012, and notable trafficking routes, 2008-2013**



97. Coca production occurs primarily in Bolivia (Plurinational State of), Colombia and Peru, which also account for the bulk of the world's dismantled illicit cocaine laboratories (see table 2). Between 2008 and 2012, the number of cocaine paste, base and crystallization laboratories reported to have been dismantled in Colombia remained relatively unchanged. It is estimated that between 60 and 80 per cent of

the potassium permanganate used in Colombia is obtained through illicit manufacture using manganese dioxide as the starting material and is not diverted from international trade channels. The decline in the number of illicit cocaine-processing laboratories dismantled in the Plurinational State of Bolivia in 2012 is consistent with the decrease in coca bush cultivation in that year.

**Table 2. Illicit cocaine-processing operations dismantled in coca-producing countries, by type of operation, 2008-2012**

Country	Type of operation	2008	2009	2010	2011	2012
Bolivia (Plurinational State of)	Cocaine paste, base and crystallization	4 995	4 880	5 946	5 299	4 508
Colombia	Cocaine paste and base	3 147	2 670	2 334	2 200	2 110
	Cocaine crystallization	296	285	262	200	246
Peru	Cocaine paste and base	1 205	1 217	1 296	1 498	1 146
	Cocaine crystallization	19	25	21	19	26
Total	Cocaine paste, base and crystallization	9 662	9 077	9 859	9 216	8 036

Sources: United Nations Office on Drugs and Crime and Plurinational State of Bolivia, *Estado Plurinacional de Bolivia: Monitoreo de Cultivo de Coca 2012* (2013); United Nations Office on Drugs and Crime and the Government of Colombia, *Colombia: Censo de Cultivos de Coca 2012* (2013); United Nations Office on Drugs and Crime and Peru, *Peru: Monitoreo de Cultivos de Coca 2011* (2012); and Observatorio Peruano de Drogas (2013).

Note: Operations can vary significantly in size and sophistication, ranging from maceration pits to large-scale crystallization laboratories.

98. The Board is concerned about the growing threat of illicit cocaine manufacture spreading into Central America and other unsuspecting subregions outside of South America. As highlighted in the Board's 2012 report on precursors,<sup>24</sup> illicit cocaine-processing laboratories are increasingly being reported along established trafficking routes outside the traditional coca-producing countries. In 2013, the Governments of the Dominican Republic and Panama both reported the dismantling of illicit cocaine-processing laboratories, including the seizure of various precursors. Near an illicit cocaine base laboratory uncovered in a rural part of Panama, authorities also discovered a coca bush plantation; that was the first time that the Board had been informed that such a plantation had been found in that country. The Board wishes to warn the authorities of countries in Central America and the Caribbean about the increasing number of incidents involving illicit cocaine manufacture in the region and the need to increase efforts to counter the illicit manufacture of that drug before it takes root.

99. Clandestine potassium permanganate laboratories continue to be reported in Colombia. Eight of those laboratories were dismantled in 2012, a figure similar to the

2011 figure.<sup>25</sup> Sites used for the manufacture of potassium permanganate are often found close to (or at) laboratories where the cocaine base is reoxidized prior to being crystallized into cocaine hydrochloride. Having those sites close to or at the laboratories where the potassium permanganate is used in illicit cocaine manufacture virtually eliminates both the need to move the substances over great distances and the likelihood of it being seized.

## 2. Other substances used in the illicit manufacture of cocaine

100. The majority of the reported seizures of many acids and solvents in Table II of the 1988 Convention—required throughout the various stages of nearly all illicit drug manufacture—occur in the coca-producing countries in the Andean subregion. During the period 2008-2012, Bolivia (Plurinational State of), Colombia and Peru together accounted for on average 27-54 per cent of global seizures of ethyl ether, hydrochloric acid, methyl ethyl ketone, toluene and sulphuric acid. Nearly 90 per cent of global seizures of acetone are reported in coca-producing countries (see table 3 and annex VIII).

<sup>24</sup> *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2012*, para. 104.

<sup>25</sup> United Nations Office on Drugs and Crime and the Government of Colombia, *Colombia: Censo de Cultivos de Coca 2012* (2013).

**Table 3. Acids and solvents in Table II of the 1988 Convention: percentage of global seizures reported by coca-producing countries, 2008-2012**

Solvent or acid	2008	2009	2010	2011	2012	Average for the period 2008-2012
Acetone	93	90	85	79	88	87
Ethyl ether	83	15	13	8	53	35
Hydrochloric acid	47	57	45	37	34	44
Methyl ethyl ketone	68	53	51	7	19	39
Sulphuric acid	58	77	64	21	52	54
Toluene	12	6	52	35	32	27

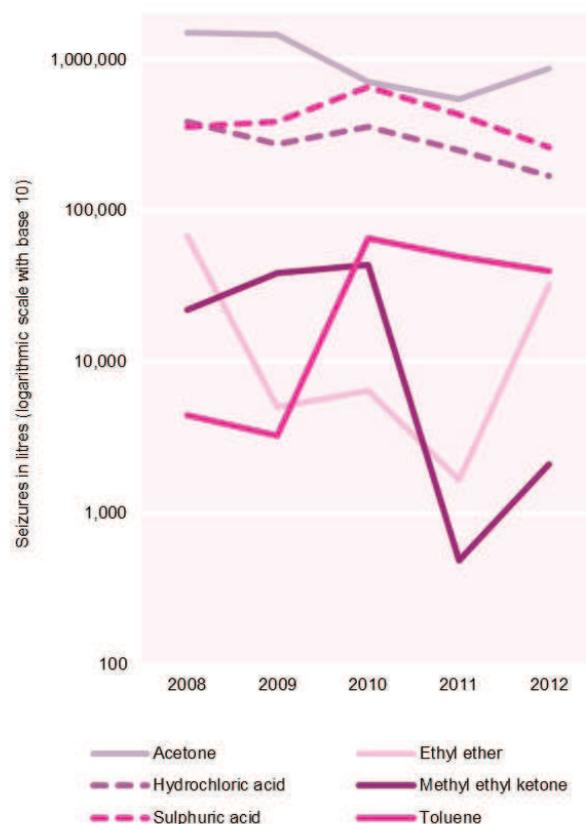
Sources: Form D and other Government sources.

101. Seizures reported by coca-producing countries of most of the acids and solvents in Table II of the 1988 Convention have been declining over the past several years. That is partly attributable to the fact that solvents are increasingly being recycled and reused several times. Additionally, non-scheduled solvents, such as ethyl and *n*-propyl acetate, methylene chloride and isopropyl alcohol, are increasingly being used instead of solvents in Table II for the illicit manufacture of cocaine (see figure VII), particularly in the last step of such manufacture, in which cocaine base is converted to cocaine hydrochloride. Forensic analysis of samples of cocaine originating in Colombia and seized in mid-2013 confirmed the use of acetate solvents to dissolve the cocaine base prior to crystallization in almost three quarters of the samples analysed.<sup>26</sup> In addition, the relative use and amounts of methyl ethyl ketone appear to be decreasing, and there is an apparent increase in the use of alcoholic hydrochloric acid versus concentrated hydrochloric acid.

102. Another non-scheduled precursor chemical that reflects changes in cocaine-processing practices, especially in Colombia, is sodium metabisulphite, a chemical anti-oxidant. Bolivia (Plurinational State of), Ecuador, Honduras, New Zealand and Venezuela (Bolivarian Republic of) reported on form D for 2012 seizures of the substance totalling 8.4 tons. During the reporting period, three incidents involving a total of 2.5 tons of the substance were communicated through PICS: two incidents occurred in Colombia and one occurred in Ecuador.

103. Incidents involving several other non-scheduled precursor chemicals have also been communicated through PICS. One of those incidents involved the first seizure of

sodium permanganate, which may be used as a substitute for potassium permanganate in the illicit manufacture of cocaine. A total of 443 kg of the substance were seized in a clandestine laboratory that had been operating in Colombia.

**Figure VII. Seizures of acids and solvents in Table II of the 1988 Convention reported by coca-producing countries, 2008-2012**

<sup>26</sup> The analysis was conducted in the framework of the Cocaine Signature Programme of the United States.

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

### 1. Acetic anhydride

104. Acetic anhydride is one of the most frequently traded substances in Table I of the 1988 Convention. The substance is combined with morphine derived from opium poppy to make heroin. Acetic anhydride is also used in the illicit manufacture of P-2-P from phenylacetic acid, and P-2-P is used in the illicit manufacture of amphetamines. Most of the world's heroin is illicitly manufactured in Afghanistan, countries of the so-called Golden Triangle area of South-East Asia, Mexico and, to a lesser extent, Colombia. Each year, 600,000-1,500,000 litres of acetic anhydride are used to illicitly manufacture heroin, and the majority of the required acetic anhydride is obtained from domestic—not international—trade channels. Increased seizures of acetic anhydride in and around Mexico appear to be largely related to the increased use of P-2-P in the illicit manufacture of methamphetamine; however, the increased seizures of acetic anhydride may also be attributed to increased heroin manufacture, as levels of illicit opium poppy cultivation are increasing, and Mexico is currently the world's third largest net cultivator of opium poppy.<sup>27</sup> The Board has estimated that less than 17 per cent of the acetic anhydride diverted for use in illicit heroin manufacture is seized each year.<sup>28</sup>

#### *Licit trade*

105. During the reporting period, authorities of 24 exporting countries and territories used the PEN Online system to provide over 1,440 pre-export notifications for shipments of acetic anhydride. The shipments were destined for 86 importing countries and territories and involved a total of 266 million litres of acetic anhydride.

106. As emphasized in the Board's 2012 report on precursors, there is insufficient information on patterns of licit trade in acetic anhydride and the scope of domestic control of that substance;<sup>29</sup> and the limited information available is inconsistent. The Board believes that licit domestic trade in various countries is the primary source of the acetic anhydride that is diverted and subsequently smuggled into Afghanistan. To address that problem, the Board requested all Governments in 2013 to identify the

locations and extent of acetic anhydride manufacture throughout the world. Of the 71 Governments that responded, 13 (Argentina, Canada, China, France, India, Japan, Mexico, Republic of Korea, Russian Federation, Switzerland, United Kingdom, United States and Uzbekistan) reported the existence of acetic anhydride manufacture on their territory. According to the limited data provided, the potential manufacture of acetic anhydride amounted to approximately 1.5 million tons annually.

107. In some cases, the responding Governments did not provide the extent of the manufacture of acetic anhydride on their territory. In other cases, the Governments reported the manufacture of acetic anhydride on their territory only if the manufactured substance was to be exported and not if the substance was subsequently used by the manufacturing company.

108. The Board is disappointed by the poor rate of return and by the fact that the Governments of some countries in which acetic anhydride is known to be manufactured or to have been manufactured in the past, such as Iran (Islamic Republic of) and Saudi Arabia, failed to respond to the Board's request. The Board strongly encourages authorities to ensure that all companies manufacturing acetic anhydride on their territory are registered and included in the required reporting regardless of whether they manufacture the substance for their own use or for trade, because any level of manufacture, as well as any level of trade, constitutes a potential source of diversion. Governments of countries in which acetic anhydride and other scheduled substances are manufactured should report accurate, complete and up-to-date details of such manufacture through the established communication channels.<sup>30</sup>

#### *Trafficking*

109. Seventeen Governments used form D to report seizures of acetic anhydride for 2012; those seizures totalled 88,530 litres, less than half of the total seizures reported for 2011. Only five Governments reported for 2012 seizures of the substance in excess of 1,000 litres: Afghanistan (31,451 litres); Brazil (1,878 litres); China (17,131 litres); Mexico (35,040 litres); and Poland (1,755 litres). According to information provided to the Board, the acetic anhydride seized in countries other than Afghanistan continues to be diverted primarily from domestic—not international—distribution channels.

<sup>27</sup> *World Drug Report 2013* (United Nations publication, Sales No. E.13.XI.6), annex II.

<sup>28</sup> *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2012*, para. 106.

<sup>29</sup> *Ibid.*, para. 109.

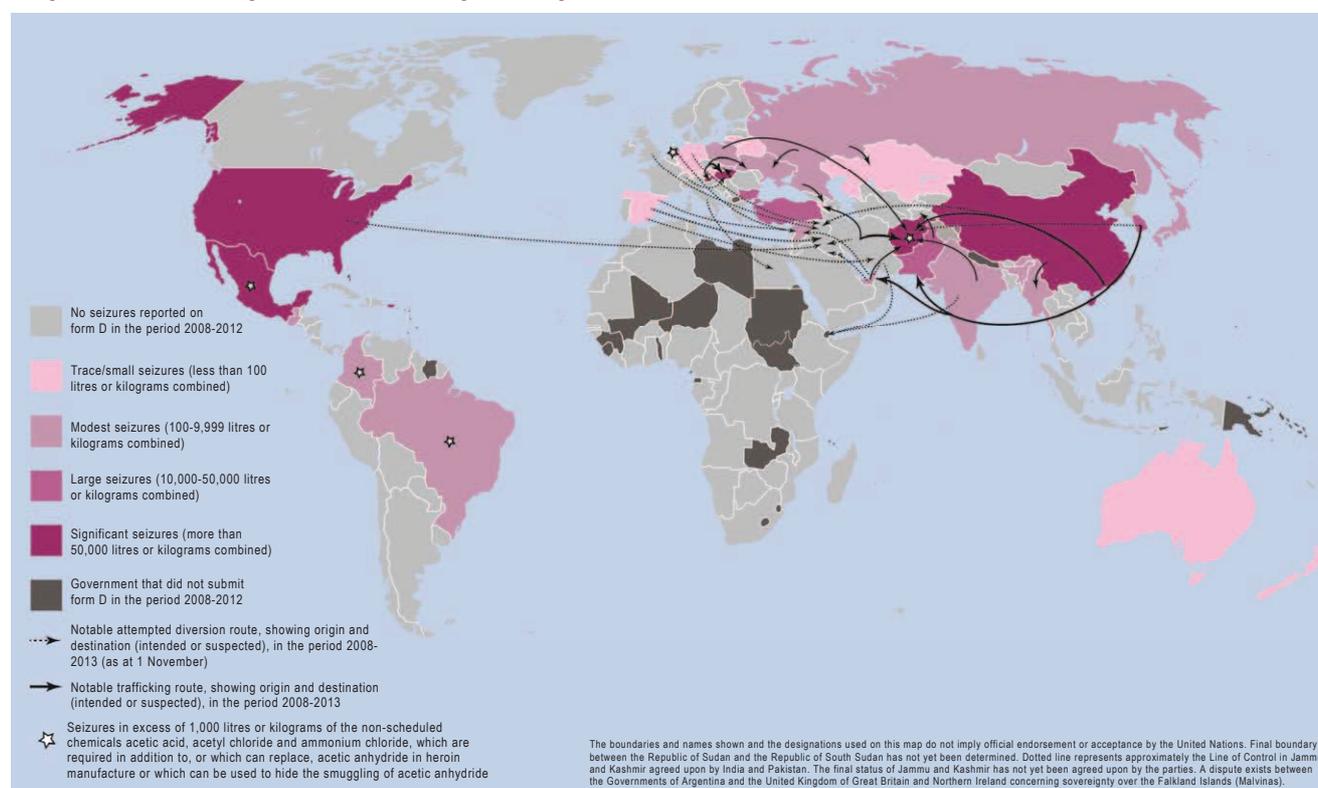
<sup>30</sup> Annual report questionnaire. Available from [www.unodc.org/unodc/en/commissions/CND/10-GlobalData.html](http://www.unodc.org/unodc/en/commissions/CND/10-GlobalData.html).

110. Iraq continues to be targeted by traffickers diverting acetic anhydride from international trade, even though the Government of that country has not reported to the Board any seizures of the substance (see map 7). Since January 2012, companies purportedly located in Iraq placed orders for shipments of acetic anhydride, amounting to a total of 35,000 litres, from companies in China. Since the legitimate need for the substance by the importing companies could not be substantiated, the shipments were suspended in the exporting country. The Board commends this practice and reiterates its request to all Governments to prevent the export of acetic anhydride to companies in Iraq unless the export has been duly authorized by the competent national authorities.

111. Twenty-five confirmed incidents relating to acetic anhydride, totalling 33 tons and 15,000 litres, were

communicated via PICS during the reporting period. The incidents occurred in Afghanistan, India, Iran (Islamic Republic of), Mexico and Pakistan. Authorities in Afghanistan reported seizing a total of 13,300 litres of acetic anhydride, often entering that country from the Islamic Republic of Iran. In June 2013, Iranian authorities seized 17.8 tons of acetic anhydride that had been smuggled in a container from China and destined for Afghanistan. In 2013, the Anti-Narcotics Force of Pakistan reported the seizure of a shipment containing over 103 tons of acetic anhydride and hydrochloric acid, which could be one of the largest single seizures of acetic anhydride ever reported; however, the amount of acetic anhydride in that seizure was not reported. The authorities of Pakistan also reported the seizure of 15 tons of acetic anhydride in mid-2013.

**Map 7. Acetic anhydride: seizures reported by Governments, 2008-2012, and notable transit routes, 2008-2013**

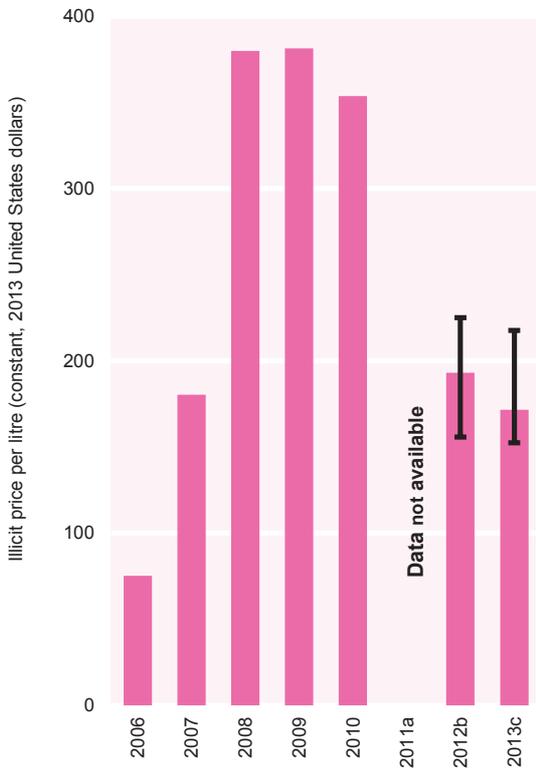


112. Afghanistan systematically monitors black market prices of acetic anhydride, which among other things, provide an indication of the availability of that key precursor in the country.<sup>31</sup> Those prices continued to decline to between 114 and 224 United States dollars per litre in October 2013, that price being estimated on the

basis of the perceived quality of the substance (see figure VIII). Acetic anhydride obtained from legitimate wholesale sources costs roughly US\$ 1.5 per litre. The continued decline in the price of acetic anhydride indicates that supplies of, or access to, the substance may have increased in Afghanistan. The illicit manufacture of heroin, which takes place primarily in Afghanistan, has followed a pattern similar to that of the price of acetic anhydride on the black market in that country, increasing sharply between 2006 and 2008 and then declining.

<sup>31</sup> *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2012*, box 2.

**Figure VIII. Price of acetic anhydride on the black market in Afghanistan, 2006-2013**



Sources: Ministry of Counter Narcotics of Afghanistan and the United Nations Office on Drugs and Crime.

ugs and Crime.

Note: Error bars represent the average illicit price range based on the perceived quality of the acetic anhydride, which were reported beginning in March 2012. Values represent the unweighted average of all samples.

<sup>a</sup> Data for 2011 are not available.

<sup>b</sup> Data for 2012 are for the period from March to December.

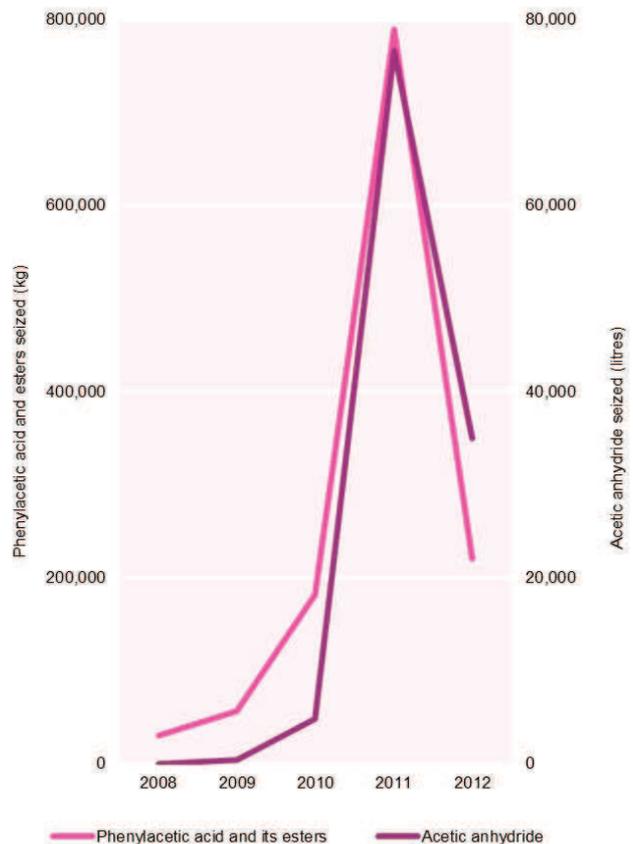
<sup>c</sup> Data for 2013 are for the period from January to October.

113. Reported seizures of acetic anhydride in Mexico increased significantly between 2008 and 2012, from 4 to 35,000 litres. According to figures made available by the United Nations Office on Drugs and Crime, illicit opium poppy cultivation in Mexico has increased to such an extent that the country now ranks third in the world—the total area in that country in which opium poppy is illicitly cultivated was estimated at 12,000 hectares in 2011.<sup>32</sup> However, there is a very high correlation between seizures of acetic anhydride in Mexico and seizures in that country of phenylacetic acid and its esters, substances that require acetic anhydride in the illicit manufacture of P-2-P and subsequently methamphetamine (see figure IX).

<sup>32</sup> *World Drug Report 2013* (United Nations publication, Sales No. E.13.XI.6), annex II.

114. Although seizures are an important indicator of drug trafficking activity, another indicator of such activity—one that is perhaps more important but arguably more difficult to ascertain—are assessments of attempted diversions (diversions that were prevented). As noted in the Board’s 2012 report on precursors,<sup>33</sup> the amount of acetic anhydride in shipments that were either stopped or suspended or identified as suspicious through the PEN Online system was nearly double the amount actually seized by law enforcement authorities. That is, the amount of acetic anhydride that the PEN Online system prevented from being diverted was far greater than the amount of acetic anhydride seized by law enforcement authorities after the substance had been diverted from legitimate channels.

**Figure IX. Seizures of acetic anhydride and phenylacetic acid (including its esters) reported by Mexico on form D, 2008-2012**



<sup>33</sup> *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances: Report of the International Narcotics Control Board for 2012*, para. 115.

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

115. Ammonium chloride is a non-scheduled substance commonly used as part of the extraction of morphine from opium. Governments, particularly Governments of countries in which illicit heroin manufacture is known to take place, are reporting increasingly large seizures of ammonium chloride. Between 2008 and 2012, nearly 94 tons of the substance were reported seized, the largest seizures being reported in Afghanistan and, in recent years, Mexico (see table 4). During the reporting period, the

Government of Afghanistan communicated seven incidents involving ammonium chloride, seizing nearly 1.8 tons. The largest of those seven seizures, effected in a warehouse in Badakhshan province, amounted to 1,057 kg of ammonium chloride that had originated in Pakistan. In view of recent developments, the Board encourages the Government of Afghanistan: to assess its legitimate requirements for ammonium chloride and other substances not under international control that can be used in the illicit manufacture of heroin; and, pursuant to article 24 of the 1988 Convention, to monitor its trade in those substances.

**Table 4. Seizures of ammonium chloride reported by Governments on form D, 2008-2012 (Kilograms)**

Government	2008	2009	2010	2011	2012	Total
Afghanistan	10 188	348	32 663	13 154	32 453	88 806
Hungary	0	0	0	1	0	1
Mexico	8	0	0	1 418	3 034	4 459
Spain	0	250	0	0	0	250
Total	10 196	598	32 663	14 572	87 553	93 516

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

### 1. Ergot alkaloids and lysergic acid

#### *Licit trade*

116. Ergot alkaloids (ergometrine and ergotamine and their salts) are used in the treatment of migraines and as an oxytocic in obstetrics, but there is comparatively limited international trade in those substances. During the reporting period, 337 shipments of ergot alkaloids, totalling 145 kg, were reported; 17 countries exported ergot alkaloids to 53 countries. In addition, there were three shipments of lysergic acid, totalling 0.5 kg, during the reporting period.

#### *Trafficking*

117. The Governments of five countries—Australia, Canada, Mexico, the United States and Ukraine—used form D to report seizures of ergot alkaloids in 2012. The Government of Mexico reported the largest of those seizures—1.6 kg of ergotamine; that was the largest seizure of that substance reported since 2007 and the first time that that Government had informed the Board of a seizure of that substance. In April 2012, customs authorities at the international airport at Mexico City seized a can containing

1.63 kg of ergotamine; no information was provided about the origin of the seized substance. In 2012, Australia informed the Board of seizures of lysergic acid totalling 0.69 kg—the largest seizures of that substance ever reported to the Board.

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

#### *Licit trade*

118. *N*-Acetylanthranilic acid and anthranilic acid are used in the illicit manufacture of methaqualone, a sedative-hypnotic whose illicit use is particularly common in parts of Africa. During the reporting period, two shipments of *N*-acetylanthranilic acid, totalling slightly more than 1 kg, were reported; two countries exported the substance to two importing countries. In addition, there were 277 shipments of anthranilic acid totalling 1,120 tons during the reporting period.

#### *Trafficking*

119. Seizures of either *N*-acetylanthranilic acid or anthranilic acid are uncommon. In 2012, only one seizure of *N*-acetylanthranilic acid was reported to have been made; that seizure, totalling 1 kg, was reported by the United Kingdom. There were no communications via PICS relating to *N*-acetylanthranilic acid or anthranilic acid. Until recently, reports of the illicit manufacture of methaqualone on a large scale came from South Africa,

where tablets containing methaqualone are commonly referred to as Mandrax (the brand name of a pharmaceutical product banned in the 1970s); unfortunately, the Government of South Africa has not provided any information to the Board on any seizures of precursor chemicals since 2008.

### E. Substances used in the manufacture of non-scheduled substances of abuse

120. There are a variety of other substances for which Governments use form D to provide information on seizures and/or illicit manufacture. Over the last couple of years, more and more information has been provided about emerging, non-scheduled substances of abuse, commonly referred to by the umbrella term “new psychoactive substances”. Such substances are sometimes also referred to as “designer drugs”, “herbal highs” or “research chemicals”. As new psychoactive substances are non-scheduled substances, they are often manufactured in industrial settings on demand, traded in bulk and then processed into their final form in clandestine laboratories that are reported to the Board. During that process, scheduled and non-scheduled solvents are required.

121. The Government of Romania reported on form D the dismantling in 2012 of two clandestine laboratories—one in Bucharest and the other in Buzău county—used for processing (i.e. refining, tableting, cutting and packaging) new psychoactive substances. At those laboratories, plant components had been mixed with new psychoactive substances and packaged for distribution. Numerous non-scheduled substances were seized at both laboratories.

122. *gamma*-Butyrolactone (GBL), one of several substances sometimes referred to as “date-rape” drugs, is also used in the illicit manufacture of *gamma*-hydroxybutyric acid. In 2012, there was a significant increase in the amount of GBL seized by Governments: the Governments of 10 countries, mostly in Europe, reported on form D the seizure of a total of 47,394 litres (or kilograms)—nearly 10 times the previous record amount (4,924 litres, reported to the Board in 2008). The Netherlands reported seizing 43,000 litres of GBL, most of which was discovered in a warehouse after having arrived from China. Canada reported seizing 3,157 litres of the substance that had been smuggled in a shipping container originating in China.

123. The abuse of ketamine, an anaesthetic not under international control, is common throughout East and South-East Asia, but its abuse is also being reported in countries in other regions, such as Europe. China reported that in 2012, 4.7 tons of ketamine had been seized and

nearly 8 per cent of the registered drug abusers in the country had been abusing ketamine. “Hydroxylimine” is the common name for an immediate precursor of ketamine. The Government of China reported on form D that 6.8 tons of “hydroxylimine” had been seized in 2012, a decline over the amount reported for 2011. Canada reported seizing 50 kg of the substance in 2012. Governments are reminded that it is important to communicate via PICS incidents involving chemicals that are not currently under international control and to use form D each year to provide aggregated data on seizures of precursor chemicals.

## IV. Action to enhance international precursor control

124. The Board’s 2011 report on precursors focused on achievements and progress in terms of implementing the framework requirements established under the 1988 Convention and related resolutions; and the Board’s 2012 report on precursors focused on challenges in international precursor control. In those reports, the Board noted that the basic tools for countering diversion were not being utilized by all countries, the greatest gaps being among lower-income countries; in some cases, entire regions were lagging behind. The Board also drew attention to new challenges that had emerged and had not been comprehensively addressed within the existing legal framework or that were becoming increasingly more important.

125. Those new challenges include (a) the rapid adaptation by chemical trafficking organizations to changes in regulatory systems and successful law enforcement; (b) the increasing sophistication in the illicit manufacture of drugs and their precursors; and (c) the diversity in the use of alternative chemicals for illicit drug manufacture.

126. The present chapter represents a continuation of the series of thematic chapters in the Board’s report on precursors. Building on an analysis of the utilization of basic tools of international precursor control (see table 5) and the findings of previous reports, it outlines action to be given priority in different regions. Not every action identified applies to every country within the region to the same extent. In some instances, the action to be given priority in one region may be applicable to countries in other regions. However, as it is unrealistic to expect all actions to be addressed at the same time, the present chapter is intended to help the authorities in the regions concerned to focus their precursor control efforts (see table 6).