



**UNODC**

United Nations Office on Drugs and Crime

# Global Synthetic Drugs Assessment

**Amphetamine-type stimulants and  
new psychoactive substances**



2014



UNITED NATIONS OFFICE ON DRUGS AND CRIME  
Vienna

# 2014 Global Synthetic Drugs Assessment

Amphetamine-type stimulants and  
new psychoactive substances



UNITED NATIONS  
New York, 2014

## Acknowledgements

The *2014 Global Synthetic Drugs Assessment* was prepared by the UNODC Laboratory and Scientific Section under the supervision of Angela Me, Chief of the Research and Trend Analysis Branch (RAB), and Justice Tettey, Chief of the Laboratory and Scientific Section (LSS).

### **Core team**

#### *Research*

Natascha Eichinger  
Conor Crean  
Shawn Kelley  
Tun Nay Soe  
Juan Carlos Araneda  
Martin Raithelhuber  
Sabrina Levissianos  
Kristal Piñeros

#### *Graphic design, layout and mapping support*

Suzanne Kunnen  
Kristina Kuttinig

The Laboratory and Scientific Section would like to thank the following Governments who made the development of this report possible through their contributions:

#### *Global SMART Programme*

Government of Australia  
Government of Canada  
Government of Japan  
Government of New Zealand  
Government of the Republic of Korea  
Government of the Russian Federation  
Government of Thailand  
Government of the United Kingdom  
Government of the United States

#### *Research in West Africa (project XAWV29)*

Government of the Netherlands

The Laboratory and Scientific Section is also grateful for the valuable contributions provided by the following experts:

#### *UNODC Regional Office for West and Central Africa in Senegal (ROSEN)*

David Izadifar

The report also benefited from the work and expertise of many other UNODC staff members in Vienna and around the world.



## CONTENTS

General abbreviations	iii
Chemical abbreviations	v
Explanatory notes	vii
1. GLOBAL OVERVIEW	1
2. AFRICA	11
3. EAST AND SOUTH-EAST ASIA, OCEANIA AND THE PACIFIC	19
4. EUROPE	33
5. MIDDLE EAST	43
6. NORTH AMERICA	49
7. SOUTH AMERICA, CENTRAL AMERICA AND THE CARIBBEAN	57
8. WESTERN AND CENTRAL ASIA	63
9. PRECURSOR TRENDS AND MANUFACTURING METHODS	69

## DISCLAIMERS

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made.

Suggested citation: UNODC, *2014 Global Synthetic Drugs Assessment* (United Nations publication, Sales No. E.14.XI.6)

Comments on the report are welcome and can be sent to:

Laboratory and Scientific Section  
Division for Policy Analysis and Public Affairs  
United Nations Office on Drugs and Crime  
P.O. Box 500  
1400 Vienna  
Austria  
E-mail: [globalsmart@unodc.org](mailto:globalsmart@unodc.org)  
Tel.: (+43) 1 26060 0  
Fax: (+43) 1 26060 5827

The content of this publication does not necessarily reflect the views or policies of UNODC, Member States or contributory organizations, and nor does it imply any endorsement.

This document has not been formerly edited. The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

## UNITED NATIONS PUBLICATION

Sales No. E.14.XI.6  
e-ISBN 978-92-1-056697-1

Pictures © University Medical Center Freiburg, Germany; Central Narcotics Bureau, Singapore; DEA; UNODC; Shutterstock. Please note that some of the products (Ketamine, Piperazines) shown in the photos are simulated.

© United Nations, May 2014. All rights reserved, worldwide.

## GENERAL ABBREVIATIONS

- ACC** Australian Crime Commission
- ACMD** Advisory Council on the Misuse of Drugs (United Kingdom)
- ADEC** Asia-Pacific Operational Drug Enforcement Conference
- AIHW** Australian Institute of Health and Welfare
- ANGA** Anti-Narcotics General Administration (Egypt)
- ARQ** Annual Reports Questionnaire (UNODC)
- BCS** British Crime Survey (United Kingdom)
- CCDAC** Central Committee for Drug Abuse Control (Myanmar)
- CICAD** Inter-American Drug Abuse Control Commission (Organisation of American States)
- CILAD** Interministerial Committee for the Fight Against Drugs (Côte d'Ivoire)
- CND** Commission on Narcotic Drugs (United Nations)
- CNPA** Counter Narcotics Police of Afghanistan
- CSEW** Crime Survey for England and Wales
- DAINAP** Drug Abuse Information Network for Asia and the Pacific
- DAINLAC** Drug Abuse Information Network for Latin America and the Caribbean
- DDB** Dangerous Drugs Board (Philippines)
- DEA** Drug Enforcement Administration (United States)
- EMCDDA** European Monitoring Centre for Drugs and Drug Addiction
- EU** European Union
- EUROPOL** European Police Office
- EWA** Early Warning Advisory on new psychoactive substances (UNODC)
- EWS** Early Warning System (European Union)
- HKNB** Hong Kong Police Force
- HONLAF** Meetings of Heads of National Drug Law Enforcement Agencies (Africa)
- HONLEA** Meetings of Heads of National Drug Law Enforcement Agencies (Asia and the Pacific)
- ICE** International Collaborative Exercises (UNODC)
- IDEAS** Illicit Drug seizures with relation to European Airports (database)
- INCB** International Narcotics Control Board
- INCSR** International Narcotics Control Strategy Report (United States)
- KOM** Turkish National Police
- MMIA** Murtala Muhammed International Airport (Nigeria)
- MNC** Ministry of Narcotics Control (Pakistan)
- NACADA** National Campaign Against Drug Abuse Authority (Kenya)
- NACRO** National Association for the Care and Resettlement of Offenders (United Kingdom)
- NDIB** National Drug Intelligence Bureau (New Zealand)
- NDLEA** National Drug Law Enforcement Agency (Nigeria)
- NIDA** National Institute on Drug Abuse (United States)
- NNB** National Narcotics Board (Indonesia Police)

- NNCC** National Narcotics Control Commission (China)
- NPA** National Police Agency (Japan)
- NPS** New psychoactive substances
- NSDUH** National Survey on Drug Use and Health (United States)
- OAS** Organization of American States
- OID** Inter-American Observatory on Drugs
- ONCB** Office of the Narcotics Control Board (Thailand)
- PAAD** Operation Phenylacetic Acid and its Derivatives (INCB)
- PPB** Pharmacy and Poisons Board (Kenya)
- PRADICAN** Andean Community Programme against Illicit Drugs
- RCMP** Royal Canadian Mounted Police
- RMP** Royal Malaysian Police
- SACENDU** South African Community Epidemiology Network on Drug Use
- SAMHSA** Substance Abuse and Mental Health Services Administration (United States)
- SICECA** Information System of the State Council on Addictions (Mexico)
- SMART** Global Synthetics Monitoring: Analyses, Reporting and Trends Programme (UNODC)
- UNODC** United Nations Office on Drugs and Crime
- WDR** World Drug Report (UNODC)
- WHO** World Health Organization
- YSS** Youth Smoking Survey (Canada)



## CHEMICAL ABBREVIATIONS

<b>25B-NBOMe</b>	1-(4-Bromo-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine	<b>DMT</b>	Dimethyltryptamine
<b>25C-NBOMe</b>	1-(4-Chloro-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine	<b>GHB</b>	<i>Gamma</i> -hydroxybutyrate
<b>25I-NBOMe</b>	1-(4-Iodo-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine	<b>JWH-018</b>	(1-Pentyl-1H-indol-3-yl)-1-naphthalenyl-methanone
<b>3,4-MDP-2-P</b>	3,4-Methylenedioxyphenylpropan-2-one	<b>LSD</b>	(+)-Lysergide
<b>2-AI</b>	2-Aminoindane	<b>mCPP</b>	1-(3-Chlorophenyl) piperazine
<b>2C-B</b>	4-Bromo-2,5-dimethoxyphenethylamine	<b>MDA</b>	3,4-Methylenedioxyamphetamine
<b>2C-E</b>	4-Ethyl-2,5-dimethoxyphenethylamine	<b>MDAI</b>	5,6-Methylenedioxy-2-aminoindane
<b>2C-I</b>	4-Iodo-2,5-dimethoxyphenethylamine	<b>MDEA/MDE</b>	3,4-Methylenedioxyethylamphetamine
<b>5-MeO-DMT</b>	5-Methoxy-N,N-dimethyltryptamine	<b>MDMA</b>	3,4-Methylenedioxymethamphetamine
<b>5-MeO-DPT</b>	5-Methoxy-N,N-dipropyltryptamine	<b>MDPBP</b>	3,4-Methylenedioxy- $\alpha$ -pyrrolidinobutyrophenone
<b>AKB-48/</b>	1-Pentyl-N-tricyclo[3.3.1.1 <sup>3,7</sup> ]	<b>MDPV</b>	3,4-Methylenedioxypropylvalerone
<b>APINACA</b>	dec-1-yl-1H-indazole-3-carboxamide	<b>MN-24</b>	1-Pentyl-N-(naphthalen-1-yl)-1H-indole-3-carboxamide
<b>APAAN</b>	<i>alpha</i> -Phenylacetoacetonitrile	<b>NPS</b>	New Psychoactive Substances
<b><math>\alpha</math>-PVP</b>	<i>alpha</i> -Pyrrolidinopentiophenone	<b>P-2-P/PMK</b>	1-Phenyl-2-propanone
<b>ATS</b>	Amphetamine-type stimulants	<b>PB-22</b>	Quinolin-8-yl-1-pentyl-1H-indole-3-carboxylate
<b>bk-MBDB</b>	1-(1,3-Benzodioxol-5-yl)-2-(methylamino)butan-1-one	<b>PCP</b>	Phencyclidine
<b>BTCP</b>	Benzothiophenylcyclohexylpiperidine	<b>PMMA</b>	<i>para</i> -Methoxymethamphetamine,
<b>BZP</b>	1-Benzylpiperazine	<b>TFMMP</b>	1-(3-Trifluoromethylphenyl)piperazine
		<b>THC</b>	<i>delta</i> -9-Tetrahydrocannabinol



## EXPLANATORY NOTES

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Countries and areas are referred to by the names that were in official use at the time the relevant data were collected.

The following notes describe certain terms, data sources and timeframes used throughout this document.

**ATS** – Amphetamine-type stimulants (ATS) are a group of substances comprised of synthetic stimulants, including amphetamine, methamphetamine, methcathinone, and ecstasy-type substances (e.g. MDMA and its analogues). In various sections of the present report, amphetamine and methamphetamine are also referred to as amphetamines. In cases where countries reported to UNODC without indicating the specific ATS they are referring to, the term non-specified ATS was used. Often drug use surveys in South America, Central America and the Caribbean do not differentiate between the use of amphetamines (methamphetamine and amphetamine) and non-medical use of prescription ATS, by using the term "stimulants".

**Ecstasy** – Tablets which are marketed to contain an ecstasy-type substance, but may actually contain a variety of other substances, are referred to as "ecstasy" in inverted commas. Use of ecstasy-type substances was usually reported separately in drug use surveys and is therefore not included in the non-specified ATS group.

**NPS** – New psychoactive substances are substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat. In this context, the term 'new' does not necessarily refer to new inventions but to substances that have been recently become available.

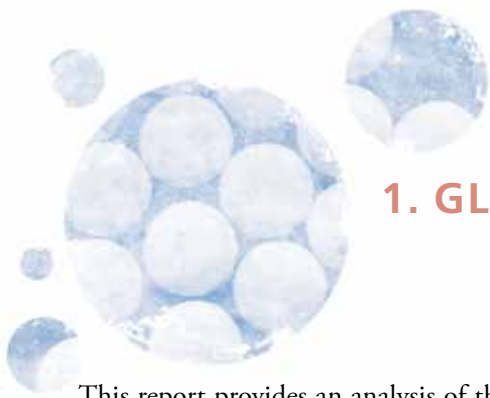
**Synthetic drugs** – For the purpose of this report, the term synthetic drugs includes both Amphetamine-Type Stimulants (ATS) and New Psychoactive Substances (NPS).

**Maps** – The origins of the drug flow arrows do not necessarily indicate the source/manufacture of the drug in question, but instead represent the flows as perceived by recipient countries. The boundaries and names shown and the designations used on maps do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. A dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

**Data Sources** – Unless indicated specifically, data contained in this report draws upon official sources as reported in the UNODC Annual Reports Questionnaire (ARQ), the UNODC questionnaire on new psychoactive substances by Member States and the International Collaborative Exercises (ICE) network of drug analysis laboratories, annual and technical reports of the International Narcotics Control Board (INCB) and the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), official government and inter-governmental entities (e.g., Interpol/ICPO, Europol, Inter-American Drug Abuse Control Commission of (CICAD), UNODC Field Offices and HONLEA and HONLAF reports, data systems (e.g., DAINAP, DAINLAC) and scientific literature.

**Data Timeframes** – The statistical data contained in this report covers the period 2008-2012, except in instances where a longer historical timeframe is necessary to provide a clear explanation of manufacture/emergence, use and trafficking of ATS and NPS. Data related to seizures of ATS, their precursors and clandestine laboratories are subject to change for a variety of reasons, such as new or late data being added or revisions in data already provided by Member States. Thus, some figures may differ from previously published figures. All data reported herein reflect the most up-to-date and accurate information available at the time of writing.





## 1. GLOBAL OVERVIEW

This report provides an analysis of the global synthetic drugs market and for this purpose includes both Amphetamine-Type Stimulants (ATS) and New Psychoactive Substances (NPS). The expansion of global ATS markets is of increasing concern, conveyed by the 2009 Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem. This report aims to provide an improved understanding of the problem based on scientific evidence and experiences that show the complex interplay between the demand for and the supply of ATS in different contexts. Previous reports have focused on ATS, but given the growing presence of NPS on illicit drug markets, this report takes a more comprehensive view of the situation. Plant-based psychoactive substances, such as khat, have also been included in discussions on emerging NPS, as these have become of increasing concern in certain regions.

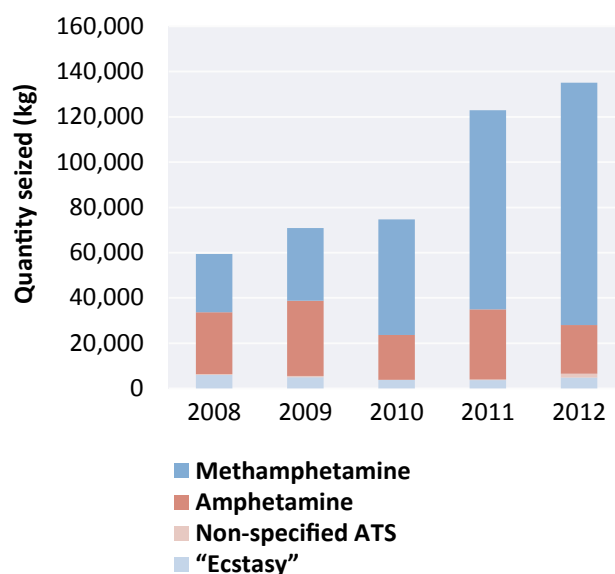
While the NPS issue is not new, it has gained in importance on an international level at the fifty-fifth session of the Commission on Narcotic Drugs (CND) in March 2012, when Member States decided to monitor emerging trends in the composition, production and distribution of NPS as well as patterns of use, and to share that information and adopt appropriate measures aimed at reducing supply and demand.<sup>1</sup> The use of NPS that pose a health threat, has grown rapidly over the past decade and there have been increasing reports of the availability and manufacture of such substances. Given the fast-paced nature of the NPS market, there is a continued need for analysis of the scope and magnitude of the global synthetic drugs problem based on forensic and scientific data and qualitative information for effective policy decision-making.

### Growing global markets for ATS

Based on 2010 figures, the last Global ATS Assessment published in 2011, confirmed that ATS were firmly established on global illicit drug markets and that use levels often exceeded those of heroin and/or cocaine. Since 2010, however, surging ATS seizures point to a rapid expansion of the global market, with total ATS seizures rising by more than 80 per cent to more than 135 tons in 2012. The increase of ATS seizures is primarily attributable to the

growing amount of global methamphetamine seizures, which have more than doubled over the same period, reaching 107 tons in 2012. The growing importance of methamphetamine is a new feature of the global ATS market.

**Fig. 1:** Total ATS seizures reported worldwide, 2008-2012



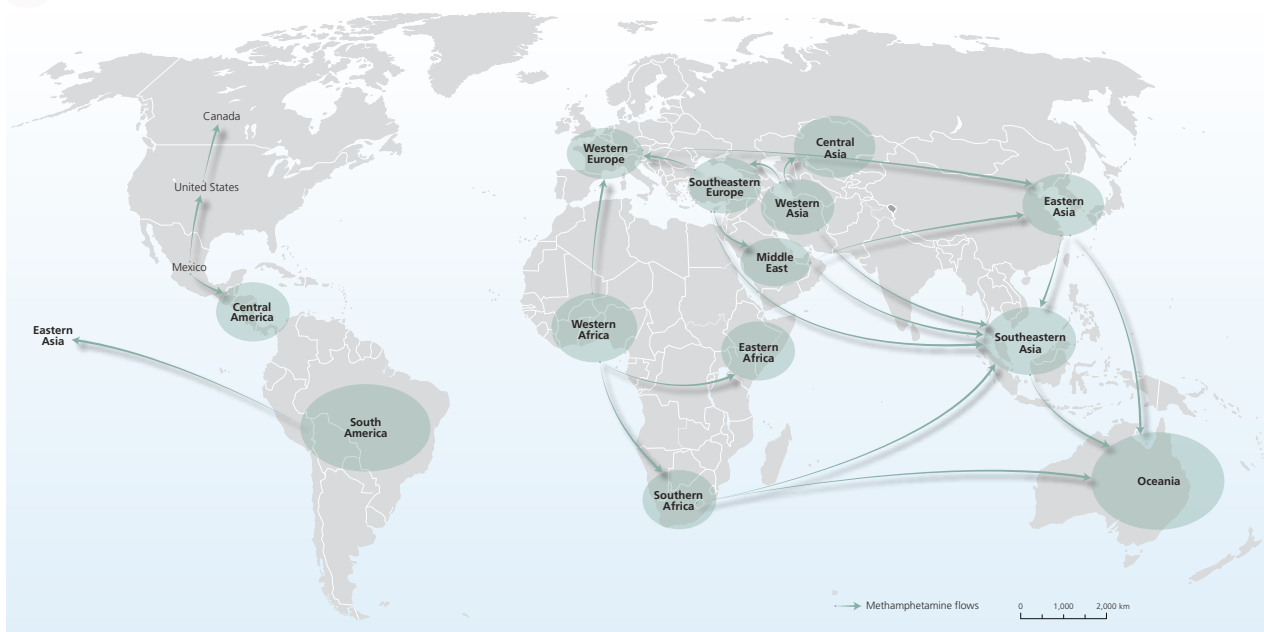
Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

The high level of global methamphetamine seizures in recent years has been primarily due to the rise of seizures in East and South-East Asia and North America. Prevalence figures and treatment data indicate that methamphetamine is a major problem in several countries in East and South-East Asia, such as Brunei Darussalam, Cambodia, the Philippines, Singapore and Thailand.<sup>2</sup> Extensive methamphetamine manufacture has been reported in Mexico and the United States and increasing amounts are being smuggled from Mexico to the United States.<sup>3</sup> Already prior to 2011 there were indications of an expansion of the ATS market in Europe in terms of use and manufacture. This trend was confirmed by recent data.

<sup>1</sup> This is reflected in CND resolution 55/1 on promoting international cooperation in responding to the challenge posed by new psychoactive substances. In March 2013, CND Resolution 56/4 further encouraged UNODC to share and exchange ideas, efforts, good practices and experiences in adopting effective responses to address the unique challenges posed by new psychoactive substances.

<sup>2</sup> Drug Abuse Information Network for Asia and the Pacific (DAINAP); United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Brunei Darussalam, the Philippines and Singapore 2012.

<sup>3</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2007-2012; US Department of Justice, Drug Enforcement Administration (DEA), *National Drug Threat Assessment Summary 2013*, November 2013.

**Map 1:** Methamphetamine flows as perceived by recipient countries, 2008-2012

Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012; Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009 – July 2013; Data derived from ‘Illicit Drug seizures with relation to European Airports’ (IDEAS) database, 2009-2012; Australian Crime Commission (ACC), Illicit Drug Data Report 2009-2010, Canberra, June 2011; ‘Turkish Report of Anti-Smuggling and Organised Crime 2011’, Turkish National Police, Ankara, March 2012; International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2012, Vienna, January 2013.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of methamphetamine. These arrows represent the flows as perceived by recipient countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

Over the years, global amphetamine seizures have fluctuated, ranging between about 20 tons and 33 tons annually since 2008. Amphetamine continues to be the main ATS of use in the Middle East and amphetamine seizures in this region have been steadily increasing, annually accounting for more than 55 per cent of amphetamine seized worldwide.<sup>4</sup> Although global “ecstasy”<sup>5</sup> seizures are comparatively low remaining below 6 tons annually, “ecstasy” continues to be the main ATS of use across Europe and the Oceania region.<sup>6</sup> However, amphetamine is still a major problem in large parts of Europe, particularly in Northern Europe.<sup>7</sup> In South and Central America, comparatively little data is available with regards to ATS, given that cannabis and cocaine continue to dominate the drug market and law enforcement efforts. Although ATS use among the general population remains at low levels, some countries in the region have reported high levels of use among youths, sometimes even exceeding cannabis and/

or cocaine use.<sup>8</sup> Generally, ATS use figures in Africa remain limited and, until a few years ago, ATS use appeared to be largely confined to South Africa. However, in the last few years, ATS use has been reported in some other African countries, particularly in West Africa.

### Expansion of global methamphetamine trafficking

The last global ATS assessment in 2011 reported on how ATS manufacture has spread beyond established markets in Europe, North America and Oceania to East and South-East Asia, West Africa and Central and South America. This trend has continued over the last few years. Particularly methamphetamine trafficking has expanded in terms of scope and quantity. The risk of ATS manufacture in several countries has also been heightened by the extensive availability of ATS precursor chemicals.

West Africa has become a prominent region for methamphetamine manufacture which is then trafficked to East and South-East Asia. According to seizure reports, ATS, in particular methamphetamine, has been trafficked from West Africa either directly or via Southern Africa and Western Europe to East and South-East Asia and Oceania,

4 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2004-2012

5 In this report “ecstasy” is in inverted commas to indicate that pills are marketed to contain MDMA or other ecstasy-group substance, which may actually contain a variety of other substances.

6 United Nations Office on Drugs and Crime (UNODC), *World Drug Report 2013*, New York, May 2013.

7 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Denmark, Latvia and Sweden in 2010-2012.

8 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Bolivia, Honduras, Costa Rica and Jamaica 2008-2012.



mostly to Australia, Japan, Malaysia and Thailand.<sup>9</sup> Since 2009, about 86 per cent of ATS originating from West Africa seized at Western European and Japanese airports, were destined for countries in East and South-East Asia, predominantly Japan as well as Malaysia.<sup>10</sup> From Southern Africa, ATS is also being trafficked to Australia.<sup>11</sup>

According to the Turkish authorities, Turkey serves as a transit point for methamphetamine smuggled from the Islamic Republic of Iran to East and South-East Asian countries.<sup>12</sup> Between 2010 and 2012, methamphetamine seizures perceived to have originated in the Islamic Republic of Iran were reported by Indonesia, Malaysia and Thailand.<sup>13</sup> However, there have been no reports of dismantled methamphetamine laboratories in the Islamic Republic of Iran in recent years.<sup>14</sup> Recently, there has been an emergence of methamphetamine trafficking from the Islamic Republic of Iran to Europe.<sup>15</sup> There have also been reports of methamphetamine (including other drugs under international control) trafficked from the Islamic Republic of Iran to other regions of the world, such as Central Asia<sup>16</sup> and the Middle East<sup>17</sup>.

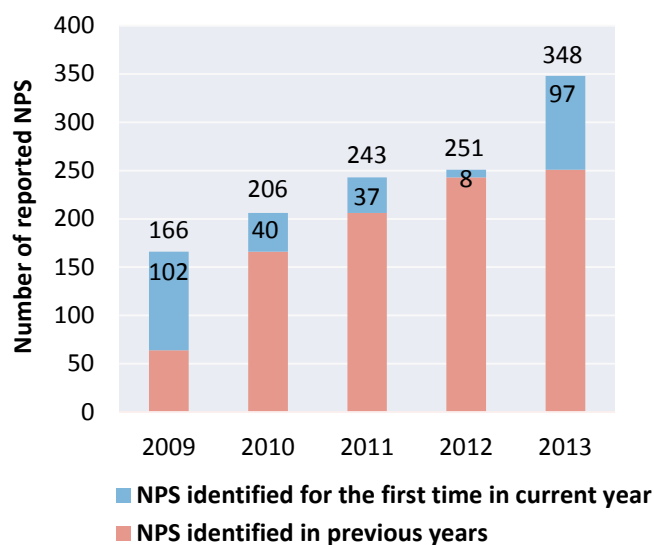
### Recent trends in precursor chemicals used in the manufacture of ATS and synthetic drugs

As a result of the increased awareness of the main precursor chemicals used for the manufacture of ATS and synthetic substances, a number of Member States have introduced and/or amended their legislation to more

closely monitor shipments of precursor chemicals, leading to an increase in the number of countries reporting seizures of these chemicals to the International Narcotics Control Board (INCB).<sup>18</sup>

A second trend in recent years is the increased use of alternate forms of known precursors such as pharmaceutical preparations containing pseudoephedrine/ephedrine in certain regions of the world and the use of alternate precursor chemicals in the manufacture of ATS. Phenylacetic acid, one such alternate precursor used for the manufacture of amphetamine and methamphetamine was recently rescheduled from Table II to Table I of the 1988 United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances which invokes stricter import and export controls. The illicit manufacture of ATS is flexible, and drug traffickers are increasingly using non-controlled precursors such as certain phenylacetic acid derivatives as well as novel precursor chemicals such as alphaphenylacetoacetonitrile (APAAN)<sup>19</sup> for the manufacture of amphetamine/methamphetamine and other

**Fig. 2:** Number of NPS reported at the global level, 2009 to 2013 (cumulative)



Source: United Nations Office on Drugs and Crime (UNODC) questionnaire on new psychoactive substances, 2012; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme.

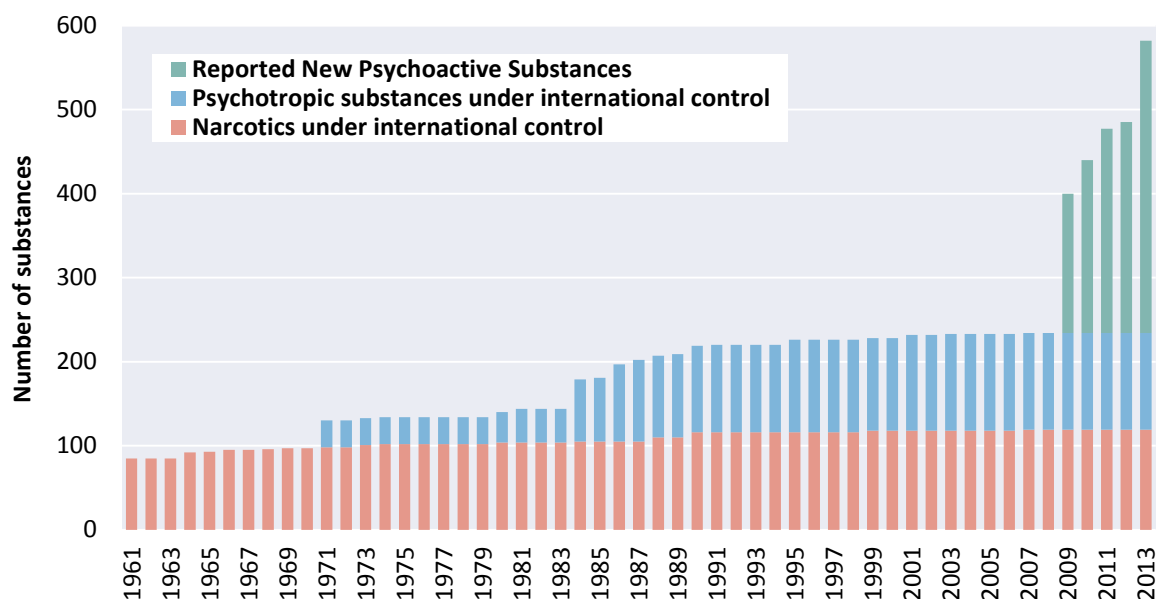
Note: For some substances reported in 2013 the reference period may have been August to December 2012.

- 9 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012; Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009 – July 2013; Data derived from 'Illicit Drug seizures with relation to European Airports' (IDEAS) database, 2009-2013; Australian Crime Commission (ACC), *Illicit Drug Data Report 2009-2010*, Canberra, June 2011.
- 10 Data derived from 'Illicit Drug seizures with relation to European Airports' (IDEAS) database, 2009-2013.
- 11 Australian Crime Commission (ACC), *Illicit Drug Data Report 2009-2010*, Canberra, June 2011.
- 12 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012; "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.
- 13 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia, Malaysia and Thailand 2010-2012.
- 14 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Islamic Republic of Iran 2010-2012.
- 15 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Bulgaria, Germany, the Russian Federation and Turkey 2010-2012; "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.
- 16 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Tajikistan 2012.
- 17 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Syrian Arab Republic 2011.

18 International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

19 At the time of preparation of this report, alpha-phenylacetoacetonitrile (APAAN) was on the agenda of the fifty-seventh session of the Commission on Narcotic Drugs (CND) for the inclusion in Table I of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988.

**Fig. 3:** Number of new psychoactive substances not under international control and substances controlled under the international drug conventions, 1961-2013



Source: I. Bayer and H. Ghodse, "Evolution of international drug control, 1945-1995", *Bulletin on Narcotics*, vol. LI, Nos. 1 and 2, 1999 (United Nations publication) (for natural drugs until 1995 and synthetic drugs until 1948); *The International Drug Control Conventions* (United Nations publication, Sales No. E.09.XI.20); International Narcotics Control Board, list of narcotic drugs under international control ("Yellow List"), 50th ed., December 2011; International Narcotics Control Board, list of psychotropic substances under international control ("Green List"), 24th ed., May 2010; United Nations Office on Drugs and Crime (UNODC) questionnaire on new psychoactive substances, 2012; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme.

non-controlled chemicals that can be used to manufacture ecstasy-group substances.<sup>20</sup>

### Responding to the rapid expansion of NPS

A recent feature of global drug markets is the unprecedented pace at which new psychoactive substances (NPS) have been developed and at which these have emerged worldwide. By 2013, the emergence of 348 NPS had been reported to UNODC globally, the majority of which were identified between 2008 and 2013. Although UNODC has detected 348 NPS, the actual number of NPS available worldwide may be significantly higher, given that this figure only reflects reports of official sources and does not take unofficial sources into account. However, the NPS market is very dynamic and a number of NPS are transient in their nature. Therefore, the fact that certain NPS are present, does not mean that they have an established market.

Currently, 234 psychoactive substances (excluding esters and isomers) are under the governance of the 1961 Single Convention on Narcotic Drugs and the 1971 Convention on Psychotropic Substances. And yet, the variety of substances available on illicit drug markets is higher than ever. Over the last century, there has been an upward trend in the number of internationally scheduled substances. In

spite of the significant increase in NPS reported over the last few years and growing concerns about the health risks associated with them, no psychoactive substances have been internationally scheduled since 2009.<sup>21</sup>

In the absence of an international framework, Member States have developed different national legislative responses to NPS.<sup>22</sup> There is not yet sufficient evidence available to fully understand the effect of different legislative approaches on NPS markets. However, there are some cases that have shown a decline in NPS use after the implementation of national regulatory measures. In New Zealand, for example, BZP use declined sharply after it had been scheduled as a Class C drug in 2007 and in the United Kingdom there may have been a decline in the market for mephedrone following its classification as a class B substance under the Misuse of Drugs Act in 2010.<sup>23</sup> The

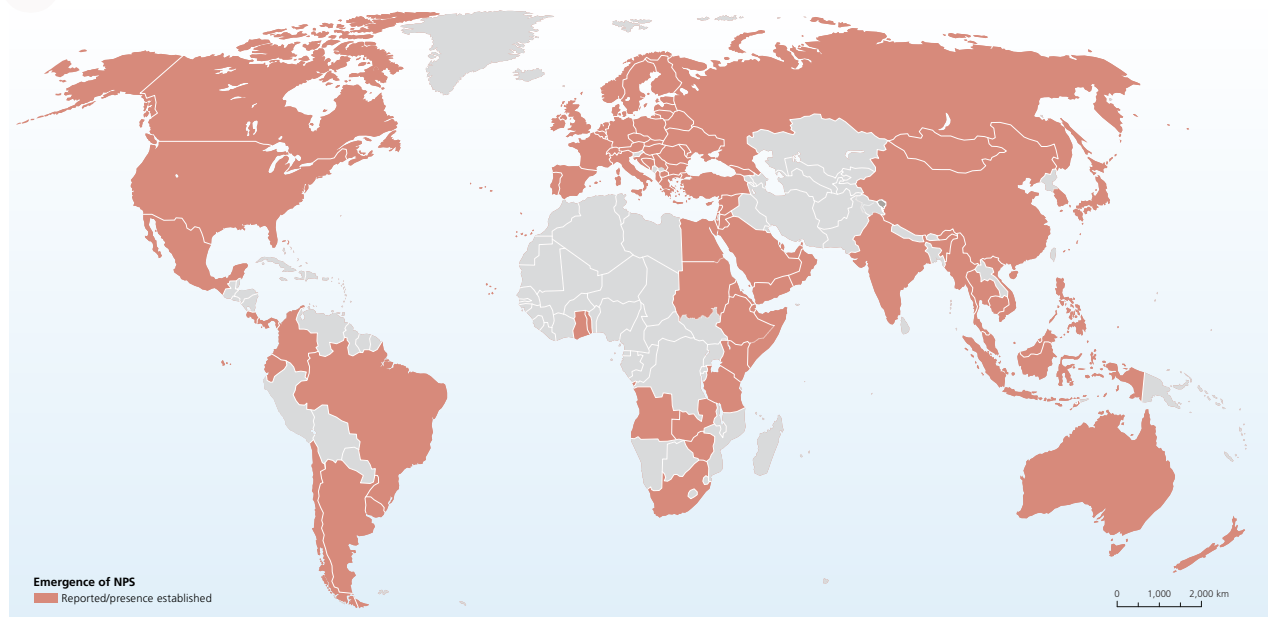
<sup>20</sup> For more detailed information on the precursors used for the illicit manufacture of controlled substances, see the upcoming 2014 World Drug Report which will contain a chapter dedicated to the topic.

<sup>21</sup> The World Health Organisation (WHO) Expert Committee on Drug Dependence has considered the control of some substances since 2009, such as ketamine, but so far there has been no decision to schedule any of these substances.

<sup>22</sup> For a detailed analysis and overview of national legislative responses to NPS see the UNODC Early Warning Advisory on New Psychoactive Substances: [www.unodc.org/nps](http://www.unodc.org/nps)

<sup>23</sup> C. Wilkins and P. Sweetsur, "The impact of the prohibition of Benzylpiperazine (BZP) 'legal highs' on the prevalence of BZP, new legal highs and other drug use in New Zealand", *Drug and Alcohol Dependence* 127, no. 1-3 (2013): 72-80; United Kingdom, Home Office, *Drug Misuse Declared: Findings from the 2011/12 British Crime Survey for England and Wales*, 2nd ed., London, July 2012.



**Map 2:** Global emergence of NPS, 2008 to 2013

Source: United Nations Office on Drugs and Crime (UNODC) questionnaire on new psychoactive substances, 2012; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada, Eritrea, Sweden, Tanzania and Zambia 2009-2012; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme; United Nations Office on Drugs and Crime (UNODC), World Drug Report 2013, New York, May 2013; World Bank, *Comprendre la dynamique du khat à Djibouti: Aspects Sociaux, économiques et de santé*, report No. 62823-DJ, Washington DC, 2011; United States Department of State, Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report, vol. 1, Drug and Chemical Control*, March 2012; "Khat use in Europe: implications for European policy", *Drugs in focus briefing of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)*, Luxembourg, 2011.

Note: The information presented in this map portrays the emergence of NPS among Member States which have been reported to UNODC in the questionnaire on new psychoactive substances in 2012 or in the UNODC Annual Report Questionnaire (ARQ) in 2008 to 2012. The presence of khat was established for Djibouti, Ethiopia, Kenya and Somalia based on information from various official sources. The fact that information with regards to NPS in some countries is not indicated does not mean that there is no NPS present in these countries; The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

effects of national control measures in the long run remain unknown since more time is needed to study the prevalence of NPS on the market.

### Diverse markets for NPS

By 2013, NPS had emerged in every region of the world, in a total of 94 countries worldwide.<sup>24</sup> Though there were a number of countries that did not provide any information on the emergence of NPS to UNODC, this does not

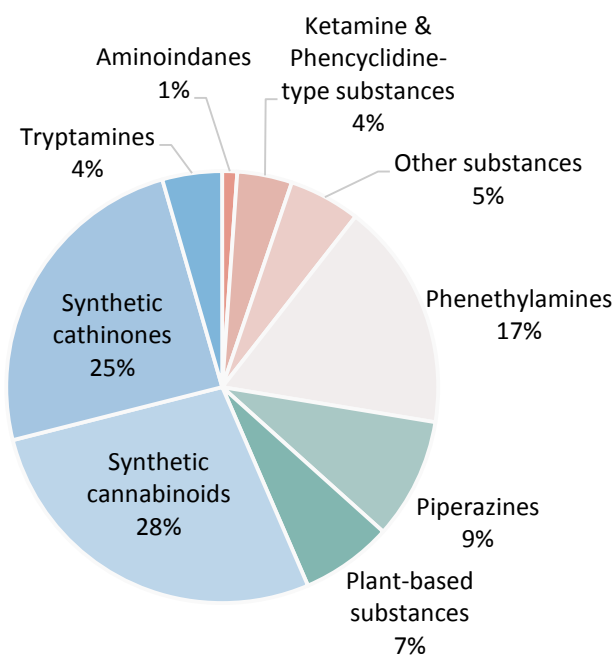
<sup>24</sup> Countries and territories reporting emergence of NPS: Albania, Andorra, Angola, Argentina, Australia, Austria, Bahrain, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Brunei Darussalam, Bulgaria, Cambodia, Canada, Cabo Verde, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, Denmark, Ecuador, Egypt, Eritrea, Estonia, Finland, France, Georgia, Germany, Ghana, Greece, Hong Kong (China), Hungary, India, Indonesia, Ireland, Israel, Italy, Japan, Jordan, Republic of Korea, Latvia, Lebanon, Liechtenstein, Lithuania, Luxembourg, Macedonia, Malaysia, Malta, Mexico, Republic of Moldova, Mongolia, Myanmar, Netherlands, New Zealand, Norway, Oman, Panama, Philippines, Poland, Portugal, Qatar, Romania, Russian Federation, Saudi Arabia, Serbia, Singapore, Slovakia, South Africa, Spain, Sudan, Sweden, Switzerland, Syrian Arab Republic, Tanzania, Thailand, Togo, Turkey, Ukraine, United Arab Emirates, United Kingdom, United States of America, Uruguay, Viet Nam, Yemen, Zambia, Zimbabwe. The presence of khat was established for Djibouti, Ethiopia, Kenya and Somalia based on information from various official sources.

mean that such substances were not present on these markets. NPS is a phenomenon that is difficult to detect because NPS identification requires an advanced level of forensic laboratory capacity.

Between 2008 and 2013, the majority of NPS in terms of the number of reports worldwide to UNODC, were synthetic cannabinoids at 28 per cent and synthetic cathinones at 25 per cent, followed by phenethylamines at 17 per cent. Together these three groups of NPS made up over two-thirds of the total number of reports of NPS at 70 per cent. By 2013, the total number of synthetic cannabinoids surged to 110 from 60 in mid-2012.

However, given that the largest number of NPS reports to UNODC were made by European and North American countries, the break-down of identified substances is generally representative of the trends in these regions and does not provide a clear global overview. On a region by region basis, trends somewhat vary. For instance, in South and Central America and the Caribbean, between 2008 and 2013, synthetic cannabinoids were the third most frequently reported NPS at about 17 per cent, after piperazines which made up the largest share at about 33 per cent

**Fig. 4:** Total number of NPS reports to UNODC by countries worldwide, 2008 to 2013



Source: United Nations Office on Drugs and Crime (UNODC) questionnaire on new psychoactive substances, 2012; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme.

and phenethylamines which accounted for a 26 per cent share. Over the same period, synthetic cannabinoids were the most frequently reported substance group in East and South-East Asia, Oceania and the Pacific at about 25 per cent, closely followed by ketamine and phencyclidine-type substances at 24 per cent.

### NPS are being sold on illicit drug markets

Many NPS available on the market contain molecules that might share similar effects and profiles of substances under international control that they are designed to mimic.<sup>25</sup> For instance, synthetic cannabinoids, which include the JWH series (eg. JWH-018<sup>26</sup>), are mimetics of THC (delta-9-tetrahydrocannabinol), which is the main psychoactive substance in cannabis. Synthetic cathinones, which include substances such as mephedrone, methylone and MDPV, can evoke stimulant and empathogenic effects similar to ATS, including MDMA.<sup>27</sup> Phenethylamines include sub-

25 So-called mimetics are substances that are chemically different but mimic the pharmacological effects of a particular substance, notably by acting on the same receptors of the brain; See United Nations Office on Drugs and Crime (UNODC), *World Drug Report 2013*, New York, May 2013.

26 JWH-018 is the chemical abbreviation of (1-pentyl-1H-indol-3-yl)-1-naphthalenyl-methanone, a synthetic cannabinoid not under international control.

27 For more information on the stimulant and empathogenic effects of mephedrone see Brunt, Tibor M. et. al. "Instability of the ecstasy

**Table 1:** NPS groups

NPS groups	Examples
Aminoindanes	2-AI, MDAI
Phencyclidine-type substances	Ketamine, methoxyeticyclidine
Phenethylamines	25B-NBOMe, PMMA
Plant-based substances	Khat <sup>1</sup> , kratom <sup>2</sup> , salvia divinorum <sup>3</sup>
Piperazines	BZP, TFMP
Synthetic cannabinoids	JWH-018, AKB-48
Synthetic cathinones	Mephedrone, MDPV
Tryptamines	5-MeO-DMT, 5-MeO-DPT

Source: United Nations Office on Drugs and Crime (UNODC).

<sup>1</sup> The khat shrub (*catha edulis*) of the Celastraceae family is a plant native to the horn of Africa and the Arabian peninsula and a plant-based NPS not under international control; United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, March 2013.

<sup>2</sup> *Mitragyna speciosa* Korth (of the Rubiaceae family) is a large tree known as "kratom" found in the tropical and sub-tropical regions of South-East Asia. Kratom is a plant-based NPS and neither kratom nor any of its active alkaloids are listed under the 1961 and 1971 UN Conventions; United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, March 2013.

<sup>3</sup> *Salvia divinorum* (of the mint family Lamiaceae), is a psychoactive plant indigenous to forest areas in Oaxaca, Mexico and a plant-based NPS not under international control; United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, March 2013.

stances such as the 2C series (eg. 2C-I) and NBOMe compounds (eg. 25I-NBOMe), which can exhibit effects ranging from stimulant to hallucinogenic.<sup>28</sup> Only a few substances of this group are already controlled under the 1971 Convention on Psychotropic Substances such as amphetamine, methamphetamine and MDMA.

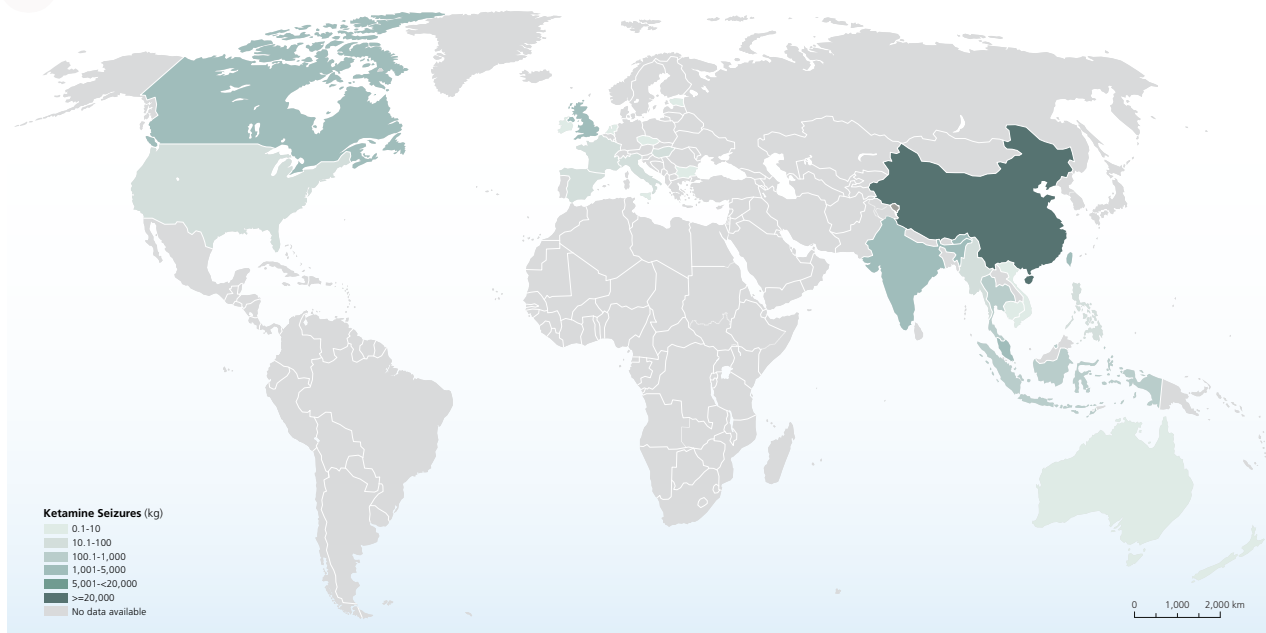
A recent feature has been that there have been several cases in which NPS have been sold on ATS and other illicit drug markets. For instance, in the United States, synthetic cannabinoids first emerged on the drug market in 2008 and were marketed as "legal alternatives to marijuana", as the use of these produce effects similar to those of cannabis.<sup>29</sup> In recent years, countries in Europe, Latin America and East and South-East Asia, as well as Canada and New Zealand, have reported of NPS, such as mephedrone, sold as "ecstasy", which is traditionally synonymous with MDMA.<sup>30</sup> Therefore, reports of high level "ecstasy" use

market and a new kid on the block: mephedrone" *Journal of Psychopharmacology* September 2010 (25): 1543-1547; Schifano, Fabrizio, et. al. "Mephedrone (4-methylmethcathinone; 'meow meow'): chemical, pharmacological and clinical issues", *Journal of Psychopharmacology* April 2011 (214): 593-602.

28 United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, March 2013.

29 US Department of Justice, Drug Enforcement Administration (DEA), *National Drug Threat Assessment Summary 2013*, November 2013.

30 European Monitoring Centre for Drugs and Drug Addiction

**Map 3:** Ketamine seizures reported worldwide, 2008-2012

Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2008-2012*.

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

in some of countries may be misleading. Similarly, various NBOMe compounds have been sold as LSD in South America, in countries, such as Chile and Colombia, and there have been reports of high LSD use among certain population groups in the region.<sup>31</sup> Overall, it remains unclear whether these new substances are replacing other controlled substances, in either the short or long term, or whether they are simply being used as a supplement to the range of existing drugs under international control.

### A large market for ketamine in East and South-East Asia

Ketamine<sup>32</sup> is a widely used anesthetic often used in veterinary as well as human medicine. However, ketamine is also widely misused for recreational purposes at clubs and raves, such as in South-East Asia, where it was also found

in seized tablets sold as “ecstasy”.<sup>33</sup> Side-effects of chronic ketamine use can include high blood pressure, abdominal pain, lower urinary tract symptoms, disorientation, impaired vision and confusion.<sup>34</sup>

Ketamine is more widely misused in East and South-East Asia than in the Americas and Europe. Among people held in prisons in Macau, China, in 2012 ketamine was the second most used drug in terms of annual prevalence at 18.3 per cent, after methamphetamine at 41.6 per cent.<sup>35</sup> Extensive ketamine use has also been reported in Brunei Darussalam, India, Japan, Myanmar and Singapore.<sup>36</sup>

High levels of ketamine seizures have been reported in China, including Hong Kong, China, over the years which have also accounted for a significant share of ketamine seizures reported worldwide. Between 2008 and 2011, ketamine seizures in mainland China and Hong Kong, China, almost made up 60 per cent of global ketamine

(EMCDDA), “Risk assessment report of a new psychoactive substance: 4-methylmethcathinone (mephedrone)”; United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2010-2012*.

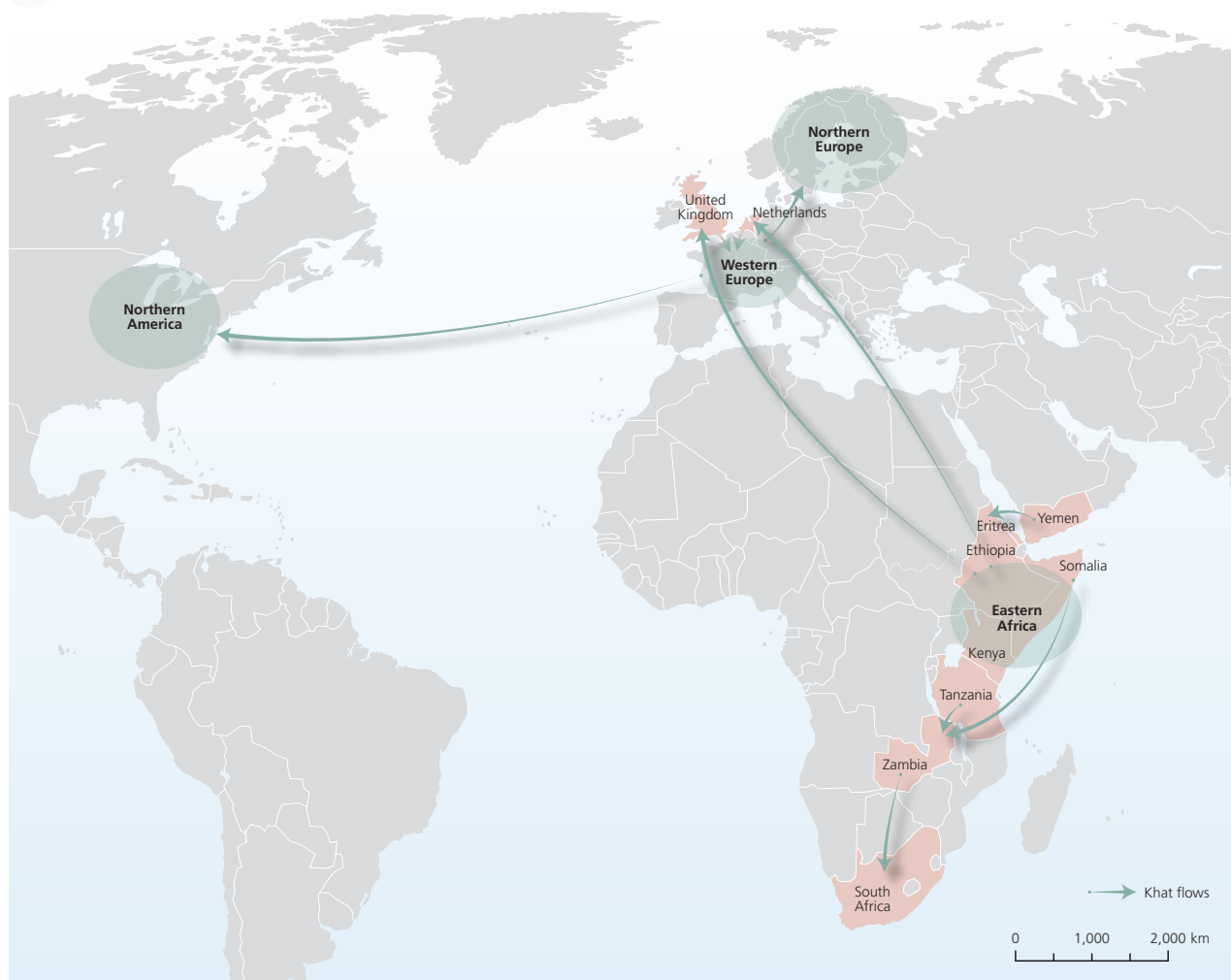
- 31 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 10*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, September 2013; United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Colombia 2012*; “II Estudio Epidemiológico Andino sobre Consumo de Drogas en la Población Universitaria, Informe Colombia 2012”, Proyecto Programa Anti-Drogas Ilícitas en la Comunidad Andina (PRADICAN), Inter-American Observatory on Drugs (OID)/ Inter-American Drug Abuse Control Commission (CICAD), Observatorio de Drogas de Colombia, Enero 2012.
- 32 At the time of preparation of this report, China submitted a notification to the Secretary-General of the United Nations on scheduling ketamine under the 1971 Convention on Psychotropic Substances.

- 33 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Indonesia and Singapore 2010-2011*.

- 34 United Christian Hospital, “Emergency department presentation of ketamine abusers in Hong Kong: a review of 233 cases”, *Hong Kong Med J* 16 (2010):6-11; United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013; T. Okon, “Ketamine: an introduction for the pain and palliative medicine physician”, *Pain Physician*, vol. 10, no. 3 (2007): 493-500.

- 35 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Macau, China 2012*.

- 36 United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013.

**Map 4:** Khat flows as perceived by recipient countries, 2008-2012

Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012; "Khat use in Europe: implications for European policy", *Drugs in focus briefing of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)*, Luxembourg, 2011.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of khat. These arrows represent the flows as perceived by recipient countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

seizures.<sup>37</sup> Ketamine manufacture has been reported by countries in East Asia, particularly in China, where large numbers of ketamine laboratories were dismantled in 2007 and 2012.<sup>38</sup> From China and India, including Cambodia and the Taiwan Province of China, ketamine is reportedly trafficked to other countries within the region, as well as to countries in Europe and North America.<sup>39</sup>

37 Except for 2010 when ketamine seizures accounted for about 42 per cent of the global total; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2010.

38 A total of 44 ketamine laboratories were discovered in mainland China in 2007 and another 81 laboratories in 2012; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2007-2012.

39 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada, Indonesia, Italy, Japan, Thailand and the United States 2008-2011.

## The global spread of the khat market

Khat, a plant-based NPS, is largely cultivated in East Africa and parts of the Middle East, where it has had a long tradition of use at communal festivities. High levels of prevalence have been recorded in Yemen and the Jazan region of Saudi Arabia. A general population survey among people aged 16 and above in Yemen, where khat is not under national control and is being cultivated, showed a lifetime prevalence of 52 per cent, which, with the exception of alcohol, tobacco and caffeine, is the highest lifetime prevalence rate recorded for any psychoactive substance in any country in the world.<sup>40</sup> In the Jazan region of Saudi Arabia, where khat is under national control, this substance appears

40 World Bank, "Yemen toward qat demand reduction", Report no. 39738-YE, June 2007; United Nations Office on Drugs and Crime (UNODC), *World Drug Report*, New York, June 2012.



to be wide-spread among youths.<sup>41</sup> Over the last few years, Saudi Arabia has also reported by far the largest amount of khat seizures in the Middle East.<sup>42</sup>

In the last several years, khat has been increasingly transported from East Africa to other regions, to mostly supply migrant communities from sub-Saharan Africa.<sup>43</sup> Khat starts to decompose quickly, 72 hours after harvesting, so that a high frequency and short time-span between harvest and delivery are key for transport. Large amounts of khat are smuggled from Ethiopia and Kenya to the United Kingdom and the Netherlands by plane, where until recently it has not been under national control in either country. Onward trafficking to other countries in Western and Northern Europe and even as far as North America has also been reported. High levels of khat seizures also indicate an emerging threat in East and South-East Asia and Oceania, heightened by recent reports of khat cultivation in Indonesia in 2013.<sup>44</sup>

### Global monitoring and information-sharing

The global expansion of the ATS market and the dynamic nature of the NPS situation enhance the need for global monitoring and knowledge-sharing from the experiences of individual Member States. The examination of scientific evidence, forensic data and information are essential to generate an effective response to the rapidly growing synthetic drug market. To complement the currently available mechanism for global synthetic drugs monitoring, such as the Global SMART (Synthetics Monitoring: Analyses, Reporting and Trends) Programme, the UNODC Early Warning Advisory on NPS was launched in June 2013.<sup>45</sup> In accordance with CND resolution 56/4 adopted in March 2013, the Early Warning Advisory is designed “to enable timely and comprehensive sharing of information on new psychoactive substances including analytical methodologies, reference documents and mass spectra, as well

41 Ageely, Hussein M., “Prevalence of Khat chewing in college and secondary (high) school students of Jazan region, Saudi Arabia” *Harm Reduction Journal* June 2009 (6): 11; Alsanosy, Rashad Mohammed, et. al. “Khat Chewing among Students of Higher Education in Jazan Region, Saudi Arabia: Prevalence, Pattern, and Related Factors” *BioMed Research International* 2013, accessed on 4 December 2013 at <http://www.hindawi.com/journals/bmri/2013/487232/abs/>.

42 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire from Saudi Arabia 2008-2010.

43 “Khat use in Europe: implications for European policy”, Drugs in focus briefing of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Luxembourg, 2011; Drug Enforcement Administration (DEA), “Khat”, Office of Diversion Control, Drug and Chemical Evaluation Section, August 2013.

44 In February 2013, the National Narcotics Board (NNB) Police discovered a 7 hectare khat plantation in Cisarua of Bogor in West Java, Indonesia; “Comparison Analysis of Red and Green Khat Leaves Fresh, Dried and After Two Months Frozen”, Drugs Testing Laboratory National Narcotics Board Republic of Indonesia, April 2013.

45 For further information on the UNODC Early Warning Advisory on NPS website see [www.unodc.org/nps](http://www.unodc.org/nps).





## 2. AFRICA

### Regional Overview

In the last few years, ATS use and production has extended beyond South Africa, primarily to West Africa. However, South Africa continues to report the largest number of dismantled ATS laboratories in Africa. In terms of trafficking, methamphetamine is increasingly being smuggled from West Africa to other parts of Africa as well as to East and South-East Asia, which is a growing market for methamphetamine. East Africa appears to be used for diverting ATS precursor chemicals and it is emerging as an ATS transit trafficking hub. Data on NPS use and trafficking remains limited, but the traditionally used psychoactive substance, khat, is highly prevalent in some African countries. More recently, the non-medical use of prescription medicines, such as tramadol, a synthetic opioid pain-killer not under international control, has been reported in Egypt.

#### Illicit ATS manufacturing spreading from South Africa to West Africa

For some time, illicit ATS manufacture had been limited to Southern Africa. Particularly, South Africa continues to annually report the largest number of illicit ATS laboratories in Africa, even though these have been steadily declining since 2005. As of 2007, methamphetamine laboratories made up the largest share of annually dismantled ATS laboratories in the country, surpassing the number of detected methcathinone laboratories.

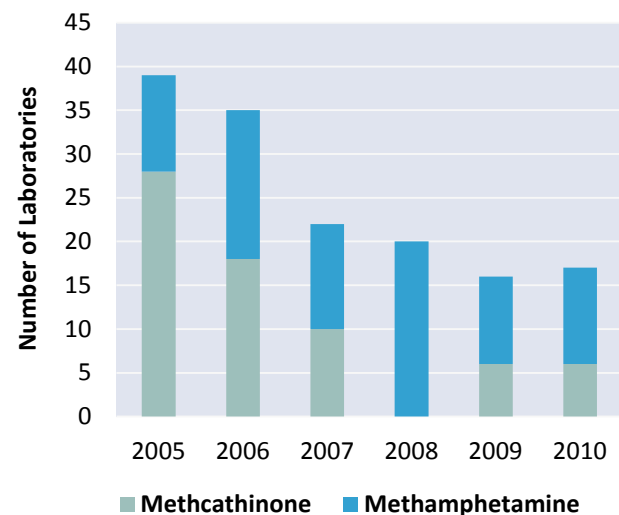
ATS manufactured in South Africa are destined for domestic use as well as for onward trafficking to other countries. According to a household survey in 2008, the annual ATS prevalence rate (excluding ecstasy) of the population aged 15 to 64 in South Africa was 1.02 per cent, higher than that of cocaine use at 0.78 per cent and opiates at 0.41 per cent, but below that of cannabis use at 4.26 per cent.<sup>46</sup> According to expert perception, methcathinone (locally known as “cat”) and crystalline methamphetamine (locally known as “tik”) are currently the most abused ATS<sup>47</sup> in South Africa.<sup>48</sup> In 2012, methamphetamine users also accounted for the second largest share of people treated

46 United Nations Office on Drugs and Crime (UNODC), *World Drug Report 2013*, New York, May 2013.

47 Moreover, South Africa is possibly the world’s largest illicit market for methaqualone (Mandrax). Mandrax is a sedative-hypnotic, which is often abused in combination with cannabis. According to INCB, the use of this drug has also been reported in other countries in East and Southern Africa, notably Kenya and Mozambique.

48 “Country Report South Africa”, presented at the Twenty-first Meeting of Heads of National Drug Law Enforcement Agencies, Africa (HONLAF), Addis Ababa, Ethiopia, 5-9 September 2011.

**Fig. 5:** Reported laboratories dismantled in South Africa, 2005-2010



Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2005-2010*; United Nations Office on Drugs and Crime (UNODC) Database on Estimates and Long Term Trend Analysis; “Country Report South Africa”, presented at the Twenty-first Meeting of Heads of National Drug Law Enforcement Agencies, Africa (HONLAF), Addis Ababa, Ethiopia, 5-9 September 2011.

for drug use at treatment centres in South Africa, at 22.9 per cent, below the share of people treated for cannabis use at 38.3 per cent.<sup>49</sup> According to the South African Community Epidemiology Network on Drug Use (SACENDU), 35 per cent of the patients in the Western Cape Province reported methamphetamine as their primary substance of abuse in 2011.<sup>50</sup>

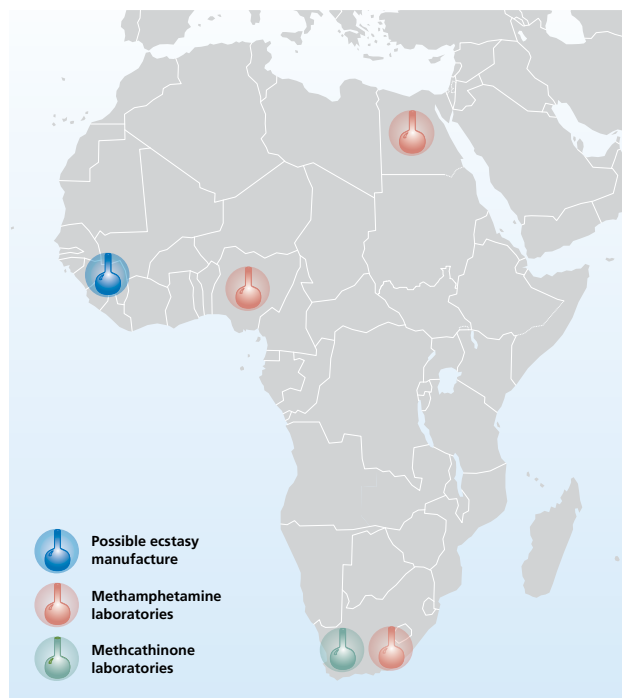
Until a few years ago, the ATS market appeared to be largely confined to South Africa. However, in 2010, a methamphetamine laboratory was discovered in Egypt.<sup>51</sup> Moreover, since 2009 there is increasing evidence to suggest that West Africa is developing into a key region for methamphetamine production. The first indications of possible methamphetamine manufacture in West Africa were reported in 2010, when the United States Govern-

49 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for South Africa 2012*.

50 Dada, Siphokazi et.al., “Monitoring Alcohol & Drug Abuse Trends in South Africa (July 1996 – June 2011)”, South African Community Epidemiology Network on Drug Use (SACENDU), *SACENDU Research Brief Vol. 14(2)*, 2011.

51 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 6, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, October 2011.

**Map 5:** Dismantled ATS laboratories reported in Africa, 2009–2012



Source: United Nations Office on Drugs and Crime (UNODC), “West Africa – 2012 ATS Situation Report”, *Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, June 2012; United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 6, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, October 2011; United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2009–2012*.

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. The final boundary between the Sudan and South Sudan has not yet been determined.

ment indicted members of a large international cocaine trafficking organisation that had also intended to illicitly produce methamphetamine in Liberia.<sup>52</sup> Between 2011 and 2012, a total of 5 methamphetamine laboratories have been dismantled in Nigeria, in Lagos and Anambra State.<sup>53</sup> So far, Nigeria is the only West African country to officially report illicit methamphetamine manufacture. Establishing the full extent of methamphetamine manufacture in Western Africa remains difficult, due to weak data collection mechanisms and processes.

Similarly as in South Africa, ATS manufacture in Nigeria may have led to a spread of ATS use. In Nigeria, the only country in West Africa for which recent annual ATS prevalence rates are available, the results of a national alcohol

52 United Nations Office on Drugs and Crime (UNODC), *West Africa – 2012 ATS Situation Report, Global Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme (SMART) Programme*, June 2012.

53 “16<sup>th</sup> Liaison Officers Meeting”, UNODC Regional Office for West and Central Africa, Dakar, 17 April 2013; United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 9, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, March 2013.

and drug use survey in 2012, showed that methamphetamine was the most used ATS in terms of lifetime prevalence at 4.1 per cent followed by “ecstasy” at 3.8 per cent and amphetamine at 2.6 per cent.<sup>54</sup> On the whole, higher levels of use were reported in the urban northern-central parts of Nigeria for both, amphetamine and methamphetamine. These use figures would rank Nigeria’s ATS prevalence higher than most European countries.<sup>55</sup>

According to expert perception, ATS are among the primary drugs of use for people receiving drug treatment in Burkina Faso in 2011 and Niger in 2010.<sup>56</sup> Moreover, according to a report of the National Authority for the Campaign against Alcohol and Drug Abuse (NACADA), the lifetime use of amphetamines/mandrax (methaqualone) among secondary school children in Nairobi in 2010, in Kenya, is 2.6 per cent.<sup>57</sup> Also in Cabo Verde, the preliminary results of a national drug use survey in 2012 display a lifetime use of amphetamine at 0.1 per cent.<sup>58</sup> In a number of African countries, amphetamine use has also been reported in recent years, including Algeria, Egypt, Côte d’Ivoire, Niger, Tunisia and Mozambique.<sup>59</sup> For most other African countries there is either limited or no recent or reliable data available. Lack of capacity for the collection and analysis of drug-related data, in particular drug use data, remains a serious challenge in several countries of the region.

### Are precursor chemicals being diverted for ATS manufacture in Africa?

According to the International Narcotics Control Board (INCB) there has been a marked increase in the diversion of ATS precursor chemicals to Africa, particularly West Africa, in recent years, after controls over ephedrine and pseudoephedrine<sup>60</sup> had been strengthened in other regions of the world. For instance, according to the National Drug Law Enforcement Agency (NDLEA), since 2009 there have been a number of ephedrine and pseudoephedrine

54 “Substance Abuse in Perspective in Nigeria – Report of a National Survey on Alcohol and Drug Use in Nigeria”, Federal Neuropsychiatric Hospital, Aro, Abeokuta, Nigeria, 2012.

55 For more information on ATS use in Europe, see the Regional Overview on Europe in this report.

56 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2010–2011*.

57 “Role of School Environment in Alcohol and Drug Abuse among Students: Evidence from Public Secondary School Students in Nairobi”, Promotion of Evidence-Based Campaign-National Alcohol and Drug Abuse Research Workshop 2011 Report, National Campaign Against Drug Abuse (NACADA) Authority and P. Koome, March 2011, pp 28–30.

58 United Nations Office on Drugs and Crime (UNODC), *Inquérito Nacional sobre a prevalência de consumo de substâncias psicoactivas na população geral, Ministério da Justiça*, April 2013.

59 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2010–2011*.

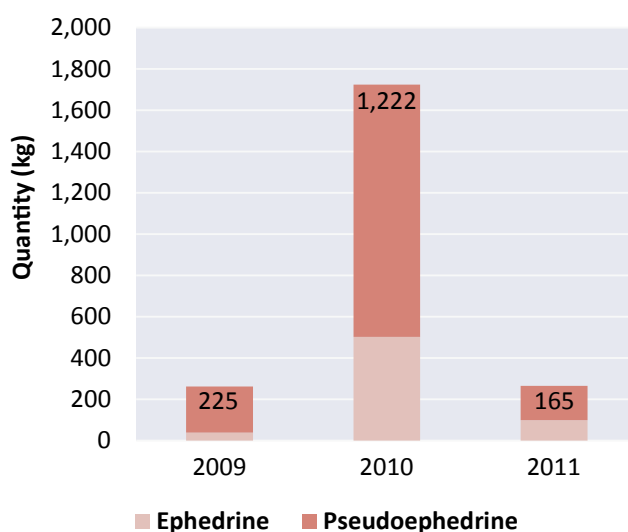
60 These are the main precursor chemicals used in the manufacture of ATS such as methamphetamine and methcathinone.



seizures at Murtala Muhammed International Airport (MMIA) in Nigeria, including reports of ephedrine seized in Côte d'Ivoire since 2008, reaching about 0.6 tons in 2012.<sup>61</sup>

East African countries have also reported significant thefts and/or losses of such ATS precursor chemicals since 2009. Many of these diversions were reported by the Kenyan authorities, while Tanzanian authorities have also begun to report thefts of pseudoephedrine in 2010. According to the INCB, all thefts of such precursor chemicals between September 2009 and December 2011 in Kenya and the United Republic of Tanzania totaled over 3.2 tons (2,062 kg of pseudoephedrine and 1,183 kg of ephedrine).<sup>62</sup> Over the same period, Kenya reported 31 thefts of mostly pseudoephedrine, as well as ephedrine, to the Pharmacy and Poisons Board.<sup>63</sup>

**Fig. 6:** Thefts of ephedrine and pseudoephedrine reported in Kenya, 2009-2011



Source: Official communication with the Pharmacy and Poisons Board (PPB) of Kenya, Nairobi, 2012.

Note: Data for 2009 only covers September-December.

More recently, Uganda has also reported some prevented attempts of ATS precursor chemical diversions. In 2011, shipments of 0.1 tons of ephedrine destined for Uganda and 0.3 tons of ephedrine heading for Sudan were reported to INCB, the ultimate destination of which remains unclear.<sup>64</sup> It is still unknown, as to whether the significant

61 *Annual Report*, National Drug Law Enforcement Agency (NDLEA), Nigeria, 2012; Rapport de la Côte D'Ivoire, Ministère de l'Intérieur de la République de Côte d'Ivoire, Comité Interministériel de Lutte Anti-Drogue (CILAD), 2009; Récapitulatif des Saisies pour l'Année 2012, Ministère de l'Intérieur de la République de Côte d'Ivoire, Comité Interministériel de Lutte Anti-Drogue (CILAD), 2012.

62 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

63 Official Communication with the Pharmacy and Poisons Board (PPB) of Kenya, Nairobi, 2012.

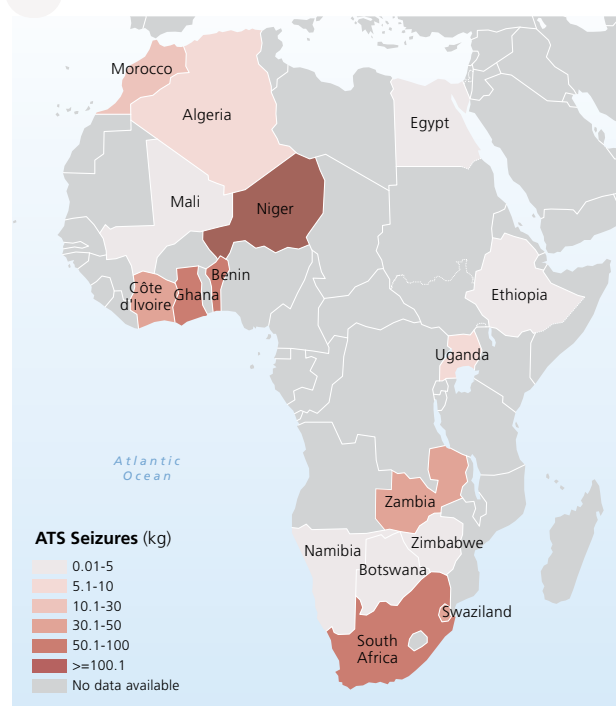
64 International Narcotics Control Board (INCB), *Report of the Interna-*

thefts or losses of ephedrine and pseudoephedrine in predominantly East and West African countries over the last few years were intended for illicit ATS manufacture in the region or for other parts of Africa. So far, there have been no reports of ATS being illicitly being manufactured in East Africa.

### Is ATS trafficking from Africa increasing?

Overall, annual ATS seizures reported to UNODC from Africa continue to be moderate, with individual seizures ranging between 60 grams to 50 kg, which may be due to limited law enforcement controls. Between 2005 and 2012, by far the largest amounts of ATS seizures were reported by Niger, followed by South Africa, Ghana and Benin.

**Map 6:** ATS seizures reported in Africa, 2008-2012



Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2008-2012*.

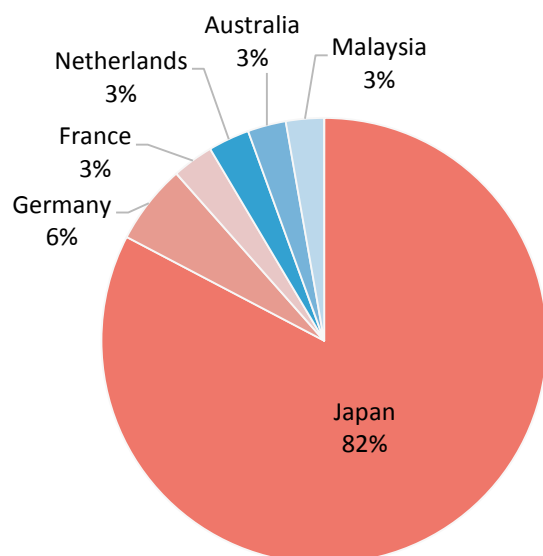
Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. The final boundary between the Sudan and South Sudan has not yet been determined.

West Africa has become a prominent region for methamphetamine trafficked to East and South-East Asia. According to seizure reports, ATS, in particular methamphetamine, is trafficked from West Africa either directly or via Southern Africa and Western Europe to East and South-East Asia and Oceania, mostly to Australia, Japan, Malaysia and Thailand.<sup>65</sup> INCB has reported that methamphetamine

*tional Narcotics Control Board for 2012*, Vienna, January 2013.

65 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2008-2012*; Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009 – July 2013; Data derived from 'Illicit Drug seizures with relation to European Air-

**Fig. 7:** Reported destination of ATS seized at Western European and Japanese airports originating from West Africa, 2009-2013



Source: Data derived from 'Illicit Drug seizures with relation to European Airports' (IDEAS) database, 2009-2013.

transits East Africa from West Africa at Addis Ababa in Ethiopia and Nairobi in Kenya for onward trafficking by plane.<sup>66</sup> According to seizures reports included in the database of Illicit Drug seizures with relation to European Airports' (IDEAS), about 85 per cent of ATS seized at Western European and Japanese airports originating from West Africa since 2009, were destined for countries in East and South-East Asia, predominantly Japan as well as Malaysia.

According to the National Drug Law Enforcement Agency (NDLEA) in Nigeria, Malaysian nationals made up the largest share of foreign nationals arrested for ATS trafficking at around 46 per cent (44 people), at Murtala Muhammed International Airport (MMIA), between July 2009 and July 2013. Over the same period, a number of nationals of Asian countries, such as China, India, Japan, South Korea, Thailand and Viet Nam were also arrested for ATS trafficking at MMIA.

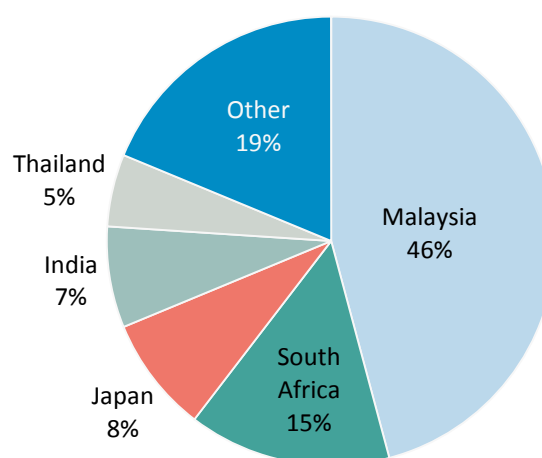
Moreover, according to expert perception, there have been increasing arrests of West African and Kenyan nationals related to methamphetamine trafficking in Japan, Malaysia and the Philippines.<sup>67</sup> In 2010, Malaysia also reported to

ports' (IDEAS) database, 2009-2013; Australian Crime Commission (ACC), *Illicit Drug Data Report 2009-2010*, Canberra, June 2011.

66 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

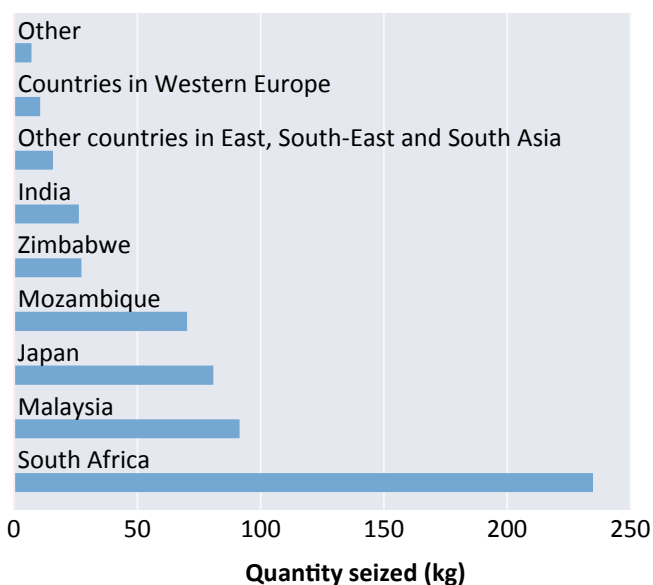
67 "International Cooperation Against the Threat of ATS Globalization and West African Drug Syndicates" National Police Agency (NPA) of Japan, presented at the seventeenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, Japan, 14-16 February 2012; "Malaysia Country Presentation", Royal Malaysian Police (RMP), presented at the seventeenth Asia-Pacific Operational Drug

**Fig. 8:** Foreign nationals arrested for ATS trafficking reported at Murtala Muhammed International Airport (MMIA) in Nigeria, July 2009-July 2013



Source: Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009-July 2013.

**Fig. 9:** Destination of ATS seizures reported at Murtala Muhammed International Airport (MMIA) in Nigeria, July 2009-July 2013



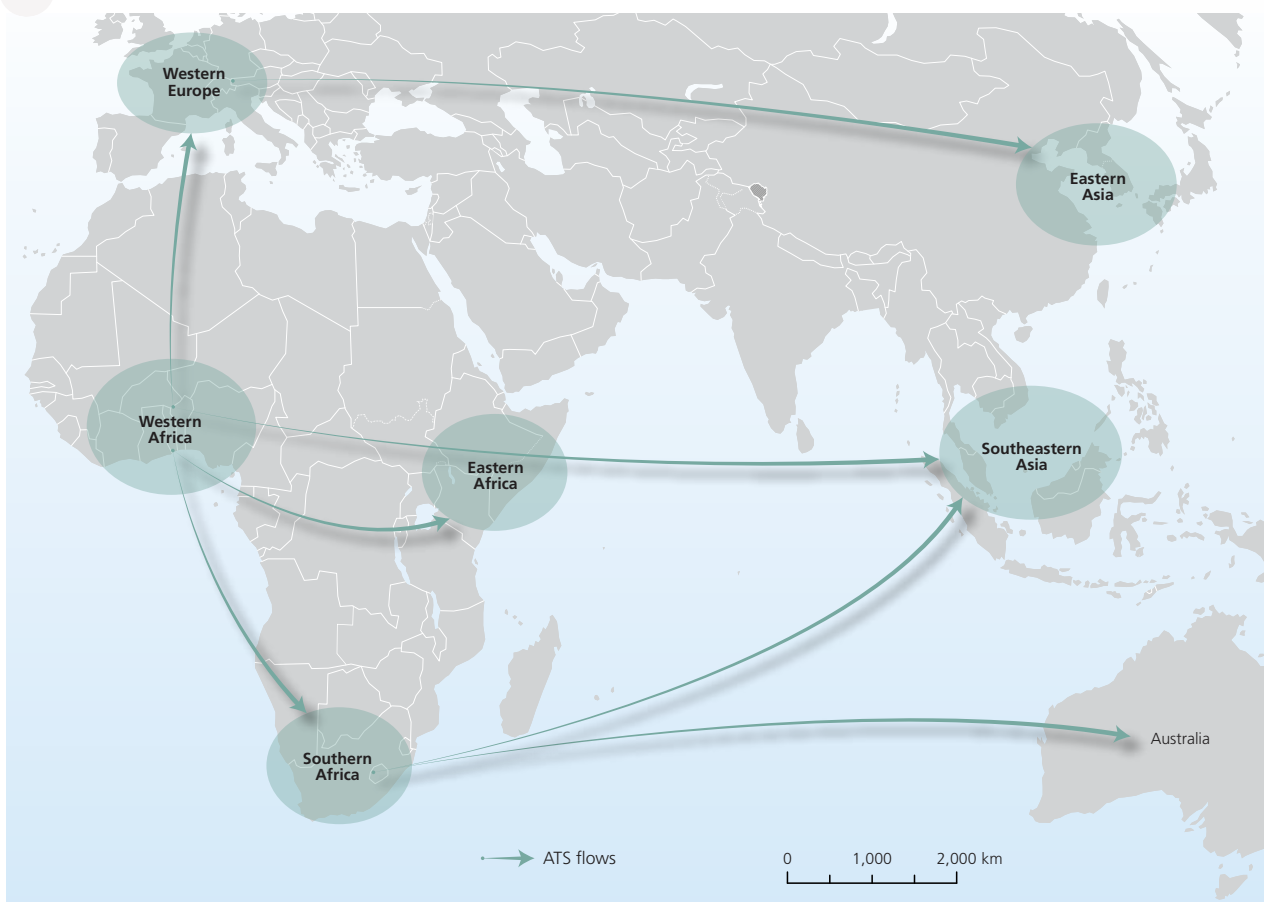
Source: Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009-July 2013.

have seized methamphetamine that was perceived to have originated in Nigeria.<sup>68</sup>

Trafficking groups are also smuggling ATS from West Africa to other parts of the continent, mostly South Africa. For instance, according to the National Drug Law Enforcement Agency (NDLEA), about 0.2 tons of ATS seizures

Enforcement Conference (ADEC), Tokyo, Japan, February 2012.

68 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Malaysia 2010.

**Map 7:** ATS flows in and from Africa as perceived by recipient countries, 2008-2012

Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2008-2012*; Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009-July 2013; Data derived from 'Illicit Drug seizures with relation to European Airports' (IDEAS) database, 2009-2013; Australian Crime Commission (ACC), *Illicit Drug Data Report 2009-2010*, Canberra, June 2011; International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of ATS. These arrows represent the flows as perceived by recipient countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

reported at MMIA in Nigeria since 2009, were destined for South Africa. During this period, large amounts of ATS seizures at MMIA were also destined for countries in East and South-East Asia, such as Malaysia and Japan as well as other countries within Africa, including Mozambique and Zimbabwe.

From Southern Africa, ATS is also being trafficked to Australia. According to the Australian Crime Commission (ACC), seizures of ATS shipments that had embarked from South Africa accounted for the largest share, of about 28 per cent, of all ATS detected at the Australian border in 2009 and 2010, while Zambia was also reported as the embarkation point for some cases.<sup>69</sup> Both Australia and New Zealand have also reported that West African organized criminal groups are involved in ATS trafficking to these countries.<sup>70</sup>

In spite of increasing evidence for methamphetamine trafficking from Africa to other regions, there continues to be severe lack of data from the African region. More particularly, there is a general lack of awareness of ATS and law enforcement authorities in Africa tend to focus on the interception of drugs such as cannabis and cocaine.

### Khat

Even though there is only limited data available on NPS in Africa, the problem generally appears to be less prevalent in African countries than in some other parts of the world. In total, 11 of all surveyed African countries<sup>71</sup> reported the emergence of NPS to UNODC between 2008 and 2013. By far the largest number of NPS reports were made by Egypt which reported up to 20 NPS that included syn-

of Heads of National Drug Law Enforcement Agencies, Asia and the Pacific (HONLAP), Agra, India, 22-25 November 2011.

69 Australian Crime Commission (ACC), *Illicit Drug Data Report 2009-2010*, Canberra, June 2011.

70 "Country Report New Zealand", presented at the Thirty-fifth Meeting

71 These included Angola, Cabo Verde, Egypt, Eritrea, Ghana, South Africa, Sudan, the United Republic of Tanzania, Togo, Zambia and Zimbabwe.

thetic cannabinoids, plant-based substances and piperazines. However, plant-based psychoactive substances, such as khat, which are traditionally extensively used and produced in Africa are a particular NPS of concern.

Khat (*catha edulis*) is a plant whose leaves contain cathinone and cathine.<sup>72</sup> It is largely cultivated and used for its stimulant effects in countries along the Red Sea and the Indian Ocean. In Africa, chewing khat leaves has had a particularly long tradition in parts of Ethiopia, Kenya, and Somalia where it was mostly used by men at communal festivities. High prevalence rates were recorded by a study conducted in Djibouti, in 2011, which found that the annual prevalence of use among the population aged 12 and above was at 28.3 per cent and that almost half of the households (49.7 per cent) had at least one khat user.<sup>73</sup>

In the last several years, khat has been increasingly transported from East Africa to other regions so as to predominantly supply migrant communities from sub-Saharan Africa.<sup>74</sup> So far, there still is insufficient data to provide an estimate for khat prevalence rates, though studies carried out in some European countries, most of which were conducted among Somali and Yemeni communities in the United Kingdom, point to high prevalence rates among these communities. According to a study conducted by the National Association for the Care and Resettlement of Offenders (NACRO) analysing khat use among Somali communities in 4 cities in the United Kingdom, 39 per cent had used khat at some point in their lives, 34 per cent used it in the last year and just under 4 per cent used khat on a daily basis.<sup>75</sup> Another study of selected persons of Somali, Ethiopian and Yemeni communities in the United Kingdom conducted by Turning Point, showed a lifetime prevalence of 82 per cent, 60 per cent current use and 26 per cent regular use.<sup>76</sup>

Since khat can decompose quickly after 72 hours of harvesting, it is usually delivered to other countries and regions outside of Africa on a frequent and regular basis. The national authorities in a number of European countries report that large amounts of khat are smuggled from Ethio-

pia and Kenya to the United Kingdom and the Netherlands, from where they are then trafficked onwards to other countries in Western and Northern Europe, as well as North America. Between 2009 and 2012, Canada and the United States reported of khat seizures that were perceived to have primarily originated in Kenya as well as Ethiopia and perceived to have been trafficked via the Netherlands and the United Kingdom.<sup>77</sup> In 2012, khat seizures perceived to have been trafficked from the United Kingdom and the Netherlands have been reported by countries in Western and Central Europe, such as Germany, Ireland, Malta, Switzerland, as well as the United States.<sup>78</sup> In Europe, khat is often trafficked from Germany onwards to other countries in Europe, including Denmark, Malta, Sweden and Switzerland.<sup>79</sup> According to the EMCDDA, an estimated 300 tons of khat are annually transported to the United Kingdom and the Netherlands, where until recently it has not been under national control in either country.<sup>80</sup> Though khat is controlled in most European countries, the substance is currently under consideration for inclusion to the Misuse of Drugs Act 1971 as a Class C substance in the United Kingdom, before which khat was allowed to be imported, traded and consumed as a vegetable product, as it was the case in the Netherlands, where it has also recently been placed under national control in June 2012.<sup>81</sup>

Seizure data indicates that khat has increasingly been trafficked to Europe and North America over the last several years. Between 2004 and 2011, total khat seizures in these regions have more than doubled from about 64 tons in 2004 to almost 150 tons in 2012, of which by far the largest seizures were reported by the United States, Germany and Sweden. Contrary to this evidence, for most years since 2004, khat seizures in Africa have ranged between 1 ton and 10 tons, most of which was seized in Zambia and the United Republic of Tanzania. The comparatively low levels of khat seizures in Africa could be explained by the fact that the substance is not under national control in a number of East African countries, including Djibouti, Ethiopia, Kenya and Somalia.<sup>82</sup> Within Africa, khat is perceived to be trafficked from Somalia and Tanzania to Zambia and

72 Cathinone and cathine and some of their synthetically produced derivatives (e.g. methcathinone) are internationally controlled substances under the 1971 Convention on Psychotropic Substances, but khat leaves are not.

73 World Bank, *Comprendre la dynamique du khat à Djibouti: Aspects Sociaux, économiques et de santé*, report No. 62823-DJ, Washington DC, 2011.

74 Drug Enforcement Administration (DEA), "Khat", Office of Diversion Control, Drug and Chemical Evaluation Section, August 2013; "Khat use in Europe: implications for European policy", Drugs in focus briefing of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Luxembourg, 2011.

75 Patel Shilpa L., Wright, Sam, and Gammampila Alex. "Khat use among Somalis in four English Cities" Home Office Online Report 47/05, 2005.

76 Turning Point, Home Office. "Khat use in Somali, Ethiopian and Yemeni communities in England: issues and solutions", November 2004.

77 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire Canada and United States 2012.

78 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2012.

79 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2012.

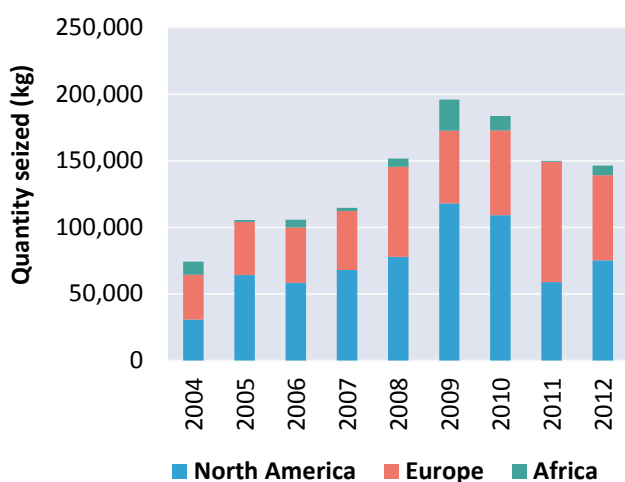
80 "Khat use in Europe: implications for European policy", Drugs in focus briefing of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Luxembourg, 2011.

81 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

82 D. M. Anderson and N.C.M. Carrier, *Khat: Social Harms and Legislation – A Literature Review*, Occasional Paper 95, London, Home Office, July 2011.

South Africa.<sup>83</sup> According to seizure data, the majority of khat seized in Eritrea between 2008 and 2012, originated in Eritrea and was perceived to be intended for the domestic market, whilst the remaining khat seizures in the country were perceived to have originated from Yemen.<sup>84</sup>

**Fig. 10:** Khat seizures reported in Africa, Europe and North America, 2004-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2004-2012.

### Non-medical use of prescription drugs

The synthetic opioid analgesic, tramadol, has appeared on illicit drug markets and there are indications of misuse. In the last few years, tramadol use has become of increasing concern in some African countries, particularly Egypt. Tramadol is a synthetic opioid pain-killer not under international control, usually obtainable at pharmacies and frequently prescribed by doctors after surgery. According to expert perception, tramadol use has greatly increased, particularly after the Egyptian revolution in 2011, as it is available on the black market at low prices.<sup>85</sup> The Fund for Drug Control and Addiction has reported that tramadol users have also been making up a substantial percentage of admissions to Egyptian drug treatment centres. A study of patients admitted to three major drug treatment centres in Cairo (Egypt) between 2007 and 2011, found that the percentage of patients reporting tramadol use had increased dramatically over these years and made up the majority of all persons entering drug treatment in each of the centres in 2011.<sup>86</sup>

83 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Zambia 2008-2012.

84 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Eritrea 2008-2012.

85 Fawzi, Marwa M. "Some medicolegal aspects concerning tramadol abuse: The New Middle East youth plague 2010. An Egyptian Overview", *Egyptian Journal of Forensic Sciences* 2011 (1): 99-102.

86 Presentation by Samir Abou El Magd, MD Professor of Psychiatry at the Cairo University in Egypt in September 2012, "Tramadol Use in Egypt: Emergence of a Major New Public Health Problem" and

In response to the growing threat, the Egyptian government has placed tramadol, as well as its salts and derivatives and preparations containing tramadol, under national control under the Anti-Narcotics Law in 2012.<sup>87</sup> As a result of increased law enforcement efforts, seizures of tramadol have surged. The Anti-Narcotics General Administration (ANGA) in Egypt reported large seizures of up to 375 million tramadol pills between January and October of 2012, about eight times the amount reported to have been seized in 2011, when tramadol was not under national control.<sup>88</sup> At Egypt's seaports, tramadol pill seizures increased from 120 million in 2011 to around 320 million in the first quarter of 2012.<sup>89</sup> The preparations were reportedly smuggled from China and India.<sup>90</sup>

According to the Libyan Anti-Narcotics Agency, Libya is also facing large-scale tramadol trafficking and use, though exact statistics on the extent of the problem are unavailable as the country is currently in the process of restructuring its law enforcement institutions.<sup>91</sup> In Africa, use of tramadol preparations have also been reported, such as in Mauritius and Togo.<sup>92</sup> Large amounts of tramadol have been recently seized in West Africa. Between February and October of 2012, a total of 24 containers carrying more than 132 tons of tramadol preparations, all of which had been smuggled from India, were seized in West African countries, including Togo, Benin, Ghana and Senegal.<sup>93</sup> Of the seized containers, 19 were destined for Niger.

summary of results published in *The Canadian Journal of Addiction Medicine* 4 (1).

87 "Country Report Egypt", presented at the Twenty-second Meeting of Heads of National Drug Law Enforcement Agencies, Africa (HONLAF), Accra, 25-29 June 2012.

88 US Department of State, *International Narcotics Control Strategy Report (INCSR)*, Bureau of International Narcotics and Law Enforcement Affairs, March 2013.

89 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

90 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

91 US Department of State, *International Narcotics Control Strategy Report (INCSR)*, Bureau of International Narcotics and Law Enforcement Affairs, March 2013.

92 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

93 Since some of the seized preparations might be counterfeit, forensic examinations are still being conducted so as to identify whether the seized preparations actually contain tramadol; International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

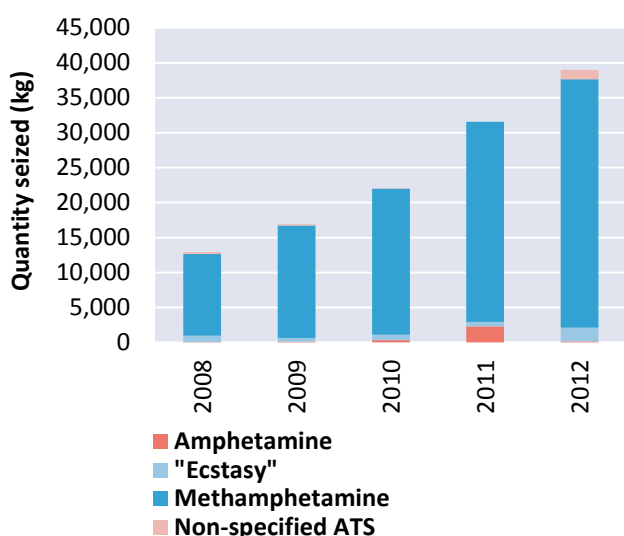


### 3. EAST AND SOUTH-EAST ASIA, OCEANIA AND THE PACIFIC

#### Regional Overview

Methamphetamine continues to dominate the ATS market in East and South-East Asia, Oceania and the Pacific. ATS seizures in the region have annually increased from about 13 tons in 2008 to just under 40 tons in 2012. The rapid rise of ATS seizures over the years is primarily attributable to the increase of methamphetamine seizures which about tripled from less than 12 tons in 2008 to 36 tons in 2012. Having increased from about 0.1 tons in 2008 to 2.3 tons in 2011, amphetamine seizures in the region have dropped again to less than 0.2 tons in 2012. Seizures of "ecstasy" have also fluctuated over the years, but have more than tripled in 2012 to 1.9 tons. However, both amphetamine and "ecstasy" seizures in the region have remained at relatively low levels, whilst methamphetamine seizures have annually made up more than 90 per cent of total ATS seizures for a number of years.

**Fig. 11:** Total ATS seizures reported in East and South-East Asia, Oceania and the Pacific, 2008-2012



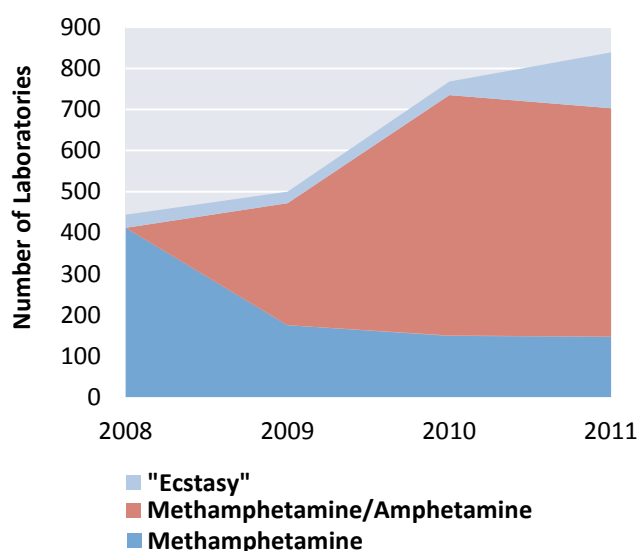
Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

There are indications that increasingly large quantities of ATS are being manufactured in East and South-East Asia. Between 2008 and 2011, the total number of dismantled ATS laboratories have risen by almost 90 per cent, predominantly due to the large increase of both dismantled amphetamine and methamphetamine laboratories, which rose from about 300 in 2009 to almost 590 in 2010 and levelling at around 560 in 2011.<sup>94</sup> Though the number of

<sup>94</sup> The data available at the national level for Australia where the majority of ATS laboratories for East and South-East Asia, Oceania and

dismantled laboratories in the region intended solely for methamphetamine manufacture dropped from about 410 in 2008 to less than 180 in 2009, these have remained at about 150 in 2010 and 2011. The annual number of dismantled "ecstasy" laboratories have remained at around 30 between 2008 and 2010, but have increased to just under 140 in 2011.

**Fig. 12:** Dismantled ATS laboratories reported in East and South-East Asia, Oceania and the Pacific, 2008-2011



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2011.

ATS use is a major problem in large parts of the region. For instance, according to expert perception, there has been a large increase of ATS use in mainland China in 2012, as well as some increase in the number of people receiving treatment for ATS use.<sup>95</sup> In 2012, ATS users accounted for the second largest share at 19.1 per cent of people receiving drug treatment in mainland China, below those treated for opioid use accounting for 79.7 per cent.<sup>96</sup> In South-East Asia, Community-Based Treatment services in Cambodia in 2012 provided ongoing treatment for an estimated 1,300 drug users, of which 86.4 per cent were treated for ATS use.<sup>97</sup> The number of people receiving

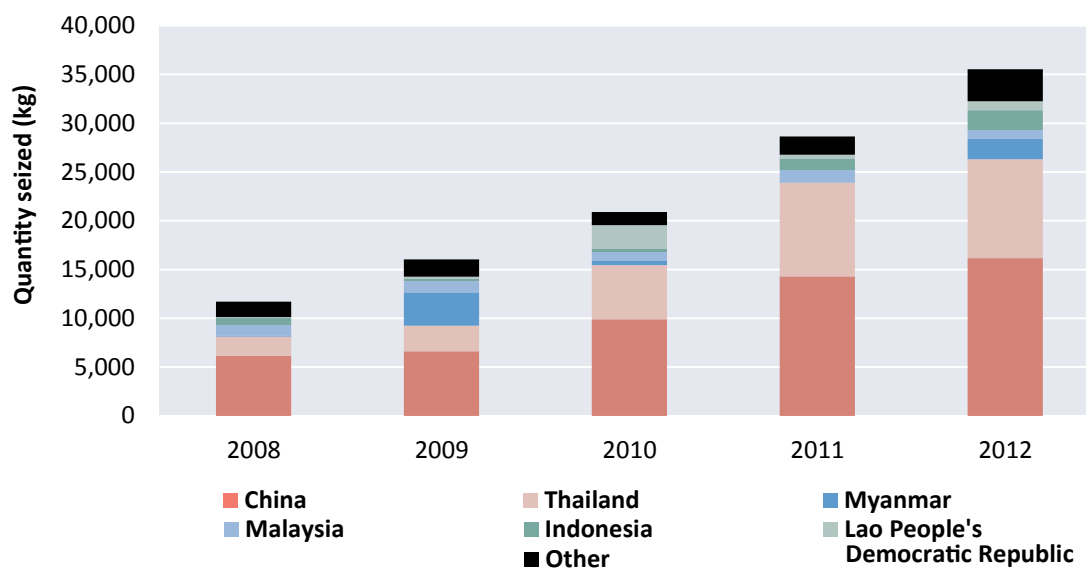
the Pacific were dismantled does not allow to differentiate between dismantled methamphetamine and amphetamine laboratories.

<sup>95</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2012.

<sup>96</sup> Drug Abuse Information Network for Asia and the Pacific (DAINAP).

<sup>97</sup> Drug Abuse Information Network for Asia and the Pacific (DAINAP).

**Fig. 13:** Methamphetamine seizures reported in East and South-East Asia, Oceania and the Pacific by country, 2008-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

treatment for ATS use in Myanmar accounted for 2.7 per cent of the total number of people receiving treatment for drug use in 2011 (around 97 per cent of people were treated for opioid use), but according to expert perception, there has been an annual increase in the number of people admitted for treatment relating to ATS use at the Yangon Mental Health Hospital for psychiatric problems over the last 5 years.<sup>98</sup> According to the National Narcotics Board of Indonesia, ATS users were estimated to have accounted for the second largest share of drug users receiving drug treatment in the country in 2011 at 35.7 per cent (4,884 people), following those treated for opioid use at 53.1 per cent (7,262 people).<sup>99</sup>

Over the years, amphetamine seizures in the Oceania region have remained at comparatively low levels, totaling less than 1 ton between 2008 and 2012. However, drug treatment admissions indicate that amphetamine is a drug of concern in Australia. Between 2011 and 2012, amphetamine users in Australia accounted for the second largest share of people receiving drug treatment at 22.6 per cent, after cannabis at 43.2 per cent, followed by heroin at 17.3 per cent and pharmaceutical opioids at about 8.5 per cent.<sup>100</sup>

98 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Myanmar 2011; "Myanmar country presentation", Central Committee for Drug Abuse Control (CCDAC), presented at the ASEAN Conference 2013: Road-map to Effective Substance Dependence Treatment, Nonthaburi, Thailand, 17-19 July 2013.

99 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2012.

100 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2012.

### A growing market for methamphetamine?

Over the years, methamphetamine seizures have been predominantly reported in East and South-East Asia, in countries such as China, Indonesia, the Lao People's Democratic Republic (Lao PDR), Malaysia, Myanmar and Thailand. A rapid rise in seizures have particularly been reported in mainland China, where detected methamphetamine has risen annually from 6 tons in 2008 to more than 16 tons in 2012, making up about 45 per cent of total methamphetamine seizures for the region that year. Increasing methamphetamine seizures have also been reported in Thailand, from about 2 tons in 2008 to more than 10 tons in 2012 and in Myanmar from 0.1 ton to 2 tons. Except for a decrease in methamphetamine seizures in Malaysia from 1.1 ton in 2008 to 0.9 tons in 2012, seizures have increased in Indonesia from 0.7 tons to more than 2.1 tons over the same period, as well as in the Lao PDR from 0.1 ton to 0.9 tons.

Whilst methamphetamine seizures in East and South-East Asia have been rising rapidly, there are also indications of high levels of methamphetamine use in this region. For instance, according to expert perception, there has been a large increase of methamphetamine use in mainland China in 2012, as opposed to amphetamine use which has remained stable, and "ecstasy" use, which has shown some decline.<sup>101</sup> Also, among people held in prisons in Macau, China, in 2012, methamphetamine was the most used drug in terms of annual prevalence at 41.6 per cent.<sup>102</sup>

101 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2012.

102 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Macau, China 2012.



In South-East Asia, methamphetamine users in Thailand accounted for the largest share of people treated for drug use at drug treatment centres in 2012 at 88 per cent.<sup>103</sup> Moreover, according to expert perception, methamphetamine use in Thailand is on the rise among students at secondary school and at university.<sup>104</sup> In Myanmar, a study on ATS use among high school students in Myitkyina, in Kachin State, in 2011, found that methamphetamine was the most used drug under international control with a lifetime prevalence at 1.5 per cent and an annual prevalence of 0.8 per cent.<sup>105</sup> Methamphetamine use is also reported to be a major problem in Lao PDR where methamphetamine users accounted for over 50 per cent of people treated for ATS use in 2012 at the Somsanga Treatment and Rehabilitation Centre in Vientiane.<sup>106</sup>

Despite an increase of methamphetamine seizures in Indonesia, methamphetamine use in the country on the whole is reported to be lower than that of other substances under international control and certain ATS. According to a high school survey among students aged 15 to 19 in 2011, annual methamphetamine prevalence at 0.26 per cent use ranked below “ecstasy” use at 0.34 per cent.<sup>107</sup> Although ATS users accounted for 35.7 per cent (4,884 people) of the total number of people treated for drug use in Indonesia in 2012, this was below the number of people treated for opioid use at 53.1 per cent (7,262 people).<sup>108</sup> Methamphetamine continues to be manufactured in the country, but the number of discovered laboratories have recently decreased. Therefore, the increase of methamphetamine seizures in Indonesia might not necessarily be due to a growing domestic market for the drug and could instead point to a rise of methamphetamine trafficking.

Some other countries in East and South-East Asia demonstrate high levels of treatment admissions for methamphetamine use indicating that methamphetamine is a major problem throughout the region. For instance, in the Philippines people treated for methamphetamine use by far accounted for the largest share of people admitted for treatment of drug use at treatment facilities in 2012 at 63.2 per cent (2,167 people).<sup>109</sup> Moreover, according to expert per-

ception, the majority of people admitted to Temporary Centers for Drug Education and Rehabilitation in Cambodia in 2012 were treated for methamphetamine use.<sup>110</sup> Also, according to expert perception, methamphetamine was the second most commonly used drug in Cambodia after heroin since 2010.<sup>111</sup> In 2012, people admitted to Drug Rehabilitation Centers for methamphetamine use in Singapore accounted for the second largest share of people treated for drug use at 41.5 per cent (585 people), after heroin at 44.9 per cent (632 people).<sup>112</sup> In Brunei Darussalam, methamphetamine users in the country accounted for 97.3 (145 people) per cent of all people admitted for drug treatment in 2012, similar to the share reported in previous years.<sup>113</sup>

### A growing use of NPS in the form of “ecstasy”?

High levels of “ecstasy” use continue to be reported by countries in the Oceania region. The Australian 2010 National Drug Strategy Household Survey found that “ecstasy” remains the second most used drug in Australia among people aged 15 to 64 at a lifetime prevalence of 10.3 per cent, after cannabis use at 35.4 per cent.<sup>114</sup> Furthermore, the 2010 National Drug Strategy Household Survey among people aged 14 to 19, also indicated “ecstasy” as the second most used substance in terms of lifetime prevalence at 4.7 per cent, after cannabis use at 21.5 per cent, whilst annual “ecstasy” use ranked third at 2.8 per cent after cannabis at 15.7 per cent and pharmaceuticals at 3.2 per cent.<sup>115</sup>

The number of detected MDMA laboratories in Australia over the years have annually ranged between 10-20 laboratories. However, there are reports of increased “ecstasy” trafficking to Australia from European countries, including Germany, the Netherlands and the United Kingdom.<sup>116</sup> According to the Australian Crime Commission (ACC), the number of small quantity MDMA detections along the Australian border is on the rise, most of which occur in the postal stream.<sup>117</sup>

103 Drug Abuse Information Network for Asia and the Pacific (DAINAP).

104 Drug Abuse Information Network for Asia and the Pacific (DAINAP).

105 “Study on Use of Amphetamine-Type Stimulants among High-School Students at Myitkyina State”, Substances Abuse Control Project, Department of Health, Ministry of Health, Republic of Myanmar and the World Health Organisation Country Office for Myanmar, Myitkyina, Myanmar, 2011.

106 United Nations Office on Drugs and Crime (UNODC), *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, November 2013.

107 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2012.

108 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2011.

109 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Philippines 2012.

110 “Country Report on Drug Situation in Cambodia”, National Authority for Combatting Drugs (NACD), presented at the Seventeenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 14-16 February 2012.

111 Drug Abuse Information Network for Asia and the Pacific (DAINAP).

112 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Singapore 2012.

113 Drug Abuse Information Network for Asia and the Pacific (DAINAP); United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Brunei Darussalam 2012.

114 “2010 National Drug Strategy Household Survey Report”, Australian Institute of Health and Welfare (AIHW), Canberra, July 2011.

115 “2010 National Drug Strategy Household Survey Report”, Australian Institute of Health and Welfare (AIHW), Canberra, July 2011.

116 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2012.

117 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2012.

In 2010, New Zealand also reported an increasing trend of “ecstasy” use. The latest drug use survey conducted in the country between 2007/08 showed that in terms of annual prevalence “ecstasy” was the third most used substances among people aged 16-64 at 2.6 per cent after cannabis at 14.6 per cent and hallucinogens at 3.2 per cent.<sup>118</sup> However, according to law enforcement officials in New Zealand, “ecstasy” tablets seized in 2012 have been found to contain little or no MDMA and consist mainly of a blend of other internationally controlled and non-controlled substances, such as mephedrone, BZP<sup>119</sup>, TFMPP<sup>120</sup> and methylone<sup>121</sup>.<sup>122</sup> Moreover, a laboratory believed to be intended for the supply of “ecstasy” tablets discovered in New Zealand in November 2012, was in fact manufacturing NPS that were sold as “ecstasy”.<sup>123</sup> Therefore, reports of increasing “ecstasy” use in New Zealand may in fact point to a growing use of NPS.

This trend of selling NPS as “ecstasy” on ATS markets has also been observed by countries in South-East Asia. For instance, according to expert perception, in Hong Kong, China, “ecstasy” tablets, were reported to contain other ATS, as well as NPS such as ketamine, TFMPP and PMMA<sup>124</sup> in addition to MDMA.<sup>125</sup> In Singapore, “ecstasy” seizures in 2012 were also found to contain a number of controlled and non-controlled substances other than MDMA.<sup>126</sup> “Ecstasy” seizures in Indonesia have increased continuously from 0.1 ton in 2009 to about 1.3 tons in 2012. The seized tablets have also been reported to contain NPS.<sup>127</sup> Prevalence data also points to widespread “ecstasy” use in Indonesia. The results of a drug use survey among Indonesian workers aged 15 to 60 in 2012,

118 “Drug Use in New Zealand: Key results of the 2007/08 New Zealand Alcohol and Drug Use Survey”, Ministry of Health, Wellington, January 2010.

119 Benzylpiperazine (BZP) is a piperazine not under international control.

120 1-(3-Trifluoromethylphenyl)piperazine (TFMPP) is a piperazine not under international control, commonly found in “ecstasy” tablets.

121 3,4-methylenedioxy-N-methylcathinone, also known as methylone is a synthetic cathinone not under international control.

122 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for New Zealand 2012.

123 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for New Zealand 2012.

124 PMMA is the chemical abbreviation of paramethoxymethamphetamine, a phenethylamine not under international control.

125 “Narcotics Bureau Quarterly Report, 3Q – 2012 (July-September)”, Narcotics Bureau, Hong Kong Police Force (HKNB), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 26-27 February 2013.

126 These substances included ketamine, mephedrone, JWH-018 (a synthetic cannabinoid not under international control), MDPV (a synthetic cathinone not under international control), TFMPP, methylethcathinone (4-methylethcathinone, a synthetic cathinone not under international control), BZP and pentedrone (a synthetic cathinone not under international control); United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Singapore 2012.

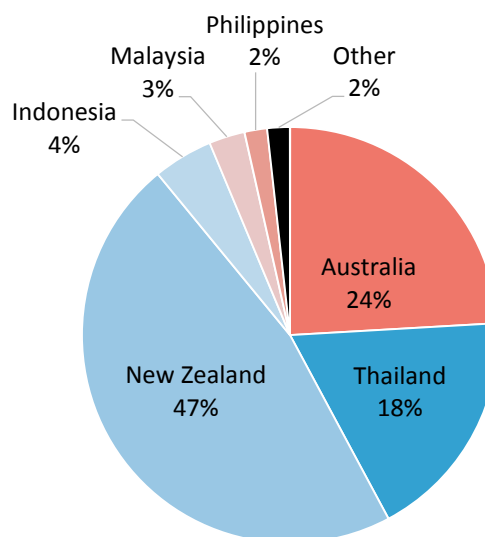
127 These NPS included ketamine, methylone and synthetic cannabinoids; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2009-2012.

rank “ecstasy” as the third most used drug in terms of lifetime prevalence at 2.50 per cent, after cannabis at 7.11 per cent and tranquilizers and sedatives at 4.09 per cent.<sup>128</sup> In 2011, a school survey in Indonesia among students aged 15 to 19 also indicated the annual prevalence of “ecstasy” as the second most used drug together with benzodiazepines at 0.34 per cent, after cannabis at 1.3 per cent.<sup>129</sup> There have also been reports of “ecstasy” manufacture in Indonesia, having discovered 24 “ecstasy” laboratories including 15 MDMA laboratories since 2008.<sup>130</sup>

## Methamphetamine manufacture

In recent years, an increasing number of ATS laboratories have been discovered in the region. Despite a drop in 2009, the number of dismantled methamphetamine laboratories in the region have remained at around 150 annually for the last few years. The majority of these dismantled laboratories between 2008 and 2011 were reported by New Zealand at 47 per cent, followed by Australia at 24 per cent and Thailand at 18 per cent. Methamphetamine laboratories were also reported to have been discovered in Cambodia, Hong Kong (China), India, Indonesia, Japan, the Republic of Korea, Malaysia, Myanmar, the Philippines and Sri Lanka, together making up about 11 per cent of the total number reported in the region.

Fig. 14: Dismantled methamphetamine laboratories reported in East and South-East Asia, Oceania and the Pacific, by country, 2008-2011



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2011.

128 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2012.

129 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2011.

130 Malaysia has also reported “ecstasy” manufacture, with 19 laboratories dismantled between 2008 and 2012; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Malaysia 2008-2012.

## The changing content of “ecstasy” tablets

In many regions of the world, a large proportion of seized pills marketed as “ecstasy” contain substances other than MDMA. This trend may be due to successful controls over the main precursor chemicals used in the manufacture of MDMA. In Europe, according to the EMCDDA, amphetamines have been commonly found in “ecstasy” pills in Luxembourg, Spain and Turkey.<sup>38</sup> In many other cases across the world, drugs sold as “ecstasy” actually contained New Psychoactive Substances (NPS). Over the last few years, a wide array of NPS have been discovered in tablets sold as “ecstasy” seized in Asia, the Americas, Europe and Oceania.

**Table 2:** Substances found in pills sold as “ecstasy”, 2009-2012

Substances	Asia	Americas	Europe	Oceania
<b>2C-B</b>		•		
2C-E		•		
α-PVP		•	•	
<b>Amphetamine</b>			•	
BTCP		•		
BZP		•		•
CPP*	•			
<b>DMT</b>		•		
Eutylone (bk-EBDB)				•
Fluoro-methcathinone	•			
JWH-018	•			
Ketamine	•	•	•	
mCPP			•	
<b>MDA</b>	•			
MDPBP				•
MDPV	•	•		
Mephedrone	•			
<b>Methamphetamine</b>	•	•	•	
Methoxetamine			•	
Methylethcathinone	•			•
Methylone	•			
<b>N-ethylamphetamine</b>				•
Pentadrone	•			
PMMA	•	•	•	
TFMPP	•	•		•

Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2009-2012; European Monitoring Centre for Drugs and Drug Addiction and European Police Office, “EU Drug Markets Report: A Strategic Analysis”, Luxembourg, Publications Office of the European Union, 2013.

Note: Prescription drugs and cutting agents are not listed in this table and substances in bold letters are substances under international control. Substance names are as provided by the respective source and the identification of a substance in “ecstasy” pills does not provide an indication of the quantity found.

\* Substance not identified due to a lack of detailed information.

Although New Zealand has reported by far the largest number of methamphetamine laboratories in the region, most laboratories have been of relatively small-scale and have often been discovered in vehicles or suitcases.<sup>132</sup> Moreover, the number of dismantled methamphetamine laboratories in the country has been steadily decreasing over the years, from 134 in 2009 to 109 in 2011. According to the National Drug Intelligence Bureau (NDIB) in New Zealand, increased law enforcement pressure on AT'S

precursor chemical trafficking to the country has led to a decline in domestic methamphetamine manufacture. Seizures of ephedrine and pseudoephedrine have been on the decline in recent years, dropping by 24.0 per cent in 2011 and by another 37.6 per cent in 2012 to only around 0.3 tons.<sup>133</sup> Methamphetamine seizures in New Zealand have remained at low levels, annually ranging between about 15 and 30 kg.<sup>134</sup>

131 European Monitoring Centre for Drugs and Drug Addiction and European Police Office, *EU Drug Markets Report: A Strategic Analysis*, Luxembourg, Publications Office of the European Union, 2013.

132 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for New Zealand 2012.

133 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for New Zealand 2012.

134 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for New Zealand 2012.

In Australia, the data available at the national level does not allow to differentiate between dismantled methamphetamine and amphetamine laboratories. In any case, in the state of New South Wales, in Australia, the New South Wales (NSW) Police Force reported that the number of discovered methamphetamine laboratories increased by almost 21 per cent in 2012 alone, to 81 from 67 in the previous year.<sup>135</sup> According to the Australian Crime Commission (ACC), the Australian ATS market (excluding “ecstasy”) appears to be predominantly supplied by rising domestic manufacture.<sup>136</sup> ATS laboratories dismantled in Australia over the years have annually accounted for more than 60 per cent of the number of laboratories dismantled in East and South-East Asia, Oceania and the Pacific.<sup>137</sup> Between 2008 and 2011 the number of illicit ATS laboratories discovered in Australia more than doubled from about 270 to 570.<sup>138</sup>

In recent years, there has been a rapid increase in the number of methamphetamine laboratories detected in Thailand. Whilst only 2 methamphetamine laboratories were discovered in Thailand between 2008 and 2010, 109 had been dismantled in 2011 and another 84 in 2012.<sup>139</sup> Methamphetamine manufactured in Thailand may be intended to supply the large domestic market. Indeed, most laboratories consisted of small-scale manufacturing sites located in the central parts of the country, near Bangkok.<sup>140</sup> Therefore, methamphetamine may also be trafficked into the country to meet domestic demand, which is supported by reports that large amounts of methamphetamine seized in Thailand originate from Myanmar.<sup>141</sup> For instance, in 2008 all methamphetamine seized in Thailand was perceived to have originated in Myanmar.<sup>142</sup> Since then, methamphetamine seizures reported in Bangladesh, Thailand and Myanmar itself have been perceived to have originated in Myanmar.<sup>143</sup>

135 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2012.

136 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2012.

137 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2008-2011.

138 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2008-2011.

139 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Thailand 2008-2012.

140 Thailand country report, Office of the Narcotics Control Board of Thailand (ONCB), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), 26-27 February 2013.

141 “Thailand country report” Office of the Narcotics Control Board of Thailand (ONCB), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), 26-27 February 2013; “China country presentation”, China National Narcotics Control Commission (NNCC), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 26-27 February 2013.

142 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Thailand 2008.

143 United Nations Office on Drugs and Crime (UNODC), Annual

In Indonesia, a number of methamphetamine laboratories have been dismantled over the years rising to 17 in 2009, but dropping to 4 in 2012, most of which were again small-scale kitchen-type facilities discovered in Jakarta and Sumatra.<sup>144</sup> Given that Indonesia had licit requirements for ephedrine at about 7 tons and pseudoephedrine at more than 38 tons (precursor chemicals which can be used for the manufacture of ATS) in 2012, there is a high potential risk of these substances being diverted for illicit ATS manufacture.<sup>145</sup> Though there have been no reports of ATS manufacture in Singapore and ATS seizures on the whole remain limited, the country has high licit requirements for ephedrine at 12 tons and pseudoephedrine at 53 tons.<sup>146</sup>

There have been large numbers of drug manufacturing laboratories dismantled in China over the years. Up until 2011, the number of laboratories intended for ATS manufacture or any other substances under international control remains unclear.<sup>147</sup> In 2009, around 390 unspecified drug manufacturing laboratories were dismantled in China, declining to 378 in 2010 and 357 in 2011.<sup>148</sup> However, in 2012, China reported that the 228 dismantled methamphetamine laboratories accounted for the largest share of all 326 drug laboratories dismantled that year.<sup>149</sup> In Hong Kong, China one methamphetamine laboratory was also reported to have been dismantled in that same year.<sup>150</sup> China has the highest licit requirements for ephedrine in the world at 155 tons and has the second highest licit requirements for pseudoephedrine at 200 tons after India at more than 300 tons,<sup>151</sup> which may again heighten the risk of diversion for ATS manufacture.

Otherwise, methamphetamine manufacture has also been reported over the years in Japan, the Republic of Korea, Malaysia, Myanmar, the Philippines and Sri Lanka.

Report Questionnaire for Bangladesh, Myanmar and Thailand 2008-2011.

144 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2009-2012.

145 International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

146 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Singapore 2012; International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

147 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2012.

148 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2012; Drug Abuse Information Network for Asia and the Pacific (DAINAP).

149 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2012.

150 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Hong Kong, China, 2012.

151 International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

Between 2008 and 2011, there had been 30 methamphetamine laboratories dismantled in Malaysia and 19 in the Philippines, though most laboratories in the Philippines consisted of relatively small facilities.<sup>152</sup> Moreover, most methamphetamine seized in Japan and the Republic of Korea was perceived to have been trafficked from other countries and only 2 methamphetamine laboratories were dismantled in Japan and 4 in the Republic of Korea between 2008 and 2011, while one methamphetamine laboratory was discovered in Sri Lanka. In Myanmar, 6 methamphetamine laboratories have been discovered, sometimes in small, mobile facilities.<sup>153</sup> This number is relatively small in view of the fact that there have been reports of sizeable amounts of methamphetamine seized in a number of countries in the region, among them China and Thailand, that originate in Myanmar.<sup>154</sup>

### Methamphetamine trafficking to and within East and South-East Asia and Oceania

Though large amounts of methamphetamine are manufactured in the region, the drug continues to be trafficked from many other parts of the world to supply markets in East Asia, South-East Asia and Oceania. In addition, methamphetamine manufactured in countries in East and South-East Asia is also trafficked to other countries within the region.

Between 2010 and 2012, methamphetamine seizures reported in Indonesia, Malaysia and Thailand were perceived to have originated in the Islamic Republic of Iran.<sup>155</sup> According to expert perception, Thailand is primarily a transit country for methamphetamine en route from the Islamic Republic of Iran to Japan, Malaysia, the Philippines and Hong Kong, China.<sup>156</sup> In 2012, Iranians were also

the most common foreign nationality to be reported in connection with ATS trafficking in Indonesia.<sup>157</sup>

According to seizure reports, ATS, in particular methamphetamine, is trafficked from West Africa either directly or via Southern Africa and Western Europe to East and South-East Asia, mostly to Australia, Japan, Malaysia and Thailand.<sup>158</sup> Moreover, according to seizure reports included in the database of Illicit Drug seizures with relation to European Airports' (IDEAS), about 85 per cent of ATS seized at Western European and Japanese airports originating from West Africa since 2009, were destined for countries in East and South-East Asia, predominantly Japan as well as Malaysia.<sup>159</sup> The National Drug Law Enforcement Agency (NDLEA) in Nigeria also reported that large amounts of ATS seizures at Murtala Muhammed International Airport (MMIA) were destined for countries in East and South-East Asia, such as Malaysia and Japan as well as other countries within Africa.<sup>160</sup> According to expert perception, there have been increasing arrests of West African and Kenyan nationals related to methamphetamine trafficking in Japan, Malaysia and the Philippines.<sup>161</sup> In 2010, Malaysia also reported to have seized methamphetamine that was perceived to have originated in Nigeria.<sup>162</sup>

According to expert perception, methamphetamine is also trafficked via the Middle East to countries in East and South-East Asia.<sup>163</sup> East and South-East Asian countries, such as Japan, the Republic of Korea, Malaysia, Singapore

Busan, Republic of Korea, 12-14 September 2012.

157 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2012.

158 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012; Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009 – July 2013; Data derived from 'Illicit Drug seizures with relation to European Airports' (IDEAS) database, 2009-2013; Australian Crime Commission (ACC), *Illicit Drug Data Report 2009-2010*, Canberra, June 2011.

159 Data derived from 'Illicit Drug seizures with relation to European Airports' (IDEAS) database, 2009-2013.

160 Data reported by National Drug Law Enforcement Agency (NDLEA), Nigeria, July 2009-July 2013.

161 "International Cooperation Against the Threat of ATS Globalization and West African Drug Syndicates" National Police Agency (NPA) of Japan, presented at the seventeenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, Japan, 14-16 February 2012; "Malaysia Country Presentation", Royal Malaysian Police (RMP), presented at the seventeenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, Japan, February 2012.

162 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Malaysia 2010.

163 "International Cooperation against the Threat of ATS Globalization and West African Drug Syndicates", National Police Agency (NPA) of Japan, presented at the Seventeenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, Japan, 14-16 February 2012; "Thailand Country Report", Office of the Narcotics Control Board of Thailand (ONCB), presented at the Seventeenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, Japan, 14-16 February 2012; "Malaysia Country Presentation", Royal Malaysian Police (RMP), presented at the Seventeenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, February 2012.

152 Only one large-scale manufacturing facility was dismantled in the Philippines in 2012, which was capable of producing more than 50 kg of methamphetamine in a single production cycle; "Philippine Country Report", Dangerous Drugs Board (DDB), presented at the Global SMART Programme Regional Workshop, Jakarta, 28-29 August 2013.

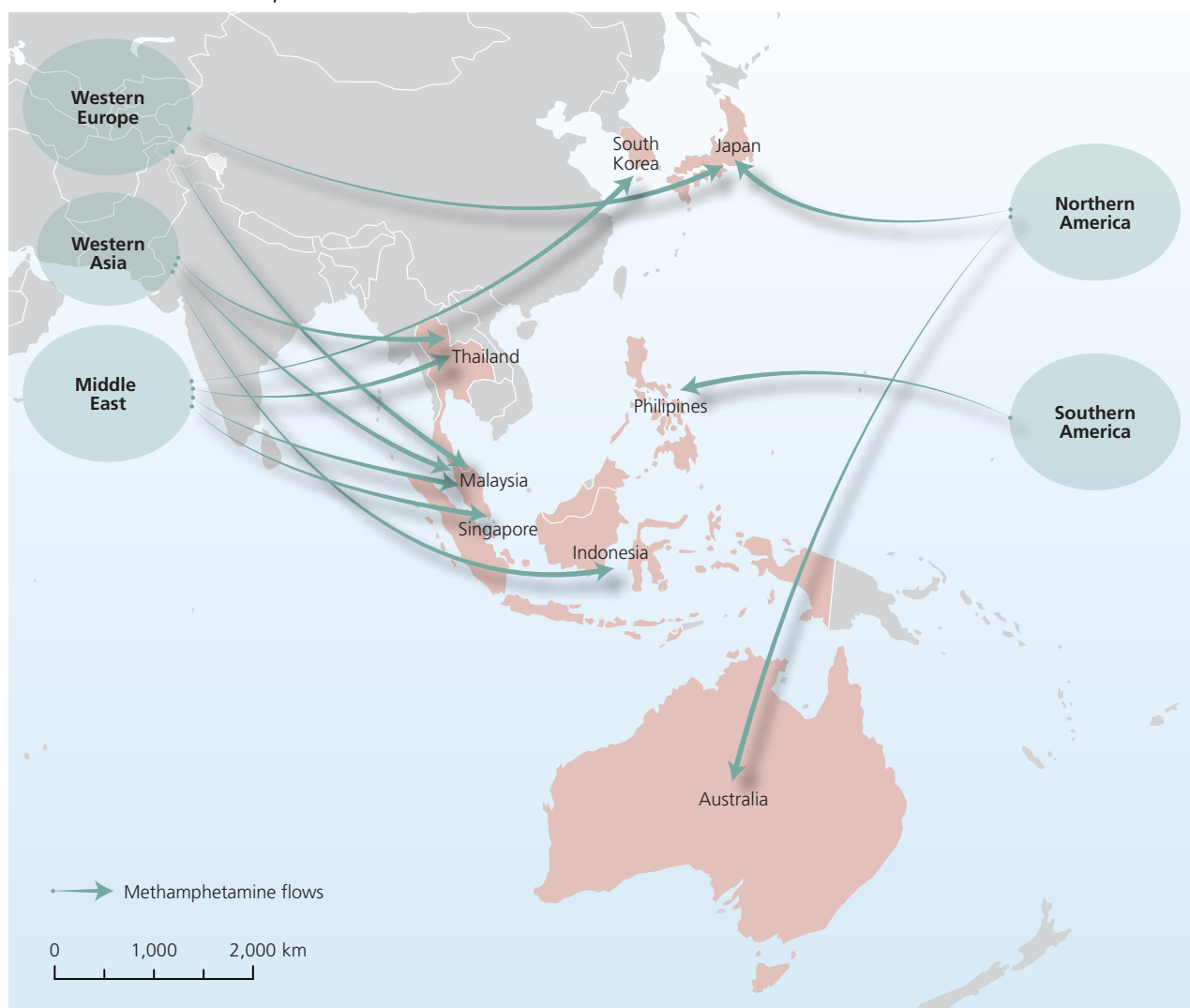
153 United Nations Office on Drugs and Crime (UNODC), *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, November 2013.

154 "Thailand country report" Office of the Narcotics Control Board of Thailand (ONCB), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), 26-27 February 2013; "China country presentation", China National Narcotics Control Commission (NNCC), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 26-27 February 2013; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Thailand 2008.

155 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia, Malaysia and Thailand 2009-2011.

156 Thailand country report, Office of the Narcotics Control Board of Thailand (ONCB), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), 26-27 February 2013; "Thailand country report", Office of the Narcotics Control Board of Thailand (ONCB), presented at the Twenty-second Anti-Drug Liaison Officials' Meeting for International Cooperation (ADLOMICO),

**Map 8:** Methamphetamine flows as perceived by recipient countries to East and South-East Asia, Oceania and the Pacific, 2008-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012; Data derived from the 'Illicit Drug seizures with relation to European Airports' (IDEAS) database, 2009-2013;

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of methamphetamine. These arrows represent the flows as perceived by recipient countries. The origins of the flow arrows do not necessarily indicate the sources/manufacture of methamphetamine. These arrows represent the flows as perceived by source countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

and Thailand, have reported of methamphetamine seizures that had been trafficked via Middle Eastern countries, including Qatar and the United Arab Emirates as well as Western European countries, such as France and Germany.<sup>164</sup>

From Southern Africa, ATS is also being trafficked to Australia. According to the Australian Crime Commission (ACC), seizures of ATS shipments that had embarked from South Africa accounted for the largest share, of about 28 per cent, of all ATS detected at the Australian border in 2009 and 2010, while Zambia was also reported as the

embarkation point for some cases.<sup>165</sup> Both Australia and New Zealand have also reported that West African organized criminal groups are involved in ATS trafficking to these countries.<sup>166</sup>

Methamphetamine seized in Australia, trafficked via Thailand and China by the postal services, is also perceived to have originated in Germany.<sup>167</sup> Though Australian law enforcement authorities report an increase of domestic

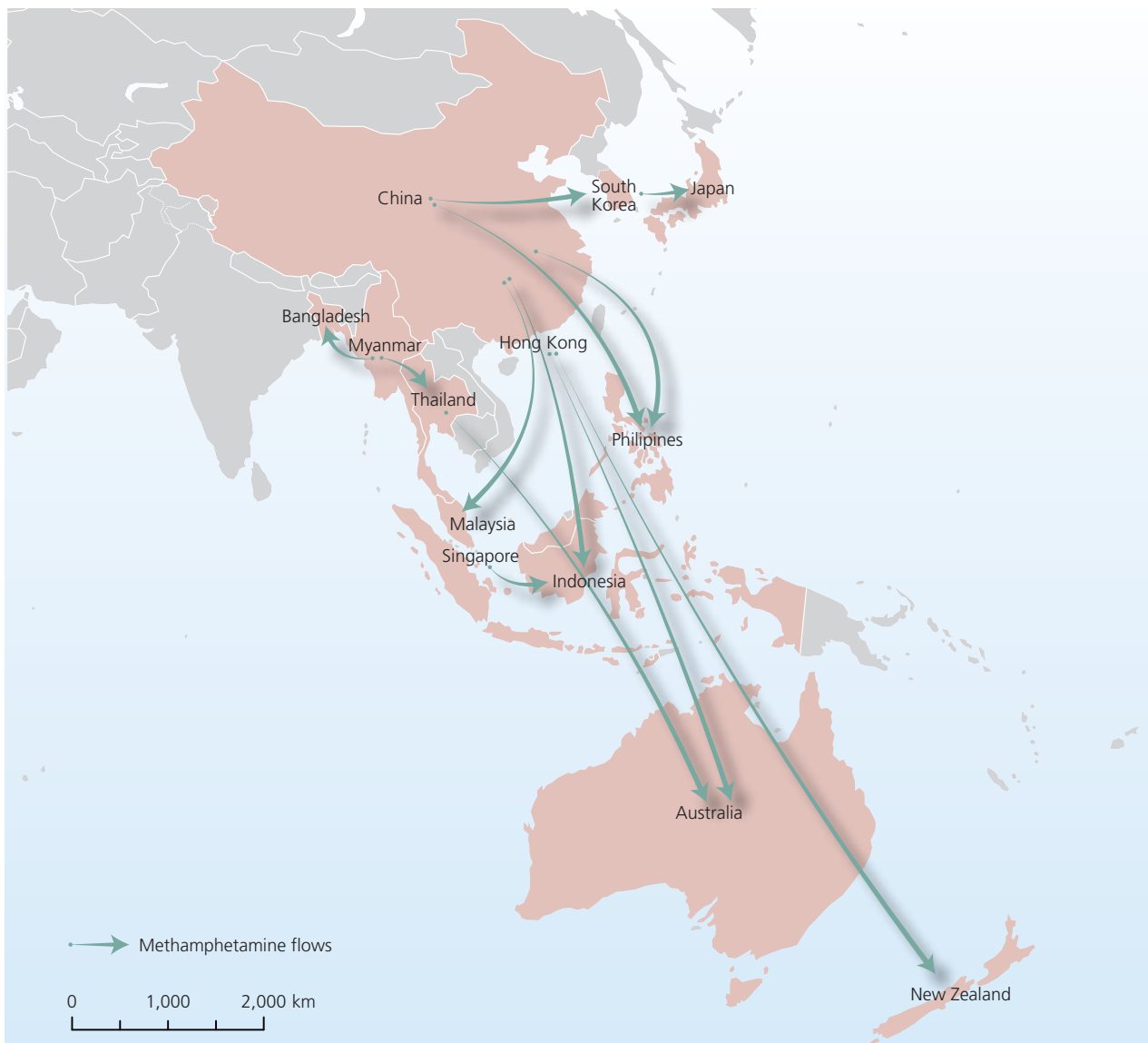
<sup>164</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010-2012.

<sup>165</sup> Australian Crime Commission (ACC), *Illicit Drug Data Report 2009-2010*, Canberra, June 2011.

<sup>166</sup> "Country Report New Zealand", presented at the Thirty-fifth Meeting of Heads of National Drug Law Enforcement Agencies, Asia and the Pacific (HONLAP), Agra, India, 22-25 November 2011.

<sup>167</sup> "Illicit Drug Data Report 2011-12", Australian Crime Commission (ACC), Canberra, May 2013.

**Map 9:** Methamphetamine flows as perceived by recipient countries within East and South-East Asia, Oceania and the Pacific, 2008-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of methamphetamine. These arrows represent the flows as perceived by recipient countries. The origins of the flow arrows do not necessarily indicate the source/manufacture of methamphetamine. These arrows represent the flows as perceived by source countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

ATS manufacture, rising amounts of ATS have recently been seized along the Australian border pointing to an increase of trafficking to the country.<sup>168</sup>

In recent years, there have also been reports of methamphetamine trafficked from countries in North and South America to East and South-East Asia. In 2012, Japan and Australia reported that a large share of seized methamphetamine was perceived to have originated from Mexico and trafficked in shipping containers.<sup>169</sup> Furthermore,

methamphetamine perceived to have originated in Peru and Brazil have been reported seized in the Philippines in 2012, possibly intended for onward trafficking to mainland China and Hong Kong, China.<sup>170</sup> In addition, according to Malaysian law enforcement there are indications that Iranian drug trafficking groups may be smuggling Mexican manufactured methamphetamine to Malaysia by plane.<sup>171</sup>

Report Questionnaire for Japan 2012; Drug Abuse Information Network for Asia and the Pacific (DAINAP).

168 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2012.

170 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Philippines 2012.

169 United Nations Office on Drugs and Crime (UNODC), Annual

171 "Malaysia country report", Narcotics Crime Investigation Depart-

According to reports from Hong Kong, China, methamphetamine seized in Hong Kong is mainly perceived as being intended for trafficking to other parts of the region, such as Australia, Cambodia, Japan, Malaysia and Thailand.<sup>172</sup> Large amounts of methamphetamine seized in China and originating in the country are perceived to be intended for the domestic market, and some countries, such as Indonesia, the Republic of Korea, Malaysia and the Philippines, have reported seizures of methamphetamine in 2012 that were perceived to have originated in China.<sup>173</sup>

According to expert perception, some methamphetamine originating in Myanmar is intended for the domestic market, but most is intended for trafficking to neighbouring countries.<sup>174</sup> All methamphetamine seized in Bangladesh and Thailand in 2008 was perceived to have originated in Myanmar.<sup>175</sup> Since then, methamphetamine seizures reported in Bangladesh, Thailand and Myanmar itself continue to be perceived to have originated in Myanmar.<sup>176</sup> According to expert perception, methamphetamine is trafficked from Myanmar to Thailand, Vietnam and Cambodia, via Lao PDR, though the drug also continues to be trafficked to these countries directly from Myanmar by sea.<sup>177</sup> There are indications that large quantities of the substance are also smuggled to China. According to expert perception, a large share of methamphetamine pills seized in China in 2012 originated from Myanmar.<sup>178</sup> Moreover, there have been reports that increasing amounts of methamphetamine originating from Myanmar have been seized in Yunnan province in south-western China along the border to Myanmar.<sup>179</sup>

ment, Royal Malaysia Police (RMP), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 26-27 February 2013.

172 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Hong Kong, China 2012.

173 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia, the Republic of Korea, Malaysia and the Philippines 2009-2012.

174 United Nations Office on Drugs and Crime (UNODC), *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, November 2013.

175 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Myanmar and Thailand 2008.

176 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Bangladesh, Myanmar and Thailand 2008.

177 United Nations Office on Drugs and Crime (UNODC), *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, November 2013.

178 "China country presentation", China National Narcotics Control Commission (NNCC), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 26-27 February 2013.

179 "Current Drug Situation and Trends of ATS in China", China National Narcotics Control Commission (NNCC), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 26-27 February 2013.

## A large and established market for NPS

Although the total number of NPS reports in the region has fluctuated over the years, reports of NPS on the whole have increased from 11 in 2008 to a total of almost 210 in 2013. The largest increases of NPS reports in the region have been observed with synthetic cannabinoids which have risen from just one observed substance in 2009 to 52 in 2013, and ketamine and phencyclidine-type substances rising from 11 in 2008 to 50 in 2013. In 2013, synthetic cannabinoids and ketamine and phencyclidine-type substances together accounted for almost 50 per cent of NPS reports. The number of reports of synthetic cathinones, phenethylamines, plant-based substances and piperazines also increased in recent years. Between 2009 and 2013, the number of reported synthetic cathinones increased from one to 37, phenethylamines increased from 2 to 23, piperazines from 3 to 20 and plant-based substances from 2 to 8 over the same period. The number of aminoindanes reported remained at low levels over the years with only one reported since 2009.

On the whole, about one-third of the number of NPS reports in the region between 2008 and 2013 have been reported by Australia accounting for 31 per cent of the total, followed by New Zealand at 17 per cent, Singapore at 12 per cent, Japan and China (including Hong Kong, China) at both 7 per cent. Other NPS in the region were also reported by Brunei Darussalam, Cambodia, Indonesia, India, the Republic of Korea, Malaysia, Mongolia, Myanmar, the Philippines, Sri Lanka, Thailand and Viet Nam, together making up around 26 per cent of the total number of NPS reports in the region.

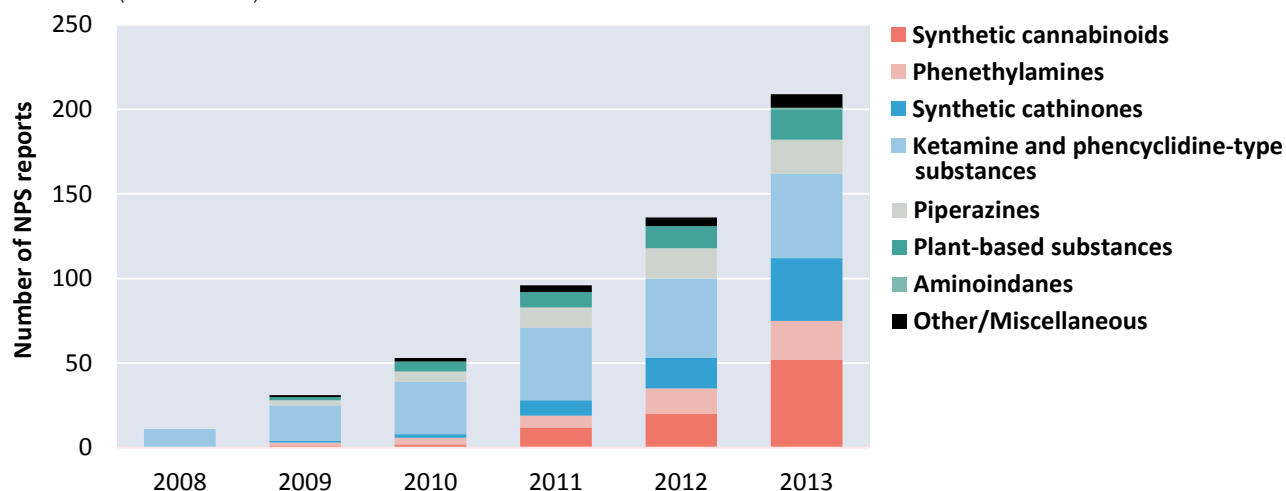
A particularly large NPS market appears to be present in the Oceania region, where countries have reported some of the highest NPS prevalence rates in the world. In 2007/08, before BZP, a piperazine, was classified in New Zealand as a Class C drug, a household survey among people aged 15 to 64, showed that BZP was the second most used drug at 5.6 per cent, after cannabis at 14.6 per cent in terms of annual prevalence, which is more than twice as high as the rate for amphetamines at 2.1 per cent.<sup>180</sup> However, once BZP was scheduled as a Class C drug in 2007, prevalence rates for BZP sharply declined, together with several other NPS that were placed under national controls.<sup>181</sup> In Australia, ketamine is the only NPS included in the national household survey of people aged 14 and above, and in 2010 it had an annual prevalence rate at 0.2 per cent use, the same as that of heroin, methadone or buprenorphine, and

180 Ministry of Health, *Drug Use in New Zealand; Key results of the 2007/08 New alcohol and Drug Survey*, January 2010.

181 C. Wilkins and P. Sweetsur, "The impact of the prohibition of Benzylpiperazine (BZP) 'legal highs' on the prevalence of BZP, new legal highs and other drug use in New Zealand", *Drug and Alcohol Dependence* 127, no. 1-3 (2013): 72-80.

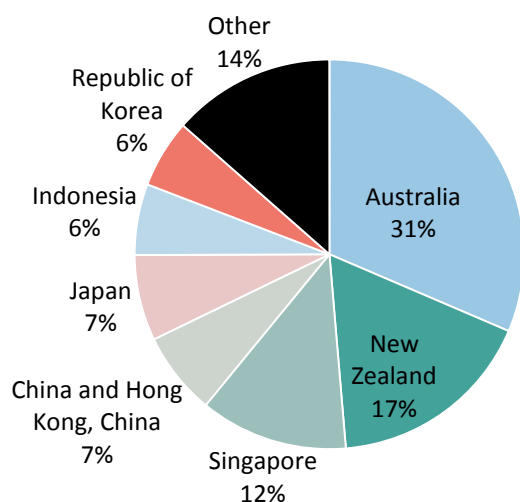


**Fig. 15:** Total number of NPS reports to UNODC in East and South-East Asia, Oceania and the Pacific (2008-2013)



Source: United Nations Office on Drugs and Crime (UNODC), "The challenge of new psychoactive substances". Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013 Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme.

**Fig. 16:** Total number of NPS reports to UNODC in East and South-East Asia, Oceania and the Pacific, by country, 2008-2013



Source: United Nations Office on Drugs and Crime (UNODC), "The challenge of new psychoactive substances". Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme.

higher than that of GHB at 0.1 per cent.<sup>182</sup> However, according to the Australian Crime Commission (ACC), drug users consume a number of NPS as substitutes to ATS. This can be evidenced in the results of a study conducted among frequent "ecstasy" and amphetamine users in Aus-

tralia, where 33 per cent had used an "emerging psychoactive substance" (excluding synthetic cannabinoids) in 2012, increasing from 28 per cent in 2011.<sup>183</sup>

A large market for ketamine appears to be present in a number of Asian countries, notably in East Asia. Among people held in prisons in Macau, China, in 2012 ketamine was the second most used drug in terms of annual prevalence at 18.3 per cent, after methamphetamine at 41.6 per cent.<sup>184</sup> High levels of ketamine seizures have been reported in China, including Hong Kong, China, over the years which have also accounted for a significant share of ketamine seizures reported globally. Between 5 to 6 tons of ketamine have been annually seized in mainland China and Hong Kong, China, since 2009 and seizures have accounted for almost 60 per cent of global ketamine seizures between 2008 and 2011, except for 2010 when ketamine seizures accounted for about 42 per cent of the global total.

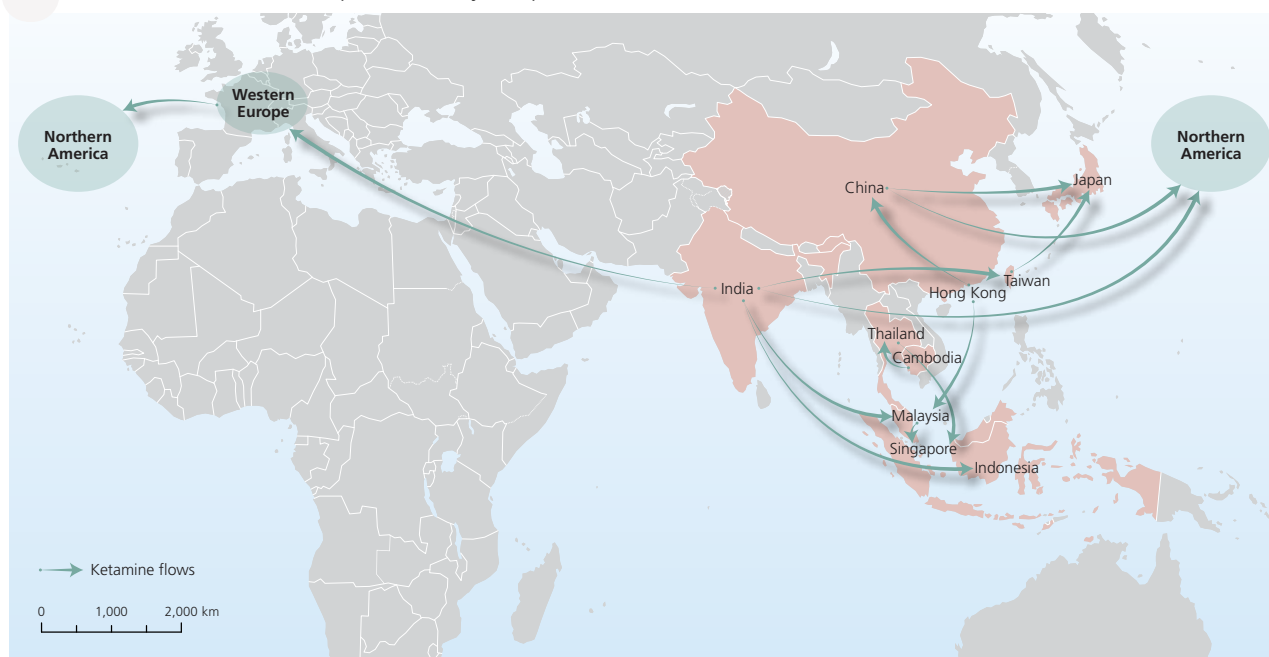
Relatively high levels of ketamine use have also been reported in the Southern Asian region where ketamine was identified as the fifth most widely used substance in India and Myanmar in 2011, while the substance was the fourth most widely used substance in Brunei Darussalam in 2011.<sup>185</sup> Though ketamine seizures have remained at low levels in Brunei Darussalam and Myanmar, ketamine sei-

<sup>183</sup> University of New South Wales, National Drug and Alcohol Research Centre, "Australian drug trends 2012: findings from the Ecstasy and Related Drugs Reporting System" Drug Trends Conference hand-out (Sydney, 2012).

<sup>184</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Macau, China 2012.

<sup>185</sup> United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013.

<sup>182</sup> Australian Institute of Health and Welfare, *2010 National Drug Strategy Household Survey Report*. Drug Statistics Series No. 25, Canberra, July 2011.

**Map 10:** Ketamine flows as perceived by recipient countries, 2008-2012

Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of ketamine. These arrows represent the flows as perceived by recipient countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

zures in India have been increasing over the years, from about 0.8 tons in 2009 to 1.5 tons in 2011.

In 2008, ketamine was identified as the fifth most widely used substances in Japan, while Singapore identified ketamine as the sixth most widely used substance in 2011, followed by the seventh most used substance in Indonesia in 2009.<sup>186</sup> However, there have been no ketamine seizures reported from Japan to UNODC for a number of years, and seizures in Indonesia and Singapore have together made up less than 1 per cent of ketamine seized globally between 2008 and 2011.

Over the years, illicit ketamine manufacture has been reported by countries in East Asia, such as in China and Hong Kong China. A total of 81 ketamine laboratories were discovered in mainland China in 2012, prior to which another 44 ketamine laboratories were dismantled in 2007.<sup>187</sup> In 2012, Hong Kong, China, also reported the discovery of a ketamine laboratory.<sup>188</sup> Ketamine seized in China, is perceived to have been intended for trafficking to Malaysia, as well as to Hong Kong, China, by sea from where it is also perceived to be trafficked onwards to Sin-

gapore by plane.<sup>189</sup> Around 2.2 tons of ketamine have been seized in Malaysia between 2009 and 2011 and according to expert perception, ketamine is among the most used NPS in the country.<sup>190</sup>

Recently, ketamine has also been found in tablets sold as methamphetamine in some countries in the region. In Indonesia, seizures of tablets sold as methamphetamine in 2012, reportedly contained methamphetamine as well as ketamine and other NPS, under national control.<sup>191</sup> In the same year, ketamine and other NPS were also found in seized tablets sold as methamphetamine in Australia, in addition to methamphetamine.<sup>192</sup>

Most ketamine seized in countries world-wide is perceived to originate from China and India, as well as Cambodia and the Taiwan Province of China. Canada, the United States and countries in Western Europe such as Italy have reported of ketamine seizures that were perceived to have originated from India as well as China.<sup>193</sup> To North Amer-

186 United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013.

187 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China 2007-2012.

188 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Hong Kong, China, 2012.

189 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Hong Kong, China, and Singapore 2012.

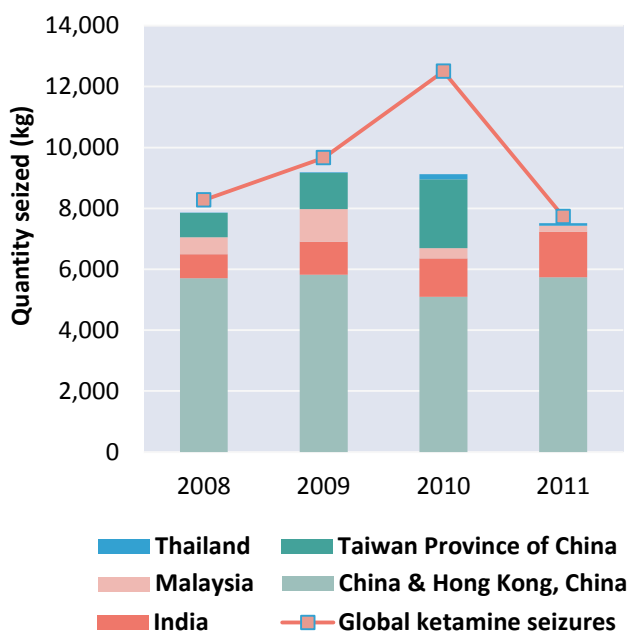
190 United Nations Office on Drugs and Crime (UNODC), *Patterns and Trends of Amphetamine-Type Stimulants and Other Drugs: Challenges for Asia and the Pacific*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, November 2013.

191 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia 2012.

192 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Australia 2012.

193 United Nations Office on Drugs and Crime (UNODC), Annual

**Fig. 17:** Global ketamine seizures and ketamine seizures reported in East and South-East Asia, by country, 2008-2011



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2011.

ica, ketamine is also trafficked from or via Western Europe. Within East and South-East Asia, seized ketamine perceived to have originated in China and/or India between 2008 and 2012, was reported by Indonesia and Japan.<sup>194</sup> However, ketamine seized in Thailand was perceived to have originated in Cambodia and in Japan ketamine seizures were reportedly traced to the Taiwan Province of China.<sup>195</sup> Most ketamine seized in India over the years was perceived to have been intended for the supply of the domestic market as well as for onward trafficking.<sup>196</sup> Large amounts of ketamine seized in mainland China, Hong Kong, China, Singapore and Thailand over the years were perceived to be intended for the domestic market.<sup>197</sup>

High levels of khat seizures also indicate an emerging threat in East and South-East Asia and Oceania. Between 2008 and 2012, about 6.4 tons of khat had been seized in China and Hong Kong, China and in 2012 more than half of all khat seized in the United States that year was reported to

have been trafficked via China and Hong Kong, China.<sup>198</sup> In February 2013, the Indonesian National Narcotics Board (NNB) Police also discovered a 7 hectare khat plantation in Cisarua of Bogor in West Java, in Indonesia.<sup>199</sup> Khat manufacture in the region may heighten the risk of an expanding market in the future.

Report Questionnaire for Canada, Italy and the United States 2008-2012.

194 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Indonesia and Japan 2008-2012.

195 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Thailand and Japan 2008-2012.

196 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for India 2008-2012.

197 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China, Hong Kong, China, Singapore and Thailand 2008-2012.

198 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for China and Hong Kong, China, and the United States, 2008-2012.

199 "Comparison Analysis of Red and Green Khat Leaves (Fresh, Dried and After Two Months Frozen)", Drugs Testing Laboratory National Narcotics Board Republic of Indonesia, April 2013.



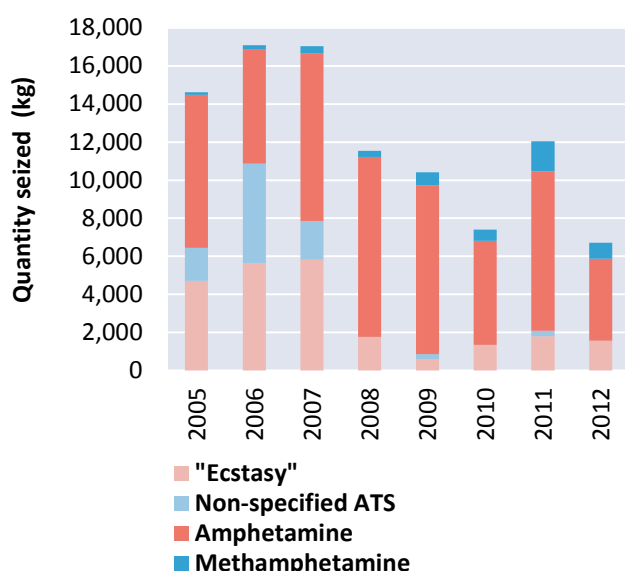


## 4. EUROPE

### Regional Overview

Amphetamine continues to be the most commonly available synthetic stimulant in Europe, followed by “ecstasy” and methamphetamine. Since 2008, amphetamine seizures have annually made up more than 65 per cent of ATS seizures, whilst “ecstasy” seizures have had an annual share of less than 22 per cent and methamphetamine seizures have annually remained below 13 per cent. Particularly, large amounts of amphetamine were seized in 2008 and in 2009, when amphetamine seizures made up about 80-85 per cent of ATS seizures in Europe.

**Fig. 18:** Total ATS seizures reported in Europe, 2005-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2005-2012.

On the whole, amphetamine is a major problem in Europe, particularly in Northern Europe, in countries such as Denmark, Latvia and Sweden. Amphetamine users make up a substantial portion of those seeking drug treatment in Sweden, where the largest number of persons receiving drug treatment for the first time were amphetamine users in 2010, making up a share of 28.6 per cent (1,473 people), and in Latvia, where about 18.9 per cent (380 people) of persons were treated for amphetamine use in 2011, making up the second highest share of people receiving drug treatment, after those treated for heroin use at 39.8 per cent (799 people).<sup>200</sup> In Denmark, amphetamine users made up the third largest share of people receiving drug treat-

<sup>200</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Latvia in 2011 and Sweden in 2010.

ment in 2012 at 9.7 per cent (358 people), after cannabis at 64.7 (2,397 people) per cent and heroin at 11.3 per cent (420 people).<sup>201</sup>

While the methamphetamine market appears to have picked up somewhat over the last several years, falling “ecstasy” seizures and drug law offenses related to “ecstasy” in Europe indicate a decline in the “ecstasy” market. Between 2007 and 2012, the quantity of “ecstasy” seized in Europe decreased by 72 per cent,<sup>202</sup> whilst the number of “ecstasy”-related offenses<sup>203</sup> between 2007 and 2011 have annually decreased.<sup>204</sup> According to the EMCDDA, the shrinking popularity for this substance in Europe may be due to the fact that many of the pills sold as “ecstasy” did not contain MDMA or were of a lower purity.<sup>205</sup> MDMA was often substituted with other substances when controls over 3,4-MDP-2-P<sup>206</sup> (the main precursor chemical used in the manufacture of MDMA) were heightened.<sup>207</sup>

Though ATS continues to be manufactured in Europe, the number of ATS laboratories dismantled in the region has declined in the last few years. Between 2008 and 2011, the total number of dismantled ATS laboratories declined by about 34 per cent. Dismantled ATS laboratories continue to be predominantly methamphetamine laboratories, followed by amphetamine, and only few ecstasy laboratories. For instance, in 2011, methamphetamine laboratories almost made up 85 per cent of all dismantled ATS laboratories, while amphetamine laboratories made up 16 per cent and ecstasy just around 0.5 per cent.

Between 2009 and 2012, large numbers of amphetamine

<sup>201</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Denmark 2012.

<sup>202</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2007-2012

<sup>203</sup> According to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) “Drug law offences usually refer to offences such as drug production, trafficking and dealing as well as drug use and possession for use. Although in some countries, drug use and/or possession for use are not considered as criminal offences and attract administrative sanctions, reports for these were included in the data”.

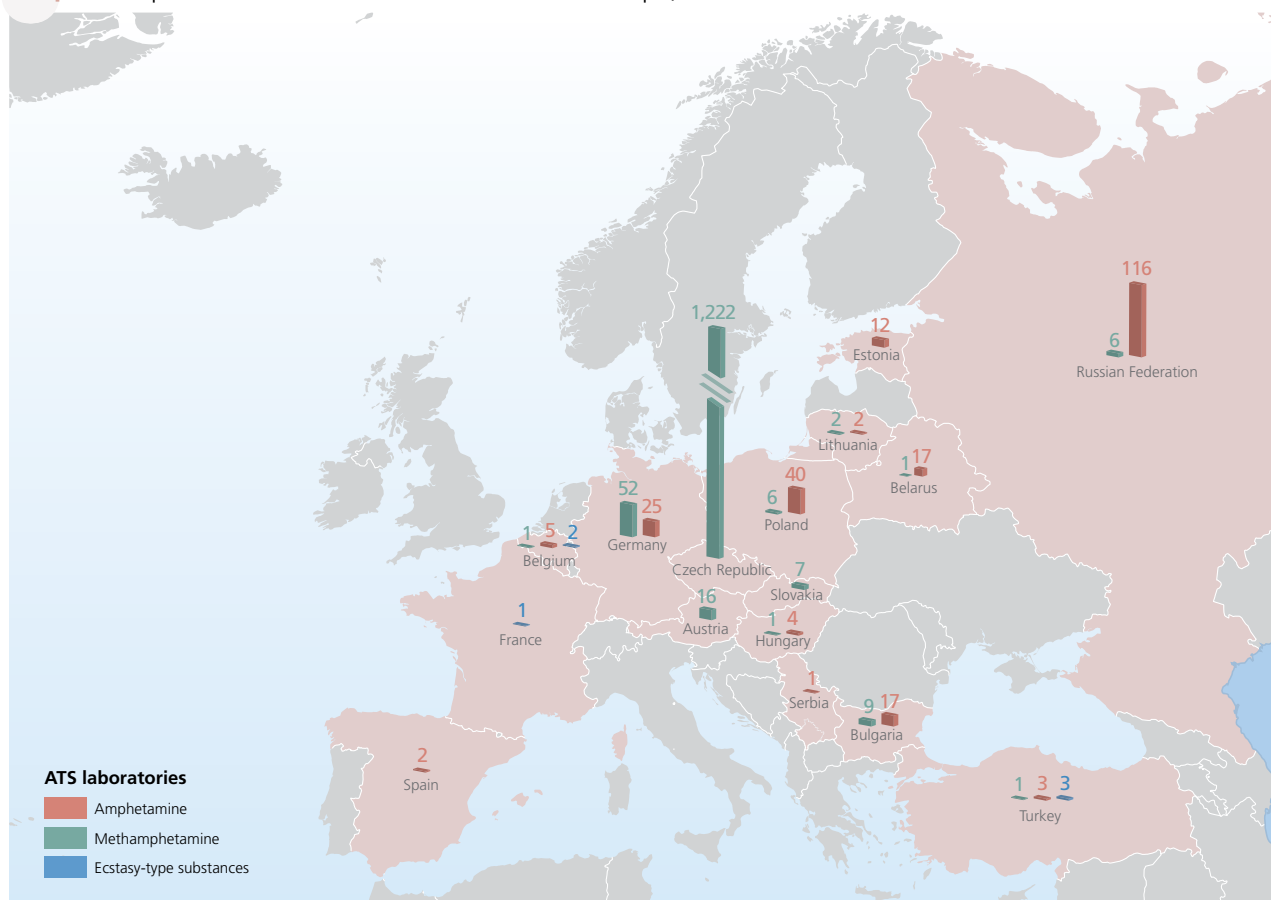
<sup>204</sup> Reported to the EMCDDA by the Reitox National Focal Points in the European Union, European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), 2007-2011.

<sup>205</sup> European Monitoring Centre for Drugs and Drug Addiction and European Police Office, “EU Drug Markets Report: A Strategic Analysis”, Luxembourg, Publications Office of the European Union, 2013.

<sup>206</sup> The full name of the chemical abbreviation is 3,4-Methylenedioxyphenyl-2-propanone.

<sup>207</sup> For more information see chapter on “Precursor trends and manufacturing methods” of this report.

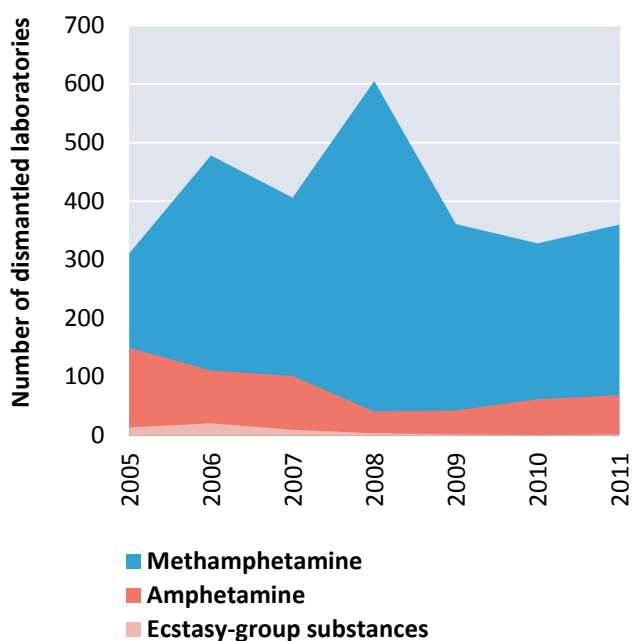
**Map 11:** Reported ATS laboratories dismantled in Europe, 2009-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2009-2012.

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

**Fig. 19:** Dismantled ATS laboratories reported in Europe, 2005-2011



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2005-2011.

Poland, including several in Belarus, Bulgaria, Estonia and Germany.<sup>208</sup> In Germany and Poland, some amphetamine laboratories have been reported of medium size, but most others reported in Belarus, Bulgaria and Estonia have been of a small or “kitchen” size. The size of amphetamine laboratories dismantled in the Russian Federation is unknown. On the whole, the sheer number of discovered amphetamine laboratories in these countries is not an indication of the quantity produced. In 2011, just over 90 per cent of methamphetamine laboratories dismantled in Europe were reported in the Czech Republic. However, over the last several years methamphetamine production has also been reported by other countries, such as in Austria, Bulgaria, Germany and Slovakia.<sup>209</sup>

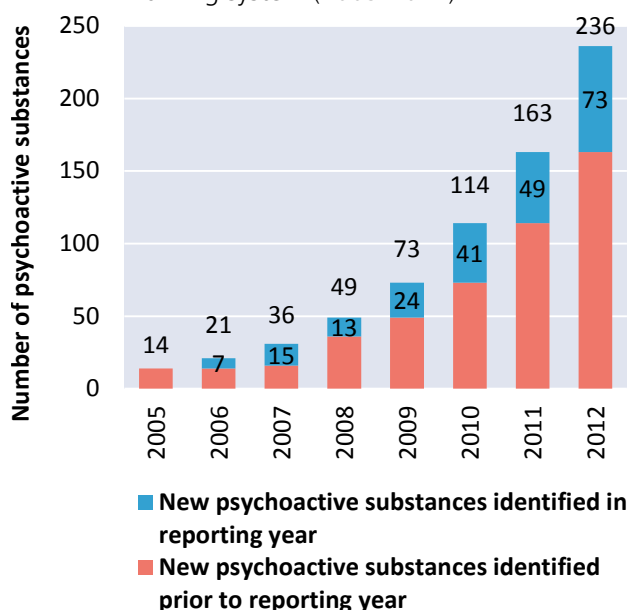
### A rapidly evolving marketplace for drugs

During the past few years, a range of NPS have emerged on ATS markets. So far, the NPS problem appears to be particularly prevalent in Europe. Most of the question-

208 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2009-2012.

209 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2009-2012.

**Fig. 20:** Total identified new psychoactive substances reported to the EU early warning system (2005–2012)



Source: European Monitoring Centre for Drugs and Drug Addiction and European Police Office, "EU Drug Markets Report: A Strategic Analysis", Luxembourg, Publications Office of the European Union, 2013.

naires received by UNODC on NPS in 2012 were from countries in Europe.<sup>210</sup> In 2012, a total of 73 NPS were officially identified by European Union (EU) Member States through the EU Early Warning System (EWS), which is more than triple the number reported in 2009.

In 2011 and 2012, synthetic cannabinoids made up the largest share of NPS formally identified within the EU. Whilst 74 synthetic cannabinoids have been reported since 2008, 30 of these were reported in 2012 alone.<sup>211</sup> In addition, 14 new phenethylamines were reported to the EWS in 2012, which is more than twice the number detected in any previous year. The number of phenethylamines detected in 2012 account for approximately one-third of the number detected since 2005.<sup>212</sup> In contrast, the importance of synthetic cathinones seems to have decreased somewhat recently. Only 5 synthetic cathinone derivatives were formerly notified in 2012, which marks about a 70 per cent drop in the number reported since 2010.<sup>213</sup>

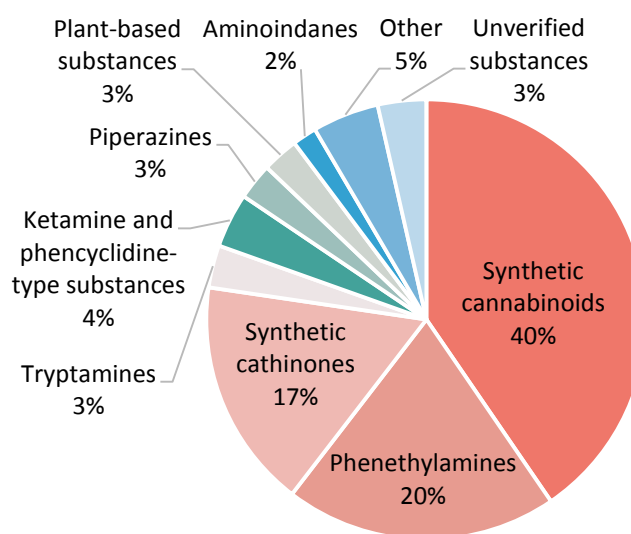
<sup>210</sup> United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, March 2013.

<sup>211</sup> European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) and European Police, "New Drugs in Europe, 2012: EMCDDA–Europol 2012 Annual Report on the implementation of Council Decision 2005/387/JHA" Luxembourg: Publications Office of the European Union, 2013.

<sup>212</sup> European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) and European Police, "New Drugs in Europe, 2012: EMCDDA–Europol 2012 Annual Report on the implementation of Council Decision 2005/387/JHA" Luxembourg: Publications Office of the European Union, 2013.

<sup>213</sup> European Monitoring Centre for Drugs and Drug Addiction

**Fig. 21:** Reports of new and existing NPS reported by countries in Europe to UNODC (July–October 2013)



Source: United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013.

The trend in Europe towards synthetic cannabinoids, and to a lesser extent phenethylamines and synthetic cathinones, observed in the EWS until 2012, was confirmed by a UNODC survey on NPS in 2013. Between July and October 2013, European countries reported 225 NPS to UNODC,<sup>214</sup> of which 40 per cent consisted of synthetic cannabinoids, but 20 per cent were phenethylamines and 17 per cent synthetic cathinones.

Although NPS are by definition not controlled at a global level, a number of such substances are controlled on a national level and/or EU-wide so that NPS are in fact often seized in Europe. Between 2009 and 2012, European countries reported a large number of seizures of synthetic cannabinoids, but total annual seizures greatly fluctuated dropping from 2.6 tons in 2010 to 0.3 tons in 2011, after which they surged to 8.8 tons in 2012.<sup>215</sup> A number of synthetic cannabinoid manufacturing laboratories have also been dismantled in Europe over the last few years. In 2012, a total of 4 synthetic cannabinoid laboratories were discovered in Turkey and another laboratory prior to that in Germany in 2010.<sup>216</sup> Other NPS manufacturing sites

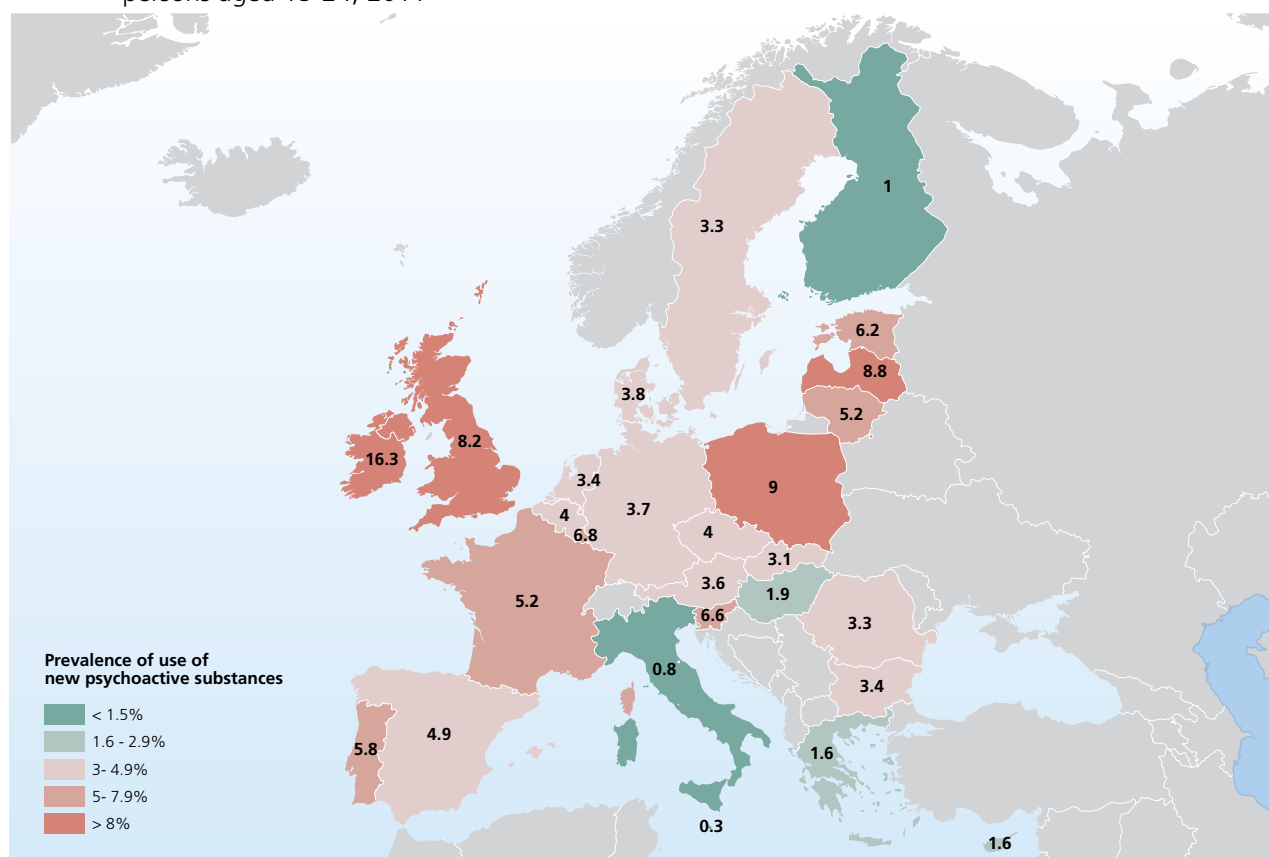
(EMCDDA) and European Police, "New Drugs in Europe, 2012: EMCDDA–Europol 2012 Annual Report on the implementation of Council Decision 2005/387/JHA" Luxembourg: Publications Office of the European Union, 2013.

<sup>214</sup> New and existing substances in Europe were reported to UNODC by Austria, Belgium, Croatia, Estonia, France, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Romania, the Russian Federation, Spain, Sweden, Ukraine and the United Kingdom.

<sup>215</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010–2012.

<sup>216</sup> United Nations Office on Drugs and Crime (UNODC), Annual

**Map 12:** Lifetime prevalence of legal substances\* that imitate the effects of illicit drugs in the EU among persons aged 15-24, 2011



Source: Gallup Organisation, *Youth Attitudes on Drugs: Analytical Report, Flash Eurobarometer series No. 330, European Commission, July 2011.*

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

\* Legal according to national legislation at the time of the survey.

have mostly been reported in Belarus, where an alpha-pyrrolidinopentiophenone laboratory and a JWH-018 laboratory were discovered in 2012, as well as another JWH-018 laboratory in 2011.<sup>217</sup>

The only Europe-wide NPS prevalence survey to-date, displays results that are not far from prevalence rates of some controlled drugs in Europe. The Eurobarometer survey conducted among 12,000 randomly selected youths aged 15-24 across the EU in 2011 revealed that the lifetime prevalence of youths that had experimented with “legal substances that imitate the effects of illicit drugs”<sup>218</sup> was at 4.8 per cent (2.9 million people)<sup>219</sup>.<sup>220</sup> The lifetime

prevalence rates for “legal substances that imitate the effects of illicit drugs” in the EU appear to be slightly lower than the use rates for amphetamines shown by the European School Survey Project on Alcohol and Other Drugs if adjusted to the age group 15 to 18, but of a magnitude similar to the rate for “ecstasy” and larger than the corresponding rates for cocaine, LSD or heroin.<sup>221</sup> The highest prevalence rates were reported by Ireland at 16.3 per cent, Poland at 9 per cent, Latvia at 8.8 per cent and the United Kingdom at 8.2 per cent.

As in the case of other drugs, the use of “legal substances that imitate the effects of illicit drugs” is more wide-spread among males than among females, more common in met-

Report Questionnaire for Turkey and Germany 2010-2012.

217 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Belarus 2010-2012.

218 Legal according to national legislation at the time of the survey; Gallup Organisation, *Youth Attitudes on Drugs: Analytical Report, Flash Eurobarometer series No. 330, European Commission, July 2011.*

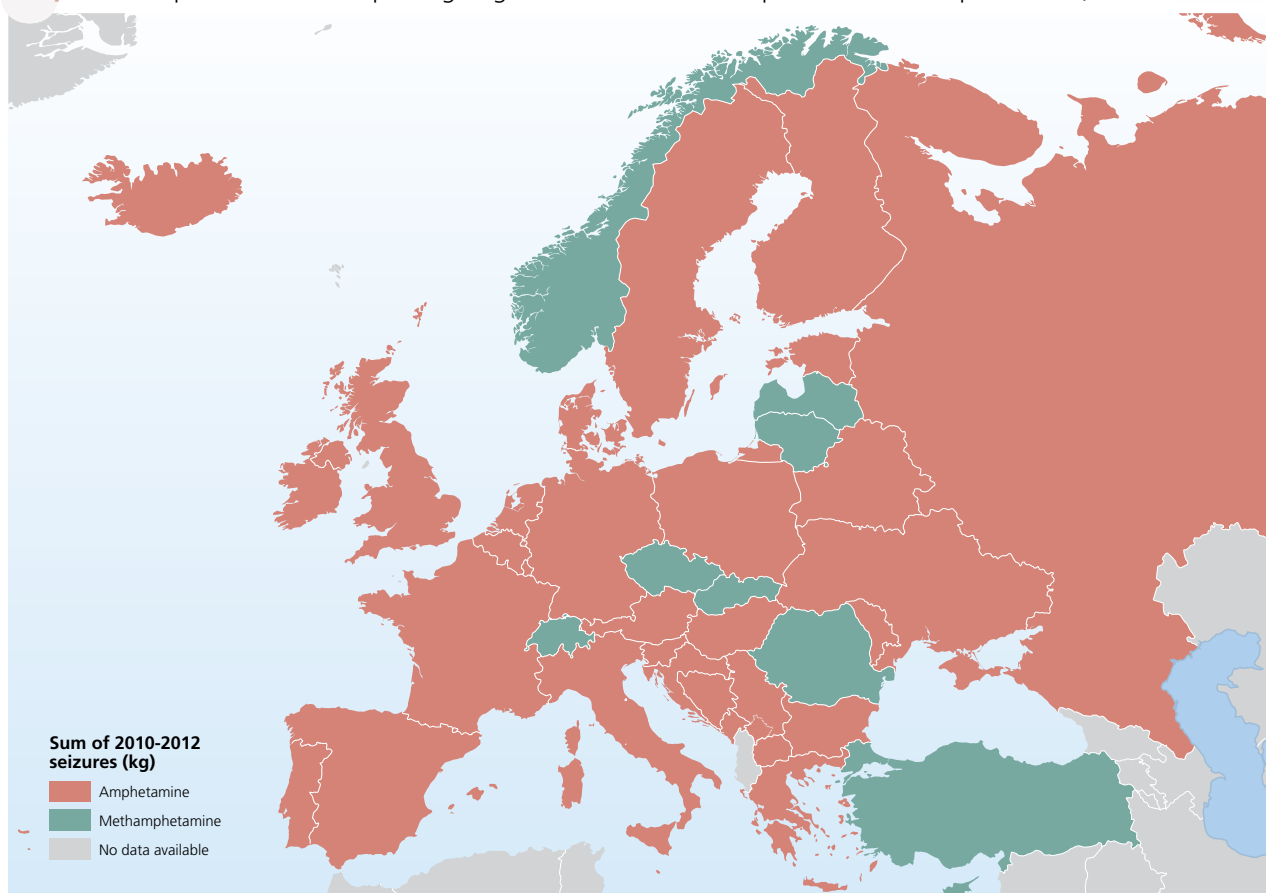
219 According to the Eurobarometer survey, the definition of legal substances that imitate the effects of illicit drugs refers to psychoactive substances that are not controlled at the national level. Since more substances are controlled on the national than on the international level, the survey excludes a number of substances that are officially termed as NPS.

220 Gallup Organisation, *Youth Attitudes on Drugs: Analytical Report, Flash*

*Eurobarometer series No. 330, European Commission, July 2011.*

221 Gallup Organisation, *Youth Attitudes on Drugs: Analytical Report, Flash Eurobarometer series No. 330, European Commission, July 2011*; B. Hibell and others, *The 2011 ESPAD Report: Substance Use among Students in 36 European Countries*, Stockholm, Swedish Council for Information on Alcohol and Other Drugs, 2012; B. Hibell and others, *The ESPAD Report 2003: Alcohol and Other Drug Use Among Students in 35 European Countries*, Stockholm, Swedish Council for Information on Alcohol and Other Drugs and Pompidou Group of the Council of Europe, 2004; Council of Europe, *Alcohol and Drug Use Among European 16-18 Year Old Students – Data from the ESPAD Project*, February 2007.



**Map 13:** European countries reporting larger seizures of methamphetamine or amphetamine, 2010-2012

Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010-2012.

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

ropolitan than in rural areas and more wide-spread among the unemployed population than among those working. Visitors at nightclubs display high use rates, but these findings are not generalisable to other groups and populations on a nation-wide scale. For instance, a survey of gay-friendly nightclubs in South-East London found that the NPS mephedrone, had the highest prevalence of last month use at 53.0 per cent, surpassing cocaine use at 44.6 per cent and “ecstasy” at 27.0 per cent.<sup>222</sup> While the results showed that lifetime prevalence of cocaine use was ranked highest at 76 per cent, this was followed by “ecstasy” at 69 per cent and mephedrone at 64 per cent. Another nightclub survey conducted in Denmark in 2010 initiated by the Centre for Drug and Alcohol Research at Aarhus University and the National Research Centre for Welfare, also showed that 10 per cent of Danish clubbers reported to have tried the NPS ketamine, including GHB,<sup>223</sup> and some hallucinogenic compounds under international control.<sup>224</sup>

222 Wood, D.M. et al. “Limited use of novel psychoactive substances in South London nightclubs” *QJM: An International Journal of Medicine* October 2012 (105)(10): 959-964.

223 GHB is the chemical abbreviation of Gamma-hydroxybutyrate, a substance under international control.

224 “Denmark - New Development, Trends and in-depth information on

### Is the market for methamphetamine picking up?

In spite of an increase in methamphetamine seizures over the last several years, the amount of methamphetamine seized in Europe still remains significantly lower than the amount of amphetamine seized annually. In terms of total ATS laboratories dismantled in Europe, the number of methamphetamine laboratories continues to exceed the number of amphetamine laboratories. In 2011, more than five times as many methamphetamine than amphetamine laboratories were dismantled.<sup>225</sup> However, many of the methamphetamine laboratories discovered in Europe between 2010 and 2012 are reported by the Czech Republic and consist of small-scale operations intended to supply drugs to a narrow market.<sup>226</sup> In contrast, a number of amphetamine laboratories dismantled in Belgium, Germany, Hungary, Lithuania, Poland and Turkey have been

selected issues”, 2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point, European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Denmark, 2012.

225 Of the 360 methamphetamine laboratories dismantled in Europe in 2011, 338 were discovered in the Czech Republic.

226 European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), *European Drug Report: Trends and developments*, Lisbon: Publications Office of the European Union, 2013.

of a medium or industrial scale.<sup>227</sup> Therefore, the sheer number of dismantled methamphetamine laboratories might not provide a clear indication of the volume illicitly manufactured.

Methamphetamine originating from European countries are primarily trafficked to other countries within the region. In 2012, seizures of methamphetamine originating from Belgium, the Czech Republic, the Netherlands and Slovakia were perceived to have been trafficked to countries across Europe, including Austria, Hungary, Ireland, Italy, Poland and the United Kingdom.<sup>228</sup> Poland is predominantly a transit country for methamphetamine originating from the Czech Republic and the Netherlands trafficked to other countries in Eastern Europe, including Belarus and Lithuania.<sup>229</sup> Seized methamphetamine originating in Lithuania was also indicated as being primarily intended for supplying the domestic market as well as for onward trafficking to Scandinavian countries, such as Sweden.<sup>230</sup>

Recent evidence suggests that methamphetamine is beginning to replace amphetamine in some countries. Whilst the ATS market in the Czech Republic has long been dominated by methamphetamine, this trend appears to be spreading to other European countries particularly in Eastern Europe and the Baltics. For instance, throughout the period of 2010 to 2012, a total of 8 European countries reported higher methamphetamine than amphetamine seizures, with the highest shares reported in the Czech Republic, Romania, Slovakia and Turkey.

According to drug treatment data in the Czech Republic in 2012, the number of people treated for methamphetamine use made up by far the largest share of people treated for drug use that year at 68.2 per cent (5,993 people).<sup>231</sup> Moreover, according to expert perception, ATS are primarily driving the increase for drug treatment demand outside of Prague in the Czech Republic.<sup>232</sup> Also, in 2012, the number of people treated for methamphetamine use in Slovakia accounted for the largest share of people treated for drug use at 44.5 per cent (892 people).<sup>233</sup> In addition to locally produced methamphetamine, there were reports

of methamphetamine (exceeding 80 per cent purity) being trafficked to Slovakia from the Czech Republic.<sup>234</sup>

For some other countries in Europe, an increase in methamphetamine seizures might not necessarily point to an increase in the domestic market for the drug. For instance, with regards to Turkey, methamphetamine seizures have increased from about 0.1 ton in 2010 to 0.5 tons in 2012.<sup>235</sup> It is difficult to estimate the current size of the methamphetamine market as use data remains unavailable. For the first time in 2011, the Turkish National Police (KOM) reported that a very low amount of methamphetamine was seized in street operations which might point to a small scale domestic market.<sup>236</sup> However, whilst some methamphetamine seizures in Turkey were reported in the provinces along the border to the Islamic Republic of Iran, 53 per cent of seizures in 2011 occurred in Istanbul, primarily at Ataturk Airport.<sup>237</sup> Therefore, the Turkish national authorities attributed the high level of seizures in the country to Turkey's increasing role as a transit country for methamphetamine trafficking.<sup>238</sup>

### Is there a decline in the "ecstasy" market?

In spite of an overall decrease of "ecstasy" seizures for 2012, in several European countries, such as France, Spain and the United Kingdom, seizures in Turkey have greatly increased since 2009 and almost tripled in 2012 to 1.2 tons. In 2012, Turkey reported the largest "ecstasy" seizures in Europe, having outpaced the level reported in the Netherlands, which use to report the largest "ecstasy" seizures up until 2011. Within Europe, large amounts of "ecstasy" are trafficked from the Netherlands to other countries in the region. In 2012, the Netherlands were identified as a perceived country of origin for all "ecstasy" seized in Austria, Hungary and Sweden.<sup>239</sup> A large share of "ecstasy" seized in Belgium, Croatia, Cyprus, Estonia, Ireland, Italy, Lithuania and Poland between 2010 and 2012 was also perceived to have originated from the Netherlands.<sup>240</sup> Over the same period, the Netherlands have also been named as a major transit country for "ecstasy" seized in

227 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010-2012.

228 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2012.

229 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Belarus and Lithuania 2012.

230 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2012.

231 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Czech Republic, 2012.

232 "Annual Report: The Czech Republic – 2011 Drug Situation", Office of the Government of the Czech Republic, Prague, Czech Republic, September 2012.

233 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Slovakia, 2012.

234 "Slovakia – New Development, Trends and In-depth Information on Selected Issues", 2012 National Report (2011 data) to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) by the Reitox National Focal Point, Slovakia, 2012.

235 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Turkey 2010-2012.

236 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

237 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

238 "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

239 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Austria, Hungary and Sweden 2012.

240 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010-2012.



## Background on regional differences in ATS use

Generically known as amphetamines, methamphetamine and amphetamine are closely related synthetic stimulants. And yet, of the two, amphetamine has always been more common in Europe and the Middle East, whilst methamphetamine has dominated the ATS market in East and South-East Asia and has had a large presence in North America. The high availability of amphetamines in these regions primarily has its origins in the Second World War, when large quantities of amphetamines were manufactured to supply troops and workers to act as a stimulant in strenuous times.<sup>1</sup> Military personnel in the United States and Japan were predominantly supplied with methamphetamine, while soldiers in Europe were commonly given amphetamine.<sup>2</sup> Stockpiles of amphetamines after the war led to their widespread availability followed by the non-medical use of amphetamines in these regions.<sup>3</sup> A surge in the recreational use of methamphetamine was first recorded between 1945 and 1955 in the United States and Japan.<sup>4</sup> Most amphetamines at the time were not nationally controlled and manufactured by pharmaceutical companies which were also prescribed by medical practitioners to treat conditions such as depression, attention-deficit disorder, alcoholism, obesity and anorexia.<sup>5</sup> With the adoption of the International Convention on Psychotropic Substances in 1971, amphetamines were placed under international control which restricted the availability of amphetamines for non-medical use whilst illicit manufacture emerged.

Nevertheless, it still remains very difficult to explain national preferences for amphetamine and methamphetamine, since these drugs are often substituted for each other. For drug users, it is especially difficult to distinguish between the two given that the purity of street samples of both drugs can vary considerably. Although the use effects of the two drugs are similar, in that they produce mental and physical stimulation, methamphetamine has a more potent effect on the central nervous system and unlike other amphetamines is specifically taken by some to extend and intensify the sexual experience.<sup>6</sup>

Unlike amphetamines, the use of which spread following the Second World War, the spread of MDMA was primarily a result of rave culture in Europe, North America and Oceania in the 1980s.<sup>7</sup> The association with MDMA and music is important, since the substance can provide stamina to dance for long periods of time.<sup>8</sup> MDMA acts as a stimulant and has some limited hallucinogenic effects that heighten sensory awareness. On the whole, “ecstasy” users seek to experience a tranquil euphoria coupled with a high degree of emotional empathy between associates. In the United States, MDMA was already more widely used in the 1970s to substitute MDA which was placed under national control.<sup>9</sup> MDMA was not nationally controlled and used by psychotherapists to aid counselling, particularly with regards to assist in improving interpersonal relationships and marital partnerships.

- 1 Wills, Simon. *Drugs of Abuse*, 2nd ed., Pharmaceutical Press (2005): London, Great Britain, pp.119.
- 2 ACMD, “Methylamphetamine review”, a report by the Advisory Council on the Misuse of Drugs, 2005; Suwaki, H., Fukui, S. and Konuma, K., “Methamphetamine abuse in Japan: its 45 year history and the current situation” (1997), in Klee, H. (ed.), *Amphetamine misuse. International perspectives on current trends*, Harwood Academic Publishers, Amsterdam.
- 3 Wills, Simon. *Drugs of Abuse*, 2nd ed., Pharmaceutical Press (2005): London, Great Britain, pp.116; Tamura, M., ‘Japan: Stimulant epidemics past and present’, *Bulletin on Narcotics* 1 (1989): 83–93; ACMD, “Methylamphetamine review”, a report by the Advisory Council on the Misuse of Drugs, 2005; Case, P., *The history of methamphetamine: an epidemic in context*, First National Conference on Methamphetamine, HIV and Hepatitis, The Harm Reduction Project, Salt Lake City, August, 2005.
- 4 Shrem, M. T. and Halkitis, P. N., ‘Methamphetamine abuse in the United States: contextual, psychological and sociological considerations’, *Journal of Health Psychology* 13 (2008): 669–79; National

Institute of Mental Health, cited in Ahmad, K., ‘Asia grapples with spreading amphetamine abuse’, *The Lancet* 361 (2003): 1878–9.

- 5 ACMD, “Methylamphetamine review”, a report by the Advisory Council on the Misuse of Drugs, 2005; Case, P., *The history of methamphetamine: an epidemic in context*, First National Conference on Methamphetamine, HIV and Hepatitis, The Harm Reduction Project, Salt Lake City, August, 2005; National Drug Law Enforcement Research Fund (NDLERF), *The governance of illicit synthetic drugs*, monograph series No. 9, Commonwealth of Australia, 2005.
- 6 Wills, Simon. *Drugs of Abuse*, 2nd ed., Pharmaceutical Press (2005): London, Great Britain, pp.119.
- 7 Wills, Simon. *Drugs of Abuse*, 2nd ed., Pharmaceutical Press (2005): London, Great Britain, pp.120.
- 8 Reynolds, Simon, *Generation Ecstasy: Into the World of Techno and Rave Culture*, Routledge, 1999: 81.
- 9 Wills, Simon. *Drugs of Abuse*, 2nd ed., Pharmaceutical Press (2005): London, Great Britain, pp.115.

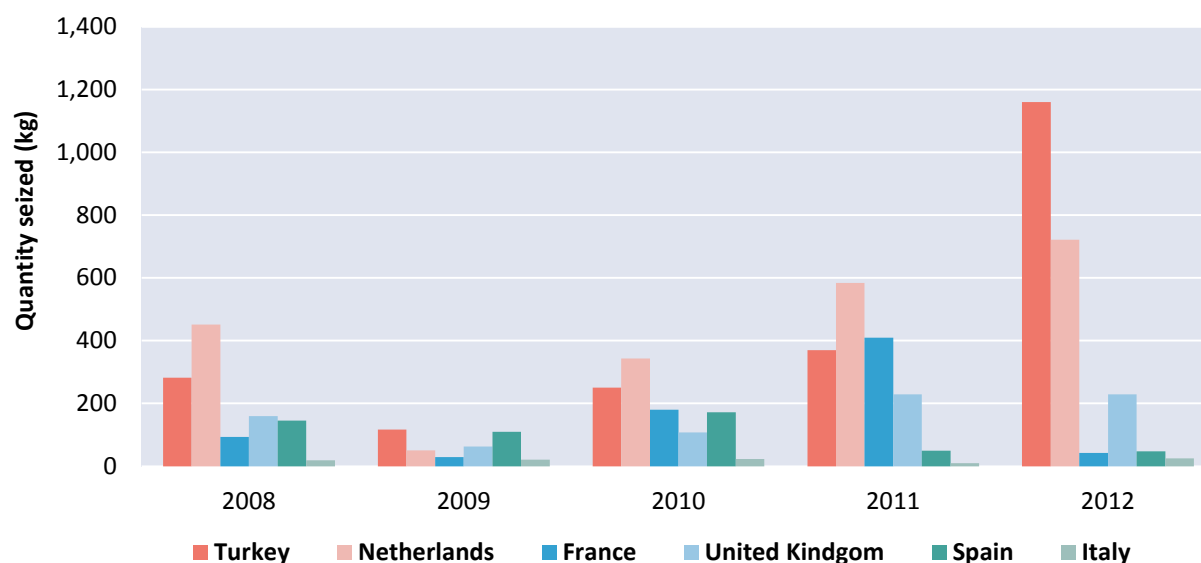
Belgium, France and Germany.<sup>241</sup> “Ecstasy” tablets seized in Turkey are generally perceived to originate from the Netherlands and Belgium from where these are trafficked via Bulgaria and more recently via Greece.<sup>242</sup>

According to the National Turkish Focal Point to the EMCDDA, the increasing seizures in Turkey are chiefly attributable to the growing domestic “ecstasy” market. A pilot study by the Adult Investigation and Evaluation Form (Y-ARDEF) that surveyed 10 penal institutions in Turkey in 2011, showed that after cannabis at 41.4 per cent, “ecstasy” use had the second highest prevalence rate among inmates at 26.6 per cent.<sup>243</sup> Moreover, drug-related deaths

241 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2010-2012*.

242 “2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point” European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

243 Adult Investigation and Evaluation Form (Y-ARDEF) cited in “2012

**Fig. 22:** "Ecstasy" seizures reported in selected European countries, 2008-2012

Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

as a direct cause of "ecstasy" use have been steadily increasing in Turkey from 9 cases in 2010 to 35 in 2011, whilst deaths indirectly caused by "ecstasy" increased from only one case to 19 over the same period.<sup>244</sup>

However, the increasing "ecstasy" seizures in Turkey may instead point to a growing market for amphetamines in the country. Many seizures of tablets sold on the market as "ecstasy", carrying the ecstasy-logo, actually contained amphetamine.<sup>245</sup> According to the EMCDDA in 2011, 66 per cent of the analysed "ecstasy" tablets seized in Turkey were found to contain amphetamine or methamphetamine, while only 20 per cent contained MDMA.<sup>246</sup> In the meantime, according to the Turkish National Police, seizures of tablets sold as captagon (which primarily contain amphetamine) have been steadily decreasing, falling from about 7.5 million tablets in 2007 to only 1.1 million in 2011.<sup>247</sup> For the Turkish National Police this evidence suggests that the market for amphetamines in Turkey is being revitalised by relabeling captagon tablets as "ecstasy".<sup>248</sup>

The high amphetamine content of "ecstasy" tablets in Turkey contrasts developments in other European countries, where the availability of MDMA in "ecstasy" tablets appears to have increased. According to the EMCDDA, countries reporting that MDMA-like substances accounted for the largest proportion of analysed "ecstasy" tablets, increased from only 3 countries in 2009 to 11 in 2011.<sup>249</sup> Ecstasy producers may have shifted to using 'pre-precursors' that can be legally imported as non-controlled substances and converted into the precursor chemicals needed for MDMA production.<sup>250</sup> It remains to be seen whether this will stimulate a renewed demand for ecstasy in Europe.

### How do controls affect the market for mephedrone?

Before being placed under EU-wide control in December 2010, mephedrone had already been under national control in a number of European countries using various different legislative approaches.<sup>251</sup> Some countries, such as Finland and the Netherlands classified mephedrone as a

National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

244 "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

245 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

246 "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

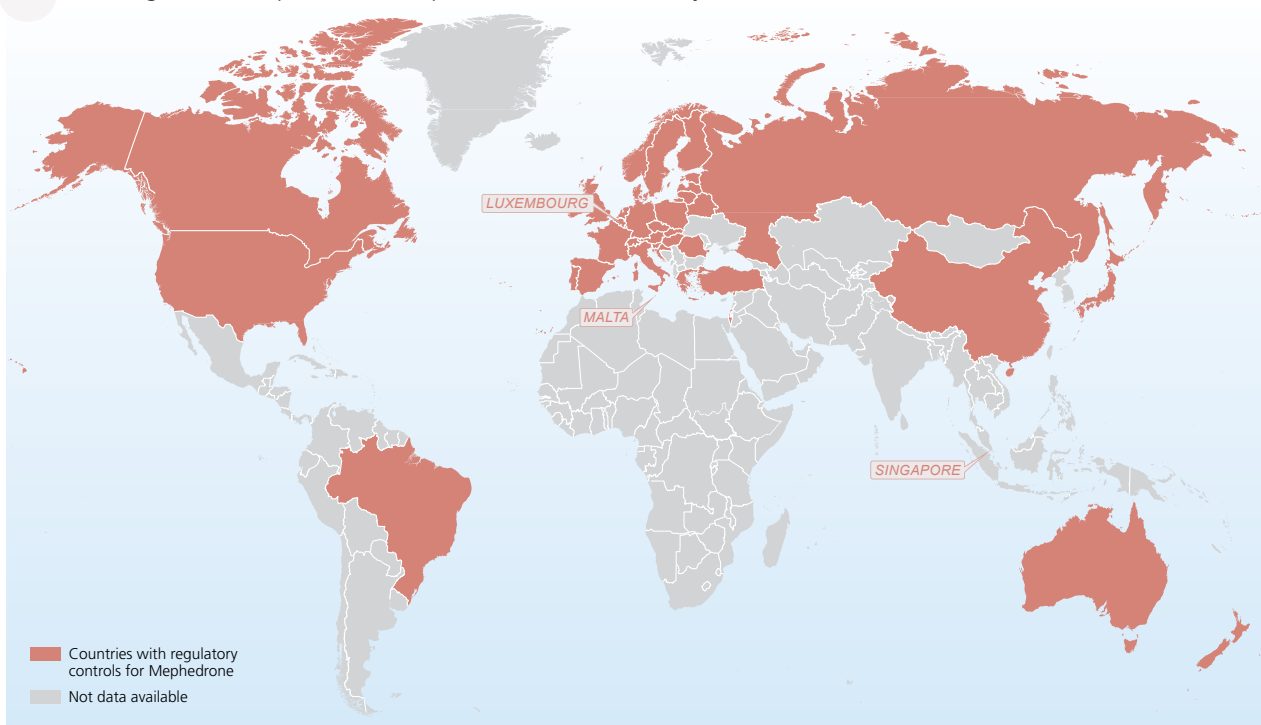
247 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

248 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

249 In 2010, only Malta, Italy and the Netherlands reported that MDMA-like substances accounted for the largest proportion of analysed "ecstasy" tablets in 2009, which increased to 11 countries in 2011 that included Austria, Croatia, Estonia, Finland, France, Germany, Malta, the Netherlands, Poland, Portugal and Slovenia; Reported to the EMCDDA by the Reitox National Focal Point of Austria, Croatia, Estonia, Finland, France, Germany, Malta, the Netherlands, Poland, Portugal and Slovenia, European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), 2012.

250 For more information, see chapter on "Precursor trends and manufacturing methods" of this report.

251 At the time of preparation of this report, the United Kingdom submitted a notification to the Secretary-General of the United Nations on adding mephedrone to Schedule 1 of the 1971 Convention on Psychotropic Substances and provisionally scheduling mephedrone under Article 2 of that Convention.

**Map 14:** Legislative responses to mephedrone worldwide by mid-2013

Source: United Nations Office on Drugs and Crime (UNODC), "NPS brief – Mephedrone", *Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, October 2013.

Note: The information in this map has been provided by Member States to UNODC in the questionnaire on new psychoactive substances in 2012 or are otherwise available in the public domain. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

medicine before adding the substance to the list of controlled substances in their national drug legislation.<sup>252</sup> Denmark, Hungary, and the United Kingdom on the other hand, issued a temporary ban before placing the substance under permanent control.<sup>253</sup> This measure ensured a prompt response to an imminent public health threat whilst providing experts with more time to gather available evidence and make a full assessment. At this stage it is still too early to say what the general impact of national control measures on mephedrone use will be.

By mid-2013, the largest number of countries to control mephedrone worldwide were located in Europe. Reports to UNODC supported by information available in the public domain show that a total of 31 countries have placed national legislative controls over mephedrone in Europe, 5 of which are outside the EU and include Belarus, Norway, the Russia Federation, Switzerland and Turkey. Outside of Europe, only 9 countries are known to have placed regulatory measures on mephedrone.<sup>254</sup>

<sup>252</sup> United Nations Office on Drugs and Crime (UNODC), "NPS brief – Mephedrone", *Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, October 2013.

<sup>253</sup> United Nations Office on Drugs and Crime (UNODC), "NPS brief – Mephedrone", *Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, October 2013.

<sup>254</sup> United Nations Office on Drugs and Crime (UNODC), "NPS brief –

It still remains unclear to what extent mephedrone may now be competing with ATS in some countries. Since the market for "ecstasy" has clearly been in the decline in several European countries, mephedrone may particularly be serving as a substitute for this substance. According to a number of studies mephedrone can evoke stimulant and empathogenic effects similar to other amphetamine-type stimulants, including MDMA.<sup>255</sup> Moreover, there have even been cases reported in the Netherlands and France of mephedrone pills that were being sold on the market as "ecstasy".<sup>256</sup> In Europe, mephedrone laboratories have been discovered in some Eastern European countries, including Poland and Belarus.<sup>257</sup>

Mephedrone", *Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, October 2013.

<sup>255</sup> For more on the stimulant and empathogenic effects of mephedrone see Brunt, Tibor M. et. al. "Instability of the ecstasy market and a new kid on the block: mephedrone" *Journal of Psychopharmacology* September 2010 (25): 1543-1547; Schifano, Fabrizio, et. al. "Mephedrone (4-methylmethcathinone; 'meow meow'): chemical, pharmacological and clinical issues", *Journal of Psychopharmacology* April 2011 (214): 593-602.

<sup>256</sup> European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), "Risk assessment report of a new psychoactive substance: 4-methylmethcathinone (mephedrone)".

<sup>257</sup> United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Poland and Belarus 2010-2012*.

So far, available seizure data in Europe do not serve as a strong enough indicator to illustrate how legislative controls in Europe may have impacted the market for mephedrone. Although mephedrone seizures have somewhat fallen in Europe since 2010 from around 0.2 tons to just under 0.1 ton in 2011, they picked up again and reached more than 0.1 ton in 2012.<sup>258</sup> Comprehensive mephedrone seizure data prior to 2010 are not available.

However, prevalence data for the United Kingdom suggests that controls may have in fact led to a decline of the domestic mephedrone market. Mephedrone was classified as a class B substance under the Misuse of Drugs Act in 2010, shortly after which, according to the Crime Survey for England and Wales (CSEW) conducted for England and Wales in 2011/12, annual mephedrone use among the general population aged 16 to 59 declined from 1.4 per cent of the previous survey in 2010/11 to 1.1 per cent.<sup>259</sup> The results of a non-representative internet survey conducted on behalf of the United Kingdom dance and clubbing magazine *MixMag* and *The Guardian* newspaper also indicated that annual use of mephedrone among respondents dropped from 51 per cent in 2010 to 19.5 per cent in 2011.<sup>260</sup> So far, the United Kingdom is the only country in Europe that conducted repeat surveys which included mephedrone. Studies from other European countries on the impact of mephedrone controls were not available at the time this report was written.

In spite of a possible decline in the demand for mephedrone in the United Kingdom, some segments of the population may still use it as a substitute to other drugs on the ATS market. According to the CSEW 2011/12 survey, mephedrone had the highest annual prevalence rate of any NPS included in the survey and ranked fourth among the general population after cannabis at 6.9 per cent, cocaine at 2.2 per cent and “ecstasy” at 1.4 per cent.<sup>261</sup> Moreover, among those aged 16-24 in this survey, annual mephedrone use at 3.3 per cent was the same as that of “ecstasy” and thereby ranked as the third most prevalent drug for

this age-group.<sup>262</sup> Mephedrone use appears to be particularly common in London dance clubs. In the CSEW 2011/12 survey, the highest mephedrone use rate at 9.7 per cent was found among adults who had visited a nightclub on four or more occasions in the last month.<sup>263</sup> Moreover, a survey conducted at two dance clubs in London displayed 52 per cent annual use of mephedrone, the second highest after cocaine at 59 per cent and surpassing cannabis at 48 per cent.<sup>264</sup>

258 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010-2012; European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), 2010-2012 National Reports to the EMCDDA by the Reitox National Focal Points of Austria, Bulgaria, Croatia, Cyprus, Finland, Hungary, Ireland, Latvia, Lithuania, Malta, Netherlands, Poland, Romania, Slovakia, Sweden and United Kingdom.

259 United Kingdom, Home Office, *Drug Misuse Declared: Findings from the 2011/12 British Crime Survey for England and Wales*, 2nd ed., London, July 2012.

260 “Mixmag’s Drug Survey: the results”, March 2012. Available from [www.mixmag.net/drugssurvey](http://www.mixmag.net/drugssurvey). The results of this (non-random) Internet survey were based on information from some 7,700 respondents from the United Kingdom with a mean age of 28 (see: Patrick Butler, “How the Guardian/Mixmag survey was constructed”, *The Guardian*, 15 March 2012).

261 United Kingdom, Home Office, *Drug Misuse Declared: Findings from the 2011/12 British Crime Survey for England and Wales*, 2nd ed., London, July 2012.

262 United Kingdom, Home Office, *Drug Misuse Declared: Findings from the 2011/12 British Crime Survey for England and Wales*, 2nd ed., London, July 2012.

263 United Kingdom, Home Office, *Drug Misuse Declared: Findings from the 2011/12 British Crime Survey for England and Wales*, 2nd ed., London, July 2012.

264 Measham, Fiona, et. al. “The rise in legal highs: prevalence and patterns in the use of illegal drugs and first- and second-generation “legal highs” in South London gay dance clubs” *Journal of Substance Use* 2011 (16) (4): 263-272.



## 5. MIDDLE EAST Regional Overview

For a number of years, there has been a large and growing amphetamine market in the Middle East, driven particularly by the Gulf countries. Seizure data indicate an expanding ATS market in Iraq, Saudi Arabia and the Syrian Arab Republic. Reports of ATS manufacture in the Middle East suggest that ATS is being supplied by countries in the region. However, it remains difficult to assess the full extent of the demand for ATS in the region, due to a severe lack of data. Though “ecstasy” makes up a small fraction of the regional ATS market, use and seizure data in some countries suggest that there is a growing demand for these drugs as well.

### A diversified ATS market?

The ATS market in the Middle East has long been dominated by amphetamine, where it is primarily sold under the brand name “captagon”<sup>265</sup>. Since 2007, ATS seizures of substances other than amphetamine hardly appear at all in seizure data for the region and together make up less than 1 per cent of total annual ATS seizures. Amphetamine seizures in the region have increased considerably since 2002 and have remained at high levels since 2006, reaching around 20 tons in 2011, in spite of a drop to about 13.6 tons in 2010.

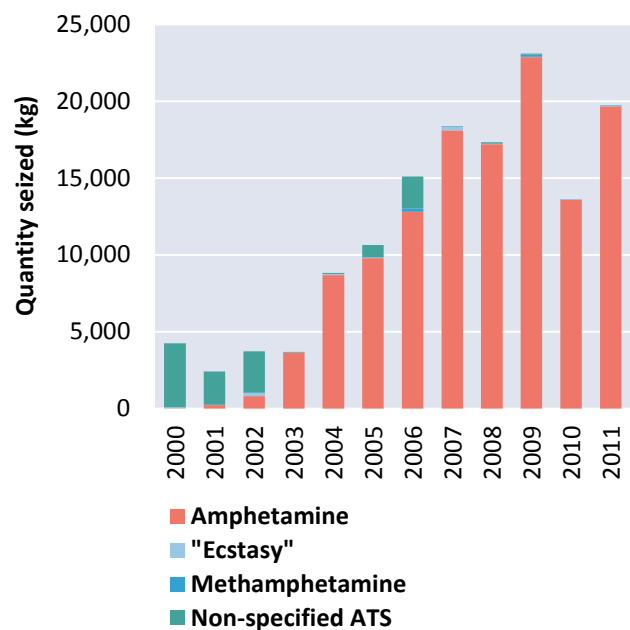
As there is only limited data available on ATS use in the Middle East, it remains difficult to assess the nature of the amphetamine market. UNODC estimates of ATS use (excluding “ecstasy”) for the general population aged 15 to 64 are available for Kuwait at 0.27 per cent in 2005 and Saudi Arabia at 0.40 per cent in 2006.<sup>266</sup> These figures appear to be rather low, given that since 2008 amphetamine seizures in the region annually make up the largest share of amphetamine seized worldwide of more than 55 per cent. Therefore, it is likely that prevalence estimations currently available for some countries in the region do not reflect the extent of amphetamine use. In Saudi Arabia in 2012, ATS users accounted for the largest share of people treated for drug use at drug treatment centres at 51 per cent (3,027 people).<sup>267</sup> A recent study analysing patient

265 Captagon was originally the trade name for a pharmaceutical preparation containing fenetylline, a synthetic stimulant. In the last few years, most tablets seized as Captagon essentially contained amphetamine, typically in combination with caffeine and sometimes with a few other adulterants; United Nations Office on Drugs and Crime (UNODC), *World Drug Report*, New York, 2010.

266 United Nations Office on Drugs and Crime (UNODC), *World Drug Report 2013*, New York, May 2013.

267 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Saudi Arabia 2012.

**Fig. 23:** Total ATS seizures reported in the Middle East, 2000-2011



Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2000-2011*.

records between 2002 and 2011 in the United Arab Emirates also suggests that amphetamine use has been growing in recent years. According to the study, since 2008, an increasing number of patients treated for drug use at the National Rehabilitation Center (NRC) reported amphetamines as the main substance of abuse.<sup>268</sup>

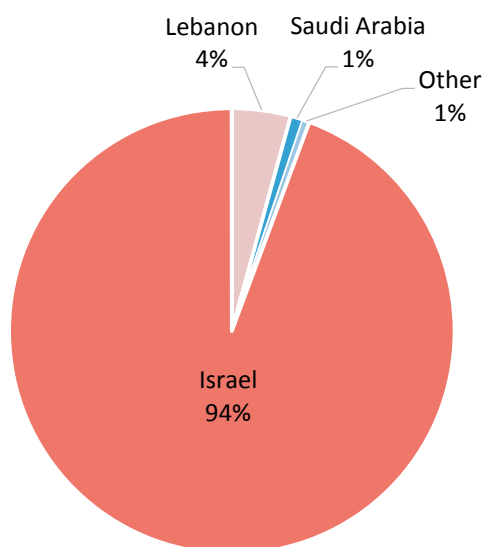
On the whole, “ecstasy” seizures remain low. The majority of “ecstasy” seizures in the region have been reported in Israel, followed by Lebanon and Saudi Arabia. In Israel, “ecstasy” seizures accounted for more than 80 per cent of all ATS seizures since 2005, which shows that amphetamine plays a far less significant role in the ATS market in Israel than in other countries in the region.<sup>269</sup> While amphetamine use according to expert perception, has remained stable in Israel in 2012, there is a perceived increase in “ecstasy” use.<sup>270</sup> According to the National Epi-

268 Elkashaf, Ahmed. “A profile of patients with substance use disorders and treatment outcomes: A 10-year retrospective study from the National Rehabilitation Center”, *International Journal of Prevention and Treatment of Substance Use Disorders* vol. 1, no. 1 (2013): 62-75.

269 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Israel 2005-2012.

270 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire from Israel 2012.

**Fig. 24:** “Ecstasy” seizures reported in the Middle East, by country, 2005-2011



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2005-2011.

demographical Survey conducted among people aged 18 to 40 in 2009, lifetime “ecstasy” prevalence in Israel ranked as the fifth most used drug at 4.48 per cent, higher than amphetamine use at 3.12 per cent.<sup>271</sup> In the 2010 Health Behaviour in School-aged Children (HBSC) survey, annual “ecstasy” use in Israel ranked higher among school children aged 15 to 16 and ranked third at 4.5 per cent after cannabis and “solvents and inhalants”.<sup>272</sup> This confirms findings from other countries and regions that ecstasy use is especially high among the younger population.

Treatment data suggests that problematic “ecstasy” use exists in Lebanon.<sup>273</sup> In a survey at non-governmental organisations and hospitals in Lebanon in 2012, patients receiving drug treatment for the first time, reported ATS as the fourth most commonly used substance, after opioids, cocaine and cannabis. While 60 per cent of the people treated for ATS use in the country in 2012 reported amphetamine use (people), the remaining 40 per cent reported “ecstasy” use.<sup>274</sup> So far, “ecstasy” use in other parts of the region cannot be addressed, as “ecstasy” prevalence rates for a number of countries in the Middle East remain unavailable.

271 Bar-Hamburger, R., Ezrahi Y., Rosiner, I., and Nirel, R., “Illegal use of drugs and alcohol in Israel 2009”, Seventh National epidemiological Survey, Israeli Anti-Drug Authority (IADA), Jerusalem, Israel, 2009.

272 Health Behaviour in School-aged Children (HBSC), “World Health Organisation (WHO) Collaborative Cross-National Survey”, 2010.

273 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Lebanon 2005-2012.

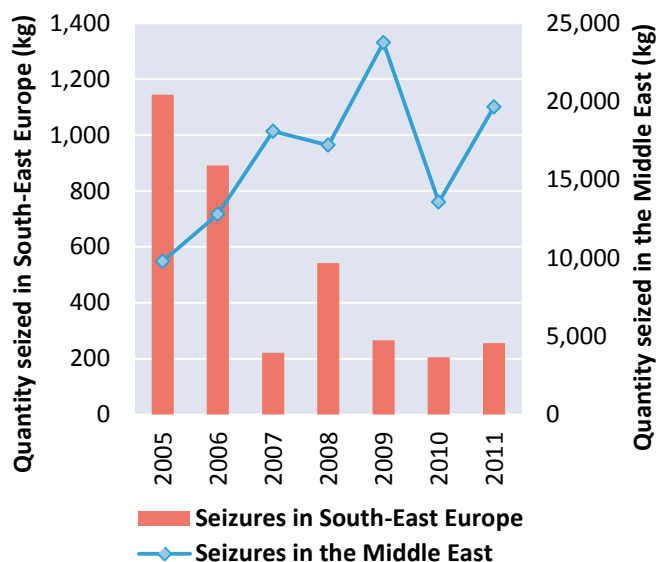
274 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Lebanon 2012.

## Is amphetamine being sourced within the region?

In previous years, large amounts of captagon were being illicitly manufactured in South-East Europe and trafficked to the Middle East.<sup>275</sup> With the exception of Turkey, European countries have not been identified as a source of amphetamine seized by countries in the Middle East since 2007. Turkey continues to be cited as a perceived country of origin by Jordan, the Syrian Arab Republic and the United Arab Emirates.<sup>276</sup>

While there has been a possible decrease in amphetamine trafficking from Europe via Turkey to the Middle East in recent years, seizure reports indicate that the amphetamine market in Middle Eastern countries is on the rise. Amphetamine seizures in the region have more than doubled from about 10 tons in 2005 to around 20 tons in 2011, the majority of which was reported in Saudi Arabia, followed by Jordan and the Syrian Arab Republic. In contrast, amphetamine seizures in East and South-East Europe, excluding Turkey, have been on the decline, falling by almost 80 per cent from about 1.1 tons in 2005 to just under 0.3 tons in 2011.

**Fig. 25:** Amphetamine seizures reported in the Middle East and South-East Europe (excluding Turkey), 2005-2011



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2005-2011.

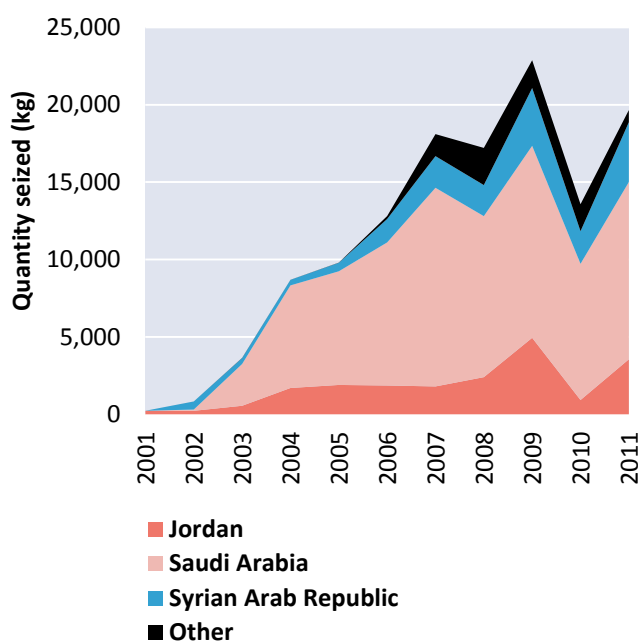
The steady rise in amphetamine seizures in the Middle East, is primarily attributable to the rapid increase of amphetamine seizures reported in Saudi Arabia, where they

275 United Nations Office on Drugs and Crime (UNODC), *World Drug Report 2009*, New York, 2009, pp. 124.

276 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Jordan, the Syrian Arab Republic and the United Arab Emirates 2008-2012.



**Fig. 26:** Distribution of amphetamine seizures reported in the Middle East, by country, 2001-2011



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2001-2011.

increased from about 80 kg in 2002 to their highest point of more than 12 tons in 2009. Between 2001 and 2011, the Syrian Arab Republic and Jordan each accounted for a 13-16 per cent share of amphetamine seizures in the Middle East, whilst Saudi Arabia accounted for about a 65 per cent share.

So far, ATS manufacture in the region has been officially reported by Lebanon, with 3 captagon laboratories and 3 amphetamine laboratories dismantled in the country since 2007.<sup>277</sup> Over the years, the domestic market in Lebanon was perceived to have been supplied by amphetamine that had originated from within the country as well as from other countries.<sup>278</sup> There have also been amphetamine seizure reports in Lebanon that were perceived to have been destined for onward trafficking to other countries in the region, such as Kuwait and Saudi Arabia.<sup>279</sup> Some countries in the Middle East, such as the Syrian Arab Republic in 2008 and Jordan in 2011, have also reported of amphetamine seizures that were perceived to have originated in Lebanon.<sup>280</sup>

<sup>277</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire from Lebanon 2007-2011; United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 6*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, October 2011.

<sup>278</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire from Lebanon 2008-2012.

<sup>279</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire from Lebanon 2008-2012.

<sup>280</sup> United Nations Office on Drugs and Crime (UNODC), Annual

Report Questionnaire from the Syrian Arab Republic and Jordan 2008-2011.

Although other countries in the region did not report the discovery of clandestine amphetamine laboratories, risk factors for amphetamine manufacture such as the availability of precursor substances are still present. Until 2012, when Jordan entirely prohibited imports of P-2-P, the country had reported the highest legitimate requirement for P-2-P worldwide and accounted for more than half of the global total.<sup>281</sup> P-2-P, a precursor for amphetamine and methamphetamine, was allegedly being used for the manufacture of cleaning products.<sup>282</sup> In recent years, amphetamine seized in Israel was perceived to have been trafficked from Jordan.<sup>283</sup>

Other countries, such as the Syrian Arab Republic, might also be at risk of being used for illicit ATS manufacture. First reports emerged in 2009 when the United Arab Emirates reported a seizure of around 150 kg of captagon that were perceived to have originated from the Syrian Arab Republic.<sup>284</sup> Moreover, the Syrian Arab Republic has comparatively high annual legitimate requirements for pseudoephedrine (an ATS precursor chemical) of 50 tons, which could lead to the diversion of the chemical for use in illicit ATS manufacture.<sup>285</sup> Moreover, Jordan reported that amphetamine seized in 2011 and 2012 was perceived to have originated in the Syrian Arab Republic.<sup>286</sup> Prior to that, Yemen had also reported that amphetamine seized in 2008 was perceived to have originated in the Syrian Arab Republic.<sup>287</sup> According to expert perception, amphetamine originating in the Syrian Arab Republic is trafficked to Saudi Arabia and Israel via Jordan.<sup>288</sup>

Significant amphetamine seizures in Iraq might also suggest a growing amphetamine market. In 2010, Iraq reported to have seized about 1.6 tons of amphetamine, which was significantly higher than the 0.9 tons reported in Jordan that year, although still less than the 2.1 tons seized in the Syrian Arab Republic and the 8.8 tons

Report Questionnaire from the Syrian Arab Republic and Jordan 2008-2011.

<sup>281</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

<sup>282</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2011.

<sup>283</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Israel 2008-2011.

<sup>284</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the United Arab Emirates 2009.

<sup>285</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

<sup>286</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Jordan 2011-12.

<sup>287</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Yemen 2008.

<sup>288</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Jordan 2012.

reported in Saudi Arabia.<sup>289</sup> Furthermore, in 2011, the Syrian Arab Republic identified Iraq as a perceived country of origin for seized amphetamine.<sup>290</sup>

### NPS are a growing problem

A number of countries in the Middle East reported the emergence of NPS to UNODC, including Bahrain, Israel, Jordan, Lebanon, Oman, Qatar, Saudi Arabia, the Syrian Arab Republic, the United Arab Emirates and Yemen.<sup>291</sup> Though there is limited data available on NPS in the Middle East, there may be some substances that are becoming of increasing concern.

Khat, a plant-based NPS, has had a long traditional use in Yemen where it is not under national control and is being cultivated. A general population survey among people aged 16 and above in Yemen in 2006 displayed a lifetime prevalence of khat use at 52 per cent, which, with the exception of alcohol, tobacco and caffeine, is the highest lifetime prevalence rate recorded for any psychoactive substance in any country in the world.<sup>292</sup> According to these survey results, men portrayed an especially high level of lifetime khat use prevalence at 72 per cent, of which 42 per cent reported daily use of the substance, 12 per cent reported use at 3-4 days per week and the remainder at 1-2 days per week.<sup>293</sup>

In the Jazan region of Saudi Arabia, where khat is under national control, the use of this substance appears to be wide-spread among youths. This is reflected in the results of a study among college and secondary school students in the Jazan region aged 15 to 25 in 2009, which showed a high lifetime prevalence of use at 21.4 per cent, the majority of which at around 91 per cent were male.<sup>294</sup> Another survey among undergraduate students at higher education institutions of Jazan conducted between 2011

and 2012, showed a lifetime prevalence of khat use at 24.8 per cent, which was higher among males at 40.5 per cent than for females at 3.7 per cent.<sup>295</sup> Seizure data for Saudi Arabia also suggest the presence of a large market for khat. Over the last few years, Saudi Arabia reported by far the largest amount of khat seizures in the region. Particularly large seizures were reported between 2008 and 2010, totalling about 540 tons of khat in 2008, just over 180 tons in 2009 and around 375 tons in 2010.<sup>296</sup>

Other NPS have also been reported in the region. With regards to ketamine for instance, though it is more widely used in East and South-East Asia, ketamine use has also emerged in countries in the Middle East. In 2010, Saudi Arabia identified the drug as the seventh most widely used substance, while Israel, where it has been placed under national control, reported that ketamine was the ninth most widely used substance in the country in 2011.<sup>297</sup> Still, according to the National Epidemiological Survey of people aged 18 to 40 in Israel, annual ketamine use remains rather low at 0.12 per cent, just below opium at 0.13 per cent.<sup>298</sup> In recent years, significant seizures of synthetic cannabinoids have also been reported by some countries in the Middle East pointing to the emergence of a market in the region. Prior to 2012, Saudi Arabia was the only country in the Middle East to report seizures of synthetic cannabinoids totalling more than 1 kg.<sup>299</sup> However, according to the Dubai authorities, within the first 8 months of 2012, Dubai Customs in the United Arab Emirates prevented 126 attempts to smuggle synthetic cannabinoids which were intended for local use and for onward trafficking.<sup>300</sup>

### Non-medical use of prescription drugs

The synthetic opioid analgesic, tramadol, has appeared on illicit drug markets and there are indications of misuse. Misuse of tramadol has been reported by some countries in the Middle East, such as Jordan, Lebanon and Saudi Arabia and it is under national control in both Jordan and

289 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010.

290 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Syrian Arab Republic 2011.

291 United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercise (ICE) programme.

292 World Bank, "Yemen toward qat demand reduction", Report no. 39738-YE, June 2007; United Nations Office on Drugs and Crime (UNODC), *World Drug Report*, 2012.

293 Though not to the same extent as men, women also reported repeated khat use. According to the survey results, around 13 per cent of women reported khat use on most days of the week, 7 per cent reported khat use at 3-4 times per week and 4 per cent at 1-2 days per week; World Bank, "Yemen toward qat demand reduction", Report no. 39738-YE, June 2007.

294 Ageely, Hussein M., "Prevalence of Khat chewing in college and secondary (high) school students of Jazan region, Saudi Arabia" *Harm Reduction Journal* June 2009 (6): 11.

295 Alsanosy, Rashad Mohammed, et. al. "Khat Chewing among Students of Higher Education in Jazan Region, Saudi Arabia: Prevalence, Pattern, and Related Factors" *BioMed Research International* 2013, accessed on 4 December 2013 at <http://www.hindawi.com/journals/bmri/2013/487232/abs/>.

296 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire from Saudi Arabia 2008-2010.

297 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2010-2011.

298 Bar-Hamburger, R., Ezrahi Y., Rosiner, I., and Nirel, R., "Illegal use of drugs and alcohol in Israel 2009", Seventh National epidemiological Survey, Israeli Anti-Drug Authority (IADA), Jerusalem, Israel, 2009.

299 United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013.

300 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 9*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013.

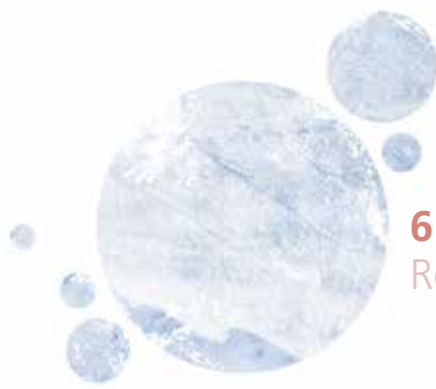
Saudi Arabia.<sup>301</sup> According to the INCB, increasing amounts of seizures of preparations containing tramadol are also reported by Saudi Arabia.<sup>302</sup> In Iraq, abuse of pharmaceuticals has been highlighted as a significant problem and tramadol is one of the substances for which large and increasing use is being reported.<sup>303</sup>

301 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

302 International Narcotics Control Board (INCB), *Report of the International Narcotics Control Board for 2012*, Vienna, January 2013.

303 US Department of State, *International Narcotics Control Strategy Report (INCSR)*, Bureau of International Narcotics and Law Enforcement Affairs, March 2013.





## 6. NORTH AMERICA

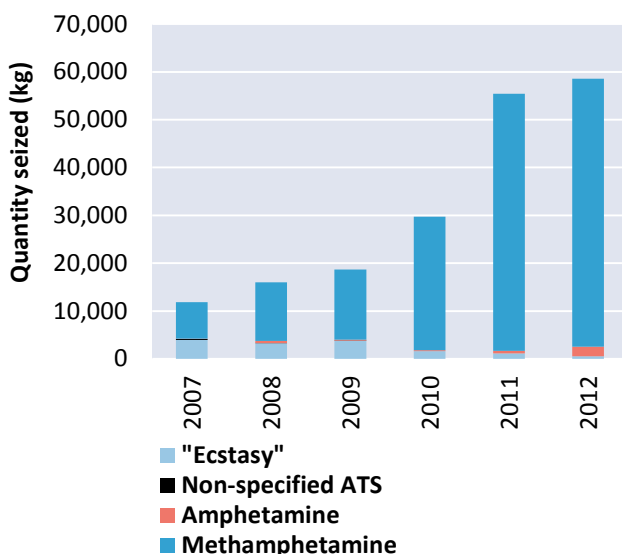
### Regional Overview

For some years, North America has had a large and growing ATS market. Particularly methamphetamine manufacture in Mexico and the United States appears to have risen significantly and according to the United States, increasing amounts are being smuggled to the country from Mexico. Nevertheless, methamphetamine use has so far remained at relatively low and stable levels across the region. High levels of “ecstasy” use have been reported in Canada, though seizures of the substance and MDMA manufacture have dropped. Therefore, widespread “ecstasy” use in the country may instead point to an increased use of various NPS which are often found in seized tablets sold as “ecstasy”. NPS are generally widely used in the United States and Canada and there have been a rising number of reports of synthetic cannabinoids in these countries.

#### Is there a growing market for methamphetamine?

Over the years, ATS seizures in the region have been continuously increasing from about 12 tons in 2007 to almost 60 tons in 2012. The majority of ATS seizures have consisted of methamphetamine, making up more than 90 per cent of seizures annually since 2010. Amphetamine seizures have also increased from about 0.1 ton in 2007 to over 2 tons in 2012. In contrast, “ecstasy” seizures have been steadily decreasing and have fallen by more than 85 per cent from about 3 tons in 2007 to around 0.5 tons in 2012.

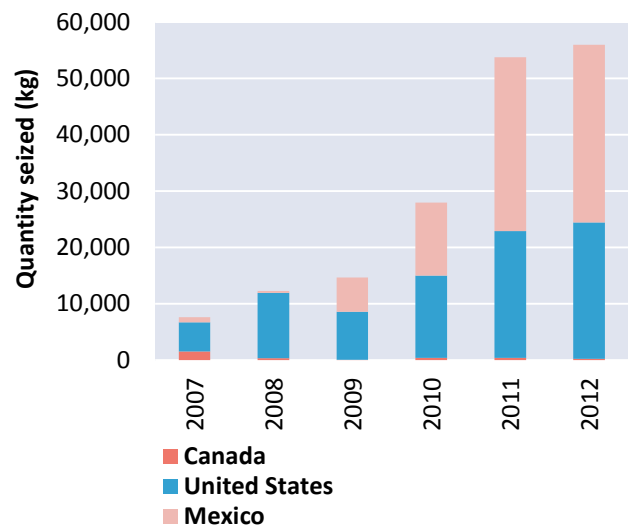
**Fig. 27:** Total ATS seizures reported in North America, 2007-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2007-2012.

The rapid rise of methamphetamine seizures in the region is predominantly driven by the surge of seizures reported in Mexico and the United States. Though methamphetamine seizures in the United States exceeded those of Mexico between 2007 and 2010, larger amounts have recently been reported in Mexico in 2011 and 2012, and have made up between 57 to 63 per cent of the total methamphetamine seized. In Canada, methamphetamine seizures have decreased by about 87 per cent from 1.5 tons in 2007 to about 0.2 tons in 2012. The majority of methamphetamine seized in Canada is perceived to be intended for the domestic market.<sup>304</sup>

**Fig. 28:** Methamphetamine seizures reported in North America, by country, 2007-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2007-2012.

In Canada, the market for methamphetamine appears to be limited. The results of the annual population survey among people aged 15 and above in 2012, identified methamphetamine in Canada as the second least used drug in terms of lifetime prevalence, which stood at 0.8 per cent followed by heroin at 0.5 per cent.<sup>305</sup>

Methamphetamine use in the United States, in terms of annual use displays a stable trend. The annually conducted

<sup>304</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada 2010-2012.

<sup>305</sup> The results of the 2012 survey ranked the lifetime prevalence of cannabis as the most commonly used drug at 46.7 per cent, followed by hallucinogens at 14.8 per cent, cocaine at 8.7 per cent; “2012 Canadian Alcohol and Drug Use Monitoring Survey (CADUMS)”, Controlled Substances and Tobacco Directorate, Health Canada.

National Survey on Drug Use and Health (NSDUH) among people aged 12 and above, showed that the annual prevalence of methamphetamine use decreased from 0.5 per cent in 2009 to 0.4 per cent in 2010, which is the rate at which it has remained over the last few years.<sup>306</sup> In 2012, annual prevalence of methamphetamine use stood at the same level as LSD, and only higher than that of sedatives at 0.2 per cent use.<sup>307</sup>

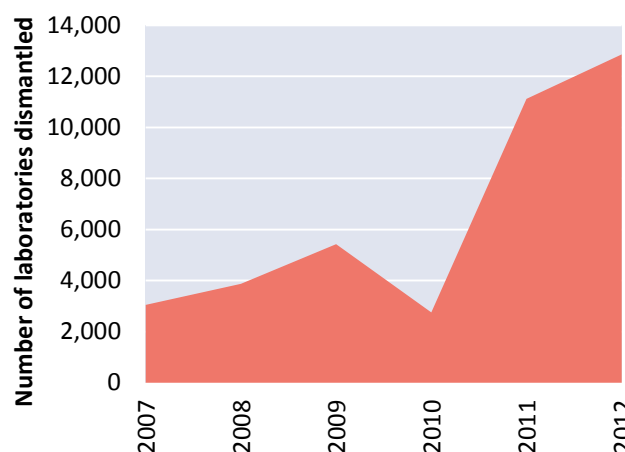
In spite of the rapid increase of methamphetamine seizures in Mexico, domestic use of the substance appears to be rather low. Recent data for methamphetamine use are not available. However, according to government data, annual ATS use (excluding ecstasy) among people aged 12 to 65 in Mexico, stood at 0.12 per cent in 2011, below that of cannabis at 1.20 per cent, cocaine at 0.50 per cent and opioids at 0.38 per cent.<sup>308</sup> A national survey among people receiving drug treatment, conducted by the Mexican Information System of the State Council on Addictions (SICECA), also revealed that about 9 per cent of people were treated for methamphetamine use at drug treatment centres in 2011, which is considerably lower than the share of people treated for cannabis use that year at 56.7 per cent and cocaine use at 29.1 per cent.<sup>309</sup> Prevalence and treatment admission data point to a comparatively small market for methamphetamine in Mexico. Therefore, the high level of seizures may rather suggest that the drug is not intended for domestic use but mostly for trafficking to other countries. On the whole, prevalence data for countries in North America do not indicate a growing methamphetamine market. This is not consistent with the rapid increase of methamphetamine seizures and dismantled laboratories reported in the region.

### Increased methamphetamine trafficking from Mexico

The recent rise in the number of methamphetamine laboratories dismantled in Mexico and the United States suggests a possible increase of methamphetamine manufacture in both countries. Over the years, the United States has by far reported the largest number of methamphetamine laboratories in the region with an almost 400 per cent surge in laboratories reported between 2010 and 2012. Up to 13,000 methamphetamine laboratories were dismantled

in the United States in 2012, which predominantly consisted of small-scale and “kitchen” laboratories.<sup>310</sup> The number of laboratories dismantled in Mexico are at a much lower level, but there has been a rapid increase from just over 20 methamphetamine laboratories in 2007 to about 260 in 2012.<sup>311</sup> However, the size of methamphetamine laboratories dismantled in Mexico is unknown. Therefore, the sheer number of discovered methamphetamine laboratories is not an indication of the quantity produced in the region. The number of dismantled methamphetamine laboratories in Canada remain at low levels and between 2007 and 2012 made up less than 1 per cent of the total number of laboratories discovered in North America.<sup>312</sup>

**Fig. 29:** Dismantled methamphetamine laboratories reported in the United States, 2007-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the United States 2007-2012.

Methamphetamine has been trafficked from Mexico to the United States for a number of years. Between 2010 and 2012, methamphetamine seized in Mexico was perceived to have been intended for the domestic market as well as for onward trafficking to the United States, and to a lesser extent, Canada and countries in Central America, such as El Salvador.<sup>313</sup> The United States Drug Enforcement Administration (DEA) has reported that the increased manufacture of methamphetamine in Mexico has heightened the supply of methamphetamine to the United States in recent years. Seizures of methamphetamine that had been trafficked from Mexico across the south-west border of the United States have annually increased, from about

306 “2009 National Survey on Drug Use and Health (NSDUH)”, Substance Abuse and Mental Health Services Administration (SAMHSA); “2010 National Survey on Drug Use and Health (NSDUH)”, Substance Abuse and Mental Health Services Administration (SAMHSA); “2011 National Survey on Drug Use and Health (NSDUH)”, Substance Abuse and Mental Health Services Administration (SAMHSA); “2012 National Survey on Drug Use and Health (NSDUH)”, Substance Abuse and Mental Health Services Administration (SAMHSA).

307 “2012 National Survey on Drug Use and Health (NSDUH)”, Substance Abuse and Mental Health Services Administration (SAMHSA).

308 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Mexico 2012.

309 Government source, Mexico, 2011.

310 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the United States 2012.

311 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Mexico 2007-2012.

312 However, at the time of this report data on the number of laboratories dismantled in Canada was only available for 2010 and 2011; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada 2007-2012.

313 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Mexico 2010-2012.

**Map 15:** Methamphetamine flows as perceived by recipient countries, 2010-2012

Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2010-2012*.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of methamphetamine. These arrows represent the flows as perceived by recipient countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

2.3 tons in 2008 to more than 10.6 tons in 2012.<sup>314</sup> According to the DEA, the drop in methamphetamine prices by more than 70 per cent and rise in methamphetamine purity by almost 130 per cent between the third quarter of 2007 and the second quarter of 2012 together with increased methamphetamine trafficked from Mexico to the United States, points to a rising domestic availability of the drug.<sup>315</sup>

According to the Mexican authorities methamphetamine is trafficked through Mexico to the United States along land routes and by plane.<sup>316</sup> Some of the routes have been reported to lead from Guadalajara in the state of Jalisco, at the western-central part of Mexico, to Tijuana in Baja California, the most north-western state of Mexico, from

where these are then smuggled across the border to the United States. Jalisco is one of the main states in Mexico in which methamphetamine laboratories have been discovered, in addition to Michoacan and Sinaloa state.<sup>317</sup> “Ecstasy” and amphetamine are also reported to have been trafficked across Mexico along these routes.<sup>318</sup>

In the United States, increasing amounts of methamphetamine are reportedly being trafficked to San Ysidro, in San Diego, in the south-west of California in the United States, which is across the border of Tijuana in Mexico. Between 2010 and 2012, methamphetamine seizures reported at San Ysidro in the United States more than doubled from almost 1.0 ton to around 2.4 tons, making up 40 per cent of methamphetamine seized along the south-western border of the United States over that period.<sup>319</sup> In addi-

314 US Department of Justice, Drug Enforcement Administration (DEA), *National Drug Threat Assessment Summary 2013*, November 2013.

315 US Department of Justice, Drug Enforcement Administration (DEA), *National Drug Threat Assessment Summary 2013*, November 2013.

316 Drug Abuse Information Network for Latin America and the Caribbean (DAINLAC) questionnaire response for Mexico 2013.

317 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Mexico 2012*.

318 Drug Abuse Information Network for Latin America and the Caribbean (DAINLAC) questionnaire response for Mexico 2013.

319 United Nations Office on Drugs and Crime (UNODC), *Global*

**Map 16:** Reported methamphetamine flows by mode of transportation in Mexico, 2013

Source: Drug Abuse Information Network for Latin America and the Caribbean (DAINLAC) questionnaire response for Mexico 2013.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of methamphetamine. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

tion, about 1.7 tons of methamphetamine had been seized at San Diego between October 2012 and March 2013, accounting for about 58 per cent of the total amount of methamphetamine seized at border crossings along the border between the United States and Mexico over the same period.<sup>320</sup>

### High levels of “ecstasy” use among youths

Relatively low levels of “ecstasy” use have been reported in the United States. For instance, the National Survey on Drug Use and Health (NSDUH) ranked annual “ecstasy” use in the United States among people aged 15 to 64 at 1.2 per cent in 2011 below that of cannabis at 14.0 per cent, prescription pain relievers at 5.2 per cent, tranquilizers and sedatives at 2.6 per cent and both hallucinogens and cocaine at 1.9 per cent.<sup>321</sup>

*SMART Update Volume 10, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, September 2013.*

320 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 10, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, September 2013.*

321 United Nations Office on Drugs and Crime (UNODC), Annual

However, particularly high levels of “ecstasy” use have been reported among school children in Canada. The national Youth Smoking Survey (YSS) among tenth-grade students in 2010-2011, ranked the lifetime prevalence of “ecstasy” in third place at 8.2 per cent, after cannabis at 30.0 per cent and hallucinogens at 10.3 per cent per cent, as well as in terms of annual prevalence at 5.8 per cent, after cannabis at 25.8 per cent and hallucinogens at 7.4 per cent.<sup>322</sup>

A general population survey among people aged 15 and above in Canada, also showed that “ecstasy” was the most used ATS in 2012 in terms of lifetime use at 5.3 per cent, followed by amphetamine at 4.6 per cent and methamphetamine at 0.8 per cent, though this still remains significantly lower than cannabis at 46.7 per cent, hallucinogens at 14.8 per cent and cocaine at 8.7 per cent.<sup>323</sup>

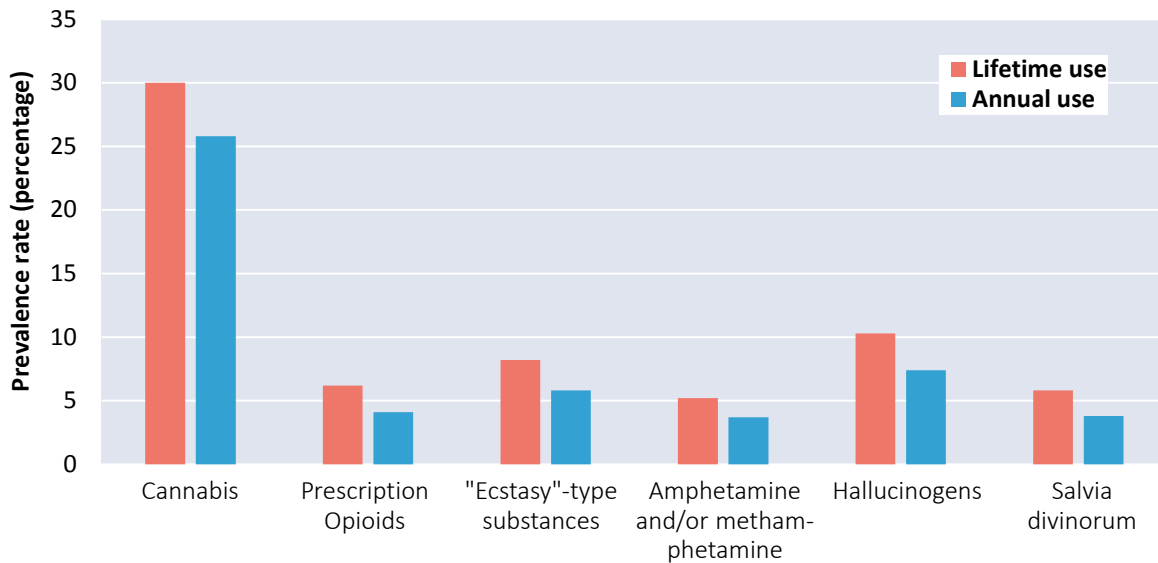
Report Questionnaire for the United States 2011.

322 “Youth Smoking Survey (YSS) 2010-2011”, Controlled Substances and Tobacco Directorate, Health Canada.

323 “2012 Canadian Alcohol and Drug Use Monitoring Survey (CADUMS)”, Controlled Substances and Tobacco Directorate, Health Canada.



**Fig. 30:** Lifetime and annual prevalence rates among tenth-grade students aged 15-16 in Canada, 2010-2011



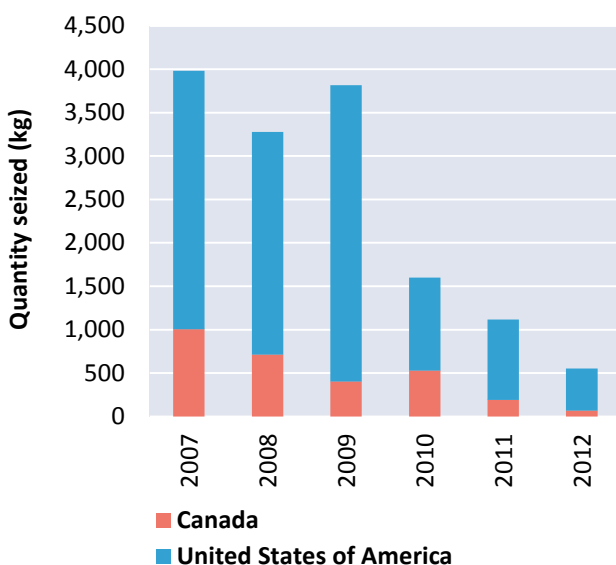
Source: "Youth Smoking Survey (YSS) 2010-2011", Controlled Substances and Tobacco Directorate, Health Canada.

Nevertheless, "ecstasy" seizures have been decreasing or remained at low levels across the region. Between 2007 and 2012, "ecstasy" seizures in Canada have declined by over 93 per cent, from 1.0 ton to about 0.1 tons, while seizures in the United States have fallen by almost 85 per cent from almost 3 tons to 0.5 tons. In Mexico, "ecstasy" seizures have remained below 3 kg over the last few years.

So far, relatively high levels of "ecstasy" use among some segments of the population are not reflected in seizure data for the region. Moreover, the number of dismantled laboratories

manufacturing MDMA in Canada has dropped from an annual average of 13 laboratories between 2007 to 2010 to only 4 laboratories in 2011 and 2012, which points to a possible decline in MDMA manufacture.<sup>324</sup> All "ecstasy" tablets seized in Canada are perceived to originate from domestic manufacture.<sup>325</sup> Therefore, a decline in MDMA manufacture, suggests that other substances are being manufactured to be sold on the market as "ecstasy". According to the Royal Canadian Mounted Police (RCMP), a variety of NPS are often sold as "ecstasy" tablets in Canada, so that it is possible that the domestic market supplied by tablets sold as "ecstasy" is to a certain extent driven by NPS.<sup>326</sup> In 2012, "ecstasy" seizures in Canada have been found to contain NPS such as BZP<sup>327</sup>, TFMPP<sup>328</sup>, MDPV<sup>329</sup>, 2C-E<sup>330</sup>, BTCP<sup>331</sup> and alpha-

**Fig. 31:** "Ecstasy" seizures reported in North America, by country, 2007-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2007-2012.

<sup>324</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada 2012.

<sup>325</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada 2012.

<sup>326</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada 2012.

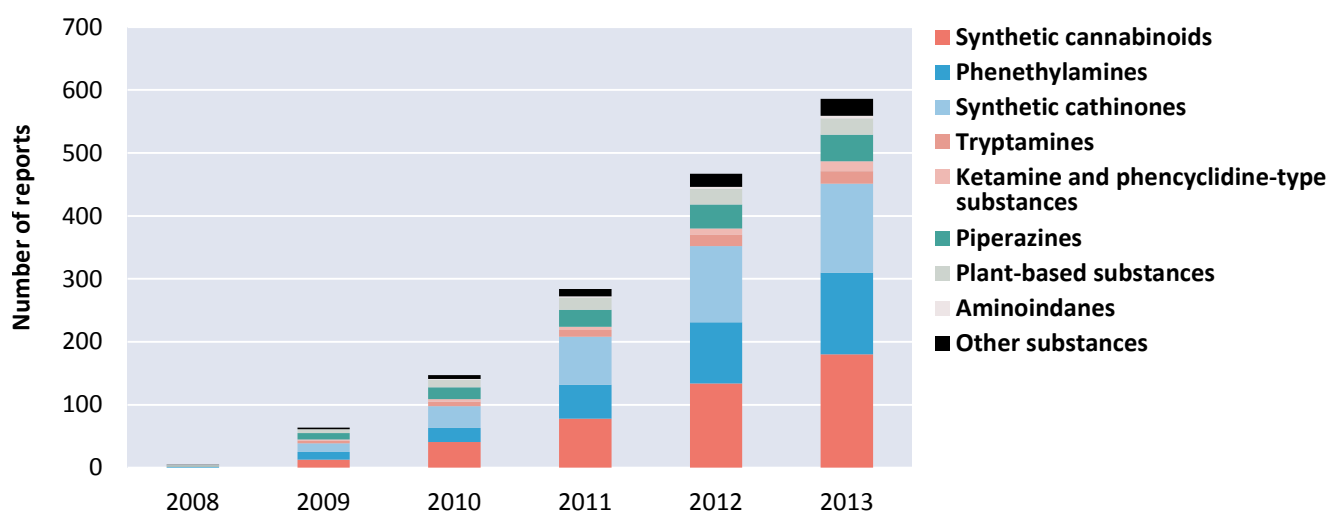
<sup>327</sup> Benzylpiperazine (BZP) is a piperazine not under international control.

<sup>328</sup> 1-(3-Trifluoromethylphenyl)piperazine (TFMPP) is a piperazine not under international control commonly found in "ecstasy" tablets.

<sup>329</sup> 3,4-Methylenedioxypyrovalerone (MDPV) is a synthetic cathinone not under international control.

<sup>330</sup> 2C-E (4-ethyl-2,5-dimethoxyphenethylamine), a substance not under international control that is a member of the 2C class of phenethylamines.

<sup>331</sup> Benzothiofenylcyclohexylpiperidine (BTCP) is as of yet an unclassified substance not under international control.

**Fig. 32:** Total number of NPS reports to UNODC in the United States and Canada, 2008-2013

Source: United Nations Office on Drugs and Crime (UNODC), "The challenge of new psychoactive substances". *Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, March 2013; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme.

PVP<sup>332</sup>, but also 2C-B<sup>333</sup> including various ATS and prescription stimulants.<sup>334</sup>

### A large market for NPS

North America, predominantly the United States and Canada are among the largest and most diversified markets for NPS in the world. There have been a growing number of NPS reports from the United States and Canada, which have almost quadrupled between 2010 and 2013. Since 2008, synthetic cannabinoids have made up an increasing share of NPS, making up 31 per cent of the total by 2013, followed by synthetic cathinones at 24 per cent and phenethylamines at about 22 per cent. Other reports of NPS, such as aminoindanes, ketamine and phencyclidine-type substances, piperazines, plant-based substances and tryptamines have been increasing steadily over the years, and together have made up less than 25 per cent of the annual total since 2009. So far, Mexico has only reported one phenethylamine in 2012.<sup>335</sup>

In the United States, synthetic cannabinoids first emerged on the drug market in 2008 and were marketed as a "legal alternatives to marijuana", since the use of synthetic cannabinoids produce effects similar to those of cannabis.<sup>336</sup> The number of calls to poison control centers regarding "synthetic marijuana" (i.e. synthetic cannabinoids) increased in the United States by almost 80 per cent between 2010 and 2012.<sup>337</sup> A synthetic cannabinoid laboratory has also been discovered in Canada in 2012.<sup>338</sup> Prevalence data indicates high levels of NPS use among youths in the United States. The Monitoring the Future drug use survey among twelfth-grade students showed that in 2012 annual use of synthetic cannabinoids was the second highest most used drug at 11.3 per cent after cannabis at 36.4 per cent.<sup>339</sup> Annual use for other NPS have also been reported, such as salvia divinorum at 4.4 per cent, ketamine at 1.5 per cent and "bath salts"<sup>340</sup> at 1.3 per cent. According to these results, NPS use has become significantly higher than that of many internationally controlled substances.

332 Alpha - Pyrrolidinopentiophenone is a synthetic cathinone not under international control.

333 2C-B (4-bromo-2,5-dimethoxyphenethylamine), a substance controlled under schedule II of the United Nations convention on Psychotropic Substance 1971, is a member of the 2C class of phenethylamines.

334 Other substances found within "ecstasy" tablets included caffeine, methamphetamine, diphenhydramine, procaine, benzocaine, lidocaine; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada 2012.

335 The NPS reported by Mexico for 2012 was 1-(2-fluorophenyl)propan-2-amine, a phenethylamine under international control.

336 US Department of Justice, Drug Enforcement Administration (DEA), *National Drug Threat Assessment Summary 2013*, November 2013.

337 American Association of Poison Control Centres, "Synthetic marijuana data", updated 28 February 2013.

338 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Canada 2012.

339 United States, National Institute on Drug Abuse, *Monitoring the Future survey*, 2011.

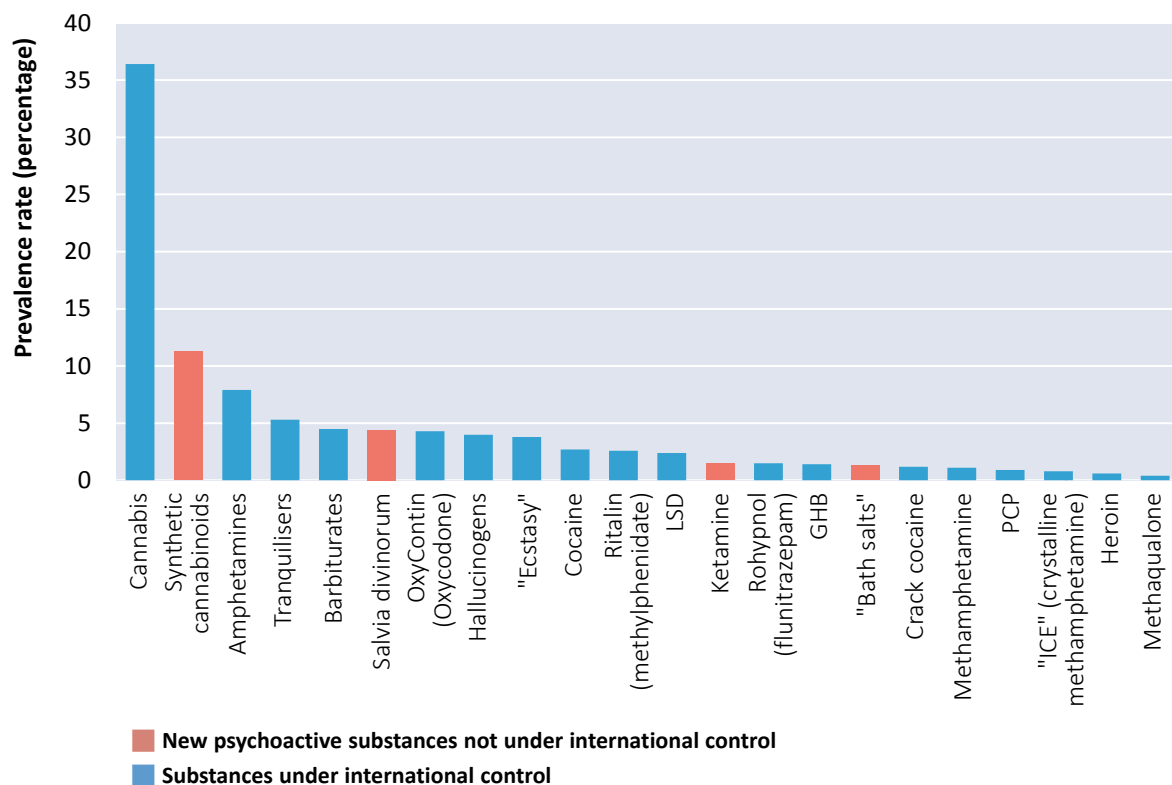
340 Synthetic cathinones are frequently found in products sold as "bath salts", or even "research chemicals", "plant food" or "glass cleaner" and are usually sold in powder, pill or capsule form; United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*. *Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme*, Vienna, March 2013.

## NPS mimic the effects of substances under international control

Many NPS available on the market contain chemicals that share similar structural and/or pharmacological properties of substances under international control that they are designed to mimic.<sup>1</sup> For instance, synthetic cannabinoids, which include the JHW series (eg. JHW-018), are mimetics of THC (delta-9-tetrahydrocannabinol), which is the main psychoactive substance in cannabis. Synthetic cathinones, which include substances such as mephedrone, methylone and MDPV, can evoke stimulant and empathogenic effects similar to amphetamines, including MDMA.<sup>2</sup> Phenethylamines include substances such as the 2C series (eg. 2C-I) and NBOMe compounds (eg. 25I-NBOMe), which can exhibit effects ranging from stimulant to hallucinogenic.<sup>3</sup> Only a few substances of this group are already controlled under the 1971 Convention on Psychotropic Substances such as amphetamine, methamphetamine and MDMA. Tryptamines include a number of different substances that are derivatives of the controlled tryptamines and are designed as such to produce similar hallucinogenic effects to the substance while bypassing its control status. Ketamine is also closely related to the internationally controlled substance, phencyclidine (PCP), listed in Schedule II of the 1971 Convention on Psychotropic Substances.<sup>4</sup> Overall, structural similarity does not imply similar pharmacological effects, and NPS designed to mimic a controlled substance can have higher or lower biological activity, various stimulatory effects and a different toxicological profile than the drug it is designed to mimic.

- 1 So-called mimetics are substances that are chemically different but mimic the pharmacological effects of a particular substance, notably by acting on the same receptors of the brain; See United Nations Office on Drugs and Crime (UNODC), *World Drug Report 2013*, New York, May 2013.
- 2 For more on the stimulant and empathogenic effects of mephedrone see Brunt, Tibor M. et. al. "Instability of the ecstasy market and a new kid on the block: mephedrone" *Journal of Psychopharmacology* September 2010 (25): 1543-1547; Schifano, Fabrizio, et. al. "Mephedrone (4-methylmethcathinone; 'meow meow'): chemical, pharmacological and clinical issues", *Journal of Psychopharmacology* April 2011 (214): 593-602.
- 3 United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013.
- 4 United Nations Office on Drugs and Crime (UNODC), *The challenge of new psychoactive substances*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013.

**Fig. 33:** Annual prevalence by drug, among twelfth-grade students in the United States, 2012



Source: United States, National Institute on Drug Abuse, *Monitoring the Future* survey, 2012.



## 7. SOUTH AMERICA, CENTRAL AMERICA AND THE CARIBBEAN

### Regional Overview

Cannabis and cocaine continue to dominate the drug market and law enforcement efforts in South America, Central America and the Caribbean, so that comparatively little data is available with regards to ATS in the region. Although ATS use among the general population remains at low levels, some countries, including Bolivia, Honduras, Costa Rica and Jamaica, have reported high levels of use among youths, sometimes even exceeding cannabis and/or cocaine use.<sup>341</sup> Nevertheless, ATS continues to make up a small share of the regional drug market. In recent years, “ecstasy” has become the main ATS used in some South American countries and people treated for “ecstasy” use make up a large share of the total number treated for ATS use in the region, at about 63 per cent in Argentina and 53 per cent in Colombia. There have been several reports of ATS manufacture, particularly in Central American countries, and there are indications that these substances are being trafficked to Western Europe and Eastern Asia. NPS are becoming a growing threat in the region, as these are sometimes being sold as “ecstasy” tablets or “LSD” on the illicit drug market.

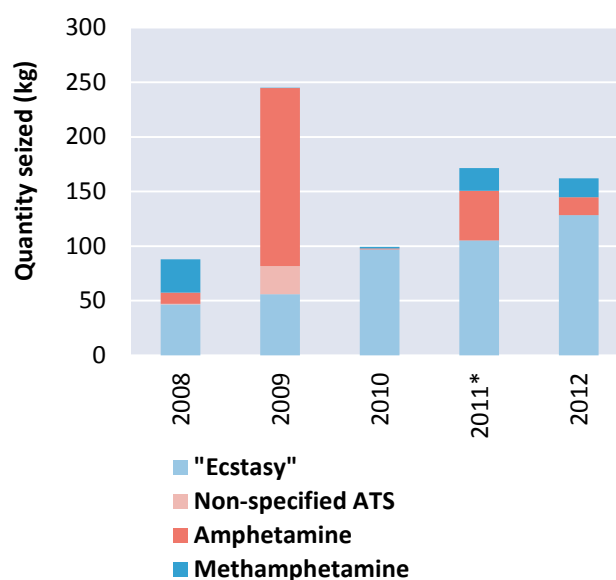
#### An emerging market for “ecstasy”?

ATS seizures in South America, Central America and the Caribbean have somewhat fluctuated over the years, annually ranging between about 90 kg and 240 kg in the past 5 years. On the whole, ATS seizures in the region have predominantly consisted of amphetamine and “ecstasy”. “Ecstasy” seizures have been steadily increasing in the region and more than tripled between 2008 and 2012. Amphetamine seizures have made up less than a quarter of ATS seizures over the years, except in 2009 when seizures surged to more than 160 kg. Methamphetamine seizures have remained low, declining from about 30 kg in 2008 to just 17 kg in 2012.

The steady increase in seizures points to a possible emergence of an “ecstasy” market in the region. On the whole, the majority of “ecstasy” seizures in the region have been reported in Brazil accounting for about 47 per cent of the total ATS seized in South America, Central America and the Caribbean between 2008 and 2012, followed by Argentina at 22 per cent, Peru at 16 per cent, Colombia at 6 per cent and Uruguay at 4 per cent.

<sup>341</sup> The analysis presented in this report may differ from the report titled “Amphetamine-Type Stimulants in Latin America 2014”, which focusses on differentiating between ATS and other stimulating substances, and does not incorporate the Caribbean region.

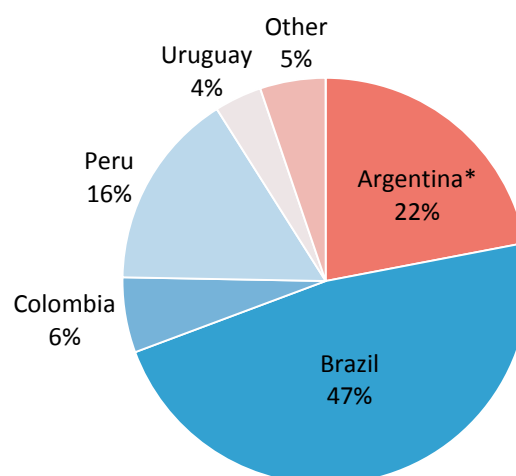
**Fig. 34:** Total ATS seizures reported in South America, Central America and the Caribbean, 2008-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

\*Available data for Argentina in 2011 were incomplete and therefore not comparable to 2012 data.

**Fig. 35:** “Ecstasy” seizures reported in South America, Central America and the Caribbean, by country, 2008-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

\*Available data for Argentina in 2011 were incomplete and therefore not comparable to 2012 data.

In 2012, “ecstasy” accounted for the largest share of ATS seizures in some countries, accounting for more than 95 per cent of ATS seizures in Brazil and almost 50 per cent of ATS seizures in Argentina.<sup>342</sup> Moreover, all ATS seizures reported in Peru for a number of years have consisted of “ecstasy”.<sup>343</sup>

Though there are indications that “ecstasy” use is higher than that of other ATS in some countries, their market share still appears to be relatively low in comparison to other drugs under international control. In Brazil, a drug use survey among students aged 10 to 19 in 2010 indicated a higher lifetime “ecstasy” use rate at 1.3 per cent than for methamphetamine at 0.3 per cent, which was also higher than the lifetime heroin use rate at 0.3 per cent, but below that of cocaine at 2.5 per cent and cannabis at 5.7 per cent.<sup>344</sup> A general survey of treatment centres in Argentina also showed that about 63 per cent (74 people) of the people treated for ATS use were treated for “ecstasy” use in 2010, whilst the remainder was treated for amphetamine use (43 people).<sup>345</sup> However, the total number of people treated for ATS use makes up less than 1 per cent of those treated for drug use that year. Similarly, Colombia reported that the majority of about 53 per cent of people treated for ATS use in 2012 were treated for “ecstasy” use (48 people), followed by methamphetamine use at 42 per cent (38 people) and amphetamine use at about 5 per cent (5 people).<sup>346</sup> Then again, the number of people treated for ATS use only make up 10.3 per cent of the total number of people treated for drug use in Colombia that year and the share of people treated for cannabis use at 33.0 per cent (292 people) and cocaine use at 32.1 per cent (181 people), are considerably higher.<sup>347</sup> These figures show that whilst problematic “ecstasy” use exists in some countries of the region, other drugs under international control, such as cannabis and cocaine, continue to make up a much larger share of the market.

### A growing ATS market among youths

ATS use among the general population remains relatively low in most countries in the region. For instance, in Costa Rica, a general drug use survey among people aged 12 to 70 in 2010 showed that ATS (excluding ecstasy) were the third most used drug in terms of annual use at 1.02 per

cent<sup>348</sup> after cannabis at 2.60 per cent and tranquilizers and sedatives at 1.15 per cent.<sup>349</sup> A drug use survey among the general population aged 15 to 64 in Chile in 2010, also ranked the annual prevalence of ATS (excluding ecstasy) use at 0.27 per cent, below that of cannabis at about 4.88 per cent, sedatives and tranquilisers at 2.61 per cent, cocaine at 1.01 per cent and opioids at 0.29 per cent.<sup>350</sup> Despite the fact that ATS use is lower than for cannabis and cocaine among the general population, the high level of ATS use among students together with seizure evidence suggests that ATS are a growing problem in the region.

In the last few years, ATS use in some countries of the region has become particularly wide-spread among students. In some cases “stimulants”<sup>351</sup> are among the most widely used drugs under international control, sometimes exceeding cannabis and/or cocaine use. For instance, in 2008, a drug use survey among students aged 10 to 19 in Bolivia in 2008, showed that “stimulants” had the highest annual prevalence rate at 4.0 per cent, higher than that of cannabis at 3.6 and cocaine at 1.9 per cent.<sup>352</sup> In that same year, a drug use survey among students aged 13 to 25 in Honduras, also identified “stimulants” as the most used drug at a lifetime prevalence rate of 4.3 per cent, higher than cannabis at 3.4 per cent and cocaine at 2.8 per cent.<sup>353</sup> Furthermore, in Costa Rica, a drug use survey among school students aged 15 to 16 in 2012, found that annual ATS use at 1.3 per cent, was higher than that of cocaine use at 0.9 per cent, but below that of cannabis at 9.7 per cent.<sup>354</sup> In 2010, a drug use survey among school students aged 15 to 16 in Jamaica ranked the lifetime prevalence of amphetamine use at 2.5 per cent and methamphetamine at 1.4 per cent, higher than that of cocaine use at 1.0 per cent, and below that of cannabis use at 14.3 per cent.<sup>355</sup>

### Is ATS manufacture emerging in the region?

Over the years, a number of ATS laboratories have been dismantled in the region, particularly in Central America.

342 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Brazil and Argentina 2012.

343 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Peru 2005-2011.

344 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Brazil 2010.

345 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Argentina 2010.

346 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Colombia 2012.

347 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Colombia 2012.

348 This figure includes the use of prescription stimulants (non prescription/non-therapeutic use).

349 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Costa Rica 2012.

350 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Chile 2012.

351 Often drug use surveys in South America, Central America and the Caribbean do not differentiate between the use of amphetamines (methamphetamine and amphetamine) and non-medical use of prescription ATS, by using the term “stimulants”.

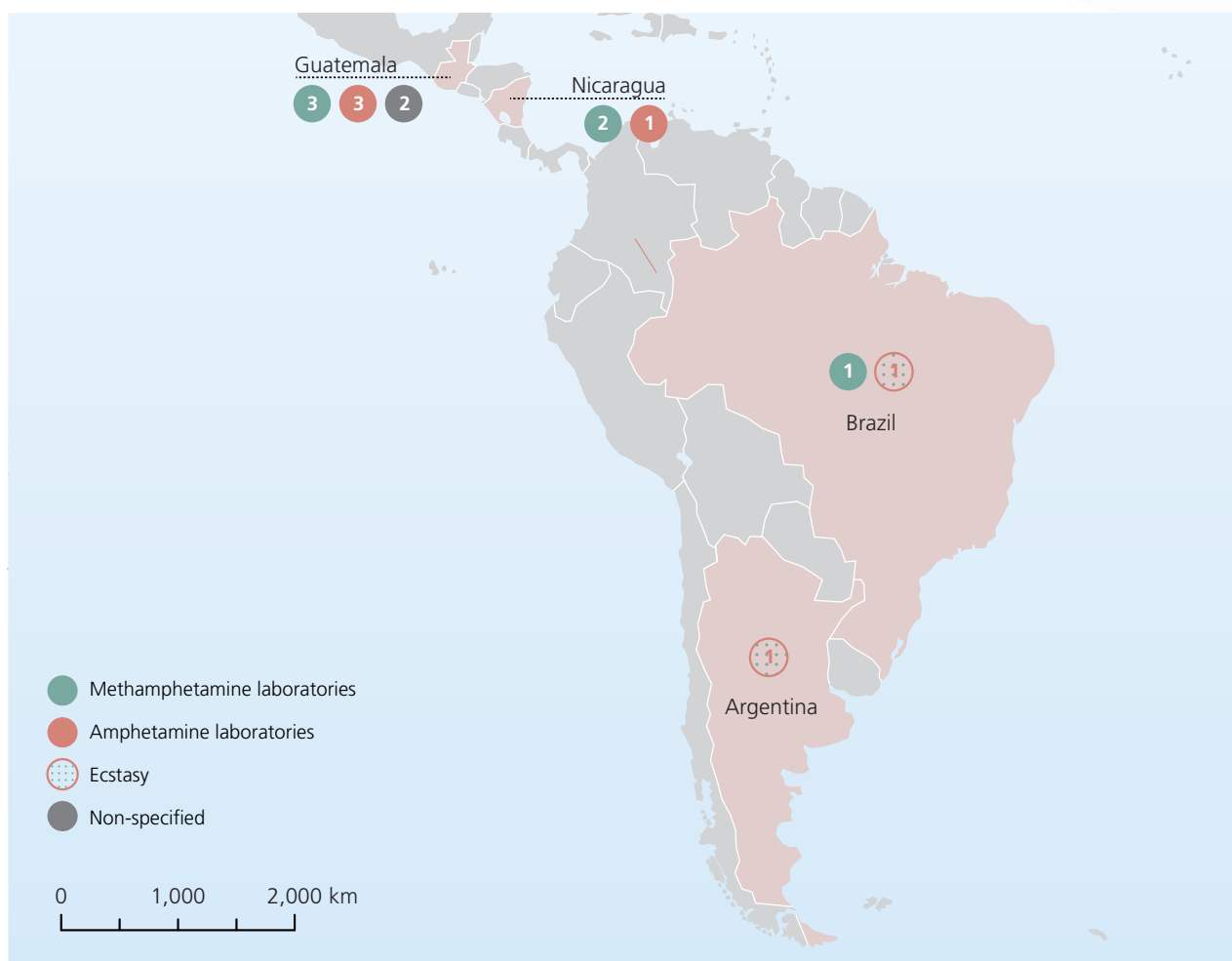
352 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Bolivia 2008.

353 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Honduras 2008.

354 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Costa Rica 2012.

355 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Jamaica 2010.

**Map 17:** Dismantled ATS laboratories reported in South America, Central America and the Caribbean, 2009-2012



Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations.

Since 2009, a total of 3 amphetamine, 3 methamphetamine and 2 non-specified ATS laboratories were detected in Guatemala, while another 2 methamphetamine and one amphetamine laboratory were dismantled in Nicaragua. In South America, Brazil reported the discovery of an ecstasy and a methamphetamine laboratory in 2009, after which, an ecstasy laboratory was found in Argentina in 2010. Prior to 2009, ATS manufacture had only been reported in Argentina and Brazil with the discovery of two ecstasy and one methamphetamine laboratory.

Moreover, according to seizure data, large amounts of precursor chemicals, such as ephedrine and pseudoephedrine, used in the manufacture of ATS are being trafficked in the region. Between 2007 and 2012, an estimated total of up to 79 tons of ephedrine and pseudoephedrine were seized in the region, of which 47 tons consisted of ephedrine and the remaining 32 tons of pseudoephedrine. Over the years, by far the largest amount of these precursor chemicals was estimated to have been seized in El Salvador, followed by Guatemala, Argentina, Honduras and Panama. Lower levels of ephedrine and pseudoephedrine seizures have also

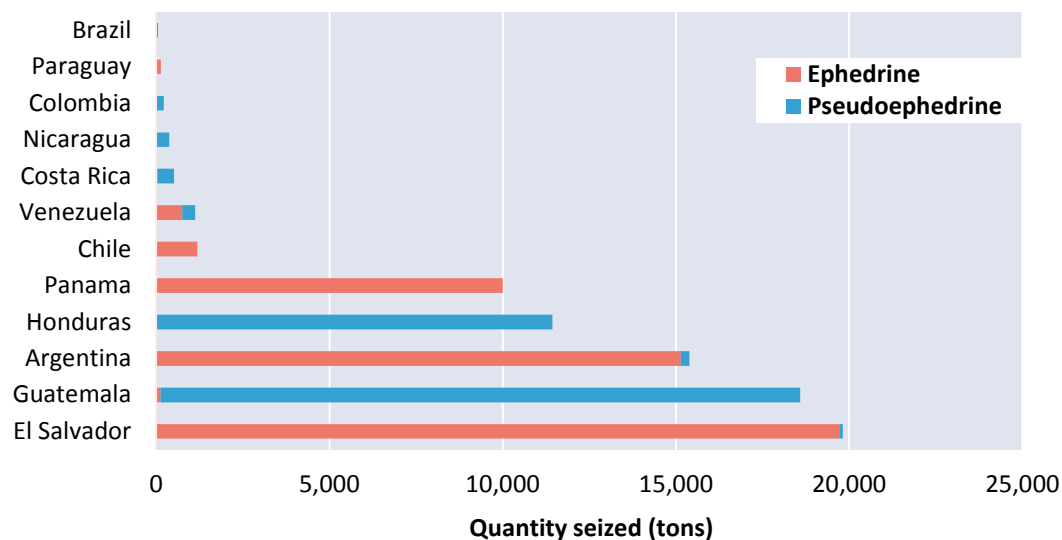
been reported over the years by Brazil, Chile, Colombia, Costa Rica, Nicaragua, Paraguay and Venezuela.

While there have been reports of ATS precursor chemical seizures and numerous dismantled ATS laboratories, particularly in Central American countries, ATS seizures have remained at low levels. For instance, since 2008, ATS seizures reported by Guatemala have totalled less than 1 kg and in Nicaragua there have been no reports of ATS seizures for a number of years, except for about 55 kg in 2009.<sup>356</sup> Moreover, methamphetamine seizures in some countries in South America have only somewhat increased, from just over 1 kg in 2010 to more than 12 kg in 2011 in Brazil, as well in Argentina from 0.02 kg to about 17 kg over the same period.<sup>357</sup> Low ATS seizure reports in the region might be because law enforcement focusses their efforts on cannabis and cocaine, which continue to dominate the drug market.

<sup>356</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Guatemala and Nicaragua 2008-2012.

<sup>357</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Brazil and Argentina 2009-2012.

**Fig. 36:** Total estimated ephedrine and pseudoephedrine seizures by country in South America, Central America and the Caribbean, 2007-2012



Source: International Narcotics Control Board (INCB), Report of the International Narcotics Control Board for 2012, Vienna, January 2013; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Guatemala and Nicaragua 2007-2012; Official sources approved by governments.

It remains unclear to what extent ATS is being manufactured for domestic use or being trafficked to other regions of the world. For some time, there have been indications that ATS trafficking routes from South America, Central America and the Caribbean have been extended to Western Europe and Eastern Asia, though these have mostly involved the trafficking of amphetamine. In Western Europe, Spain reported the arrest of nationals from various South and Central American and Caribbean countries relating to amphetamine over the years.<sup>358</sup> Moreover, between 2007 and 2010 small quantities of less than 1 kg and up to 2 kg of amphetamine perceived to have originated in or trafficked via Brazil and Nicaragua were reported to have been seized in Italy and Portugal.<sup>359</sup> In Eastern Asia, methamphetamine perceived to have originated in Peru and Brazil have been reported seized in the Philippines in 2012, possibly intended for onward trafficking to mainland China and Hong Kong, China.<sup>360</sup>

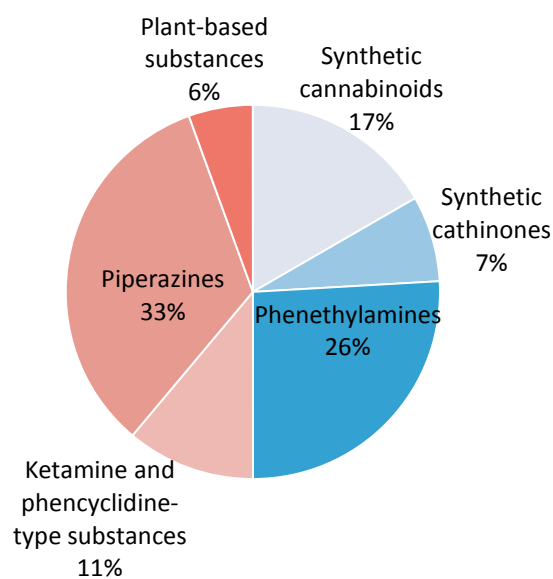
### Are NPS being sold on the illicit drug market?

Between 2008 and 2013, there have a total number of 54 NPS reports to UNODC from Argentina, Brazil, Chile, Colombia and Costa Rica, Ecuador, Panama and Uruguay in South and Central America, of which the majority con-

sist of piperazines, followed by phenethylamines and synthetic cannabinoids.

Though there have been comparatively few reports of ketamine in the region, some seizures of substances under international control were also found to contain ketamine. In June 2013, Colombia reported the seizure of 7,000 tablets

**Fig. 37:** Total number of NPS reports to UNODC in South America, Central America and the Caribbean, by substance group, 2008-2013



Source: United Nations Office on Drugs and Crime (UNODC), The challenge of new psychoactive substances. Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2013; United Nations Office on Drugs and Crime (UNODC), "UNODC Early Warning Advisory on New Psychoactive Substances (NPS) October 2013 update", October 2013; Submissions to UNODC and laboratories participating in the International Collaborative Exercises (ICE) programme.

<sup>358</sup> Between 2008 and 2011, Spain reported the arrest of a Brazilian, 2 Colombian and 2 Dominican Republic nationals, including a national of Uruguay relating to amphetamine; United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Spain 2008-2012.

<sup>359</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Italy and Portugal 2007-2010.

<sup>360</sup> United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Philippines 2012.



sold as 2C-B<sup>361</sup>, an internationally controlled drug, but which, according to the Colombian Drug Observatory was found to contain ketamine and small quantities of other unidentified substances.<sup>362</sup> In 2012, Brazil also reported to UNODC to have discovered ketamine within substances sold as “ecstasy”.<sup>363</sup>

In some countries, ketamine prevalence rates have been reported at higher levels than those of some other substances under international control. In Argentina, a general drug use survey among people aged 12 to 65 in 2010 indicated a higher lifetime prevalence rate for ketamine use at 0.30 per cent than for opiates at 0.07 and prescription stimulants at 0.05 per cent.<sup>364</sup> Furthermore, a general drug use survey among people aged 15 to 65 in Uruguay in 2011, showed that lifetime ketamine prevalence at 0.60 per cent was higher than that of methamphetamine use at 0.20 per cent, opioids at 0.18 per cent and prescription stimulants at 0.03 per cent.<sup>365</sup> Later, in 2012, survey results also showed that ketamine had a higher lifetime prevalence rate among students aged 15 to 16 in Colombia at 0.26 per cent than for heroin at 0.25 per cent.<sup>366</sup>

Nevertheless, ketamine use among youths in South America remains at low levels. In 2011, a drug use survey among high school students aged 15 to 16 in Argentina indicated ketamine use with the lowest lifetime prevalence at 0.6 per cent, together with cannabis (resin).<sup>367</sup> Another drug use survey among students in Brazil aged 10 to 19 in 2010 also ranked ketamine as the least used drug in terms of lifetime prevalence at 0.2 per cent,<sup>368</sup> as was the case in Costa Rica, where lifetime ketamine use among students aged 15 to 16 was reported at 0.36 per cent in 2012.<sup>369</sup>

### NPS are targeting the established LSD market

NBOMe<sup>370</sup> compounds are a frequently reported NPS in

the region. By 2013, Brazil, Chile and Colombia reported on the emergence of a number of NBOMe compounds. Recently, law enforcement authorities in some countries in South America have reported that the substance is being sold as “LSD” on the illicit drug market. In June 2013, the Drug Observatory of Colombia reported through its early warning system (SAT) that substances sold as LSD were actually found to contain two NBOMe compounds, 25B-NBOMe and 25C-NBOMe.<sup>371</sup> LSD use in Colombia has also risen to particularly high levels. Unlike in previous years, where prevalence rates for LSD use in Colombia were reported to be below 1 per cent, a drug use survey among students aged 15 to 16 in 2012 ranks LSD as the second most used drug in terms of annual prevalence at 3.13 per cent, after marijuana at 15.01 per cent.<sup>372</sup> The lifetime prevalence rate for LSD use among students aged 15 to 16 has also risen considerably to 4.9 per cent, below that of cannabis at 31.2 per cent, cocaine at 7.0 per cent and solvents and inhalants at 8.0 per cent.<sup>373</sup> In Ecuador, lifetime “LSD” prevalence among students aged 12 to 17 in 2012 at 1.3 per cent is the same as that of cannabis (resin) and higher than that of opium at 0.9 per cent and amphetamine at 0.8 per cent.<sup>374</sup> Given the reports of NPS being sold as “LSD”, more research is needed on the potential connection between NPS and high levels of “LSD” use among certain user groups.

Recently, there have also been reports of “ecstasy” and “LSD” shipments trafficked to South America from Western Europe which contained NPS. In May 2013, the Chilean National Police seized 800 stamps believed to contain the hallucinogenic substance LSD from a consignment that had been trafficked from Spain, but which actually consisted of 25I-NBOMe.<sup>375</sup> In 2012, “ecstasy” seizures in Chile were perceived to have originated from Argentina and Spain.<sup>376</sup> Moreover, between 2008 and 2012, “ecstasy” seizures reported in France, Germany and Portugal were perceived to have been destined for Brazil.<sup>377</sup>

361 2C-B (4-bromo-2,5-dimethoxyphenethylamine), a substance controlled under schedule II of the United Nations convention on Psychotropic Substance 1971, is a member of the 2C class of phenethylamines.

362 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 10*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, September 2013.

363 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Brazil 2012.

364 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Argentina 2010.

365 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Uruguay 2011.

366 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Colombia 2012.

367 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Argentina 2011.

368 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Brazil, 2010.

369 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Costa Rica 2012.

370 NBOMe compounds are a series of hallucinogenic phenethylamine

substances, which are not under international control.

371 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Colombia 2012.

372 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Colombia 2012.

373 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Colombia 2012.

374 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Ecuador 2012.

375 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 10*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, September 2013.

376 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Chile 2012.

377 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for France, Germany and Portugal 2012.





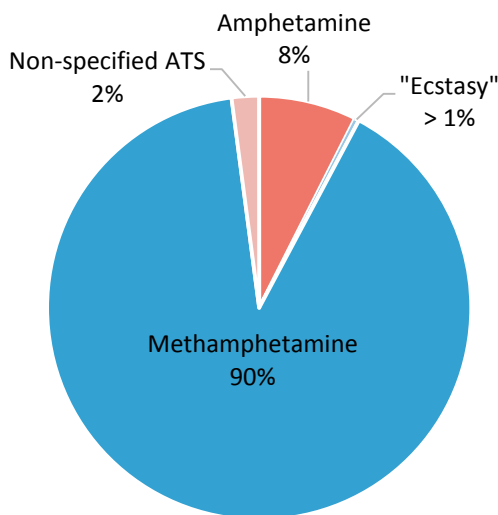
## 8. WESTERN AND CENTRAL ASIA Regional Overview

Methamphetamine continues to be the most commonly available ATS in Western and Central Asia, though use and seizure data for the region still remains scarce. Overall, levels of methamphetamine use in the region are low, but a surge in methamphetamine seizures in the Islamic Republic of Iran point to a possible increasing domestic market. Over the years, some ATS laboratories have been dismantled in Central Asia and there are concerns regarding the spread of manufacture to Afghanistan. Methamphetamine trafficking from the Islamic Republic of Iran to East and South-East Asia also appears to have spread to Europe.

### Is the ATS market growing in Western Asia?

The ATS market in Western and Central Asia predominantly consists of methamphetamine. Since 2005, methamphetamine seizures made up about 90 per cent of ATS seizures in region, followed by amphetamine at 8 per cent and “ecstasy” at less than 1 per cent.

**Fig. 38:** Distribution of seized ATS reported in Western and Central Asia, by drug type, 2005-2012

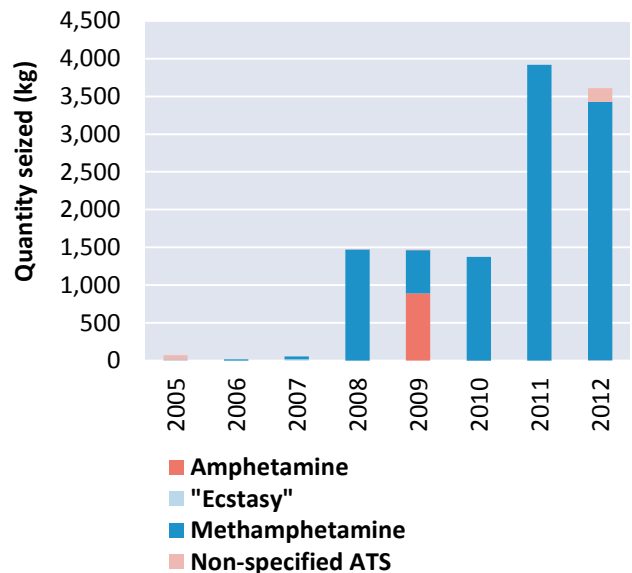


Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2005-2012.

Over the years, ATS seizures in the region have greatly increased. In 2011, ATS seizures in Western and Central Asia almost totalled 4 tons, having previously reached 1.4 tons in 2010 and less than 60 kg in 2007.

The rapid rise of ATS seizures in Western and Central Asia is primarily attributable to the increase in methampheta-

**Fig. 39:** Total ATS seizures reported in Western and Central Asia, 2005-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2005-2012.

mine seizures in the Islamic Republic of Iran which reported by far the largest ATS seizures in the region. In the Islamic Republic of Iran, methamphetamine seizures have rapidly increased since 2007 and in 2011 almost tripled reaching up to 4 tons. In spite of a slight drop in 2012, methamphetamine seizures in the Islamic Republic of Iran remained at high levels totaling around 3.4 tons.

There are no systematic ATS prevalence studies available for the Islamic Republic of Iran. However, the rise in methamphetamine seizures and indications of growing domestic ATS use suggest that the Islamic Republic of Iran has an expanding domestic methamphetamine market.<sup>378</sup> According to expert perception, there was a large increase of methamphetamine use in the country in 2012.<sup>379</sup> Moreover, there has been some increase in perceived ATS-related mortality and a rise in the number of people receiving treatment for ATS use in the Islamic Republic of Iran.<sup>380</sup>

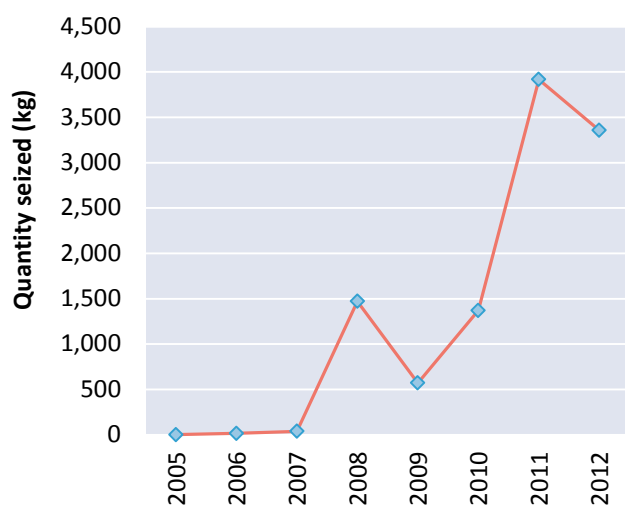
Since only small quantities of ATS have been seized in Pakistan over the past years, the full extent of the ATS

378 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Islamic Republic of Iran for 2012.

379 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Islamic Republic of Iran for 2012.

380 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Islamic Republic of Iran for 2012.

**Fig. 40:** Methamphetamine seizures reported in the Islamic Republic of Iran, 2005-2012



Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Islamic Republic of Iran for 2005-2012.

market remains unclear. The first time that a survey in Pakistan included an analysis of ATS use revealed that ATS are indeed consumed in the country, albeit at much lower rates than opiates and cannabis. While the overall estimated annual use of drugs under international control among people aged 15 to 64 stood at 6.0 per cent, annual methamphetamine use was 0.02 per cent and general annual ATS use was 0.08 per cent.<sup>381</sup> Annual ATS prevalence was highest in the two western provinces bordering Afghanistan and the Islamic Republic of Iran.

Given Pakistan's high levels of legitimate requirements for ephedrine and pseudoephedrine, which have been increasing over the past years, there is a risk that these two substances are diverted for illicit ATS manufacture in the region. The required amount of pseudoephedrine reported by the country rose to 48 tons in 2012 from 10 tons in 2007.<sup>382</sup> Moreover, in 2012, Pakistan had the world's fifth highest legitimate requirements for ephedrine at 22 tons.<sup>383</sup> Seizure reports support the assumption that diversion of precursors from licit trade could occur in the region. The Iranian Government reported a number of incidents to the International Narcotics Control Board (INCB) in 2011 involving more than 0.5 tons of ephedrine smuggled from Pakistan, while in Pakistan there have

been investigations into the alleged diversion of large amounts of ephedrine since March 2012.<sup>384</sup>

In Kazakhstan, there are some indications of spreading ATS use among students. The results of a drug use survey among students aged 16 to 24 in 2012 display a lifetime prevalence of "ecstasy" use at 2.3 per cent and use of amphetamines (excluding "ecstasy") at 1.0 per cent, both of which are higher than that of cocaine use at 0.8 per cent, but below cannabis use at 11.2 per cent.<sup>385</sup> In addition, the survey results that year recorded a lifetime prevalence of tranquilisers and sedative use below that of "ecstasy" use, at 2.1 per cent.

### Has methamphetamine manufacture spread across Western and Central Asia?

Illicit ATS manufacture in the region has predominantly been reported in the Islamic Republic of Iran, though there have been no official reports of methamphetamine laboratories dismantled in the country for some years. The discovered manufacture of this substance was last reported in the Islamic Republic of Iran in 2009 when 6 methamphetamine laboratories were discovered, while another 4 laboratories were dismantled prior to that in 2008.<sup>386</sup> However, high annual legitimate requirements for precursor chemicals of ATS in the Islamic Republic of Iran might heighten the risk of their diversion. For instance, the country reported a required 55 tons of pseudoephedrine in 2012 increasing from just 5 tons in 2006.<sup>387</sup>

Data with regards to methamphetamine in other parts of the region remain scarce. Since 2008 there have been indications that methamphetamine manufacture may have spread to other countries in Central Asia. In Kazakhstan, a methamphetamine laboratory was dismantled in 2008, while prior to that a methcathinone laboratory was dismantled in Kyrgyzstan in 2007. However, no ATS laboratories have been discovered in these countries since then and over the years there have only been smaller seizures of less than 1 kg of amphetamine and methamphetamine in Kyrgyzstan. In 2012, a large seizure of almost 0.2 tons of non-specified ATS was reported in Kazakhstan.<sup>388</sup>

Recently, a report of methamphetamine manufacture in Afghanistan has been confirmed by forensic experts in

381 "Drug Use in Pakistan 2013", collaborative study between the Ministry of Narcotics Control (MNC), the Pakistan Bureau of Statistics and the United Nations Office on Drugs and Crime (UNODC), Country Office Pakistan, 2013.

382 International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

383 International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

384 International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

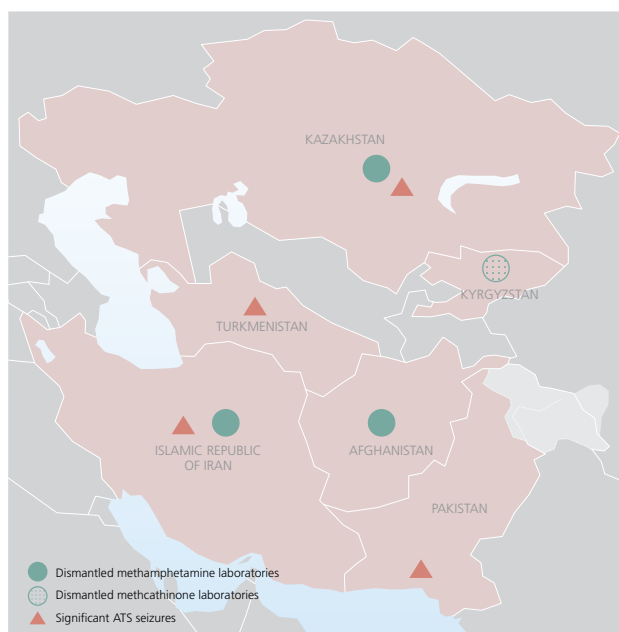
385 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Kazakhstan 2012.

386 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for the Islamic Republic of Iran 2008-2009.

387 International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

388 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Kazakhstan 2012.

**Map 18:** Dismantled laboratories and significant methamphetamine seizures reported in Western and Central Asia, 2007-2012



Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2007-2012*.

Note: The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Kabul (Afghanistan), with the discovery of a methamphetamine laboratory in Nimroz Province in Afghanistan in September 2013.<sup>389</sup> Prior to this discovery, methamphetamine was believed to be trafficked to Afghanistan from neighbouring countries. However, in 2010, Pakistan reported the seizure of 12 kg of amphetamine that was perceived to have originated in Afghanistan.<sup>390</sup> Since 2008, there have also been increasing reports of small quantity methamphetamine seizures in Afghanistan. This is reflected by the increasing number of methamphetamine samples analysed by the Counter Narcotics Police of Afghanistan (CNPA) forensics laboratory, which have tripled from 16 in 2011 to 48 in 2012.<sup>391</sup> According to the Ministry of Counter Narcotics Law Enforcement (MCN LE) Coordination Directorate, a large number of these seizures occurred in Western Afghanistan. Between March 2009 and March 2013, around 92 per cent of methamphetamine samples analysed by the CNPA forensics laboratory were seized in Western Afghanistan, in Herat, Farah and Nimroz Province close to the Iranian border, as well as Faryab,

389 Counter Narcotics Police of Afghanistan (CNPA), confirmed by the UNODC Office in Afghanistan.

390 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Pakistan 2010*.

391 Islamic Republic of Afghanistan/Ministry of Counter Narcotics, *Afghanistan Drug Report 2012*, Kabul, Afghanistan, November 2013.

Kandahar, Balkh and Kabul Provinces.<sup>392</sup> ATS manufacture would be a worrying development to the Afghan drug situation, which continues to be the world's leading opium producer and cultivator. In 2012, about 74 per cent of global illicit opium was produced in Afghanistan, while the global area under poppy cultivation rose by 15 per cent that year driven largely by increases in Afghanistan, including Myanmar.<sup>393</sup>

There have been no further reports of ATS manufacture elsewhere in the region, though particularly large seizures totalling almost 65 kg of methamphetamine were reported in Tajikistan in 2012 and 20 kg of "ecstasy" were reported seized in Pakistan in 2007. Other than that, only some small quantities of ATS have been reported in Pakistan, Kazakhstan, Kyrgyzstan and Tajikistan over the years.

### Contribution of Western Asia to the global methamphetamine market

It still remains unclear to what extent methamphetamine manufactured in the region is trafficked to other parts of the world. Between 2010 and 2012, all methamphetamine seized in Tajikistan was perceived to have originated from the Islamic Republic of Iran and trafficked via Uzbekistan.<sup>394</sup> In 2012, Armenia also reported that all methamphetamine seized in the country was perceived to have originated in the Islamic Republic of Iran.<sup>395</sup>

According to the Turkish authorities, Turkey serves as a transit point for methamphetamine smuggled from the Islamic Republic of Iran. Between 2009 and 2012, Turkey reported of methamphetamine seizures that were perceived to have originated in the Islamic Republic of Iran.<sup>396</sup> Within Turkey, most seizures of this drug of about 53 per cent occurred in Istanbul, particularly at Ataturk Airport, as well as provinces close to the Iranian border.<sup>397</sup> Turkish customs officials have noted a particular increase in methamphetamine seized at border crossing points along the border to the Islamic Republic of Iran.<sup>398</sup> A growing number of Iranian nationals were also apprehended in

392 Islamic Republic of Afghanistan/Ministry of Counter Narcotics, *Afghanistan Drug Report 2012*, Kabul, Afghanistan, November 2013.

393 United Nations Office on Drugs and Crime (UNODC), *World Drug Report*, New York, May 2013.

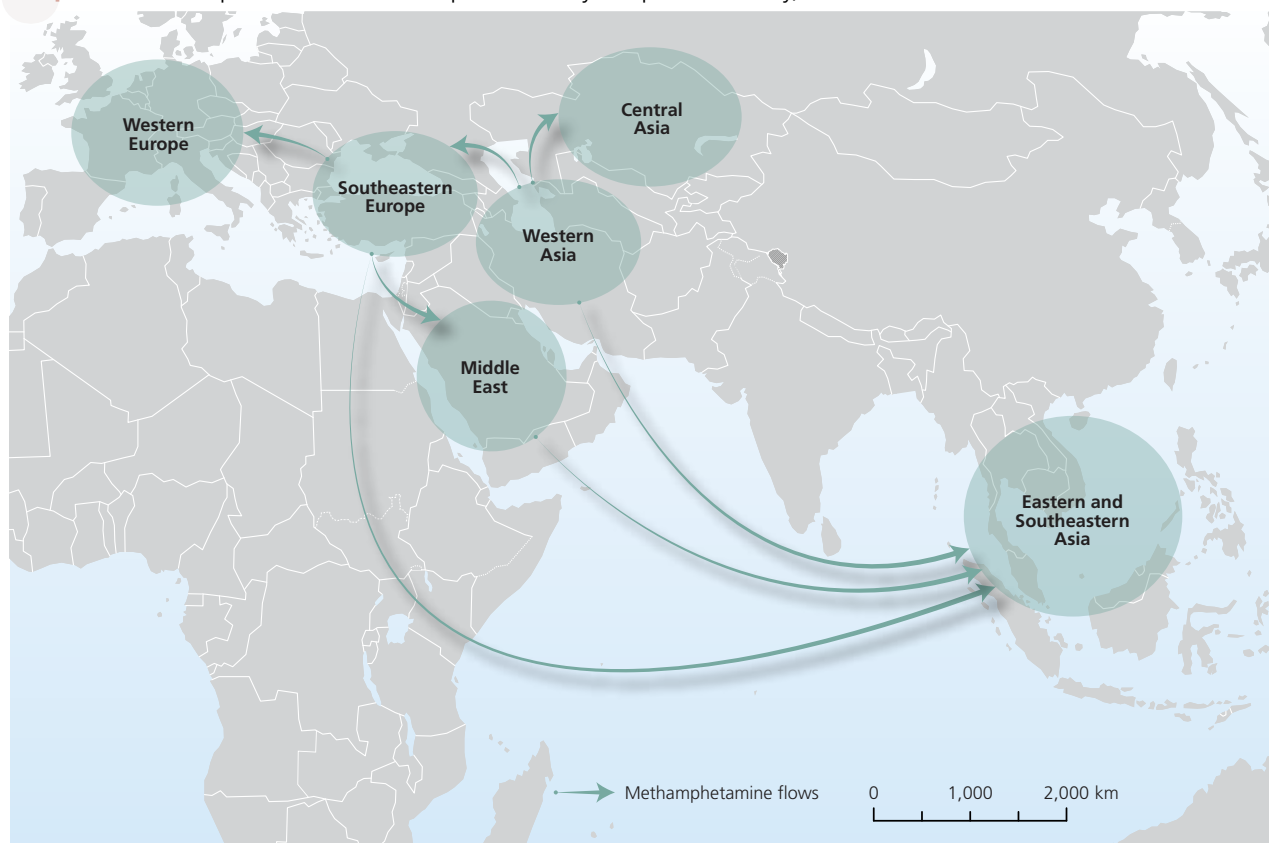
394 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Tajikistan 2012*.

395 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Armenia 2012*.

396 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Turkey 2009-2012*.

397 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012; "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

398 "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

**Map 19:** Methamphetamine flows as perceived by recipient country, 2008-2012

Source: United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire 2008-2012*; "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

Note: The origins of the flow arrows do not necessarily indicate the source/manufacture of methamphetamine. These arrows represent the flows as perceived by recipient countries. The boundaries shown on this map do not imply official endorsement or acceptance by the United Nations. Dashed lines represent undetermined boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. The final boundary between the Sudan and South Sudan has not yet been determined.

### Turkey in connection with methamphetamine trafficking.<sup>399</sup>

From Turkey, methamphetamine is predominantly trafficked onwards to East and South-East Asia as well as to countries in the Middle East, such as the Syrian Arab Republic by plane and via on-land routes.<sup>400</sup> Between 2009 and 2012, Turkey only reported of methamphetamine seizures that were perceived to have been destined for Indonesia, Japan, Malaysia, New Zealand and Thailand.<sup>401</sup> The Turkish police reported in 2011, that 80 per cent of the air couriers trafficking methamphetamine from Turkey to Malaysia, Thailand, Japan, Indonesia and Australia were Iranian nationals, whilst nationals of other countries included Nigeria, Germany, Belgium, Georgia, France, Italy, Romania, the United Kingdom, Japan,

Turkey and Uzbekistan.<sup>402</sup> Between 2010 and 2012, methamphetamine seizures perceived to have originated in the Islamic Republic of Iran were reported by Thailand, Malaysia and Indonesia.<sup>403</sup> According to the Malaysian Federal Narcotics Investigation Department, Iranian drug trafficking networks have embarked on large-scale operations to meet the high demand for methamphetamine in the region.<sup>404</sup>

However, recently there has been an emergence of methamphetamine trafficking from Western Asia to Europe, via Turkey. According to the Turkish National Police, there have been attempts to smuggle small quantities of methamphetamine to Europe along road and railway routes.<sup>405</sup>

399 "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

400 "2012 National Report (2011 data) to the EMCDDA by the Reitox National Focal Point" European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Turkey, 2012.

401 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Turkey 2009-2012*.

402 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

403 United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Thailand, Malaysia and Indonesia 2010-2012*.

404 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 7*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, March 2012.

405 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.

All methamphetamine seized in Bulgaria in 2011 was perceived to have originated in the Islamic Republic of Iran.<sup>406</sup> Between 2010 and 2011, the Russian Federation and Germany also reported seizures of methamphetamine that were perceived to have originated from the Islamic Republic of Iran.<sup>407</sup>

Increasing amounts of methamphetamine also appear to be trafficked to Turkey to supply the domestic market. Methamphetamine seizures in Turkey have been steadily rising annually from about 0.1 tons on 2009 to just over 0.5 tons in 2012.<sup>408</sup> Particularly in 2011, a considerable share of methamphetamine seized by the Turkish National Police had been apprehended in street operations, which indicates that this drug is also being trafficked into the country for domestic use.<sup>409</sup>

406 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Bulgaria 2011.

407 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Germany and the Russian Federation 2010-2011.

408 United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire for Turkey for 2009-2012.

409 "Turkish Report of Anti-Smuggling and Organised Crime 2011", Turkish National Police, Ankara, March 2012.







## 9. PRECURSOR TRENDS AND MANUFACTURING METHODS

Amphetamine-type-stimulants (ATS) comprise a number of substances under international control, primarily amphetamine, methamphetamine, ecstasy-group substances (3,4-methylenedioxymethamphetamine (MDMA), 3,4-methylenedioxyamphetamine (MDA), 3,4-methylenedioxyethylamphetamine (MDE)) and methcathinone. There are numerous methods for the synthesis/manufacture of these substances and a wide range of precursor chemicals can be used. However, it is possible to identify the most commonly used chemicals which are listed in Table I and Table II of the United Nations Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988.

The majority of the precursor chemicals that can be used in the illicit manufacture of ATS and synthetic drugs have widespread licit use in the chemical and pharmaceutical industries. As such, their diversion from licit trade by drug trafficking organizations is the primary source of precursor chemicals used in the illicit manufacture of synthetic drugs. The 1988 United Nations Convention provides measures to assist Member States in preventing the diversion of these chemicals and the International Narcotics Control Board (INCB) has a number of resources to monitor the licit/illicit trade in precursor chemicals and developments/trends in the use of existing and novel precursor chemicals.

Data on the precursor chemicals and trends in their use is an invaluable source of information for law enforcement, forensic science and customs personnel in their respective roles in tackling the global trade in illicit drugs, the identification of the chemicals involved and prevention of their diversion. This chapter provides an overview of the recent trends with regard to the precursors used in the illicit manufacture of ATS and the responses of Member States and International Organizations in tackling the issue of the illicit manufacture of synthetic drugs

### International responses to precursor trends in the manufacture of ATS

There have been a number of measures implemented by International Organisations and National Governments in recent years to tackle issues related to the diversion of precursor chemicals for use in the illicit manufacture of ATS. Precursor control initiatives initiated by the INCB including the establishment of the Precursor Incident Communication System (PICS) in 2012 revealed the continued emergence of phenylacetic acid as a precursor for the illicit manufacture of amphetamine and methamphetamine. The emergence of phenylacetic acid as an important

precursor led to its rescheduling from Table II to Table I of the 1988 UN Convention as of 2011. While many countries had existing legislation to monitor transactions and shipments of this chemical, a number of countries have recently amended their national legislation or adopted stricter measures. These included Canada, China, countries of the European Union and the South and Central American countries, El Salvador, Guatemala, Mexico, Nicaragua and Paraguay.

Previous INCB initiatives had revealed a shift from the use of pure ephedrine/pseudoephedrine to the use of pharmaceutical preparations containing these precursor chemicals. This trend follows the pattern of a response by drug traffickers to increased national awareness of and control measures on existing precursors. In recent years, a number of countries have also amended their legislation to more closely monitor pharmaceutical preparations containing ephedrine or pseudoephedrine. Over the 2010-2013 period, such amendments to legislation have been adopted by Australia, China, India New Zealand, the Republic of Korea, the Russian Federation, Thailand and Uruguay among others.<sup>410, 411</sup> A direct consequence of the increased awareness of the use of alternate precursors and the introduction of new legislation is increased seizures of such substances in their various forms and thus a more clear picture of the methods used worldwide for the manufacture of ATS is made possible. Another consequence of increased precursor controls in countries with significant illicit ATS manufacture is that traffickers target countries with less established control systems and shift their manufacture and purchase of precursors to these countries. Thus, illicit manufacture continues to spread in African countries such as Nigeria and in South and Central America.<sup>412</sup>

### Trends in methamphetamine precursors: ephedrine and pseudoephedrine

Ephedrine and pseudoephedrine are attractive precursors as they are widely used in legitimate trade, and thus are more easily targeted for diversion. Also, their transforma-

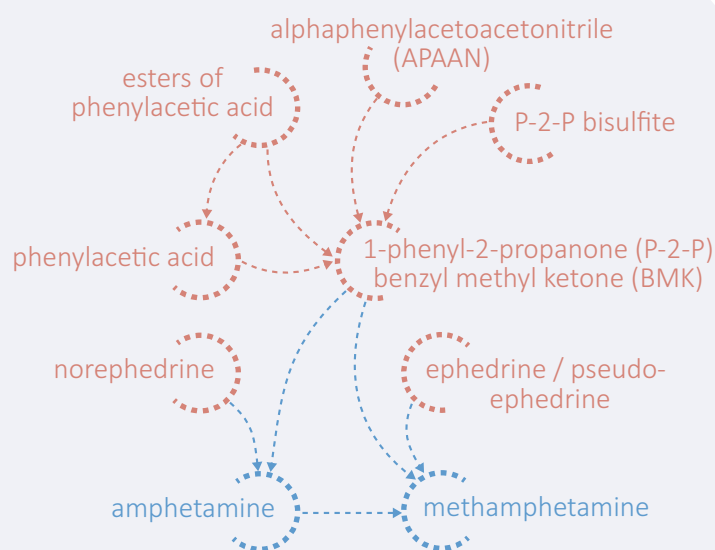
<sup>410</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

<sup>411</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, 2014.

<sup>412</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

## Precursors for amphetamine and methamphetamine

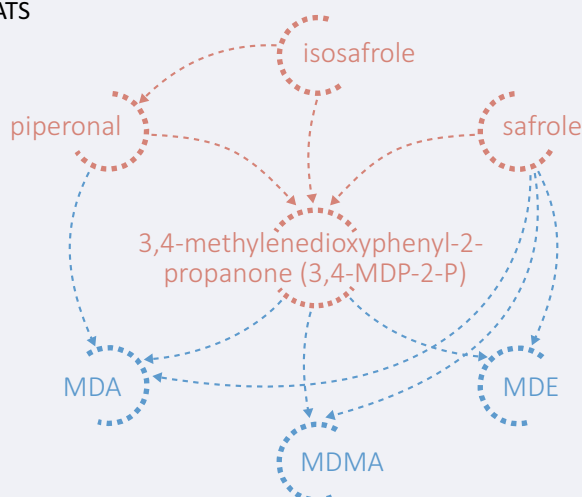
The primary precursor chemicals used in the manufacture of amphetamine and methamphetamine are ephedrine, pseudoephedrine and 1-phenyl-2-propanone (P-2-P). Ephedrine and pseudoephedrine are widely used in the manufacture of decongestants and bronchodilators, while the primary use of P-2-P is in the legitimate manufacture of amphetamine/methamphetamine by the pharmaceutical industry. Phenylacetic acid is also an important precursor of P-2-P and norephedrine is another precursor that can be used for the synthesis of amphetamine



## Precursors for “ecstasy-type substances”

The primary precursor chemicals used in the manufacture of MDMA and its analogues, MDA and MDEA, are safrole (including in the form of safrole rich oils), isosafrole, piperonal and 3,4-methylenedioxyphenyl-2-propanone (3,4-MDP-2-P). Of these precursors, 3,4-MDP-2-P has little legitimate use, while safrole and piperonal are used worldwide in the chemical and pharmaceutical industries and thus are more prone to diversion from licit trade. As with other ATS, the manufacture of ecstasy-group substances is quite flexible given that the products themselves are analogues and also, that it is possible to convert MDA into both MDMA and MDE.

■ Precursors and pre-precursors  
■ ATS



tion to methamphetamine is a relatively straightforward procedure that can be mediated by a variety of chemicals. Multi-ton amounts of these chemicals are seized every year and as a result of increased awareness, the number of countries now reporting seizures has doubled in 10 years according to the INCB.<sup>413</sup> In the years 2009-2012, 141 tons of bulk ephedrine/ pseudoephedrine were reported to the INCB as having been seized. In 2010 for example, China, India, Mexico and the United States all with multi-ton seizures accounted for 84% of global seizures.

Despite the continued seizures of precursors in bulk form, it has become evident in recent years that the use of alternate forms of these precursors also continues to increase in certain parts of the world. The first evidence of this is seen with the continued increase in use and seizures of

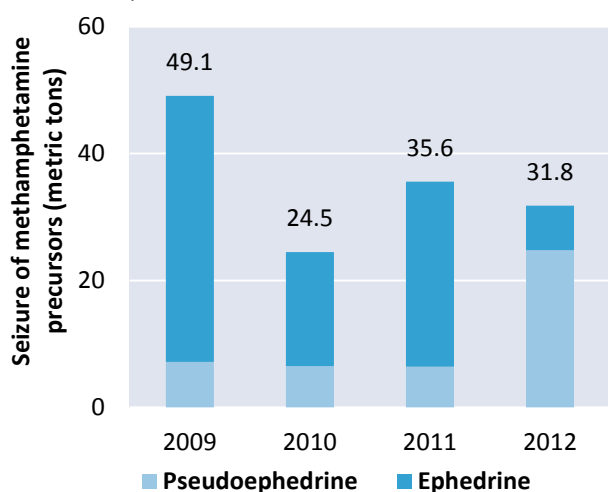
pharmaceutical preparations containing ephedrine/ pseudoephedrine. In the years 2009-2012, over 46 tons were reported seized by Member States in addition to the seizure of over 62 million tablets in this time period.

Within South and South East Asia, where there is considerable legitimate manufacture of pharmaceutical preparations containing ephedrine and pseudoephedrine, significant seizures of these preparations have been increasingly reported since 2010. Myanmar is one of the main destinations in the region for trafficked preparations which are primarily smuggled overland from China and India. According to a report presented at the Asia-Pacific Operational Drug Enforcement Conference (ADEC), 1.7 tons of pseudoephedrine primarily in the form of pharmaceutical preparations were seized in Myanmar in 2011 and over 6.9 tons were seized in 2012.<sup>414</sup> Seizures of pharmaceutical

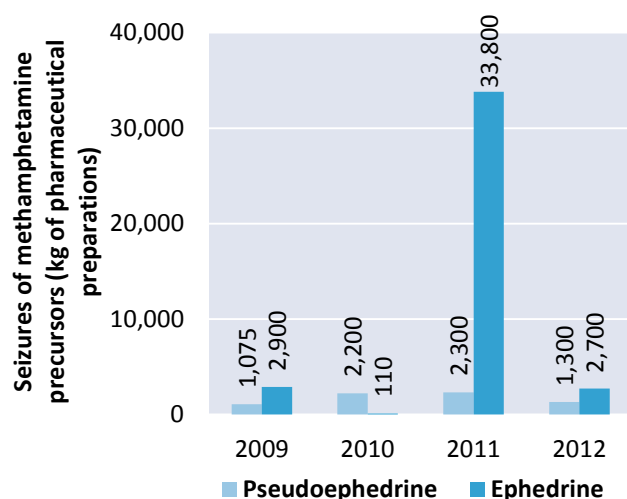
<sup>413</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

<sup>414</sup> “Myanmar country report”, Central Committee for Drug Abuse Con-

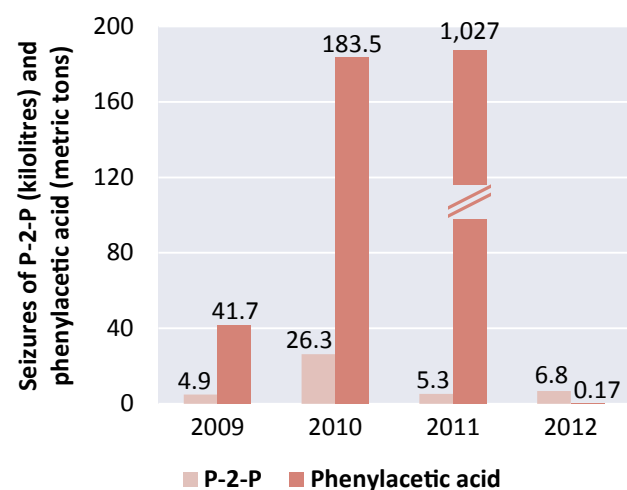
**Fig. 41:** Global seizures of methamphetamine precursors (bulk), 2009-2012



**Fig. 42:** Global seizures of pharmaceutical preparations of methamphetamine precursors, 2009-2012



**Fig. 43:** Global seizures of 1-phenyl-2-propanone (P-2-P) and phenylacetic acid, 2009-2012



Source: International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances, for 2010, 2011, 2012, 2013.*

preparations containing pseudoephedrine and ephedrine preparations have also been on the increase in other countries in the region including China, the Republic of Korea, Lao People's Democratic Republic, Singapore and Thailand.<sup>415</sup> The seizures have in some cases been destined for locations with the region, but also to Central America, either directly or via Europe. Within the Oceanic region, in both Australia and New Zealand there have also been increased reports of seizures of pharmaceutical preparations in the form of ContacNT<sup>416</sup>. New Zealand reported its highest seizure in 2010 (more than 0.9 tons) and a 1.3 ton seizure was made in Australia in 2012.<sup>417</sup> Also, in 2012, Australia reported its second highest detection weight of ATS precursors (excluding MDMA) in a decade, at approximately 1.8 tons.<sup>418</sup> The majority of methamphetamine precursors seized in recent years in Australia, have been ephedrine and pseudoephedrine based, with P-2-P only accounting for 0.03 per cent of the total weight of precursors seized.<sup>419</sup> This statistic is in stark contrast to the situation in Europe, countries of Central America, Mexico and North America.

### Trends in amphetamine and methamphetamine precursors: 1-phenyl-2-propanone (P-2-P) and phenylacetic acid

The flexibility of ATS manufacture is reflected in the number of precursor chemicals that can be used and indeed an even wider range of chemicals that can convert the precursors to the controlled drugs. The primary alternate precursor to pseudoephedrine and ephedrine in the manufacture of amphetamine and methamphetamine is 1-phenyl-2-propanone (P-2-P). The second most notable trend in recent years in the illicit manufacture of methamphetamine is the increasing shift towards P-2-P based routes involving precursors and derivatives of P-2-P in certain regions of the world. In particular, phenylacetic acid (a direct precursor to P-2-P) and its derivatives have been used in increasing amounts in the illicit manufacture

control (CCDAC), presented at the Eighteenth Asia-Pacific Operational Drug Enforcement Conference (ADEC), Tokyo, 26-27 February 2013.

<sup>415</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

<sup>416</sup> ContacNT is distinct granular pharmaceutical formulation containing pseudoephedrine; International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

<sup>417</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2011; International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, 2014.

<sup>418</sup> "Illicit Drug Data Report 2011-12", Australian Crime Commission (ACC), Canberra, May 2013.

<sup>419</sup> "Illicit Drug Data Report 2011-12", Australian Crime Commission (ACC), Canberra, May 2013.

of amphetamine/methamphetamine. As a consequence, phenylacetic acid was rescheduled from Table II to Table I of the 1988 convention as of January 17, 2011. The use of such precursors has increased in recent years partly as a result of increased control measures and effective monitoring of ephedrine and pseudoephedrine. Manufacturing routes based on P-2-P are historically preferred in Europe, where this precursor is mainly used to manufacture amphetamine. In 2011, half of the 5,312 litres of P-2-P seized worldwide was reported by European countries, although this decreased to 12 % of global seizures of P-2-P in 2012, with Mexico accounting for 4,699 (69 %) of the total of 6,818 litres seized.

It is, however, the increase in the seizures of phenylacetic acid in recent years that is most notable, particularly in the United States, Mexico and Central America. There were significant seizures in Mexico (56.1 tons in 2010) and the United States (122.7 tons in 2010 and 997 tons in 2011) providing evidence of the shift away from ephedrine/pseudoephedrine based manufacturing methods in the region. Despite the fact that seizures of both P-2-P and phenylacetic acid decreased dramatically in 2012, forensic profiling of seized methamphetamine in the United States confirmed that currently, nearly all of the analysed methamphetamine is manufactured using phenylacetic acid or other P-2-P based methods (94 % of all samples tested in the second quarter of 2012, up from 69 % in 2010 and close to 1 % in 2007).<sup>420</sup> This shift in manufacturing methods is also showing signs of spreading to Central American countries and in Guatemala declining seizures of ephedrine and pseudoephedrine have been reported in 2013 coincident with the seizure of more than 1,000 litres of P-2-P in a clandestine laboratory in Tecun Uman, a border city between Guatemala and Mexico.<sup>421</sup>

### Trends in ecstasy-group substance precursors

The main precursor chemicals used in the manufacture of ecstasy-group substances are included in Table 1 of the 1988 Convention and their licit trade and reported diversions to illicit manufacture are monitored by the INCB. Seizures of these precursors have increased in 2012- 2013 following a number of years where there was a considerable discrepancy in the volume of seizures compared to the worldwide availability of the drugs themselves, in particular MDMA. While the amounts of 3,4-MDP-2-P and piperonal seized continue to be low, safrole and safrole rich oil seizures have increased with Cambodia, Malaysia, Mexico

<sup>420</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York 2013, p. 16.

<sup>421</sup> United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 10*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, September 2013.

and the United States all reporting seizures greater than 2,000 litres in 2011, while Australian authorities reported a seizure of 3.5 tons of safrole in 2012.<sup>422,423</sup> Within Cambodia, a further 4,000 litres of safrole rich oils were seized in a clandestine laboratory in 2012.<sup>424</sup> Within Europe, the Belgian authorities seized almost 10,000 litres of safrole rich oils in 2011 and in August and October 2013, two industrial scale clandestine MDMA laboratories were dismantled in Belgium.<sup>425</sup> In the first of these cases, several tons of safrole were seized and in the second 35 tons of as yet unidentified chemicals were found.

### Non-controlled precursors used in the manufacture of amphetamine-type stimulants

Coincident with the increased use of phenylacetic acid in recent years, there has been a significant rise in the use of non-controlled precursor chemicals in the manufacture of amphetamine, methamphetamine and ecstasy-group substances. This development can also be attributed in part to increased control measures on listed precursor chemicals and successes in preventing their diversion to illicit manufacture forcing drug traffickers to seek alternative chemicals and/or masked precursors.

The use of such non-scheduled derivatives of known precursors is a continuing trend and Operation Phenylacetic Acid and its Derivatives (PAAD) initiated by the INCB in 2011 revealed the extent to which derivatives of phenylacetic acid were being used in Mexico and Central American countries. The initiative revealed a shift toward the use of non-controlled precursors in the region. The most commonly seized derivatives were the methyl and ethyl esters of phenylacetic acid and seizures of 526 tons and 430,000 litres of these pre-precursors were reported in 2011 by Mexico and El Salvador and in 2012 Guatemala reported the seizure of 16,000 kg of ethyl phenylacetate.<sup>426</sup>

A number of other phenylacetic acid derivatives or precursors were also reported including phenylacetamide, benzyl chloride and benzylcyanide. These non-controlled precursors can be converted to phenylacetic acid and/or P-2-P by straightforward transformations, and while ana-

<sup>422</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, January 2013.

<sup>423</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, 2014.

<sup>424</sup> Official communication with the National Authority for Combating Drugs (NACD), October 2012.

<sup>425</sup> Europol (European Police Office), "Police discover largest synthetic drugs production site ever found in the EU", the Hague, the Netherlands, 23 October 2013, at <https://www.europol.europa.eu/content/police-discover-largest-synthetic-drugs-production-site-ever-found-eu>.

<sup>426</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, 2014.

**Table 3:** Most commonly used ATS manufacturing methods and the yields of the stated methods

End Product	Precursor (1 kg or 1 lt.)	Synthesis Method (Method)	Practical Yield
Amphetamine	P-2-P (lt.)	Ammonium formate (Leuckart)	55%
Amphetamine	P-2-P (lt.)	Formamide (Leuckart)	67%
d,l-Methamphetamine	P-2-P (lt.)	Formic acid (Leuckart)	60%
d-Methamphetamine	Pseudo/ephedrine (kg)	Red phosphorus / iodine	47%
d-Methamphetamine	Pseudo/ephedrine (kg)	Red phosphorus / hydriodic acid	54%
d-Methamphetamine	Pseudo/ephedrine (kg)	Lithium / ammonia ('Birch')	55%
d-Methamphetamine	Pseudo/ephedrine (kg)	Hypophosphorous acid / iodine	76%
d-Methamphetamine	Pseudo/ephedrine (kg)	Thionyl chloride (Emde)	70%
Methcathinone	Pseudo/ephedrine (kg)	Potassium permanganate	50%
MDA	Sassafras oil* (lt.)	Hydrogen peroxide / sodium cyanoborohydride	12%
MDA	3,4-MDP-2-P (lt.)	Sodium cyanoborohydride	37%
MDA	Piperonal	Nitroethane	41%
MDMA	Sassafras oil* (lt.)	Hydrogen peroxide / aluminium amalgam	31%
MDMA	Sassafras oil* (lt.)	Hydrobromic acid	48%
MDMA	3,4-MDP-2-P (lt.)	Formic acid (Leuckart)	66%
MDMA	Sassafras oil* (lt.)	Methyl nitrite / aluminium amalgam (Wacker)	68%
MDMA	3,4-MDP-2-P (lt.)	Aluminium amalgam (reductive amination)	95%

\* at 75% safrole.

Source: Drug Yield Calculator (V5.0), Royal Canadian Mounted Police and Health Canada; Suravina, L. G. and Voronenko, L. A. (1994). *Forensics Investigation of Narcotic and Drastic Substances Obtained from Ephedra Grass Using Home Production Methods*. Ministry of Justice of the Republic of Kazakhstan, Kazakhs Scientific Research Institute; DEA, *Methamphetamine Synthesis #7* (1997).

logue legislation in some countries can be used to control such derivatives, the relationship between the controlled precursor and its masked derivative is sometimes not easily identified.

Another non-controlled precursor of P-2-P, alphaphenylacetoacetonitrile (APAAN) has emerged since 2011 in a number of European countries in particular, where multi-ton seizures of shipments from China to the Netherlands were reported. Seizures of APAAN increased in 2012 when a total of 17.5 tons were seized in Europe. Significant seizures of APAAN has also been made in Canada in 2012, indicating the spread of its use to other ATS manufacturing regions. As a consequence of the increased use of APAAN in the manufacture of ATS and its limited use in legitimate trade,<sup>427</sup> APAAN was on the agenda of the fifty-seventh session of the Commission on Narcotic Drugs (CND) for the inclusion in Table I of the United Nations

Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances of 1988 at the time of writing this report.

Evidence of the use of non-controlled precursors in the manufacture of ecstasy-group substances has also increased in recent years, with seizures of 1,200 kg of the methyl glycidate derivative of 3,4-MDP-2-P in 2010. This trend continued in 2011 with the discovery of helional in several clandestine laboratories in Australia and the United States.<sup>428</sup> This non-controlled precursor chemical, widely used in the chemical industry as a fragrance agent, can be used in the manufacture of MDA and thus also MDMA and MDE.

<sup>427</sup> European Monitoring Centre for Drugs and Drug Addiction, "Perspectives on Drugs; Synthetic Drug Production in Europe", 2013.

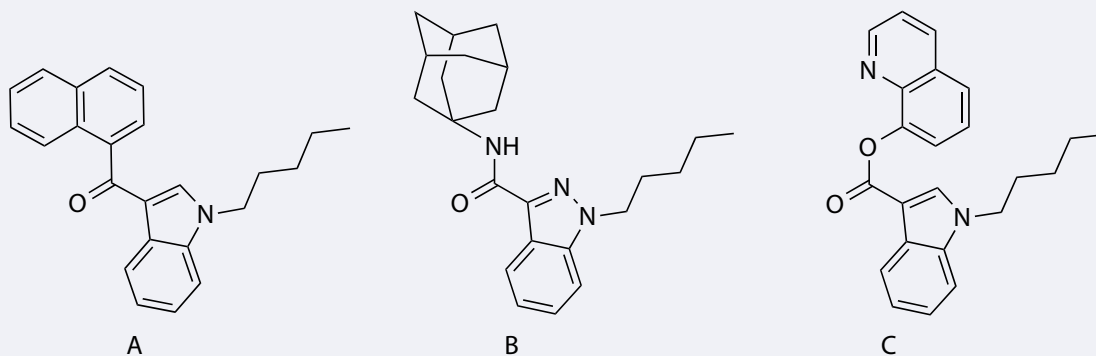
<sup>428</sup> Trotter Brendan, et.al. "Manufacture of 3,4-Methylenedioxyamphetamine From Helional Encountered in Australia" *Journal of the Clandestine Laboratory Investigating Chemist Association* (23)(1) Jan. 2013: 4; Kovacs III, Edward J. and Dean A. Kirby, "Manufacture of 3,4-Methylenedioxyamphetamine From Helional Encountered in Australia" *Journal of the Clandestine Laboratory Investigating Chemist Association* (23)(1) Jan. 2013: 5-14.

**Chemical structures of typical synthetic cannabinoids**

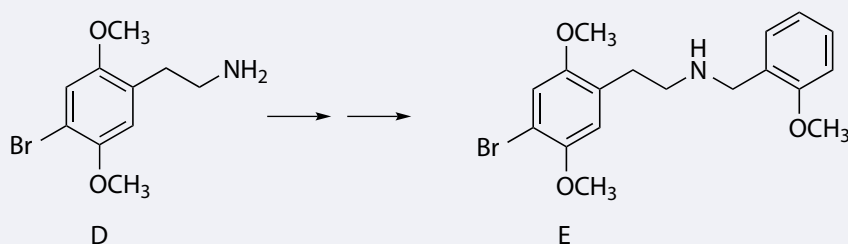
JWH-018 (1-pentyl-3-(1-naphthoyl)indole) (A),

APINACA (1-pentyl-N-tricyclo[3.3.1.1<sup>3,7</sup>]dec-1-yl-1H-indazole-3-carboxamide) (B)

PB-22 (1-pentyl-8-quinolinyl ester-1H-indole-3-carboxylic acid ester) (C)



Manufacture of 2,5-dimethoxy-N-(2-methoxybenzyl)phenethylamine (25C-NBOMe) (E) using 2C-B (4-bromo-2,5-dimethoxyphenethylamine) (D)



Glycidic acid derivatives of both P-2-P and 3,4-MDP-2-P have also emerged as novel ATS pre-precursors in 2012.<sup>429</sup> The increasing use of non-controlled precursors reflects the increasing sophistication of ATS manufacture and the difficult challenges currently faced by Governments in their efforts to tackle the trafficking in precursor chemicals.

**Manufacturing methods**

The chemical transformations involved in the conversion of the precursor chemicals to illicit ATS products are mostly well known chemical reactions, described in the scientific literature and are also freely available on the internet. Due to the similarity of the products, many methods can be adapted for the manufacture of different products. One example of this is the use of P-2-P to make amphetamine or methamphetamine. The change in methamphetamine manufacturing methods in certain regions of the world to P-2-P based methods has resulted in dramatically increased seizures of methylamine (665 tons and 478,000 litres were seized in 2011). This chemical can be used in

methamphetamine manufacture using P-2-P (also used in MDMA manufacture with 3,4 MDP-2-P). One notable difference between methamphetamine produced by P-2-P based routes compared with ephedrine/pseudoephedrine based routes is the nature of the product. Both ephedrine and pseudoephedrine produce the more potent d-methamphetamine, whereas a mixture of d- and l-methamphetamine is produced from P-2-P. Therefore, in order to produce d-methamphetamine from P-2-P an extra step is required and certain other chemicals are required whose presence in a clandestine laboratory can indicate P-2-P based manufacture.

**Manufacture methods using pre-precursors**

Considering the recent developments in the increasing use of phenylacetic acid, its derivatives and other non-scheduled precursor chemicals for the manufacture of ATS, it should be noted that with such precursors, extra chemical steps can be required to manufacture the final ATS product. For example, chemicals such as acetic anhydride or lead acetate are used to convert phenylacetic acid to P-2-P and recently seizures of acetic anhydride, typically regarded as a precursor for the production of heroin, have increased

<sup>429</sup> International Narcotics Control Board (INCB), *Precursors and chemicals frequently used in the illicit manufacture of narcotic drugs and psychotropic substances*, New York, 2014.



in Mexico.<sup>430</sup> The conversion of phenylacetic acid esters to P-2-P can also require an intermediate step.

Similarly, the use of APAAN in the manufacture of amphetamine or methamphetamine requires its intermediary conversion to P-2-P. However, despite the extra steps that are required when using non-scheduled precursors, their eventual conversion to illicit drugs is relatively straightforward and the benefits of their use to traffickers are obvious compared to the more tightly controlled well known precursors. Another consequence of the increased sophistication of ATS manufacturing methods, is the improved efficiency of the manufacturers. For example, it was reported that the use of larger scale industrial equipment has enabled amphetamine manufacturing facilities in Belgium and the Netherlands to increase their yields per batch from 5-8 kg several years ago to a current 40 kg per batch.<sup>431</sup>

### Manufacture of New Psychoactive Substances (NPS)

By December 2013, over 348 NPS had been reported to the UNODC early warning advisory<sup>432</sup>. It is possible to classify the majority of these molecules into the following substance groups based on structural similarities: aminoidanes, synthetic cannabinoids, synthetic cathinones, ketamine and phencyclidine-type substances, phenethylamines, piperazines, plant-based substances, tryptamines plus a group of miscellaneous substances. As a consequence of the number and diverse chemical structure of the new psychoactive substances, it has not been possible to comprehensively examine their methods of manufacture and identify and prioritise key precursor chemicals. However, within certain substance groups, it is possible to see common approaches to synthetic methods. Based on the recent trends in the appearance of new substances, it is also possible to understand what approaches are used in their manufacture to by-pass legislative responses of Member States to the emergence of NPS. Examples of the manufacture of selected NPS are provided in the following sections.

#### Synthetic cathinones

The synthetic cathinone most commonly reported to the UNODC is mephedrone (4-methylmethcathinone), which can be manufactured by a two-step process using 4-methylpropiofenone as one of the main precursors. This compound can be brominated and then reacted with another

precursor, methylamine to give mephedrone. This synthetic route is flexible and a number of cathinone derivatives can be manufactured by slight modifications to the precursors. For example, changing the position and/or identity of the alkyl group in 4-methylpropiofenone can produce a number of known cathinone compounds; e.g 3-methylpropiofenone generates 3-methylmethcathinone and 4-ethylpropiofenone enables the manufacture of 4-ethylmethcathinone. In a similar manner, substituting methylamine with another amine such as ethylamine enables the manufacture of a series of ethcathinone derivatives.

#### Synthetic cannabinoids

The identification of methods/precursors for the manufacture of synthetic cannabinoids is complicated by the fact that this group of NPS contains a large number of structurally diverse substances. The synthetic cannabinoids can to some extent be subdivided into certain structural classes, however as new derivatives continue to appear on the market, new classifications are required. Naphthoylindoles are one of the main sub-groups of synthetic cannabinoids and JWH-018 (1-pentyl-3-(1-naphthoyl)indole) (see figure) is one of the most commonly reported substances. JWH-018 can be manufactured in two steps with indole as one of the primary precursors. Alkylation of indole with n-pentylbromide followed by reaction with 1-naphthoyl chloride produces JWH-018.<sup>433</sup> Altering the precursors by adding/varying substituents can produce a wide variety of possible synthetic cannabinoids and other structural classes of synthetic cannabinoids can be obtained by changing the naphthoyl group to a benzoyl or a phenacetyl group.

Examination of synthetic cannabinoids that have appeared recently reveals some common approaches used to manufacture new compounds. These approaches have included: (see diagram)

- the replacement of a hydrogen in the terminal carbon of the alkyl chain with fluorine or chlorine.
- the use of indazole instead of indole as a starting material e.g APINACA (1-pentyl-N-tricyclo[3.3.1.1.3,7]dec-1-yl-1H-indazole-3-carboxamide)
- the use of different linkages. JWH-018 has a ketone linkage, whereas PB-22 (1-pentyl-8-quinolinyl ester-1H-indole-3-carboxylic acid ester) has an ester linkage and MN-24 (N-1-naphthalenyl-1-pentyl-1H-indole-3-carboxamide) has an amide linkage group.

<sup>430</sup> United Nations Office on Drugs and Crime (UNODC) and Organization of American States (OAS), *Amphetamine-Type Stimulants in Latin America*, February 2014.

<sup>431</sup> European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), "Perspectives on drugs: Synthetic drug production in Europe", 2013.

<sup>432</sup> For more information on the Early Warning Advisory (EWA) see [www.unodc.org/nps](http://www.unodc.org/nps).

<sup>433</sup> Huffman, J.W., et al., "Structure-activity relationships for 1-alkyl-3-(1-naphthoyl)indoles at the cannabinoid CB1 and CB2 receptors: steric and electronic effects of naphthoyl substituents. New highly selective CB2 receptor agonists", *Biorganic and Medicinal Chemistry* (13)(1) Jan. 2005: 89-112.

## Phenethylamines

Phenethylamines are a group of NPS consisting of compounds that all contain the 2-phenyl-2-ethanamine group but also can have a variety of substituents in a number of different positions. As with the other NPS mentioned, the methods for the manufacture of phenethylamines are diverse and varied, thus it is difficult to identify key manufacturing methods or precursors. However, the approach of the manufacturers of NPS to the development of new substances can be illustrated with an example from the phenethylamine group of substances.

2C-B (4-bromo-2,5-dimethoxyphenethylamine), a substance controlled under schedule II of the United Nations convention on Psychotropic Substance 1971 is a member of the 2C class of phenethylamines of which there are approximately 27 members. 2C-B itself can be used as a precursor for manufacture of the hallucinogenic 2,5-dimethoxy-N-(2-methoxybenzyl)phenethylamine (25C-NBOMe) (see diagram). In a similar manner, reaction of any 2C drug with 2-methoxybenzaldehyde produces the corresponding NBOMe compound. In recent years, a number of NBOMe compounds have appeared in NPS markets and in the last 6 months more novel derivatives of NBOMe compounds have been reported to UNODC.