



UNODC

United Nations Office on Drugs and Crime

Global Synthetic Drugs Assessment

Amphetamine-type stimulants and
new psychoactive substances

**EMBARGOED UNTIL
20 May 2014
11:00 a.m. (JST) Tokyo**

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 its Chief, Justice Tetey.

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
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

25B-NBOMe	1-(4-Bromo-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine	DMT	Dimethyltryptamine
25C-NBOMe	1-(4-Chloro-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine	GHB	<i>Gamma</i> -hydroxybutyrate
25I-NBOMe	1-(4-Iodo-2,5-dimethoxyphenyl)-N-[(2-methoxyphenyl)methyl]ethanamine	JWH-018	(1-Pentyl-1H-indol-3-yl)-1-naphthalenyl-methanone
3,4-MDP-2-P	3,4-Methylenedioxyphenylpropan-2-one	LSD	(+)-Lysergide
2-AI	2-Aminoindane	mCPP	1-(3-Chlorophenyl) piperazine
2C-B	4-Bromo-2,5-dimethoxyphenethylamine	MDA	3,4-Methylenedioxyamphetamine
2C-E	4-Ethyl-2,5-dimethoxyphenethylamine	MDAI	5,6-Methylenedioxy-2-aminoindane
2C-I	4-Iodo-2,5-dimethoxyphenethylamine	MDEA/MDE	3,4-Methylenedioxyethylamphetamine
5-MeO-DMT	5-Methoxy-N,N-dimethyltryptamine	MDMA	3,4-Methylenedioxymethamphetamine
5-MeO-DPT	5-Methoxy-N,N-dipropyltryptamine	MDPBP	3,4-Methylenedioxy- α -pyrrolidinobutyrophenone
AKB-48/	1-Pentyl-N-tricyclo[3.3.1.1.3,7]	MDPV	3,4-Methylenedioxypropylvalerone
APINACA	dec-1-yl-1H-indazole-3-carboxamide	MN-24	1-Pentyl-N-(naphthalen-1-yl)-1H-indole-3-carboxamide
APAAN	<i>alpha</i> -Phenylacetoacetonitrile	NPS	New Psychoactive Substances
α-PVP	<i>alpha</i> -Pyrrolidinopentiophenone	P-2-P/PMK	1-Phenyl-2-propanone
ATS	Amphetamine-type stimulants	PB-22	Quinolin-8-yl-1-pentyl-1H-indole-3-carboxylate
bk-MBDB	1-(1,3-Benzodioxol-5-yl)-2-(methylamino)butan-1-one	PCP	Phencyclidine
BTCP	Benzothiophenylcyclohexylpiperidine	PMMA	<i>para</i> -Methoxymethamphetamine,
BZP	1-Benzylpiperazine	TFMMP	1-(3-Trifluoromethylphenyl)piperazine
		THC	<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.

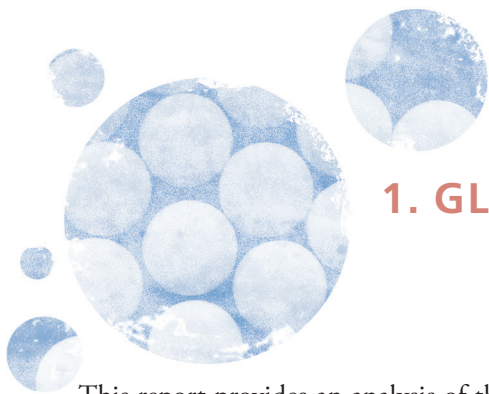
NPS – New psychoactive substances are substances of abuse, either in a pure form or a preparation, that are not controlled by the 1961 Single Convention on Narcotic Drugs or the 1971 Convention on Psychotropic Substances, but which may pose a public health threat. In this context, the term 'new' does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

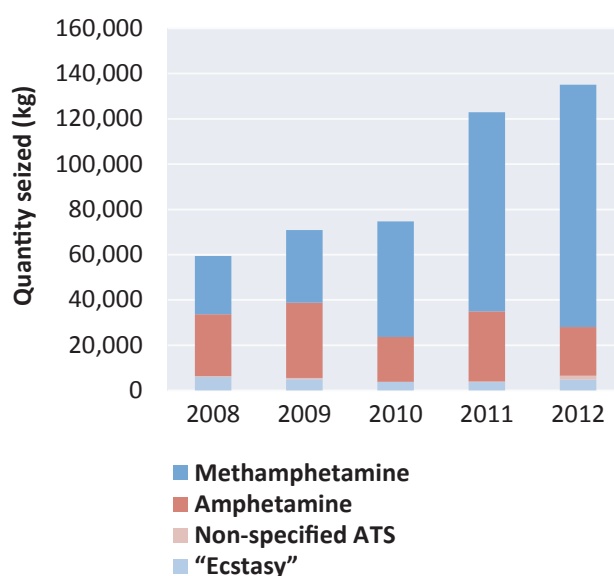
While the NPS issue is not new, it has gained in importance on an international level at the fifty-fifth session of the Commission on Narcotic Drugs (CND) in March 2012, when Member States decided to monitor emerging trends in the composition, production and distribution of NPS as well as patterns of use, and to share that information and adopt appropriate measures aimed at reducing supply and demand.¹ 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



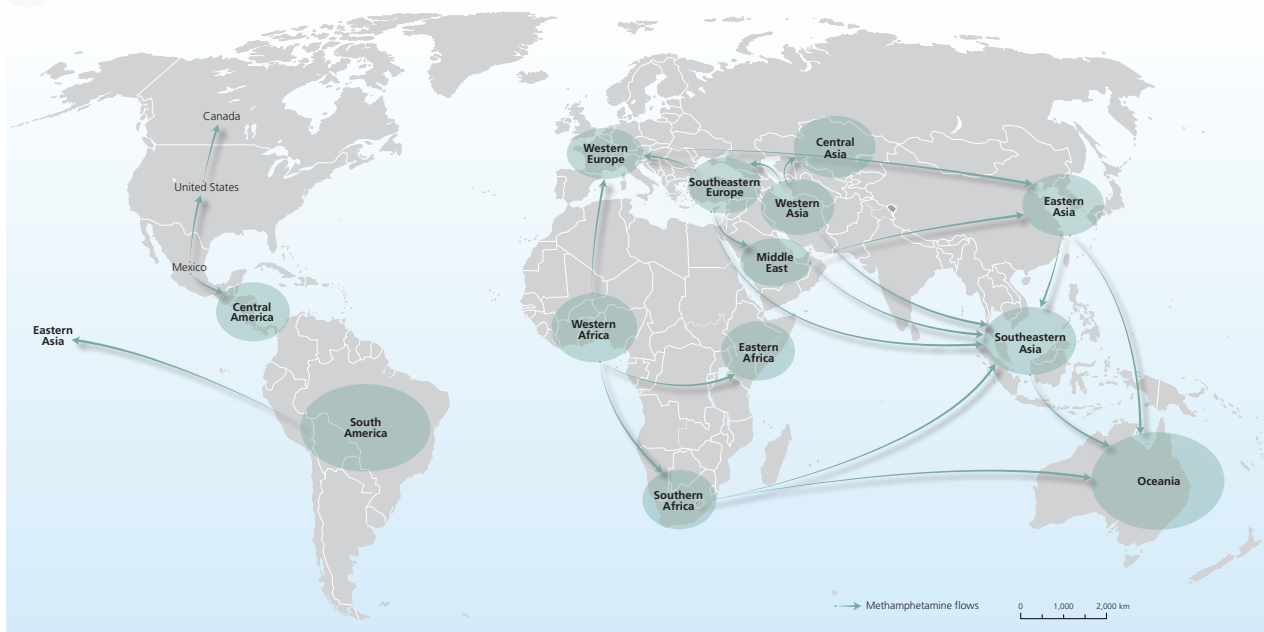
Source: United Nations Office on Drugs and Crime (UNODC), Annual Report Questionnaire 2008-2012.

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.² Extensive methamphetamine manufacture has been reported in Mexico and the United States and increasing amounts are being smuggled from Mexico to the United States.³ 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.

¹ 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.

² 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.

³ 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.⁴ Although global “ecstasy”⁵ seizures are comparatively low remaining below 6 tons annually, “ecstasy” continues to be the main ATS of use across Europe and the Oceania region.⁶ However, amphetamine is still a major problem in large parts of Europe, particularly in Northern Europe.⁷ 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.⁸ 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.⁹ 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.¹⁰ From Southern Africa, ATS is also being trafficked to Australia.¹¹

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.¹² Between 2010 and 2012, methamphetamine seizures perceived to have originated in the Islamic Republic of Iran were reported by Indonesia, Malaysia and Thailand.¹³ However, there have been no reports of dismantled methamphetamine laboratories in the Islamic Republic of Iran in recent years.¹⁴ Recently, there has been an emergence of methamphetamine trafficking from the Islamic Republic of Iran to Europe.¹⁵ 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 Asia¹⁶ and the Middle East¹⁷.

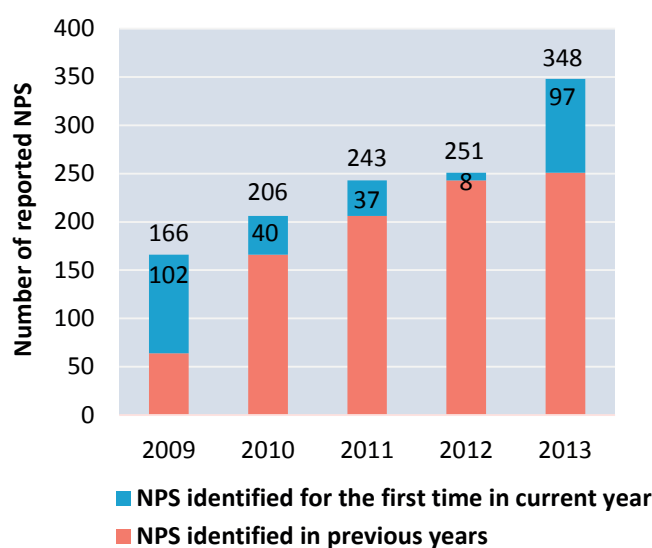
Recent trends in precursor chemicals used in the manufacture of ATS and synthetic drugs

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).¹⁸

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)¹⁹ 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.

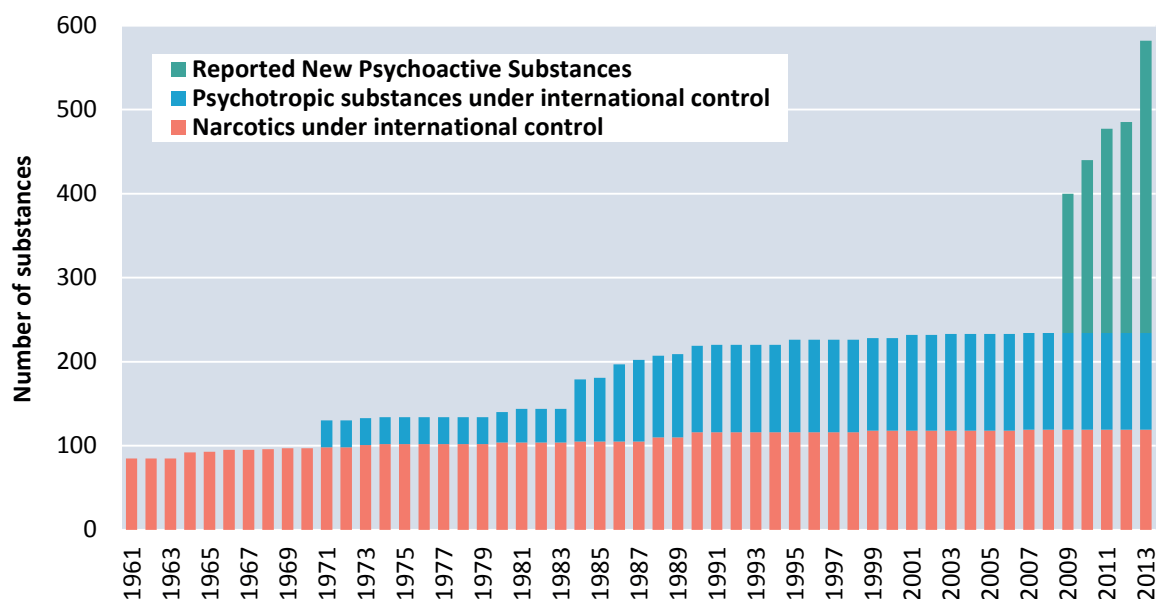
Note: For some substances reported in 2013 the reference period may have been August to December 2012.

- 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.²⁰

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 2009.²¹

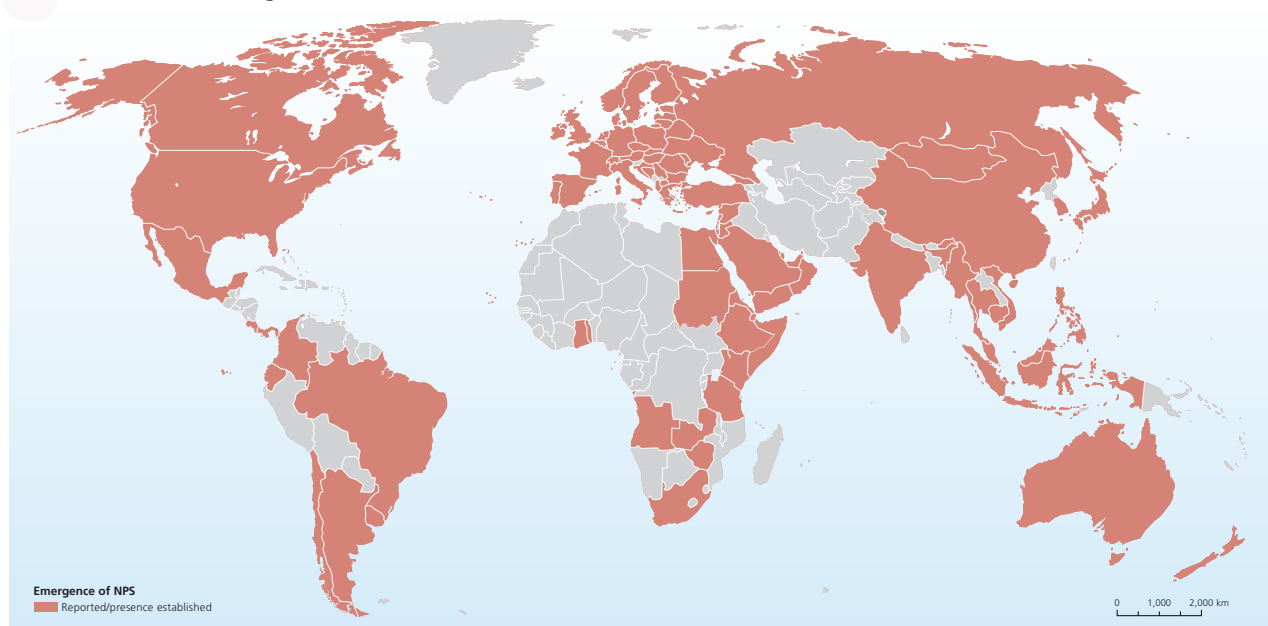
In the absence of an international framework, Member States have developed different national legislative responses to NPS.²² There is not yet sufficient evidence available to fully understand the effect of different legislative approaches on NPS markets. However, there are some cases that have shown 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 2010.²³ The

²⁰ 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.

²¹ 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.

²² 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

²³ 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.²⁴ Though there were a number of countries that did not provide any information on the emergence of NPS to UNODC, this does not

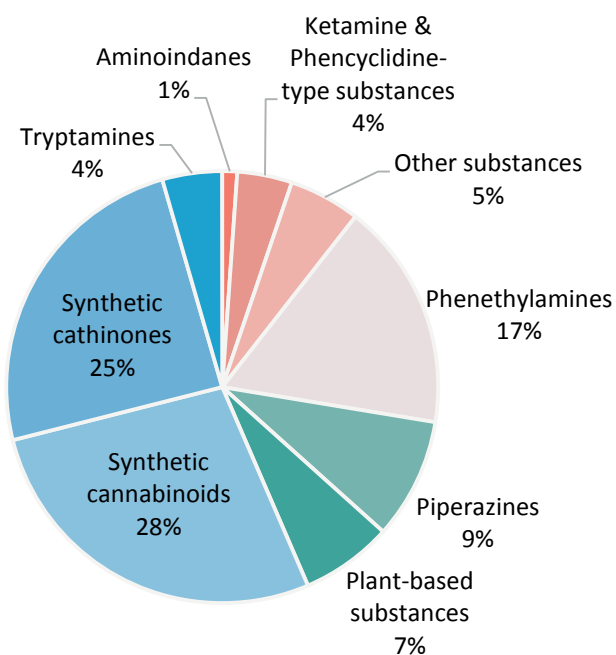
²⁴ Countries and territories reporting emergence of NPS: Albania, Andorra, Angola, Argentina, Australia, Austria, Bahrain, Belarus, Belgium, Bosnia and Herzegovina, Brazil, Brunei Darussalam, Bulgaria, Cambodia, Canada, Cabo Verde, Chile, China, Colombia, Costa Rica, Croatia, Cyprus, Czech Republic, 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.²⁵ For instance, synthetic cannabinoids, which include the JHW series (eg. JHW-018²⁶), are mimetics of THC (delta-9-tetrahydrocannabinol), which is the main psychoactive substance in cannabis. Synthetic cathinones, which include substances such as mephedrone, mephylone and MDPV, can evoke stimulant and empathogenic effects similar to ATS, including MDMA.²⁷ 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 ¹ , kratom ² , salvia divinorum ³
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).

¹ 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.

² *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.

³ *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.²⁸ Only a few substances of this group are already controlled under the 1971 Convention on Psychotropic Substances such as amphetamine, methamphetamine and MDMA.

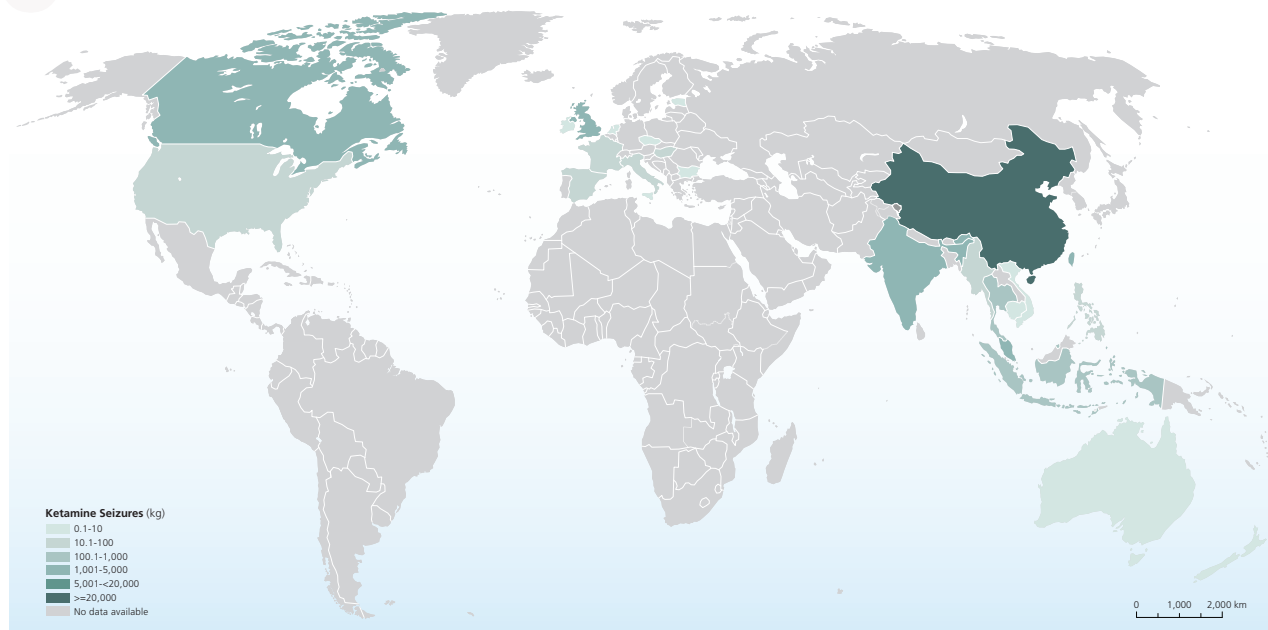
A recent feature has been that there have been several cases in which NPS have been sold on ATS and other illicit drug markets. For instance, in the United States, synthetic cannabinoids first emerged on the drug market in 2008 and were marketed as "legal alternatives to marijuana", as the use of these produce effects similar to those of cannabis.²⁹ 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.³⁰ 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.³¹ 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

Ketamine³² 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”.³³ Side-effects of chronic ketamine use can include high blood pressure, abdominal pain, lower urinary tract symptoms, disorientation, impaired vision and confusion.³⁴

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.³⁵ Extensive ketamine use has also been reported in Brunei Darussalam, India, Japan, Myanmar and Singapore.³⁶

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*.

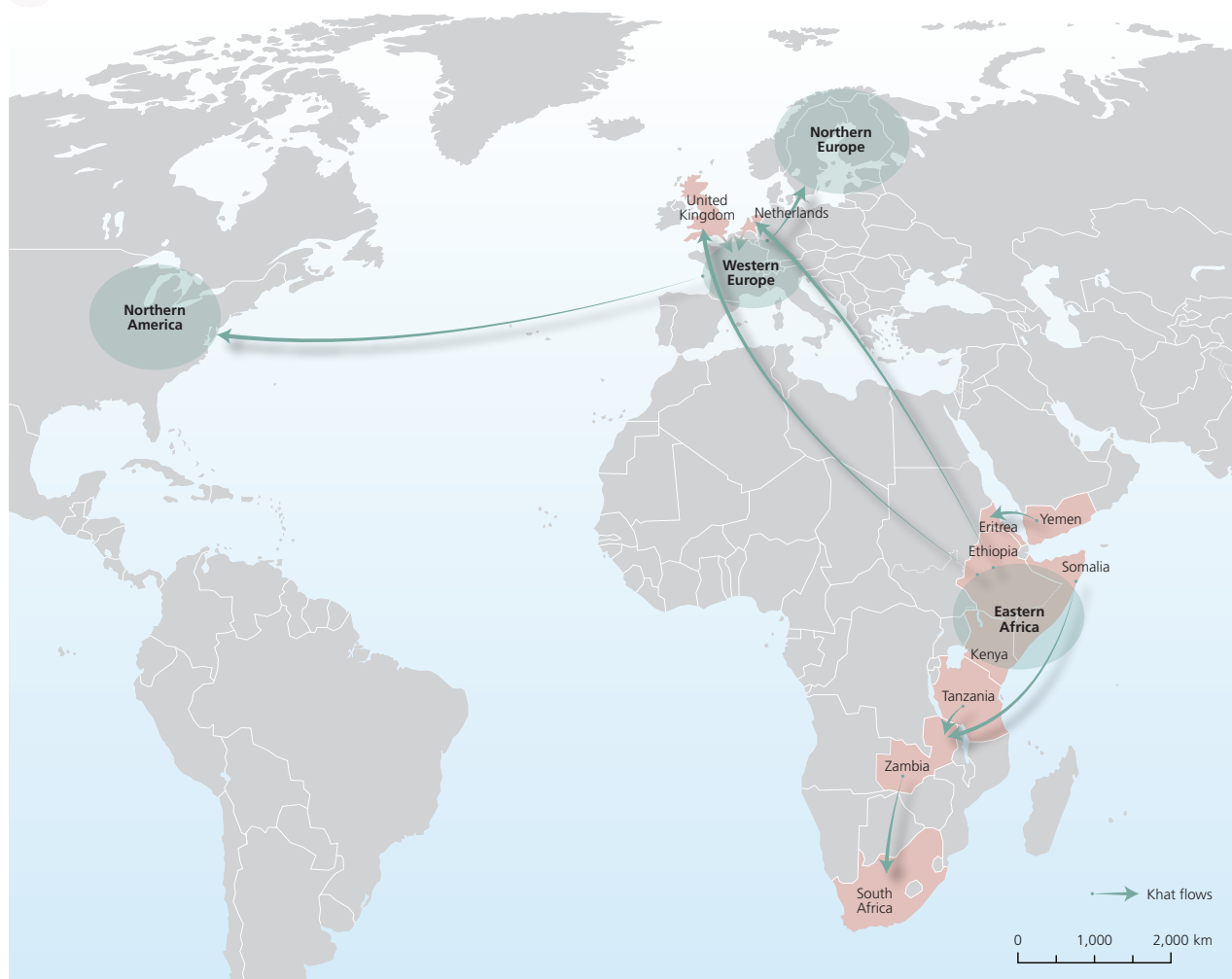
- 31 United Nations Office on Drugs and Crime (UNODC), *Global SMART Update Volume 10*, Global Synthetics Monitoring: Analyses, Reporting and Trends (SMART) Programme, Vienna, September 2013; United Nations Office on Drugs and Crime (UNODC), *Annual Report Questionnaire for Colombia 2012*; “II Estudio 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.³⁷ Ketamine manufacture has been reported by countries in East Asia, particularly in China, where large numbers of ketamine laboratories were dismantled in 2007 and 2012.³⁸ 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.³⁹

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.⁴⁰ 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.⁴¹ Over the last few years, Saudi Arabia has also reported by far the largest amount of khat seizures in the Middle East.⁴²

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.⁴³ 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 2013.⁴⁴

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 2013.⁴⁵ 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.