

Source: UNODC annual report questionnaire.

Note: Prevalence figures displayed as moving average.

tions, possibly including Asia; it is also likely that there is a link with South Africa.¹⁴⁸

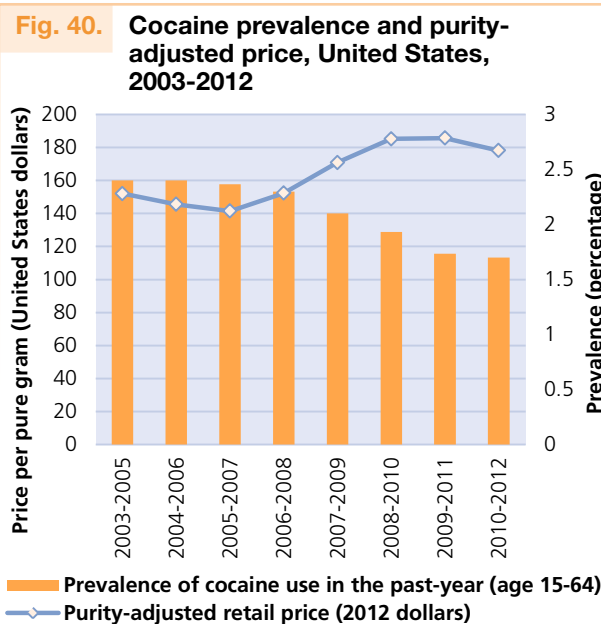
The estimated prevalence of cocaine use in South Africa rose from 0.78 per cent of the general population in the 15-64 age bracket in 2008 to 1.02 per cent in 2011, confirming the continued existence of a sizeable and apparently expanding consumer market for cocaine. Owing to the paucity of supply-side data, it was not possible to complete the picture of the situation in that country.

Seizures of cocaine in East Africa, while still small on a global scale, have also increased in recent years, notably in the United Republic of Tanzania.

The extent of cocaine use in Asia has always been limited, and the most recent available evidence does not give reason to change that assessment. Nevertheless, cocaine has made its first inroads in this continent, and as pockets of consumption, trafficking and trade in cocaine emerge, factors including affluence¹⁴⁹ appear to play a role in determining which countries are affected first. In 2012, the largest aggregate quantities of cocaine seizures in Asia were those seized in Hong Kong, China, followed by the United Arab Emirates and Israel (in that order). The United Arab Emirates, a prominent stopover point for air passenger traffic, has been identified as a transit country by a disparate group of countries with a small, possibly emerging market for cocaine, including countries in Asia and Africa. Israel and

148 Nigeria identified South Africa as being among the countries of provenance for seized cocaine every year from 2009 to 2012. However, among individual cocaine seizures made in West and Central Africa since 2006, a small number (14) of cocaine consignments (including 9 seized by Nigeria) were seized on their way to South Africa, but none were seized entering the region from South Africa.

149 See also the *World Drug Report 2013*, p. 40.



Source: UNODC annual report questionnaire, and Substance Abuse and Mental Health Services Administration and price data from the System to Retrieve Information from Drug Evidence (STRIDE) database of the United States Drug Enforcement Agency.

Note: Prevalence figures displayed as moving average.

Lebanon appear to be destination countries for cocaine, with Jordan and the Syrian Arab Republic serving as transit countries.¹⁵⁰ Annual seizures in China and India were below 100 kg in 2011; more significant, relative to the size of the population, were the quantities (each in excess of 25 kg) seized in Japan, Saudi Arabia and Thailand in 2011.

F. CANNABIS: OVERVIEW

Cultivation and production

Cannabis cultivation remains widespread in most regions, ranging from personal cultivation to large-scale farm and indoor warehouse operations, thus making it difficult to estimate the global levels of cannabis cultivation and production. While cannabis herb is grown in almost every country in the world,¹⁵¹ the production of cannabis resin is confined to only a few countries in North Africa, the Middle East and South-West Asia. In Afghanistan, on the basis of available cultivation and production estimates, in 2012, the total area under cultivation of cannabis was 10,000 ha, down from 12,000 ha in 2011. But potential resin production, due to higher yields per hectare, was estimated at 1,400 tons in 2012, compared with 1,300 tons in 2011. The decline in the price of cannabis resin in Afghanistan between December 2011 and December 2012 supports the assumption of a possible increase in availability over that period.¹⁵²

150 UNODC annual report questionnaire and other official data.

151 *World Drug Report 2013*.

152 UNODC and Afghanistan, Ministry of Counter-Narcotics, "Afghanistan opium price monitoring monthly report" (December 2012).

Among countries reporting in 2012 through the annual report questionnaire, Italy, the United States and Ukraine reported eradication of a large number of plants and cultivation sites.

Seizures

Global cannabis herb seizures in 2012 were reported at 5,350 tons, down from the 6,260 tons reported in 2011. With the exception of the Caribbean and Europe, seizures have declined slightly in most regions. The largest quantities of cannabis herb were seized in North America, which accounts for over 64 per cent of seizures worldwide.

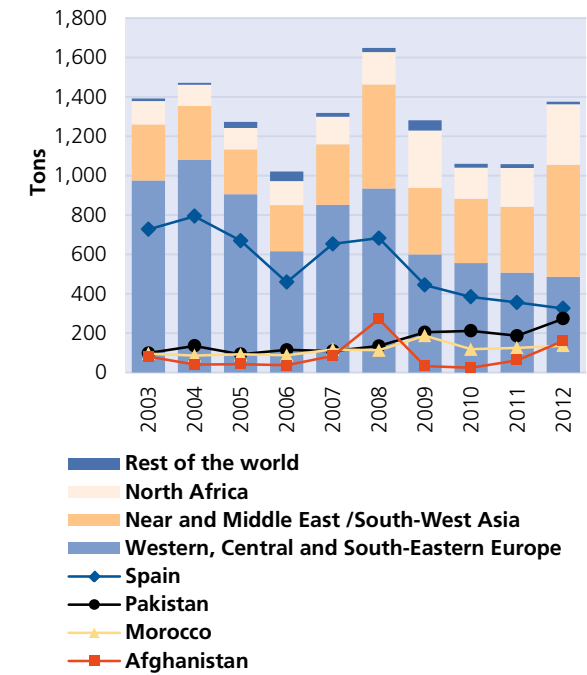
In contrast to cannabis herb, cannabis resin seizures increased in 2012, with 1,269 tons seized, compared with 1,058 tons in 2011. Resin seizures increased significantly in Afghanistan, from 62 tons in 2011 to 160 tons in 2012, and in North Africa (mainly due to increases reported in Algeria (rising from 53 tons to 157 tons) and, to a lesser extent, in Morocco (rising from 126 tons to 137 tons). Spain accounts for 26 per cent of global cannabis resin seizures; although seizures in that country declined slightly from 2011 (356 tons) to 2012 (326 tons).

Based on an analysis of supply indicators for cannabis herb at the retail level (see annex for details), availability remains high in the Americas and appears to be growing in the subregion of Western and Central Europe and in South-Eastern Europe. Despite reports of falling seizures, consumer access to marijuana herb is likely increasing in North America, Oceania, Western and Central Europe and South-Eastern Europe. When retail prices are adjusted by taking into account purchasing power in order to compare prices worldwide, cannabis herb is found to be relatively inexpensive in North America, cheapest in Africa and

South Asia (India and Sri Lanka) and most expensive in East and South-East Asia.

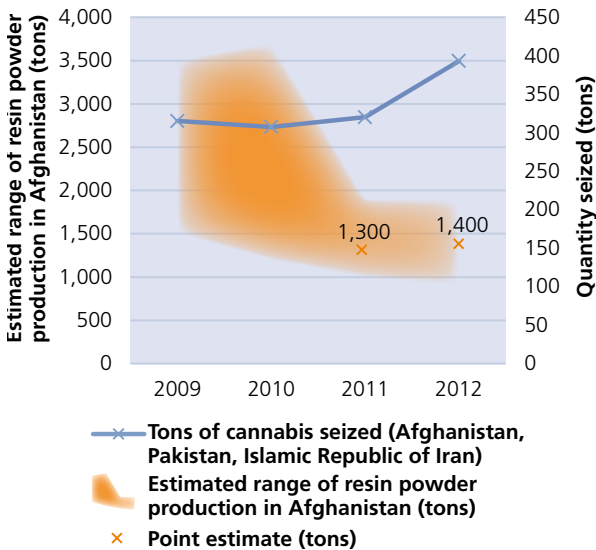
As for eradication of outdoor sites and plants, the United States reported a major decrease in sites eradicated (6,470 sites eradicated in 2012 compared with 23,622 sites in

Fig. 42. Seizures of cannabis resin worldwide and in selected countries, 2003-2012



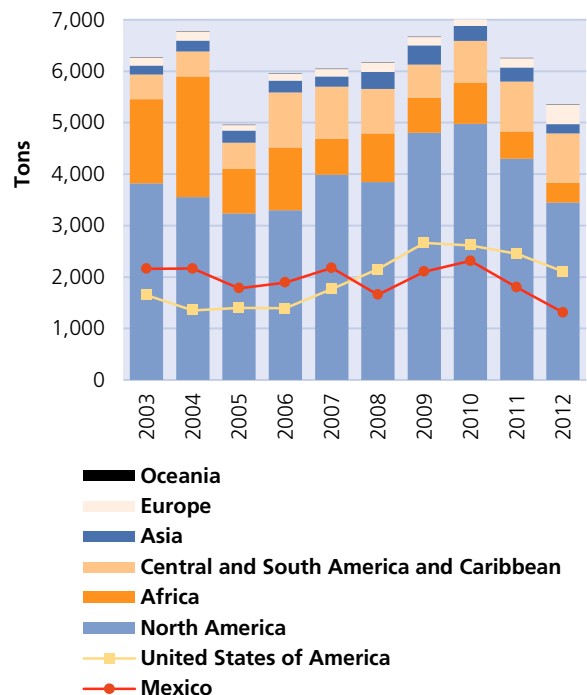
Source: UNODC annual report questionnaire.

Fig. 41. Production of cannabis resin in Afghanistan and seizures in neighbouring countries, 2009-2012



Source: Afghanistan cannabis surveys (published by UNODC) and UNODC annual report questionnaires.

Fig. 43. Seizures of cannabis herb worldwide and in selected countries, 2003-2012



Source: UNODC annual report questionnaire.

Table 6. Countries reporting eradication of cannabis plants and sites, 2012

Country (in order of area eradicated)	Eradication (outdoors)		Eradication (indoors)	
	Plants	Sites	Plants	Sites
Italy	4,114,911	1,318	United States	302,377
United States	3,631,582	6,470	Switzerland	83,450
Ukraine	2,200,000		New Zealand	21,202
Tajikistan	2,180,121		Chile	18,526
Philippines	1,224,738	188	Australia	17,668
Costa Rica	965,320	129	Italy	7,706
Brazil	616,133	5	Latvia	3,796
Indonesia	341,395		Slovakia	2,927
Chile	216,902	291		
Republic of Moldova	152,961			
New Zealand	119,059			

Source: UNODC annual report questionnaire and government data.

2011), but it is not known to what extent the decrease was due to declining law enforcement activity in that area or to increasing licit cultivation due to the new cannabis laws in the States of Colorado and Washington. The other countries reporting high numbers of cannabis plants and cultivation sites eradicated are given in the table below.

Extent of use

In 2012, between 125 million and 227 million people were estimated to have used cannabis, corresponding to between 2.7 and 4.9 per cent of the population aged 15-64 years. West and Central Africa, North America, Oceania and, to a lesser extent, Western and Central Europe remain the regions with prevalence rates considerably higher than the global average. Over the past five years in North America, the largest cannabis herb market, prevalence rates have followed an upward trend in the United States¹⁵³ but declined in Canada between 2008 and 2011, increasing again between 2011 and 2012.¹⁵⁴ Although recent epidemiological data from Asia are not available, experts from nearly half of the countries in Asia consider cannabis use to be increasing in the region.

Cannabis: market analysis

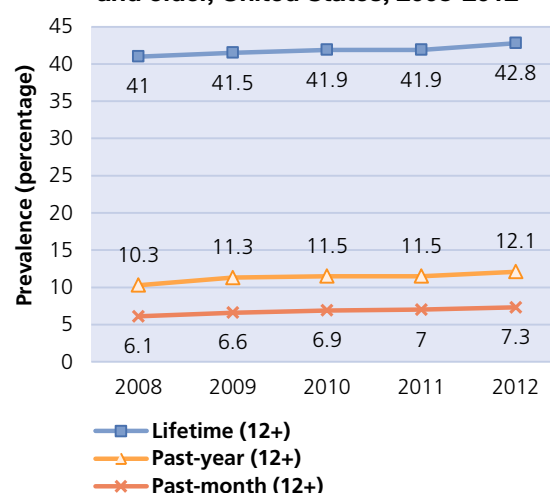
Lower perceived risk and increased harm in consumer markets

Worldwide, the cannabis market (herb and resin) continues to expand, with almost two thirds of reporting countries ranking cannabis as the primary substance of abuse.¹⁵⁵ In major consumer markets, treatment enrolment and hospitalizations related to cannabis use have been increasing. In the United States, between 2006 and 2010, there was

153 United States, Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, "Monitoring the Future Surveys".

154 Health Canada, 2012 Canadian Alcohol and Drug Use Monitoring Survey (Ottawa, 2013).

155 UNODC, annual report questionnaire for 2012.

Fig. 44. Lifetime, past-year, and past-month use of cannabis herb among people 12 years and older, United States, 2008-2012

Source: Substance Abuse and Mental Health Services Administration survey of the United States.

a 59 per cent increase in cannabis-related emergency department visits¹⁵⁶ and a 14 per cent increase in cannabis-related treatment admissions.^{157, 158} Additionally, according to the Potency Monitoring Project of the University of Mississippi, levels of tetrahydrocannabinol (THC) in seized or eradicated cannabis herb crops in the United States increased from 8.7 per cent in 2007 to 11.9 per cent in 2011. Because of the relationship between increased potency and dependence, that trend may be contributing to the increased risk of drug use disorders and dependence.¹⁵⁹

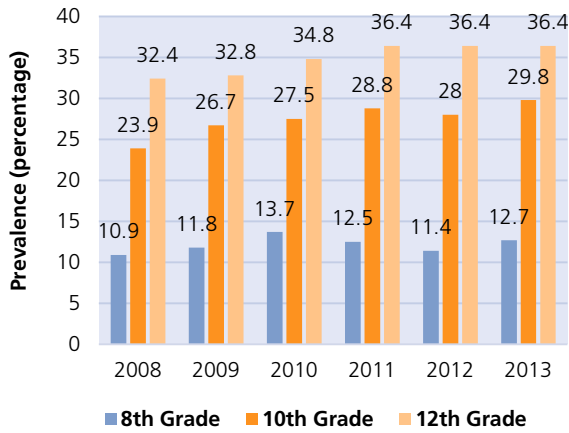
156 United States, Department of Justice, Drug Enforcement Administration, *National Drug Threat Assessment Summary 2013* (November 2013), p. 12.

157 Data from Treatment Episode Data set as reported in the *2013 National Drug Threat Assessment Summary*.

158 United States, Drug Enforcement Administration, *National Drug Threat Assessment Summary 2013*, p. 12.

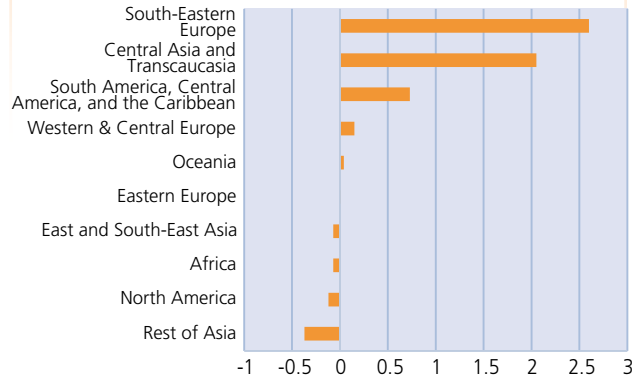
159 Ibid.

Fig. 45. Trends in lifetime use among school children, United States, 2008-2013



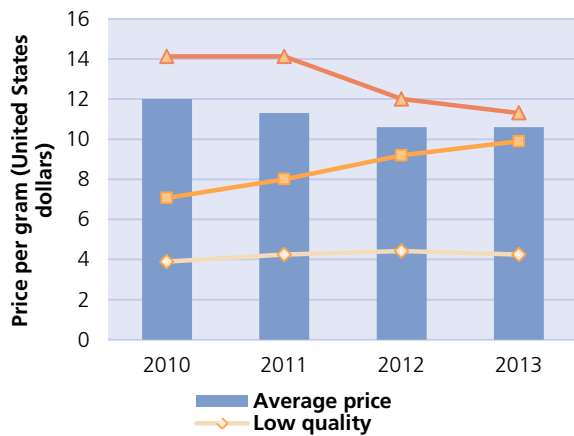
Source: Monitoring the Future Survey, United States.

Fig. 47. Change in inflation-adjusted retail price, from the biennium 2009-2010 to the biennium 2011-2012, weighted average (percentage)



Source: UNODC annual report questionnaire.

Fig. 46. Average price per gram of cannabis herb self-reported by users, by level of quality, United States, 2010-2013



Source: PriceOfWeed.com.

The phenomenon of increased harm is not unique to one specific region. Nearly two thirds of those enrolled in drug treatment in Africa listed cannabis as their primary drug of use, and in Brazil, increasing dependence among cannabis users has been reported.¹⁶⁰ In a recent national survey in Pakistan, three in four past-year cannabis users (mostly users of cannabis resin), were found to be dependent.¹⁶¹ However, among key informants, the herbal form of cannabis (consumed in a traditional drink called “bhang”) was ranked as the tenth most harmful drug, whereas resin was ranked as the second most harmful.¹⁶²

160 Data from the Brazilian National Alcohol and Drugs Survey (BNADS II), Cannabis use in Brazil, 2012.

161 UNODC and Pakistan, *Drug use in Pakistan*, 2013.

162 Ibid.

Increase in supply of cannabis herb in South-Eastern Europe and Central Asia

With respect to supply measures, although global seizures have declined 24 per cent (from 7,049 tons in 2010 to 5,351 tons in 2012), the market for cannabis herb has become more diversified, with the largest percentage increases in seized herb noted in markets where cannabis resin had previously been predominant throughout Western, Central and South-Eastern Europe. Concomitant with the seizure increases, prices of cannabis herb have increased significantly in South-Eastern Europe and Central Asia. Since 2009, cannabis prices in Turkey have increased the most among all countries reporting worldwide. Increases in herb price were also noted in the region, in Azerbaijan, Kazakhstan, Kyrgyzstan, Greece and Uzbekistan.

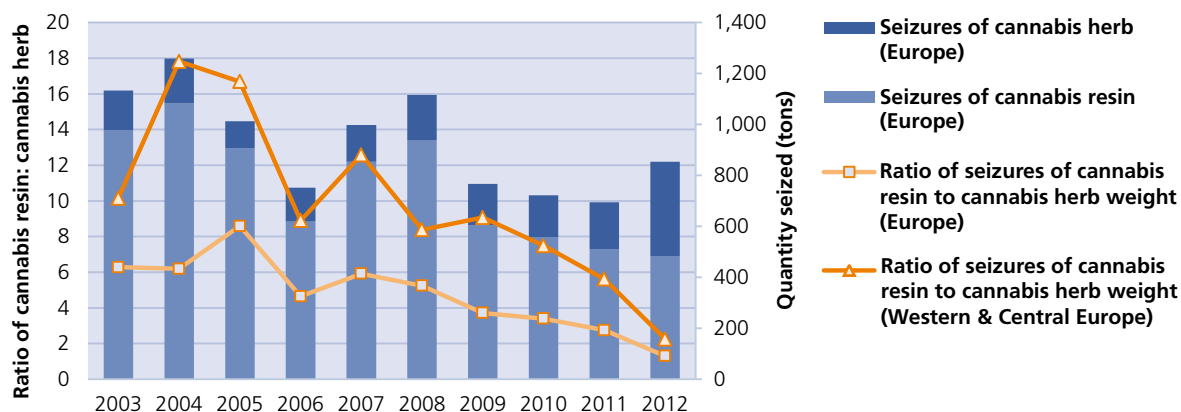
Overall, cannabis resin seizures have increased for the third straight year, with decreases in the Americas and Europe and increases in Africa and Asia. Further, the price of resin has also increased in Kazakhstan, Kyrgyzstan and Pakistan, a regional phenomenon potentially related to higher levels of regional interdictions, which is likely resulting in supply shortfalls at the consumer level.

Seizures of cannabis herb now equivalent to cannabis resin in the European markets

There continues to be evidence that cannabis resin is decreasing in popularity in Europe. Whereas cannabis resin had previously dominated the market, now there are nearly equivalent levels of resin and herb seizures, implying a continuing shift away from imported resin coming mainly from Morocco to more locally or regionally produced cannabis herb. Unfortunately, drug use surveys typically do not distinguish between cannabis resin and herb; therefore this cannot be corroborated by drug use data.

Price declines in North America together with higher potency levels

Regarding the cannabis herb market in countries with regu-

Fig. 48. Trends in seizures of cannabis resin and herb, Europe, 2003-2012

Source: UNODC annual report questionnaire

latory changes such as the United States and Uruguay, changes in rates of interdiction and in prices are expected. Between 2009 and 2012 in the United States, the price of cannabis herb declined 12 per cent¹⁶³ after adjustment for inflation. According to self-reported information on purchases reported to the PriceOfWeed website, since 2010, the price, adjusted for quality, has fallen only 6 per cent, but the price of high-quality cannabis herb has fallen 20 per cent, and the price of medium-quality cannabis herb has risen 40 per cent. Overall, the prices of various qualities of cannabis herb have converged, implying that the price of cannabis herb in the United States has become less variable, indicating more retail market integration.¹⁶⁴

Changing cannabis policy in the Americas

Recent policy changes to cannabis regulation in Uruguay¹⁶⁵ and in the states of Washington¹⁶⁶ and Colorado¹⁶⁷ in the United States¹⁶⁸ now make the authorized production, distribution and consumption of marijuana legal,¹⁶⁹ under some conditions, such as purchasing age. The International Narcotics Control Board has expressed concern that “a number of States that are parties to the

1961 Convention are considering legislative proposals intended to regulate the use of cannabis for purposes other than medical and scientific ones” and it urged “all Governments and the international community to carefully consider the negative impact of such developments.” In the Board’s opinion “the likely increase in the abuse of cannabis will lead to an increase in related public health costs”.¹⁷⁰

Although in those three jurisdictions, the purchase, possession and consumption of cannabis are now legal, the details, design and implementation of the new laws vary significantly. For example, in Uruguay users must register in a database to monitor cumulative purchases (maximum 40 g per month),¹⁷¹ but in the State of Colorado, purchases of up to 1 oz (28 g) are allowed per outlet, with no central registry of cumulative purchases per buyer nor any limit on the amount that can be purchased each month.¹⁷² Because of these and other notable differences in each law, there is unlikely to be one uniform impact of these policy changes, but rather measurable distinct changes reflecting the contexts of each jurisdiction.

The impact of the new legislation could differ substantially from current cases of depenalization, decriminalization or “medical” cannabis laws by allowing the establishment of a licit supply chain, including large-scale licensing for production, personal cultivation and retail commercialization¹⁷³ of the market. While it is not yet clear how the market will change, the commercialization of cannabis may also significantly affect drug-use behaviours. Commercialization implies motivated selling, which can lead to directed advertisements that promote and encourage consumption.

163 UNODC, annual report questionnaire.

164 Price data retrieved on self-reported price, quality and location information for the United States, submitted to the PriceOfWeed.com website.

165 Uruguay, Law No. 19.172. In Uruguay, prior to passing of the new law legislation already exempted from punishment the possession of a “reasonable quantity” (of any drug) intended exclusively for personal use. The new legislation now permits cannabis cultivation, production and sale for recreational use.

166 United States, State of Washington, Initiative Measure No. 502. Available at <http://lcb.wa.gov/publications/Marijuana/I-502/i502.pdf>.

167 Data from Amendment 64: Use and Regulation of Marijuana (United States, Constitution of the State of Colorado, art. XVIII, sect. 16). Available at www.fcgov.com/mmj/pdf/amendment64.pdf.

168 The United States federal Controlled Substances Act continues to prohibit cannabis production, trafficking and possession.

169 For non-medical and non-scientific uses.

170 *Report of the International Narcotics Control Board for 2013* (E/INCB/2013/1).

171 Uruguay, Law No. 19.172.

172 United States, State of Colorado, Amendment 64, sect. 5, part 2.

173 In the states of Colorado and Washington, for-profit businesses can enter the market and use any means that are within the law to promote production, consumption and profits.

For instance, in the case of tobacco companies, advertising was directed to attract new users, which resulted in effective marketing to youth.¹⁷⁴

Because laws of this kind have never before been enacted or implemented in a national or state jurisdiction, no previous case studies are available to predict what changes should be expected. Thus, monitoring and evaluation will provide critical data for policymakers. For this reason, it is important that the impacts of this legislation are measured against a number of factors, ranging from the impact on health and criminal justice (effects on the individual as well as institutions and society) to the balance of public revenues against costs and to other social impacts.

At this time, countries and states surrounding Uruguay, Colorado and Washington have not adopted similar regulatory or legislative measures. In consideration of this, additional outcomes that need to be monitored include drug tourism, cross-border leakage and access and availability to youth in neighbouring jurisdictions.

Health

While research has not conclusively established the impact of more lenient laws on cannabis consumption, an increase in prevalence of cannabis use from recreational use sales is expected, although it is also possible that the primary effect – particularly in the first decade or so – may differ from longer-term impacts. Expert analyses predict that the legalization of cannabis will most likely reduce production costs substantially,¹⁷⁵ which would in turn be expected to put downward pressure on prices over time, although whether lower prices materialize in the first few years or only in the longer term is unknown. Since cannabis consumption responds to prices, the lower price will probably lead to higher consumption.¹⁷⁶ It is estimated that for each 10 per cent drop in price, there will be an approximately 3 per cent increase in the total number of users¹⁷⁷ and a 3-5 per cent increase in youth initiation.¹⁷⁸

Initiation and use among youth and young adults is of particular concern due to the established increased risk of harm, such as other drug use and dependent drug use,¹⁷⁹

a risk of heavy dependence, lung problems, memory impairment, psychosocial development problems and mental health problems, and poorer cognitive performance associated with early initiation and persistent use between the early teenage years and adulthood.^{180, 181} For youth and young adults, more permissive cannabis regulations correlate with decreases in the perceived risk of use,¹⁸² and lowered risk perception has been found to predict increases in use.¹⁸³

Although it is an important metric to monitor, increases in prevalence of cannabis use may not provide a reliable

Services Administration has shown initiation of marijuana use before the age of 15 is associated with higher risk of other drug use at 26 or older, and that those who tried marijuana before the age of 15 were six times more likely to be dependent on an illicit drug at 26 or older (relative to those who initiated marijuana at 21 or older). (See Joseph C. Gfroerer, Li-Tzy Wu and Michael A. Penne, *Initiation of Marijuana Use: Trends, Patterns, and Implications*, Substance Abuse and Mental Health Services Administration, Rockville, Maryland, 2002.)

- 174 United States, Center for Public Health and Tobacco Policy, "Cause and effect: tobacco marketing increases youth tobacco use - findings of the 2012 Surgeon General's report (Boston, 2012). Available at www.tobaccopolicycenter.org/documents/SGR%20NY%205-25-12.pdf.
- 175 Researchers estimate that the pre-tax retail price will decline by more than 80 per cent, but the eventual consumer price will depend on the tax-structure. See Beau Kilmer and others, *Altered State? Assessing How Marijuana Legalization in California could Influence Marijuana Consumption and Public Budgets* (Santa Monica, California, RAND Corporation, Drug Policy Research Center, 2010).
- 176 J. P. Caulkins and others, "Design considerations for legalizing cannabis: lessons inspired by analysis of California's Proposition 19", *Addiction*, vol. 107, No. 5 (2011), pp. 865-871.
- 177 Beau Kilmer and others, *Altered State?*
- 178 Rosalie Liccardo Pacula, "Examining the impact of marijuana legalization on marijuana consumption: insights from the economics literature" (RAND Corporation, Working Papers, July 2010).
- 179 Research by the United States Substance Abuse and Mental Health

- 180 M. H. Meier and others, "Persistent cannabis users show neuro-psychological decline from childhood to midlife", *Proceedings of the National Academy of Sciences of the United States of America*, vol. 109, No. 40 (October 2012), pp. E2657-E2664.
- 181 A. Caspi and others, "Moderation of the effect of adolescent-onset cannabis use on adult psychosis by a functional polymorphism in the catechol-O-methyltransferase gene: longitudinal evidence of a gene X environment interaction", *Biological Psychiatry*, vol. 57, No. 10 (15 May 2005), pp. 1117-1127; Wayne Hall and Louisa Degenhardt, "Adverse health effects of non-medical cannabis use", *The Lancet*, vol. 374, No. 9698 (October 2009), pp. 1383-1391; Wayne Hall, "The adverse health effects of cannabis use: What are they, and what are their implications for policy?", *International Journal of Drug Policy*, vol. 20, No. 6 (2009), pp. 458-466; A. D. Schweinsburg, S. A. Brown and S. F. Tapert, "The influence of marijuana use on neuro-cognitive functioning in adolescents", *Current Drug Abuse Research*, vol. 1, No. 1 (2008), pp. 99-111; D. M. Fergusson and J. M. Boden, "Cannabis use and later life outcomes", *Addiction*, vol. 103, No. 6 (2008), pp. 969-976 and discussion pp. 977-968; E. Gouzoulis-Mayfrank, "Dual diagnosis psychosis and substance use disorders: theoretical foundations and treatment" [article in German], *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie*, vol. 36, No. 4 (2008), pp. 245-253; J. Macleod and others, "Psychological and social sequelae of cannabis and other illicit drug use by young people: a systematic review of longitudinal, general population studies", *The Lancet*, vol. 363, No. 9421 (2004), pp. 1579-1588; John Curtis, "Study suggests marijuana induces temporary schizophrenia-like effects", *Yale Medicine*, vol. 39, No. 1 (Fall/Winter 2004); "Neuro-toxicology: neurocognitive effects of chronic marijuana use characterized", *Managed Care Weekly Digest* (16 May 2005); J. McGrath and others, "Association between cannabis use and psychosis-related outcomes using sibling pair analysis in a cohort of young adults", *Archives of General Psychiatry*, vol. 67, No. 5 (2010), pp. 440-447; L. Goldschmidt and others, "Prenatal marijuana exposure and intelligence test performance at age 6", *Journal of the American Academy of Child and Adolescent Psychiatry*, vol. 47, No. 3 (March 2008), pp. 254-263; J. M. Tertraut and others, "Effects of marijuana smoking on pulmonary function respiratory complications: a systematic review", *Archives of Internal Medicine*, vol. 167, No. 3 (2007), pp. 221-228; *BMJ-British Medical Journal*, "Cannabis use doubles chances of vehicle crash, review finds", in *Science Daily* (10 February 2012).
- 182 S. Khatapoush and D. Hallfors, "Sending the wrong message: did medical marijuana legalization in California change attitudes about and use of marijuana", *Journal of Drug Issues*, vol. 34, No 4 (October 2004), pp. 751-770.
- 183 See L. D. Johnston and others, *Monitoring the Future National Survey Results on Drug Use 1975-2012: Key Findings on Adolescent Drug Use* (Institute for Social Research, University of Michigan, 2012).

estimate of the greatest impact on health, since many users use cannabis only occasionally. One aspect to consider is that there is a general, demonstrated increased potency of cannabis in Europe and North America,¹⁸⁴ which may translate into more potent cannabis being available under the new laws and may lead to greater health consequences than in past years (although a clear link between potency and harm has not been conclusively established). Critical areas of harmful use — such as heavy¹⁸⁵ or dependent use, as well as the age of initiation and sustained use — should also be carefully monitored.

Looking at the health impact, it is also important to try to determine if there is a substitution effect whereby cannabis replaces other substances (such as alcohol or more harmful drugs such as heroin) or, conversely, a complementary effect whereby greater use of cannabis leads to greater use of other substances. After drug law reforms in Portugal that decriminalized drug possession for personal use in 2001, referrals¹⁸⁶ for cannabis increased from 47 per cent of referrals in 2001 to 65 per cent in 2005, but referrals for heroin decreased from 33 per cent to 15 per cent, and cocaine remained stable at 4–6 per cent.¹⁸⁷ One study in the United States found that while cannabis-related hospital admissions went up after the decriminalization of cannabis in the period 1975–1978, admissions for other drugs went down.¹⁸⁸

Criminal justice

Criminal justice procedures related to possession for personal consumption are likely to decrease significantly in the context of the new laws, whereas control of other cannabis-related activities, such as cultivation, sale and distribution, will continue to require routine monitoring owing to explicit limitations set forth in the legislation.

The different ways countries have implemented the international drug control conventions determines the extent to which an individual will encounter the criminal justice system for drug possession for personal use, and penalties can range from a warning to more severe consequences, such as incarceration. In countries with depenalization¹⁸⁹

of possession for personal use, penalties are reduced or eliminated, but there remains a criminal justice encounter whereby the individual would still face some consequences or rehabilitation. The new legal status of the possession of cannabis in Uruguay and the states of Colorado and Washington means that no such mechanism is provided for.

Over the past decade, across 45 countries, the number of people who have been in contact with the authorities (suspected or arrested) for personal drug use and possession offences has increased by one third (see the section on drug-related crime (drug law offences)).¹⁹⁰ Among these encounters with authorities, cannabis is involved in the majority of cases in every region of the world. There are no data that can show how many of those apprehended were ultimately prosecuted, convicted and incarcerated.

To estimate the overall criminal justice impact of increasingly permissive laws on cannabis is not an easy task. Laws regarding cannabis possession affect both the broader institutional criminal justice system and the individual. For example, a research study in Australia compared, in one area, a group of individuals that received criminal convictions for cannabis offences with a second group of individuals who had been given only infringement notices; those convicted were far more likely to experience adverse employment consequences, recidivism, relationship problems and accommodation difficulties attributed to their offence.^{191,192}

Although it has been mentioned as a rationale for policy change in several cases, the expected impact on the broader criminal networks of drug cartels is unknown. Because so much of cannabis cultivation is local,¹⁹³ drug cartels operating in other illicit activities and other drug markets (e.g., cocaine, heroin and methamphetamine) would likely be only modestly affected after cannabis legalization. (Given their population sizes, Uruguay and the states of Colorado and Washington constitute a very small cannabis market).

Although little research is available on the topic, experts estimate cartel losses of nearly \$3 billion from the initiatives that passed in Colorado and Washington — with 20–30 per cent cuts in profits.¹⁹⁴ However, in another analysis of the potential impact of cannabis legalization in

184 E. L. Seigny and others, “The effects of medical marijuana laws on potency”, *International Journal of Drug Policy*, vol. 25, No. 2 (18 January 2014), pp. 308–319.

185 Heavy use is defined as daily or near daily use.

186 Panel of three people known as the “commission for the dissuasion of drug addiction” (Comissões para a Dissuasão da Toxicoddependência).

187 Caitlin Hughes and Alex Stevens, “The effects of decriminalization of drug use in Portugal”, Briefing Paper 14 (Beckley Foundation Drug Policy Programme, December 2007). Available at <http://kar.kent.ac.uk>.

188 Karyn Model, “The effect of marijuana decriminalisation on hospital emergency room drug episodes: 1975–1978”, *Journal of the American Statistical Association*, vol. 88, No. 423 (September 1993), pp. 737–747.

189 Depenalization refers to any policy that reduces penalties, quantitatively (amount of penalty) or qualitatively (type of penalty), associated with possession or use of cannabis for non-medical or non-scientific purposes, but there are variations from country to

country in the respective laws and how they are enforced. Decriminalization implies a change in the nature of the consequences of possession or use, from criminal penalties to administrative or civil penalties or to no penalties.

190 In the United States, approximately 750,000 people are arrested each year for cannabis possession. A similar order of magnitude in the number of arrests is seen in the European Union, with nearly 800,000 arrested for cannabis-related drug offences in 2011.

191 S. Lenton and others, “Laws applying to minor cannabis offences in Australia and their evaluation”, *International Journal of Drug Policy*, vol. 10, No. 4 (1999), pp. 299–303.

192 Robin Room and others, *Cannabis Policy Moving Beyond Stalemate* (Oxford University Press, 2010).

193 UNODC, *World Drug Report 2011*.

194 Alejandro Hope and Eduardo Clark, “Si los vecinos legalizan: reporte técnico”, *Instituto Mexicano para la Competitividad* (October 2012). Available at www.imco.org.mx.

the state of California on Mexican drug trafficking organizations, researchers concluded that legal changes in one state (in this case, California) would not be enough to greatly diminish the market for Mexican cannabis, but if prices dropped significantly nationwide as a result of the spillover to other states, cartel revenue could be affected substantially in the long term. The authors could not unequivocally predict a decline in drug-related violence in Mexico as a result of cannabis legalization, as there was no basis for comparison.¹⁹⁵

Economic costs and benefits

Tax revenues from retail cannabis sales may provide significant revenue, although there is uncertainty concerning how much can be raised. In the ballot initiative of Colorado, it was stipulated that tax revenues from the sale of cannabis were to be used to provide \$40 million for school construction. Based on assumptions about the size of the market, it was estimated that the ballot measure would bring in as much as \$130.1 million in revenue over the period 2014–2015.¹⁹⁶ Legalization may also increase income and social security tax revenues by shifting labour from criminal to legal and taxed activities.

However, in Uruguay and the states of Washington and Colorado, significant costs will also be incurred through the establishment of programmes to deter cannabis abuse and regulate the new industry. Based on assumptions regarding the size of the consumer market, it is unclear how legalization will affect public budgets in the short or long term, but expected revenue will need to be cautiously balanced against the costs of prevention and health care.

In addition to the impact on health, criminal justice and the economy, a series of other effects such as consequences related to security, health care, family problems, low performance, absenteeism, car and workplace accidents and insurance could create significant costs for the state. It is also important to note that legalization does not eliminate trafficking in that drug. Although decriminalized, its use and personal possession will be restricted by age. Therefore, the gaps that traffickers can exploit, although reduced, will remain.

The collection of reliable data both before and after these policy changes will support the evaluation of the health, criminal justice and economic consequences of the new regulatory frameworks. Further, careful study of the effects on local and transnational organized crime networks will allow evidence-based decisions to inform policy in this area at the national and regional levels. The impact of this legislation can be evaluated only if it is appropriately measured through reliable data-gathering and regular monitoring efforts.

195 Beau Kilmer and others, *Reducing Drug Trafficking Revenues and Violence in Mexico, Would Legalizing Marijuana in California Help?* (Rand Corporation, 2010), e-book.

196 See “The fiscal impact of Amendment 64 on state revenues” (Colorado, Colorado State University, 24 April 2013).

G. AMPHETAMINE-TYPE STIMULANTS: OVERVIEW

Production, trafficking and consumption

While it is difficult to quantify the global production of ATS, the number of ATS-manufacturing laboratories that were dismantled increased from 12,571 (12,567 ATS labs in addition to four labs producing ATS in conjunction with non-ATS substances) in 2011 to 14,322 in 2012 — nearly all of these (96 per cent) were manufacturing methamphetamine. In North America, methamphetamine manufacturing has expanded again. In 2012, a large increase in methamphetamine laboratories seized was reported by the United States (12,857 in 2012 from 11,116) and Mexico (259 from 159). A significant increase in the number of amphetamine laboratories dismantled in 2012 was reported by the United States (from 57 to 84) and the Russian Federation (from 27 to 38).

For the second year, ATS seizures reached an all-time high of 144 tons, up 15 per cent from 2011, due in large part to increases in methamphetamine seizures. Over the past five years, methamphetamine seizures have almost quadrupled, from 24 tons in 2008 to 114 tons in 2012. Of the total of 144 tons of ATS seized globally in 2012, approximately half were seized in North America alone and approximately a quarter in East and South-East Asia. Large quantities of amphetamine seizures continue to be reported in the Middle East, in particular by Jordan, Saudi Arabia and the Syrian Arab Republic.

Seizures of “ecstasy” have resurged after the drop in 2011. Major quantities of “ecstasy” were seized in East and South-East Asia, followed by Europe (South-Eastern Europe and Western and Central Europe). All three regions account for nearly three quarters of global “ecstasy” seizures.

Amphetamine-type-stimulants: market analysis

Diversification and expansion of the global methamphetamine trade

In 2012, methamphetamine accounted for the majority of ATS seizures (80 per cent), approximately 114 tons of the total 144 tons of ATS seized worldwide. Nearly two thirds (64 per cent) of global methamphetamine seizures occurred in North America, and one third in East and South-East Asia. Although Mexico, the United States, China, Thailand and Iran (Islamic Republic of), in that order, continue to report the highest amounts of methamphetamine seized worldwide, there is evidence that methamphetamine trafficking is becoming more global in nature, with notable increases from 2011 to 2012 observed in West and Central Africa (from 45 kg to 598 kg) and Oceania (from 457 kg to 2,283 kg). Growing methamphetamine markets have also been observed in Central Asia and Transcaucasia, as