



# Further insights into aspects of the EU illicit drugs market:

*summaries and key findings*

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# Further insights into aspects of the EU illicit drugs market: summaries and key findings

**Editors:** Franz Trautmann (Trimbos Institute), Beau Kilmer (RAND) and Paul Turnbull (ICPR)

## **Consortium:**

**Trimbos Institute**, the Netherlands: Franz Trautmann, Margriet van Laar, Tom Frijns;  
Linda Lombi (University of Bologna, Italy)

**RAND Europe**, UK: Beau Kilmer, Jennifer Rubin, Peter Reuter, Jonathan Caulkins, Andres Villaveces, Mafalda Parda, Jirka Skoupy, Priscillia Hunt, Deirdre Culley, Peter McGee;  
Melvin Soudijn (Research Unit of the Dutch National Police, KLPD, the Netherlands)

**ICPR**, UK: Paul Turnbull, Tiggey May, Tim McSweeney, Oonagh Skrine

## **Project partners:**

National Centre of Addictions for Bulgaria, Bulgaria (Momtchil Vassilev)

Centre of Addictology, Czech Republic (Tomás Zabransky, Vendula Belackova)

University of Rome 'Tor Vergata', Centre for Biostatistics and Bioinformatics, Italy (Carla Rossi)

SICAD, Portugal (Fernanda Feijão)

Faculty of Health and Society of Malmö University, Sweden (Bengt Svensson)

Developed by

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[www.trimbos.nl](http://www.trimbos.nl)



[www.rand.org/randeuropa](http://www.rand.org/randeuropa)



[www.icpr.org.uk](http://www.icpr.org.uk)

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# Highlights

- Our estimates for the EU cannabis market suggest a range of approximately €7 billion to €10 billion for 2010. These estimates are likely low as they do not account for the “consumption gap” (see below) that is created when data from general population surveys are used to measure substance use. Prior estimates of the EU cannabis market ranged from €15-35 billion.
- This difference arises from two key findings of this study:
  - Cannabis users who use more frequently also smoke more each time they use. This is true across the seven countries studied.
  - Occasional users are more likely to share than are frequent users; that still further reduces the amount they consume at each session.
  - This picture also seems to apply to amphetamine, ecstasy and cocaine use.
- Prior estimates multiplied the number of users by the average number of sessions per user and the average amount per session; this will lead to overestimates of the quantity consumed because, for example infrequent users are the vast majority of all users and they use much less per session as the result of sharing.
- Our study also shows that intensive users are a small to modest fraction of cannabis users (between 5% and 25%), but are responsible for the bulk (between 55% and 77%) of the total amount of cannabis annually consumed in all countries. Infrequent users of cannabis, using less than once per month, form the largest group of past year cannabis users but account for 2 percent or less of the quantity consumed.
- Another important finding is that users stating that they used in the past month and specifying the quantity used in the past month do not consume (the same amounts) each month. Multiplying their consumption by twelve to obtain an annual estimate may result in an overestimation. There are also other factors which might have led to earlier overestimations of cannabis consumption. One might be overstating the share of ‘high consumption users’ among past year. Finally, earlier studies have used higher estimates of amounts of cannabis used per unit compared to those we found in our study.
- Substantial prior research finds that opioid substitution treatment (OST) such as methadone maintenance treatment (MMT) contributes substantially to a reduction of drug use related harm and to better health. Research shows that OST reduces the frequency and intensity of illicit heroin use among treatment clients. Drawing from a wider lower and upper bound range, the study calculates that the amount of pure illicit heroin consumption averted per Problem Heroin User retained in MMT each month ranges from a conservative estimate of 1.26 grams to a high estimate of 3.09 grams. This compares with estimates for the amount of pure heroin consumed when not engaged in MMT, which ranged from 1.79 to 4.5 grams. At an individual level, changes on this scale are equivalent to a 70 per cent reduction in the amount of pure heroin consumed while retained in MMT.
- Extrapolating these estimates across the four case study Member States considered, we conclude that retention in MMT may reduce total pure heroin consumption by around 30 per cent. Assuming 221,452 Problem Heroin Users from a wider population of 505,173 were in receipt of MMT across these four Member States, total monthly consumption of pure heroin is estimated to have reduced by between 0.28 and 0.69 metric tons, from an estimated total of between 0.9 and 2.3 metric tons consumed.
- Enforcing laws against the production and distribution of cannabis dramatically inflate their costs. The increase is largely driven by producers and traffickers requiring compensation for their risk of arrest, incarceration, seizure, and violent injury as well as by the inefficiencies associated with having to operate covertly.
- Drug markets to some extent follow the same laws of economics of licit markets, as attested by our Delphi survey of European drug experts about key trends of the illicit drugs market and policy responses in the EU. The majority of experts stress the analogy of the illicit drugs market with other (licit) markets. For example, it is important to maintain working relations with suppliers and employees. A study of 33 failed transactions in the Dutch cocaine smuggling trade found that the smuggler mostly tried to understand what went wrong and work out a reasonable way of arranging compensation. However about 40% did involve either violence or its threat; how that affects behaviour within the market remains to be worked out.





# 1. General Introduction

## Franz Trautmann

This publication presents key findings and summaries of selected reports from the study 'Further insights into aspects of the EU illicit drugs market' (Trautmann, Kilmer and Turnbull, forthcoming 2013), which provides an analysis of characteristics and operations of the EU's illicit drugs market, as called for by the European Commission. This study is a follow-up of the earlier European Commission study, which presented an analysis of the developments of the global illicit drug markets, the drug problems and drug policy responses in the period 1998-2007 (Reuter and Trautmann 2009). The discussions of that study resulted in a number of further research questions. Some of the questions considered most important by the European Commission have been put together in a call for a further analysis of the EU illicit drugs market and responses to it, focusing on a number of aspects in the following four areas:

- A. An analysis of specific characteristics, mechanisms and factors that govern the EU illicit drugs market, including a conceptual framework for thinking about the structure of drug suppliers in the EU, an assessment whether there have been significant shifts in how drugs are supplied in the EU and an assessment of the extent to which drug suppliers are involved in different drugs and other criminal activities.
- B. A detailed analysis of the size and share of the EU illicit drug market, providing an estimate of the volume of the 'EU market' in illicit drugs (production and trafficking), providing an estimate of the profits generated by this market, analysing whether the EU drugs market is more supply or demand driven and exploring various aspects of drug use: user types, availability and consumption estimates.
- C. A detailed analysis of a number of potential policy impacts on the EU drug market(s) in recent years, assessing the impact of opioid substitution treatment (OST) on the European heroin market and the impact of policy changes on two EU drug markets.
- D. Scanning the future – trends in the market and policy responses, exploring expert views on future key trends of the illicit drug markets and policy responses in the EU.

## 1.1 Approach

The European Commission's call covers a gamut of research questions under these four areas, which resulted in a complex, extensive research. It proved to be a challenging job to get all the work done within the timeframe and the available budget. Some of these questions were addressed by new sophisticated analyses of existing data. For example to estimate the revenues and composition of the EU market, we built on existing data sources (national prevalence surveys for prevalence and frequency) combined with information from interviews with producers of medicinal cannabis and coffee shop owners. The new data allowed us to improve upon the previous market estimates generated in the earlier global illicit drug markets study (Kilmer and Pacula 2009).

Other questions required supplementary data collection. While our focus was on the EU, we did not have the resources to conduct primary research in every Member State. So we focused our attention on seven Member States. In these sample Member States we carried out surveys among drug users and conducted interviews with experts with respect to supply, consumption and other drug related activities (see for further detail the next paragraph and the introduction of part I). The surveys among drug users yielded data relevant for different research tasks. They formed the basis for our studies on user types and availability and for producing consumption estimates (see part I). We also used them to collect information for analysing policy impacts on the EU drug market(s) in recent years, assessing the impact of opioid substitution treatment (OST) on the European heroin market and the impact of policy changes on two EU drug markets.

For exploring expert views on future key trends of the illicit drug markets and policy responses in the EU we relied on Delphi methods for utilizing the only available data, namely the expertise of those engaged in drug problems and policy.

### **Member State sample**

For a more in-depth analysis we selected a sample of seven EU Member States that varied substantially with regards to drug problems and drug policy. Diversity was the main criterion for selecting countries for our Member State sample. In selecting our sample states we used the following criteria to assure diversity:

- Substantial differences in drugs problems (production, trafficking and use). For example, Bulgaria is of particular interest because it is a major transshipment country for heroin, while the Netherlands is thought to be a principal producer of cannabis. In Italy there is a strong connection between drug trafficking and established organised crime.
- Differences in socio-economic situation (level of economic development, stable/transitional). Bulgaria for instance is among the poorest Member States, while Sweden is among the wealthiest, etc.
- Differences in drug policy. The United Kingdom has a harm reduction orientation, but also has heavy penalties for convicted drug offenders; Portugal recently officially decriminalized possession for personal use of any psychoactive substance; In the Czech Republic policy has been subject to rapid changes; Sweden is beginning to accept some types of harm reduction, etc.
- Geographical coverage.
- Pragmatic considerations (e.g. availability of data). These are all nations where either there is a relatively well developed research community (e.g. the Netherlands and the United Kingdom) or at least one strong research group in the field of drugs (e.g. the Czech Republic and Bulgaria).

The Table below provides the sample Member States and the criteria why they were selected.

#### **List of countries for individual study**

<b>Member State</b>	<b>Specific aspects of interest</b>
Bulgaria	Transshipment (heroin to the west, ecstasy to the east), drug policy changes
Czech Republic	Production (Methamphetamine, Cannabis), substantial policy changes
Italy	Link between trafficking and organised crime, substantial policy variations
The Netherlands	Production (Cannabis, ecstasy), transshipment (cocaine), coffee shops for cannabis distribution, highly articulated harm reduction
Portugal	Transshipment (cocaine), recent drug policy changes: decriminalisation of use
Sweden	New policy development, relatively limited consumption
England and Wales	Consumption, emerging cannabis production, tough sentencing, large cocaine market

We used the sample Member States for many of the research tasks in this project, as we expected this to contribute to a consistent picture of all parts of the research, to deepen the understanding of factors shaping the policy and to facilitate the work (and the project management), because we could work with one partner organisation in each sample Member State in order to collect available data and – where appropriate – do some additional research.

### **Focus on four drugs**

The research focussed on the following four drugs: cannabis, cocaine, heroin and Amphetamine Type Stimulants (ATS). In some Member States other drugs might be important, but they either contribute little to the total EU market for illicit drugs or they are not the subject of a lot of explicit policy making.

### **Combining research tasks**

There are various links between the different research tasks in this study, highlighting a number of aspects of the drugs market, showing interactions between the demand and supply side and interactions between drug policy and the market. We looked for possibilities to combine the actual research work for these different tasks. Besides combining desk research it was particularly important to find efficient ways of utilising our primary data collection because of the ambitious character of this study. As already mentioned, we used the surveys among users not only as input for the research in part I on user types and availability and consumption estimates but also for some other research tasks. To be able to assess the impact of OST on the heroin market we added some additional questions to the questionnaires for heroin users. We also added some questions to the Dutch and Portuguese version of our web-based survey to assess the respondents' view on the impact of drug policy developments on the drugs market in part III.

## 1.2 Structure of the study

Taking into account these links between the different research tasks we chose the structure of a 'bottom-up' order: starting with analysing the market at the user level (part I of this study), followed by more general aspects of the drugs market (part II) and ending with drug policy issues (part III).

### **Part I**

Point of departure of the study is to assess the drugs market from the demand side. In part I we analyse different drugs market features at the users' end, analysing in more detail characteristics of the buying and using behaviour, distinguishing between different user types based on the frequency of use and use the findings from this analysis for consumption estimates. For this part of our study the available data were useful, but far too limited to allow for a thorough analysis. Therefore we did some rather extensive primary data collection, using two types of surveys in the seven sample Member States. On the one hand we made use of a web-based survey to reach all types of cannabis users (from infrequent to frequent) and infrequent and occasional users of amphetamines, ecstasy and cocaine. On the other hand we used face-to-face interviews to reach frequent users of cocaine, heroin and amphetamines. We present the analysis of this data collection in three reports. The first report focuses on cannabis. Our web-based survey in all seven selected Member States yielded samples of respondents big enough to present a rather detailed analysis of different types of users. Here we could distinguish between four types of users: infrequent, occasional, regular and intensive users. The analysis in this first report provided us with rich information about the differences between these user groups e.g. regarding the quantities used per use occasion. Some of these differences seem to be more or less 'universal' for all the seven Member States we looked at. However, we also found sometimes notable differences between these countries.

In the second report we focus on amphetamine, ecstasy and cocaine use, using beside information from other research sources and data from our web-based survey also data from our face-to-face interviews. The data we collected here were less rich than the data collected for cannabis, which allowed for a more limited analysis of user types. We limited ourselves to three user types (infrequent, occasional and frequent users), but not all Member State samples consisted of sufficient respondents to allow this differentiation for all three substances. This more limited detail of course also resulted in less detailed consumption estimates. The key findings and summary from these two reports can be found in chapter 2 of this current publication.

In the third report on heroin we have decided to combine three research parts focussing on different issues around heroine use. In part 1 of this combined report we explore some aspects of heroin consumption, using the data we collected through the face-to-face interviews besides data from other research sources. These data were insufficient to say anything meaningful about consumption estimates. In part 2 we therefore have included an analysis on the size of the heroin markets in two EU Member States (Czech Republic and England), which was originally intended as a separate research. The calculations of this report are based on data about problem heroin users and estimates of weekly heroin expenditures in the two countries. Finally, we have also included the analysis of the impact of OST on the European heroin market. For this assessment we used a combination of existing data sources and data from our face-to-face interviews. The analysis concentrates on methadone maintenance treatment in four EU Member States (the Czech Republic, England, Italy and the Netherlands). This choice was for an important part based on pragmatic considerations, i.e. the availability of data and methadone being the most widely used substitution medication. We have included the key findings and summary of this study as chapter 3.

Finally, we have decided to include in part I also a study on estimating the size of the EU cannabis market, which builds on the detailed analysis and calculations of the cannabis report. In particular the data on typical quantities consumed by the different types of users enabled us to produce more sophisticated calculations, taking into account the differences between consumption quantities on a 'typical use day' of the different user types. This has resulted in new, more solid estimates of the size of the market. Chapter 4 contains the key findings and summary of this study.

### **Part II**

Part II of the study should be taken as a bundle of selected issues of drugs market research. It consists of four reports focusing on different research questions relevant for better understanding the organisation of the drugs market in the EU. Again, the focus is on knowledge relevant for policy making.

The first one looks into the complex relationship between drug demand and supply factors by comparing the impact of increased provision of OST on opioid use in two Nordic EU countries, Finland and Sweden. The report shows that due to

complex interfering factors choosing different options of OST programmes in similar countries can result in very different outcomes. One interesting finding is that Finland seems to have reduced heroin use through increased availability of buprenorphine treatment, but is now facing a substantial buprenorphine abuse problem.

The second report focuses on one element of the rules of the game used in illicit drugs business, the way potential conflicts are managed in illegal markets. It does so by a case study of cocaine smuggling in the Netherlands. An analysis of 33 incidents involving failure of cocaine smuggling related transactions of smugglers residing in the Netherlands shows that the ways potential conflicts are managed in an illegal market are not so different from the way disagreements are settled in the legal market. In most of the analysed cases the disputes were settled through negotiations. Only when attempts to negotiate the issue failed threats and violence were used. The key findings and summary can be found in chapter 5.

In the third report we investigate the relationships between different areas of illicit business and adaptations of criminal networks to changes in the field in which they operate. From the available information we can take that criminal organisations operate as 'polymorphous criminal networks', responding to changes in their markets by looking for alternative – licit and illicit – ways to secure their position and income. A review of existing literature sheds light on the combinations of licit and illicit activities undertaken by criminal networks. The report also presents a proposal for a new framework for a better understanding of the relationships between the diverse activities undertaken by internationally operating criminal networks in particular those involved in illicit drug trafficking.

The last issue covered in part II is the price of cannabis production in the EU. The fourth report provides an analysis of the impact of different legal regimes on the production costs. Based on interviews with producers of medicinal cannabis and other data sources it documents the costs involved in producing cannabis in a legal environment for medical purposes. It also shows how the price of cannabis increases across the supply chain in the EU. On the basis of this information the report provides a discussion of the possible implications of alternative control regimes. In chapter 5 we present the key findings and summary of this report.

### **Part III**

In this last part of the study we focus on the policy level. We addressed two issues considered important for improving drug policy making: the effects of policy measures on the market and an exploration of future developments of the drugs market and drug policy. In the first two reports we analyse two examples of how policy changes impact the market, what effects they have on the users. The first report looks into the impact of decriminalisation of possession of small quantities for personal use in Portugal. The qualitative study is based on a literature review, data from our web-based survey and expert interviews. It shows among others that what can be seen as a major change of the legal framework is not correctly understood by the users. The second report focuses on the impact of recent changes in the Dutch cannabis coffee shop policy on cannabis users. Until recently these changes involved a step by step tightening of the rules regulating coffee shops based on modifications of the municipal regulations (reducing the number of coffee shops, limiting access to coffee shops, etc.). The latest changes seem to go again in a less restrictive direction. We triangulate insights using a literature review, data from our web-based survey and expert interviews. The findings underline that the mix of ongoing changes and unresolved issues result in confusion of the users and in concerns about unintended negative consequences of the policy implemented. The key findings and summary of this report are presented in chapter 6 of this publication.

Besides knowledge on effects and effectiveness of drug policy measures taken and understanding of relevant developments of the drug problem drug policy making needs to anticipate what is coming, how the drug problem might develop in the coming years. Drug policy has expected to be proactive. The third report is therefore an attempt to explore expert views on how key trends of the illicit drugs market and policy responses in the EU will develop in the near future. Based on a four stage expert consultation using an adapted version of the Delphi method, a mix of web-based and e-mail questionnaires, we discuss a number of key trends and formulate some recommendations for a more pro-active policy response to these trends. The findings are in line with the conclusions of chapter 5 that the development of the illicit drugs market follows the same general 'economic laws' as the different licit markets. The key findings and summary from this Delphi study form the last chapter of this publication.

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## 2. Surveys on user types, availability and consumption estimates

Margriet van Laar, Tom Frijns, Franz Trautmann and Linda Lombi

With contributions of Beau Kilmer, Vendula Belackova, Carla Rossi, Bengt Svensson, Fernanda Feijão and Momtchil Vassilev

### 2.1 Key Findings

- This study clearly shows that the more frequently cannabis is used, the higher the number of units consumed per typical use day and the bigger the amount of cannabis consumed per unit. This pattern was consistently found across all seven EU Member States participating in the web survey. Similar patterns were found in the total samples and selected Member State samples for amphetamine (Czech Republic, Netherlands and Sweden), ecstasy (Netherlands) and cocaine powder (Netherlands).
- Infrequent users of cannabis ('chippers'), who take cannabis less than once per month, form the largest group of past year cannabis users. This is also true for users of amphetamine, ecstasy and cocaine. Also among past month cannabis users, who are usually considered to be regular users, infrequent use is common.
- Last month users do not consume (the same amounts) each month. Multiplying their consumption by twelve to obtain an annual estimate will result in an overestimation.
- The average amount of cannabis consumed annually by intensive users tends to be lowest in Portugal (184 gram) and highest in Sweden and England and Wales (363 and 374 gram, respectively). However, confidence intervals are fairly wide.
- At country level, our estimates for the amounts of cannabis consumed range from about 4 tons in Bulgaria up to 384 tons in Italy.
- In all countries (except for Portugal), intensive users form the smallest group of cannabis users (between 5% and 25%), but they are responsible for the largest part (between 55% and 77%) of the total amount of cannabis annually consumed. The same picture can be found for the total amounts of amphetamine, ecstasy and cocaine annually consumed in the selected Member States.
- Some prior estimates on cannabis consumption tended to be too high, probably because the assumed share of 'high consumption users' among past year users was too high, and the assumed amounts of cannabis used per unit were higher compared to those assessed in our study.
- The proportion of users who indicate that other drugs are available at the location where they usually buy their cannabis varies from 14% to 52%, suggesting that – in spite of differences between countries – the cannabis market at retail level seems to be specialized to a great extent across EU Member States.
- Further research is needed to improve the data on the frequency of use of the less common drugs (amphetamine, ecstasy and cocaine). Moreover, feasible self report methods for assessing amounts of cannabis consumed per unit should be validated and improved, and the impact of sharing of cannabis on consumption estimates should be studied in more detail. Finally, estimates of under coverage or underreporting of drug use should be better supported by empirical data.

### 2.2 Summary

The main aims of this study were three-fold: to describe characteristics of users and consumption patterns among different types of users of cannabis, ecstasy, amphetamines and cocaine; secondly, to describe the availability of drugs to the different types of users; and thirdly, to make estimates of the amount of drugs consumed - by user type and in total - in the seven



sample EU Member States: Bulgaria, Czech Republic, Italy, the Netherlands, Portugal, Sweden and England and Wales. In spring 2012 a web survey was carried out in the seven countries to collect data on these topics for the four drugs under study. For the Czech Republic, amphetamine in this report refers to methamphetamine.

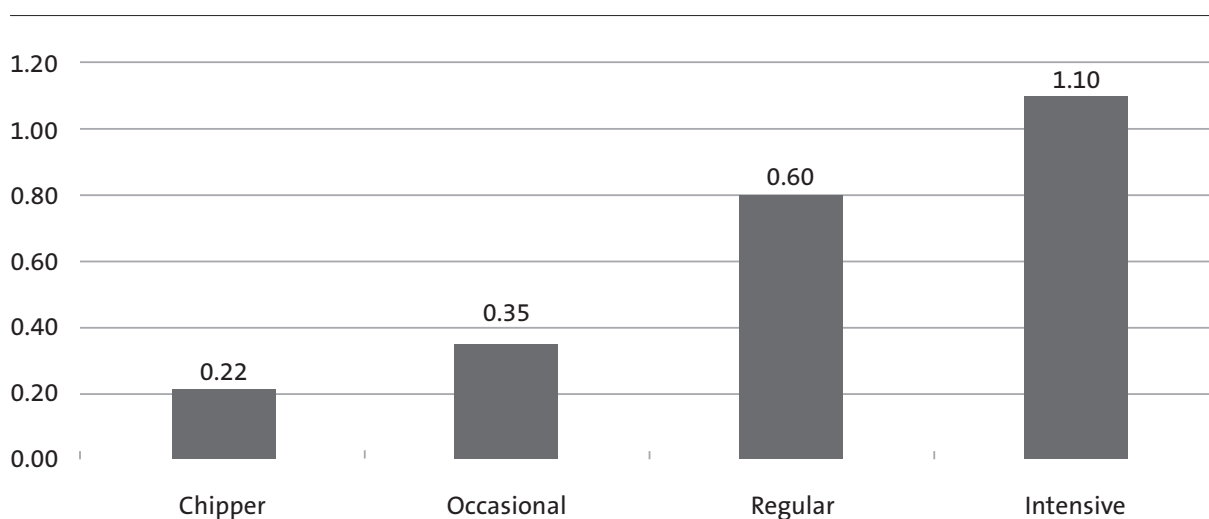
The most detailed data we gathered from our survey are those on cannabis use. Our sample of cannabis users was big enough to differentiate between four types of users. The final sample consisted of 4,126 persons who had consumed cannabis at least once in the past year. They were classified on the basis of their number of use days in the past 12 months into four groups: infrequent users or chippers (<11 days), occasional users (11-50 days), regular users (51-250 days) and intensive users (>250 days). The numbers of users of amphetamine, ecstasy or cocaine use (especially the more regular users) were too small to allow a detailed assessment of user types for these drugs in all countries. Analyses on consumption patterns and estimates were therefore limited to three user types (infrequent, occasional and frequent users), with country-specific data being available only for amphetamine in the Czech Republic, Sweden and the Netherlands, and for cocaine and ecstasy for the Netherlands. Additional data on consumption patterns among problem users of amphetamine and (crack) cocaine were used from the face-to-face interviews.

### ***Characteristics of cannabis users and consumption patterns***

The results reveal many differences between user groups, which seem to be more or less 'universal', but there are sometimes also notable differences between countries. Overall, intensive users differ most strongly from other user groups – in particular from the chippers and occasional users in that they have a relatively early onset of first cannabis use, were more often male and were older (except for Bulgaria and the Czech Republic), compared to the less frequent user groups.

Moreover, the more frequently cannabis was used in the past year, the higher the number of units (mainly joints) is used on a typical use day and the more cannabis is put in a unit. For the total sample the average number of units per typical use day varies from 1.4 among chippers to 4.1 among intensive users (excluding possible sharing). The average amount of cannabis per unit varies from 0.15 gram to 0.25 gram. The total amount (gram) of cannabis per typical use day for the total sample increases from 0.2 gram for chippers to 1.1 gram for intensive users.

**Amount (gram) of cannabis consumed on a typical use day by user group**



Despite these overall main differences between user groups, there are quite a number of specific differences between countries:

### ***Age of first use***

The average age of first cannabis use is overall higher in Sweden compared to all other countries. This difference is difficult to explain on the basis of these data. This finding may be associated with the long-standing relatively restrictive Swedish drug policy aimed at a drug-free society. Nonetheless, once cannabis is used, the annual amounts consumed by Swedish cannabis users are similar or sometimes higher compared to those in other countries.

*Type of unit*

While the majority of the cannabis users consume their cannabis by smoking a joint, up to 45% of the intensive users in the Czech Republic prefer smoking cannabis by dry pipes/chillums. Health concerns related to tobacco smoking, and better options to titrate the cannabis dose, smoking efficiency and cultural factors, have been put forward as possible explanations for the popularity of this consumption method in the Czech Republic.

*Mixing cannabis*

Although the majority of cannabis users mix their cannabis with tobacco, there are clear differences between countries. Proportions of users who consume cannabis 'pure' varied from 9% or less in Italy, the Netherlands and Portugal up to 28% in the Czech Republic and 33% in Bulgaria. As mentioned before, in the Czech Republic, this relatively high proportion may be associated with the popularity of smoking cannabis by dry pipes/chillums.

*Preference for hash or marihuana*

The proportion of users with a preference for marihuana is highest in Bulgaria and the Czech Republic (96%), followed by England and Wales (83%). Preference for marihuana is lowest in Portugal (38%), where hash tends to be more popular (overall 43%), especially among intensive users (69%). This is preference for hash is associated with its proximity to Morocco, which is the world's largest producer and supplier of hash.

*Amount of cannabis consumed*

The average amount of cannabis consumed annually by intensive users tends to be lowest in Portugal (184 gram) and highest in Sweden and England and Wales (363 and 374 gram, respectively). However, confidence intervals are fairly wide.

*Sharing on the last occasion*

Although sharing is common among all types of users, especially among the less frequent users, there are notable differences between countries. The proportions of intensive users reporting sharing their cannabis on the last occasion, varies from 50% in England and Wales to 91% in Bulgaria.

*Availability of cannabis*

Differences between user groups are also found with regard to availability indicators, although differences between countries featured here more prominently. The proportion of users who usually buy their cannabis, instead of employing other modes to acquire the drug, is highest among regular and intensive users and was lowest among chippers, who most often get cannabis from others (including sharing). Growing cannabis is mentioned between 15% to over 21% of the intensive users in five countries, but hardly plays a role as primary way to obtain cannabis among less frequent users. Of those users who usually buy their cannabis, the amount of cannabis bought per purchase increases from chippers to intensive users, as does the frequency of buying and amount of money spent on cannabis purchases in the past month. Intensive users also more commonly buy cannabis for others, and more often indicate that it is very easy to obtain the drug, compared to less frequent users. In addition to these common trends across user groups, there are many more remarkable differences between countries on availability indicators.

*Growing cannabis*

The proportion of intensive users reporting growing their own cannabis as dominant way of obtaining cannabis is lowest in the Netherlands (5%) and England and Wales (9%) and highest in the Czech Republic (21%), Italy (19%) and Sweden (18%). Yet, only in the Czech Republic growing seems to play a role in all user groups (10%), suggesting that it is more widespread than elsewhere.

*Locations of purchase*

Coffee shops are mentioned as the main location of buying cannabis for the vast majority of users in the Netherlands (87%), while buying on the street or in a park is mentioned by more than 50% of the users in Bulgaria (58%), and by between 20% to 34% in Italy, Sweden, Portugal and England and Wales. Buying at a seller's home is a relevant source especially in the Czech Republic (45%) and between 21% and 36% in the other countries, except for Bulgaria (10%) and the Netherlands (3%).

### *Availability of other drugs*

Excluding the Netherlands, between 26% (Czech Republic) and 52% (Sweden) of the cannabis users indicate that other drugs are available at the location where they usually buy cannabis. The relatively low proportion in the Netherlands (14% overall, 9% for those who buy in coffee shops), is likely to reflect the policy of separation of the cannabis and hard drugs markets, but the data also suggest that cannabis markets at retail level seem to be specialized in other countries as well, albeit to different degrees.

### *Amount of cannabis bought and prices*

Among intensive users, the amounts of cannabis bought per purchase is lowest in Bulgaria and highest in Italy, Portugal, Sweden and England and Wales, and prices paid are lowest in Bulgaria and highest in Sweden.

### *Time and ease to obtain cannabis*

The proportion of cannabis users estimating that they would be able to buy their usual amount of cannabis within half an hour is highest in the Netherlands (71%) and varies between 22% (Sweden) and 44% (Czech Republic) in the other countries. In all countries, the majority of the users indicate that it is easy or very easy to obtain cannabis, but in the Netherlands the qualification "very easy" is the highest (82%), against about 32% (Italy and Portugal) up to 57% (Czech Republic) in other countries.

### *Unable to buy*

The proportion of users who are sometimes unable to buy cannabis in the past 12 months varies from 18% in the Netherlands up to 78% in Italy. The lack of available sellers or sellers who did not have cannabis for sale is the most frequently cited explanation.

Most of the findings on availability indicators with regard to the Netherlands are consistent with the Dutch policy pursuing a separation of the cannabis and hard drug markets, and allowing the small sale scale of cannabis for personal use under strict conditions in the so-called coffee shops.

### ***Characteristics of users, consumption patterns and availability of amphetamine, ecstasy and cocaine***

As mentioned in the introduction of this summary the data concerning amphetamine, ecstasy and cocaine use allowed for less detailed analyses than those for cannabis because of smaller (sub)sample sizes. For most Member States and indicators, data are reported for the total Member State sample. Differences between user types could only be analyzed for a selection of sample Member States (Czech Republic, Netherlands and Sweden for amphetamine; Netherlands for ecstasy and cocaine).

Similar to findings for cannabis, the more frequently amphetamine, ecstasy and cocaine were used in the past year, the higher the daily dose (in grams or pills) that was consumed on a typical use day.

The total amount of amphetamine per typical use day in the Czech Republic increases from 0.31 gram for infrequent users to 0.66 gram for frequent users. Daily doses in the Czech Republic are about half of those in the Netherlands and Sweden in all user groups, with amount increasing from 0.50 to 1.49 gram in the Netherlands and 0.59 to 1.24 gram in Sweden. This difference can probably be explained by the consumption of high potency methamphetamine in the Czech Republic, against 'normal' amphetamine in the other countries.

The total amount of ecstasy per typical use day for the Netherlands increases from 1.95 pills for infrequent users to 2.43 pills for occasional users and to 3.56 pills for frequent users. These numbers are lower in the combined other sample Member States, where consumption on a typical use day increases from 1.51 pills to 1.93 pills to 2.93 pills.

The total amount (gram) of cocaine per typical use day for the Netherlands increases from 0.52 gram for infrequent users to 0.80 for occasional users to 1.28 gram for frequent users. These numbers are somewhat lower in the combined other sample Member States, where consumption on a typical use day increases from 0.43 gram to 0.88 gram to 0.94 gram.

The proportion of users who usually buy their amphetamine, ecstasy or cocaine, instead of employing other modes to acquire the drug, tends to be highest among frequent users and lowest among infrequent users, with occasional users in between.

Of those users who usually buy their drugs, the amount bought per purchase increases from infrequent to frequent users, as does the frequency of buying and the amount of money spent on drug purchases in the past month, although these patterns are less consistent than those for cannabis.

In addition to these trends across user groups, there are also differences between Member States on availability indicators.

#### *Locations of purchase*

The seller's home is the most frequently mentioned location of buying amphetamine in the Czech Republic, the Netherlands and Sweden, while their own or someone else's home are most frequently mentioned in England and Wales. On the street or in a park is most frequently mentioned in Bulgaria, and Italian respondents mention a place of entertainment most often. For ecstasy, the seller's home is mentioned most frequently in all Member States except for Bulgaria, where places of entertainment and private parties are most popular. For cocaine, similar to the findings for ecstasy and to a lesser extent those for amphetamine, the seller's home is mentioned most frequently in all Member States except for the Netherlands, where the street or a park are mentioned slightly more often. Interestingly, for all three drugs between 13% and 20% of Italian and Swedish users report to buy their drugs at school, college or university, while these locations are virtually not mentioned in the other sample Member States.

#### *Time to obtain drug*

Across Member States, the majority of users estimate that they would be able to buy their usual amount of amphetamine within either 'less than half an hour' or 'half an hour to an hour'. Nevertheless, user estimates vary across member States. Most notably, Swedish amphetamine users report longer times than users from the other sample Member States. Across Member States, obtaining ecstasy tends to take more time than obtaining amphetamine, but again estimates vary across Member States, with the biggest part (37%) of Swedish ecstasy users reporting more than 24 hours. Amphetamine and ecstasy thus seem to take longer to obtain in Sweden. For cocaine, a large part (26%) of Czech users indicate that it would take them more than 24 hours to obtain, while 40% of users from England and Wales indicate needing 1-2 hours.

#### *Unable to buy*

The proportion of users who were now and then unable to buy amphetamine in the past 12 months varies from 21% in the Netherlands up to 43% in the Czech Republic. For ecstasy, this proportion varies from 13% in the Netherlands up to 49% in Bulgaria, and for cocaine it varies from 20% in the Netherlands up to 52% for England and Wales. The proportion of users who were unable to buy is thus lowest in the Netherlands for all three drugs. The lack of available sellers or sellers who did not have availability of the drug of choice are the most frequently cited explanations for being unable to buy amphetamine, ecstasy and cocaine.

### ***Estimates of cannabis consumption***

We estimated the amount of cannabis consumed by multiplying the number of users per user group by the annual amount consumed per year by user group in each of the seven sample countries. It should be noted, that although a detailed account was made of differences between user types and associated consumption patterns, there are still many sources of uncertainty and methodological differences between countries which affect the precision of the estimates.

In all countries the group of chippers forms the biggest group of the last year cannabis users with proportions ranging from 37% in Portugal up to 66% in Sweden. Intensive users form the smallest group in all countries, except for Portugal, with proportions ranging from 5% in Sweden up to 25% in Portugal. In Portugal the group of regular users and intensive users makes up half of all last year cannabis users. There is no explanation so far for these differences between countries.

**Number of last year cannabis users by country and distribution over user groups\***

	BG	CZ	IT	NL	PT	SE	E&W
Number of users	138,809	1,128,957	8,105,720	781,233	255,520	171,174	2,800,073
% Chippers	64%	52%	41%	44%	37%	66%	54%
% Occasional	17%	20%	37%	15%	13%	15%	17%
% Regular	12%	22%	12%	25%	25%	14%	19%
% Intensive	7%	6%	10%	17%	25%	5%	9%

\* Based on general population surveys. For Italy, and adapted estimate of the number of users has been used, which is based on population surveys and indirect estimates (see § 1.5.2.3). Numbers are based on prevalence data from population surveys conducted between 2007 (Portugal) up to 2010/2011 (England and Wales), and data on the size of the population in 2011 from Eurostat.

The total amount of cannabis consumed per country varied widely, but in all countries, intensive users account for the biggest share of cannabis consumed, with proportions varying from 55% in the Czech Republic up to 77% in Bulgaria, the Netherlands and England and Wales. Chippers and occasional users account for less than 9% of the total amount of cannabis consumed. As far as data were available in other countries, the addition of (rough) estimates of cannabis consumed by (marginalised) populations of problem drug users increased the estimates from a low 3% in the Netherlands, up to 25% in England and Wales, and 35% in Sweden, which is a huge variation.

**Amount of cannabis (tons) consumed annually per country and user group (%)\***

	BG	CZ	IT	NL	PT	SE	E&W
Amount (tons) - lower	2.6	27.2	383.2	44.1	12.7	5.5	96.1
Amount (tons) - upper	5.2	51.3	480.1	69.4	26.3	8.2	221.0
Amount (tons) – average*	3.8	33.4	384.3	48.5	17.4	5.8	133.8
% Chippers	2%	2%	1%	<1%	1%	2%	1%
% Occasional	3%	6%	5%	1%	2%	4%	2%
% Regular	18%	37%	23%	21%	30%	37%	20%
% Intensive	77%	55%	71%	77%	68%	57%	77%
Additional amount (tons) used by problem drug users***	0.2-0.4	1.4	n.a.**	1.4	?	2.0	18-34

Upper and lower values are based on the upper and lower values of the 95% confidence interval for the annual cannabis consumption on the basis of the web survey, multiplied by the number of users according to population surveys (except for Italy, see paragraph 1.5.2.3).

\*The average is based on the 5% trimmed mean of the 12 months cannabis consumption. \*\* For Italy, the adapted method to estimate the number of cannabis users is likely to take underreporting and undercoverage, including use among problem drug users, into account.

\*\*\* Rough estimates of cannabis consumption by problem users of heroin, amphetamine, cocaine, based on indirect estimates of the number of problem users (Statistical Bulletin EMCDDA) and data on consumption patterns from the face-to-face interviews and other sources.

**Estimates of consumption for amphetamine, ecstasy and cocaine**

We estimated the annually consumed amounts of amphetamine, ecstasy and cocaine by multiplying the number of users per user group (estimated from external research combined with Eurostat data on population size) by the average annual amount consumed per user type (estimated from our data). As mentioned above, limitations in sample sizes made us restrict the consumption estimates for amphetamine to the Czech Republic, Sweden and the Netherlands, and for cocaine and ecstasy to only the Netherlands.

In all selected Member States for amphetamine and in the Netherlands for ecstasy and cocaine, infrequent users constitute the largest part of the last year users, while frequent users form the smallest group. However, because of their much higher annual consumption rates, frequent users contribute most to the total annual consumption, while occasional and infrequent users account for relatively small portions of total annual consumption.

*Amphetamine*

Total annual consumption of amphetamine in the Czech Republic is estimated at 4.55 metric tons with a range between 2.73 and 6.01 metric tons. Frequent users account for 96% of this amount while occasional and infrequent users accounted for respectively only 3% and 1%.

Estimates of the total annual consumption of amphetamine in the Netherlands ranges between 1.51 and 2.79 metric tons, with point estimates at 2.41 (user type numbers generated from general population survey) and 1.80 (user type numbers generated from targeted survey among visitors of clubs and parties) metric tons. Frequent users account for 89-93% of these amounts while occasional and infrequent users account for respectively 5-8% and 2%.

Because no Swedish studies were available from which to derive user type numbers, the figures from the Czech Republic and the Netherlands were used as a proxy. This resulted in estimates of the total annual consumption of amphetamine in Sweden that ranges between 1.24 and 4.59 metric tons, with point estimates at 3.40 (based on Czech user type figures), 2.53 and 1.91 metric tons (based on Dutch user type figures from a general population survey and targeted survey, respectively). Frequent users account for 87-94% of these amounts while occasional and infrequent users account for respectively only 4-9% and 2-4%.

*Ecstasy*

Estimates of the total annual consumption of ecstasy in the Netherlands range between 4.08 and 5.72 million pills, with point estimates at 5.22 (user type numbers generated from general population survey) and 4.48 (user type numbers generated from targeted survey among visitors of clubs and parties) million pills. Frequent users account for 39-49% of these amounts while occasional and infrequent users account for respectively 31-37% and 20-24%.

*Cocaine*

Estimates of the total annual consumption of cocaine in the Netherlands ranged between 2.08 and 3.22 metric tons, with point estimates at 2.74 (user type numbers generated from general population survey) and 2.57 (user type numbers generated from targeted survey among visitors of clubs and parties) metric tons. Frequent users account for 73-75% of these amounts while occasional and infrequent users account for respectively only 18-20 and 7%.

***Final comments and recommendations***

Although this study is a further step forward in improving estimates on drug consumption by differentiating different user types, in terms of frequency of use, it also has limitations. These include, among others, the non-standardised way of recruiting respondents through various channels (but mainly through the web advertisements) and lack of a sampling frame. This may have resulted in a relatively high proportion of young (fairly highly educated) users, and, in the Netherlands, respondents who are associated with recreational (dance) settings (thus possibly inflating consumption estimates). Nonetheless, the reported 'universal' (consumption) patterns for cannabis, across countries with varied economic, social, and cultural norms, suggest that the findings for this drug may have a high degree of validity.

As estimates on the amounts of cannabis consumed per unit relied heavily on subjective reports of amounts based on (digital) photo cards, it will be important to build on research to further validate and improve methods to estimate amounts of cannabis consumed. Ideally, this should result in a feasible method to be implemented in (large scale) surveys in different countries. Moreover, as this study shows that sharing cannabis among users is much more common than previously assumed, a more detailed analysis of the impact of sharing on the consumption estimated would be recommended.

For the less commonly used drugs (amphetamine, ecstasy, cocaine), numbers of past month users in general population surveys are often too low to provide reliable information on the frequency of use, which is necessary to allow consumption estimates at population level. This limitation is hard to solve, information might be obtained by aggregating samples from successive population surveys to yield a higher number of past year or past month users or by increasing sample sizes, which is not likely to occur. Studies among targeted samples of users could be useful, but at the expense of representativeness.

For all drugs, it is recommended that (population) surveys also collect data on frequency of use among past year users instead of last month users only, and, for cannabis specifically, it is recommended to add a few questions on numbers of units consumed per typical use day.

As this web survey was likely to capture mainly integrated drug users, it missed data on more marginalised populations of problem drug users. To some extent this bias could be reduced by adding data on the number of problem users and their consumption pattern, but not all groups will have been covered in this way (e.g. homeless in general, institutionalised people). Moreover, it can be assumed that not all drug users will have 'admitted' (or remembered correctly) the frequency or amounts of drugs consumed. While previous studies have assumed levels of underreporting ranging from for example 20% to 50%, the empirical support for these values and information on possible differences between countries is limited. It is recommended to improve insight on these issues, as they may be a main determinant of the final estimates of consumption.

## 3. The impact of opioid substitution treatment (OST) on the European heroin market

Tim McSweeney and Oonagh Skrine

### 3.1 Key findings

- The evidence in support of opioid substitution treatment (OST) and methadone maintenance treatment (MMT) in particular, in contributing towards reducing the frequency and intensity of illicit heroin use among those retained in such treatment is both considerable and persuasive. Some controversy persists however about the extent to which forms of OST may contribute towards facilitating the attainment of 'recovery' orientated goals and extend opioid using 'careers'.
- Triangulating data from various sources we conservatively estimate the amount of pure illicit heroin consumed per year, per problem heroin user not engaged in MMT as 21.5 grams. Our high estimate is 54.0 grams per year. These are broadly consistent with previous published estimates for annual consumption rates among European Problem Heroin Users (30.0 - 58.0 pure grams).
- Drawing from a wider lower and upper bound range, we have calculated that the amount of pure illicit heroin consumption averted per Problem Heroin User retained in MMT each month ranges from a conservative estimate of 1.26 grams to a high estimate of 3.09 grams. This compares with estimates for the amount of pure heroin consumed when not engaged in MMT, which ranged from 1.79 to 4.5 grams per month. At an individual level, changes on this scale are equivalent to a 70 per cent reduction in the amount of pure heroin consumed while retained in MMT.
- Avoided illicit heroin consumption on this scale across a population of 221,452 Problem Heroin Users assumed to be accessing MMT throughout four case study Member States is equivalent to between 0.3 metric tons (conservative estimate) and 0.7 metric tons (high estimate) of pure heroin consumption avoided for each month retained in MMT, again drawing these estimates from a wider lower and upper bound range. Extrapolating these estimates across the four case study Member States considered, we conclude that retention in MMT may reduce pure heroin consumption by around 30 per cent.
- Problem Heroin Users not engaged in MMT and other forms of OST will account for a disproportionate amount of the illicit heroin being consumed in a given market. Significantly curtailing their involvement in it, via engagement with MMT and other evidence-based forms of OST, is likely to considerably undermine the market's viability and disrupt functionality by removing or displacing key participants from it.

### 3.2 Summary

#### *Evidence for the effectiveness of OST*

The evidence in support of opioid substitution treatment (OST), and in particular the maintenance prescribing of methadone or buprenorphine (and to a lesser extent heroin, subutex, and suboxone), is considerable and persuasive. This body of knowledge has accumulated using data and experience over a 40-year period, and from regions as geographically and culturally diverse as North America, Europe, Australia, Asia and the Middle East.

In aggregate, these findings point to the benefits of retention within OST, and in particular methadone maintenance treatment (MMT), in contributing towards reducing the frequency and intensity of illicit heroin use. Yet despite this body of evidence, controversy still persists about the extent to which forms of OST contribute towards facilitating the attainment of 'recovery' orientated goals, extend opioid using careers and impact upon drug-related mortality.

Using a combination of existing and primary data sources, we sought to estimate the impact of OST, in the form of MMT, in contributing towards avoided illicit heroin consumption across four European Union (EU) Member States - the Czech Republic, England, Italy and the Netherlands.



### **Methods**

The information used to inform this work was derived from the following sources:

- existing peer reviewed research;
- published and unpublished statistics; and
- supplemented with primary data gathered through interviews with heroin users in the relevant Member States.

### **Assumptions**

In order to estimate the avoided heroin consumption attributable to MMT it was necessary to make a number of informed assumptions relating to the:

- number of problem opioid users (POUs) within the four Member States being considered (N=505,153) and the proportion of this group thought to be accessing OST (52.6%, n=265,721) and MMT (43.8%, n=221,452);
- nature and extent of their heroin consumption (frequency, amount and purity) when not accessing MMT; and
- nature and extent of any changes in this heroin consumption (frequency amount, purity) while exposed to and retained within MMT.

### **Nature and extent of heroin consumption when not accessing MMT**

Triangulating data from various sources we conservatively estimate the amount of pure heroin consumed per year per Problem Heroin User not engaged in MMT is 21.5 grams. Our high estimate is 54.0 grams per year.

#### **Conservative and high estimates of heroin consumption among Problem Heroin Users not accessing MMT**

Assumption	Conservative estimate	High estimate
Frequency (days) of use last month	21	24
Amount (grams) used per day	0.5	0.75
Purity	17%	25%
Pure grams of heroin consumed per month per Problem Heroin User	1.79	4.5
Pure grams of heroin consumed per year per Problem Heroin User	21.5	54.0

### **Estimated impact of MMT on avoided illicit heroin consumption**

On the basis of a range of empirically informed assumptions we estimate that the amount of pure heroin consumption averted per Problem Heroin User retained in MMT each month ranges from 0.45 grams to 4.21 grams, with a conservative estimate of 1.26 grams and a high estimate of 3.09 grams. Using these estimate ranges, a 95 per cent confidence interval for the amount of pure heroin consumption averted per Problem Heroin User retained in MMT each month ranged from 0.75 to 2.63 grams, based on 400 random draws using a Monte Carlo simulation.

This compares with estimates for the amount of pure heroin consumed when not engaged in MMT, which ranged from 1.79 to 4.5 grams per month. At an individual level, changes on this scale are equivalent to a 70 per cent reduction in the amount of pure heroin consumed while retained in MMT.

Avoided illicit heroin consumption on this scale across the 221,452 Problem Heroin Users assumed to be accessing MMT throughout the four case study Member States is equivalent to between 0.1 and 0.9 metric tons of pure heroin consumption avoided for each month retained in OST, with a conservative estimate of 0.3 metric tons and a high estimate of 0.7 metric tons per month. Extrapolating our estimates across the four case study Member States considered, we conclude that retention in MMT may reduce pure heroin consumption by around 30 per cent.

**Estimating averted monthly heroin consumption among Problem Heroin Users retained within MMT**

Assumption	Conservative estimate			High estimate		
Frequency (days) of heroin use in the month pre-OST admission	21			24		
Frequency (days) of heroin use per month during OST (low, 'best' and high estimates of OST impact)	15.75	10.29	5.88	18.0	12.24	6.72
Amount (grams) used per day pre-OST	0.5			0.75		
Amount (grams) used per day during OST (low, 'best' and high estimates of OST impact)	0.5	0.305	0.115	0.75	0.46	0.17
Purity	17%			25%		
Pure grams of heroin consumed per month, per Problem Heroin User not in OST	1.79			4.5		
Pure grams of heroin consumed per month, per Problem Heroin User in OST (low, 'best' and high estimates of OST impact)	1.34	0.53	0.11	3.38	1.41	0.29
Averted pure heroin consumption per Problem Heroin User in OST, per month (grams)	0.45	1.26	1.68	1.12	3.09	4.21

**Caveats**

Attempts to estimate the impact of MMT provision on avoided illicit heroin consumption in four Member States were constrained by a number of limitations, relating to our assumptions about using behaviour, the data sources themselves, the small number of interviews conducted in Member States, inconsistencies around definitional issues and difficulties extrapolating results from a small number of countries to other diverse contexts and settings. Our analysis is also insensitive to important variations in OST provision across different Member States in relation to issues such as rates of retention, unplanned exit and planned discharge from MMT, for example.

**Conclusions**

Using different sources we have developed and proposed a range of basic estimates for the amount of illicit heroin consumed by Problem Heroin Users on an annual basis (21.5 - 54.0 pure grams). These in turn are broadly consistent with previous published estimates for annual consumption rates among European Problem Heroin Users (30.0 - 58.0 pure grams).

Based upon a number of empirically informed assumptions about the impact of MMT on the nature and extent of illicit heroin use, and extrapolating to a Problem Heroin User population of 221,452 assumed to be accessing MMT throughout four case study Member States, the magnitude of avoided (pure) heroin consumption attributable to retention in MMT for one month could, we conservatively estimate, be in the order of 0.3 metric tons (ranging from 0.1 to 0.9 tons).

Inevitably, given the level of uncertainty around many of our assumptions, the resulting estimates and their ranges are subject to considerable margins of error, and would thus require additional sensitivity analyses to further refine them. Nevertheless exercises of this sort can be particularly useful as the basis for informing further work, such as comparative assessments of different policy options e.g. averted pure heroin consumption attributable to OST as a share of pure heroin imported to EU markets, and/or seized by law enforcement agencies. Such work could have important policy and practice implications, against a backdrop of significant cuts to public sector budgets across the EU.

While undertaking comparative assessments of this sort was beyond the scope of the current paper, merely extrapolating our monthly estimates of averted heroin consumption over a 12-month period would inflate the impact of OST. This is due to the absence of reliable data with which to adjust for rates of retention, unplanned exit and planned discharge from OST over the longer term, both within and between countries, and the impact of these on illicit heroin consumption. Furthermore, with regards to estimating the share of pure heroin imported to EU markets, there remains considerable uncertainty about the amount of opium produced annually that is actually converted to heroin.

As noted in previous research, Problem Heroin Users not engaged in MMT and other forms of OST will account for a disproportionate amount of the illicit heroin being consumed in a given market. Removing them, or significantly curtailing their involvement in it via engagement with MMT and other evidence-based forms of OST, is likely to considerably undermine the market's viability and disrupt functionality by removing or displacing key participants from it.

Traditionally, demand and supply reduction activities have tended to operate in isolation in this regard, but there is a growing recognition that complimentary demand and supply reduction efforts could disrupt functionality to a greater extent (but care also needs to be taken to avoid unintended negative consequences and harms).

Reductions in heroin consumption while exposed to OST will undoubtedly deliver benefits for the individual user. What is less clear is the wider impact, adverse or otherwise, this avoided heroin consumption will have on broader market dynamics (e.g. the price, purity and availability of heroin), and the implications of this for those still active as consumers within it.

## 4. Estimating the size of the EU cannabis market

Jonathan P. Caulkins and Beau Kilmer

With contributions of Marlon Graf

### 4.1 Key findings

- Previous estimates of the size of the EU cannabis market vary widely, with figures ranging from €15 billion to €35 billion per year. An important source of uncertainty is the limited information available about typical quantities consumed by different types of users.
- Our estimates of the EU cannabis market suggest a range of approximately €7 billion to €10 billion annually circa 2010; however, these figures do not account for the “consumption gap” (see below) that is created when data from general population surveys are used to measure substance use. Thus, these estimates are likely low perhaps by as much as a factor of 2.
- Information about the type of cannabis consumed (herbal versus resin) across countries is scant. If the new estimates published by the EMDCCA (2012) are correct, then combining them with our figures suggests that roughly 50-65% of all cannabis consumed in the EU is resin.
- The analyses presented in this chapter make methodological contributions. Most importantly, we demonstrate that since consumption intensity (grams per day of use) is positively correlated with consumption frequency (days used per month), multiplying the average number of use days by the average number of grams consumed per use day generates consumption figures that are lower than what they should be. The better approach is to multiply each individual's days consumed and daily consumption figures and then average across individuals only after that multiplication. We hope this gets incorporated into future sizing exercises and motivates the collection of additional data about quantities consumed and expenditures.

### 4.2 Summary

There are several reasons why decision makers want to know how much cannabis is used in the EU and how much users spend on it. First, information about expenditures helps put the trade in context compared to legal (e.g. alcohol, tobacco) and other illegal industries. Second, it provides insight about the revenues being generated by criminal traffickers. This is not only of interest to law enforcement agencies, but also to those who seek to implement drug policy reforms that could reduce criminal proceeds. Third, knowing cannabis expenditures and amounts consumed is necessary, but not sufficient, information for projecting the consequences of alternative regulatory regimes (e.g. tax revenues that might be collected if cannabis were legalised and regulated).

Estimating the size of an illegal market is challenging. Since it is impossible to pull figures from official financial statements, one should be sceptical of those who claim they have precise estimates. However, understanding of the EU cannabis market has improved greatly in the past decade as we have learned more about who uses cannabis and how much they use (Leggett 2006; EMCDDA 2008; EMCDDA 2012). Indeed, we draw upon a web survey conducted in seven Member States and introduced elsewhere in this volume (Van Laar et al. 2013) that pushes the frontier of our knowledge about cannabis consumption in the EU, and arguably elsewhere.

Previous estimates of the size of the EU cannabis market vary widely, with figures ranging from approximately €15 billion to €35 billion per year. An important source of uncertainty is the limited information available about typical quantities consumed for different types of users. In addition, when surveying respondents about sensitive behaviours, under-reporting is a perennial concern. Thus, when estimating marijuana consumption from general population surveys, some researchers make adjustment to the estimates. Sometimes under-reporting is thought of only in terms of survey respondents' under-reporting of their activity, but we are interested in a more general concept: How much do respondents' self-reports under-estimate

true consumption by the entire population? That under-estimate is what governs the size of the “multiplier” that should be applied to adjust survey-based estimates upward when estimating national consumption. Indeed, it is useful to distinguish four components of such a multiplier or adjustment (Kilmer et al. forthcoming):

- 1) Use by people outside the survey’s sampling frame (e.g. homeless who are not in shelters),
- 2) Use by people who are in the sampling frame but nonetheless are not surveyed (e.g. because they were never home),
- 3) Under-reporting of past-month use by people who are successfully surveyed, and
- 4) Under-reporting of quantities consumed (e.g. days used in the past month) even if some use is acknowledged.

To keep the combined effect of these factors distinct from what is usually referred to as under-reporting (i.e., did the respondent admit use?), we refer here to the aggregate effect of these four phenomena as the “consumption gap.”

Our paper initially estimates spending as consumption times price; however, a significant limitation of that approach is that users do not always pay the price as estimated and reported in official documents. There can be considerable variation in price across regions within a country (Caulkins 1995), and perhaps more importantly, large discounts for purchasing in quantity (Caulkins and Padman 1993). Hence, it is of equal interest to estimate national spending from individuals’ reports of their own spending. This alternative approach has its own challenges, notably the possibility that some of what individuals purchase they then resell, either at cost (when they act as an “alpha buyer” purchasing for friends) or for profit (if they are a user-seller). So neither estimate is obviously superior a priori. For the latter method for estimating spending we sum over countries and user groups the amounts spent on cannabis herb and resin. Data from the sample Member States of our EU drugs market study are used to impute spending rates for the other countries.

These approaches suggest a range of €6.7 billion to €9.8 billion annually circa 2010, but this is before adjusting for the “consumption gap.” This paper does not calculate or advocate for the use of a particular “consumption gap” adjustment; we think this is best done ex post in a judgmental way, not via some calculation that creates an artificial sense of precision. If one believes that these survey-based estimates only capture half of the market [an estimate that is not uncommon in the alcohol literature (see review in Gmel and Rehm 2004), but generally smaller than the figures typically used for cannabis], then the market would be €13.4 billion to €19.6 billion. Those comfortable with the more conventional adjustment of multiplying by 1.25 would estimate the range to be lower: €8.4 billion to €12.1 billion.

The main reason our estimates appear lower than previous estimates is because the web survey in our EU drugs market study suggests lower rates of consumption and spending than the rules of thumb from the past which often did not differentiate by type of users. However, this is just one survey. If our estimates are wrong, it will likely be because web-based surveys under-sample the really heavy dependent users, or because of the general “consumption gap” that also appears for alcohol and tobacco.

Finally, the analyses presented in this chapter make methodological contributions that should improve future attempts to size illegal drug markets. First, we find that if we place all past-month cannabis users into four frequency groups and then calculate the total amount of cannabis consumed by use group in each of our web survey countries, there are important similarities across a number of Member States. This has implications for imputing consumption for other Member States. Second, we show that consumption intensity (grams per day of use) is positively correlated with consumption frequency (days used per month). Hence, multiplying the average number of use-days by the average number of grams consumed per use day generates consumption figures that are lower than the correct approach of multiplying each individual’s days consumed and daily consumption figures and then averaging. I.e., for each frequency group and country,  $E[\text{days}] * E[\text{grams per day}] < E[\text{days} * \text{grams per day}]$ , where  $E[]$  stands for taking the average or expected value. The latter is preferred and can now be estimated using the web survey data; thus increasing what our estimates would have been if we used the other, more traditional method. We hope this observation gets incorporated into future sizing exercises and motivates the collection of additional data about quantities consumed and expenditures.

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# 5. Managing potential conflict in illegal markets: an exploratory study of cocaine smuggling in the Netherlands

Melvin Soudijn and Peter Reuter

## 5.1 Key findings

- Cocaine smugglers frequently face potential disputes with others in the same business as the result of shipments being seized, disagreements about money or drugs or failure of agents or customers/suppliers to perform. They may use violence to resolve these, as is often assumed. We developed an "incident data base" from 31 large files on Dutch-domiciled cocaine smugglers. Analysis of this data-base showed that many disputes were resolved without either violence or its threat; the parties might agree that no one was at fault or that compensation could be provided in a later transaction.
- The disputes that were most likely to result in violent resolution were those involving participants of different ethnic origins or participants in different organizations. However the incident data-base, with only 33 observations, is too small to make these findings more than indicative.
- This study was restricted to a specific drug (cocaine), level (smuggling) time (2005-2010) and place (the Netherlands). However, methodologically the study suggests that it is possible to use rich investigative data to examine what drives violence in the drug trades.

## 5.2 Summary

Illegal enterprises operate in settings of risk and uncertainty very different from those in legal businesses. Not only do the state and competitors threaten their transactions and assets but they cannot make use of written contracts, settle disputes through the civil courts or obtain information as readily as their legal counterparts. Thus disputes are likely to be more common. Moreover those entering illegal markets include many whose skill is intimidation. It is widely assumed that illegal entrepreneurs, such as drug dealers and human smugglers, make routine use of violence to settle disagreements or punish failures. Studies of drug retailing, mostly in the U.S., show a variety of non-violent dispute resolution methods but there is no study of high level traffickers, whose risk-reward calculations may differ.

The data for this research were extracted from 31 case files on cocaine smuggling enterprises involving Dutch-resident Ringleaders. The cases included all the major investigations of cocaine smuggling from 2005-2010. Each enterprise had been involved in smuggling of shipments of multiple kilos, typically tens of kilos, in a single shipment, worth hundreds of thousands of Euros. Since the Dutch police make extensive use of wiretaps and other electronic surveillance the case files are relatively rich in their description of interactions among participants.

We used data on 33 incidents involving failure of cocaine smuggling related transactions of smugglers to examine the use of violence and threats. We focused on incidents that could potentially, or did actually, derail the trafficking of cocaine. Many involved transactions between Dutch-domiciled dealers and exporters from South America. We defined incident in a broad sense keeping it open to include all kinds of possible failures. These could range from accidentally faxing the details of an operation to the wrong fax number, forgetting to extract all the cocaine out of a shipment of fruit to even stealing shipments of cocaine. These incidents often led dealers, otherwise cautious in their phone conversations, to be more open in their communication in order to deal with a crisis expeditiously. We focused our analysis on the principal in the operation, hereafter called the Ringleader.

Most Ringleaders are also involved in the smuggling and production of other drugs including, Ecstasy, precursors, hashish, Dutch cannabis, or heroin. They do not seem to have much involvement in illegal markets other than drugs; one is involved in cigarette smuggling and another in owns a brothel.



The data show that in most instances the Ringleader follows routines perhaps not very different from those in legitimate organizations, investigating whether the balance of evidence favours an interpretation of bad luck or underlying incompetence as opposed to an effort to defraud. As shown in the Table, sixty percent of the incidents were resolved without threat or actual violence. Participants were often willing to negotiate a compromise. For example, in one incident a seller says that the buyer did not hand over as much money as promised following a cocaine delivery; they agree that this will be dealt with in their next transaction. These kinds of agreements point to the confidence of the participants that their transactional partners have a high probability of continuing to operate, suggesting that stable markets may be less violent.

However forty percent of incidents did involve the actual use of violence; this count includes two incidents in which the police stepped in to rescue the target. Looking not at incidents but at Ringleaders (i.e. taking into account that there are multiple observations on some individuals) we still find seven out of 18 who are involved in at least one incident resolved with violence. It appears that it is not just a few “bad apples” that feel the need to use violence.

**Table Characteristics of incidents**

<b>Incident type</b>	
Money dispute	9
Loss of drugs	7
Problems offloading	5
Police confiscation	5
Unexpectedly low quality of drugs	3
Delay	1
Quitting	1
Stealing cocaine	1
Exposing operation	1
	33
<b>Resolution</b>	
Violence	11
Barter	8
Leave it	5
Physical proof	5
Find more capable party	2
Rerouting	2
	33

With only 33 incidents in the database, analyses of sub-groups can only be descriptive and indicative. We hypothesized that incidents involving participants from the same ethnic group would be less likely to require violence for resolution and similarly that incidents within a group rather than between groups would also be less likely to generate violence. The data are consistent with both these hypotheses.

It is perhaps surprising that such a high percentage of these incidents involves the use of violence. In some cases the culpable party had acted in an egregious fashion, which is not to justify morally the violence but to suggest that it was not arbitrary and capricious. Cocaine smuggling attracts many individuals who indeed cannot be trusted; their behaviour may reasonably provoke forceful responses, shading into violence.

This is the first systematic study of violence in the higher levels of the drug trade. This sample is limited in scope; Dutch-resident dealers, cocaine, 2005-2010. While it adds to the literature by providing data on high-level transactions, it cannot be generalized to other drugs, places and times. For example, the Netherlands is a country characterized by low levels of violence, which may discourage violence in the drug trades. The results here are preliminary and further analysis of the data-base is expected.

## 6. Insights about cannabis production and distribution costs in the EU

Beau Kilmer and James Burgdorf

### 6.1 Key findings

- Enforcing laws against the production and distribution of cannabis dramatically inflate their costs. The increase is largely driven by having to compensate producers and suppliers for their risk of arrest, incarceration, seizure, and violent injury as well as by the inefficiencies associated with having to operate covertly.
- In Morocco it costs approximately €90 – €180 to purchase the cannabis needed to produce 1kg of cannabis resin. The value of this 1kg increases as it moves along the supply chain (See Figure S1 below). After accounting for labour and distribution costs as well as risk compensation, that same 1kg generates approximately €8,000 in gross revenues in a Dutch coffee shop.
- The marginal cost of producing organic, high-potency, medical-grade herbal cannabis that has been professionally tested and packaged and produced in a Dutch facility with vegetation and flowering rooms that are both 56 square meters is about €1,000 per kilogram.
- Removing the prohibition on cannabis production and distribution could dramatically reduce the production and distribution costs; however, the size of the decrease will largely depend on the type of production that is allowed and how the market is regulated (e.g. will there be several private producers, a state monopoly, non-profit cooperatives, etc.). Further, the significance of the drop will also depend on the economic situation of the producing countries. We would expect to see larger drops in industrialized countries where there are significant risks associated with being arrested and sanctioned.

### 6.2 Summary

Policy makers interested in understanding the fiscal and public health implications of alternative cannabis regimes should not ignore the effect of these policy changes on cannabis production and distribution costs.<sup>1</sup> Indeed, if changes in production and distribution costs are large enough to influence the retail price, this could influence total consumption since consumers are sensitive to the price of cannabis (i.e., when price decreases, use increases; see reviews in Pacula 2010; Gallet 2013).<sup>2</sup>

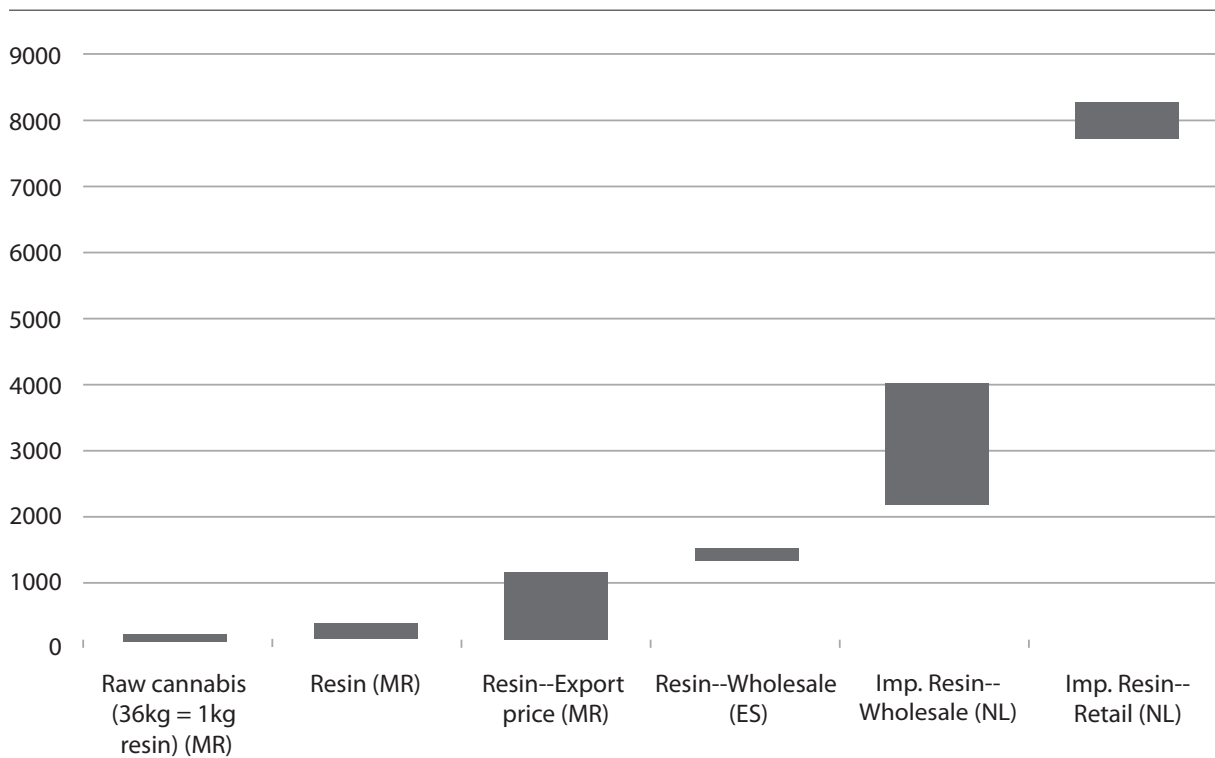
Enforcing laws against the production and distribution of cannabis dramatically inflate their costs. The increase is largely driven by having to compensate producers and suppliers for their risk of arrest, incarceration, seizure, and violent injury as well as by the inefficiencies associated with having to operate covertly. If cannabis were commercially farmed outdoors like any other agricultural good in developed countries, the production and distribution costs would plummet (see e.g. Gieringer 2009; Caulkins 2010; Caulkins et al. 2012). For example, Caulkins et al. (2012) estimate that the cost of producing a kilogram of high-potency cannabis could drop below €100 in developed countries if cannabis was allowed to be commercially farmed outdoors like other crops that need to be transplanted.

This chapter demonstrates how cannabis prices increase across the supply chain in the EU as distributors take additional mark-ups to compensate themselves not only for shipping costs but also for the risks they assume. Figure S1 displays how the value of 1kg of cannabis resin increases as it moves from Morocco to the EC. In Morocco it costs about €90 – €180 to purchase the 36kg of cannabis needed to produce 1kg of cannabis resin. After accounting for labour and distribution as well as risk compensation, that same 1kg generates about €8,000 in gross revenues in a Dutch coffee shop.

1 Please note that this paper does not take a position about whether cannabis prohibition, or even cannabis for that matter, is a good or bad thing.

2 Of course, the overall effect will also depend on the tax rate and regulatory structure. In addition, policy changes may also have non-price effects on consumption (MacCoun 2010). For a more comprehensive discussion of the possible consequences of alternative cannabis production policies, see Kilmer et al. (2010) and Caulkins et al. (2012).

**Figure S1. Approximate value of 1 kilogram of cannabis resin along the supply chain**



**Sources:** in 2012 €. Created by Kilmer and Burgdorf and based on data from Bussink et al. 2007; UNODC 2006; UNODC 2007; Afsahi 2011; Gamella and Rodrigo 2008; and Niesink et al. 2010, as cited in van Laar et al. 2011. Imp. = imported, MR=Morocco, ES=Spain, NL=Netherlands.

To learn more about the costs of producing cannabis in a legal environment in an industrialized country, this chapter looked at the government-approved medical cannabis production program in the Netherlands. While cannabis production and distribution for commercial purposes is illegal in the Netherlands and laws against upper-market suppliers are enforced, an exception is made for medical cannabis. The Dutch Ministry of Health, Welfare, and Sport created the legal infrastructure for medical cannabis in the early 2000s and makes it available in pharmacies to patients with a valid prescription. There are now approximately 1,000 medical patients in the Netherlands, and all medical cannabis is currently provided by the Dutch company Bedrocan BV.

At Bedrocan, the clones from a mother plant are nurtured in a sterile and humid room (Figure S2) before they are moved to a separate room for vegetative growth (Figure S3). Figure S2 displays a picture of one "batch" (130 plants) in the vegetation room which is about 56 square meters. These plants are eventually moved to a similarly sized room next door for flowering. These 130 plants will yield 17kg of useable cannabis bud, a figure which is consistent across harvests. The average yield is approximately 123g per plant, depending on the strain.

Figure S2. Room full of clones at Bedrocan BV



Figure S3. Room for vegetative growth at Bedrocan BV



Bedrocan reports that its marginal cost for producing a kilogram of high-potency, medical grade, organic cannabis that has been professionally tested, packaged, and gamma irradiated is approximately €1,000. When thinking about how this figure could be used to inform estimates of the cost of producing legal cannabis for the non-medical market, one should keep in mind that 1) This is a heavily-regulated, high-quality product intended to be used as medicine by those who are sick; 2) the cannabis is produced in a relatively small indoor facility in a country with a high cost of living; and 3) there is no competition. As stated earlier, the cost of producing high-potency cannabis in large outdoor commercial farms could be much lower.

In a licit market, the wholesale price will be shaped by production costs, producer mark-ups,<sup>3</sup> distribution costs, and possibly fees and taxes. With the EMCDDA (2012) reporting that wholesale prices of herbal cannabis ranged between €800-€9000 per kilogram in the EU circa 2008,<sup>4</sup> alternative policies could lead to a large reduction in the wholesale price even after accounting for the mark-up and extra costs associated with producing in a licit market.

Removing the prohibition on cannabis production and distribution could dramatically reduce the production and distribution costs; however, the size of the decrease will largely depend on the type of production that is allowed and how the market is regulated (e.g. will there be several private producers, a state monopoly, non-profit cooperatives, etc.). Further, the significance of the drop will also depend on the economic situation of the producing countries. We would expect to see larger drops in industrialized countries where there are significant risks associated with being arrested and sanctioned.

Indeed, it is possible that a country which allows a commercial market for cannabis could depress retail prices not only for itself but also for other countries. However, this will depend largely on how governments decide to regulate their newly legal markets and how neighbouring countries react to these changes. Thus, when evaluating the strengths and weaknesses of alternative cannabis policies, the cost and price implications of each option should not be overlooked.

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<sup>3</sup> A mark-up of 25% is not unreasonable for agricultural producers (Caulkins 2010).

<sup>4</sup> Black market wholesalers currently charge €3000-€4000 for a kilogram of high-potency domestically produced herbal cannabis in the Netherlands (Korf 2011; Spapens 2011; UNODC 2012).

# 7. The impact of changes in the Netherlands coffee shop policies on local buyers and markets

Tiggey May and Oonagh Skrine

## 7.1 Key findings

- Of the 871 respondents to the web-based survey most (70%) reported that they were aware that the incoming government would implement a weed pass, half of the sample, however, didn't think their buying habits would change regardless of whether a weed pass was introduced or not.
- During 2012, few respondents (representing the 12 provinces) reported that they had noticed a change in the number of coffee shops in their local area. Over three-quarters reported that their attendance at coffee shops had remained the same over the previous 12 months despite the proposed changes having been implemented in a number of areas of the Netherlands. For instance, the so-called weed pass was only 'tested' in the three Southern provinces for some months in early 2012.
- A number of respondents were critical of the introduction of the weed pass, mainly because they considered the policy of condoning cannabis use and sale whilst it remained illegal nonsensical.
- Just over a fifth (22%) believed that the cannabis market should be regulated to ensure its separation from more serious drugs. The same number (22%) of respondents commented that they believed the introduction of weed passes would open the cannabis market to a more diverse range of criminals.
- Dutch drug policy experts tended to agree that the Netherlands had achieved an effective market separation; it is widely accepted that the cannabis markets operate separately from the heroin and cocaine markets. However, how cannabis is supplied to coffee shops is largely unregulated, un-policed and rarely monitored - leaving it open to infiltration from organised crime groups.
- The expert interviewees agreed that whilst the weed pass would undoubtedly alleviate some of the problems caused by drug tourism, none thought it would eradicate them.
- Regulating the supply of cannabis to coffee shops remains a challenge for the Dutch government.

## 7.2 Summary

Since the late 1960s cannabis use and the possession of cannabis for personal use has been condoned in the Netherlands. In an effort to separate the markets for hard (heroin and crack) and soft (cannabis) drugs, the Dutch Narcotics Act of 1976 officially decriminalised the possession of cannabis for personal use and the sale of small quantities, characterising it as a misdemeanour rather than an offence. From 1994 there has been a trend towards tightening the coffee shop regulations. By May 2012 the then government announced a new policy, restricting access to coffee shops through a membership pass for local residents (the weed pass). The aim of the pass was twofold: to keep coffee shops small, regulated and only for the use of the local population, while at the same time rejecting access to drug tourists travelling to the Netherlands. The new rules were provisionally put in place in a few municipalities in the South of the country in 2012 and were due to be implemented nationwide in January 2013. A number of commentators, including coffee shop owners and patrons expressed concerns about the proposed new policies stating that street dealing would increase, the tax revenue from coffee shops would decrease and the market separation that had been the cornerstone of Dutch drug policy would be eroded. The aim of this small qualitative case study was to provide a snapshot (in time) of the views of members of the public and a small number of Dutch drug policy experts of the proposed coffee shop changes.

## **Methods**

The information used to inform this work was drawn from the following sources:

- an English language literature review of sources published in the last 20 years;
- a web-based survey with 871 Dutch respondents (this survey was carried out prior to any changes being implemented);
- in-depth interviews with a small number of Dutch drug policy experts.

## ***Dutch cannabis use and regulation***

Since the late 1960s cannabis use and possession for personal use has been condoned in the Netherlands as part of a consensus not to combine morality with criminal justice. In the 1970s it began to be argued that criminalising cannabis could lead users to further involvement with drugs considered more dangerous, such as heroin. In an effort to separate the markets of hard and soft drugs, the Dutch Narcotics Act of 1976 officially made a separation between soft and hard drugs and decriminalised the possession of cannabis for personal and the sale of small quantities, characterising it as a misdemeanour rather than an offence. The prevalence of cannabis use among young people remained much the same, despite the more relaxed legislation. Throughout the 1980s the coffee shop system emerged and, despite the sale of cannabis remaining illegal, toleration led to their proliferation.

In 1994 a new coalition took a tougher stance on cannabis regulations. With the aim of reducing public nuisance, drug tourism, cannabis cultivation and coffee shop related crime, a number of new restrictions were introduced. Limits were imposed on the quantity of cannabis a coffee shop could sell in any one day or house; minors were not permitted to make purchases; the number of plants allowed for home cultivation was limited; and mayors' powers to close coffee shops were bolstered. Between 2000 and 2009 the number of coffee shops nationally fell from 813 to 666.

In 2009 a review and evaluation (by leading Dutch drug policy experts) of Dutch drug policy was launched. One conclusion of the review was that the separation of the markets was reasonably successful. The expert committee recommended that coffee shops should move towards being 'closed clubs' thus limiting drug tourism. The committee also highlighted that ideally there should be a national policy on how coffee shops are managed but this policy should allow municipalities the flexibility to respond to local demands. Ideally local responses should involve the mayor, Public Prosecution Service, the police and preferably include an input from the municipal health service. In conclusion the Committee stated that it: "would call for a more systematic approach, with further development of drugs policy in a more systematic and controlled manner than we have seen over the past few years ..... and with more guidance from central government..... National policy will have to be more actively shaped, and this will include the setting up and evaluation of experiments".

The government responded and issued a memo outlining their proposed new policy which was to make coffee shops quiet places for adult local residents, to restrict the number of coffee shops in any one area, and to increase efforts against organised criminals selling cannabis to coffee shops.

In May 2011, the government announced a policy to restrict access to coffee shops through a membership pass, which was to be open only to adults (although the requirement that buyers are adult is not new) resident in the Netherlands, with the stated aim of preventing foreign drug tourists from travelling to the Netherlands. The new rules were due to be implemented countrywide in January 2013. Coffee shop owners expressed concerns that customers would be unwilling to register with coffee shops and that street dealing would increase, the unwillingness to register was born out by surveys with consumers. After the 'weed pass' was implemented in the Southern provinces, such as Limburg, there were reports of increased street dealing. During the writing of this report the Dutch government changed and decided not to introduce the weed pass, instead suggesting that visitors should present their identity card proving that they are residents of the Netherlands. The implementation of this rule has been left at the discretion of individual municipalities, some of which have decided to continue to allow non-Dutch residents to purchase cannabis.

## ***The impact of the weed pass on the general public***

Our survey was carried out in early 2012, prior to the weed pass plan being abandoned. The views of the respondents therefore have to be viewed from that perspective. Just over two-thirds (70%) of the web-based survey respondents were aware that the weed pass was due to be implemented in the Netherlands; just under half, however, believed that its introduction would have little or no effect on their purchasing habits. Prior to the weed pass becoming formal legislation a number of areas in the South of the country implemented some of the proposed changes; however, few respondents of the web-based survey reported noticing any changes occurring in the number of coffee shops in their local area. Although the majority of respondents did report that stricter policies were being imposed by the proprietors of their local coffee shops, for example:

restrictions were being placed on the amount individuals could purchase and tighter control was being imposed on who was admitted to the premises. Despite the regulations changing, just under a quarter of the sample (across the country) reported that their attendance at coffee shops had remained the same over the previous 12 months.

### ***Dutch cannabis policies: the views of the web-based survey respondents***

It would appear that with the tightening of the regulations that govern Dutch coffee shops there has been a concurrent drop in public support for Dutch drug policy. Almost half of the survey respondents were critical of current Dutch cannabis policy stating that it was nonsensical. Although a third supported the new coffee shop policies. Just over a fifth (22%) believed that the cannabis market should be regulated to ensure it retains its separation from other more serious drug markets. Nearly a fifth (22%) of respondents believed that the introduction of weed passes would open the cannabis market up to a more diverse risk taking range of criminals.

### ***Dutch cannabis policies: the views of Dutch drug policy experts***

Dutch drug policy experts tended to agree that the Netherlands had achieved an effective market separation; they agreed that the cannabis market operates separately from the heroin and cocaine markets but were unsure whether the tighter coffee shop regulations would erode this previously successful policy of market separation. The experts voiced greater concern regarding the supply of cannabis to coffee shops, stating that how cannabis is supplied to coffee shops is largely unregulated, un-policed and rarely monitored - leaving it open to infiltration from Organised Crime Groups. The expert interviewees agreed that whilst the weed pass would undoubtedly alleviate some of the problems caused by drug tourism it was unlikely to eradicate them entirely and might even create other unforeseen problems.

### ***Conclusion***

The introduction of the weed licence has been a relatively contorted and confusing process, with its impact being purely dependent upon where you live. Although the Southern municipalities adopted the weed pass in 2012, with the aim that the weed pass would be implemented nationwide in January 2013 the new Government in November 2012 abandoned this plan. The new government instead implemented the less restrictive proof of residency requirement (see above). In essence, decisions on who to allow into coffee shops have now been left in the hands of the mayor of each municipality. Although complex and confusing for residents and visitors alike, the decision to devolve responsibility to local politicians seems a pragmatic one, especially in light of the range of challenges posed by the very different provinces. The more pressing, although less visible, challenge to Dutch drug policy, however, is how to control the illicit (street) drug market, which is likely to flourish as and when coffee shops close, if customers have to register and if drug tourists are unable to buy from coffee shops. Another equally pressing issue, is how to regulate the supply of cannabis to coffee shops – an issue that appears to have been left in the “too hot to handle basket” by successive Dutch governments. This particular issue, however, may now become far more pressing if the risk adverse small scale suppliers desist from supplying, and the risk taking organised criminal gangs take over.





## 8. Key trends of the illicit drugs market and drug policy in the EU: what do experts anticipate for the coming years?

**Franz Trautmann**

With contributions of Martine Themmen to the analysis of the drug policy trends

### 8.1 Key findings

- The study confirms the future importance of key trends we had identified in our earlier study on the global illicit drug markets study (the increase of scale, growing globalisation and diversification of the drugs market and – in the field of drug policy – the decriminalisation of use and possession of small quantities for personal use, a tougher approach to illicit drugs supply, the wider acceptance of harm reduction and regulation instead of prohibition in drug control policies). Experts also emphasised the importance of the following trends for the coming years: the increasing importance of internet as means of drugs distribution, the impact of the economic crisis on the drugs market and on drug policy and the (further) increase of poly substance use.
- Experts underline that the development of the illicit drugs market is following the same general 'economic laws' as the different licit markets. The increase of scale, globalisation and diversification of the illicit drugs market is at the same time partly understood as unintended consequences of the current prohibitive drug control policy.
- Some of the examined drug policy trends (decriminalisation of use and possession of small quantities for personal use, wider acceptance of harm reduction and regulation instead of prohibition in drug control policies) are interpreted to be a response to dissatisfaction and/or disappointment with the results of current drug policy, to its unintended consequences (individual and public health risks and the contribution to illicit economies and organised crime), to inconsistencies of the policies towards licit and illicit drugs and to the unreasonableness of criminal proceedings in response to the use of illicit drugs.
- The economic crisis is expected to have a major impact both on the drugs market (e.g. increase of demand) and on drug policy (e.g. budget cuts). Experts also mention that these effects might be intensified by a rise of political conservatism in EU Member States, which might have an impact on social and health policies and support a tougher approach in drug policy. This could lead to divergence from the drug policy consensus reached in the EU in the past decade (e.g. decreased support of harm reduction in some Member States).

### 8.2 Summary

In this study we explored expert views on the future development of selected key trends of the illicit drugs market and policy responses in the EU. As a tool for consulting a number of selected experts we used a variant of the Delphi method, consisting of the following consecutive steps:

1. Consulting a selected group of EU drug experts about key trends of the illicit drugs market and policy responses in the EU and about their future development in three rounds. For the first two rounds we used a web-based application. For the last round we sent out questionnaires through e-mail.
2. Formulating a draft paper, summarising the EU experts' expectations about the development of these key trends.
3. A one round consultation of experts from the seven sample Member States on the conclusions in this draft paper, using questionnaires through e-mail.
4. Consulting international experts to discuss the findings and conclusions from this consultation and writing the report.

To take into account the diversity of viewpoints on trends of the illicit drugs market and policy responses we focused on experts representing different relevant viewpoints on both demand and supply issues, i.e. policy makers, researchers/drug policy analysts, representatives from demand reduction services, police / justice, user/'hands-on' expert and journalists. In

this study we present the major findings from this consultation exercise, followed by a discussion of a number of key trends and some recommendations for a more pro-active policy response to these trends.

Point of departure was a list of key trends we had identified in our earlier study of the global illicit drug markets (Reuter and Trautmann 2009). The selected market trends concentrated on different aspects of increasing drugs supply (increase of scale, growing globalisation and diversification), while the selected policy trends focused around convergence of drug policy in the EU (decriminalisation of use, a tougher approach to illicit drugs supply, wider acceptance of harm reduction and regulation instead of prohibition in drug control policies). The first two consultation rounds showed that the majority of consulted experts agreed with the future importance of these trends.

However, they also brought forward suggestions for other trends which might play an important role in the coming years. The responses we received show that there are three issues which are seen as particularly important by a significant number of respondents:

- The increasing importance of internet as means of drugs distribution;
- The impact of the economic crisis on the drugs market and on drug policy;
- The increase of poly substance use.

There is wide agreement among the consulted experts that general 'economic laws' ruling licit and illicit markets play an important role in the increase of drug supply. The increase of scale, globalisation and diversification of the illicit drugs market is at least partly understood as being unintended consequences of the current prohibitive drug control policy. The diversification of supply is seen as an element of broader socio-cultural developments driven by trends in youth culture. Advanced pharmacological and technological knowledge and search for new, cheaper substances support the increase in scale and globalisation of production. Experts also point at the process of integration of the EU and the development of an open European market as crucial elements. There is debate about the importance of internet as market place for licit and illicit drugs.

The majority of consulted experts expect the economic crisis to have a major impact on the illicit drugs market. It is seen as fuelling, in general, the use of illicit (and licit) substances – in particular poly substance use – and through this also boosting drugs supply. Moreover, different experts expect an increased involvement of young people in selling and producing drugs – especially home growing of cannabis – to make money.

Regarding drug policy the examined trends (decriminalisation of use and possession of small quantities for personal use, wider acceptance of harm reduction and regulation instead of prohibition in drug control policies) are interpreted as a response to dissatisfaction and/or disappointment with the results of current drug policy, with its unintended consequences (individual and public health risks and the contribution to illicit economies and organised crime), and with inconsistencies of the policies towards licit and illicit drugs and the unreasonableness of criminal proceedings as response to the use of illicit drugs.

The economic crisis is expected to have a major impact on drug policy and the drugs market. Experts assume that it will result in a lower ranking of drug policy on the political agenda and in budget cuts. However, there are differences of opinion which areas will be primarily affected by these envisaged cuts. The majority of consulted experts think that in particular the budgets for drug treatment and harm reduction will be reduced. Different experts also point out that these effects might be intensified by the rising political conservatism in EU Member States, which is expected to have a negative impact on social and health policies and to support a tougher approach in drug policy. This could lead to divergence from the drug policy consensus reached in the EU in the past decade. A substantial number of experts point in particular to signs that harm reduction is losing ground in the EU.

A Delphi exercise does not allow for making clear-cut policy recommendations as to which changes in EU drug policy will help to effectively address potential future challenges. Still, there are some conclusions which can be drawn from our study. One conclusion is that it would be worthwhile to explore alternatives for the current prohibitionist drug control approach, e.g. temporary control measures and regulation policies instead of prohibition. A second conclusion is that one should consider improving the knowledge basis of drug policy, particularly regarding (cost)effectiveness of policy measures, monitoring the drugs market, research of effects of new psychoactive substances and poly substance use and exploring the functioning and importance of internet as drugs market place.

## References

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