TRANSFORM
Getting drugs under control

How to Regulate Cannabis

A Practical Guide

SECOND EDITION

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Updated October 2016

Transform Drug Policy Foundation

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Transform Drug Policy Foundation is an international, charitable think tank with staff in the UK and Mexico. We are working to get drugs under control by advocating for strict regulation of all aspects of the drug trade. We aim to equip policy makers and reform advocates with the tools they need to fundamentally change our current approach to drugs and create a healthier, safer world.

Transform emerged in response to the increasingly apparent failings of current national and international drug policy. We draw attention to the fact that drug prohibition itself is the major cause of drug-related harm to individuals, communities and nations, and should be replaced by effective, just and humane government control and regulation. We provide evidence-based critiques of the war on drugs, new thinking on alternatives to the current enforcement-oriented regime of prohibition, and expertise on how to argue for reform. In addition to working with a broad range of media, civil society and professional groups globally, we advise national governments and multilateral organisations, and we hold ECOSOC special consultative status at the UN.

Our vision

An end to the war on drugs and the establishment of an effective system of regulation that promotes health, peace and security, sustainable development and human rights

Our mission

We will inspire countries to explore and establish the legal regulation of drugs

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Introduction

This is the second edition of our guide to regulating legal markets for the non-medical use of cannabis. It is for policy makers, drug policy reform advocates and affected communities all over the world who are seeing the question *'Should we maintain cannabis prohibition?'* moving to *'What will the regulation framework that replaces prohibition look like?'* This guide builds on Transform's many years exploring and promoting effective regulation models as alternatives to prohibition. It arrives in a very different world from our landmark 2009 publication **After the War on Drugs: Blueprint for Regulation.**

The cannabis regulation debate is now part of the political mainstream, with multiple jurisdictions at the city, state and country levels, considering, developing and implementing a range of regulated market models for cannabis. These include Spain's non-profit, cannabis social clubs, commercial enterprises in the US and the Netherlands, and Uruguay's more government-controlled model. Since the first edition of this guide was published, cannabis reform around the world has continued to accelerate. Two more US states have legalised (and many more are poised to follow, notably including California), Jamaica has legalised cannabis for industrial, medical and religious purposes, and Canada has joined Uruguay in legalising at a national level. This second edition of the guide has a number of updates - including the latest information and analysis from these emerging cannabis policy innovations around the world. For a summary of key regulation models from around the globe see the table on p.252.

Transform, working with other colleagues, has produced this guide to help those engaged in cannabis policy through the key practical challenges involved in developing and implementing an effective regulation approach

aimed at achieving the safer, healthier world we all wish to see. A world the so-called 'war on drugs' has conspicuously failed to deliver.

About this guide

The social, political, economic and policy landscape of the many jurisdictions approaching this issue vary widely, and each will need to tailor their policy responses and regulatory models accordingly. So rather than lay out a prescriptive set of regulations detailing a *'one-size-fits-all'* model, this guide explores the major issues that need to be considered, and the pros and cons of a range of models and responses. It makes broad recommendations that are flexible enough to help those interested in cannabis regulation to develop an approach appropriate to their local circumstances.

- Section 1 **provides the foundation** for a regulatory approach, beginning with the changing political context and ending with some key conclusions and recommendations

- Section 2 tackles **the detail of how to regulate** the various aspects of a cannabis market, including key challenges and broad recommendations for best practice

- Section 3 focuses on **specific cannabis-related issues** that run parallel to wider market regulation questions, nationally and internationally

- Appendices include a **table comparing key models for cannabis regulation** including Uruguay, California, Washington, Colorado, The Netherlands and Spain

Section 1

Foundations

Political context

The debate around the legalisation and regulation of cannabis has rumbled on ever since the drug was first prohibited. But it is finally nearing its end point. Support for a punitive prohibitionist approach is waning rapidly, while globally, support for pragmatic reform has passed a tipping point in mainstream political and public opinion.

Cannabis is the world's most widely used illicit substance. The United Nations Office on Drugs and Crime (UNODC) estimates, probably conservatively, that 183 million people use it worldwide each year.[1] Retail expenditure on the drug is valued at between 40 and 120 billion Euros,[2] providing a lucrative, untaxed income stream for criminal profiteers.

Nearly a century ago cannabis, along with other drugs, was identified as an *'evil'*, a threat to be fought in a winnable war that would completely eradicate the non-medical use of these substances. The experience of

1 UNODC (2016) **2016 World Drug Report**. **www.unodc.org/doc/wdr2016/WORLD_DRUG_REPORT_2016_web.pdf**

2 Kilmer, B. and Pacula, R. (2009) **Estimating the size of the global drug market: A demand-side approach**, RAND Corporation. **www.rand.org/pubs/technical_reports/TR711.html.**

the past 50 years demonstrates that prohibitionist policies have not, and cannot, achieve their stated aims.[3] Worse still, as even the UNODC itself acknowledges,[4] these policies are generating a range of disastrous *'unintended consequences'*. Given how well documented these are, they can no longer really be called *'unintended'*— they are simply the negative consequences of prohibition. Indeed the UNODC's own analysis demonstrates that it is the drug control system itself that is ultimately responsible for most drug related harms — including by creating the financial opportunity that enables transnational organised crime groups to compete for power with States across the world.

However, rather than focussing on reducing harm to individuals and society, fighting the two perceived *'threats'* - of drugs themselves and those who supply them - has often become an end in itself. This has been accompanied by a retreat into largely self-referential and self-justifying rhetoric that makes meaningful evaluation, review and debate difficult, while positioning those who advocate for change as somehow *'pro-drugs'*. As a result we have had a high-level policy environment that routinely ignores critical scientific thinking, and health and social policy norms.

The extent of this failure has been chronicled in detail by many hundreds of independent and objective assessments by government committees, academics, and nongovernmental organisations across the world, over many decades.

It is not the aim of this guide to explore this critique, though it is inevitably woven into much of the analysis because many of the current risks and harms associated with cannabis and cannabis markets are directly or

3 Werb, D. et al. (2013) **The temporal relationship between drug supply indicators: an audit of international government surveillance systems**, BMJ Open. **www.bmjopen.bmj.com/content/3/9/e003077.full.**

4 See: UNODC (2008) **2008 World Drug Report**, p.212. **www.unodc.org/documents/wdr/WDR_2008/WDR_2008_eng_web.pdf**; Rolles, S. et al. (2012) **The Alternative World Drug Report**, Count the Costs initiative. **www.countthecosts.org**; Reuter, P. (2009) **The unintended consequences of drug policies**, RAND Europe, prepared for the European Commission. **www.rand.org/content/dam/rand/pubs/technical_reports/2009/ RAND_TR706.pdf.**

indirectly due to prohibition. Aside from the harms associated with the mass criminalisation of cannabis users, the lack of market regulation under the prohibitionist model maximises the harms associated with cannabis use, and by default, abdicates control of the market to criminal entrepreneurs.

This guide begins with the premise that not only has prohibition failed, but also that, at least for cannabis, this is rapidly becoming the consensus view. As a result, the debate has moved beyond whether prohibition is a good idea, or whether it can be tweaked and modified to work. The reality is that cannabis policy and law is now being actively reconsidered in mainstream public, media and political debate in many parts of the world, and numerous real reforms are already underway. Almost universally, these reforms are moving away from *'war on drugs'* enforcement models, and towards less punitive approaches to users, with a greater emphasis on public health interventions and human rights, and now serious exploration of the legal regulation of cannabis production and availability.

At the time of writing, around 20 US states have decriminalised cannabis possession for personal use[5] and 25 have some form of access to medical cannabis. In 2012, Washington and Colorado states became the first jurisdictions in the world to legalise and regulate cannabis production and supply for non-medical use (following state level ballot initiatives), followed in 2014 by Alaska, Oregon and the District of Columbia. Yet more US states are set to follow suit, including California, the world's 7th largest economy. In 2013, Uruguay's government became the first nation state to establish a legally regulated cannabis market (see Cannabis regulation around the world, p.252), followed in 2015 by Canada, the first G7 country to legalise. Similar developments are underway across the globe:

5 Enforcement responses and penalties vary from state to state, but typically, decriminalisation means no arrest, prison time, or criminal record for the first-time possession of a small amount of cannabis for personal use; In most cases these offenses are treated like a minor traffic violation.

- Decriminalisation of cannabis possession is increasingly common,[6] with multiple jurisdictions now also including provisions for cannabis social clubs and home growing (see p.65 and p.68)

- A range of municipal and state-level initiatives are challenging national governments to explore regulation models. For example in Mexico City,[7] Copenhagen in Denmark,[8] and more than 60 municipalities in the Netherlands[9]

- The debate is opening up across the world including in the Caribbean,[10] South Africa,[11] India and Morocco[12]

Clearly the situation is evolving rapidly, and policy makers will need to monitor and incorporate lessons learnt. Wider reforms are also being discussed on the international stage, as other nations, particularly in Latin America, call for alternative approaches to simply prohibiting all drugs. In a joint declaration at the 2012 UN General Assembly, the presidents of Guatemala, Colombia and Mexico formally urged the UN to review the current drug control system and, *"analyse all available options, including regulatory or market measures"*. As a result of these calls, the UN held a General Assembly Special Session in April 2016 to review responses to *'the world drug problem''*. The UN Secretary-General supported this process,

6 Eastwood, N., Fox, E., and Rosmarin, A. (2016) **A quiet revolution: drug decriminalisation in practice across the globe**, Release. **http://www.release.org.uk/sites/default/files/pdf/publications/A%20Quiet%20Revolution%20-%20Decriminalisation%20Across%20the%20Globe.pdf**

7 Grillo, I., **North America's Largest City Moves to Legalize Pot**, TIME, 14/10/13. **world.time.com/2013/10/14/north-americas-largest-city-moves-to-legalize-pot/.**

8 Stanners, P., **Life after cannabis prohibition: The city announces its ambitions**, Copenhagen Post, 15/03/13. **www.cphpost.dk/national/life-after-cannabis-prohibition-city-announces-its-ambitions.**

9 de Graaf, P.(2013) **'Burgemeesters werken aan manifest voor legalisering wietteelt',** Volkskrant.nl. **http://www.volkskrant.nl/vk/nl/2686/Binnenland/article/detail/3565577/2013/12/20/Burgemeestersmanifest-voorlegalisering-wietteelt.dhtml**

10 Caribbean 360, **High time CARICOM discuss legalising marijuana** – Gonsalves, 10/09/13. **www.caribbean360.com/index.php/news/st_vincent_news/1012640.html#axzz2i43wED5H.**

11 Dolley, C., **SA plan calls for study on legalising dagga**, IOL News, 06/08/13. **www.iol.co.za/news/crime-courts/sa-plan-calls-for-study-on-legalising-dagga-1.1558530#.UmD_aBDm-Sp.**

12 Karam, S., **The green shoots of recovery? Morocco considers the legalisation of marijuana cultivation**, TheIndependent, 29/0713. **www.independent.co.uk/news/world/africa/the-green-shoots-of-recovery-morocco- considers-the-legalisation-of-marijuana-cultivation-8737155.html.**

urging member States to: *"use these opportunities to conduct a wide-ranging and open debate that considers all options."*[13] While this event did not ultimately find a way for the international drug control system to accommodate the growing calls from member states for reform, regulation was advocated in the General Assembly by nine member states, and the issue dominated much of the satellite discussions.

This high-level political shift was also reflected in the groundbreaking 2013 report from the Organization of American States, which recommended the decriminalisation of personal drug possession and use, and noted on the cannabis legalisation question that, *"Sooner or later, decisions in this area will need to be taken"*.[14] Most significantly, it mapped out a credible route through which cannabis regulation could be explored at domestic and UN levels[15] (see Cannabis and the UN drug conventions, p.211).

This updated guide is needed, not just because the legalisation and regulation debate has moved from the margins to the political mainstream, but because it has now moved from theory to reality. We, as policy makers, concerned citizens, or reform advocates have a responsibility to make sure it is done in the right way, and achieves the aims we all seek.

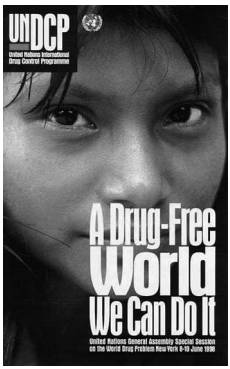
Aims and principles of effective cannabis regulation

Clear policy principles and aims are essential both for developing policy, and for evaluating its impacts to facilitate future improvement. Yet these have often been absent in both cannabis and broader drug policy, replaced by vague aims like *'sending out the right message'*, or lost in simplistic *'tough*

13 United Nations, **Secretary-General's remarks at special event on the International Day Against Drug Abuse and Illicit Trafficking New York**, 26/06/13. **www.un.org/sg/statements/index.asp?nid=6935.**

14 Organization of American States (2013) **The Drug Problem in the Americas**, p.104, **www.oas.org/documents/eng/press/Introduction_and_Analytical_Report.pdf**

15 Organization of American States, op. cit.



Poster from the 1988 UN General Assembly Special Session on the World Drug Problem

on drugs' populism: *'Drugs are evil — therefore we must fight them'*.

When aims have been outlined they have often reflected the ideological or political preoccupations of prohibitionists, meaning they are overly focused either on catching and punishing users and dealers, or on reducing or even eliminating use (often with specific reference to achieving a *'drug-free world'*) - the key aim to which all others have historically become subservient.[16]

The moral question also looms large in drug policy debates. A simplistic understanding of illicit drug use as fundamentally immoral, or even *'evil'*, provides all the justification many need for a punitive enforcement response. We argue there is a key distinction between moral judgements on individual private conduct, and moral policy and law making.[17] Ultimately, our goal is to present and explore a range of policies and measures that minimise the potential harms and maximise the potential benefits associated with cannabis, both on a personal and societal level. Transform has referred to this pragmatic approach as the *'ethics of effectiveness'*.[18]

To some, the legal regulation of cannabis may appear radical. But the legal and historical evidence demonstrates that, in fact, it is prohibition that is the radical policy. The legal regulation of drug production, supply and use is far more in line with currently accepted ways of managing health and social risks in almost all other spheres of life. So, far from being radical, this guide simply proposes that we extend established

16 For other individuals or political groupings, the aims of drug policy are different again – often serving political, populist, geopolitical or other agendas entirely. For discussion, see Rolles, S. et al (2014), **Ending the War on Drugs: How to Win the Global Drug Policy Debate**, Transform/MUCD. **www.tdpf.org.uk.**

17 Ibid.

18 Rolles, S. (2009) **After the War on Drugs: Blueprint for Regulation**, Transform. **www.tdpf.org.uk.**

principles of risk management to an area where they have rarely been applied. The principles of effective regulation outlined in the box below are adapted from those used by the New Zealand Government, but are similar to those used by most governments, and are a good starting point for discussion.

How do we know regulations are fit for purpose[19]

Proportionality

The burden of rules and their enforcement should be proportionate to the benefits that are expected to result. Another way to describe this principle is to place the emphasis on a risk-based, cost-benefit regulatory framework and risk-based decision-making by regulators. This would include that a regime is effective and that any change has benefits that outweigh the costs of disruption.

Certainty

The regulatory system should be predictable to provide certainty to regulated entities, and be consistent with other policies (in this case for example – alcohol and tobacco regulation). However, there can be a tension between certainty and flexibility.

Flexibility

Regulated entities should have scope to adopt least cost and innovative approaches to meeting legal obligations. A regulatory regime is flexible if the underlying regulatory approach is principles or performance-based, and policies and procedures are in place to ensure that it is administered flexibly, and non-regulatory measures, including self-regulation, are used wherever possible.

Durability

The principle of durability is closely associated with flexibility; the regulatory system has the capacity to evolve to respond to new information and changing circumstances. Flexibility and durability can be two sides of the same coin; a regime that is flexible is more likely to be durable, so long as the conditions are in place for the regime to 'learn'. Indicators of durability are that feedback systems are in place to assess how the legal/policy framework is working in practice; decisions are reassessed at regular intervals and when new information comes to hand; and the regulatory regime is up-to-date with technological change, and external innovation.

Transparency and Accountability

Reflected in the principle that rules development and enforcement should be transparent. In essence, regulators must be able to justify decisions and be subject

19 Adapted from: New Zealand Government (2012) **The Best Practice Regulation Model: Principles and Assessments**, p.9. **www.treasury.govt.nz/economy/regulation/bestpractice/bpregmodel-jul12.pdf**.

to public scrutiny. This principle also includes non-discrimination, provision for appeals and sound legal basis for decisions.

Capable Regulators

Means that the regulator has the people and systems necessary to operate an efficient and effective regulatory regime. A key indicator is that capability assessments occur at regular intervals, and are subject to independent input or review.

Appropriate Weighting of Economic Objectives

Economic objectives are given an appropriate weighting relative to other specified objectives. These other objectives could be related to health, safety or environmental protection, or consumer and investor protection. Economic objectives include impacts on competition, innovation, exports, compliance costs and trade and investment openness.

Transform has also explored the specific aims of drug policy over the past few years,[20] and we propose the following six key aims for cannabis policy:

- Protecting and improving public health
- Reducing drug-related crime
- Improving security and development
- Protecting the young and vulnerable
- Protecting human rights
- Providing good value for money

Each of these key aims has sub-aims, many of which this guide explores in more detail. And to be useful for policy making and impact evaluation, aims need meaningful and measurable performance indicators attached to them.

The six key aims are presented in no particular order, and their ranking will depend on the needs and priorities of a specific jurisdiction – for example,

20 For more in-depth discussion see Transform's major publications online at **www.tdpf.org.uk.**

reducing the impact of illegal cannabis farming on environmentally sensitive areas, or reducing racial disparities in criminal justice outcomes.

As discussed on p.43, determining the balance of conflicting priorities is an important factor in shaping the precise contours of any regulatory framework. Furthermore, any jurisdiction introducing a new framework for cannabis regulation will inevitably be working within a set of constraints specific to their locale. They will need to:

- Meet any requirements of the process that led to implementation. For example, the authorities implementing models in Washington and Colorado were bound by the wording of the ballot initiatives that mandated them

- Negotiate the local legal and policy environment. For example, in the US cannabis remains illegal at the federal level, placing major restrictions on state-level regulators – no US state-owned production or retail is possible because that would require government employees to break federal law. In Spain, the cannabis social club model has had to comply with the domestic decriminalisation policy (requiring non-profit production and supply), and avoid breaching UN treaty commitments

- Fit with a wide range of existing laws and regulations for other drugs or risky products or activities – such as those governing poisons, medicines, or driving

- Fit with cultural and political norms. For example, in the US there is greater hostility towards government intervention in markets than in many other countries

- Be realistic economically. If the regulatory requirements are too costly to implement, the model will be unsustainable

- Be feasible politically. For example, the need to assuage hostility from the public, political opponents, and neighbouring countries has shaped the development of Uruguay's more restrictive government-controlled regulatory model

It is important at this point to be clear that legal regulation is not a *'silver bullet'* or panacea for *'the drug problem'*. It will not eliminate problematic or harmful cannabis use, nor will it entirely eliminate the criminal market. Prohibition cannot produce a drug-free world; regulatory models cannot produce a harm-free world. Legal regulation seeks to reduce or eliminate the harms created or exacerbated specifically by prohibition and the resulting illicit markets. It is therefore useful to distinguish between the aims of drug policy reform (essentially reducing or eliminating the harms relating to prohibition, primarily the criminalisation of users and the criminal trade[21]) and the wider aims of an effective drug policy post-prohibition (minimising the harms relating to drug production, supply and use, and maximising health and wellbeing).

Approaches to cannabis policy post-prohibition will be fundamentally the same as policy for alcohol, tobacco and other drugs; the aims of policy and the regulatory tools for achieving them are identical. It will become increasingly important to see cannabis within the bigger picture of drug policy making, not isolated or in some way a *'special case'*. The ongoing process of establishing effective regulation models for cannabis markets is naturally mirrored by the process of improving regulation models for alcohol and tobacco – and it is of course both consistent and logical to advocate for both (see graphic and discussion below, p.29).

To meaningfully address the wider challenges of cannabis or other drug misuse requires improving public health education, prevention, treatment and recovery, as well as action on poverty, inequality, social exclusion and discrimination. But by implementing regulatory models based on

21 For a detailed consideration of these policy-related harms see **www.countthecosts.org**

clear and comprehensive policy aims and principles, by removing political and institutional obstacles, and by freeing up resources for evidence-based public health and social interventions, legal regulation can potentially create a more conducive environment for achieving improved drug policy outcomes in the longer term.[22] So reform can not only reduce prohibition harms, but also create opportunities and benefits.

> Prohibition cannot produce a drug-free world; regulatory models cannot produce a harm-free world

This guide focuses specifically on the market regulation dimension of cannabis policy. While there are clear implications and overlaps with prevention, education and treatment, these important policy areas are not dealt with in any detail.

A spectrum of policy options available

As **Figure 1** [23] and the table below show, there is a spectrum of legal/policy frameworks available for regulating the production, supply and use of non-medical psychoactive drugs - in this case, cannabis. At one extreme are the criminal markets created by absolute prohibition, moving through less punitive prohibition models, partial/de facto/quasi-legal supply models, legally regulated market models with various levels of restrictiveness, to legal/commercial free markets at the other extreme.

The question is, what kind of regulation model will most effectively achieve the policy aims of any given jurisdiction?

22 See Rolles, S. et al (2014), **Ending the War on Drugs: How to Win the Global Drug Policy Debate**, Transform/MUCD. **www.tdpf.org.uk**.

23 Adapted from an original concept by John Marks.

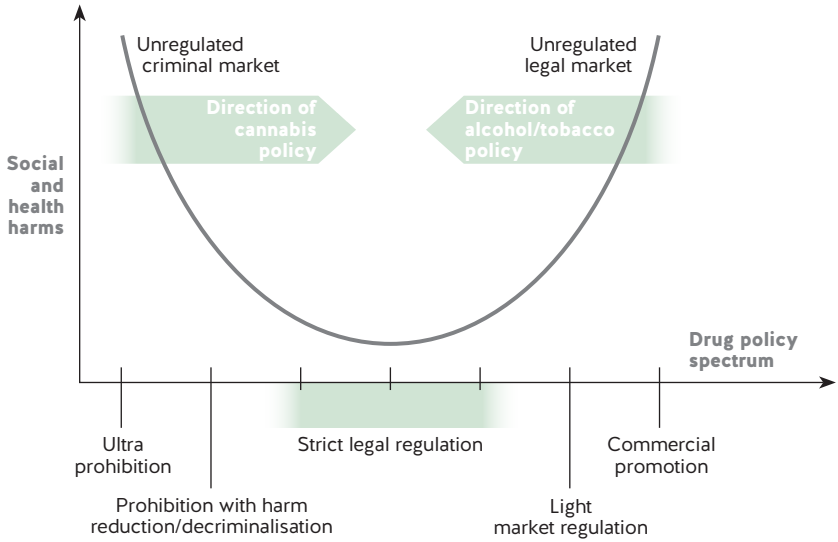


Figure 1

At either end of this spectrum are effectively unregulated markets. The models advocated in this guide are based on the proposition that both of these options are associated with unacceptably high social and health costs because those in control of the trade - legal or illegal - are motivated almost exclusively by profit. Between these extremes exists a range of options for legally regulating different aspects of the market in ways that can minimise the potential harms associated with cannabis use and cannabis markets - while maximising potential benefits.

Given the reality of continuing high demand for cannabis, and the resilience of illicit supply in meeting this demand, the regulated market models found in this central part of the spectrum will best be able to deliver the outcomes we all seek. Contrary to the suggestion that such reform is *'liberalisation',* drug market regulation is a pragmatic position that involves introducing strict government control into a marketplace where currently there is little or none.

It is interesting to note how many governments that strongly resist the legalisation and regulation of cannabis are, nonetheless, moving towards this graphic's centre ground - in particular adopting less punitive approaches towards users, and emphasising public health interventions and treatment-based alternatives to incarceration. This *'gentler prohibition'* approach is most prominent in recent rhetoric from the US Government, which claims it represents a *'middle way'* between the *'extremes'* of *'legalisation'* and a *'war on drugs'*. While this line of argument relies on misrepresenting the reform position with numerous *straw man* arguments, the fact there is even rhetorical movement towards the centre can be seen as positive change, perhaps of a prohibitionist regime on the defensive, or of one preparing for the inevitable concession to regulatory logic at some point soon.

This tussle over who occupies the pragmatic middle ground between advocates of *'gentler prohibition'* and advocates of pragmatic regulation is likely to remain a defining feature of the debate in the coming years. The reality is that this tussle indicates how most people in the debate are, in fact, nearer to the centre, and to each other, than the polarised caricatures of much media debate might suggest. We hope that this guide can be a useful tool for constructively bringing some on the prohibitionist side of the fence into the debate by asking, *'If we do move towards regulation, how do you think it should function?'*[24] We have already witnessed this kind of *'not if, but how'* engagement in the US Federal Government's response to the Washington and Colorado initiatives, effectively granting permission to proceed as long as the regulations are sufficiently strict (e.g. no sales to minors).[25]

24 How to constructively engage with opponents in the debate is explored in Transform/MUCD's 2014 publication **Ending the War on Drugs: How to Win the Global Drug Policy Debate**, available at **www.tdpf.org.uk.**

25 Cole, J. M. (2013) **Memorandum for all United States Attorneys**, US Department of Justice, Office of the Deputy Attorney General. **www.justice.gov/iso/opa/resources/3052013829132756857467.pdf.**

Legal regulation of cannabis markets: what it is and isn't

Historically, the drugs debate has been characterised by the imprecise or inconsistent use of key terms, inevitably leading to misunderstandings and myths about what is in reality being advocated by proponents of drug policy reform. For a clear sense of what the legal regulation of cannabis markets could look like, it is therefore necessary to clarify some of the terminology commonly used to describe options for reform.

In much of the debate on drug policy, *'decriminalisation'* is used interchangeably with *'legalisation'* or *'legal regulation'*. Yet these terms mean very different things. While it has no strict legal definition, decriminalisation is generally understood to refer to the removal of criminal sanctions for certain offences[26] - usually the possession of small quantities of currently illegal drugs for personal use. However, civil or administrative sanctions, such as fines or treatment assessments often remain. So the possession of drugs remains a punishable offence - albeit one that no longer attracts a criminal record. By contrast, any form of legalisation and regulation necessarily entails the removal of all types of penalty - criminal or administrative - for production, supply and possession that takes place within the parameters of the regulatory framework. Activities that take place outside any regulatory framework, such as sales to minors, are still subject to punitive sanctions.

There is also a distinction to be made between *de jure* and *de facto* decriminalised or legally regulated drug control systems. Under a *de jure* model the respective policies are implemented through specific reforms to the law. Under a *de facto* model, the same policies are enacted through the non-enforcement of criminal laws that technically remain in place. In the Netherlands, for example, the possession and retail supply of cannabis is

26 In the US, the term is sometimes used more narrowly to mean that you can no longer go to prison for a particular offence – but it is still deemed a criminal infraction or misdemeanour (this describes some of the US 'decrim states').

still prohibited under law, yet is *de facto* legal, given it is tolerated within the licensing framework of the country's cannabis *'coffee shops'*.

Finally, while they are inherently related, it is useful to differentiate between the terms *'legal regulation'* and *'legalisation'*. Legalisation is merely a process - essentially, of making something illegal, legal. Legal regulation, on the other hand, is the end point of this process, referring to a system of rules that govern the product or behaviours in question. Consequently, just calling for the legalisation of cannabis alone could reasonably be mistaken as a proposal for precisely the sort of commercial free market that Transform and most drug policy reform advocates do not support. *'Legally regulated cannabis markets'* or *'legalisation and regulation'* are more useful descriptive terms.

Summary of cannabis regulation models

- Combinations of these policy models are possible – for example, Uruguay and Colorado have parallel provisions for licensed retail and personal cultivation, and Uruguay additionally permits cannabis social clubs alongside licensed legal production and sales
- These models are ordered from the most to the least restrictive
- Within each model there remains considerable variation in the detail of the policy, and how it is or could be implemented and enforced in different jurisdictions

For a comparison of specific jurisdictions' regulation models from around the world see the table on p.252.

1 Prohibition of all production, supply and use

Penalties for violations of prohibitions can vary dramatically, from fines, formal warnings and cautions, through to criminal prosecutions and incarceration, and in extreme cases, use of the death penalty for trafficking

Examples

This has been the default system for most of the world for more than 50 years

Pros

- Argument is made that prevalence of use is reduced or contained through combination of deterrent effect and restricted availability. There is, however, little evidence to support either of these claims [27]

Cons

- Continued prohibition in the face of high or growing demand incurs substantial financial costs throughout the criminal justice system (CJS)
- Creates and fuels a criminal market, and leads to mass criminalisation of users
- Government forfeits any ability to regulate key aspects of the market, or to generate tax revenue
- Millions consume unregulated products of unknown safety and quality

27 Murkin, G., (2016) , **Will drug use rise? Exploring a key concern about decriminalising or regulating drugs.** Transform **http://www.tdpf.org.uk/resources/publications/will-drug-use-rise-exploring-key-concern-about-decriminalising-or-regulating**

2 Legal production and supply for medical use only

Prohibition on production for non-medical use is maintained, but production and access for medical uses is legal, usually under a regulated prescription model. Available products range from herbal cannabis to cannabis preparations and extracts. For more on medical cannabis regulation see p.195

Examples

25 US states,[28] Canada, the Netherlands, the Czech Republic, Israel, Colombia, Chile and others

Pros

- Allows patients access to potential medical benefits of cannabis or cannabis products
- Facilitates research into medical uses that may otherwise be hindered

Cons

- Same as model 1 above
- Potential for confusion and tensions between medical and non-medical regulatory systems, particularly while wider non-medical prohibitions remain in place

Inadequate regulation of medical models can:

- Create potential for leakage into non-medical supply (seen as a positive by some people)
- Lead to sub-standard medical advice for patients, and poor quality control of medicinal cannabis products

28 Updates on the number of states that have legalised cannabis for medical use are available here: **medicalmarijuana.procon.org/view.resource.php?resourceID=000881.**

3 Prohibition of production and supply – with decriminalisation of possession for personal use

Maintains prohibition on production and supply but removes criminal penalties for possession of small quantities for personal use. Thresholds for personal possession vary, as do non-criminal penalties (that usually include confiscation), and can additionally include fines, mandatory treatment screenings, or other penalties. Policy can be *de facto* or *de jure*

Examples

16 US states,[29] various Latin[30] and European countries[31] (some cannabis only – some all drugs), and others around the world[32]

Pros

- Reduces costs across the CJS
- Removes stigma of criminality from users
- Can facilitate public health interventions by redirecting CJS expenditure, and removing a barrier that deters problematic users seeking help

Cons

- Does not address harms associated with criminal market and may potentially facilitate some forms of market-related criminality
- If inadequately implemented, can lead to more people coming into contact with the CJS (particularly where enforcement budgets are linked to revenue from fines)
- Non-criminal sanctions may still be disproportionate.
- Non-payment of fines may lead to criminal sanctions, particularly for low-income populations, potentially exacerbating racial disparities in law enforcement

29 Definitions of decriminalisation vary – for details on individual states see: **http://norml.org/aboutmarijuana/item/states-that-have-decriminalized**.

30 For updates see: **www.druglawreform.info/en/country-information**.

31 For updates see: **www.emcdda.europa.eu/html.cfm/index5174EN.html**.

32 For a comprehensive summary see: Rosmarin, A. and Eastwood, N. (2016) **A quiet revolution: drug decriminalisation in practice across the globe**, Release. **http://www.release.org.uk/publications/drug-decriminalisation-2016**.

4 Prohibition of production and supply – with decriminalisation of possession for personal use, and some retail sales

As above, but with additional decriminalisation and licensing model for commercial retail sales, and/or premises for sale and consumption. Supply to retail outlets continues to be illegal

Examples

- Dutch *'coffee shop'* model
- Some localised informal models in European cities, Australia and East Asia

Pros

- Reduces illicit market sales and related problems
- Allows for regulation of outlets and vendors
- Allows for limited regulation of products
- Generates tax revenue from profits and staff earnings and corpoate profits (although not from sales taxes on products)
- Separates cannabis consumers from illicit market for more risky drugs

Cons

- The *'backdoor problem'* – production and supply to the Dutch *'coffee shops'* is via illicit market. Criminality associated with this market remains
- Inability to tax products which remain nominally illegal
- Inconsistencies between the law and policy practice/objectives

5 Prohibition of production and supply – with decriminalisation of small-scale personal cultivation and cannabis social clubs

Extends decriminalisation of personal possession to tolerate personal cultivation of plants for personal use, with a maximum permissible number usually defined (typically between 1 and 10 plants). Has also led to membership cannabis co-ops or *'cannabis social clubs'* (CSCs) in which groups of users delegate their *'allowance'* to a grower who then supplies the group members within a self-regulated non-profit co-op framework (see p.65)

Examples

- Personal cultivation is tolerated or allowed in, among other places, Belgium, Spain, the Netherlands, and Switzerland
- Personal cultivation and cannabis social clubs are tolerated in some regions of Spain, and on a smaller scale in Belgium and Switzerland (some of the emerging US state legal regulation models have incorporated provisions for small scale home cultivation, and Uruguay has additionally established a CSC model in parallel with a licensed retail model)

Pros

- Reduces size of illicit trade and associated harms
- Removes need for some users to interact with the illicit market
- Difficult to enforce regulation of personal cultivation

Cons

- Informal CSCs within a decriminalisation model lack legal basis or legislated regulatory framework to ensure best practice
- As the CSC model expands, maintaining effective self-regulation and non-profit ethos becomes difficult without more formal controls
- Some potential tax revenue from retail sales may be forfeited with home growing
- Restricts access to those with growing facilities or particular social networks and access to CSCs, so may discriminate against certain marginalised populations

6 Regulated legal production and supply – entirely under government monopoly

Production and supply is legalised and regulated, but all aspects of the market are established as a government monopoly, with commercial actors prevented from entering the legal market.

Examples

- Government monopolies on alcohol – such as the Russian Government's monopoly on vodka until 1992 – set a precedent
- Chinese Government maintains a virtual monopoly on tobacco production/retail
- Most remaining tobacco and alcohol examples involve a government monopoly on only part of the market – see box 7

Pros

- Allows for strict regulation of outlets, vendors, and products
- All revenues and profits accrue to the government, and also generates tax revenue from staff earnings

Cons

- Profits generated by government monopolies have the potential to distort government policy priorities
- Potential for market distortions and negative consequences if models are overly restrictive or do not adequately meet demand (in terms of either quantity produced or range of products available)
- Requires enforcement against unlicensed sales outside the monopolistic market

7 Regulated legal production and supply for non-medical use – with a mix of commercial and government monopoly elements

Legal, regulated commercial market, but with a government monopoly on certain elements of the market – most likely at the retail stage.

Examples

- Various examples in alcohol[33] and tobacco control models
- Uruguay's model of legal cannabis regulation
- Borland 'Regulated Market Model' (see p.57)

Pros

- Potential benefits of commercial activity and competition in parts of the market
- Allows government to maintain complete control over aspects of the market where particular risks are identified, and mitigate problems, e.g. over-commercialisation
- Generates government revenue from taxation

Cons

- For monopoly elements, see problems above
- Risk of over-commercialisation where competition is allowed
- Risk of problems related to commercial industry lobbying

33 Examples include: 'Systembolaget' in Sweden, 'Alko' in Finland, 'Vínbúð' in Iceland, 'Vinmonopolet' in Norway, 'SAQ' in Quebec, Canada, and the 'LCBO' in Ontario, Canada

8 Regulated legal production and supply for non-medical use – licensed producers and/or licensed vendors

Regulated commercial market model comparable to many that already exist for alcohol and tobacco. Detail of the licensing and regulatory framework can vary widely in terms of controls over products, vendors, retail outlets, marketing, and access to markets

Examples

- Various alcohol and tobacco control regimes
- Colorado and Washington's cannabis regulation models

Pros

- Allows for potential benefits of commercial activity
- Maintains ability of government to intervene in key aspects of the market and reduce the risks of over-commercialisation
- Taxation allows a degree of government price control as well as revenue generation

Cons

- Risk of over-commercialisation (and rising use/health harms) if regulation of retail sales and marketing is inadequate
- Risk of problems related to commercial industry lobbying

9 Free market model

Largely unregulated legal market, or *'supermarket model'*, in which products are subject only to basic trading standards and product controls similar to those that exist for foods or beverages. Vendors may provide additional self-regulation

Examples

- Regulation of caffeine products

Pros

- Minimal regulatory costs
- Minimal government interference with commercial freedoms
- Competition likely to drive down prices for consumers

Cons

- Relies on self-regulation by vendors, and experience from unregulated alcohol and tobacco markets suggests profit-motivated entities are unlikely to act in the best interests of public health and wellbeing
- Increased risk of over-commercialisation and emergence of 'big tobacco'-type industry
- Falling prices and unregulated marketing could lead to increased or irresponsible use and health harms

Learning from the successes and failings of alcohol and tobacco regulation

Alcohol and tobacco are the most widely used legal drugs,[34] and the policy responses around the world range from absolute prohibitions, through various regulation models, to unregulated free markets. As a result, they provide invaluable lessons for developing effective cannabis regulation models - a running theme throughout this guide.

While there are key similarities, there are also important differences between alcohol, tobacco and cannabis - regarding their effects, risks, the way they are used, and the evidence supporting current and proposed policy interventions - which are worth noting when trying to transfer lessons between the policy experiences of these drugs.

One important distinction between reform of alcohol and tobacco regulation and attempts to regulate currently illegal drugs is that policy development is starting from a very different place.

A recurring issue in alcohol and tobacco policy literature is the conflict between public health policy and alcohol and tobacco industries as commercially driven entities. This raises concerns for cannabis policy and law reform. Commercial alcohol and tobacco producers and suppliers are profit-seeking entrepreneurs who see their respective markets from a commercial rather than a public health perspective, primarily because they rarely bear the secondary costs of problematic use.[35] Quite naturally, their primary motivation - and their legal fiduciary duty in many countries - is to generate the highest possible profits. This is most readily achieved by maximising consumption, both in total population and per capita terms, and by encouraging the initiation of new users. Public health

34 Apart from perhaps caffeine.

35 The 1998 Tobacco Master Settlement Agreement in the US is one example of this happening. **http://en.wikipedia.org/wiki/Tobacco_Master_Settlement_Agreement.**

issues only become a concern when they threaten to affect sales, and will invariably be secondary to profit maximisation goals.

Both industries have tried to concede as little market control to regulators as possible. The situation with tobacco has changed significantly in some countries, less so with alcohol. So for alcohol and tobacco, policy makers are trying to *'reverse-engineer'* appropriate or optimal regulatory frameworks onto already well-established and culturally embedded legal commercial markets, against the resistance of well-organised, large-scale commercial lobbying.

By contrast, for most jurisdictions cannabis offers a blank canvas; an opportunity to learn from past errors, and replace criminal markets with regulatory models that are built on principles of public health and wellbeing from the outset, without a large-scale legal commercial industry resisting reform or distorting priorities. There are exceptions; most obviously the US states with more established medical cannabis markets, participants in which have sometimes welcomed regulation as necessary for their survival, yet on other occasions have opposed it where it threatened their commercial interests.

In Figure 1 (p.29), recent alcohol and tobacco regulation reforms mean moving away from the more commercial market end of the spectrum (on the right of the x-axis), and towards the optimal regulatory models in the centre. It is therefore entirely consistent to call for improved or increased regulation of alcohol and tobacco, as well as the legalisation and regulation of cannabis (and/or certain other currently illegal drugs). This is about applying the same evidence-led public health and harm reduction principles to all drugs, and developing the most appropriate level of regulation for each. This convergence in regulatory approaches between cannabis and alcohol and tobacco is already well underway, and will undoubtedly be a defining theme of the drug policy discourse in the coming years.

Getting the balance right

A key theme to emerge from this discussion is the conflicting priorities that often arise as decisions are made when developing and implementing a cannabis regulation model for any given locale. In particular, the need to strike the right balance between the interests of commerce (that seeks to increase profits - and so will err towards promoting use and products with the highest profit margins) and public health-based regulation (that seeks to minimise harms - and so will err towards moderating or reducing use). Depending on the way the market is structured, policy makers should manage the involvement of commercial entities to harness their benefits - in terms of investment and innovation - while preventing or moderating the potential costs - most obviously in terms of negative public health externalities.

This tension will need to be dealt with during the formulation of any model of cannabis regulation, with the overall degree of government intervention in the market, as well as issues such as licensing, pricing and taxation, all requiring negotiation and compromise. If the model is too restrictive - for example, if prices are too high or products are not sufficiently available when sought - demand will not be met through legal channels adequately, and opportunities for a parallel illegal trade will increase, with all its attendant harms. On the other hand, if the model is not restrictive enough, commercialisation could lead to significantly increased levels of use, and opportunities to intervene in the market and minimise potential harms may be limited or non-existent. Such regulatory failings are likely to have the most severe consequences for the most vulnerable in society.

A familiar example of the tensions between commercial and public health priorities, and the level of restrictiveness, is provided by tobacco pricing and taxation policy. Evidence shows increasing prices can help reduce use, particularly among young people. At the same time, however, increasing

prices also incentivises tobacco smuggling and counterfeiting that avoids tax and undercuts legitimate retail sales.

There is the potential, indeed the likelihood, that cannabis regulation models will be substantially more restrictive than those that currently exist for alcohol and tobacco. This is already the case in Washington and Colorado (partly because their initiatives are *'islands'* of reform amid neighbouring prohibitionist states), and even more so in Uruguay. Some may feel this is somehow *'unfair'*, especially given the relative health harms of the three drugs. But it is more useful to view emerging cannabis regulation as an opportunity to demonstrate best practice in drug control. If an evidence-based and public health-led approach to cannabis regulation is shown to be effective, it may have a positive knock-on effect by informing and accelerating improvements in alcohol and tobacco control, as well as creating useful precedents for other drugs that may be legally regulated in the future.

There is obviously no perfect solution in a situation such as this - it is a matter of balancing priorities, seeing what works, staying flexible and making responsible, informed choices based on a rational and ongoing evaluation of costs and benefits. However, to reiterate: the history of tobacco and alcohol control suggests that it is, initially at least, wise to err on the side of being overly restrictive, rather than face a struggle to tighten inadequate regulation after it has been implemented and become embedded.

Moving forward given what we know, and what we don't know

While there are vital lessons to be drawn from experiences with alcohol and tobacco control, as well as the rapidly growing body of evidence from cannabis policy innovations around the world, there remains a great deal we do not know about cannabis regulation. The proposition

of developing a fully functional regulatory model – for most jurisdictions effectively from scratch – is highly unusual in social policy and almost unique in drug policy. Any policy innovation has a degree of intrinsic unpredictability and will carry risks. But from what we know already, we can reasonably anticipate and mitigate against nearly all of these risks. As when developing any public policy, progress should involve informed experimentation, evaluation, and a willingness to be flexible and respond intelligently to both successes and failures.

As discussed, the most obvious risk is that of over-commercialisation and the undermining of public health goals by profit-motivated commercial activity. This observation has informed much of our thinking in this guide and we make no apology for the interests of private profit not featuring highly on our list of priorities. We believe drug policy should serve the interests of public health and wellbeing, not business. If the two can complement each other - and it is entirely possible they can - then fine. But if there is one message policy makers should take from this guide, it is to ensure the core regulatory decision-making power stays with the public health authorities, not business people or those who represent them. The record of self-regulation by business is at best patchy even for ordinary products. And drugs, even lower risk drugs such as cannabis - are not ordinary products. The unique challenges drugs present justifies a different, and greater level of government intervention - particularly given the novelty of legal cannabis markets at this early stage, and our relative lack of knowledge about their functioning and impacts.

If there is one message policy makers should take from this guide it is to ensure the core regulatory decision-making power stays with public health authorities, not business people

There are no perfect solutions, and there will always be challenges to be addressed, not least as the policy environment changes with time. It is, however, also a unique opportunity to set the standards for a new

drug policy paradigm as we emerge from the practical and ideological failings of the prohibitionist era.

Key conclusions and recommendations

- There is a balance to strike between the urgency of implementing reforms and the risks of moving too hastily. The steps forward that any jurisdiction takes will depend on the nature of the existing market, policy frameworks, and social and political environment. Early adopters will doubtless face different challenges to those that come later. There is no one-size-fits-all approach, and no silver bullets

- Relevant authorities should establish an independent commission of domestic and international experts to identify key issues, and make broad recommendations on reforming cannabis policy, and the shape of any new regulatory models. Expertise should come from a broad range of fields, including: public health, drug policy, international and domestic law, legal cannabis production and regulation, agriculture, environmental science, and monitoring and evaluation. This expert group can then evolve into a dedicated task force to oversee and make recommendations on the detail of policy and its implementation

- Meaningful and measurable performance indicators should be established for all aspects of the market and its functioning. Impact monitoring and evaluation should be adequately resourced and built into the regulatory framework from the outset. Wider impacts - such as changes in prevalence or patterns of cannabis use (particularly problematic use and use among young people), levels of crime, expenditure and revenue - should also be evaluated on an ongoing basis. Such monitoring should be used to ensure policy - and in particular any policy changes - are subject to regular review, and that the flexibility and willingness exists to adapt approaches in light of emerging evidence

- There should be adequate institutional capacity to ensure compliance with regulatory frameworks, once they are established. This will require trained and experienced staff, management and oversight, and sufficient budgets for regulatory agencies. Given all the areas cannabis regulation will touch on, either an existing agency will need to coordinate between all relevant government departments, or a new umbrella body will need to be created

- There is a range of reforms that can be undertaken within the parameters of existing international law - including decriminalisation of personal possession and use with provisions for home growing and cannabis social clubs (see p.65 and p.68). Such measures can be implemented relatively easily, and even if their positive impacts are more modest, they demonstrate a political will to embrace reform, do not carry a significant regulatory burden, and are supported by a useful and growing evidence base

- When a jurisdiction is willing or able to negotiate the existing hurdles of international law (see Cannabis and the UN drug conventions, p.211), the priority at the outset should be to meet adult demand as it currently exists. That means a legal market that approximately mirrors the existing illegal market in terms of product range, price and availability. A level of government intervention and market control to ensure this is possible is a minimum requirement. Any major departures from this model are likely to have unpredictable, potentially negative impacts. Changes to the market, for whatever reason, should be introduced incrementally and closely evaluated

- As a starting point, err on the side of more restrictive models, and a greater level of government control - then move forward on the basis of careful evaluation, aiming to move to less restrictive or interventionist models once new social norms and social controls around legal cannabis markets have been established. From a pragmatic and political perspective, this is preferable to the reverse scenario of needing to

retroactively introduce more restrictive controls due to inadequate regulation

- For jurisdictions where a more sophisticated illicit cannabis market does not exist, there is no urgency to introduce an extensive menu of cannabis products and services at the outset - opt for functional retailing of a relatively limited range of quality controlled products that approximately mirror the current illicit market. Consider development of a more diverse market consisting of concentrates, edibles, and on-site consumption venues once the core retail market has bedded in and been evaluated. Edibles are easy to prepare at home, and home growing and cannabis social clubs can cater for more specialised demand in the meantime

- A particular focus of restrictive controls should be at the retail end from the outset - with the key aim being to meet demand in a way that does not encourage use, but is not so restrictive, or off-putting, that it creates avoidable opportunities for a parallel illicit trade. Retail outlets should be functional but unintimidating, with pharmacies offering a useful model. On-site consumption venues need to provide a welcoming and pleasant environment - but controls can still focus on external signage and appearance, and on the point of sale within the venue

- Where it is politically and legally feasible, a ban on all cannabis marketing, advertising, branding and sponsorship should be the default starting point of any regulatory regime, and should be complemented by prevention and education measures aimed at curbing potential increases in harmful use. Where a comprehensive ban is not viable, restrictions on such activities should be as stringent as possible

- More intensive government control - or even direct government control or ownership, where feasible - may be required at retail level, to eliminate or restrict commercial incentives to increase or initiate cannabis use, or use of more risky preparations. Limiting the scale

of individual businesses may help prevent the emergence of overly powerful commercial interests with the capacity to distort policy priorities

- Moves towards more effective cannabis regulation should be part of a wider process of reforming existing approaches to other drugs - both legal and illegal. This is likely to mean increased regulation of alcohol and tobacco markets as a greater consensus emerges on what constitutes optimal drug regulation. The rationale for regulating cannabis will also need to be applied to some other currently illegal drugs in the future - this wider debate should not be avoided

Section 2

The practical detail of regulation

a Production

Challenges

- Guaranteeing product quality through appropriate testing, evaluation and oversight of production processes
- Ensuring the security of production processes to prevent leakage to unregulated illicit markets
- Managing commercial activity and links between producers and the rest of the supply chain

Analysis

- There are a range of existing legal and quasi-legal production models, operating at various scales, from which lessons can be learned
- Risks associated with over-commercialisation are a concern at the production level, so producers should be included in comprehensive marketing controls

- Production limits can help minimise the risk of diversion to the illicit market (although if set too low can incentivise illicit production to meet demand). Applied to individual producers they can also prevent the emergence of monopolies or overly large commercial entities with excessive lobbying power
- Home growing for personal use is difficult to regulate and police, but experience suggests will result in only relatively minor challenges. The majority of users will prefer the convenience of legal retail outlets
- Regulation of home growing should aim to prevent unlicensed for-profit sales, and prevent underage access to the crop
- Cannabis social clubs represent a small-scale, *de facto* legal model of production and supply that has been proven to operate largely non-problematically
- Cannabis social clubs provide lessons that can inform the development of future regulatory models and, given that they do not appear to breach UN treaty commitments, may be a useful transitional model that policy makers can implement before more formal legal production systems are put in place. However, such clubs could equally operate alongside more formal production systems post-legalisation
- Expanding domestic cultivation in jurisdictions that legalise and regulate will have impacts on traditional producer regions and their economies. As well as reductions in criminality and corruption, there will inevitably be reductions in income and economic opportunities for some already marginalised populations

Recommendations

- Ensuring quality control and the security of production systems can be achieved using measures that are already in place in several countries' existing medical cannabis markets, and US non-medical markets
- Tracking systems that monitor cannabis from *'seed to sale'* should be employed in order to identify any instances of diversion

- Production by private companies is best managed when they are producing the drug for retail by separate, strictly regulated outlets that are not under their ownership
- Cannabis social clubs should be formally regulated, and promoted as a small-scale combined production and supply model, due to their relatively closed membership policies and not-for-profit ethos
- Home growing of cannabis for personal consumption should be subject to age restrictions and production limits, although the inherent challenges associated with policing home growing mean these requirements will mostly act as a moderating influence, rather than a strict control
- The development impacts of cannabis reforms for traditional producer regions should not be forgotten - the question of how negative impacts can be minimised must feature more prominently in the reform and development debate, particularly that which takes place in key consumer markets

There are already a significant number of well-established businesses producing plant-based drugs including extensive production of cannabis for both medical and (more recently) non-medical use, within existing regional, national, and global legal frameworks. These functioning models suggest cannabis production for non-medical use will mostly require the expansion and adaptation of existing regulatory controls, rather than the development of new ones.

While managing the production of cannabis appears relatively straightforward, there are still key concerns that must be taken into account if regulation is to be effective. As with the production of pharmaceutical drugs, the main aims should be to ensure the quality and safety of the cannabis produced, and to ensure the security of production systems in order to limit diversion to illicit markets. Existing regulation of cannabis for both medical and non-medical use offers a range of

examples of how these aims can be achieved, all with varying degrees of government involvement and success.

As noted earlier, there will often be other restrictions on what regulatory frameworks it is possible to implement in a given jurisdiction, in terms of what is acceptable socially, culturally, economically and politically. For example, in the US, the ongoing tensions between state-level cannabis legalisation initiatives and federal-level prohibition have meant that it was not possible to set up a state-owned production (or retail) model, because that would have effectively required the relevant state employees to violate federal law.

Licensing

The way in which cannabis production is licensed, and the mechanisms by which production is linked to supply, are foundational elements of any regulatory framework. Depending on the licensing system in place, production can be highly restricted, to a single or small number of companies or agencies, or essentially be open to any willing market participant that fulfils certain criteria.

The process put in place in Colorado initially required that any cannabis sold for non-medical use had to be grown in accordance with the state's existing model of medical cannabis production. That meant that for the first year of the new regulatory system, production licences were only granted to those able to also supply the drug at retail level. This so-called *'vertical integration'* means sellers and producers are part of the same company. As per the state's medical cannabis model, outlets were required to produce at least 70% of what they sell, and were forbidden from selling more than 30% of what they produce to other outlets.

Linking production and supply operations in this way has been justified on the basis that it minimises the number of transactions in the supply chain, simplifying regulatory oversight and making it easier to track

cannabis from *'seed to sale'*, thereby reducing the risk of its diversion to the illicit market. In reality, it still requires transfers that need tracking between producers and retailers, even if they are owned by the same company.

Vertical integration permits private commercial activity, but also (in theory at least) puts certain limits on competition and commercialisation by favouring larger, better-established businesses that have the substantial resources necessary to manage both production and supply.

However, under frameworks such as Colorado's, in which the state acts as a regulator of private enterprise, rather than a market participant itself, vertical integration of production and supply may prove overly restrictive, and could have negative consequences in the long term. By giving preference to economies of scale, a policy of vertical integration runs the risk of creating an industry with substantial marketing and lobbying power. While having an influential industry that can competently make the case for effective regulation is a good thing, industry lobbying should not be allowed to reach a scale where it can lead to the weakening of regulatory controls purely to facilitate profit-making, as has been witnessed historically in the alcohol and tobacco industries.

Perhaps illustrating this point, one of the main driving forces behind the vertical integration requirement in Colorado was the state's existing medical cannabis industry. The rationale behind this was that, having been subject to the 70/30 rule for several years, and having already invested in the cultivation spaces and equipment needed to establish combined production and supply operations, medical cannabis outlets seeking to enter the non-medical market did not want to face competition from new entrants who had been unencumbered by these requirements. However, extending the 70/30 rule in this way went beyond levelling the playing field. It actually created a major barrier for new entrants, giving existing medical cannabis companies a crucial year to establish themselves in the market.

In direct contrast to Colorado, licensing laws in Washington were established with the express intention of avoiding a concentrated market dominated by only a few large, key players. The state has implemented three licensing tiers - production, processing and retail. Any person or business may hold no more than three production and processing licences, and producers or processors are not allowed to hold any retail licences. Multiple-location licensees are also not permitted to possess more than 33% of their licences in any one county. Washington and Colorado's contrasting models will provide valuable lessons on the best way forward. It is notable that in 2014 the 70/30 requirement in Colorado was dropped and vertical integration became optional.

In the Netherlands, too, limited licensing and the separation of production and supply are features of the country's medical cannabis regulations. A private company, Bedrocan BV, is currently the sole licensed producer of cannabis,[36] while the national government's Office for Medicinal Cannabis is the sole purchaser and has a monopoly on supply, distributing the cannabis through registered pharmacies.

Uruguay's legislation also required a similar separation of production and supply under its regulatory framework for the non-medical use of cannabis. Production licences have been granted to two private companies (so far) which then sell the cannabis to the government as the sole purchaser at a fixed price, for it then to be sold via the designated pharmacies.

Whatever the potential range of cannabis producers permitted by a given regulatory system, the awarding of production licences should obviously be carried out in accordance with the basic elements of standard licensing procedures used in other industries. These typically involve, among other things, health and safety inspections of business premises, compliance with all the relevant environmental laws and

36 This is only the current situation; there is no specified limit on producers, and there has previously been a second producer.

regulations, and credit and criminal record checks on prospective licensees. With regard to criminal record checks, there will clearly be an important debate about what should or should not prevent someone from obtaining a licence. For example in the US, the potential for unjust racial disparities in past arrests for drug offences leading to equally unjust outcomes in the marijuana industry's licensing process is already an issue.

The Borland 'Regulated Market Model'

Recent debate in response to the historic public health failings of tobacco policy has generated proposals for a new regulatory model that could also potentially be applied to cannabis or other drugs. Professor Ron Borland has proposed what he calls the Regulated Market Model (see Figure 2, overleaf), which is built on the assumption that smoked tobacco is not an ordinary consumer product.

Even when used as directed, tobacco is both highly addictive and significantly harmful to personal health. It follows that any commercial marketing, which aims to increase tobacco consumption and thus profitability, will inevitability lead to unacceptable increases in health harms.

Responding to this, the proposed model would maintain legal access to adults but eliminate any incentives for profit-motivated efforts to increase consumption. Under the model, there would be no scope for tobacco companies to create even more addictive products, or to employ marketing or other techniques to promote tobacco use among existing or new consumers. It would establish a regulatory body, a Tobacco Products Agency (TPA), to act as the bridge between manufacturers and retailers.

The TPA would take complete control over the product, managing the types of products available, their production, packaging and any potential marketing activity. Competitive commercial interaction would still occur at point of production, and point of supply. Tobacco producers would compete to supply the TPA with raw materials, while retailers would profit from selling tobacco products within a licensed vendor framework.

By removing the opportunity for private companies to maximise tobacco use and thus profits, the TPA would therefore be in a position to pursue public health goals by managing and possibly reducing consumption (See Figure 2). Uruguay's system of legal cannabis regulation is essentially based on this Regulated Market Model. It has the benefit of maintaining commercial competition at the production and retail stages, but puts a responsible government agency in control of key elements of the cannabis market.

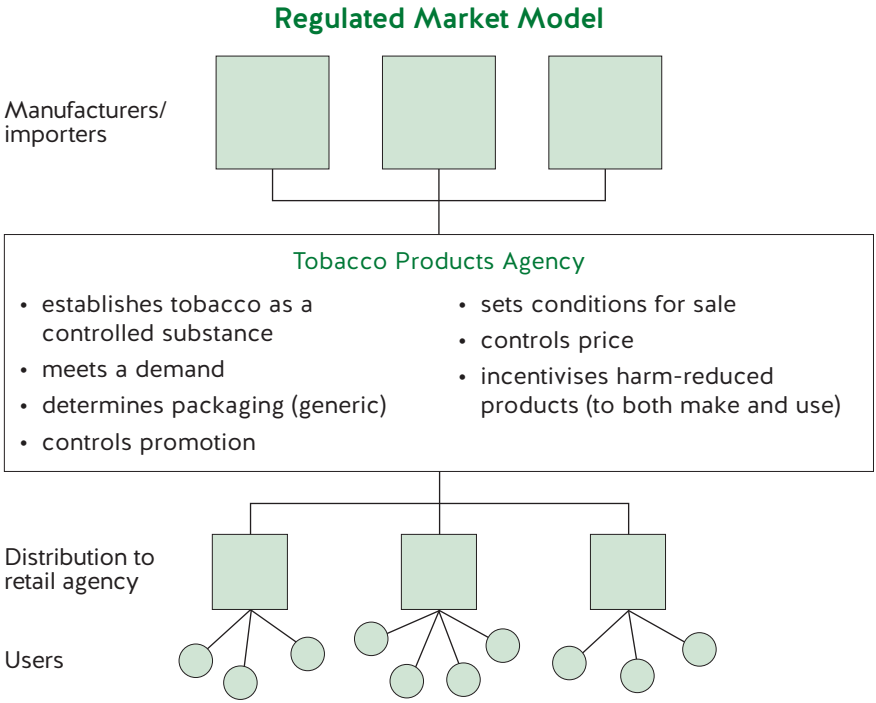


Figure 2 Adapted from: Borland, R. (2003) **A strategy for controlling the marketing of tobacco products: a regulated market model**, Tobacco Control, Vol.12, No.4, pp.374–382.

Quality control

Quality and safety testing protects consumers from the health risks associated with adulterated or contaminated cannabis, and from the risks of consuming cannabis of unknown or unreliable potency. It should therefore be a strict licensing condition for producers.

In the US, the medical cannabis industry has historically been largely self-regulating when it comes to quality control and consumer safety issues, with mixed results. Due to the ongoing conflict between federal and state laws governing medical cannabis, no central authority such as the Food and Drug Administration or Department of Agriculture has been charged with ensuring that adequate testing of cannabis takes place.

Despite passing laws to legalise cannabis for medical use, most states have not followed up with legislation requiring testing for levels of pesticide, mould, bacteria or other microorganisms that can be harmful to health.[37]

Nevertheless, while regulation would be preferable, and seems both necessary and inevitable in the longer term, the relatively rapid growth of the medical cannabis market in states that have legalised has enabled a level of competition to develop, meaning that vendors whose products do not meet quality standards will lose customers to other, better regulated competitors. A significant online community of medical cannabis users also does its part to encourage quality control, with websites such as **leafly.com** and **WeedMaps.com** allowing users to post reviews of dispensaries and highlight instances of bad practice.

Regulators developing the non-medical cannabis markets in the US have made testing a more central part of the trade than it currently is in much of the country's medical cannabis industry. Washington's regulations, for example, oblige every licensed cannabis producer and processor to submit

37 Some have done so, such as Massachusetts and Nevada

representative samples of their cannabis and cannabis-infused products to an independent, state-accredited third-party testing laboratory on a schedule determined by the state liquor control board. If these samples do not meet standards adopted by the board, the entire lot from which the sample was taken must be destroyed. Producers are also required to make provisions for testing in order to establish the potency (THC concentration) of all their products, and this must be clearly marked on all packaging. (For more on potency, see p.114.)

Obviously any testing requirement will impose costs on producers. Different laboratories in the US charge different rates for their services, however the average price for the necessary safety and potency testing is in the region of several hundred dollars per sample. At the upper end of the price range, for example, one of the most well-established testing laboratories in California charges $520 per test, $120 for THC/CBD/cannabinol levels, $100 for a microbiological screen, and $300 for a pesticide screen.[38] Although these costs may seem high, they are easily offset by the profits producers accrue from the cannabis grown, and constitute a tiny percentage of total costs and turnover. Furthermore, testing costs are likely to decline as legal production expands and testing technologies evolve.

The Netherlands provides an example of more formal quality and safety regulation, with medical cannabis production conducted in accordance with European Good Agricultural Practice criteria to ensure consistent quality and potency. As part of this process, an independent laboratory also tests the cannabis for moisture content, unwanted substances such as heavy metals, pesticides or microorganisms, and to establish the levels of active ingredients. Similar testing requirements exist in Canada, where medical cannabis producers must ensure that testing follows technical

38 Caulkins, J. P. *et al.* (2011) **Design considerations for legalizing cannabis: lessons inspired by analysis of California's Proposition 19**, Addiction, Vol. 107, pp.865–871. **http://socrates.berkeley.edu/~maccoun/CaulkinsEtAl_DesignOptions_andCommentaries2012.pdf.**

specifications listed in the national Food and Drugs Act, and the limits they prescribe for levels of microbial and chemical content.

Such existing examples from around the world provide a useful guide as to the level of testing that will be required under any system of legal cannabis regulation. More extensive testing will, however, be required of any edible cannabis products that are made legally available, as they will need to meet additional quality and safety criteria that exist for standard food products.

Security

Some cannabis producers will inevitably attempt to increase profits by diverting part of their inventory to a parallel illicit market for untaxed sales that undercut licit-market prices.

Secure and properly monitored production systems can help minimise the risk of such activity, and should therefore be a licensing condition for cannabis producers, with clear penalties for violations. The high unit-weight value of cannabis may also make it a target for theft, necessitating further security measures. Although ensuring security requires what are essentially common sense regulatory controls, the extent of both the risks faced, and what measures are financially viable, will vary from jurisdiction to jurisdiction.

For example, under a new system of medical cannabis regulation coming into force in Canada, when prospective producers apply for a licence from the country's health department, they must demonstrate that:[39]

- Their production site is indoors, and not in a private dwelling

39 Health Canada (2012) **Backgrounder – Safety and Security Requirements for Licensed Producers.** http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/_2012/2012-193bkc-eng.php.

- The production site includes restricted-access areas, which would include all areas where a licensed activity is conducted with marihuana/ cannabis (i.e. lab, production room, etc.)
- Access to the production site is controlled at all times, and includes 24/7 visual monitoring systems and an intrusion detection system to detect unauthorised access
- Key personnel hold a valid security clearance, issued by the Minister of Health
- They have provided a written notification of their application, providing details regarding the location of the production site, to the local police force, local fire authority and local government

The requirement that production be conducted indoors may be appropriate in some localities, but will be overly restrictive in most. Stealing, transporting, drying and processing any significant number of cannabis plants will be less appealing than targeting processed products. More importantly, there is no obvious reason why outdoor growing areas, or other, movable facilities such as greenhouses or polytunnels, could not be adequately secured and monitored in order to prevent diversion. For example, Washington's non-medical cannabis regulations permit outdoor growing facilities, provided they are properly fenced off and have surveillance systems in place. Furthermore, given that it does not require high-intensity lighting, outdoor production has the significant advantage of producing dramatically fewer negative environmental costs than indoor production.

With regard to monitoring, Colorado has produced a comprehensive set of regulations requiring video surveillance of areas where production/ cultivation, weighing, packaging, and preparation for transportation all take place. Adding another level of oversight, producers (and retailers) must also use a state-created online inventory tracking programme to record the journey their cannabis takes from harvest to sale. The programme employs radio-frequency identification (RFID) technology commonly used by many commercial enterprises to track their products and manage their inventories. This more sophisticated security measure complements more

prosaic requirements such as minimum standards for door locks and alarms.

Under any system of legal cannabis regulation, the overall level of security required will be determined by the extent of any problems that emerge, but erring on the side of caution at the outset and reviewing the situation once cannabis markets have been established seems the sensible course.

Production limits

Washington has taken the step of imposing a state-wide limit on the amount of space that can be used for cannabis production.[40] The limit is set at 2 million square feet (equivalent to roughly 35 NFL football fields), and prospective producers must apply for licences based on the planned size of their production operation. There are three production tiers for which licences can be awarded:

- Tier 1: Less than 2,000 square feet
- Tier 2: 2,000 to 10,000 square feet
- Tier 3: 10,000 to 30,000 square feet

The decision to limit production in this way was taken with a number of aims in mind. Firstly, the intention was to minimise the risk that the US Federal Government would object to the new regulatory system being put in place. The US Department of Justice had previously made it clear that the size of an operation would be a significant factor in deciding whether to initiate federal law enforcement. However, there are also a number of other intended benefits:

- To reduce the financial incentive and opportunities to divert cannabis for sale into out-of-state illicit markets

40 Washington State Liquor Control Board (2013) **Proposed Rules Highlights.** www.liq.wa.gov/publications/

- To potentially constrain the consumption levels of heavy users[41]
- To limit the marketing and political power of larger producers

While these are all laudable aims, and production limits may prove to be an effective means of achieving them to at least some degree, as always there is the potential for undesired outcomes. If licit production is restricted to the point where a substantial demand is not met, profit opportunities will appear for illicit producers, frustrating one of the key goals of the policy (this could be a particular problem with the US states' models if there is substantial purchasing by residents from neighbouring states that do not permit a legal supply of cannabis). In addition, although production limits help prevent the concentration of power among a small group of companies, they also ensure that production is diffuse and variable, which may mean an increased regulatory burden. Finally, production limits based on the size of growing operations may, in the absence of potency limits, lead producers to prioritise growing high-potency (and therefore high-value) cannabis, as they attempt to maximise the profits that can be made from their available production space. (For more on potency, see p.114) A THC-based production quota system may therefore be a more effective way of limiting production than a size-based one.[42] As with most aspects of cannabis regulation, a balance between positive and negative outcomes will need to be struck when designing production limits, and the system must include both ongoing evaluation, and the ability to change as new evidence emerges.

Smaller-scale production

Conducted in the absence of formal licensing systems, smaller-scale cannabis production occurs in a number of developing countries including

41 The idea behind this potential effect is that by preventing over-production (and a resultant fall in prices), production limits will constrain the spending power – and therefore consumption levels – of heavy or dependent users, who are typically more price-sensitive. For more, see Kleiman, M. A. R. (2013) **Alternative Bases for Limiting Cannabis Production**, BOTEC Analysis, UCLA. **www.liq.wa.gov/publications/Marijuana/BOTEC%20reports/5e_Alternative_Bases_for_Limiting_Production-Final.pdf.**

42 For more on how such a system could work, see Kleiman, M. A. R., op. cit..

India, Vietnam and Cambodia, where the product is grown much like any other medium-value herbal product. These markets, usually based around traditional use of lower-potency cannabis, appear to exist largely non-problematically in a quasi-legal policy space.

Cannabis users in Spain, too, have exploited a legal grey area of the country's drug laws by establishing so-called *'cannabis social clubs'* (CSCs). The clubs are relatively self-contained and self-regulating entities, historically operating on a not-for-profit basis to produce cannabis for registered club members.

Spain's cannabis social clubs[43]

- The clubs take advantage of the Spanish decriminalisation law that tolerates limited cultivation cannabis plants for personal use. Club members allocate their personal allowance to the club, which then grows the pooled allocation of plants and supplies club members from a designated venue
- Currently the clubs operate under a voluntary code of practice established by the European Coalition for Just and Effective Drug Policies (ENCOD).[44] Although there has been a high level of compliance with the code from the country's several hundred clubs, it has no legal standing
- Clubs are run on a not-for-profit basis and all revenue generated is reinvested back into the running of the clubs. However, concerns have been expressed about the emergence of some newer clubs that appear to be moving away from the original non-profit ethos[45]
- As with all other associations and organisations in Spain, cannabis social clubs are legally obliged to be listed in a local registry, with founding members subject to background checks

43 Murkin, G., (2016) **'Cannabis social clubs in Spain: legalisation without commercialisation'** Transform **http://www.tdpf.org.uk/resources/publications/cannabis-social-clubs-spain-legalisation-without-commercialisation**

44 ENCOD (2011) **Code of Conduct for European Cannabis Social Clubs. www.encod.org/info/CODE-OF-CONDUCT-FOR-EUROPEAN.html.**

45 Barriuso Alonso, M. (2012) **Between collective organisation and commercialisation: The cannabis social clubs at the cross-roads**. **www.druglawreform.info/en/weblog/item/3775-between- collective-organisation-and-commercialisation.**

- Membership is granted only upon invitation by an existing member who can vouch that the individual seeking to join is already a cannabis user
- The quantity of cannabis to be cultivated is calculated based on the number of expected members and predicted levels of consumption
- Cultivation is overseen by sufficiently experienced volunteers or paid staff
- In some clubs, members 'sponsor' a specific cannabis plant, from which they take their supply
- Distribution is conducted on the club's premises, where members are encouraged to consume within designated areas. This is to promote planned usage and minimise the risk of a member's supply being re-sold on the illicit market or diverted to a non-member
- Daily personal allowances of, on average, 3 grams per person are set as a way of encouraging responsible levels of use and limiting the quantity of cannabis that can be taken away for consumption off-site (and possibly diverted to the illicit market)
- Clubs pay rent, tax, employees' social security fees, corporate income tax, and in some cases VAT (at 18%) on cannabis products sold

The Dutch city of Utrecht, and a number of other municipalities, have been seeking to experiment with the CSC production model[46] to solve the so-called *'back-door problem'* in the Netherlands, whereby retail sales of cannabis for non-medical use are effectively legal (the drug can leave the country's coffee shops via the front door), but production and cultivation (i.e. the supply chain that leads up to the back door) remain prohibited. The local government has asked for an exemption from Dutch drug laws that would allow it to establish a closed-membership CSC consisting of 100 people who wish to produce the drug for personal consumption. The Utrecht club proposal is intended to complement rather than replace the coffee shops, and is specifically aimed at eliminating criminal involvement in the supply chain, and avoiding the potential health risks posed by cannabis that has been produced without any quality controls.[47]

46 Bennett-Smith, M., **First Cannabis Cultivation Club Reportedly Forms in Dutch City of Utrecht,** The Huffington Post, 12/09/13. **www.huffingtonpost.com/2013/09/11/cannabis-cultivation-club-utrecht_n_3909025.html**

47 Rolles, S., (2016) **'Cannabis policy in the Netherlands: moving forwards not backwards'** p. 165 in **'The Alternative World Drug Report 2nd Edition'** Transform **www.tdpf.org.uk/resources/publications/alternative-world-drug-report-2nd-edition**

While the largely self-regulating nature of CSCs means there are variations in how they are run, the general principles on which most of them are based suggest this model could be a safe and pragmatic option for policy makers looking to make the transition to legally regulated cannabis markets. CSCs have the advantage of not being prohibited under the UN drug treaty system,[48] as they are essentially an extension of the decriminalisation of personal possession/cultivation. They can therefore potentially be put in place before more formal commercial markets are established in countries that while unwilling to breach their treaty commitments, do not want to wait for treaty reform. (For more details, see Cannabis and the UN drug conventions, p.211)

Given that CSCs are run on a not-for-profit basis and are bound by production limits that are linked to the number of members they admit, they have no incentive to increase consumption or initiate new users in the way that commercial producers or retailers do. Additionally, the relatively closed membership policy of many CSCs means that while existing cannabis users have safe access to the drug, the initiation of new users is restricted. While this is a potentially positive feature of the CSC model, care needs to be taken to ensure that this does not lead to unfair discrimination against non-residents or those who are not part of local social networks.

The CSC model of production and supply could easily be more formally regulated in line with the informal measures outlined above, and many CSCs are now calling for such increased regulation. The problem, as it stands, is the clubs' quasi-legal status, which excludes them from effective government oversight. This would clearly no longer be an issue if the clubs were fully recognised by law as has now happened with CSCs in Uruguay, and is being explored by some Spanish regional governments.

48 The UNODC and International Narcotics Control Board have not yet stated anything to the contrary.

Overall, the CSC model has obvious potential both as a transitional system of *de facto* legal production and supply that could operate within a prohibitionist framework, and as an alternative system of *de jure* legal production and supply that could be run in parallel with more conventional retail models. If regulated in a way that ensures a genuine not-for-profit approach is maintained, CSCs could help moderate the risks of over-commercialisation, and potentially meet demand for some specialist cannabis products (which might not be available through retail outlets) in a controlled environment.

Home growing

Small-scale cultivation of cannabis for non-medical personal use has been tolerated in a number of jurisdictions as part of cannabis decriminalisation policies, and has proved largely unproblematic. Provisions for self-cultivation have specifically been included in the regulatory models for the non-medical use of cannabis that have been established in Colorado and Uruguay. A range of jurisdictions (including Colorado) have also allowed home growing for medical use for a number of years.

It makes little practical or legal sense to try to enforce a complete ban on self-cultivation for personal use once possession for personal use is legal, and legal supply sources have been established. A good case, however, can be made for establishing a legal framework that sets parameters within which such home growing should be conducted. The aim of such a framework would be to limit production for personal use (specifically to prevent unlicensed commercial production and for-profit sales) and to prevent non-adults from accessing cannabis.

Limits on the scale of self-cultivation, either in the form of a maximum number of cannabis plants allowed, or an area of ground under cultivation, have already been adopted (even if informally) in most jurisdictions that permit such activity and are a prudent measure that should be implemented wherever home growing is made legal. Clearly, home

growing should also only be allowed for those who meet the jurisdiction in question's age-access threshold.

The difficulty of policing home cultivation does, however, need to be emphasised. The privacy of the home is a right not lightly intruded upon in many countries, and there will be reluctance on the part of both the state and police to expend significant energies pursuing petty home growing violations. A similar reluctance can already be observed in the virtual non-enforcement of laws prohibiting domestic alcohol stills, or those requiring the payment of duty on home-grown tobacco in many countries.

Similar to home brewing of beer, home growing of cannabis is likely to become largely the preserve of hobbyists and connoisseurs in the post-prohibition era. As the experience of the Netherlands suggests, if a legal retail supply is available, most users will default to the convenience and reliability offered by this option, rather than going to the trouble of growing their own supply (even if there is an initial surge of interest). In this scenario, home growing is likely to remain a minority pursuit and, as such, a relatively marginal concern for regulators and law enforcement.

However, even small scale production limited to less than 10 plants can still produce quite significant quantities. A single indoor grown plant can easily yield 150g (5oz), and a single outdoor plant, 3 times as much. Such quantities still create potentially significant incentives for unlicensed for-profit sales particularly if legal retail prices remain high - early reports from Colorado regulators suggest this has been a growing challenge. Colorado retail prices are currently around $2-300 oz - levels at which a single plant can easily yield $1000. Licensing of home growers is a possibility, but is likely to be both bureaucratic and widely ignored in the absence of vigorous enforcement, which, as noted, is not a realistic prospect either. Imposing a charge for a home growing licence might help

cover the costs of inspections and enforcement measures, but would also incentivise people to ignore it.

A more pragmatic approach would involve:

- Setting clear limits on the scale of cultivation permitted, whether in terms of the number of plants (a figure of around five might be a useful starting point for discussion) or the size of the growing area

- Prohibiting unlicensed for-profit sales (although some degree of sharing/gifting of crops is inevitable)

- Establishing an age restriction (the same that exists for access to retail supply) for home growers, and potentially also for access to cannabis seeds

- Establishing growers' responsibility to restrict access to minors. For harvested cannabis this will be the same as the responsibilities of those in possession of legally retailed supply (see Child resistant packaging, p.119), but presents a bigger challenge for cannabis that is grown outdoors. Guidelines could be established for cultivation in spaces not easily visible or accessible to children, potentially supported by a system of regulatory approval of outdoor growing locations

- Regulating seed markets, potentially through licensing of sales or vendors. Regulation could:
  - Help disincentivise the production and use of certain higher-risk cannabis strains with high THC:CBD ratios (see Strength/potency, p.114)
  - Require vendors to have training (so that they can, for example, advise growers on potency issues)
  - Be used to enforce restrictions on sales to minors

- Permitting the home production of cannabis edibles, resin, and other concentrates, in line with the constraints listed above

In the absence of a licensed grower model, the enforcement of any laws on home growing would inevitably be mostly reactive. Some flexibility would be needed (for example, in dealing with the cultivation of seedlings in greater numbers than the limit for mature plants), with the key concerns being age controls and the prevention of unlicensed larger-scale commercial production.

Issues might also arise where multiple users choose to grow in the same location, for example in a shared garden, or communal indoor space. In this scenario guidelines could be put in place mandating the establishment of a more formal cannabis cooperative licence (see above) for sites over a certain size or number of plants.

The timing of the introduction of a home growing provision will also influence decisions around the regulatory model adopted. If home growing is introduced as an element of a decriminalisation model before any regulated retail production and supply is established (as has occurred in some parts of Europe), then it is likely to prove more popular than if the two models are implemented simultaneously (as has happened in Uruguay and Colorado). Increased popularity will correspondingly intensify any regulatory and enforcement burden, a situation potentially worsened by the greater incentive for secondary sales in the absence of legal retail alternatives. This might indicate a need for tighter regulation, perhaps even licensing of growers, although the relatively unproblematic nature of home-growing models where they have been implemented, whether for medical or non-medical use, suggests they will pose relatively minor enforcement issues.

Production of cannabis for export

Currently, the UN drug conventions prevent a legally regulated export trade for non-medical cannabis. However, in the longer term such a trade (and changes in the international treaties to allow it) is almost inevitable. But, given such a legal trade is some years away, this guide will not speculate in detail about how it would be managed, beyond noting that there is already extensive experience, both good and bad, from the regulation of international trades in all manner of products, that can provide lessons on the best way forward.

One area of particular interest is the potential for long-established cannabis cultivation regions to continue production under a regulated market framework, given demand for some traditionally produced forms of cannabis will no doubt continue in consumer countries. If legalisation occurs in both producer regions and consumer markets, if international transit issues can be resolved, and if the products can meet established quality criteria, then there is the possibility that some form of export trade could be established. Rather like coffee, cannabis production could be subject to fair trade principles, and even some kind of protectionism along the lines of the EU's *'Protected Designation of Origin'* (PDO), *'Protected Geographical Indication'* (PGI) or *'Traditional Speciality Guaranteed'* (TSG) systems[49] could be applied to certain traditional forms of cannabis.

Traditional illicit cannabis production in, for example, Mexico, India, Afghanistan, Lebanon, Morocco and Thailand, is still a major industry that employs significant numbers of people. However, realistically, with markets in the developed world increasingly being served by domestic indoor production systems, such traditional producer regions are likely to witness further significant declines in their cannabis industries as more jurisdictions decide to implement models of legal regulation. As a result, the major positive impacts of reform on producer regions — such as

49 See the relevant EU detail here: **http://www.ec.europa.eu/agriculture/quality/.**

reductions in criminal profiteering, conflict and instability — need to be weighed against the short to medium-term reductions in GDP that some regions may experience, as well as the loss of economic opportunities that is likely to be felt by some already marginalised populations. Indeed, the involvement of most farmers and labourers in the illicit drug trade is in large part driven by *'need not greed'*, their *'migration to illegality'* primarily the result of poverty and limited life prospects.

These negative consequences of reform should not be ignored, and measures to counteract them should, where possible, be incorporated by domestic and international agencies during the development of any new systems of legal cannabis regulation. More conventional development interventions will be required for those cannabis producers for whom employment in any legally regulated trade is not practically or economically viable. Lessons can certainly be learnt from the extensive experience of so-called *'alternative development'*, which while failing in its goal of reducing illicit drug production, has, when done well, at least demonstrated how drug crop growers can establish livelihoods outside of the drug trade.

Given key consumer countries played a driving role in establishing and maintaining the prohibition that created current patterns of illicit production, they should also bear some responsibility for funding the development interventions that the transition to legal markets will require. So a proportion of the *'peace dividend'* that will arrive with the end of the cannabis prohibition (the criminal justice savings plus potential cannabis market tax income) could be earmarked for development efforts in former cannabis-producing regional economies.

The development consequences of global drug prohibition, the impacts of any shifts away from it, and how to mitigate any resulting harms, all need to assume greater prominence in the debate around cannabis law reform, which has historically tended to focus on the concerns of developed-world user countries.

b Price

Challenges

- Establishing how regulated markets will impact on cannabis prices, and how prices can be effectively controlled
- Estimating what the likely impacts of changing prices will be, how price controls will affect levels and patterns of use, and what effect they will have on legal and illegal cannabis markets
- Using price controls to strike a balance between often conflicting priorities, such as dissuading cannabis use, reducing the size of illegal cannabis markets, displacing cannabis use from or to other drugs, and generating revenue from cannabis sales

Analysis

- There are many ways in which governments can influence prices: through fixed price controls, maximum and/or minimum price controls, licence fees, or taxes set either at a fixed rate or at a percentage of value
- Decisions can be informed by the extensive, if imperfect, alcohol and tobacco studies literature that has examined the impacts of various types of price controls
- Price controls are a flexible regulatory tool, one that can respond relatively quickly to changing circumstances or emerging evidence, and also potentially be applied to certain products or in certain localities if specific problems or concerns arise
- The importance of price regulation in achieving the aims of effective drug policy warrants a greater level of government intervention than that which may be appropriate in other markets
- Production costs for cannabis will fall significantly in a legally regulated market, meaning that without price controls, retail prices are likely to fall significantly below illegal-market prices
- While a substantial fall in retail price is likely to lead to an increase in total cannabis consumption, reliable estimates of the extent of such an

increase are problematic as the price elasticity of demand for cannabis is not well established and is likely to vary between different populations and different locations

- If legal-market prices are kept artificially high through government intervention, opportunities for a parallel illegal trade to gain a greater share of the overall cannabis market will increase, especially if production costs fall
- Higher prices could also incentivise home growing, or displace cannabis use to other drugs — in particular alcohol or synthetic cannabinoids
- Conversely, lower prices could displace use from other drugs, including alcohol, to cannabis
- Differential price regulation on products could encourage use of safer products, and discourage use of more risky products
- Price controls have the disadvantage (compared to taxes) of putting money in the hands of vendors, incentivising them to sell more

Recommendations

- At the outset of any new system of legal cannabis regulation, it is sensible and cautious to use price controls to set retail prices at or near those found on the illegal market; more significant variations are likely to have unpredictable, potentially negative impacts
- Experimentation with price regulation will be needed, and should be accompanied by close evaluation and monitoring, as well as the flexibility and willingness to alter prices when necessary
- The impacts of any price regulation should be evaluated based on analysis of a range of variables, such as: levels of cannabis use among different populations, patterns of use (in terms of frequency, products consumed, using behaviours, and particularly harmful use), the relative sizes of parallel legal and illegal markets, the extent of any home growing, and displacement from or to the use of other drugs, including alcohol

- Impact evaluation and emerging evidence should shape the evolution of regulatory frameworks over time, with local bodies determining how best to balance conflicting priorities
- Local experiences with alcohol and tobacco pricing are likely to be instructive and should therefore inform decisions about where to set cannabis prices

Price controls

Under a system of legal regulation, governments will be able to influence the price at which retailers can sell cannabis both by imposing fixed costs, such as licence fees, and by requiring them to pay the more variable costs entailed by satisfying various regulatory requirements, such as those outlined in this guide. However, regulators can also intervene more directly in the pricing of cannabis, through a range of well-established measures that are frequently adopted for other products:

- **Direct price fixing:** the government specifies fixed prices (which may or may not include tax) at which certain products must be sold

- **Maximum and/or minimum prices:** such prices (which may or may not include tax) allow a degree of market flexibility and competition, but within fixed parameters defined by government. They can be used to prevent certain price-based forms of marketing — such as loss leaders or two-for-one promotions, as well as profiteering

- **Fixed per unit tax:** a tax is imposed that charges a set amount per unit of a given product, for example, per gram. It can be applied at production level, retail level, or both

- **Percentage sales tax:** a tax is added as a percentage of a product's sales price

- **Differential pricing:** any of the above pricing controls can be applied in different ways to different products, or similar products in different locations

These pricing control models have all been tried at different times and in different places around the world for alcohol and tobacco, so there is a useful if imperfect literature from these sources to inform initial decision-making.[50] [51] It is clear that interventions on price are a particularly useful policy tool, as once a price control infrastructure is established, it allows for relatively rapid responses to changing circumstances and emerging problems. Price controls are highly flexible and can potentially be targeted at specific products, populations of users, types of outlets or geographical regions associated with particular concerns. The differential application of price controls can also contribute to an incentive-disincentive gradient that can help encourage more responsible using behaviours, and the use of lower-risk products.

As with alcohol and tobacco, the potential risks associated with the use of cannabis mean it is qualitatively different from other consumer products. In setting cannabis prices, a level of government intervention beyond that which is accepted for many other products is therefore justified.

The simplest broad assumption to transfer from the experiences with alcohol and tobacco is that the pricing of drugs follows the same basic laws of supply and demand that hold for most consumer products: essentially, as price increases, consumption falls, and as price falls, consumption increases. Transferring this basic observation into policy is, however, far from simple.

The first key observation is that price changes will have different impacts on different sub-populations of users. The price elasticity of legal cannabis

50 Wagenaar, A. C. et al. (2008) **Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies**, Addiction, Vol. 104, pp.179–190.

51 Gallus, S. et al. (2006) **Price and cigarette consumption in Europe**, Tobacco Control, Vol. 15, pp.114–119.

(the degree to which demand changes with price) is, unsurprisingly, relatively poorly researched. One US-based estimate tentatively puts it at -0.54, meaning a 10% decrease in price would lead to a 5.4% increase in consumption.[52] Such estimates are acknowledged to be, by their nature, rather speculative, since calculations of the price elasticity of a particular good or service are typically made with the assumption that while monetary price changes, all other factors are held constant. Legalising a product that has until that point been prohibited clearly represents a significant change in circumstances and is likely to impact on other environmental variables, such as a potential change in availability or the social acceptance of cannabis use, that could, independently of price, affect levels of consumption.[53]

The price of cannabis in existing illegal markets is determined by the interplay of supply and demand in a largely unregulated marketplace. In Western markets the illicit cannabis production model is increasingly characterised by a large number of small- to medium-sized domestic producers. This more localised and flexible production has progressively displaced established models of previous decades that involved larger-scale production and importation from developing regions such as Central America, North Africa or parts of Central and South East Asia.

Compared to alcohol, the cost of either legally or illegally producing herbal cannabis (which requires little or no processing) has been relatively low as a percentage of final retail price. This means marginal changes in production costs can be easily absorbed and have relatively minor impacts on market prices. However, illegal-market cannabis prices are typically highly inflated, primarily as a result of the risks and costs involved in evading law enforcement throughout production, transit and sale. Straightforward profiteering is an additional factor that leads to such

52 Kilmer, B. et al. (2010) **Assessing How Marijuana Legalization in California Could Influence Marijuana Consumption and Public Budgets**, RAND Corporation. **www.rand.org/pubs/occasional_papers/OP315.html.**

53 *Ibid*

elevated prices. In essence, the criminal entrepreneurs who populate the illegal market will simply maintain prices at the highest possible level that consumers are willing to pay. As such, illegal-market prices can potentially provide guidance on the point at which legal-market prices should be set.

The price elasticity of demand for cannabis is likely to vary significantly between individuals and populations. Below are some key observations on why such variations are probable:

- The personal economic burden of an individual's expenditure on drugs, relative to their total disposable income, is decisive in determining the price elasticity of their demand. If initial prices are sufficiently low and/or if use is moderate/occasional, total spend is likely to be low and even a dramatic change in price is likely to have only a marginal impact on demand. Conversely, where use is more frequent and total spend relative to disposable income is high, price changes are likely to have more significant impacts on levels of use. This is certainly the case with alcohol and tobacco

- This assumption may be complicated where dependency is involved, as a dependent user's need to maintain their habit can make their demand less price elastic than that of other consumers. Furthermore, significantly increasing prices above pre-regulation levels may have unintended consequences for those heavy or dependent users with low disposable incomes. They may, for example, engage in fundraising-related criminal activity[54] or reduce their spending on food necessary for a healthy diet (also sometimes observed among dependent users of alcohol and tobacco)

54 This is a phenomenon often witnessed with heroin and cocaine users, but relatively rarely with cannabis, alcohol or tobacco users because total spend is comparatively much lower. The nature of cannabis dependency is also relatively less intense.

- Research into alcohol and tobacco markets suggests that those with lower disposable incomes, in particular, young people, will generally be most affected by price increases that are intended to moderate levels of consumption (in other words, their demand is more price elastic). Although such price increases can have a positive impact in reducing use among young people, they could potentially be seen as discriminatory, effectively penalising those on lower incomes

- Changes in the price of legal cannabis relative to illegal cannabis may lead to displacement between the two. Similarly changes in the price of legal cannabis relative to other products or activities (most obviously alcohol consumption) may also lead to displacement between the two. These are important but distinct issues

Impact of legal cannabis prices on the illegal market

The price of legally supplied cannabis (inclusive of any government interventions) will naturally have an impact on the size of any parallel illicit market that remains. A key factor will be the relative price difference, in other words, the ability of the illegal trade to undercut legal prices yet remain sufficiently profitable.

The nearer the retail price of legal cannabis is to the cost of bringing illegal cannabis to market, the smaller the profit opportunity that exists for any parallel criminal trade. However, because the gap between production costs and current retail prices is so disproportionately large compared to more conventional product markets, even a substantially cheaper legal product is likely to offer opportunities for undercutting. Illicit producers may have one marginal advantage in not having to comply with any production controls that may increase relative costs for legal producers (depending on the intensity of regulation). Nonetheless, they will still be disadvantaged by the need to incorporate the risk of criminal penalties into their costs (depending on the intensity of enforcement), and by the economies of scale more readily available to legal enterprises.

Realism is obviously needed on this front. Legal supply cannot displace illegal markets entirely (unless it involves effectively unregulated availability at or below cost price) and a parallel illegal market at some scale is an inevitability, as illustrated by the continuing existence of parallel illegal markets for alcohol and tobacco. The size of these illicit alcohol and tobacco markets varies significantly between jurisdictions, with price controls on the legal market being a key variable. Where cigarette taxes are high, for example in the UK, where tax makes up 77% of the packet price,[55] the incentive for smuggled products that avoid such charges is significant. Indeed, the latest estimates put the percentage of the UK market that is smuggled or counterfeit at 9% for cigarettes and 38% for hand-rolled tobacco.[56] By contrast, where there is very little tax, for example, in Andorra, there is little or no smuggling into the country, although plenty is smuggled out to neighbouring jurisdictions. The illicit alcohol market is generally smaller than that for tobacco, reflecting a number of factors. These include the lower profit margins and levels of taxation for alcohol (and therefore reduced opportunities for undercutting), the greater value added by legal production and sales (people appear to be more willing to smoke counterfeit/smuggled cigarettes than drink illegally produced alcohol) and the greater challenges of transporting and storing heavy liquids compared with tobacco.

This demonstrates that the relative attractiveness of legal and illegal products is about much more than just price. Legally regulated cannabis production and sale can confer various forms of added value for consumers, for which they will be willing to pay a premium over an illegally produced and supplied product. This added value includes: avoidance of illegality and lack of contact with criminal markets; guarantees and consistency in the quality and safety of the product (supported by accurate packaging information); the range of products available (supported by accurate

55 Action on Smoking and Health (2013) **The economics of tobacco**, ASH Fact Sheet, p.2. **www.ash.org.uk/files/documents/ASH_121.pdf.**

56 National Audit Office (2013) **Progress in tackling tobacco smuggling**. **www.nao.org.uk/wp-content/uploads/2013/06/10120-001-Tobacco-smuggling-Full-report.pdf.**

Relative attractiveness of legal and illegal products is about much more than just price. Legally regulated production and sale can confer various forms of added value for consumers, for which they will be willing to pay a premium

information on the differences provided by a licensed vendor); and, in the case of venues that permit on-site cannabis consumption, an appealing environment in which to consume.

Thus, as with tobacco pricing, a key challenge in designing effective cannabis price controls is how to reconcile the need to dissuade use by keeping prices relatively high, with the need to disincentivise a parallel illegal trade by keeping prices relatively low. As the legal trade matures, the challenge of setting a desired after-tax price is complicated by the predictable decline in pre-tax prices over time. There is no perfect solution, and a compromise between the rival costs has to be struck, guided by local priorities. The disproportionately large gap between production costs (illegal or legal) and current illegal market prices makes this an even greater challenge in the case of cannabis. It is, however, a challenge that can be reduced by using vigorous regulation and law enforcement to keep the costs of illicit production and sale relatively high and to clamp down on any diversion of legally produced cannabis. Emphasising the added value of legally regulated cannabis bought and/or consumed in safe, controlled environments is also likely to be a useful measure.

Evidence from the Netherlands is instructive here. The popularity of the Dutch *'coffeeshops'*, which is such that many cannabis users travel from other countries to visit them (see Cannabis tourism p.205), has meant that they have squeezed out most of the domestic criminal retail supply market. The coffee shops have achieved this majority market share despite maintaining prices at a level not dramatically different from the illicit-market prices found in adjacent countries. According to the EMCDDA, in 2011the average per-gram price of cannabis(resin/herbal) was: €9.7/€5.9 (imported) or €9.3 (locally produced) in the Netherlands

(via the coffee shops); approximately €7.5/€8 in Belgium; and €7.2/€8.9 in Germany. Illicit cannabis retailers in the Netherlands have therefore not been able to drop prices sufficiently to outweigh the other benefits coffee shops offer most purchasers. It is also important to note that rates of cannabis use in the Netherlands remain similar to those in neighbouring countries.

Displacement effects of relative price changes

The availability and costs of potential substitute drugs, or substitute recreational activities, will also be a factor in determining the net impact of post-regulation legal cannabis pricing (inclusive of government interventions). That displacement of use from other drugs to cannabis (if the relative price of cannabis falls), or from cannabis to other drugs (if the relative price increases) will occur is a reasonable assumption, but one that has historically been poorly researched. Consequently, the extent of any such potential impact can only be guessed at within fairly wide margins of error.

The most obvious and potentially significant area for such an effect is probably displacement between alcohol and cannabis, as their patterns of use and effects are relatively similar, and indeed, often overlap directly. While there has been some speculation that an increase in cannabis use (whether related to a price fall, some other impact of legal regulation, or some entirely unrelated variable) would be likely to lead to a fall in alcohol use, the existence or extent of any such effect is not well established, and is hard to test.[57] [58] [59] There are examples of cannabis and alcohol use rising and falling at the same time (therefore not providing support for a displacement hypothesis), and, in the US at least, more

57 Cameron, L. and Williams, J. (2001) **Cannabis, Alcohol and Cigarettes: Substitutes or Complements?**, The Economic Record, Vol. 77, No. 236, pp.19–34.

58 Chaloupka, F. J. and Laixuthai, A. (1997) **Do Youths Substitute Alcohol and Marijuana? Some Econometric Evidence**, Eastern Economic Journal, Vol. 23, No.3, pp.253–276.

59 Pacula, R. L. (1998) **Does increasing the beer tax reduce marijuana consumption?**, Journal of Health Economics, Vol. 17, No.5, pp.557–585

recent patterns of cannabis use rising while alcohol use falls (evidence that might support the hypothesis).[60]

Epidemiological evidence needs to be supported by studies of individual behaviours, and there are clearly many variables other than price that influence decisions to use one drug over another. The reality of cannabis and alcohol frequently being used together complicates the picture further: are they *'complements'* or *'substitutes'*? Caution is certainly needed before jumping to conclusions about simplistic causality. If, however, a price- or policy-related increase in cannabis use could be convincingly demonstrated to be linked to a corresponding fall in alcohol consumption, then there is real potential for a net public health gain on the basis that the relative harms of cannabis use are generally accepted to be far lower than those of alcohol.[61]

This proposition, that an increase in cannabis use could produce a public health gain if it was compensated by a fall in alcohol use, is obviously a contentious and counterintuitive position for many. Given the current lack of solid evidence to support it, it is not yet an assumption that can reasonably form a key part of policy decision-making at this stage. But at least as a plausible theory, it is something that should be the subject of more rigorous study as opportunities to influence both alcohol and cannabis pricing and availability simultaneously increase. This emerging evidence can inform future thinking on how to influence and reduce drug-related health harms more broadly.

There is, of course, also the possibility that government interventions that increased cannabis prices above current market levels would lead to displacement in the opposite direction, with cannabis use falling and

60 Johnston, L. D. et al. (2012) **Monitoring the Future National Survey Results on Drug Use**, 1975-2011: Volume I, Secondary school students, Institute for Social Research, Ann Arbor, Michigan: The University of Michigan, p.159. **http://www.monitoringthefuture.org/pubs/monographs/mtf-vol1_2011.pdf.**

61 Nutt, D. et al. (2007) **Development of a rational scale to assess the harm of drugs of potential misuse**, The Lancet, Vol.369, No.9566, pp.24–30.

alcohol use increasing. However, if legal retail prices are set too high at the outset (higher than current illicit market prices) the more likely outcome, as explored above, is that a significant proportion of demand will simply continue to be met via illicit supply, the economics of which, in terms of profitability, will be largely unchanged (or potentially even improved). Two other displacement possibilities are also worth noting here. One is that increased cannabis prices might incentivise home growing. Whether this is a good or bad thing is unclear, but even the worst-case scenario would hardly be disastrous. Another possibility is that increased price might also cause displacement to drugs other than alcohol. The net impact of any increased use of other drugs would depend on their relative risks, but likely candidates for displacement would include some synthetic cannabinoids (see p.191) and other NPS whose risks are relatively unknown.

C Tax

Challenge

- Effectively integrating taxation policy into pricing regulation in a way that maximises tax revenue, while supporting - and not undermining - other policy aims

Analysis

- Tax policy is closely linked with pricing policy
- Various possible tax mechanisms exist: tax on unit weight, on active content, or on sales value
- Tax revenue will be available not only from cannabis sales, but also from production, industry-related earnings, and other sources such as licence fees, and standard value added taxes (VAT)
- Potential tax revenue will vary significantly depending on the nature and size of the market and regulatory/tax regime adopted - predicting tax revenue is therefore problematic
- If prices are to be maintained at or near current market levels, a substantial tax burden will eventually be be required to prevent inordinate profits (unless sales are regulated under a state monopoly) - but higher taxes also create incentives for diversion, tax avoidance, and fuel illegal markets
- Tax revenue also has the potential to distort government priorities

Recommendations

- A system based on taxation of both production and sales - with THC content by weight being the taxable unit - is a sensible starting point for products whose THC content is reliably measurable, but the detail of such decisions would need to be incorporated into wider pricing policy considerations, and fit within the needs of local political environments and existing tax frameworks

- Maximising tax revenue should not be a key driver of policy - tax revenue should be seen more as a welcome additional benefit
- Ring fencing cannabis tax revenue for drug treatment, prevention or other social programmes is a politically attractive proposition but is problematic; public health interventions should be funded according to need and not be dependent on sales

Economic pressures faced by governments around the world have drawn increasing attention to the potential financial impacts of legally regulating cannabis. The logic being that the move could not only create savings in the criminal justice system, but additionally provide a much-needed boost in tax revenue for regional and national budgets. Indeed, the campaigns to legally regulate cannabis in several US states explicitly highlighted the potential fiscal benefits of such a move.

Tax options

1 Ad Valorem sales tax

Tax added as a fixed % of retail price

Pros

- Easy to understand and administer

Cons

- May incentivise diversion and tax avoidance between production and retail

2 Fixed-rate tax on unit weight

Tax added at farm gate rather than at retail stage

Pros

- Easy to administer

Cons

- Potentially incentivises selling more potent varieties that retail at higher prices

3 Fixed-rate tax on active content

Tax based on THC content by weight

Pros

- Avoids incentivising sales of higher-potency strains

Cons

- More technically difficult to administer

4 Progressive tax

Tax that increases according to potency, or another risk variable (can be either fixed-rate or value added)

Pros

- May help dissuade use of more potent varieties or more risky products

Cons

- More complex and technically difficult to administer

5 Licence fees

Effectively a tax on licensees to at least cover bureaucratic costs

Pros

- Offers an initial funding stream for regulators that is not dependent on sales

6 Local tax

Municipal- or county-level tax to cover any localised cost burdens associated with trade

Pros

- Can help cover specific localised regulatory burdens or costs

Cons

- May incentivise diversion, or geographically displace markets

7 Deny tax deductions for advertising/marketing expenses[62]

Pros

- Targets efforts to increase demand
- Allows tax deductions for product costs

62 Oglesby, P., (2015) **'How Bob Dole got America addicted to marijuana taxes'** Brookings **https://www.brookings.edu/blog/fixgov/2015/12/18/how-bob-dole-got-america-addicted-to-marijuana-taxes/**

Cons

- Could penalize some innocuous sales activity like ads listing hours of opening and location

The scale of any sales tax revenue would be dependent on a number of variables:

- The price of products and rate of taxation in the new legal market
- The total size of the market and levels of consumption of different products (which may change post-prohibition)
- The proportion of the market that is taxable - parallel illicit markets are untaxed, home cultivation would generate marginal if any tax revenue, and tax breaks for medical cannabis - especially if they go to *'healthy pretenders'*[63]
- Tax evasion - in the form of diversion from legal production channels before tax is collected for the purpose of illegal *'off the books'* sales
- Tax avoidance - exploitation of legal loopholes to reduce taxes payable
- The intensity of tax law enforcement

These variables are naturally interlinked. For example, higher taxes are likely to push up prices, incentivising tax evasion and avoidance, home cultivation, and a parallel illicit trade, in turn shrinking the taxable market and reducing potential taxable income. There are also various possible impacts of price changes on alcohol use — which has separate tax revenue implications. These potentially complex interactions — and the wide variety of potential regulatory models and tax regimes — mean predictions about likely levels of tax revenue can only be made within very wide margins of error.

Such predictions will be more robust in a few years' time, when the first non-medical cannabis models have bedded in. In the absence of more concrete data, there is a real risk of exaggerating the potential tax revenue generated by any system of legal cannabis regulation. Nevertheless,

63 Oglesby, P., (2015) **'Supplemental Thoughts About Revenue from Marijuana in Vermont'** Center for New Revenue **http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2551029**

reference can certainly be made to some of the research and tax revenue estimates that have so far been produced. This body of evidence indicates that revenues could potentially be very significant:

Tax revenue research and estimates

- In 2008, Dutch coffee shops paid €400 million ($520 million) in taxes on revenues from gross sales of over €2 billion ($2.6 billion)[64]
- California's medical cannabis industry generates between $58 – $105 million in annual sales tax revenue[65]
- If one million of Spain's existing cannabis users obtained their supply through cannabis social clubs, the jobs created would generate approximately €155 million in social security contributions, €54 million in income tax and around €100 million in VAT[66]
- Legally regulated cannabis in England and Wales could generate tax revenue in the range of £0.4 billion – £0.9 billion annually[67]
- If legally regulated at the federal level in the US, estimates of total tax revenue from cannabis have ranged from $8.7 billion[68] to $28 billion[69]

While potential sales tax revenue has received most attention from policy makers and researchers, tax revenue can be generated at various points in a legally regulated cannabis market. For example, revenue can be generated by taxes imposed at production/wholesale level, corporation taxes paid on profits, business taxes paid on the use of premises, and income taxes paid by those employed in the legal cannabis trade.

64 Grund, J-P. and Breeksema, J. (2013) **Coffee Shops and Compromise: Separated Illicit Drug Markets in the Netherlands, Global Drug Policy Program**, Open Society Foundations, p.52. **www.opensocietyfoundations.org/sites/default/files/Coffee%20Shops%20and%20Compromise-final.pdf.**

65 California Board of Equalization (2013) **News Release: BOE to Sponsor Legislation to Exempt Hospice Patients from Sales Taxes on Medical Marijuana**. **www.boe.ca.gov/news/2013/28-13-H.pdf.**

66 Barriuso Alonso, M. (2011) **Cannabis social clubs in Spain: A normalizing alternative underway**, Transnational Institute, p.6. **www.druglawreform.info/images/stories/documents/dlr9.pdf**.

67 Pudney, S. et al. (2013) **Licensing and regulation of the cannabis market in England and Wales: Towards a cost-benefit analysis**, Institute for Social and Economic Research, vi. **https://www.iser.essex.ac.uk/d/153.**

68 Miron, J. A. and Waldock, K. (2010) **The budgetary impact of ending drug prohibition**, Cato Institute. **www.cato.org/sites/cato.org/files/pubs/pdf/DrugProhibitionWP.pdf**

69 Ekins, G., Henchman, J., (2016) **'Marijuana Legalization and Taxes: Federal Revenue Impact'** Tax Foundation **http://taxfoundation.org/article/marijuana-legalization-and-taxes-federal-revenue-impact**

Given that almost all proceeds from the global cannabis trade currently accrue to organised criminals, legal regulation clearly offers an opportunity for governments to collect what is currently foregone revenue. The argument, often heard, that tax revenue will not cover the social and health costs of cannabis use is somewhat meaningless in this context as some tax revenue is clearly preferable to none at all.

A range of other considerations may also need to be taken into account when deciding on the right combination of taxes to employ and how high they should be set. For example:

- Cannabis is relatively compact compared to alcohol and tobacco, so smuggling and tax avoidance is comparatively easy. Taxing at production stage could help avoid this[70]

- If tax was administered on herbal cannabis at a flat rate by weight it would create an incentive to produce higher-potency cannabis, which retails for higher prices. Administering tax by potency - for simplicity, by THC content - would avoid this risk (see Strength/potency p.114). A THC potency-based system might be more of an administrative burden. Under any proposed systems, weight produced and sold, and potency, should already be subject to regular independent monitoring

A system based on taxation of both production and sales, with THC content by weight being the taxable unit, is a sensible starting point, but the detail of such decisions would need to be incorporated into wider pricing policy considerations, and fit within the needs of local political environments and existing tax frameworks. A state monopoly on production, sales, or both, would simplify tax and pricing matters substantially, and potentially allow sellers of legal product to respond nimbly to the illegal market.

70 Caulkins *et al*. (2013) **Marijuana legalization – what everyone needs to know,** p.156.

While tax revenue is certainly a significant potential benefit of reform, it should not be a primary motive behind any transition towards systems of legal cannabis regulation. It is the improvement of public health and community safety that should be the driver of such a policy shift. The likely increase in tax revenue should be seen above all as a means of funding the necessary regulatory frameworks for cannabis - anything more than this should be considered a welcome bonus.[71]

Experiences with alcohol and tobacco show how generating substantial tax revenue can potentially distort or have a negative impact on public health priorities. Other political lessons from alcohol and tobacco taxation should also not be ignored, such as the public's inevitable hostility to any tax increases, the lobbying power of large-scale production and supply industries, and the difficulties in intervening in such industries given their employment of a significant number of potential voters.

The often-mooted idea that tax revenue from cannabis could be redirected into drug services, such as prevention, education and treatment/ recovery - is one that has obvious populist appeal. Such a plan was included in Washington's ballot initiative for the legalisation of cannabis, which earmarked 60% of the revenue generated by cannabis sales taxes to prevention, education, research and health care.[72] Importantly, funds are also dedicated to monitoring and independent, periodic cost-benefit evaluation of the impacts of the law. Similarly, Colorado's Amendment 64 ballot initiative to legalize recreational marijuana earmarked the first $40 million of state excise tax revenue for public school construction,

71 Beyond any financial benefit stemming from increased tax revenue, there will naturally be resource savings across the criminal justice system, however these are not likely to accrue to the same government departments responsible for regulating cannabis markets, and the process of potentially redirecting such resources may not be quick or easy.

72 See: Washington State Legislature (2013) **RCW 69.50.540 Marijuana excise taxes – Disbursements** http://apps.leg.wa.gov/rcw/default.aspx?cite=69.50.540.

with other marijuana tax revenues reserved to fund public education campaigns, health-related services, and public safety initiatives.[73]

While they are undoubtedly useful in *'selling'* a particular reform to the electorate, caution should be exercised with regard to including such provisions in any plans for systems of legal cannabis regulation. Levels of effective monitoring and evaluation, and ongoing service provision, should be determined by need and evidence of efficacy, and not vary according to cannabis tax revenue. Expenditure that is conditional on this revenue should only be additional to any spending that would otherwise have occurred.

d Preparation (and method of consumption)

Challenges

- Regulating the availability of different preparations of cannabis in such a way that meets demand for the drug and therefore minimises the market opportunities for criminal suppliers
- Promoting the use of lower-risk cannabis products and consumption behaviours in the longer term

Analysis

- Cannabis is available in a range of preparations and can be consumed in a range of different ways
- The risks associated with cannabis use are significantly influenced by preparation, dosage, and method of consumption, which are all closely linked to potency - see Methods of consumption, p.97)

73 Johns, T. (2015) **State and Local Government Review** **http://slg.sagepub.com/content/47/3/193**. abstract quoted in **http://blogs.lse.ac.uk/usappblog/2016/01/06/colorados-implementation-of-legal-marijuana-policies-has-been-a-patchwork-of-regulation-against-a-backdrop-of-diverse-public-opinion/**

- Differing regulation according to the preparations of cannabis that are made legally available can influence patterns of use. For example, by making more risky products less available, and less risky products relatively more available, certain potential harms and harmful using behaviours can be minimised
- Key considerations are the potential risks to lung health from inhaled cannabis smoke (particularly if mixed with tobacco), and the ability of users to be informed about and to control the dosage of active cannabis ingredients - both in terms of total consumed and speed of onset of effects
- The smoking of herbal cannabis, in joints or pipes, remains the most popular method of consumption throughout most of the world, because it is simple, cheap, portable, sociable, and allows users to control dosage relatively easily
- Encouraging users to consume cannabis through methods other than smoking is a long-term challenge, but if achieved would reduce the risks to lung health associated with smoking - particularly where cannabis is mixed with tobacco
- Edible cannabis preparations do not involve risks to lung health, but do have a much slower onset of effects and therefore pose some greater risks relating to dosage control, and can have longer lasting effects
- Vaporisers - which create vapour from herbal cannabis, rather than smoke from burning - offer a more user-friendly inhaling experience, reduce lung health risks, and offer a similar level of dosage control to smoked cannabis
- E-cigarettes technology, used to vaporise an extracted cannabis oil (rather than herbal cannabis), is likely to be an increasingly popular and lower-risk alternative method of consumption to smoking. Lessons need to be learnt from problems with regulating nicotine e-cigarettes - which are not well catered for by either tobacco regulation or medical nicotine-replacement product regulation

Recommendations

- Non-smoked cannabis inhalation using vaporisers and e-cigarette technology should be encouraged as an alternative to smoking, as they dramatically reduce the risks associated with smoking, particularly smoking cannabis mixed with tobacco. Bans on sales of pre-rolled joints, mandating the provision of vaporisers in cannabis consumption venues, or even establishing *'vape-only'* consumption venues, are some examples of how this transition might be encouraged
- More research is needed into the use of vaporisers, and some form of testing and standardisation would be useful, potentially associated with an official *'quality tested/approved'* mark or logo on products
- More research into the relative risks of emerging cannabis concentrates such as butane hash oil (BHO) and consumption through *'dabbing'* is needed
- A greater policy and research focus is needed on the use of cannabis oil as e-cigarette technology inevitably becomes increasingly popular, given that they combine the lower risks of non-smoked inhalation with a more accessible and user-friendly product. Dedicated regulatory controls will be needed for such devices and the products sold for use with them - with important lessons to be learnt from challenges with e-cigarette regulation
- Decisions about which products to make available from the outset of any system of legal cannabis regulation should be guided in large part by matching the nature of existing illegal consumption. While an exact match between the products available on the new legal and former illegal markets is not necessary, the more significant the discrepancy, the more likely unpredictable and potentially negative market distortions become
- Attempts to influence patterns of use by regulating different products in different ways should be gradual and guided by careful monitoring and evaluation

Preparations

Cannabis comes in a range of preparations. These include:

- **Herbal cannabis** – a wide range of cannabis strains are available, varying in quality and THC and CBD content, from low-to high-potency (see p.114).[74] Herbal cannabis is usually dried after picking and can be smoked, vaporised, eaten (most commonly incorporated into food or beverages), or processed into a range of other products (see below)

- **Cannabis resin and other concentrates** – resin is a solid cannabis preparation most commonly made from elements of the plant that contain the highest concentration of active ingredients. There is a wide variety of resin products, ranging from traditional rolled or pressed resins made from the manually collected cannabis trichomes, through to more processed products made using solvents (these include more potent, but less common, cannabis oil and *'wax'*). Although resin is generally more potent than herbal cannabis (in terms of THC % by weight) and correspondingly more expensive, resin potency can vary significantly. There are some lower-potency resins, such as the mass-market resin produced in North Africa and consumed in much of southern Europe. This is often bulked up with non-cannabis adulterants. The most potent resins and oils, especially those made using the latest hi-tech extraction process, can be extremely potent, some with a THC concentration of over 80% such as butane hash oil (*'BHO'*, made using the extraction solvent butane). These highly potent cannabis concentrates are sometimes consumed via a process known as *'dabbing'*, whereby the user touches the concentrate onto a heated surface and inhales its vapours,[75] but can also be used more conveniently in pocket

74 For example, at the time of writing, leafly.com provides information on 2007 different strains: **www.leafly.com/explore.**

75 BHO and 'dabbing' remain a predominantly North American phenomenon so far – see: Black, B., **To Dab or not to Dab?**, High Times, 02/10/13. **www.hightimes.com/read/dab-or-not-dab.**

vaporisers similar to e-cigarettes. More typical resins can be smoked on their own in a pipe, smoked with tobacco in a joint, vaporised (less commonly), eaten on their own, or cooked into a food product. Oils are usually smoked or eaten in foods

- **Cannabis edibles** – herbal cannabis can be eaten in its unprocessed form, but more commonly the active ingredients, which are fat-soluble, are dissolved in oils or butter, and consumed in a huge range of prepared foods. Popular edibles in the Netherlands and in medical cannabis dispensaries in the US include cakes, biscuits and brownies, although preparations, unsurprisingly, vary across the world according to local cultures. A variety of cannabis-based beverages made with the infused oils or tinctures (and infusion in alcohol) are also available[76]

- **Other cannabis preparations** – many novel products have been developed in recent years for medical cannabis users. These include cannabis tinctures (including Sativex, a whole-plant cannabis tincture mouth spray, the first such product to be licensed as a medicine), sublingual tablets or strips, and a wide array of teas, tonics and sodas that mostly contain cannabis tinctures of differing strengths and applications. These products do have psychoactive effects but are not widely used non-medically. However, such developments will potentially be transferable to non-medical products in the future

Methods of consumption

Cannabis can be consumed in a variety of ways, each associated with different effects and risks.

76 Cannabis can be added to hot water to make cannabis tea or other drinks, but because its active ingredients are not water-soluble it is an inefficient method of use. Teas are therefore usually made with tinctures or cannabis-infused oils.

Smoking

In most of the world, by far the most popular method of consuming cannabis (whether resin or herbal) is by smoking it, either in some form of pipe, or in a *'joint'* (a hand-rolled cannabis cigarette) containing either pure herbal cannabis, or herbal/resin cannabis mixed with tobacco (or less often, some other herbal mix). The reason for the popularity of smoking is unsurprising – it is quick, easy, and inexpensive. The rapid onset of the drug effect is both desirable in itself and also offers a high degree of dosage control. Smoking also offers a sociable, shared experience in the preparation and sharing of the pipe or joint, which in various forms has become culturally embedded, even ritualised, in a range of social environments – in much the same way as many alcohol consumption behaviours.

The burning of the cannabis (and anything it is mixed with) results in the creation of a range of combustion products (such as tars, carbon monoxide, toluene and benzene)[77] and while, contrary to *'reefer madness'* mythology, cannabis smoke appears to be less risky than tobacco smoke,[78] [79] it is reasonable to assume that inhalation of smoke of any kind increases risks to throat and lung health.[80]

When cannabis is smoked mixed with tobacco, as is often the case in much of the world, it makes the ongoing debate over the relative risks of smoking cannabis and tobacco separately rather academic. However, the smoking of cannabis and tobacco together presents often under-

77 For a comprehensive list of the chemical components of cannabis smoke, see: Moir, D. *et al.* (2008) **A comparison of mainstream and sidestream marijuana and tobacco cigarette smoke produced under two machine smoking conditions**, Chemical Research in Toxicology, Vol.21, No.2, pp.494–502.

78 Rooke, S. E. *et al.* (2013) **Health outcomes associated with long-term regular cannabis and tobacco smoking**, Addictive Behaviours, Vol.38, No.6, pp.2207–2213.

79 Pletcher, M. J. et al. (2012) **Association Between Marijuana Exposure and Pulmonary Function Over 20 Years**, Vol.307, No.2, pp.173–181.

80 While the carcinogenic potential of cannabis smoke remains contentious (but appears to be modest and certainly considerably less than that of tobacco smoke), smoke from combustion of any herbal products can undoubtedly irritate the airways and is associated with increased health risks

acknowledged but serious health risks.[81] Because of the high addictive potential of smoked tobacco, the smoking of mixed cannabis and tobacco joints can be an initiator of long-term tobacco use (which is unquestionably associated with serious health harms that may continue independently of any cannabis use), and can also mean that users crave joints for their nicotine content, and therefore end up smoking more cannabis, or smoke it more frequently, than they otherwise would.

Smoking through a water pipe or *'bong'* is widely perceived to be somehow less risky than other forms of smoking. But, rather like the supposed benefits of filters on cigarettes, there is no good evidence to support this supposition. Even if the smoking experience is more pleasant because the smoke is marginally cooled by the water, it is essentially the same smoke.[82] Some research has suggested that because the water absorbs THC more effectively than it does tars, it will actually increase the tar-to-THC ratio, meaning users inhale more than they otherwise would with a joint.[83]

Vaporising

Herbal vaporisers

The active ingredients in cannabis can also be released and inhaled in a vapour form, avoiding most of the toxic components of the smoke produced by actual burning in pipes or joints, such as tars and carbon monoxide. This is achieved using some form of *'vaporiser'*, a piece of equipment that heats cannabis (usually in herbal form) to a temperature hot enough to release the volatile cannabinoids (from any redundant

81 This is probably because most cannabis research is US-based, where smoking cannabis with tobacco is uncommon relative to other regions such as Europe, where it is the norm

82 Gieringer, D. (1996) Marijuana waterpipe and vaporizer study, MAPS Bulletin, Vol.6, No.3, pp.53-66. **www.maps.org/news-letters/v06n3/06359mj1.html.**

83 Ibid.

plant material) as a vapour, but not so hot that it actually combusts to create smoke, which contains an array of additional toxic components.

There are many such devices now commercially available that produce this heated vapour in different ways. These include: conduction-style vaporisers, which heat the cannabis on a hot plate in a contained air space; *'forced-air'* vaporisers, which fill a detachable balloon from which the vapour is then inhaled; and *'heat wands'*, which are used with more conventional water pipes in place of a flame or lighter.

While such vaporisers have been growing in popularity since the 1990s, the extent of their use has been limited due to their high price relative to conventional pipes (vaporisers often cost $100 or more, with the top-of-the-range *'volcano'* forced- air models costing over $300), and due to their bulky designs, which make them somewhat impractical for use outside the home. Newer pocket-sized models and *'pen'* vaporisers have emerged on the market more recently – and in a rapidly growing and competitive market have rapidly become more sophisticated and cheaper. The effectiveness of some of these products in creating vapour rather than smoke has been questioned; some are clearly better than others.

A *'volcano'* forced air vaporiser and bag
lelandkim.com


'o.pen' brand cannabis *'e-cigarette'*
Weedhype.com

Published research on vaporisers (mostly carried out in the context of medical uses of cannabis) has convincingly demonstrated that vaporised cannabis delivers similar levels of the active ingredients in cannabis to the user as smoked cannabis does, but without

most of the harmful elements that are found in smoke.[84] [85] [86] In doing so, vaporising reduces the respiratory symptoms[87] and risks associated with smoking. This research also indicates that the inhalation experience is generally preferred by users because the vapour is cooler, less harsh, and so more pleasant to inhale. However, there have been relatively few studies in this area, most of which have focused on the physical outputs of vaporisers and a small sample of user reactions to them, rather than epidemiological studies of actual health impacts. Additionally, in a rapidly expanding market of vaporiser products, relatively few have been subjected to rigorous independent analysis, with mainly just the more expensive *'forced-air'*- type being assessed. There is a clear need for more research and testing to support some sort of quality assurance framework if health professionals, regulators and consumers are to make informed decisions.

'E-cigarette' vaporisers

A more recent development is the adaptation of electronic cigarette or *'e-cigarette'* technology, developed as a safer way of consuming nicotine than smoking tobacco, for use with cannabis products. Like cannabis vaporisers, e-cigarette technology produces a vapour containing the active drug content rather than smoke from burning, although they work in a very different way. Instead of using heat to extract the volatile content from plant matter into a vapour, they use a pre-prepared solution, which is then turned into a vapour in a battery-powered atomisation chamber upon inhalation by the user. Nicotine e-cigarettes have proved far more popular than previous nicotine substitution products such as

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84 Abrams, D. *et al.* (2007) **Vaporization as a smokeless cannabis delivery system: a pilot study**, Clinical Pharmacology & Therapeutics, Vol.82, pp.572–578. **www.maps.org/media/vaporizer_epub.pdf.**

85 Earlywine M. and Barnwell, S. (2007) **Decreased respiratory symptoms in cannabis users**, Harm Reduction Journal, Vol. 4, No. 11. **www.harmreductionjournal.com/content/pdf/1477-7517-4-11.pdf.**

86 Hazekamp A. *et al.* (2006) **Evaluation of a vaporizing device (Volcano) for the pulmonary administration of tetrahydrocannabinol,** Journal of Pharmacological Science, Vol.95, pp.1308–1317.

87 Although they are not eliminated: coughing can still result from inhalation, for example. With some devices, vapour can be additionally passed through water to cool it and reduce potential respiratory irritation

gum or patches, because not only are they widely acknowledged to be substantially safer than smoking, they also closely replicate the experience of smoking in terms of holding the cigarette and inhalation, without the more anti social impacts of cigarette smoke.

For reasons that mirror the attraction of e-cigarettes for smokers, the use of extracted cannabis oils with e-cigarette technology has become increasingly popular as a method of cannabis consumption, most notably in US legal cannabis jurisdictions. These products have been variously called *'e-joints'*, *'canna-vapes'* or, the less catchy *'Electronic Cannabis Delivery Systems'* (ECDS). They offer a user-friendly product that is safer (and many claim more pleasant) than smoking joints or pipes, they are relatively cheap (with many types of e-cigarette retailing at under $10), and they are more convenient than herbal cannabis vaporisers, as e-cigarette technology using cannabis oil does not need to be refilled with herbal cannabis after each use. It seems reasonable to speculate that the rapidly growing popularity of e-cigarette technology for cannabis consumption is set to continue (particularly in legal cannabis jurisdictions) and could soon displace smoked cannabis as the dominant form of consumption (excluding edibles). The benefits of such a shift would seem to be a positive from a public health perspective given the relative risks of smoking and vaporising. It is also possible, however, that the convenience of the products could potentially encourage increased consumption, and that they could also facilitate clandestine use (as they are much easier to use without detection than smoked cannabis).

There are important lessons that should be learnt from the emergence of the nicotine e-cigarette market. Its rapid expansion has caught medical authorities and regulators off guard, as the products are not covered by regulatory frameworks for either cigarettes or for medicines/pharmaceuticals. As a result, even if the substitution of smoked cigarettes for e-cigarettes is widely agreed to be beneficial for public health, the products that are being sold have been inadequately monitored and regulated in most jurisdictions.

The overarching problem here is that such products clearly do not fit neatly within existing tobacco regulation frameworks, but are also not strictly speaking medical products, they are novel products that require their own regulatory framework that draws on key elements of both. This has obvious relevance to future cannabis regulation policy; it should not be assumed that any existing regulatory structures will be able to cater for novel cannabis-based products or technologies (see conclusions below). Questions are already being asked about the emerging cannabis e-cigarette-style vaporisers on the US medical cannabis scene: *'What solvents do the oil/solutions contain?'*, *'What is the potency of the vapour?'* and so on. Current indications are that, in the absence of an appropriate regulatory framework, answers to these questions are inadequate.

Eating – edibles/beverages

As noted above, cannabis can be eaten in herbal or resin form or in a variety of preparations, with the active ingredients then absorbed through the lining of the stomach and digestive tract. Since the active ingredients in cannabis are fat-soluble or can be prepared in a tincture (i.e. extracted into alcohol), they can then easily be added into almost any form of food or beverage. Unlike inhaling cannabis smoke or vapour, which causes the drug to enter the blood via the lungs, providing an almost immediate effect, when eaten, the effects of cannabis take much longer to be felt; anything from 20 minutes to 2 hours or more, depending on the nature of the edible and whether it is ingested on an empty stomach. The effects of eating cannabis will also tend to be longer lasting than when smoke/inhaled.

This means that cannabis edibles present something of a balance of costs/benefits when weighed against smoked/inhaled cannabis. While avoiding respiratory risks entirely, edibles are intrinsically harder to dose control than smoking. Particularly in the absence of clear and reliable content labelling it is hard to judge how strong a particular edible will be without the inconvenience of trying a partial portion of it first and waiting a

reasonable period of time, potentially as much as two hours to be sure (this is a sensible harm reduction tip for any edibles use). Individuals may also react differently or unpredictably to the same product at different times. Adjusting dosage upwards if deemed inadequate is therefore a slow process; users must wait to ensure they have received the desired dose from the ingested product before taking anymore. Impatience and uncertainty around how long to wait mean the likelihood of a user consuming more than they want to, and potentially having unwanted negative or distressing effects is increased, even if the risk of any long-term health harms from such *'overdose'* episodes remains small. Hence regulating the potency and contents, and labelling of any legally produced and sold edibles is obviously a key issue.[88] (For more information, see Strength/potency, p.114 and Packaging information, p.125)

Recommendations

A running theme through this guide is how varying levels of regulation on different cannabis products, and how they are consumed, can help shape consumption behaviours in a positive way, encouraging the use of safer products and of safer methods of consumption.

Even if the often heated debate about the extent of the risks of cannabis use is unlikely to subside soon, as described above, there are a number of observations about the nature of the relationship between risks and cannabis preparation and/or method of use that can be made with confidence:

- There is a dosage/risk relationship, i.e. the more you consume the greater the risks
- User knowledge and ability to control dosage are important risk variables

88 See: Washington State Liquor Control Board Marijuana Regulation WAC 314-55-095 (serving sizes), 314-55-104 (extraction requirements), and 314-55-105 (packaging and labeling). **http://lcb.wa.gov/marijuana/initiative_502_proposed_rules.**

- The speed of onset of effects varies between methods of use and impacts on the nature of the experience, and ability to control dosage
- The lung health risks associated with smoking cannabis are reduced significantly by avoiding mixing with tobacco, and by inhaling vaporised cannabis rather than cannabis smoke. Such risks are eliminated entirely by consuming edible cannabis preparations or using other non-inhaled preparations

Priorities for regulators should therefore be:

- **Deciding which preparations to licence for sale**

How to address this question will largely depend on the overarching regulatory framework that has been adopted (see Summary of cannabis regulation models, p.32). More commercially-oriented market models are likely to permit the sale of most products and preparations by default, albeit with certain potency limits imposed (see Strength/potency, p.114). They may then deploy regulatory powers to reactively prohibit the sale of certain risky products or types of product, as deemed appropriate, on a case-by-case basis (see, for example, the Washington and Colorado regulatory models, p.254).

More regulated or state-controlled models are likely to reverse this approach, adopting a more cautious and simpler regulatory system involving a default ban on sales of products that have not been specifically licensed (see, for example, Uruguay's model, p.254).

Ultimately, decisions will need to be guided by the nature of the existing illicit market. In most jurisdictions the types of illegal cannabis available are fairly limited, often restricted to a two-tier market featuring cheaper, less-potent outdoor-grown herbal cannabis (often including leaves, seeds and sticks) and more expensive, and more potent, indoor-grown herbal cannabis (usually just the flowering tops or buds of the cannabis plant). Where resin is the most widely used form of cannabis,

there is often a similar two-tiered market. By contrast, the medical cannabis markets in some US states, such as Colorado and California, as well as the Dutch coffee shops, have exposed a broad base of consumers to more sophisticated markets before the arrival of a non-medical legalisation. These include not only an extensive selection of different *'premium'* herbal cannabis varieties, but also a range of processed products including various concentrates and edibles. Where such a product range is already available, and a market already established, putting in place a more restricted product range for non-medical use may prove challenging and probably undesirable, although not impossible.

In places where there is a limited variety of cannabis products available on the illicit market, we recommend that, initially at least, any new legal market should not offer a significantly greater product range. In such cases, this will probably mean allowing only a relatively restricted range of herbal cannabis varieties (covering lower-, medium- and higher-potency products) and/or resins (See Strength/ potency, p.107). The rationale here would be to not change the nature of the market too dramatically or too fast, so as to avoid unpredictable impacts on patterns of use.

The range of products can then be expanded over time, rather than moving, almost *'overnight'*, from the kind of limited two-tier illegal markets familiar in most jurisdictions to the kind of product range that has evolved in the Netherlands and in some US medical cannabis dispensaries over a number of years. Even under a regulatory framework that only permits a more restricted product range, cannabis users seeking specific *'premium'* cannabis strains that are unavailable via licensed retailers would still, in principle, be able to access them if, as we are proposing, home growing is also permitted, perhaps alongside small-scale cannabis social clubs.

There is also no obvious or urgent need to make cannabis edibles available for retail at the outset of any regulatory system (medical cannabis edibles are a separate issue). Cooking with herbal cannabis is very simple and anyone who wished to prepare edibles with purchased herbal cannabis

could easily do so. Given this freedom, it might be sensible to avoid the inherent complexities of regulating edibles for retail sale, at least initially. This is an area that can always be revisited at a later stage, when the regulatory framework for herbal cannabis is better established (see Strength/potency, p.114 and Packaging, p.125). Regulation of edibles is an area that Washington[89] and Colorado have been exploring[90] and the lessons learnt from these experiences will no doubt prove useful for regulators.

The rationale here would be to not change the nature of the market too dramatically or too fast, so as to avoid unpredictable impacts on patterns of use

The same rationale could be used to restrict or prohibit retail sales of some cannabis concentrates, certainly the more potent types produced with CO_2 or solvent extraction methods. Again, whether this is appropriate will depend on the nature of the existing market and the extent of demand, but if such products are not already in widespread use, and there are legitimate concerns that the retail availability of more potent products could increase certain risks, there is no urgency to make them available at the outset of any regulatory system.

Regulators may wish to consider first establishing a functional herbal cannabis market that meets the majority of demand, and then exploring the regulation of production and retail for edibles and concentrates at a later stage. This would not have to represent a permanent or complete ban on either: edibles would be effectively accessible in the home, and, alongside more exotic strains of cannabis and concentrates, could potentially be accessed via the more controlled environment of cannabis social clubs.

89 See Washington State Liquor Control Board Marijuana Regulation WAC 314-55-095 (serving sizes), 314-55-104 (extraction requirements), 314-55-105 (packaging and labeling) **http://lcb.wa.gov/marijuana/initiative_502_ proposed_rules.**

90 See discussion here: **www.samefacts.com/2013/03/drug-policy/defining-a-serving-of-cannabis/.**

- **Discourage smoking of cannabis (particularly when mixed with tobacco) and encourage safer methods of consumption**

  Some ways this could potentially be achieved include:

  - Prohibiting licensed vendors from selling pre-rolled joints containing a cannabis and tobacco mix (particularly an issue for European markets), or more restrictively, limiting retail sales to unprepared loose herbal cannabis, at least to begin with
  - Establishing licensed premises for sale and on-site consumption that permit the use of vaporisers while still restricting or forbidding smoking in line with local laws. (It should, however, be noted that the issue of how or if the use of vaporisers/e-cigarette technology will be affected by no-smoking legislation has yet to be grappled with in most jurisdictions)
  - Providing adequate harm reduction information at point of sale, on packaging, and via vendors

- **Regulation of vaporisers that use herbal cannabis**

  The relevant national-level regulatory bodies should put in place appropriate regulation governing the use of vaporisers (for more on the role of national bodies in regulating cannabis, see p.172). Attempts to prevent sales of cannabis paraphernalia have not proved practical in the past, but regulation could sensibly involve an independent testing procedure for different models, with clear performance parameters established through vapour content analysis. Meeting the agreed standards could then result in a particular model being awarded a *'quality mark'* logo, potentially then linked to approval for sale from certain outlets or for use in licensed venues.

- **Regulation of e-cigarette-type vaporisers**

Regulation of e-cigarette-type vaporisers will need to cover not only the devices and how they function (linked to quality control standards as with herbal cannabis vaporisers - see above), but also the content of the solution or extracts sold for use with them, as well as how they are marketed. This is especially the case if the vaporiser and the cannabis product are *'tied'*, i.e. only a specific cartridge can be used with a particular vaporiser, or, in the case of the disposable variety, only a certain number of puffs can be taken before it must be discarded. This is a relatively new area of regulation and research that is already regrettably under-developed for widely available nicotine e-cigarette products. It is one that will naturally require more focused work by future regulators of cannabis, particularly given the trajectory of a market in which demand is likely to increase rapidly in the coming years. We suggest it is an area of regulatory research and development that should be prioritised - but offer the following as a starting point.

How to regulate electronic cannabis delivery systems[91]

The aims of cannabis e-cigarette (electronic cannabis delivery systems – or ECDS) regulation should be firstly to ensure that ECDS are as safe as possible without compromising their appeal as alternatives to smoking; and secondly, to ensure that they are not marketed in a way that increases total population harm, including through recruitment of young people or non-cannabis smokers who would not otherwise smoke.

The aim of regulators should be to achieve a *'sweet spot'* of regulatory intervention that builds confidence among consumers and removes rogue operators and defective products from the market, but does not impose costs, burdens and restrictions that preference more risky products or

91 This section was produced based on the work of Clive Bates - graphic used with permission

methods of consumption, crush the smaller players, radically change the products available or obstruct innovation. This relationship is illustrated in the graphic below.

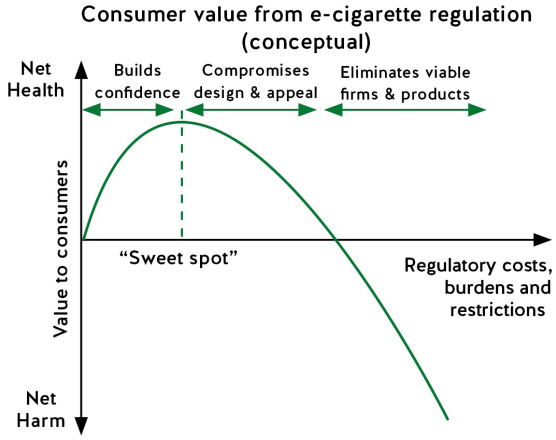


Figure 3

Elements of an appropriate regulatory regime

ECDS are sold as recreational consumer products – generally as alternatives to smoked cannabis. This is the appropriate regulatory approach. General consumer regulation should apply, with some specific technical quality control standards set for cannabis e-liquids and vaping devices, defined labelling requirements, with enhanced marketing controls reflecting the adult nature of the product, and proper communication of risks and benefits.

The most elegant way to regulate ECDS is to set performance standards, which would then become embedded as industry norms. The first standards have appeared in the UK for Electronic Nicotine Delivery Systems (ENDS) under the auspices of British Standards Institute (BSI)[92]

92 BSI PAS 54115: (2015) Vaping products, including electronic cigarettes, e-liquids, e-shisha and directly-related products - Manufacture, importation, testing and labelling - Guide **http://shop.bsigroup.com/ProductDetail/?pid=000000000030303130**

and in France under the equivalent body, AFNOR.[93] These documents set standards and testing regimes for various aspects of e-cigarette design and e-liquid composition and containers. Standards like these may emerge as European (CEN) standards and eventually as international (ISO) standards – and provide a useful model for equivalent regulatory standards for ECDS.

A reasonable and proportionate regulatory regime should cover the elements explored below – operating in conjunction with the wider cannabis regulatory framework. It may develop over time and there is no need to try to reach a final regulatory regime in one attempt. Generally, the approach is to identify particular sources of risk and set standards that mitigate the risks.

Standards for liquids/ oils

The regulatory standard should ensure high quality ingredients are used and that substances known or likely to cause harm are not. The constituents of the liquid should match the description, and any warnings needed should be specified.

Requirements for liquids

This would set pharmaceutical grade standards for the major ingredient (and food grade standards for flavourings – if used). It would specify any prohibited or restricted ingredients, known to be carcinogenic, mutagenic, repro-toxic (CMR) or respiratory sensitisers. It would set limits for microbial activity and provide guidance on allergens. It would

93 AFNOR (France) (2015) **Electronic cigarettes and e-liquids** Part 1:Requirements and test methods for e-cigarettes XP D90-300-1 March 2015 and Part 2: Requirements and test methods for e-cigarette liquid XP D90-300-2 **http://www.boutique.afnor.org/norme/xp-d90-300-2/cigarettes-electroniques-et-e-liquides-partie-2-exigences-et-methodes-d-essai-relatives-aux-cigarettes-e-liquides-/article/823265/fa059566**

concentrate on the liquids rather than attempt to measure vapour components, which may vary with the way the product is used.

Prohibited substances

As well as a general requirement to exclude CMR and respiratory sensitisers, they should be an explicit *'black list'* of banned substances. The purpose would be to build industry-wide confidence among consumers.

Requirements for containers – refill bottles or cartridges

This would cover materials, leak-proofing, sealing caps – and make use of established standards for containers. Pre-filled and disposable ECDS and cartridges should all be in child resistant re-closable packaging compliant with international standards[94]

Information requirements

The standard should specify what information the cannabis e-liquid manufacturer needs to provide with the liquid (on the label, packaging or in a leaflet – see p. 126).

Standardised test methods

These would include analytical techniques for measuring liquids, identifying contaminants and determining potency. These standards may be primarily addressed at testing laboratories for importers or in-house analytical facilities at cannabis e-liquid manufacturers.

94 Specifically: EN 862:2005, ISO 13127:2012 and ISO 8317:2003

Standards for vapour devices

The priority is to ensure the devices are safe to use, that any risks to the user are minimised and that appropriate information is provided to the user.

Mechanical risks

Control of risks linked to filling or leakage, sharp edges, components that form part of the mouthpiece, structural integrity.

Thermal risks

Maximum temperature permitted for different materials on the exterior of the product.

Chemical risks

For example, materials that should not be used in the mouthpiece or substances that may leach toxins from the device into the liquid where these are in contact.

Electrical risks

Regulation could specify a safe charging regime and ensure that chargers and batteries are compatible. Ideally regulation would ensure that chargers were interchangeable. The challenges of electrical safety and lithium-ion batteries have been faced for many and varied devices. Here there is an opportunity to adopt international standards:

- IEC 60335-1 (safety of household appliances);
- IEC 60335-2-29 (safety of battery chargers);

- IEC 62133 (safety of portable batteries);
- IEC 61558 (safety of AC adaptors);
- IEC 61000 series; and
- EN 55022 & EN 55024 (for USB chargers & cables)

Information requirements

This would include details of the product and contact information for responsible supplier, technical specifications (power range, capacity etc), and any information about refilling. It could also detail any requirements for the operating manual, including a requirement that it is maintained online, and any warnings that should be given.

e Strength/potency

Challenges

- Ensuring potency is regulated, and reliably and consistently monitored in any retail products
- Ensuring that consumers are informed about the potency of what they are consuming, its potential effects, and how to minimise or avoid risks
- Minimising the potential risks associated with high-potency cannabis and concentrates

Analysis

- There is some confusion around what cannabis potency means
- The concept of *'potency'* with regard to cannabis products is not exactly equivalent to that for alcohol:

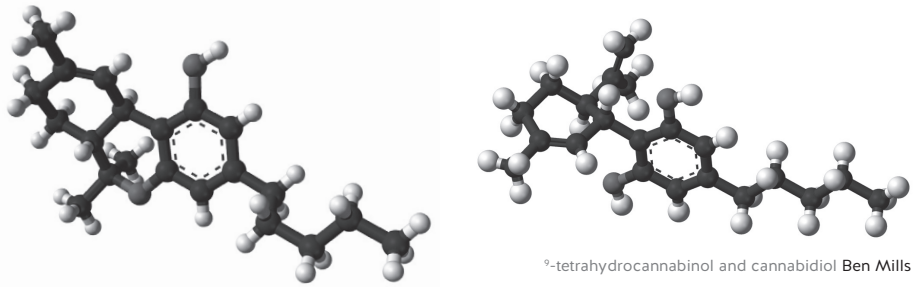
    - Cannabis has more than one active ingredient and the ratio of active contents is an important variable of both risk and subjective effects
    - The amount of active content consumed from a given amount of smoked/inhaled cannabis can vary significantly (for example, in terms of the number, depth and length of inhalations)
    - Auto-titration with inhaled cannabis means that potency issues are less of a concern - most users are able to moderate and control use to achieve their desired level of intoxication, although this becomes more difficult as potency rises, and higher potency tends to increase total THC consumption
- Unknown or unpredictable strength/potency is a risk of unregulated illegal cannabis that can be largely eliminated in an effectively regulated market
- Effective testing and monitoring is needed - but can potentially be an expensive and onerous regulatory burden
- There are additional issues to consider with the potency of edible cannabis products, and how this should be assessed and labelled on any retail products

Recommendations

- The strength and potency of THC and CBD content should be tested and monitored for all retail products - there should be routine independent monitoring at production and retail stages of the market, supported by random retail purchase monitoring
- The production or sale of cannabis products whose strength/potency varies significantly from its stated level or the level required by regulation, should be considered a serious licensing violation
- Product packaging and points of sale in on-site consumption venues should ensure that consumers have access to full and accurate information about the strength/potency of what they are purchasing - expressed in terms of THC and CBD content (for more on Packaging, see p.125)

- Licensed vendors should be required to undergo training in strength/potency-related health issues, so that they can inform and advise customers effectively (for more on Vendors, see p.133)
- Upper limits on THC potency could be considered for retail herbal cannabis, but a combination of accurate/clear labelling, responsible retailing, and consumer education around potency issues and risk is a preferable option. Encouraging production and consumption of products/strains with safer THC:CBD ratios would be a useful part of this approach
- Limits on sales of high-potency concentrates are a more reasonable proposition - although establishing thresholds may be somewhat arbitrary and difficult to enforce
- Controls on total THC and CBD content by weight are a more practical proposition for edibles if they are sold as single edible units

There is a certain amount of confusion around the concept of cannabis potency - both what it means in technical terms, and what its implications are for the risks associated with the use of different cannabis products consumed in different ways. People are familiar with the concept of alcohol strength, expressed in percentage of alcohol content, and how this relates directly to the effects and risks of how much they consume. The situation is less straightforward with cannabis, and cannot be directly compared for a number of reasons.



^{9}-tetrahydrocannabinol and cannabidiol Ben Mills

Cannabis potency[95] is usually measured in terms of the percentage of its key psychoactive ingredient, Δ^9-tetrahydrocannabinol[96] (Δ^9-THC or simply THC), but THC is only one of over 80 different cannabinoids found in the cannabis plant, key among these being cannabidiol (CBD). Because CBD interacts with and modifies the effects of THC, the ratio of the two is critical not only as it shapes the nature of the subjective cannabis experience (CBD is thought to have a more sedative effect), but also because CBD is thought to have anti-psychotic properties, potentially reducing the risks of psychotic episodes or psychotic illness related to cannabis use.[97] The many other cannabinoids present in cannabis are less well understood but their relative proportions may also have subtle influences on the variable effects (and possibly risks) of different strains.

Lower-strength, outdoor-grown cannabis tends to be less than 10% THC, while indoor-grown, *'premium'* cannabis varieties are predominantly in the 10-20% range. The potency of lower-quality and premium-grade resin has historically been roughly the same as this in European markets, although newer techniques such as butane or carbon dioxide extractions have produced oils and other concentrates, such as butane hash oil (BHO, the semi-solid forms sometimes known as *'wax'* or *'glass'*), that have extremely high potencies, some reaching concentrations of over 80% THC.

Another factor that complicates our understanding of cannabis potency is that the level of intoxication and the speed of onset of effects, which will determine the subjective experience, depend in large part on the particular preparation, method of consumption, and using behaviours.

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95 The term *'potency'* is used here in preference to other terms sometimes used interchangeably, such as *'strength'* or *'purity'*.

96 Also known by its International Non-Proprietary Name as *'dronabinol'*.

97 Zuardi, A. W. (2006) **Cannabidiol, a Cannabis sativa constituent, as an antipsychotic drug**, Brazilian Journal of Medical and Biological Research, Vol.39, No.4, pp.421–429.

A given amount of cannabis can be smoked in different ways, in terms of how many inhalations the user takes, how deep the inhalations are and how long they are held in the lungs, so the amount of active content that different individuals actually absorb can vary quite considerably. With smoked or vaporised cannabis, the onset of the effects is very rapid, meaning that users are able to dose control relatively easily. If they have not reached the desired effect, they will continue. If they have reached it, they can stop. On this basis, potency would seem to be less of a concern for inhaled cannabis use indeed higher-potency cannabis could mean fewer inhalations to achieve the same effect, thereby reducing respiratory risks. However, while such *'auto-titration'* dose control behaviour is the norm,[98] higher-potency cannabis can still potentially lead to higher total consumption and correspondingly pose greater risks. With more potent varieties a large dose of active content can be received in a single inhalation, and the larger such individual doses are, the harder it becomes to fine tune dosage control,[99] meaning the potential to consume more than planned or desired is increased. This is particularly the case for novice users.

This risk of consuming more than planned (with potentially negative or undesirable effects) will be amplified when the potency of the cannabis being consumed is unknown. However, this problem can be reduced or effectively eliminated in a properly regulated system in which:

- Buyers are able to choose from a range of clearly labelled products of different potencies (see Packaging, p.125)
- Buyers are able to take guidance from licensed, trained vendors (see Vendors, p.133)
- There is relevant information on dosage, effects and safer use at point of sale and on all packaging

98 Mikuriya, T. H. and Aldrich, M. R. (1988) **Cannabis 1988: Old Drug, New Dangers. The Potency Question**,Journal of Psychoactive Drugs, Vol.20, No.1, pp.47–55.

99 Caulkins, S. et al. (2012) **Marijuana legalization – what everyone needs to know**, Oxford University Press, p.11.

In many parts of the world smoked cannabis is also often mixed with tobacco, effectively diluting its potency to levels below those that would be experienced if it were smoked pure, much in the same way that spirits can be diluted with mixers to various degrees. While this may reduce some of the above risks relating to high-potency cannabis, any benefits are probably more than outweighed by the risks associated with smoked tobacco (see Smoking, p.98).

The increasing average potency of illegal cannabis is a genuine observed phenomenon in the US[100] (and has been seen to a lesser extent in Europe), although what appears to be a modest incremental change in average potency has provoked many exaggerated *'reefer madness'*-style claims that have little basis in reality.[101] [102] In Western markets at least, the increasing market dominance of indoor-grown *'premium'* cannabis, combined with likely actual increases in its potency (through selective breeding and developments in intensive growing technologies), has probably pushed average potency up to between two to three times what it was in the 60s and 70s. Such averages do, however, disguise a great deal of variety within markets and between different localities. There was of course very potent cannabis (particularly in resin form) available in the 60s and 70s, so the suggestion that what is being consumed today is a completely different drug is misleading: the observed trend is primarily due to there being a greater proportion of more potent varieties on the market.

100 Mehmedic, Z. et al. (2010) **Potency Trends of D9-THC and Other Cannabinoids in Confiscated Cannabis Preparations from 1993 to 2008**, Journal of Forensic Sciences, Vol.55, No.5, pp.1209-1217. **http://home.olemiss.edu/~suman/potancy%20paper%202010.pdf.**

101 For example, John Walters, then US Drug Czar, said: "Parents are often unaware that today's marijuana is different from that of a generation ago, with potency levels 10 to 20 times stronger than the marijuana with which they were familiar." **The Myth of "Harmless" Marijuana**, The Washington Post, May 1, 2002. **ww.washingtonpost.com/wp-dyn/content/article/2002/05/01/AR2006051500683.html**

102 King, L. (2008) **Understanding cannabis potency and monitoring cannabis products in Europe**, Chapter 14, A cannabis reader: global issues and local experiences, EMCDDA. **www.emcdda.europa.eu/publications/monographs/cannabis.**

There is an echo here of how, under US alcohol prohibition, the market shifted towards stronger spirits that provided significantly higher profits per unit weight for the bootleggers. When alcohol prohibition ended, the market naturally shifted back towards beers and wines

The emergence of high potency concentrates like BHO is a new phenomenon, currently largely contained within North America, so relatively little is known about its prevalence and impacts. But aside from these concentrates, if there is some truth in the *'it's not what we smoked in the 60s'* claims, it is due to the arguably more concerning trend towards higher ratios of THC to CBD in intensively farmed higher-potency cannabis - with CBD content often falling to near zero as THC levels have crept up. This change in the THC:CBD ratio is results both from selective breeding that prioritises high THC content (which commands a higher price), as well some of the newer intensive growing techniques deployed to maximise turnover from a given grow space that can reduce CBD content. The fact that outdoor-grown cannabis seems likely to have higher CBD ratios may have implications for any proposed limits on outdoor growing in the future.

The data on increasing potency is not especially reliable (based primarily on seizures which may not necessarily be a representative sample of markets) and conclusions are widely disputed. It is certainly the case, however, that both the general trend towards increasing potency of herbal cannabis and the parallel trend towards increasing THC to CBD ratios are not merely demand-driven, but are primarily manifestations of criminal-market economics. There is an echo here of how, under US alcohol prohibition, the market shifted towards stronger spirits that provided significantly higher profits per unit weight for bootleggers. When alcohol prohibition ended, the market naturally shifted back towards sales of beers and wines. In many US and European markets it is now becoming hard to obtain anything except the more potent

varieties, even when users would prefer something milder if given the choice.[103]

Recommendations

- **Ensuring the THC and CBD content of all retail cannabis products is routinely tested**

  Although potency testing and monitoring of cannabis products can be relatively expensive (see Production, p.51), a reasonable level is not an excessive burden. Routine testing should be built into any regulatory framework, supported by random test purchasing, and be undertaken or commissioned independently by the regulating authorities. The intensity of testing required will become clear from levels of compliance but should err on the side of more rather than less at the outset. The production and in particular sale of products that diverge significantly from their stated potency should be considered a serious licence violation. Allowable error margins and penalties for violations should be clearly established.

- **Ensuring consumers are aware of the potency of all retail cannabis products — and their related risks**

  All retail products should be clearly labelled with potency information covering THC and CBD content.[104] This should be supported with related information on risks, potentially with a simplified numerical (e.g. 1-5) strength guide (see Packaging information, p.125). More detailed standardised information on cannabis potency and related risks should also be made prominently available at point of sale in all retail outlets.

103 It has been suggested that this narrowing of the cannabis market may even be partly responsible for the fall in cannabis use observed across Europe in the past decade, as many do not care for the higher-potency products or have negative experiences with them as novice users.

104 More sophisticated testing and labelling of other cannabinoids and terpenes would be desirable (but as an option for retailers rather than legal requirement) and is provided by some of the more sophisticated legal medical and non-medical outlets in the US.

Vendors should be trained to give advice on potency and related risk issues (see p.133).

- **Controlling the potency of retail products**

Having an upper limit on the THC content of retail herbal or resin/oil cannabis for non-medical use could be seen as a sensible precautionary measure, but is problematic for number of reasons, particularly in a more open market model. Beyond what many consumers may view as an unfair or unnecessary imposition, the most obvious practical issues are exactly where such a threshold would be set and how it could be enforced.

In 2012 the Dutch government proposed a prohibition on sales of herbal cannabis over 15% THC, although this move has yet to be approved and has been opposed by almost every government office (including the police, prosecutors, and forensic service) that would be involved in enforcing the limit.[105] Even if most consumers are unlikely to be concerned by an upper limit at or near this level (which would still be considered strong herbal cannabis by most) the fact is that any such limit is inevitably quite arbitrary, and as such could lead to arbitrary enforcement outcomes. This is especially the case given the improving but still imperfect nature of both potency control among growers (even with the most carefully cultivated cannabis there will be a certain amount of potency variation between crops, and even within any given crop or sample) and potency testing technology.

If the aim is to encourage the use of safer, lower-potency products as a way of moderating risks, then a more sensible approach would appear to be a combination of:

105 Blickman, T., **Restrictive government cannabis policies are defied by local initiatives and court rulings**, Transnational institute, 04/10/13. **www.druglawreform.info/en/weblog/item/4960-majority-of-the-dutch-favour-cannabis-legalisation.**

- Strict product testing and labelling requirements that ensure buyers know exactly what they are consuming, and enable them to make informed choices
- Consumer education about potency-related issues/risks, supported by packaging and point of sale info, and training requirements for vendors
- Responsible retailing, which could be encouraged through licensing requirements for vendor training in how to provide potency and risk advice to purchasers
- Variable tax rates (or other price controls), which could be employed in order to encourage the use of less potent products, as is done with alcohol in many countries

If limiting the potency of retail cannabis under a relatively open market model is problematic, under a more regulated market model such as that found in Uruguay it is less of a challenge, as the regulatory authorities licence producers to provide the specified products that will be available for sale. Even in this more restricted scenario, as noted in the previous section on preparations, cannabis *'connoisseurs'*, or those who desire higher-potency strains, can still be catered for either by provisions on home growing or cannabis social clubs (see p.65).

Restrictions on sales of high-potency concentrates are a more reasonable proposition if such products are shown to be associated with significantly increased risks, but again such restrictions face the challenges of where any potency threshold should be drawn and how it would be enforced. One possibility would be to permit retail sales of herbal cannabis only, and limit access to concentrates to the more controlled environment of membership-based cannabis social clubs. However, some of the newer production techniques for concentrates (such as CO2 and butane extractions) are quite dangerous in inexperienced hands, so licensed production and availability is probably preferable if the alternative is risky home production. As discussed in the previous section, such decisions will be significantly shaped by the nature of existing demand and patterns of use. Certainly if there is little or no existing demand for

high-potency concentrates, establishing a framework for making them available is likely to be something regulators will naturally want to avoid (although some advocates for medical cannabis access have made the case that concentrates may have specific medical utility).

If potency threshold limits are adopted for either herbal cannabis or resin/concentrates, and it seems inevitable that some jurisdictions will choose to do so, it will be important to make sure they are set high enough to cater for the large majority of existing demand in a given jurisdiction. If they are set too low it will simply create an opportunity for illicit producers to meet the unsatisfied demand. There will need to be the flexibility to adjust (or abandon) such thresholds in response to evidence of their impacts and effectiveness.

Enforcement of any limits will also require a reasonable amount of tolerance, to allow for the imprecision of growers, and testing technology. Any sanctions for threshold violations will also need to be proportionate. Such limits would sensibly be regarded more as a good practice guide for retailers or as a moderating influence on the potency of the products they sell. The aim should be to curb certain risky behaviours and prevent potency levels creeping up further, rather than to create a new form of prohibition that will needlessly penalise existing users or vendors in the future.

A different approach would be needed for edibles, with THC and CBD content by weight being clearly labelled on standardised single servings of any given edible product. What constitutes an edible unit for an individual should be clearly defined and an upper limit on THC and CBD content per unit should also be established. However, because the proportions of THC and CBD by weight will mean little to users more familiar with potency expressed as a percentage, developing an easily understandable numerical, colour-coded or traffic light-type scale to indicate potency would be sensible.

There is a parallel issue around possible regulation of THC:CBD ratios. Attempting to establish an enforceable ratio limit would be even more problematic than THC content thresholds, not least as the scientific basis for judgements about the risks of any given THC:CBD ratio is not well established. For more restrictive regulatory models, it makes sense to ensure that licensed herbal or resin cannabis products all include a CBD 'buffer'- with a range of 2-4% suggested as a starting point (albeit based on the limited available research). For less restrictive market models this will primarily need to be dealt with through clear product labelling, consumer education, and responsible retailing, all informed by the emerging body of knowledge on this particular question.

f Packaging

Challenges

- Ensuring packaging is child resistant to help minimise risk of accidental child ingestion and poisonings
- Ensuring key product content, risk and advice information is available on the packaging
- Ensuring packaging serves to preserve the freshness and quality of the product
- Ensuring packaging design is not used to encourage use

Analysis

- Established packaging technology for food and pharmaceuticals can be easily adapted to meet the needs of cannabis packaging
- The small but real risk of accidental child ingestion and poisoning can be minimised through use of child resistant packaging

- Child resistant plastic containers offer an adequate level of protection for the majority of cannabis products, are relatively inexpensive and meet other packaging requirements
- Tamper-proofing measures could be included in packaging design if deemed necessary
- As with alcohol, tobacco and pharmaceuticals, packaging provides an ideal vehicle to display key product and safety information
- Packaging design and branding can be used to make products more or less attractive and encourage or discourage use

Recommendations

- All take-out retail cannabis products should be sold in opaque resealable child-resistant plastic containers with additional tamper-proofing measures included on products if deemed necessary
- Home-grown cannabis should also be required to be stored in child resistant packaging
- Information on packaging should be modelled on established norms for pharmaceutical drugs and recent lessons from tobacco packaging, with additional information and messages as appropriate
- The contents and prominence of packaging information should be determined by the appropriate public health authority and be legally enforced
- By default, packaging should be standardised and non branded
- Packaging regulations should be clearly outlined in law and properly enforced

Child resistant packaging

There is a risk of accidental ingestion of cannabis products by children, particularly under-fives. The medical literature suggests this is a real

risk[106] but that such incidents are rare, certainly when compared to more conventional poisonings. Accidental ingestions of cannabis by children have risen in Colorado post-legalisation, although in real terms, the numbers remain low – for under-9s, the number rose from 19 in 2011, to 45 in 2014, all of whom made full recoveries (for perspective, the equivalent 2014[107] numbers for under-5 pediatric exposures to painkillers were 2,178, and 1,422 for cleaning products[108]). The reduced stigma associated with attending A&E post-legalisation may also go some way to explaining this trend.

There does, however, appear to be an increased risk with certain more concentrated preparations and, in particular, cannabis edibles that are more attractive to children and infants, such as cakes, brownies or sweets.[109]

Even if this risk is relatively small, measures that could reduce it should be adopted. We recommend that established *'child resistant'* re-sealable opaque plastic containers (as used for medicines, some foods and domestic products) should be used by default for *all* retail cannabis products (even for herbal cannabis, which presents a lower-risk as it is not palatable to infants). This is a sensible precaution, and has the added political benefit of demonstrating a strong commitment to child safety. Such containers are mass-produced and inexpensive (costing only a few cents each) and therefore have little impact on total cost for either purchaser or retailer.

106 There are relatively few studies, most being case studies describing infant hospitalisations, sometimes involving coma. No deaths are recorded.

107 Barker, E. A. et al. (2015) **'Marijuana Exposures Reported to the Rocky Mountain Poison and Drug Center'. https://cste.confex.com/cste/2015/videogateway.cgi/id/826?recordingid=826**

108 Rocky Mountain Poison and Drug Center (2014) **'Colorado 2014 Annual Report'**. **http://rmpdc.org/Portals/23/docs/Colorado-Annual-Report-2014-Poison-Center.pdf?ver=2015-06-02-134623-980**

109 A 2013 paper describes a marked increase (from zero to 14) in emergency admissions for cannabis ingestion in under-12s in Colorado before and after 2009. Of the 14, half were for cannabis edibles. See: Wang, G. S. et al. (2013) **Pediatric Marijuana Exposures in a Medical Marijuana State**, JAMA Pediatrics, Vol.167, No.7, pp.630–633.

Child resistant packaging is most obviously a priority in the case of cannabis-infused food products, as their familiar appearance and taste increase the risk that they may be consumed by children

The risk of children accidentally ingesting cannabis-infused food products is another argument for restricting sales of edibles, at least in the early stages of any new regulatory model. Prohibiting edibles for take-out, as opposed to on-site consumption in a licensed venue, might be a reasonable compromise as a starting point, but permitting sales of products that obviously resemble sweets, such as lollies, gummi-bears or chocolates (particularly in packaging that resembles conventional candy products), is an exceptionally bad idea, and should be avoided. People who wish to consume edibles would of course be able prepare them at home with ease, using herbal or resin cannabis (and potentially concentrates or tinctures), so such a restriction should not be viewed as overly stringent. If, however, edibles are to be made available for take-out retail, any risks can, as mentioned, be minimised by the use of resealable child resistant plastic containers. Labelling on such packaging would need to have prominent warnings about potential risks of child ingestion, and the responsibility of the purchaser to prevent it (see below).

Home-grown cannabis, and obviously any home-made cannabis edibles, should also be stored in child resistant containers. Although legally mandating or enforcing specific rules would be problematic, failure to abide by storage guidelines might be taken into consideration by enforcement or prosecutors if accidental child (or indeed adult) ingestion occurred. This is probably more an issue for intelligently targeted education, highlighting potential risks and encouraging responsible storage in the home.

Tamper-proofing

Effective packaging can help to ensure quality, reduce the possibilities for tampering, and allow the purchaser or user to know if tampering has occurred. Established product packaging types used for pharmaceutical drugs can easily be adapted for use with cannabis products.

For example, existing medical-style containers featuring sufficiently secure seal mechanisms could be appropriate. Such mechanisms include breakable caps or inner seals of thermal plastic or foil over the mouth of the container. Packaging of this kind is already utilised by many suppliers in the medical cannabis industry and could be more widely deployed as needed.

Information on packaging, and packaging design

Experience with alcohol and tobacco packaging provides useful guidance here, mostly on how not to proceed. Over the past century, the design priorities of alcohol and tobacco packaging have been shaped by commercial interests. Reverse-engineering appropriate packaging that carries clear information on the risks of these two drugs has proved problematic, with voluntary efforts by the respective industries woefully inadequate, and legislators reluctant to mandate changes (see p.40). This situation has at least begun to change with tobacco packaging in recent years - firstly with the appearance of prominent health warnings, and more recently with the adoption of plain packaging in some countries.

Branding and design of packaging plays a key role in the appeal of a product. Alcohol and tobacco packaging is evidence of this, having been created with the specific intention of encouraging initiation of use, increasing use, and ensuring brand loyalties. Design can act as a marketing device by making the product more eye-catching and attractive, which in turn helps facilitate product placement in a range of media and associations with certain desirable qualities or aspirant lifestyles for target markets.

US medical cannabis drink packaging
Drinkcannacola.com

Packaging for medical cannabis in the Netherlands
mspotillas.wordpress.com

Recent years have witnessed growing calls from medical authorities for such marketing practices to be restricted, particularly for tobacco products, in line with already widely established controls on other forms of marketing (see Marketing, p.159). Research clearly demonstrates how design and branding influence purchasing behaviours in ways designed to encourage increased initiation and use.[110] Claims to the contrary from the tobacco industry defy not only the vast body of expert research and opinion, but common sense: why would the industry invest in such marketing and so passionately object to plain packaging if not for commercial self-interest? In 2012, Australia became the first country in the world to introduce plain packaging for tobacco products, and a number of other jurisdictions, including Scotland, England and Wales, Norway, Ireland, France, the European Union, India, Canada, New Zealand and Turkey are contemplating or implementing similar moves.

We propose that the design of packaging for cannabis products, and the information it carries, be more closely modelled on established norms for pharmaceutical drugs, with unbranded packaging, devoid of logos or any form of marketing-led design. Packaging design should be functional,

110 Moodie C. et al. (2012) **Plain tobacco packaging: a systematic review**', Public Health Research Consortium. **http://phrc.lshtm.ac.uk/papers/PHRC_006_Final_Report.pdf.**

restricted to only providing product and safety information on labelling (edibles having to additionally comply with local food and beverage labelling rules). The specific design content and prominence of packaging information should be determined by the appropriate public health authority and be legally mandated.

The detail will vary between jurisdictions, but in the box below we have proposed a guide to what packaging information should include. Clearly the volume of health, risk, and harm reduction information listed cannot fit on a single product package label. Solutions to this could involve one or more of the following:

- Rotating a series of key messages on package labelling (in a similar way to the health messages on cigarette packaging). Certain core safety information, such as reminders to keep out of reach of children or not drive under the influence of cannabis, should, however, always be included on packaging
- Inserts similar to those found in most pharmaceutical products could be used, with a single folded piece of paper with detailed product information inserted into even the smallest containers. A standardised insert, which would be inexpensive to produce, could be mandated for inclusion with all retail cannabis products for reference whenever needed
- A web-link to an appropriate online resource could be prominently signposted on the packaging. A QR code could also be included for smartphone users

Packaging information

CONTENTS DESCRIPTION

Preparation

- Herbal cannabis – with details on variety/strain
- Resin/oil/other concentrate – details
- Description of edible product, and cannabis used in its preparation (other ingredients should be listed separately, in line with existing trades description rules for foods and beverages)

Potency information

- For herbal and resin cannabis – THC and CBD content as a percentage
- For edibles – THC and CBD content by weight in each standardised edible unit
- A simple numeric potency scale (1-5 or 1-10) so that the strength of products is made as clear as possible

Best before/use before dates

- While more of a priority for edibles (standard food rules would apply), these should be included on all cannabis products as they can degrade over time

HEALTH/RISK/HARM REDUCTION INFORMATION

Key effects and side effects

- Positive and negative effects
- Effects at different dosages
- Likely different effects on different users (age, experienced or novice users, body-mass)

General risks

- Dependence
- Respiratory health
- Mental health

- Motivation
- For people with existing medical conditions

Secondary risks

- Impaired driving, operating machinery and workplace competence
- Pregnancy
- Accidental child ingestion

Harm reduction: how to minimise risk

- Safer methods of consumption
- Safer products and preparations
- How to moderate use
- Poly-drug use issues

Contraindications

- Risks of consumption with other non-medical drug use or use with prescribed or non-prescribed medications

Where to get help and advice

- Links/contacts to relevant service providers

g Vendors

Challenges

- Ensuring licensing requirements for vendors support the aims of policy
- Ensuring any commercial priorities of vendors do not undermine key functions of a vendor regulatory regime including purchaser access control, access to accurate product and health information, and minimisation of social and health harms
- Ensuring adequate enforcement of vendor regulation

Analysis

- Vendors can be required to adhere to and enforce restrictions on sales relating to age, intoxication or other criteria
- Vendors in retail-only outlets can be a key means of educating users about risks of different products, harm minimisation, responsible use, and where to get help or further information
- Vendors working in venues that permit on-site consumption have additional responsibilities necessitating additional training requirements for dealing with customers who require care or monitoring
- Experience with tobacco and particularly alcohol suggests voluntary codes of practice for responsible service training are inadequate and not universally adopted
- Experience with tobacco and alcohol demonstrates that commercial pressures will lead to vendors failing to meet their responsibilities voluntarily, so adequate enforcement is crucial
- Having vendors carry partial responsibility for the behaviour of their customers (for example, for antisocial behaviour, or driving under the influence of cannabis), may help reduce potential social harms

Recommendations

- Basic training requirements, covering cannabis use and health, how to engage with users, as well as legal regulatory requirements and how to enforce them, should be mandated by regulatory authorities for all vendors, with additional requirements for vendors in venues that permit on-site consumption
- Vendor requirements should be adequately enforced to ensure they are universally adhered to
- Failure to meet requirements should be dealt with using a hierarchy of penalties including fines and withdrawal of licence
- Systems for partial shared responsibility of vendors and customers for any cannabis-related social hams should be explored

Vendors are the public's first point of contact with any legally regulated cannabis market. They are effectively gatekeepers of access to the drug, and must therefore be subject to policies, laws and training that help ensure cannabis is made available in as safe and responsible a manner as possible.

The requirements that will need to be met by cannabis vendors will, for the most part, mirror those that are currently applied to vendors of alcohol or tobacco, although lessons from the successes and shortcomings of these regulations should allow a more robust and effective system to be established from the outset. So the main aims of cannabis vendor regulation should be:

- To promote health and wellbeing, and minimise harms to consumers and the wider public
- To protect children and young people from cannabis-related risks
- To prevent crime, antisocial behaviour and public disorder

The specific measures that must be taken in order to achieve these aims will depend on the type of outlet in which the vendor is operating. (See Outlets p.151). Public disorder problems, for example, will be more common in venues that permit on-site consumption rather than retail-only establishments, and will therefore require additional health and safety issues to be taken into account. Nevertheless, what follows is a discussion of the main regulatory challenges for cannabis vending and general proposals for how to address them.

The following section on purchasers and end-users covers the specifics of some of the regulations vendors will be required to adhere to and enforce.

Socially responsible service training

Vendors are well placed to help minimise any negative social or health impacts resulting from cannabis consumption, and should be required

to do so. This requirement should extend to vendors of tobacco and alcohol, who have traditionally been subject to minimal regulation. In the majority of countries, tobacco can, for example, be sold by unlicensed vendors through outlets that also sell products aimed at children.

The primary responsibility of vendors of cannabis, and vendors of these other, currently legal drugs, should be to ensure regulatory regimes are adhered to, by, for example, enforcing age restrictions or refusing sales to those who are intoxicated. Vendors should also act as a source of accurate, credible information and advice to customers on a range of issues, such as safer consumption methods, the risks of driving under the influence of cannabis, and where individuals can seek help or advice if they, or the vendor, have concerns about their cannabis use. Information provided by vendors will complement that provided by other sources, such as packaging and point-of-sale displays (see Packaging, p.125 and Marketing, p.159)

Training programmes that educate both servers and management about the importance of responsible vending, and how it can be achieved, should therefore form a central element of any regulatory framework governing those who sell cannabis. Such programmes can be voluntary. For example, in many jurisdictions, the alcohol industry has *'responsible retailer'* codes that recommend staff training. But we would suggest these be both standardised, with content determined by regulators and public health authorities, and made mandatory for all front line staff as a condition of any vendor licensing agreements.

Responsible beverage service (RBS) training provides a useful template for how cannabis vendors can be encouraged to serve responsibly. Effective RBS training seeks to:

- Put in place appropriate attitudes towards alcohol consumption by teaching vendors about its social and physical effects

- Teach techniques for checking identification, recognising signs of over consumption, and refusing service if necessary
- Make management and service staff aware of the penalties for violations of the law

Equivalent training requirements for employees of outlets for the sale of cannabis should do the same. Colorado, for example, has made provisions for such training, as well as awarding a *'responsible vendor designation'*, valid for two years from the date of issuance, to cannabis retailers that satisfactorily complete a training programme approved by the state licensing authority.[111]

More rigorous training for vendors operating in venues that permit on-site consumption will also be appropriate, as they are more likely to encounter intoxicated customers who may require monitoring or care.

Training that teaches a working knowledge of the effects of different cannabis products, and methods of use, should also be required, along with training in basic first aid and how to deal with people who have overindulged and are consequently in distress or at risk.

Such training has typically been seen as impractical for pub or bar staff, who are often low-paid and working on a temporary or informal basis. This reality should not, however, prevent at least basic training being mandated for cannabis retail staff.

While determining the content of cannabis vendor training programmes is relatively straightforward, ensuring that vendors go on to implement the requirements of such programmes presents more of a challenge. Under a commercial model of cannabis regulation, the profit motivation of vendors will naturally create a tendency against restricting access and

111 **Colorado Senate Bill** 13-283, p.2. **www.colorado.gov/ccjjdir/Resources/Resources/Leg/EnablingBills/SB13-283.pdf.**

towards maximising sales. However, this is essentially a carrot and stick issue: on the one hand, a culture should be encouraged whereby vendors understand that it is in their long-term interests to follow the regulations, and on the other, public resources should be put into educating vendors and customers about regulations and then enforcing them effectively. Non-profit retail models, such as cannabis social clubs or state monopoly supply models, are less likely to experience such conflicts of interest as the incentive to increase sales is reduced or eliminated.

The importance of enforcing cannabis vending regulations can be inferred from research into alcohol, which shows that compliance with the requirements of RBS training programmes is highest in places where the regulatory environment is perceived to be strict.[112] As is the case with alcohol, compliance with socially responsible cannabis vending regulations will therefore depend on the extent to which vendors believe penalties will be imposed, which in turn requires active, visible enforcement, such as regular checks on serving practices.

Shared responsibility between vendor and consumer

As a further way of ensuring responsible vendor conduct, licensing agreements could also include elements of shared responsibility between provider and consumer. The provider could be held partially liable for consumers' behaviour. This would encourage vendors, and in particular, consumption venue proprietors, to monitor the environment where cannabis is used, and restrict sales based on the behaviour of consumers.

Proprietors could be held partly responsible for socially destructive incidents such as automobile accidents related to driving under the influence of cannabis (DUIC) or localised anti-social behaviour, with this responsibility extending for a specified period of time after cannabis is

112 Mosher et al. (2002) **State Laws Mandating or Promoting Training Programs for Alcohol Servers and Establishment Managers: An Assessment of Statutory and Administrative Procedures**, Journal of Public Health Policy, Vol.23, No.1, pp.90–113.

consumed. Sanctions could include fines or even licence revocations for those who repeatedly make irresponsible sales. The consumer would not be absolved of responsibility for such incidents; a clearly defined balance based on how liability should be shared would need to be formalised or judged on a case by case basis by enforcers. This is admittedly a potentially tricky area of regulation to establish and police, but precedents relating to alcohol vending do exist in Canada, the US and elsewhere, and there is good evidence that such liability laws are effective at preventing and reducing alcohol-related harms.[113] This provides reasonable grounds for assuming that cannabis-related harms could be minimised through similar legislation, and this approach should at least warrant experimentation.

Online vendors

Given the trajectory of retailing generally, and the fact that some people (for health or geographical reasons) may not be able to easily access traditional face-to-face vendors, it seems inevitable that some form of online market with home deliveries will need to exist. Given this reality it is therefore preferable to bring online markets within a regulated framework from the outset, to prevent unregulated informal online markets filling the void - as indeed they already are in some countries. We suggest that, as far as possible, any such online retailing should seek to maintain the key benefits of face-to-face vending outlined above. Whilst this option requires more careful development, key elements could include:

- Appropriate methods for age verification at the point of purchase
- Requiring online customers to answer a series of short standardised tick-box questions to confirm they understand the health implications of cannabis use.

113 Rammohan, V. et al. (2011) **Effects of Dram Shop Liability and Enhanced Over Service Law Enforcement Initiatives on Excessive Alcohol Consumption and Related Harms: Two Community Guide Systematic Reviews**, American Journal of Preventive Medicine, Vol.41, No.3, pp.334–343.

- As part of these questions, customers would be asked if they would like to talk to a trained individual about cannabis or their cannabis use
- Requiring licensed online outlets to employ trained health advisors who can engage with customers through an online chat facility when customers say that this is something they feel they would benefit from
- Potentially having a licensed/registered buyer scheme to allow access to online sales, or membership of a CSC that included a delivery service.
- Online vendors should be subject to the same licensing process as shops and CSCs. Individual online businesses could also have licensing limits on total volume of sales

h Purchasers

Challenges

- Determining the optimum age threshold for access to a legal cannabis supply
- Putting in place effective systems for enforcing age access controls
- Preventing excessive bulk purchases of cannabis for re-sale on the illicit market or to minors
- Determining appropriate public locations where cannabis can be consumed

Analysis

- Age limits on access to legal cannabis are important and alcohol and tobacco controls demonstrate they can be effective, if imperfect. Where to set the age threshold is a key question: too high and an illegal market is incentivised, too low and use may rise among vulnerable populations
- Enforcement of age limits is a key factor in their effectiveness

- Any sales rations imposed on purchasers will need to be set high enough to avoid encouraging additional purchases from the illicit market, but low enough to restrict bulk buying for secondary sales
- Limits on sales are potentially useful in political terms, demonstrating that regulation has been designed with the aim of promoting responsible levels of cannabis consumption
- While purchaser licensing systems may be politically useful, they are likely to be treated with suspicion, as many people will not wish to have evidence of their cannabis use recorded in a central database
- Experience from alcohol and, in particular, tobacco regulation suggests that restrictions on where cannabis can be consumed will be helpful in promoting socially responsible use

Recommendations

- While an essential component of any regulatory system, age restrictions on cannabis sales can only be part of the solution to underage misuse and should therefore be complemented by evidence-based prevention and harm reduction programmes
- Given that age restrictions on alcohol and tobacco sales have historically been poorly enforced, the same restrictions on cannabis sales should be supported by a more stringent system for monitoring vendors' compliance with the law. In line with this approach, age restrictions on alcohol and tobacco should also be more proactively enforced
- Penalties for underage sales of cannabis should be equivalent to those currently in place for such sales of alcohol and tobacco
- Sales limits should be trialled but could be relaxed or removed once legal cannabis markets expand and the incentive to bulk-buy for re-sale in illicit markets diminishes
- Controls over permitted locations for smoking cannabis should mirror those that currently exist for public tobacco smoking in many jurisdictions

- Vaporiser technology could allow cannabis users to consume the drug in indoor areas, given that, unlike smoking, it does not pose risks to third parties

Age restrictions on sales

Restricting or preventing access to cannabis by non-adults should be a key element of any regulatory model for cannabis. Any rights of access to psychoactive drugs and freedom of choice over drug-taking decisions should only be granted to consenting adults. This is partly because of the more general concerns regarding child vs. adult rights and responsibilities. More importantly, the specific short- and long-term health risks associated with cannabis use are significantly higher for children: the younger the user, the greater the risks. This combination of legal principle and public health management legitimises a strict age control policy. In practical terms, stringent restrictions on young people's access to drugs – while inevitably imperfect – are more feasible and easier to police than population-wide prohibitions. Generally speaking, children are subject to a range of social and state controls that adults are not. More specifically, drug restrictions for minors command the near universal adult support that population-wide prohibitions conspicuously do not.

Furthermore, while markets created by any prohibition will always attract criminal interest, the non-adult market for drugs is a small fraction of the total adult market. So, enforcement resources can be brought to bear on it with far more efficiency, and correspondingly greater chances of success.

One ironic and unintended side effect of prohibition is to often make illegal drug markets, controlled by profit-seeking criminal entrepreneurs unconstrained by age restrictions, easier for young people to buy from than legally regulated markets for, say, alcohol or tobacco, which obviously enforce such controls.

Restricting or preventing access to cannabis by non-adults should be a key element of any regulatory model for cannabis

Of course, there is an important debate around what age constitutes adulthood and/or an acceptable age-access threshold. Different countries have adopted different thresholds for tobacco and alcohol, generally ranging from 14 to 21 for purchase or access to licensed premises. Where this threshold should lie for a given drug product will depend on a range of pragmatic choices. These decisions should be informed by objective risk assessments, evaluated by individual states or local licensing authorities, and balanced in accordance with their own priorities. As with all areas of regulatory policy, there needs to be some flexibility allowed in response to changing circumstances or emerging evidence.

In the UK, for example, the age of access for tobacco purchase was raised from 16 to 18 in 2007, while in the US there is a growing debate over whether the alcohol age threshold of 21 is too high. Indeed, the Amethyst Initiative,[114] which is supported by 135 chancellors and presidents of US universities and colleges, argues that the 21 limit has created *"a culture of dangerous, clandestine 'binge-drinking' — often conducted off-campus"* and that *"by choosing to use fake IDs, students make ethical compromises that erode respect for the law."* Even within a legal regulatory framework, inappropriate prohibitions evidently have the potential to create negative unintended consequences. Even if well intentioned they can potentially undermine, rather than augment, social controls and responsible norms around drugs and drug use.

In US states that have legalised cannabis the threshold has also been set at 21. Many felt this was too high for reasons similar to those argued by the Amethyst Initiative. However, it would have been politically difficult to set the age restriction below that for alcohol. In Uruguay the age

114 www.theamethystinitiative.org

threshold has been set at 18, the same as it is in the Netherlands' cannabis coffeeshops. An age threshold at or near 18 would seem to be realistic starting point, although this decision inevitably needs to be considered in the local cultural context.

Preventing underage sales

It is clear that age limits need to be properly enforced if they are to be effective. In the UK, for example, where *'binge drinking'* among young people has been a growing problem, there has been a widespread lack of age restriction enforcement, with Alcohol Concern reporting that: *"10–15% of licensed premises are found to persistently sell alcohol to the under-aged yet only 0.5% of licensed premises are called up for review."*

As with alcohol and tobacco, a combination of vigorously enforced vendor licensing requirements (for both front-of-house staff and management), combined with vending staff training, can mitigate against negligence or *'turning a blind eye'* to underage sales of cannabis. The threat of a personal, on-the-spot fine for a member of staff who makes a sale that violates age restrictions would help to encourage vigilance and ensure purchasers' ages are verified. In the UK, for example, underage sales of alcohol are punishable by an £80 fine to the member of staff in question, as well as a possible £5,000 fine and licence review for the proprietor or licensee. Persistently selling alcohol to minors, which is defined as two or more underage sales in a period of three consecutive months, can result in a maximum fine of £20,000 and suspension or revocation of licence. Penalties for underage sales of cannabis should, at the very least, be brought in line with those currently in place for alcohol or tobacco in the country or jurisdiction in question. A hierarchy of penalties with sales to younger customers incurring more severe sanctions would also be appropriate to reflect the increasing seriousness of the violation as the age of purchaser decreased. Sales below a certain age threshold, perhaps around 14, could potentially graduate into prosecutable offences.

Given that such regimes are so often either inadequate, or inadequately enforced for alcohol and tobacco, it may be necessary to put in place a more vigorous penalty system and also for policy makers to revisit alcohol and tobacco policies to ensure there is greater consistency, and to move policy towards best practice across the board. Some resources currently employed in the enforcement of prohibition could be transferred to more proactively police vendors' compliance with age restriction regulations. Compliance can be easily checked using test purchasing, and the level of compliance will give a clear indication of how much enforcement is needed. From the outset it seems sensible to err on the side of caution, and initially carry out frequent checks and impose heavier penalties in order to clearly establish norms. If a high level of compliance is established from the outset, this enforcement regime can then be lightened in the future.

Training for vendors should include information on acceptable forms of identification and how to ask for it in a non-confrontational manner. Schemes such as the UK's *'Challenge 25'* can be implemented in order to allow staff a greater margin of error when challenging customers for proof of age. Under the scheme, staff are encouraged to request ID for anyone who appears to be under the age of 25, even though the age restriction on the purchase of alcohol and tobacco is 18. Posters and labels alerting customers that such a policy is in place, or at least that ID will be requested, should be displayed in outlets to reduce the likelihood of a hostile response when an individual is asked to show proof of age.

To remind vendors of the need to perform age checks, most modern electronic tills can be programmed to display an on-screen prompt when age-restricted products are scanned at the checkout. In outlets with the requisite technology, sales of cannabis could trigger such prompts, which would ask whether an ID has been checked and allow staff to select a reason why a sale is accepted or refused from a list of options.

Secondary supply of legitimately obtained cannabis to non-adults will also require appropriate enforcement and sanctions, potentially with severity graded depending on distance in age from the legal threshold. Again, penalties should be at least in keeping with those that already exist for the transfer of alcohol or tobacco to minors.

The limitations of age controls

Legal age controls are inevitably imperfect, and can only be part of the solution when reducing drug-related harms to young people. They are able to limit availability when properly implemented, but not to eliminate it. Effective regulation and access controls must be supported by concerted prevention efforts. These should include evidence-based, targeted drug education that balances the need to encourage healthy lifestyles, including abstinence, while not ignoring the need for risk reduction and, perhaps more importantly, investment in social capital.

Young people, particularly those most at risk in marginal or vulnerable populations, should be provided with meaningful alternatives to drug use. The SMART programme in the US, which works on public housing estates, has found that providing youth clubs has a real impact on reducing drug use, dealing and overall criminal activity in both young people and adults.[115] It is also worth noting that the Netherlands and Sweden regularly top the United Nations Children's Fund (UNICEF) child well-being table[116] and have relatively low levels of drug misuse (despite very different policy approaches), while the US and UK invariably sit at or near the bottom, and have relatively high levels of misuse and a lower age of misusers.

115 Schinke, S. P. et al. (1991) **Effects of boys and girls clubs and alcohol and other drug use and related problems in public housing**, Office of Substance Abuse Prevention, US Department of Health and Human Services

116 UNICEF (2007) **Child poverty in perspective: An overview of child well-being in rich countries**, Innocenti Report Card 7, p.4

While steps to restrict access and reduce drug use among young people are important, it is also essential to recognise that some young people will still access and take drugs. It is vital that they should be able to access appropriate treatment and harm reduction programmes without fear.

How to deal with minors who are found in possession, found attempting to procure, or more seriously, who supply cannabis to other minors also requires consideration. Guidelines will need to be clearly defined between law enforcers, prosecutors, social services and other relevant authorities. Again, consistency in how comparable offences involving alcohol and tobacco are dealt with should be ensured, even if this means increasing the level of interventions currently in place.

Rationing sales

Imposing limits on the amount any individual can buy or possess has been a common element in cannabis regulation to date. In the Netherlands, an individual can only buy 5 grams from any outlet (reduced from an earlier limit of 30 grams) - although in theory there is nothing stopping them making multiple purchases from different establishments. In Uruguay, users are limited to 40 grams per month, controlled via a registration scheme (see below). In Washington, sales limits per transaction are: one ounce of cannabis, 16 ounces of cannabis-infused solids, and 72 ounces of cannabis-infused liquids. Colorado also restricts the volume of purchases to one ounce per transaction for state residents, and a quarter of an ounce for non-residents.

Such rationing controls are unlikely to have a significant impact on moderating use. The limits are already relatively generous, and those determined to procure more are likely to resort to secondary sales of legitimately bought cannabis, turn to the parallel illicit trade, or grow their own. Rationing is likely to be more useful in preventing large-scale wholesale purchasing for illegal re-sale on secondary markets, either outside of the legal jurisdiction, to those who do not have licensed access

Rationing is likely to be more useful in preventing large-scale wholesale purchasing of, say, kilos of cannabis, that could then be illegally sold on to secondary markets

(including minors), or outside of licensed channels. Such rationing controls are widely used for duty-free alcohol and tobacco, although rarely in domestic retail.

In principle, the rationing of sales is a relatively minor imposition that may have some practical and political benefits, certainly at the outset of any regulatory system and especially if there are issues with bordering jurisdictions where cannabis prohibition is still enforced. Clearly, there is a balance to be struck in making sure the limits are not set so low that significant demand is unmet and illicit supply is encouraged, and not set so high that it facilitates problematic secondary sales.

Purchaser licences/membership schemes

A system for licensing or registering cannabis users presents the opportunity to more strictly control availability. It enables the relevant authorities to restrict access to certain populations (for example by age, location of residence, or some training requirement) and potentially allows monitoring of the volume and frequency of cannabis purchases in order to enforce sales rationing.

Uruguay's Government has chosen to adopt such a registration scheme (commencing 2016), with the aims of limiting access to Uruguayan residents over 18 and restricting the volume of individual cannabis purchases to 40 grams per month. In order to enforce this limit, those who wish to buy cannabis from authorised pharmacies are required to register with the country's dedicated regulatory authority. Reassurances have been given that the system will use anonymised registration cards, the anonymity guaranteed under an existing domestic law put in place to oversee government databases. The understandable concern is that individuals may be wary of registering as drug users on a centralised

government-controlled database, the contents of which could in theory leak to employers, or be exploited by future governments that oppose legal cannabis regulation. Beyond these obvious privacy concerns, a purchaser licensing scheme linked to a centralised database is potentially bureaucratic and expensive.

That said, it is important to consider the political context of the Uruguayan decision to adopt this approach. This is the first ever nationwide regulatory system for the production and supply of cannabis, and so proceeding with caution is understandable given that the eyes of the world are upon them. More immediately, there has been political pressure from their far larger neighbouring countries, Brazil and Argentina, over concerns about cross-border leakage and *'cannabis tourism'* (see p.205). The success of the scheme remains to be seen; it may prove impractical and need to be modified in the future, but the government will be monitoring all aspects of the regulatory model closely, so it will at least be a useful experiment that they and other countries can learn from. Taking this cautious approach may also have facilitated the passage of the country's Cannabis Regulation Bill by assuaging some local political concerns.

Importantly, the Uruguayan model also permits self-cultivation, and allows for the formation of cannabis social clubs (see p.65). This means that individuals who want access to a legal supply of cannabis but are wary of the registration scheme do at least have other options. The Spanish-style membership-based club model will represent a more attractive system for many. Access is restricted and rationing is enforced, but details of members are held locally and securely by the club management rather than by a centralised government authority.

It is both reasonable and practical for new regulatory models to include, from the outset, restrictions on cannabis use that are consistent with those already in place for public tobacco smoking

Proof of residency with purchase

Another option available is to make purchases residents-only by requiring appropriate ID, both to reduce leakage to jurisdictions that have not chosen to legally regulate cannabis, and to reduce cannabis-related tourism (see Cannabis tourism, p.205).

Permitted locations for use

Alcohol and tobacco licensing regimes have established clear precedents for defining and controlling permitted substance use locations. A range of flexible controls exist for both, including:

- Licensed premises for consumption of alcohol
- Bans on smoking in indoor public spaces, and designated outdoor smoking areas, gardens, or smoking booths
- Zoning laws restricting alcohol use and smoking in specified public and private spaces

The functions of these restrictions differ. Smoking restrictions are usually justified on the basis of the environmental or secondary health impacts of smoke;[117] public alcohol consumption is more often restricted for public order reasons, and to a lesser extent, litter issues. These restrictions are sometimes centrally, sometimes regionally, defined and driven. They are enforced to different degrees, usually through fines, and because they enjoy broad popular support, are generally well observed. Experience suggests that when effectively exercised such regulation can foster new social norms, ensuring that less onerous enforcement is needed as time passes.

There is a risk, however, that overly stringent controls could have negative impacts. Banning all use of cannabis in public spaces, such as parks, for

117 Although most public health benefits probably accrue from wider impacts on reducing levels of use.

example, has the potential to lead to unnecessary and counterproductive sanctions or criminalisation. Zoning restrictions in outdoor spaces will need to be carefully considered to balance what is acceptable to users, the wider community, and law enforcers.

No smoking cannabis in public – sign in Amsterdam, the Netherlands

In the Netherlands, cannabis smoking is allowed indoors in coffee shops, while tobacco smoking is banned, an inconsistency created by the order in which these controls were introduced. But it is both reasonable and practical for new regulatory models to include, from the outset, restrictions on cannabis smoking that are consistent with those already in place for public tobacco smoking.

Vaporisers, which do not generate smoke and are not associated with specific smoke-related cannabis risks, could be exempted from no-smoking ordinances. One possible compromise may be to allow vaporisers to be used indoors, but to restrict cannabis smoking to outdoor terrace areas or possibly specially ventilated spaces, as is often permitted by existing tobacco smoking controls. The use of vaporisers or cannabis e-cigarettes indoors will also need to be consistent with regulation of where nicotine e-cigarettes can be used. Currently few such controls exist, as the exhaled vapour is not considered antisocial or risky to third parties.

i Outlets

Challenges

- Creating safe, controlled environments in which people can purchase and consume cannabis

- Establishing a level of availability via outlets that meets demand and reduces illicit-market supply, while at the same time preventing over-availability and subsequent potential increases in use
- Preventing outlets from promoting consumption through advertising, signage or product displays

Analysis

- Evidence from alcohol and tobacco retail clearly shows how controls on the location, appearance and opening hours of outlets can impact on levels of consumption and using behaviours
- Evidence from cannabis coffee shops in the Netherlands should allay fears that the presence of commercial cannabis outlets will generate public disorder or lead to irresponsible consumption

Recommendations

- The appearance of retail-only outlets should be functional rather than promotional. Outlets that permit on-site consumption should be allowed more scope to establish themselves as enjoyable destination venues where cannabis can be used, even if external appearance and point-of-sale displays are still controlled
- While potentially overly cautious, preventing the establishment of cannabis outlets near locations of public concern, such as schools, may be politically useful to demonstrate that any new regulatory framework is being carefully and responsibly implemented
- Where possible, outlets should be limited to only selling cannabis products (specifically, no other drugs) and should enforce age restrictions on entry
- Licensing and responsibility for regulatory oversight should sit with equivalent agencies and tiers of government that currently deal with alcohol and tobacco outlets

Outlets can be retail-only, or for retail and on-site consumption, such as the Netherlands' *'coffeeshops'* (which also allow purchase for take-away). These two types of outlets have common and distinct regulatory challenges, which are explored below. A third option is to have a mail order delivery model that does not require any outlets.

The decision as to which, or which combination, of these to opt for when developing a new regulatory model will depend on the local cultural and political context. A cautious starting point would be to opt for strictly regulated retail-only outlets, exploring the options for retail and consumption venues at a later stage. A delivery-only model with no physical outlets would in some ways be even more cautious but the removal of the vendor in a gatekeeping role makes it a less attractive proposition.

Location and outlet density

The concentration of legal cannabis outlets, whether retail-only sites or venues combining retail and consumption, within a given geographical area can be regulated using local licensing authorities and zoning laws. Evidence on alcohol outlet density shows that a greater concentration of outlets can be associated with increased alcohol use, misuse and related harms.[118] [119] Hence there is clearly the potential for controlling the location of cannabis outlets and outlet density to positively influence and moderate patterns of use.

Restrictions on outlet density would aim to help prevent over-availability, rather than achieve under-availability or zero local availability, which would be likely to incentivise illicit markets to meet demand. Washington's

118 Popova, S. et al. (2009) **Hours and days of sale and density of alcohol outlets: impacts on alcohol consumption and damage: a systematic review**, Alcohol and Alcoholism, Vol.44, No.5, pp.500–516. **www.ncbi.nlm.nih.gov/pubmed/19734159?dopt=Abstract&holding=f1000,f1000m,isrctn.**

119 National Association of State Alcohol and Drug Abuse Directors (2006) **Current Research on Alcohol Policy and State Alcohol and Other Drug (AOD) Systems**, p.5.

first set of regulations, for example, has limited both the total number of outlets to 334 stores, and issued licenses that distribute them across the state according to population consumption data. This approach is borne out by experience from the Netherlands, where in municipalities with zero or a low density of cannabis coffee shops, users are more likely to turn to the unregulated illegal market for their supply.[120] Furthermore, proximity to coffee shops does not seem to be linked to the prevalence or intensity of cannabis use, or to the use of other illegal drugs.[121]

Despite this finding, restrictions could be placed around specific sites of public concern including schools or other places where young people gather. The impact of such controls for alcohol and tobacco sales is not particularly well established, but it can certainly serve to reassure the public that care is being taken in the rolling out of any legal regulatory framework. Again, in the Netherlands, coffee shops are not permitted within a 250-metre radius of schools, and local governments have the power to decide whether to accept them in their area. Some US states also enforce restrictions on the proximity of medical cannabis dispensaries and new cannabis stores to schools.

Appearance and signage

As explored below in the section on marketing controls, there is a well-established link between exposure to alcohol and tobacco marketing, branding and advertising and increased use of those drugs. It is reasonable to assume similar marketing would drive an expansion in use of cannabis. Appearance and signage for outlets is a key element of marketing for any product, so it is important that some aspects of the appearance of cannabis outlets, as well as the signage used to identify them, be functional rather than promotional.

120 EMCDDA (2008) **A cannabis reader: global issues and local experiences**, p.150. **www.emcdda.europa.eu/attachements.cfm/att_53355_EN_emcdda-cannabis-mon-full-2vols-web.pdf.**

121 *Ibid*

Standardised descriptions, signs or symbols can be used to denote cannabis retail outlets, and restrictions or bans on storefront advertising put in place, to minimise the possibility of impulse purchases. Dutch coffee shops are subject to such restrictions, forbidding advertising or making explicit external references to cannabis. Instead, Rastafari imagery, palm leaf images, and the words *'coffee shop'* have become the default signage. Similarly, Washington State permits only one sign, no larger than 1600 square inches, identifying the outlet's business or trade name.

Restrictions on the internal appearance of cannabis outlets can be used to similar effect, however these should be relaxed for venues that permit on-site consumption. One of the primary aims of legal regulation is to reduce the vast size of the illicit market. If such venues are overly austere, cannabis users will have little incentive to transfer their custom from illicit dealers to safer, controlled environments. One of the main attractions of the Dutch *'coffee shops'*, for instance, is that they are a pleasant environment to relax in. Hence restrictions on the internal appearance of on-site consumption venues should aim to prevent the promotion of cannabis products, rather than aiming to make them plain and unappealing. Making retail-only outlets more generic and functional, on the other hand, is less likely to deter people from using them, as customers will be purchasing cannabis for consumption elsewhere.

It is important that some aspects of the appearance of cannabis outlets be functional rather than promotional

Official green and white sticker in the windows of Dutch coffee shops indicates they are licensed

The extensive body of knowledge acquired from tobacco regulation clearly demonstrates that retail environments can significantly influence use.[122] [123] [124] There is, for example, evidence that exposure to in-store, point-of-sale displays of tobacco products undermines impulse control among adult smokers and leads to an increased uptake in smoking among children and adolescents.[125] [126] This is unsurprising given that in many jurisdict ions the tobacco industry itself is allowed to dictate how outlets display tobacco products. The use of so-called *'power walls'*, vast rows of tobacco products that are virtually unmissable due to their placement behind checkout areas, is clearly aimed at maximising consumption by encouraging spontaneous purchases, and again shows how, in the absence of effective regulation, commercial interests will trump public health priorities.

However, several countries are beginning to put public health first in this area, recognising the need to regulate in-store tobacco displays, without actually prohibiting access or sales. Finland, Iceland, the UK and Australia have either implemented, or are in the process of implementing, a ban on such in store displays, meaning outlets are required to store tobacco products in opaque cabinets or below the counter, from where they can only be shown upon request by an adult customer. While not necessarily appropriate in every scenario, the most cautious form of cannabis regulation would probably adopt a similar approach with cannabis products kept out of sight of potential customers until requested. Again, unlike conventional profit-motivated retail, the idea would be to make

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122 Wakefield M. et al. (2008) **The effect of retail cigarette pack displays on impulse purchase**, Addiction, Vol.103, No.2, pp.322–328.

123 Carter O.B. et al. (2009) T**he effect of retail cigarette pack displays on unplanned purchases: results from immediate post-purchase interviews**, Tobacco Control, Vol.18, No.3, pp.218-221.

124 Germain D. et al. (2010) **Smoker sensitivity to retail tobacco displays and quitting: a cohort study**, Addiction, Vol.105, No.1, pp.159–163.

125 Paynter J. and Edwards R. (2009) **The impact of tobacco promotion at the point of sale: a systematic review,** Nicotine and Tobacco Research, Vol.11, No.1, pp.25–35.

126 Lovato C. et al. (2011) **Impact of tobacco advertising and promotion on increasing adolescent smoking behaviours**, The Cochrane Collaboration. **http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003439.pub2/abstract.**

the retail experience functional rather than promotional. This kind of restriction is particularly crucial in a scenario, such as pharmacy sales, where other products are being sold, or age restrictions are not applied for entry into the retail space. It is less important (although still desirable) in a cannabis-only retail venue or retail and consumption venue, as both could enforce age access controls on entry. If a ban on cannabis product displays is deemed overly prohibitive, regulation should at least act as a moderating influence, with displays required to be discreet, free from promotional messaging, and the products presented in standardised plain packages or containers (see Packaging, p.125).

Opening hours

There is consistent evidence from alcohol regulation that restrictions on the days and hours of sale are an effective tool for moderating certain alcohol-related harms.[127] Local licensing authorities should impose similar restrictions on cannabis outlets. In determining the days and hours during which such outlets are permitted to trade, the key consideration should be to achieve an appropriate level of availability (for more, see Getting the balance right, p.43).

Sales of other drugs

Outlets should, initially at least, be limited to the sale and consumption of cannabis products only. In the Netherlands, and in US legalisation states, a prohibition on the sale of all other drugs, including alcohol, is a non-negotiable licence condition. Similarly, existing bans on smoking tobacco in indoor or enclosed spaces should remain in force.

Although at present many people, particularly in Europe, smoke cannabis mixed with tobacco, such a policy would go some way towards more

127 World Health Organization Regional Office for Europe, **Evidence for the effectiveness and cost-effectiveness of interventions to reduce alcohol-related harm**, pp.68–69. **www.euro.who.int/__data/assets/pdf_file/0020/43319/E92823.pdf.**

clearly delineating the markets for the two drugs. A greater separation of these markets has the potential to promote new social norms related to cannabis smoking, encouraging safer forms of consumption that would lead to public health gains. It may also help prevent excessive commercialisation of the legal cannabis industry, as tobacco companies would have less of a foothold in a burgeoning sector.

Responsibility for regulatory oversight

In keeping with existing hierarchies of regulatory control for alcohol and tobacco, cannabis outlets should be primarily overseen by licensing authorities, which are typically a tier of local government charged with managing and enforcing a series of centrally determined regulations, and by implication, broader international law. Similar frameworks are already well established in a number of countries.

In the UK, for example, each licensing authority must review entertainment licences every three years and consult with the chief of police, fire authority, representatives of the licensees and representatives from local businesses and residents. In the US, alcohol policy is largely managed by the individual states, which control manufacture, distribution and sale within their own borders, while the federal government regulates importation and interstate transportation. Similarly, individual states in the US and Australia have very different approaches to enforcement of personal cannabis use, ranging from de-facto decriminalisation (or civil penalties) to punitive criminal sanctions. The federal/state power dynamic generally sees responsibility for most serious crimes falling to federal government with flexibility over less serious crimes and civil offences falling to state authorities.

A clearly defined range of proportionate sanctions for licence infringements should include a sliding scale of fines, loss of licence, and even criminal penalties. Licensees could also be held partially or wholly liable for how their customers behave - punishable examples include antisocial

behaviour, noise, littering and drug impaired driving (see: Institutions for regulating cannabis markets, p.169. and Vendors, p.133).

j Marketing

Challenges

- Preventing the promotion of cannabis and cannabis use by commercial interests
- Negotiating political and legal obstacles to the implementation of adequate marketing restrictions

Analysis

- Experience with alcohol and tobacco demonstrates the capacity for marketing activities to influence levels and patterns of drug use
- If the overarching regulatory framework for cannabis allows private companies to dominate the trade, attempts to restrict marketing activities are likely to be met with significant resistance
- Evidence from tobacco regulation suggests that partial bans which prohibit only certain forms of marketing, rather than a comprehensive ban that covers all marketing activities, are unlikely to be effective in reducing the potential harms associated with cannabis use
- When subject to partial bans on marketing, tobacco companies maintain their level of promotional spending, simply diverting more money to those (often more subtle) marketing activities that are permitted. Partial bans should therefore be expected to lead to similar behaviour from private companies involved in the cannabis trade

Recommendations

- A ban on all forms of cannabis advertising, promotion and sponsorship should be the default starting point for any regulatory system

- Article 13 of the World Health Organization's Framework Convention on Tobacco Control provides a comprehensive blueprint for how to eliminate tobacco marketing that could easily be applied to cannabis

Advertising, promotion and sponsorship form the front line of most industries' efforts to maintain and increase their customer bases. Historically, the alcohol and tobacco industries have been no different, using a variety of marketing techniques to maximise consumption of their products and, consequently, their profits. Although recent decades have seen varying degrees of success in curbing the use of such techniques by these two legal drug industries (markedly more progress being made with tobacco than alcohol), these successes have been hard-won, with industry fighting against them at every turn.

Governments seeking to enforce adequate restrictions on cannabis marketing may face similar challenges from big business. However, unlike with alcohol and tobacco, we have a clean slate: if non-medical cannabis is regulated strictly enough from the outset, an ongoing conflict in this area becomes less likely, policy makers will not have to struggle to control a powerful and well-established industry seeking to aggressively promote its products. Lessons on the potential risks in this area can be learnt from the the irresponsible and inadequately regulated marketing of medical cannabis products seen in some US states, and more recently the (fortunately thwarted) attempt at regulatory capture of an emerging industry by commercial interests in Ohio, USA.[128]

Marketing perhaps most clearly highlights the tension between the aim of reducing the health and social harms associated with drug use and the aims of private interests operating in a commercial marketplace

128 Rolles, S., 2015, **Legalisation in Ohio - Let's make this the last time we mess it up** '**http://www.tdpf.org.uk/blog/legalisation-ohio-lets-make-last-time-we-mess-it**

Marketing has been one of the key battlegrounds between governments and alcohol and tobacco companies, and perhaps most clearly highlights the tension between the aim of reducing the health and social harms associated with drug use and the aims of private interests operating in a commercial marketplace. Policy makers considering the type of controls that should be placed on the marketing of legal cannabis products must be aware of these conflicting aims, and recognise the importance of marketing restrictions to the overall effectiveness of any system of legal cannabis regulation.

Lessons from the regulation of tobacco marketing

The World Health Organization (WHO) has stated that the elimination of all forms of tobacco advertising, promotion and sponsorship (TAPS) is essential for meaningful tobacco control. It is considered a goal so critical that Article 13 of the WHO Framework Convention on Tobacco Control (FCTC), which requires all Parties to establish a comprehensive TAPS ban, is one of only two provisions in the treaty that includes a mandatory timeframe for implementation.[129] The history of tobacco marketing, and the evidence of its effects, provides ample support for such a prohibition.

For much of the 20th century, TAPS was subject to minimal regulation. The tobacco industry was allowed to advertise through all forms of media, and developed increasingly sophisticated techniques to promote its products. Direct and indirect marketing through sponsorship of sporting and music events, as well as product placement in films and television shows, helped to associate use of the drug with desirable situations or environments, and served to improve the public image of the companies that produced it. And as health concerns began to be raised over tobacco use, the industry employed marketing *'spin'* to brand a range of cigarettes *'mild'* or *'light'* to give the false impression that they were safer.

129 World Health Organization (2003) **Framework Convention on Tobacco Control.** http://whqlibdoc.who.int/publications/2003/9241591013.pdf.

Tobacco marketing

The considerable freedom afforded to tobacco companies in promoting their products is strongly linked to the increase in the rate of tobacco use that continued in most Western nations until roughly the mid-1960s. There is, for example, conclusive evidence that TAPS is an effective method of recruiting new smokers,[130] a fact that has been recognised by the US Surgeon General, who has stated categorically that *"there is a causal relationship between advertising and promotional efforts of the tobacco companies and the initiation and progression of tobacco use among young people."*[131]

Even after greater restrictions were imposed on TAPS, it is still believed to have been one of the key drivers of tobacco use and related harms. One estimate is that, in the US, between 1988 and 1998, TAPS alone was responsible for generating approximately 193,000 additional adult smokers and 46,400 smoking-attributable deaths per year, resulting in annual medical, productivity and mortality-related costs of as much as $33.3billion.[132]

Clearly the safety of cannabis relative to tobacco means that these health, social and financial costs are of a magnitude far greater than those that might result from cannabis advertising, promotion and sponsorship (CAPS), yet such estimates highlight how, even when the marketing of a legal drug for non-medical use is subject to restrictions, it can still produce serious and avoidable harms. Hence the WHO states that while total bans on all forms of TAPS can reduce smoking prevalence (and by implication

130 Lovato C. et al. (2011) **Impact of tobacco advertising and promotion on increasing adolescent smoking behaviours**, The Cochrane Collaboration. **http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD003439.pub2/abstract.**

131 National Center for Chronic Disease Prevention and Health Promotion (US), Office on Smoking and Health (2012), **Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General**. **www.ncbi.nlm.nih.gov/books/NBK99239/.**

132 Emery, S. et al. (1999) **The social costs of tobacco advertising and promotions**, Nicotine and Tobacco Research, Vol.1, Suppl.2, S83–S91. **www.ncbi.nlm.nih.gov/pubmed/11768191.**

smoking-related harms), partial bans *"have little or no effect"*.[133]

Tobacco marketing

Partial bans typically do not cover indirect forms of marketing such as sponsorship, and evidence shows they do not reduce tobacco companies' expenditure on promotional activities. Instead, overall spending on TAPS remains the same, with more money simply being diverted into those forms of marketing that remain legal.[134]

Taken together, experience from the regulation of TAPS indicates that the unrestricted marketing of cannabis is likely to be accompanied by an expansion in consumption and associated harms (the possibility of a displacement effect on alcohol use is discussed on p.83). Furthermore, while legal constraints in some countries may mean that partial marketing bans are the only feasible regulatory response, they are unlikely to adequately reduce the public health and safety burden, however small, that cannabis use poses. Where existing legal frameworks could allow it, a comprehensive CAPS ban represents the optimal form of control.

133 World Health Organization (2013) **WHO report on the global tobacco epidemic, 2013: Enforcing bans on tobacco advertising, promotion and sponsorship**, p.27. **http://apps.who.int/iris/bitstream/10665/85380/1/9789241505871_eng.pdf.**

134 US Department of Health and Human Services, National Institutes of Health, National Cancer Institute (2008) **The role of the media in promoting and reducing tobacco use (Tobacco Control Monograph)**, No.19. **www.cancercontrol.cancer.gov/brp/tcrb/monographs/19/index.html.**

Lessons from the regulation of alcohol marketing

While considerable success has been achieved in limiting tobacco marketing, with many countries imposing bans on television advertisements and sponsorship of events, the alcohol industry has been left relatively free to promote its products across all media. The result is that exposure to marketing of a seriously risky drug, is in many places, simply a fact of everyday life. Such a high level of exposure, and its necessary public health implications, should serve as a warning to policy makers contemplating allowing cannabis to be promoted in a similarly laissez-faire manner.

- In England, football fans see around two references to alcoholic brands every minute when they watch a match on TV in addition to the formal advertising during commercial breaks[135]
- Alcohol marketing campaigns are increasingly being conducted via social networking sites such as Facebook and Twitter, which are disproportionately used by young people[136] and on which marketing is generally less regulated
- One study estimates that 10-15-year-olds in the UK see 10% more alcohol advertising on TV than their parents do. And when it comes to the specific sector of *'alcopops'* (sweetened alcoholic drinks marketed to appeal to children and young people), they see 50% more[137]

135 Graham, A. and Adams, J. (2013) **Alcohol Marketing in Televised English Professional Football: A Frequency Analysis, Alcohol and Alcoholism**. **http://alcalc.oxfordjournals.org/content/early/2013/09/10/alcalc.agt140.full.**

136 Winpenny, E. (2012) A**ssessment of Young People's Exposure to Alcohol Marketing in Audiovisual and Online Media**, RAND Corporation/European Commission. **www.rand.org/pubs/external_publications/EP51136.html.**

137 Ibid

Article 13 of the Framework Convention on Tobacco Control – a template for cannabis

For policy makers operating in legal and political contexts that allow it, Article 13 of the FCTC could essentially be adapted for cannabis merely by switching the words. Following the recommendations it contains, a comprehensive CAPS ban would therefore cover:

- All advertising and promotion, as well as sponsorship, without exemption
- Direct and indirect advertising, promotion and sponsorship
- Acts that aim at promotion and acts that have or are likely to have a promotional effect
- Promotion of cannabis products and the use of cannabis
- Contributions of any kind to any event, activity or individual
- Advertising and promotion of cannabis brand names and all corporate promotion
- Traditional media (print, television and radio) and all media platforms, including internet, mobile

More specifically, in addition to prohibiting the more obvious forms of cannabis marketing, this would entail a ban or restrictions on:

- **Retail cannabis displays** – see Outlets p.151.
- ***'Brand stretching'* and *'brand sharing'*** – These two practices could occur when a cannabis brand name, logo, or other identifying feature is connected or shared with another non-cannabis product or service
- **Corporate social responsibility** – Alcohol and tobacco companies, for example, often make contributions to charitable causes or promote *'socially responsible'* elements of their business practices in order to improve their public profile. This is sponsorship that indirectly promotes such companies and their products. Cannabis companies should therefore be forbidden from engaging in similar activities

- **Depictions of cannabis in entertainment media** – Both fictional and non-fictional forms of entertainment that feature cannabis products or their use should be required to certify that no benefits have been received for such depictions. Classification systems for film, television or other forms of media should also take cannabis depictions into account
- **Cannabis industry-funded journalistic, academic or artistic work that promotes cannabis use or cannabis products** – While a comprehensive ban such as that stipulated by Article 13 of the FCTC would not interfere with legitimate forms of expression, vigilance should be urged with regard to, for example, journalists or political commentators who may have received funding from the legal cannabis industry to write articles encouraging the use of cannabis products. This tactic has previously been attempted by the tobacco industry.[138]

Legal or political constraints on marketing controls

Article 13 of the FCTC does, however, recognise that in some instances a comprehensive ban on TAPS would violate a country or jurisdiction's constitution. In such cases, it still requires restrictions on TAPS that are as comprehensive as possible within constitutional constraints.

Again, this concession could equally be made for restrictions on cannabis advertising, promotion and sponsorship (CAPS), and would likely be necessary given that in some countries precedents have been set with regard to tobacco and alcohol marketing. The US Supreme Court, for example, has ruled that tobacco companies have a right to at least some form of advertising for their products under the First Amendment of the Constitution.[139]

138 Maguire, K. and Borger, J. (2002) **Scruton in media plot to push the sale of cigarettes**, The Guardian, 24/01/02. **www.theguardian.com/media/2002/jan/24/advertising.tobaccoadvertising.**

139 For more information see: Gostin, L. O. (2002) **Corporate Speech and the Constitution: The Deregulation of Tobacco Advertising**, American Journal of Public Health, Vol. 92, No. 3, pp. 352-355.

However, although the so-called *'commercial free-speech'* of tobacco companies has been deemed worthy of legal protection in the US, TAPS is increasingly being subjected to restrictions. Among other things, the Family Smoking Prevention and Tobacco Control Act, which became law in 2009, prohibits event sponsorship by tobacco companies as well as brand-name non-tobacco promotional items.[140]

Thus in countries or jurisdictions where commercial free-speech laws are likely to be in conflict with future CAPS regulation, there is potentially still significant scope for restrictions on cannabis marketing, even if evidence suggests these will be of more limited effectiveness compared to comprehensive bans.

In addition to legal constraints, there may be political opposition to effective CAPS regulation. Touching as it does on issues of freedom of expression, such regulation will inevitably be resisted by libertarian-leaning politicians or policymakers. However, this viewpoint is unlikely to have much traction with the wider public. The distinct nature of drug risks relative to most other commodities, and the particular need to protect vulnerable groups from exposure to these risks, would for most people be considered sufficient justification for restricting standard commercial freedoms.

140 US Food and Drug Administration (2013) **Overview of the Family Smoking Prevention and Tobacco Control Act: Consumer fact Sheet** **www.fda.gov/tobaccoproducts/guidancecomplianceregulatoryinformation/ucm246129.htm.**

Current cannabis advertising, promotion and sponsorship (CAPS) regulation around the world

Uruguay

In Uruguay, all forms of publicity, indirect publicity, promotion or sponsorship of cannabis products are prohibited.

Colorado

Colorado's regulation is primarily aimed at ensuring children and young people are not exposed to CAPS. As a result, while advertising is permitted in adult-oriented newspapers and magazines (which essentially means all newspapers and most magazines), mass-market campaigns that have a "high likelihood of reaching minors" are prohibited. This extends to online advertising: 'pop- up' advertisements are banned, but 'banner ads' are permitted on adult-oriented sites.

Given that cannabis retail outlets are adult-only, restricted to just selling cannabis products or accessories, branding on packaging is allowed as children are unlikely to be exposed to it. However, packaging cannot include any health or physical benefit claims, which are also forbidden in other forms of advertising or merchandising.

Washington

As with Colorado's restrictions, protecting children and young people from CAPS is the stated priority in Washington. There, retailers are not allowed to put products on display to the general public, such as through window fronts, and no licensee is allowed to advertise cannabis or cannabis-infused products in any form or through any medium within 1,000 ft. of school grounds, playgrounds, child care, public parks, libraries, or game arcades that allow minors to enter. Advertisements on public transit vehicles or shelters, or on any publicly owned or operated property, are also banned.

Medical cannabis industry in the US

Marketing activities that promote medical cannabis products have for the most part not been subject to regulation, with television, radio and print advertising commonplace in many states. The city of Denver, Colorado, has, however, imposed some restrictions on medical cannabis marketing, banning outdoor advertising in the form of billboards, posters and bus benches, as well as prohibiting windshield leafleting.

Netherlands

Dutch *'coffee shops'* are not allowed to advertise; the only form of promotion that occurs is the use of Rastafari imagery, palm leaf images, using trade names such as 'Grasshopper', and the words *'coffee shop'* to identify the cafes. The ban on advertising therefore acts more as a moderating influence, rather than preventing the coffee shops from distinguishing or promoting themselves at all.

Spain

While Spain's cannabis social clubs are mostly run on a strictly non-profit basis, there have been moves by some to commercialise the operations. On the whole, however, CAPS does not occur, as those who run the clubs, as well as the members themselves, have no financial incentive to increase cannabis consumption through marketing.

k Institutions for regulating cannabis markets

Establishing a legally regulated market for cannabis will require a wide range of policy decisions to be made and new legal, policy and institutional structures to be established. It is important to define the political level at which such choices should be made and legislation be imposed, and to determine which existing or new institutions should be given

Establishing a legally regulated market for cannabis will require a wide range of policy decisions to be made and new legal, policy and institutional structures

responsibility for decision-making, implementation and enforcement of the various aspects of regulation.

In principle, these challenges do not significantly differ from similar issues in other arenas of social policy and law related to currently legal medical and non-medical drugs, the regulatory infrastructure around alcohol and tobacco again being most obviously relevant. On this basis, the proposal outlined below suggests how new cannabis legislation and decision-making could be integrated into and managed by different kinds of political bodies, international (global and regional agencies), domestic (federal and devolved), and various tiers of local government (state, county, municipality,etc.).These suggestions are inevitably generalisations, the precise contours of decision-making structures will be shaped by the political realities of individual jurisdictions.

This hierarchical decision-making structure means that tensions will inevitably emerge when lower-level decision-making authorities choose to go against the will of higher-level authorities, or vice versa. Examples of such tensions have been seen with Uruguay's cannabis regulation model breaching the UN drug conventions; the Washington and Colorado State models being implemented in conflict with US federal law; and an array of local initiatives, such as proposed cannabis regulation models in Copenhagen (Denmark), 60 municipalities in the Netherlands, Mexico City (Mexico), and Basque country (Spain), that are challenging national government positions. In a scenario in which the global, federal or state governments are showing little inclination to lead on cannabis reform, these tensions are an inevitable manifestation of a bottom-up leadership process, rather than a long-term structural challenge. Such challenges will eventually lead to reform at federal and UN level, at which point any tensions will be dramatically reduced, even if, to some extent, they remain part of the landscape.

International

There is a clear and important role for the various UN legal structures and agencies. Key functions for the UN would be:

- **Overseeing issues that relate to international trade, particularly issues around the provision and transit of cannabis-based medicines.** International trade and border issues would also naturally come within the purview of relevant regional agencies such as the European Union, or the North American Free Trade Agreement (NAFTA), or emerging regional or bilateral cannabis trade agreements (for more, see Cannabis tourism, p.205)

- **Assuming responsibility for more general oversight of relevant human rights, labour laws, development and security issues.** This role would, however, inevitably transform from one of overseeing a global prohibitionist system to one more like the UN role with regard to alcohol and tobacco, with UN agencies providing the foundation, ground rules and legal parameters within which individual States, or groups of States, can or should operate. This role would include oversight and guidance on sovereign State rights, as well as responsibilities to neighbours and the wider international community

- **Acting as a hub of research on cannabis health issues and best practice in cannabis policy and law.** This research and advisory role would mirror the WHO's existing role regarding tobacco and alcohol policy,[141] and would work in partnership with equivalent regional and national research bodies, such as the EMCDDA. At a later stage this analysis and best practice guidance could potentially be formalised in an international agreement similar to the Framework Convention on Tobacco Control[142]

141 For more on WHO's work on tobacco, see: www.who.int/topics/tobacco/en/.

142 World Health Organization (2003) **Framework Convention on Tobacco Contro**l. **http://whqlibdoc.who.int/publications/2003/9241591013.pdf.**

Aside from the necessary bureaucratic and legal reforms, the change in focus from punitive enforcement towards pragmatic public health management clearly indicates that lead responsibility for cannabis-related issues should move from the UN Office on Drugs and Crime to the World Health Organization and sit alongside its existing role for alcohol and tobacco.

It is likely that the UN-level renegotiation of international law that cannabis reforms will necessitate will involve reconsidering issues around the right to privacy, the right to freedom of belief and practice, the right to health, and proportionality in sentencing. These are likely to have global implications in terms of ending or calling for an end to the criminalisation of use, possession for personal use, and potentially cultivation for personal use. It is important to make clear, however, that reforms of international law that demand an end to the criminalisation of cannabis users, and that introduce flexibility for States to explore regulatory models, will not mandate either the nature of non-criminal penalties, or the establishment of legally regulated availability. Such decisions will remain in the hands of individual governments (see Cannabis and the UN drug conventions, p.211).

National government

Individual jurisdictions will need to determine their own cannabis regulation policies and legal frameworks within the international legal parameters, rights and responsibilities established by the UN, and other international bodies or federal governments to which they belong.

Any new overarching parameters agreed at the UN level would set basic standards of justice and human rights, with implications for the use of punitive sanctions against drug users. In contrast to the current prohibitionist framework, these parameters would neither impose nor preclude particular options relating to legal access and supply, or internal domestic drug markets. This is not, however, necessarily the case with

regard to conflicting laws between different levels of government within countries. For example, the regulatory options available to US states that have legalised cannabis have been curtailed because it remains illegal at the federal level. As a result, state employees cannot be required to be directly involved in cannabis production or supply because they could have federal criminal charges brought against them.

At the national level, responsibility for decision-making and enforcement of regulation most naturally sits alongside comparable institutional frameworks for alcohol and tobacco. This responsibility, as at the UN level, logically sits with the government department responsible for health, rather than the more common criminal justice lead in place under the old prohibitionist models.

That said, it is important to be clear that cannabis policy and regulation, as with alcohol and tobacco regulation, involves a range of agencies and government departments. For example, criminal justice agencies (including police and customs) will still have a key role in enforcing any new regulatory framework, because those who operate outside it will still be subject to punitive sanctions; departments of foreign affairs and trade will oversee international trade issues and trading standards; departments of education will be involved in public and school-based education and prevention programs, and treasury departments will be involved in tax collections and budgeting.

So while the lead role would sit under the health department, some form of national-level entity or coordinating body with a cross-departmental brief will be essential. This could involve cannabis regulation becoming a new responsibility for an existing agency, as has happened in Washington State, where regulatory decision-making has been delegated to the State Liquor Control Board, or the responsibility of a new, dedicated agency, as is the case in Uruguay, where the legislation establishes an Institute for the Regulation and Control of Cannabis.

Local/municipal

The micro-level detail and decision-making around how regulatory frameworks are implemented and enforced at the local level will largely fall to local or municipal authorities, although some may remain with national agencies. These local responsibilities will include most decisions around the licensing of vendors and retail outlets, as well as inspectorate and policing priorities.

This localised decision-making should provide democratic opportunities for local communities to have an input into licensing decisions, as they often do with alcohol sales and venue licensing. The prospect of *'NIMBYism' ('Not In My Back Yard'* opposition) is a realistic one that will need to be dealt with sensitively. It may well be that some communities democratically determine that they do not wish to have legal cannabis available from retail outlets within their geographical boundaries - even if possession and use is legalised nationally and legal supply is available in neighbouring communities. This has happened for alcohol in *'dry'* counties in the US and Australia, and also with cannabis stores at the county level in US states such as Colorado, and *'coffee shops'* in different Dutch municipalities. Other local jurisdictions may welcome such outlets, while most will merely tolerate them under certain conditions.

Section 3

Key challenges

a Cannabis-impaired driving

Challenges

- Finding an enforcement approach that minimises cannabis-impaired driving and associated risks, and at the same time avoids non-impaired drivers being unjustly penalised

Analysis

- The risks associated with driving while impaired, to the driver, passengers and other road users, make it an offence in all jurisdictions, and justify a hierarchy of punitive legal sanctions for offenders
- The degree to which cannabis consumption impacts on driving risk remains difficult to establish precisely, but it is clear that acute intoxication impairs driving safety, with the level of impairment related to dosage and time since consumption
- The relationship between blood THC levels and impairment is less clearly defined than the equivalent relationship for alcohol
- There is some dispute in the scientific literature regarding the threshold limit beyond which THC levels in the blood represent an unacceptable level of impairment (which could then be used to trigger or inform legal

sanctions). Proposals range from blood serum THC concentrations of 1-2 nanograms per millilitre of blood (ng/ml) through to 16-20ng/ml
- If thresholds are too low, non-impaired drivers will potentially be penalised; too high and impaired drivers may escape penalties

Recommendations

- There is a simple and clear message: People should not drive while significantly impaired by cannabis and should, as with alcohol or other drugs, expect a proportionate punitive legal sanction if they are caught doing so
- In this context, clearly highlighting behaviours that are likely to result in penalties for impairment, and how this can be measured becomes important for both public education and for defining enforcement parameters
- Given the lack of scientific consensus regarding a blood THC concentration that correlates with an unacceptable level of impairment, *per se* limits that automatically trigger a legal sanction when exceeded are inadvisable.
- Due to the distinctive way in which cannabis is processed by the body, the use of *per se* laws is likely to lead to prosecutions of drivers with residual levels of THC in their blood but who are nonetheless safe to drive
- Blood testing should only be carried out following a driving infraction or once evidence of impairment has been derived from a standardised field sobriety test that has been validated for cannabis-induced behaviour. Blood tests should be employed simply to confirm that a driver has recently used cannabis (and that cannabis use is therefore the likely cause of the failure of a field sobriety test). The results of a blood (or any other body fluid) test should not, on their own, trigger a legal sanction
- Establishing a threshold THC level beyond which prosecutors can reasonably assume that a driver has recently used cannabis is problematic, but a blood serum THC concentration in the range 7-10ng/ml) appears to be a sensible point at which such a threshold might be

set. This should, however, be reviewed in the light of any emerging evidence, and the possibility of two or more thresholds associated with different burdens of proof could also be considered
- The greatly increased risks of driving while under the influence of both alcohol and cannabis simultaneously means that in such cases prosecutors should consider lower blood THC and alcohol levels as sufficient evidence of recent use
- While some elements of current standardised field sobriety tests are effective in detecting cannabis-induced impairment, research and funding should be devoted to the development of a comprehensive field sobriety test that is sufficiently sensitive to identify all levels of such impairment

Driving while impaired, for any reason, involves avoidable but potentially serious risks to the driver, any passengers they may have, and other road users and pedestrians. The degree of risk involved means that impaired driving is considered a punishable offence in all jurisdictions, one usually subject to a hierarchy of punitive sanctions depending on the seriousness of the offence or harm caused, often ranging from civil sanctions such as fines or disqualification from driving for a fixed period of time, through to more serious penalties resulting in a criminal record and/or imprisonment.

Most familiar are the policy and law issues around alcohol-impaired driving, which is tested to a generally accepted level of accuracy using inexpensive *'breathalyser'* technology that measures blood alcohol content.[143] Other causes of impairment, generally less well catered for by both technology and law, include consumption of certain prescription drugs, currently illegal drugs including cannabis, poor physical health and condition of the driver (most obviously tiredness and impaired vision), and certain mental health issues.

143 Positive breathalyser tests are usually then confirmed with a more accurate blood test.

The emerging evidence convincingly suggests that recent cannabis consumption does increase collision risk

Studies have long shown that cannabis use impairs, in a dose-related fashion, various cognitive processes associated with safe driving, such as attentiveness, vigilance, and psychomotor coordination (although evidence of its effects on reaction time is mixed). These findings have been borne out in experimental settings such as driving simulator or on-road tests,[144] which have demonstrated that cannabis has a clear, although modest, negative impact on driving performance.[145] However, despite these findings, evidence on the question of whether such impairments translate into real-life road accidents has been less clear-cut.

Unlike experimental studies, which are more likely to downplay any impairing effects because test subjects are aware of being observed, epidemiological studies use population data to establish actual crash risk and so can offer a better indication of how, in reality, drivers will be affected by cannabis consumption. Such studies have, however, historically produced mixed results, with some finding that cannabis use was associated with an elevated risk of collision, but others not. These discrepancies have been attributed to various methodological challenges inherent in this area of research, including difficulties in obtaining sufficiently large sample sizes, the problem of accurately measuring levels of impairment (as opposed to simply measuring whether an individual has used cannabis recently), and the need to rule out confounding variables such as age, sex, and poly-drug use (in particular alcohol use).[146]

144 Berghaus G. and Guo B. (1995) **Medicines and driver fitness – findings from a meta-analysis of experimental studies as basic information to patients, physicians and experts**, in Kloeden, C, and McLean, A. (eds.) **Alcohol, Drugs, and Traffic Safety T95: Proceedings of the 13th International Conference on Alcohol, Drugs and Traffic Safety**, Adelaide: Australia, pp.295–300.

145 Smiley A., **Cannabis: On-Road and Driving Simulator Studies**, in Kalant H. et al. (1999) (eds.) **The Health Effects of Cannabis, Toronto**: Addiction Research Foundation, pp.173–191.

146 For more on the conflicting evidence from epidemiological studies, as well as their methodological challenges, see: Mann et al. (2008) **Cannabis use and driving: implications for public health and transport policy**, EMCDDA

Combined use of alcohol and cannabis

While cannabis use has an adverse effect on the psychomotor skills necessary for safe driving, this effect is significantly worse when the drug is combined with alcohol. There is significant evidence,[147] [148] that alcohol has an additive effect on the crash risk of those who have also consumed cannabis – in other words, the effects of using both drugs are the sum of the effects of using either on its own.

Some studies have found that cannabis-impaired drivers, unlike those driving under the influence of alcohol, have an awareness of their impairment and are able to compensate for this by, for example, driving more slowly or leaving more space between other cars.[149] [150] Using cannabis with alcohol, however, reduces or eliminates the ability to use such strategies effectively. When used together, the two drugs cause impairment even at doses which would be insignificant were they of either drug alone. This far greater level of risk therefore necessitates a stricter regulatory response (see Recommendations, p.191).

However, as more rigorous epidemiological studies are now being conducted, the emerging evidence convincingly suggests that recent cannabis consumption does increase collision risk. A meta-analysis of the most robust studies available on this issue found that acute cannabis consumption almost doubled a driver's risk of being involved in a serious crash,[151] with this risk being most evident in the most methodologically

147 Ramaekers et al. (2004) **Dose related risk of motor vehicle crashes after cannabis use, Drug and Alcohol Dependence**, Vol.73, pp.109–119.

148 Sewell R. A. et al. (2009) **The effect of cannabis compared to alcohol on driving, American Journal on Addictions**, Vol.18, pp.185–193

149 Smiley, A., **Cannabis: On-Road and Driving Simulator Studies, in Kalant**, H. et al. (eds.) (1999) **The Health Effects of Cannabis**, Toronto: Addiction Research Foundation, pp.173–191.

150 Robbe, H. and O'Hanlon, J. (1993) **Marijuana and actual driving performance, Washington**, DC: US Department of Transportation, National Highway Traffic Safety Administration.

151 Asbridge, M. et al. (2012) **Acute cannabis consumption and motor vehicle collision risk: systematic review of observational studies and meta-analysis**, British Medical Journal, Vol.344.

sound studies. Other recent reviews of the epidemiological literature have produced similar findings.[152]

In light of the growing body of research demonstrating the increased risks of driving under the influence of cannabis (DUIC), and in keeping with this guide's emphasis on using regulation to promote responsible consumption, there is a clear need to ensure that sufficient legal and policy measures are in place that are effective at minimising such risks.

Defining and testing impairment

The key challenges are how to establish the degree to which cannabis consumption impairs driving, and how then to legally designate or classify a driver as sufficiently impaired to have committed a DUIC offence. There are three ways in which this has been done for both cannabis and alcohol:

- Making a behavioural assessment of the driver using recognised criteria for impairment (sobriety testing)
- Testing body fluids (urine, saliva, blood or a combination of these) and applying a zero tolerance *'per se'* law - i.e. the presence of any amount of a given drug is an automatic offence
- Testing body fluids and applying a *per se* law based on an established threshold quantity of a given drug that is deemed to correlate with an unacceptable level of impairment

There are shortcomings associated with each of these approaches.

152 See for example: Li, M. C. et al. (2012) **Marijuana use and motor vehicle crashes,** Epidemiologic Reviews, Vol.34, No.1, pp.65–72, and EMCDDA (2012) **Driving under the influence of drugs, alcohol and medicines in Europe – findings from the DRUID project.**

Behavioural assessments

Behavioural assessments of intoxication, often called roadside or field sobriety tests, are more likely to be incorrectly administered due to human error and, while sensitive to heavy impairment, are less effective in detecting modest impairments that could still be a legally significant factor in road accidents. A further problem, particularly with more modest or borderline levels of impairment, is that the results of even more sophisticated computer-based impairment tests would arguably need to be compared against a non-impaired, baseline measurement of the individual being tested, using the same assessment criteria, if relative impairment from cannabis consumption were to be established. Some people are just not particularly good at impairment test tasks, even though they are acceptably safe drivers, and may register a false positive.

While some individual components of standard field sobriety tests, such as the one-leg-stand test, have been shown to be fairly consistent predictors of cannabis-impaired behaviour,[153] [154] a comprehensive test is yet to be developed and approved. Further research is therefore needed in this area, but even the best roadside impairment testing is unlikely to be robust enough to form the sole basis of a legal sanction in many cases. As a result, such testing should be complemented by a more scientific assessment (e.g. a blood test) that can establish whether recent cannabis use has occurred, and is therefore the probable cause of any apparent impairment. This may be supported by other physical evidence of cannabis use, such as joint butts or smoking paraphernalia.

153 W.M. Bosker, et al. (2012) **A placebo-controlled study to assess standard field sobriety tests performance during alcohol and cannabis intoxication in heavy cannabis users and accuracy of point of collection testing devices for detecting THC in oral fluid**, Psychopharmacology, Vol.223, No.4, pp.439–446.

154 Stough, C. et al. (2006) **An Evaluation of the Standardised Field Sobriety Test for the Detection of Impairment Associated With Cannabis With and Without Alcohol**, Australian Government Department of Health and Aging, Canberra.

Zero tolerance laws

Zero tolerance *per se* cannabis laws, on the other hand, are by their nature too sensitive, penalising the presence of any active drug ingredient or its by-products (known as *'metabolites'*), regardless of whether they have in fact caused impairment. This is a particular concern with cannabis, as the drug's main psychoactive ingredient, THC, quickly passes out of the blood and into fat cells in the body, from where it is gradually released over time. Hence although the impairing effects of cannabis will have typically worn off roughly three hours after inhalation,[155] for infrequent users THC is still often detectable by blood tests 8-12 hours after smoking.[156] In heavy users, this window of detection can last for several days.[157]

Similar effects are observed for THC's primary metabolites. In infrequent users, blood tests can usually detect 11-hydroxy-THC, a psychoactive metabolite, up to around 6 hours after inhalation. But one of THC's non-psychoactive metabolites, 11-carboxy-THC, can be detected in blood serum for several days in occasional users and for several weeks in heavy users[158] (11-carboxy-THC is also the main metabolite used by urine tests to indicate cannabis use, and in heavy users can be detected even longer, several months after consumption, via this method of testing[159]).

Consequently, depending on the method of testing used, THC and its metabolites can be detected days or even weeks after use, long after any impairing effect has completely dissipated. In contrast, alcohol is not stored by the body, meaning its presence is a better indicator of recent use and thus impairment.

155 Sewell R. A. et al. (2009) T**he effect of cannabis compared to alcohol on driving**, American Journal on Addictions, Vol.18, No.3, pp.185–93.

156 Huestis M. A. et al. (1992) **Blood cannabinoids. I. Absorption of THC and formation of 11-OH-THC and THCCOOH during and after smoking marijuana**, Journal of Analytical Toxicology, Vol.16, No.5, pp.276–82.

157 Karschner E. L. et al. (2009) **Do Delta-9-tetrahydrocannabinol concentrations indicate recent use in chronic cannabis users?**, Addiction, Vol.104, No.12, pp.2041–2048.

158 Musshoff F. and Madea, B. (2006) **Review of biological matrices (urine, blood, and hair) as indicators of recent or ongoing cannabis use**, Therapeutic Drug Monitoring, Vol.28, No.2, pp.155–163.

159 Ibid

Fixed threshold limits

A *per se* law associated with a threshold blood THC limit above zero is potentially more reasonable, since it could at least in theory be set high enough to implicate recent users, while avoiding incriminating non-impaired drivers who give a positive test due to their having used cannabis at some point during the previous few weeks.

The challenge then comes in trying to determine the threshold THC limit beyond which a driver is impaired to such an extent that he or she presents an unacceptable level of risk. To this end, one study has proposed a blood serum THC concentration limit in the range of 7 -10 nanograms per millilitre of blood (ng/ml).[160] This, it is suggested, would safely avoid misclassifying sober drivers, as at 5ng/ml driving skills are impaired to roughly the same extent as an individual with a blood alcohol concentration (BAC) of 0.5g/l (the standard *per se* limit for alcohol in most jurisdictions), and 10 hours after smoking, THC concentrations typically decline to below this level in occasional and even frequent cannabis users.

However, this threshold is not universally accepted. One prominent study has proposed that a lower blood serum THC concentration of 3.8ng/ml in fact produces impairment equivalent to that observed at 0.5g/lBAC.[161] Furthermore, many studies have attempted to establish a precise threshold beyond which an elevated crash risk occurs and, at present, little consensus has emerged from the scientific literature. Estimates range from blood serum THC concentrations of as low as 1ng/ ml, to as

160 Grotenhermen, F. et al. (2007) **Developing limits for driving under cannabis**, Addiction, Vol.102, No.12, pp.1910–1917. **www.ncbi.nlm.nih.gov/pubmed/17916224.**

161 EMCDDA (2012) **Driving under than influence of drugs, alcohol and medicines in Europe - findings from the DRUID project**

high as 16ng/ml, with a number of studies proposing limits at various points in between.[162] [163] [164] [165]

The lack of agreement on an empirically sound non-zero *per se* threshold is in large part because the effects of cannabis relative to blood THC content vary far more between individuals than do the effects of alcohol - particularly between heavy and novice users.

Establishing an empirical basis for a non-zero per se limit is further complicated by the distinctive pharmacokinetic profile of THC. Blood serum THC levels are at their highest up to approximately fifteen minutes following cannabis inhalation, yet maximum levels of impairment occur after this period, when THC begins to leave the blood and is absorbed by the body. Following inhalation THC levels in the blood rise rapidly, typically reaching a peak value of more than 100ng/ml 5 to 10 minutes after inhalation before falling rapidly to between 1 and 4ng/ml within 3 - 4 hours. Thus cannabis-induced impairment can be at its peak while levels of THC in the blood are still relatively low. This is unlike blood alcohol concentration, which does positively correspond to levels of impairment.

The lack of close correspondence between blood THC levels and impairment has been acknowledged by the US National Highway Traffic Safety Administration (NHTSA), which in 2004 declared:

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162 Ramaekers, J. G. et al (2009) **Neurocognitive performance during acute THC intoxication in heavy and occasional cannabis users**, Journal of Psychopharmacology, Vol.23, No.3, pp.266–277.

163 Grotenhermen, F. et al. (2005) **Developing Science-Based Per Se Limits for Driving Under the Influence of Cannabis (DUIC): Findings and Recommendations by an Expert Panel**, Marijuana Policy Project, Washington, DC.

164 Ramaekers, J. G., **Commentary of Cannabis and Crash Risk: Concentration Effect Relations, in Transportation Research Board of the National Academies** (eds.) (2006) Transportation Research Circular: Number E-C096, Woods Hole, Massachusetts, pp.65–66.

165 Drummer, O. H. et al. (2004) **The involvement of drugs in drivers of motor vehicles killed in Australian road traffic crashes**, Accident Analysis and Prevention, Vol.36, No.2, pp.239–248.

"It is inadvisable to try and predict effects based on blood THC concentrations alone, and currently impossible to predict specific effects based on THC-COOH [a non-psychoactive metabolite of THC] concentrations. It is possible for a person to be affected by marijuana use with concentrations of THC in their blood below the limit of detection of the method."[166]

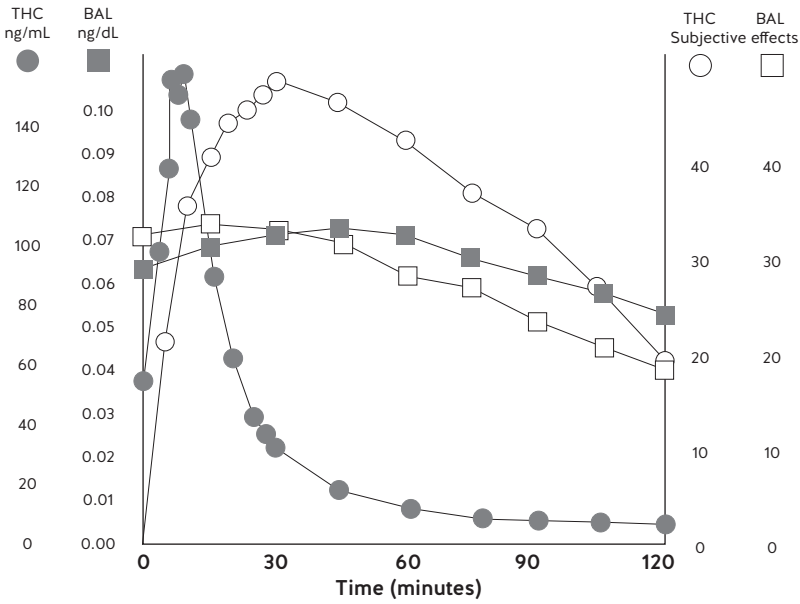

Figure 3

Serum levels of ethanol (solid squares) lag behind subjective effects (open squares) because tolerance develops very quickly. Subjective effects of THC (open circles lag behind serum levels (solid circles) because THC moves into the brain more slowly than alcohol does. (BAL=Blood Alcohol Level).[167]

166 US Department of Transportation National Highway Traffic Safety Administration (2004) **Drugs and Human Performance Fact Sheets**. www.nhtsa.gov/People/injury/research/job185drugs/drugs_web.pdf.

167 Graph is taken from: Sewell, R.A. (2010) **Is It Safe to Drive While Stoned? Cannabis and Driving An Erowid Science Review**, Erowid, and uses graphs/data adapted from Portans I. et al. (1989) **Acute Tolerance to Alcohol: Changes in Subjective Effects Among Social Drinkers**, Psychopharmacology, Vol.97, pp.365–369; Cocchetto, D. M. et al. (1981) **Relationship Between Plasma Delta-9-Tetrahydrocannabinol Concentration and Pharmacologic Effects in Man**, Psychopharmacology, Vol.75, pp.158–164; and Huestis M. et al. (1992) **Blood Cannabinoids. I. Absorption of THC and Formation of 11-OH-THC and THCCOOH During and After Smoking Cannabis**, Journal of Analytic Toxicology, Vol.16, pp.276–282.

Blood testing

The actual process of blood testing also potentially confounds the use of *per se* limits (see Box, below, for more on why blood, rather than saliva or urine, should be tested). Collecting whole blood or serum samples is an invasive medical procedure, one that can generally only be performed legally by trained medical personnel. Samples also need to be transported and stored in special low-temperature conditions to prevent degradation and avoid any risk of infection.

There are early indications that an alternative method of collecting blood samples, dried blood spot analysis (DBS), could offer a solution to this problem, as it is less invasive and produces results with a level of precision that does not significantly differ from that of traditional blood testing methods. DBS uses capillary blood taken from a finger or heel prick and can be carried out by non-medical personnel. A spot of whole blood is dried onto a custom-made card, which is then folded and left to dry at room/ambient temperature for three hours.[168]

Although DBS has the potential to be a more practical method of field testing of blood THC levels, law enforcement officers are currently unable to collect blood samples at the scene in a timely manner, meaning that there is often a significant delay between when a driver is stopped and when he or she is actually tested. This delay is problematic due again to the complex pharmacokinetic profile of THC, meaning it is not possible to accurately infer an individual's previous level of impairment from the results of a blood sample taken potentially as long as several hours later.[169]

168 The potential of DBS to be used in roadside drug testing is discussed in: EMCDDA (2012) **Driving under the influence of drugs, alcohol and medicines in Europe – findings from the DRUID project**, pp.36-37.

169 Wille, S. M. et al. (2010) **Conventional and alternative matrices for driving under the influence of cannabis**, Bioanalysis, Vol.2, No.4, pp.791-806.

Drug testing – different fluids, different results

Blood

Blood testing can be used to analyse the concentration of THC and its metabolites in either whole blood or of blood serum, however the latter contains approximately twice the THC concentration of the former. Hence if a driver was found to have a THC blood serum concentration of 10ng/ml, he or she would have a whole blood THC reading of around 5ng/ml. While the presence of metabolites can be detected by blood tests for several weeks after cannabis consumption, THC is detectable for a shorter period of time. In occasional users, THC can be measured in blood serum for around 8–12 hours after cannabis use,[170] with this detection window lasting longer for moderate and heavy users – sometimes for several days.[171]

Despite promising methodological advances in blood testing (see Blood testing, p.178), drawing blood for analysis is an invasive procedure and should only be carried out by a trained medical professional. Because blood tests are difficult to administer, they are generally only used once a road accident has taken place, rather than in routine checks. Delays between when a driver is stopped and when a blood test is actually performed can also complicate measurements of impairment.

Despite these shortcomings (as well as the lack of scientific consensus on a specific THC blood serum concentration that correlates with impairment), the NHTSA acknowledges that, "[i]n terms of attempting to link drug concentrations to behavioral impairment, blood is probably the specimen of choice."

170 US Department of Transportation National Highway Traffic Safety Administration (2013) **'Cannabis / Marijuana (Δ 9 -Tetrahydrocannabinol, THC)'**. **www.nhtsa.gov/people/injury/research/job185drugs/cannabis.htm.**

171 US Department of Transportation National Highway Traffic Safety Administration (2003) **State of Knowledge of Drug-Impaired Driving,** Chapter 3. **www.nhtsa.gov/people/injury/research/stateofknwlegedrugs/stateofknwlegedrugs/pages/3Detection.html**

Urine

Urinalysis is the most widely used method of drug testing, particularly in workplaces. Despite being a relatively non-invasive form of testing (although there are long standing privacy concerns about samples being collected under direct observation), standard urine tests are of little use in the enforcement of DUIC laws as they can only identify whether an individual has previously used cannabis – not whether an individual is impaired due to cannabis consumption.

This is because, rather than looking for THC, urinalysis only looks for the presence of THC metabolites, which can take at least several hours to become detectable in urine. As the NHTSA has stated: "*[This d]etection time is well past the window of intoxication and impairment.*"[172] In addition, once the detection period comes into effect, it lasts for such a long time that urine tests pose a significant risk of registering false positives.

Saliva

Saliva testing is quick, non-invasive, and looks for the presence of *'parent drugs'* (in this case THC), rather than metabolites. Saliva testing can also only detect THC up to several hours after use, therefore making it a better indicator of recent consumption and thus impairment. But while these advantages mean such tests may in the future be used effectively for measuring cannabis-related impairment, the accuracy of saliva testing is at present highly limited. Hence a large-scale, EU-commissioned project assessing nine on-site saliva testing devices concluded that not one could be recommended for roadside screening of drivers.[173] One of the key problems associated with the use of such devices is that only a minute amount of THC is excreted into saliva, making it difficult to detect. Some countries, however, do already employ saliva testing, although as is the case in France, such tests

172 US Department of Transportation National Highway Traffic Safety Administration (2004) **Drugs and Human Performance Fact Sheets**, p.9. **www.nhtsa.gov/People/injury/research/job185drugs/drugs_web.pdf**

173 Verstraete, A. G. and Raes, E. (eds.) (2006) **Rosita-2 Project: Final Report. www.rosita.org/members/docs/Rosita2%20Final%20report%20May2006.pdf**

are usually only preliminary, and prosecution is based on the results of a subsequent blood test.

Despite these issues, it could be argued that *per se* limits may simply have to be tolerated given the widespread acceptance of their use in policing drunk driving. Such limits could certainly be useful in political terms, at least in the short term, allowing policy makers and politicians to demonstrate that they are a taking a hard line with those who drive under the influence of cannabis. *Per se* limits also make it easier for law enforcement to detect and process such drivers, and for prosecutors to convict them. Neither of these arguments are legitimate justifications for a potentially unjust system.

The pharmacological properties of cannabis do present unique challenges that simply do not exist with regard to alcohol above all, the possibility of THC being detectable for an extended period after consumption, long after any psychomotor impairment has passed. But even if policy makers decide that some prosecutions of non-impaired cannabis users are a price worth paying for safer roads, current evidence suggests that *per se* limits are not actually an effective means of achieving them. Research into US states that have legalised cannabis for medical use and also enforce *per se* THC limits has found no evidence that they reduce traffic fatalities.[174]

It must be accepted that, although appealing in their simplicity, *per se* limits are simply not appropriate as a blanket policy covering all instances of drug impaired driving. Many psychoactive pharmaceuticals such as various antidepressants and anti-anxiety drugs, cause a degree of impairment far greater than that associated with THC,[175] yet none of these are subject to *per se* limits of any kind. To enforce such limits

174 Rees, D. and Anderson, D. M. (2012) **Per Se Drugged Driving Laws and Traffic Fatalities**, IZA Discussion Paper No.7048. **http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2189786**

175 EMCDDA (2012) **Driving under the influence of drugs, alcohol and medicines in Europe – findings from the DRUID project**, p.21.

would be impractical and most likely arbitrary given the wide variations in effects that these drugs can have on different users.

DUIC and opposition to reform

It is important to make clear that driving while impaired by cannabis consumption should be an offence regardless of the legal status of the drug (in terms of its production, supply or possession). But although legalising and regulating cannabis will not alter the fundamental nature of the DUIC offence, it may change the political context in which responses to it are devised. DUIC laws are likely to be reviewed in any given jurisdiction as the transition towards legally regulated markets takes place (as has happened in Washington and Colorado, for example). Opponents of such reforms have often focused on DUIC accidents following any such transition.[176]

Driving while impaired by cannabis consumption should be an offence regardless of the legal status of the drug (in terms of its production, supply or possession)

Nevertheless, the emotive and politicised discourse that pervades this issue means there may well be a greater acceptability for potentially unfair zero-tolerance or fixed threshold *per se* laws for cannabis-impaired driving, and a risk of disproportionately harsh sentencing for offenders. Caution will be needed to make sure that decisions are driven by evidence, not political imperatives.

176 This is despite there being some evidence that making cannabis legally available can reduce traffic fatalities, as people substitute the drug for alcohol, leading to fewer drunk drivers on the road. See: Rees, D. and Anderson, D. M. (2011) **Medical Marijuana Laws, Traffic Fatalities, and Alcohol Consumption,** IZA Discussion Paper No.6112. **http://ftp.iza.org/dp6112.pdf**

Recommendations

Given this array of technical challenges, and the tensions between exercising a precautionary principle and the potential for injustice relating to over-zealous enforcement, we make the following set of recommendations for what a workable DUIC enforcement policy could look like. It should, however, be noted that the constraints and complexities of various jurisdictions' legal systems, and the differences between them, mean it is difficult to make policy prescriptions that will be applicable everywhere. Hence these recommendations should be viewed more as general guiding principles, than as concrete and comprehensive policy responses to the problem of cannabis-impaired driving.

- A fair and pragmatic policy would be one centred around effect-based standards. Behavioural impairment, rather than the mere presence of a given level of THC in blood or other body fluids, must therefore be demonstrated in order for an administrative or criminal sanction to be applied. Blood THC concentration would none the less still be measured to enable prosecutors to establish recent ingestion of cannabis. A positive test would therefore function as supporting evidence of impairment, rather than an automatic trigger for the application of a penalty

- Initial evidence of impairment, and thus the probable cause required for a subsequent blood test, should ideally be derived from the failure of a reliable and accurate field sobriety test that has been validated for cannabis use. While some of these tests are still in their infancy and will require development, they present a more promising avenue of research and are a more worthwhile target for investment than impairment testing based on body fluid analysis. Additional evidence of impairment from an actual driving infraction may also be used to support prosecutions

- Although *per se* limits are not recommended, they are clearly an attractive option for policy makers given that several US states, including Washington, have chosen to implement them. In light of their appeal, it is worth urging those jurisdictions that are intent on enforcing such limits to exercise care in setting them sufficiently high so as to not ensnare non-impaired drivers. It is therefore important for policy makers and prosecutors to be aware of the evolving evidence base in this area, and be committed to adjusting policy accordingly. The use of zero-tolerance *per se* laws is strongly discouraged

Establishing recent use

- Evidence shows that heavy cannabis users are likely to have residual levels of THC in the blood long after they have consumed cannabis and long after any impairment has dissipated. The challenge therefore lies in setting an empirically sound blood THC limit beyond which prosecutors can reasonably assume that a driver has recently used cannabis and that this was therefore the most likely cause of the observed impairment (rather than, say, a driver's general poor coordination or a simple human error)

- As more studies are conducted and more meta-analyses are performed, a clearer picture of where to set this limit should emerge. Based on the best currently available evidence, it would appear that prosecutors might reasonably assume a driver who fails a field sobriety test and is also found to have a blood serum THC concentration of around 10ng/ml was driving while impaired due to recent cannabis use. Such a limit should, however, be subject to regular review in light of emerging research

- In light of consistent findings that the use of cannabis in conjunction with alcohol has an additive effect on crash risk, consideration should be given to separate, lower blood THC and blood alcohol limits in cases where both intoxicants are detected

Enforcement

- DUIC laws, how they will be enforced, and the penalties for DUIC offences should be as clearly defined as possible in order to avoid misunderstandings among cannabis users or law enforcers over what is and what is not allowed

- Penalties for different DUIC offences should be determined by local jurisdictions, with equivalent DUI alcohol sentencing reasonably providing a guide. Consideration should be given to ensuring proportionality of sentencing, and granting sentencing judges the flexibility to take aggravating and mitigating circumstances into account within clear guidelines. Mandatory minimums should be avoided; they are invariably politically driven rather than evidence-based

- While the use of cannabis-based medicines should not be an excuse for driving while impaired, it could be a mitigating factor for decisions on both DUIC prosecutions and sentencing. Clear guidance on this issue should be established for both cannabis-based medicine users and for sentencing judges

- Consideration should also be given to the observed margins of error in blood testing procedures, forensic testing services should themselves be subject to regular testing to establish variability with identical samples (for an individual service and between rival services). These error parameters need to be appropriately incorporated into the enforcement framework

- Enforcement of DUIC laws should be supported by public education campaigns that explain the risks of DUIC, as well as how DUIC laws work. There is good evidence from experiences with alcohol to show that such public education, supported by clearly understood and fairly but vigorously applied enforcement practices - is effective at reducing levels of DUI and related accidents. If done well, it should be possible,

as has happened with alcohol, to foster a culture in which DUIC is widely regarded as unacceptable. Basic messages, which would naturally need to be tailored for local or target audiences, could include:

- Driving under the influence of cannabis increases the risk of injury or death, to you and other road users
- Driving under the influence of cannabis is illegal and can result in serious penalties
- If you are using cannabis, regard it as you would alcohol: arrange for a designated driver or use public transport or a taxi
- Don't let your friends use cannabis and drive
- You are unsafe to drive and likely to fail a blood test for at least three hours after smoking cannabis. This unsafe period can be much longer if you have used heavily, eaten cannabis edibles such as brownies, or consumed cannabis with alcohol or other drugs

Evaluation

- As with any new or revised policy and legal frameworks, it will be important to monitor how effective DUIC laws and their enforcement are at actually achieving a reduction in injuries or deaths stemming from cannabis impairment. At the same time, unintended negative consequences of the law also need to be monitored. These include: the potentially expanded use of intrusive testing procedures, false positives/negatives resulting from insufficiently robust testing technology or methodology, and unjust punitive sanctions against non-impaired drivers who have consumed cannabis in previous weeks

b The interaction of regulatory systems for medical and non-medical uses of cannabis

Challenge

- Making a clear distinction between the political and regulatory challenges associated with medical and non-medical cannabis products, and ensuring that the parallel and overlapping research and policy development processes support rather than hinder each other

Analysis

- The emerging evidence and support for medical cannabis has made cannabis less politically threatening in many jurisdictions, and combined with medical cannabis regulation acting as a *'proof of concept'* has helped promote reform of non-medical cannabis policy
- Pursuing the two reform processes in tandem has arguably been politically effective, particularly in the US, but it also carries some political risks
- In the context of highly politicised debates around both access to medical cannabis and regulation of non-medical cannabis, the two issues have often become unhelpfully conflated and confused

Recommendations

- Unless there is a specific reason to explore the crossover, it is best to separate, as far as possible, the issues and political campaigning relating to the reform of non-medical cannabis policy and the issues relating to cannabis-based medicines
- It is important to make clear that this report is not making recommendations on how to regulate medical cannabis products

The debate around access to medical cannabis (or *'cannabis-based medicines'*, a more useful term here as it incorporates a wider range of products)

has long been intertwined with the debate around the legalisation and regulation of cannabis for non-medical or recreational uses. The same is true, albeit to a lesser extent, with regard to the many potential uses of the cannabis/hemp plant for food, fuel, fabric, construction materials, plastics and so on.

This guide is not considering or making recommendations on policy for cannabis-based medicines (or industrial hemp products), except where it relates to recent developments in policy for the regulation of non-medical cannabis. These are certainly important issues, but are a largely separate debate; indeed the key point we wish to make here is to emphasise this separation.

This is in no way dismissive of the issue. The medical use of cannabis has a long history and has been subject to extensive research, and while generalisations are difficult (given the range of products, medical conditions being treated, and quality of research), this substantial and growing evidence base clearly demonstrates how many cannabis-based medicines have established or potential uses in treating a range of medical conditions.

This being the case, it is important that the often polarised and emotive politics concerning non-medical cannabis do not interfere with research into cannabis-based medicines or doctor and patient access to them. Unfortunately, such interference has tended to characterise the post-war period, and to this extent there is a clear crossover between the two issues.

However, from Transform's perspective this is a reason to try and decouple the issues, rather than bring them closer together. In the US in particular, medical and non-medical cannabis debates have become increasingly interwoven at the coalface of the cannabis law reform debate, and some have accused medical cannabis campaigners of in fact having a primary agenda of normalising and legalising cannabis for non-

medical use. There is, of course, nothing sinister or inconsistent about supporting reform on both fronts, and most of the high-profile cannabis reform groups do so, seeing the issues as being mutually supportive in two key ways.

Firstly, highlighting some of the beneficial medical uses of cannabis has helped make it appear less socially threatening, undermining the *'reefer madness'* scaremongering of the past. This has undoubtedly helped increase support for non-medical cannabis reforms to some extent.

Secondly, medical cannabis developments, particularly in the US (but also elsewhere around the world), have helped to advance non-medical cannabis reform by demonstrating how cannabis can be legally produced and made available in a responsible and regulated fashion. Indeed this guide has drawn quite extensively on the lessons of legally regulated medical cannabis production and supply.

But with the progress that both of these closely related policy areas have helped to promote, also come some conceptual problems and political risks.

While challenging some of the historical misconceptions about the risks of recreational cannabis use is important, using the medical benefits of cannabis to do so is an unhelpful conceptual error. The efficacy and risk profile of cannabis-based medicines for certain medical conditions has, for the most part, little or no bearing on the risks posed by cannabis to recreational users. They are quite different things; conflating the two does not stand up to scrutiny, and reform advocates can leave themselves vulnerable to criticism when they do so.

The lessons from medical cannabis regulation that can be applied to non-medical cannabis regulation are less problematic, but there are still vulnerabilities here, and care should be taken when discussing or implementing them. One challenge is that in the absence of a clear

international legal framework, or in the US, a federal regulatory model, the implementation and practice of medical cannabis regulation has varied enormously, so generalisations are usually unhelpful. Some models have very usefully demonstrated what effective, controlled production and responsible prescribing or retailing can look like. Elsewhere, medical cannabis regulation has been inadequate, leading to over-commercialisation and irresponsible sales practices and promotions. So when talking about learning from medical cannabis models it is important to point to lessons from both the good practice and the mistakes that have been witnessed. We should not hesitate to be critical of poor regulation or irresponsible retailing.

The fact that in some jurisdictions a proportion of medical cannabis provision was clearly being used non-medically is something that needs to be addressed carefully. On the one hand the outcome of *de facto* legally produced, supplied and consumed cannabis may be viewed as a positive, not least as it has not had any disastrous consequences. On the other hand many will be intrinsically uncomfortable at the dishonesty involved; even if often of a *'nudge, wink'* variety, the undermining of regulatory systems for medicines and the potential threat to the probity of the medical profession is something many are understandably defensive about. The debate about means and ends is one for history - given this guide is about how to regulate cannabis, we are merely highlighting the issue as a risk in the unfolding debate, and as a consideration for policy makers when exploring the evidence of what would work best in their jurisdictions.

Our default position is that unless there is a very specific crossover between the respective issues relating to medical and non-medical cannabis, they are probably best kept separate. As regulatory models for both uses of cannabis continue to advance this may become less of a challenge in the future, and many of the specific problems may prove largely unique to the US political environment and the evolution of the debate in that country. In the Netherlands, for example, where prescribed medical cannabis effectively appeared after the drug became *de facto*

legally available via the coffee shop system, it is, compared to the US, a political non-issue

C Synthetic cannabinoids

Challenge

- Integrating controls over the production, supply and use of synthetic drugs that mimic the effects of cannabis within a system of legal cannabis regulation

Analysis

- Synthetic cannabinoids make up a significant proportion of the number of new psychoactive substances (NPS) produced as legal alternatives to more *'traditional'*, illegal drugs
- The risks of synthetic cannabinoid use are considerably higher than those associated with cannabis use. This is due to: a lack of research into the effects of such drugs on humans, some evidence that they may be more potent and toxic than real cannabis, wide variations in the products that contain them, and misleading or inaccurate ingredient listings
- Although the prevalence of synthetic cannabis use has increased significantly in recent years, it is still relatively low in most countries

Recommendations

- Under a system of legal cannabis regulation, drugs that mimic the effects of cannabis would not automatically be made legally available
- Any synthetic cannabinoid products would be subject to a default prohibition and required to undergo testing in order to establish their risk profile. If such products did not meet defined safety criteria (and

being less risky than real cannabis could serve as a sensible benchmark), they would remain prohibited and their production and supply would be subject to penalties. Penalties for the possession/use of synthetic cannabinoids would be removed

- Such drugs are unlikely to pose a significant regulatory challenge if cannabis is made legally available. The current, rather small population of synthetic cannabinoid users will only decrease further given that an overwhelming majority prefer real cannabis over synthetic alternatives. For those who have become heavy, problematic or dependent users of such substances appropriate tailored harm reduction and treatment responses should be available
- The use of synthetic cannabinoids is a direct result of cannabis prohibition, with the market for these drugs emerging purely to meet the existing high levels of demand for the drug they seek to imitate

Recent years have seen a significant growth in the manufacture, sale and use of products containing synthetic cannabinoid receptor agonists more commonly known as *'synthetic cannabinoids'*. Of the 73 new psychoactive substances identified by the EMCDDA in 2012, 30 were found to contain such chemical compounds.[177] This increasingly wide range of synthetic cannabinoid products all serve (or at least are intended to serve) the same purpose - namely, to mimic the effects of real cannabis. Typically sprayed onto a smokable herbal mixture, synthetic cannabinoids are functionally similar to the active ingredient of cannabis, THC, binding to the same cannabinoid receptors in the brain.

Synthetic cannabinoids such as JWH-018, JWH-073 and CP47,497-C6 are the active ingredients of many products marketed under more consumer-friendly names such as *'Spice'* and *'K-2'*. The relative increase in the variety and popularity of such products is mostly attributable to

177 EMCDDA (2013) **Synthetic cannabinoids in Europe.** **www.emcdda.europa.eu/topics/pods/synthetic-cannabinoids**

their initially being a legal, but not necessarily safe, alternative to actual cannabis that was easily available (yet subject to virtually no regulatory control) via online and high street retailers. Synthetic cannabinoids are not yet prohibited by the UN drug conventions. However, as use and awareness of them has grown, many have been prohibited under various countries' national drug control legislation.[178]

Risk profile

While there is an established body of knowledge regarding the pharmacology and toxicology of cannabis and THC, there is little similar information about synthetic cannabinoids or the products that contain them. Only a few formal human studies have been published, although there is evidence to suggest that some synthetic cannabinoids have a higher potency and neurotoxicity than THC.[179] This, combined with the considerable variability of synthetic cannabinoid products, both in terms of the type and quantity of substances present, means there is a higher potential for overdose than with cannabis. Different synthetic cannabinoids also have different risk profiles so generalisations become more problematic.

Compounding risks is the lack of information about what is actually contained in many of these products. The plant material that is combined with synthetic cannabinoids to create a smokable herbal mixture may be dangerous in itself: the packaging for some *'Spice'* products, for example, has an ingredient list that features a range of potentially psychoactive plants whose pharmacological or toxicological properties are not well known. Despite this, analysis of *'Spice'* has revealed that it does not in

178 For a list of countries and the synthetic cannabinoids they now classify as controlled substances, see: UNODC (2011) **Synthetic cannabinoids in herbal products**, pp.14-15. **www.unodc.org/documents/scientific/Synthetic_Cannabinoids.pdf**

179 Hermanns-Clausen, M. et al. (2013) **Acute toxicity due to the confirmed consumption of synthetic cannabinoids: clinical and laboratory findings**, Addiction, Mar, Vol.108, No.3, pp.534–544. **www.ncbi.nlm.nih.gov/pubmed/22971158**

fact contain most of its stated ingredients.[180] They may have been listed simply as a marketing ploy, to give the impression that *'Spice'* is a natural herbal product, when in fact its effects are widely understood to be due solely to the added synthetic cannabinoids, which are not reported on the label.

Prevalence of use

The relative paucity of information on synthetic cannabinoids extends to levels of use. The limited amount of survey data available, however, suggests that in most countries, particularly those in Europe, prevalence of synthetic cannabinoid use is very low. The exception is the US, where at least among young people, prevalence appears to be relatively high (although declining). The most recent US prevalence data comes from the 2014 US Monitoring the Future survey of students, with last year prevalence for 17- to 18-year-olds of 5.8% in 2014, down from 7.9% in 2013 and 11.3% in 2012.[181]

In contrast, in the UK, the British Crime Survey (for England and Wales) covering 2014/2015 found a total of 0.9% of adults (16–59) had used novel psychoactive substances (NPS) in the last year, of which 61% had used synthetic cannabinoids.[182] In Spain, a large 2012 national survey on drug use among students aged 14–18 also identified low levels of use of *'Spice'* products, with prevalence rates of 1.0% for last year use.[183]

Again, despite the current lack of research into this emerging drug market, initial indications are that most users strongly prefer natural cannabis to

180 EMCDDA (2009) **Understanding the "Spice" phenomenon.** **www.emcdda.europa.eu/publications/thematic-papers/spice**

181 EMCDDA (2016) **'Analysis: synthetic cannabinoids in Europe'** **http://www.emcdda.europa.eu/topics/pods/synthetic-cannabinoids**

182 UK Home Office (2015), '**Tables for drug misuse: Findings from the 2014 to 2015 CSEW'**, **https://www.gov.uk/government/statistics/tables-for-drug-misuse-findings-from-the-2014-to-2015-csew**

183 Spanish Observatory on Drugs (2012), **Survey on drug use among Secondary School Students in Spain 2012** (ESTUDES).

synthetic cannabinoids, with the former described as producing a more pleasant high and the latter associated with more negative effects.[184]

Regulatory response

Many synthetic cannabinoids are currently banned under domestic drug laws, and under a system of legal cannabis regulation their legal status would not automatically change. In fact, we recommend that within a legal regulatory framework to control cannabis, no new, functionally similar substance would be made available without at least a basic level of risk evaluation.

Manufacturers would be required to demonstrate that any synthetic cannabinoid products they wish to sell are low-risk, with regulators having the power to prohibit any that were shown to pose an unacceptably high risk to consumers (being lower-risk than real cannabis could be a sensible benchmark). While all penalties for the possession/use of such products would be removed, proportionate penalties (whether administrative or criminal) for unauthorised production or supply would still be enforced. When cannabis is made available through a legally regulated market, a default prohibition on the production or supply of any synthetic cannabinoid products is therefore justified.

A regulatory system of this kind has already been implemented in New Zealand, where the manufacturers of all novel psychoactive substances, not just synthetic cannabinoids, are required to demonstrate the safety of their products before they can

We recommend that with a legal regulatory framework to control cannabis, no new, functionally similar substance would be made available without at least a basic level of risk evaluation

184 Winstock, A. R. and Barratt, M.J. (2013) **Synthetic cannabis: a comparison of patterns of use and effect profile with natural cannabis in a large global sample**, Drug and Alcohol Dependence, Vol.131, No.1-2, pp.106–111.

be legally sold under strict conditions. Products deemed to pose more than a low risk will remain prohibited. The aim of such regulation is to protect users by guiding them towards safer products whose risks have been properly established.[185] The new law remains in place, but has run into political opposition and a number of technical challenges – crucially, how to establish, *"low-risk"* harm thresholds without using animal testing (which is specifically prohibited). So while New Zealand is the only country in the world with a comprehensive piece of legislation for regulating NPS for non-medical use (with certain synthetic cannabinoids seen as the most likely first candidates for consideration), currently no NPS are regulated under the system.

Although New Zealand has developed a pragmatic approach to dealing with existing synthetic cannabinoid demand and established markets, the need for such regulation will naturally diminish once cannabis has been made legally available. Demand for synthetic cannabis is already low and would only shrink further: users would have no incentive to buy imitation cannabis when they can simply purchase the real thing. Remaining challenges are likely to include use in prisons and for people on probation subject to testing (as synthetic cannabinoids are not identified by conventional tests), and for the small population of heavy users who are not interested in substituting back to cannabis.

Crucially, it is important to acknowledge the role of the the current prohibitionist legal environment in driving the emergence of synthetic cannabinoids and other NPS in the first place. Where there is demand for a particular drug or drug effect, there will also be a profit opportunity. And this opportunity ensures demand will always be met, whether legally or illegally. The frequent banning of NPS that occurs in many countries will never be effective as long as there is no means by which the pre-existing demand for drugs can be met. Without some form of legally regulated

185 New Zealand Government (2013) **New Zealand Psychoactive Substances Act.** **www.legislation.govt.nz/act/public/2013/0053/latest/DLM5042921**

drug supply, banning NPS simply results in a game of cat and mouse, whereby once a new drug is discovered and prohibited, manufacturers simply adapt and produce another substance that gets around existing legislation - or if a blanket ban is introduced the market will simply be displaced to entirely criminal control. And, as appears to be the case with synthetic cannabinoid products, the effects of these new and increasingly obscure substances are likely to be poorly understood and may in fact be more dangerous than *'traditional'*, illegal drugs.

d 'Cannabis tourism'

Challenge

- Identifying and minimising potential problems associated with cross-border trade between jurisdictions with differing regulatory approaches to cannabis

Analysis

- More traditional destination tourism related to cannabis is relatively non-problematic and can bring economic benefits for the destination
- More localised cross-border trade between jurisdictions that have legally regulated cannabis and those that maintain cannabis prohibition may present a greater problem, but is likely to be a relatively small-scale phenomenon
- Border enforcement responses are likely to be expensive, ineffective and counterproductive
- Rationing sales and/or restricting access to markets to residents only (with membership or ID-based access controls) may help moderate cross-border trade, but if overly restrictive may incentivise a parallel criminal market

Recommendations

- Cannabis tourism is a problem that can only really be addressed by legalising and regulating cannabis on both sides of a border
- In the absence of this, it is a challenge that has no obvious solution; enforcement responses will make things worse, and while localised market regulation may moderate the problem, it is unlikely to eliminate it
- Realistically, it is a problem to be tolerated and managed pragmatically. The focus should be on responding to any real social harms that emerge, rather than targeting cannabis users through punitive enforcement measures
- For the most part, this is likely to remain a marginal and localised problem and should not be overstated in the policy debate

The potential problem of *'drug tourism'* is often raised by opponents of cannabis regulation, frequently implying that post-reform, legions of cannabis users from other jurisdictions will descend on any newly legalised market, bringing an array of social problems with them. This proposition is generally ill-defined, and often heavy with misplaced hyperbole that taps into a rather unpleasant streak of prejudice against people who use drugs, foreigners, youths and *'otherness'* more generally. However, experiences with some pioneering cannabis regulation models (most obviously in the Netherlands), as well as experiences with alcohol and tobacco, demonstrate that there is potential for real problems to emerge when jurisdictions that share borders adopt different regulatory approaches to drug markets, particularly when this difference is as stark as legal vs. prohibited.

When thinking about this problem, it is first important to try and put the likely scale of the potential challenges in perspective. Cannabis is already cheaply and easily available in most jurisdictions via the illegal market. In this context, relatively few cannabis users would expend significant

resources travelling to neighbouring jurisdictions, let alone travelling further afield, just to buy or consume cannabis. Of those who would do so, experience from the Netherlands suggests they are comprised of two fairly distinct groups, associated with quite different challenges.

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The first are those who are drawn to the Netherlands' cannabis coffee shops, primarily in Amsterdam. For this group, it is not the access to cannabis *per se* that is the attraction, they will mostly be existing cannabis users and have access to the drug at home, but the novelty and exoticism of the coffee shops themselves (for those who have never experienced a range of cannabis products legally available in a licensed venue), specifically in the context of a vibrant and beautiful European capital. Surveys suggest that roughly 1 in 3 visitors to Amsterdam visit a coffee shop during their stay, and approximately 1 in 6 visit the city specifically because of the coffee shops.[186] The question then is what are the costs and benefits of this *'cannabis tourism'*?

The main cost is the potential for social nuisance. However, among such visitors problems are marginal, with issues that do arise largely confined to a relatively contained and manageable area in and around the city's red light district. In fact, most problems are related to alcohol rather than cannabis consumption. Cannabis users are rarely violent, and these *'cannabis tourists'*, if they can really be called that, are only temporary visitors, staying for a few days at most.

186 Amsterdam Tourism and Convention Board (2012) **Amsterdam Visitors Survey 2012.** http://www.iamsterdam.com/ebooks/ATCB_Amsterdam_Bezoekersonderzoek__2012/magazine.html#/spreadview/0/

The obvious benefit from such tourism is increased revenue, not just for the cannabis coffee shops, but for the hotels, shops, restaurants, and other businesses that make up the local tourist economy. This benefit is a substantial one, and it explains why the authorities in Amsterdam have resisted the imposition of the residents-only *'wietpas'* scheme (see below). For them, cannabis tourism is not a problem, it is a net benefit. A comparison can easily be made with similar forms of legal *'drug tourism'*, such as tours of Amsterdam's famous Heineken beer factory, Scottish whisky distilleries or vineyards in France or the Napa Valley. Indeed, tourist boards routinely promote cities on the basis of their drinking establishments. Here again, it is not the drug itself that is the primary draw (people can buy Heineken or Californian wines in their local supermarket, just as coffee shop tourists can buy cannabis on their local street corner) but the cultural environment.

The second, and potentially more problematic, form of cannabis tourists are those who cross borders between prohibitionist and legalised cannabis jurisdictions for the sole purpose of procuring the drug. The Netherlands again provides a useful example of this phenomenon, with buyers visiting from neighbouring countries (mostly Belgium, Germany, and France) simply to buy cannabis from the coffee shops and then return home. This process has been facilitated by the nature of the European Union, which has meant that border controls are either largely tokenistic or non-existent.

The scale of this problem again needs to be put into perspective. The advantage of being able to buy cannabis from a Dutch coffee shop rather from a local illegal market in Belgium or Germany has its limits: people will only be willing to travel so far, especially given the restrictions on sales (5 grams) from any one retailer. The phenomenon is therefore largely contained to those Dutch cities with coffee shops near the border, such as Maastricht, and the area foreign tourists come from does not stretch far into mainland Europe.

The problems created for these cities should also not be overstated. In some cases, complaints have been quite parochial, such as a lack of city centre parking due to a high number of coffee shop visitors. There have also been issues with some aggressive unlicensed dealers who, spotting a market opportunity, have gravitated towards these locations in order to sell to cross-border visitors outside the constraints of the coffee shop system, for example, on the lay-bys of major roads between the border and coffee shops in the destination cities. Despite the money that such visitors contribute to the economy via coffee shop sales, the fact that they mostly purchase cannabis and then leave, reduces local economic benefits (relative to the more conventional tourists who visit Amsterdam's coffee shops, for example).

As a response to this problem, the Dutch government has introduced the *'wietpas'* scheme, which requires that access to coffee shops be restricted to residents of the Netherlands. Not all municipalities with coffee shops have implemented this policy, indeed, Amsterdam has chosen not to. Where the scheme has been implemented, and even where total number of visitors seeking to buy cannabis is reported to have fallen, there have been dramatically increased problems with social nuisance relating to the street dealers who have moved in to sell to visitors no longer allowed access to the coffee shops. Clearly, part of the problem with the wietpas, aside from the overtly political dimension of the decision-making process, is that it was an attempt to reverse-engineer a *'solution'* into an already well-established market. Rather than eliminating the market, it has largely displaced it from licensed and taxed premises to illicit street markets.

The town of Venlo, in the south of the Netherlands, made the decision to move some coffee shops closer to the border, situating them in a less residential area. This significantly reduced levels of social nuisance caused by drug tourists. Maastricht has had plans to do the same, while in some neighbourhoods in Amsterdam, coffee shops employ street-based staff to minimise public disturbance.

By contrast, Uruguay's model of cannabis regulation is unlikely to allow such problems to emerge. For example, by enforcing a residents-only restriction on cannabis sales from the outset, there will be no expectation from cross-border visitors that they will have access to the new legal market. In addition, a system of rationed availability via licensed pharmacies is much more functional and intrinsically less attractive to potential visitors than the Dutch coffee shop system.

The extent of issues relating to Washington, Colorado, and other US legalisation states and cannabis tourism from other states, remains to be seen, but may be more of a challenge. Not only are there greater near-border populations to contend with, and relatively few border controls, but non-residents are allowed access to markets which are also far more sophisticated in terms of available products. That said, in Colorado, sales to non-residents were initially limited to a lower volume than for residents. However, it is notable that in 2016 this allowance was equalised at one ounce per transaction for both residents and non-residents.

Similar problems have long been witnessed at borders between jurisdictions that maintain alcohol prohibition and those that do not, and the reality is that relatively little can be done to reduce them. The cost-benefit analysis of instructing border customs officials to use increasingly heavy-handed enforcement responses looks no better than with enforcement responses to drug markets historically. It would be expensive, interdiction is likely to be marginal at best, and there would be various negative impacts, above all a counterproductive expansion in the criminalisation of small-time users and buyers. In the context of US state or internal EU borders, it would also potentially represent a dramatic change in the nature of what are currently very open borders, with wider cultural and economic impacts.

Rationing sales to small-scale purchases for personal use may serve to moderate the problem, and residents-only or membership club-based sales could also help if put in place from the outset. But caution is needed

with these options: any model that restricts legal-market access in too arbitrary a fashion is likely to lead to parallel illegal markets emerging to fill the void, with all the attendant negative consequences that would involve.

In conclusion, this is a relatively marginal problem, but one that is inevitable while cannabis prohibition continues in some jurisdictions. The obvious solution, for once a genuine *'silver bullet'*, is of course to legalise and regulate on both sides of the border. Until this happens, a degree of pragmatic tolerance combined with cross-border coordination and intelligent regulation of emerging markets will help moderate any problems.

e) Cannabis and the UN drug conventions

Challenge

- Addressing the political and procedural dilemmas in reforming the outdated, inflexible and counterproductive international drug control system to make it *'fit for purpose'*
- Weighing up the pros and cons of different courses of action in the context of each jurisdiction's domestic and geopolitical priorities
- Designing a new international system rooted in the core UN principles of security, development and human rights that is flexible enough to allow for national innovation; capable of regulating international trade and business interests to ensure safety, protection of minors, labour rights and other concerns; and able to balance national concerns and priorities with responsibilities to neighbouring countries
- Negotiating a highly differentiated political landscape in which some members of the international community remain committed to punitive prohibitions, while others are keen to explore alternative regulatory models

- If taking unilateral or collective action to reform cannabis laws at a national level in advance of reforms to the international framework; identifying the potential political risks (and how to mitigate them), and the necessary careful legal analysis, clarity and transparency of goals and justifications that will be required

Analysis

- The history of international cannabis controls is a story of the drug's ill-considered inclusion in the international drug control system at the beginning of the last century. This was driven by a range of political agendas tangential or entirely unrelated to a proper understanding of the drug and its use. As a result, many countries that, at the time, were experiencing no issues relating to cannabis approved the system from a position of limited experience or information
- There is now an urgent need for evidence-based reform of the international cannabis control system, in order to reflect current realities. Specifically: the long-term counterproductive failure of prohibitionist policy models, expanding global cannabis markets, and the emergence of actual or *de facto* market regulation models in a growing number of national and sub-national jurisdictions
- There will remain a need for an international control system to oversee trade and legal issues as they emerge in a post-prohibition environment. Reform of the international system is needed to allow flexibility for States, or groups of States, to explore regulation models
- There are various formal mechanisms by which the drug control treaties can be reformed: they can be formally modified, amended, or terminated; they can fall into irrelevance and disuse; and/or can be superseded by new treaties
- Cannabis reforms and further-reaching system-wide reforms will need to be driven by a group or groups of like-minded States collectively pressing for change, the Organization of American States *'Pathways'* scenario provides one realistic template of how this may play out

- Action by national and sub-national jurisdictions is already challenging the system and driving the debate on reform at the multilateral level
- If States wish to move beyond the *'soft defections'* – such as decriminalising possession (and potentially home growing and cannabis social clubs) – which are allowable under the treaties, there are a range of mechanisms through which reforms to the treaty framework can occur:
    - Amendments to the treaties are allowed but generally require a consensus – creating an effective power of veto on the necessary reforms for prohibitionist member states
    - The treaties can also be modified; following a recommendation from the WHO, individual substances can be rescheduled (or removed from the treaties altogether) by vote at the Commission on Narcotic Drugs
    - Treaty law also allows for groups of states to modify a treaty between themselves – with states not party to the group modification remaining bound by the original treaty obligations. Such *inter se* treaty modification is an under-explored option, but one that offers a potential way forward for a grouping of like-minded reform states unable to find a broader consensus
- For individual states, the simplest option from a legal perspective is to withdraw from the treaties – but this would likely incur significant political costs, and could also be seen as undermining the wider treaty system
- An alternative approach is to withdraw and immediately re-accede with a reservation on the specific articles that mandate cannabis prohibition. Many states have reservations on articles within the drug treaties, and there is a specific precedent for this with Bolivia's recent denunciation and re-accession with a reservation on traditional use of coca
- The challenges of these options may lead States to decide to proceed with domestic reforms in a situation of treaty non-compliance; as has been the case with the US, Uruguay and Canada – raising a set of new challenges on how to resolve the tensions such a move creates

- While open non-compliance with international legal obligations is undesirable, the system is not served by dogmatic adherence to dysfunctional laws; respect for the rule of law demands that harmful and ineffective laws are challenged

Recommendations

- States that are considering a legally regulated system for cannabis will need to weigh up legal and political pros and cons of different options in the context of their own domestic and geopolitical priorities. The political landscape of this debate is shifting rapidly
- States should make efforts to promote a high level dialogue on how to resolve the tensions that are emerging between the need for reform, and obligations under an outdated and malfunctioning treaty regime; supporting the creation of an expert advisory group, persuing formal treaty reform mechanisms (which will stimulate dialogue even if unsuccessful), and engaging in informal dialogues with like-minded states
- Unilateral domestic reforms, or reforms between groups of States are encouraged, but should run in parallel with multilateral dialogue and reform processes; this demonstrates a clear desire to resolve emerging challenges
- If reforms move a State into a situation on temporary non-compliance – the challenges raised should be minimised by:
    - Acknowledging temporary *'principled non-compliance'* and providing reasoning for doing so, rooted in the health and welfare of citizens, and wider UN Charter commitments
    - Avoiding sidestepping or denial of non-compliance by offering implausible legal justifications
    - Actively promoting multilateral debate and reform efforts in parallel with any domestic reforms
    - Establishing a cannabis regulation model that clearly establishes public health and wellbeing as a central goal, operates under a

national agency, and minimizes negative impacts for neighbouring States
    - Ensuring a framework for comprehensive monitoring and evaluation with regular reporting to national legislatures and relevant UN agencies and stakeholders
- All reform efforts and high level dialogue will be facilitated by collective action of like-minded reform States, working in coordination rather than isolation

Introduction

The international drug control system, in the form of the three UN drug conventions (1961,1971, and 1988), presents a challenge to any jurisdiction seeking to explore regulated cannabis markets. The conventions represent a long-established consensus which very specifically prohibits the regulation of cannabis markets for anything other than medical and scientific purposes.

As developments in cannabis policy have progressively weakened this consensus (with recent legalisation moves in Uruguay, Canada and the US representing a decisive break), the question of how individual States should meet the challenge the treaties represent has come to the fore. This section lays out the key options for multilateral reforms of the treaties, and the options for unilateral action by individual States, or collective action between groups of States. Challenges to the underlying prohibitionist tenets of the drug treaties are a relatively new phenomenon. As a result, there remain significant uncertainties around the legal technicalities and political repercussions of some courses of action. Any jurisdiction, or grouping of jurisdictions, approaching this issue will need to weigh up the pros and cons of different courses of action in the context of their own domestic and geopolitical priorities.

An obvious tension exists between, on the one hand, respect for international law and the preservation of a wider treaty system built on consensus, and, on the other, the need to challenge a failed legal structure in ways that inevitably undermine consensus. There is no easy answer to this, and change will inevitably involve political and diplomatic wrangles that most would wish to avoid. However, a growing number of jurisdictions have weighed up the costs of prohibition against the benefits of legal regulation, and are willing to endure the political costs (albeit costs that are reducing rapidly) involved in shifting policy approaches.

It is important to stress that no laws are written in stone, and all treaties contain mechanisms for their reform. Indeed, the ability to reform laws is key to maintaining their viability, relevance and effectiveness. A process of reforming the international drug control system to allow greater flexibility for jurisdictions to explore alternatives to prohibition, is essential if the system is to survive and become *'fit for purpose'* in the future.

Background to international cannabis controls

The history of how cannabis came to be included in the international drug control system has important implications for how policy will develop in the future.[187] At the turn of the last century patterns of cannabis use bore little resemblance to the global ubiquity of the drug today and correspondingly, knowledge about and concern with cannabis as a policy issue was highly localised. More pressing issues about how to address emerging markets in opiate and cocaine-based products dominated international debate (soon to be formalised within the League of Nations, the forerunner to the United Nations). Cannabis was drawn into these discussions at the 1912 Hague International Opium Convention only due to pressure from a small number of countries with concerns relating to North African cannabis markets, chief among them being Egypt.

187 See **Further reading**, p.**233.**

While this initial effort did not result in cannabis being brought under international controls, the issue was raised again at the second International Opium Convention of 1924 in Geneva, at the urgings of South Africa, which had prohibited cannabis (or *'dagga'*) among Indian immigrants in the 1870s, extending the prohibition nationally in 1922.

During this period there were, in fact, a variety of policy responses to cannabis across the world. These included early experiments with prohibitions in and around Egypt,[188] as well as early efforts to regulate legal markets in India, Morocco and Tunisia. Related to the Indian experience, there had also been a remarkably detailed and nuanced policy analysis in the form of the seven-volume, 3,281-page **Indian Hemp Drugs Commission Report** of 1895, commissioned by the UK Parliament. It is striking how closely many of the Commission's recommendations, even though written 118 years ago, echo the rationale espoused in this book:

1 *Total prohibition of the cultivation of the hemp plant for narcotics, and of the manufacture, sale, or use of the drugs derived from it, is neither necessary nor expedient in consideration of their ascertained effects, of the prevalence of the habit of using them, of the social and religious feeling on the subject, and of the possibility of its driving the consumers to have recourse to other stimulants or narcotics which may be more deleterious*

2 *The policy advocated is one of control and restriction, aimed at suppressing the excessive use and restraining the moderate use within due limits*

3 *The means to be adopted for the attainment of these objects are :*
   - *a adequate taxation*
   - *b prohibiting cultivation, except under license, and centralizing cultivation*
   - *c limiting the number of shops*

188 Perhaps the first punitive cannabis prohibition was a penalty of three months' imprisonment imposed by Napoleon on his soldiers in 1800, following his invasion of Egypt, fearful that it would provoke a loss of fighting spirit. The cultivation, importation and use of 'hashish' was prohibited in Egypt in 1868, and in some near neighbours, including Greece in 1890, that also had higher levels of use.

> *d limiting the extent of legal possession... the limit of legal possession [of Ganja and charas] or any preparation or admixture there of [would be] 5 tolas (approximately 60 grams), Bhang, or any preparation or admixture thereof, one quarter of a ser (a quarter of a litre)*[189]

The careful analysis of the Indian Hemp Commission, however, did not feature in the deliberations of the 1924 Geneva Opium Convention, remaining unmentioned even by the UK representative. Discussions were instead driven by a hard-line Egyptian delegate who asserted that cannabis was *"at least as harmful as opium, if not more so"*, and that *"the proportion of cases of insanity [in Egypt] caused by the use of hashish varies from 30 to 60%"*. If it were not included on the list of controlled drugs alongside opium and cocaine it would, he stated, *"become a terrible menace to the whole world"*.[190] His heated rhetoric caused a stir among other delegates with little or no domestic knowledge of the drug. While the Egyptian push for a total prohibition was prevented (notably due to the efforts of the UK, the Netherlands, and India) the first international cannabis controls (a prohibition of exports to countries where it was illegal) were ultimately included in the 1925 International Opium Convention.

Cannabis had also increasingly become an issue in the US during the 1920s, closely associated with hostile attitudes to Mexican immigrant labour and their use of *'marijuana'*. This simmering xenophobia combined with the prohibitionist/temperance sentiments of the time fuelled pressure for moves towards first state-level, then federal and international prohibitions in 1937 and 1961 respectively. The political destiny of international cannabis controls was effectively guaranteed when the US fully entered the fray in the mid-1930s, decisively wielding its global superpower might to ensure its desired prohibitionist outcome. The political approach adopted by the central figure of Harry J. Anslinger,

189 *'Ganja'* is a term used for cannabis, *'charas'* is a type of cannabis resin, and lower-potency *'bhang'* is a preparation of the cannabis leaves and flowering tops, often consumed in a beverage.

190 UNODC (2009) **A century of international drug control** pp.54–55. **www.unodc.org/documents/data-and-analysis/Studies/100_Years_of_Drug_Control.pdf**

who headed the newly founded Federal Bureau of Narcotics from 1930 until 1962, is reflected in the language he often publicly adopted, even more extreme than his Egyptian *'reefer madness'* forbears. In testimony to the House of Representatives in 1937 he stated that:

"Most marijuana smokers are Negroes, Hispanics, jazz musicians and entertainers. Their satanic music is driven by marijuana, and marijuana smoking by white women makes them want to seek sexual relations with Negroes, entertainers and others. It is a drug that causes insanity, criminality, and death — the most violence-causing drug in the history of mankind."[191]

After World War II, the US, under Anslinger's guidance, consolidated its hegemonic grip on the emerging international drug control framework under the new United Nations, and during the 1950s a new *'single convention'* to consolidate the, now numerous, international drug control agreements began to take shape. These dynamics were strongly shaped by the hyperbolic narratives of cannabis's role in fuelling crime, violence and insanity, promoted by Anslinger and key allies, including the influential Secretary of the WHO Expert Committee on Drugs Liable to Produce Addiction, Pablo Osvaldo Wolff. Wolff's writings were long on hyperbole and short on evidence. Cannabis, according to one Wolff pamphlet, *"changes thousands of persons into nothing more than human scum"*, hence: *"this vice should be suppressed at any cost"*. Cannabis was labelled *"weed of the brutal crime and of the burning hell"*, and an *"exterminating demon which is now attacking our country"*.[192]

Other voices challenging some of this anti-cannabis rhetoric did emerge, notably the *'La Guardia'* report of 1944[193] (to which, in

191 Quoted in: Gerber, R. (2004) **Legalizing Marijuana : Drug Policy Reform and Prohibition Politics**, Greenwood Press, p.9.

192 Goode, E. (1970) **The Marijuana Smokers**, pp.231–32, Basic Books **www.drugtext.org/The-Marijuana-Smokers/chapter-9-marijuana-crime-and-violence.html**

193 LaGuardia, F. (1944) **The La Guardia Committee Report**, New York: USA. Summary here: **www.drugtext.org/Table/LaGuardia-Committee-Report/ Full text here: http://hempshare.org/wp-content/uploads/2012/12/laguardia.pdf**

fact, the Wolff pamphlet quoted above was a response). This report was commissioned by the Mayor of New York, Fiorello La Guardia, to provide an impartial scientific review of the city's cannabis use, particularly among its black and Hispanic populations. It was the result of five years, study by an interdisciplinary committee comprised of physicians, sociologists, psychiatrists, pharmacists and city health officials. It challenged many of the prevailing narratives around cannabis and addiction, crime and violence stating that:

"There [is] no direct relationship between the commission of crimes of violence and marihuana...marihuana itself has no specific stimulant effect in regards to sexual desires"

and that:

"The use of marihuana does not lead to morphine or cocaine or heroin addiction."

But the science and pragmatism of voices such as the Indian Hemp Commission and the La Guardia report, built on more objective evidence-based analysis, was progressively overwhelmed and marginalised by the political ideologies and agendas of the US and others. Ultimately this led to the prohibitionist grouping winning the inclusion of cannabis alongside heroin and cocaine in the 1961 UN Single Convention. Cannabis was deemed to have no medical value, and placed in the strictest schedule IV, which requires signatories to *"prohibit the production, manufacture, export and import of, trade in, possession of or use of any such drug except for amounts which may be necessary for medical or scientific research only"*.

Remarkably, the WHO Expert Committee on Drug Dependence (ECDD), the body charged by the 1961 and 1971 Conventions with the scientific

and medical review of scheduling proposals,[194] has *never* engaged in a formal review of cannabis' place within the Convention. As the Committee itself noted in 2014, *"Cannabis and cannabis resin has not been scientifically reviewed by the Expert Committee since the review by the Health Committee of the League of Nations in 1935."*[195]

United Nations building in Vienna – home of the UNODC
Steve Rolles

Lessons and ways forward

An important observation in this process is that the vast majority of signatories to this convention knew little of cannabis use or policy during the decades when the prohibitionist framework was formulated. States either accepted the narrative supplied by those pushing for an absolute ban, or declined to spend political capital pushing back against this outcome on an issue that was, at that time, a marginal concern at most. There was some limited dissent (notably from India regarding lower-

194 See C. Hallam, D. Bewley-Taylor & M. Jelsma, M., **Scheduling in the International Drug Control System**, Transnational Institute-International Drug Policy Consortium, Series on Legislative Reform of Drug Policies, No. 25, June 2014, **https://www.tni.org/files/download/dlr25_0.pdf.**

195 **Cannabis and cannabis resin: Information Document**, WHO Expert Committee on Drug Dependence, 36th Meeting, Geneva, 16-20 June 2014. Also see E. Danenberg, L.A. Sorge, W. Wieniawski, S. Elliott, L. Amato, and W.K. Scholten, **'Modernizing methodology for the WHO assessment of substances for the international drug control conventions'**, Drug and Alcohol Dependence, 2013, 131 (3): 175-181; available at **http://dx.doi.org/10.1016/j. drugalcdep.2013.02.032.**

potency *'bhang'* cannabis preparations), but it only served as a minor moderating influence on some details.[196]

It is also important to remember that the political dynamics that resulted in a total global prohibition on cannabis were not only playing out almost entirely behind closed doors, but also in a period of time between 50 and 100 years ago, in which the social, political and cultural landscape bore almost no resemblance to the world we live in today. Cannabis use has increased dramatically since this time, the UNODC estimates, probably conservatively, that as many as 180 million people use it worldwide,[197] including in many parts of the world where little or no cannabis use existed in 1961.

The long-term failure of cannabis prohibition to achieve its stated goal of eradicating the drug, combined with the serious and growing *'unintended'* negative consequences[198] that have resulted from the attempt to do so, mean that today, ignorance can no longer provide an excuse for failure to explore alternatives to prohibition. There is an urgent need for the international drug control framework more broadly to be reformed, and its legal instruments renegotiated, to make it *'fit for purpose'*. As even the head of the UNODC has conceded:

"There is indeed a spirit of reform in the air, to make the [UN drug] conventions fit for purpose and adapt them to a reality on the ground that is considerably different from the time they were drafted."[199]

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196 Interestingly, the 'bhang' issue led to the leaves and seeds of the cannabis plant being left out of the 1961 convention, which only makes reference to the flowering tops (or buds as they would more commonly be referred to now). This raises the possibility, albeit a somewhat impractical one, that other countries could in theory legally produce, sell and consume cannabis products which are derived from the leaves, if the flowering tops were disposed of.

197 UNODC (2013) **2013 World Drug Report**. **http://www.unodc.org/unodc/secured/wdr/wdr2013/World_Drug_Report_2013.pdf**

198 Rolles, S. et al. (2012) **The Alternative World Drug Report, the Count the Costs Initiative. http://countthecosts.org/sites/default/files/AWDR.pdf**

199 Costa, A. (2008) **Making drug control "fit for purpose": Building on the UNGASS decade**, UNODC. **www.unodc.org/documents/commissions/CND-Session51/CND-UNGASS-CRPs/ECN72008CRP17.pdf**

Reforms to allow experiments with models of legal market regulation are likely to be the driver of such a renegotiation, but it is important to be clear that cannabis reforms do not operate in isolation. In fact, they are likely to be the challenge to the system that precipitates a wider structural reorientation in how drug markets in different societies are managed at an international level. The challenge is to reform the international drug control infrastructure to remove barriers to individual or groups of States exploring regulation models for some currently illicit drugs, without destroying the entire edifice, much of which is unquestionably beneficial. For example, regulation of the international pharmaceutical trade is vitally important, and has obvious implications for cannabis-based medicines in the future. Furthermore, the consensus and shared purpose behind the need to address the problems associated with drug misuse that the conventions represent also holds great potential for developing and implementing more effective responses at an international level, guided by the principles and norms of the UN. (See Institutions for regulating cannabis markets, p169.)

Dissatisfaction with the implications of cannabis' status within the treaty system is not a new phenomenon. Numerous national and sub-national jurisdictions have, right from the outset, questioned and increasingly moved away from the punitive prohibitions on cannabis encouraged by the Conventions. This has manifested in successive waves of what might be regarded as *'soft defection',* whereby authorities tried to remain within the flexibility afforded by the treaty framework,[200] but deviate from the prohibitive norm at the heart of the regime.

As early as the 1970s, and despite President Richard Nixon's initiation of a *"war on drugs",* a number of U.S. states formally decriminalised cannabis possession for personal use. At around the same time, Dutch authorities

200 For a discussion of flexibility within the drug control treaties see D. Bewley-Taylor and M. Jelsma, **The UN Drug Control Conventions: The Limits of Latitude**, Series on Legislative Reform of Drug Policies, No. 18, March 2012.**https://www.tni.org/files/download/dlr18.pdf**, and D. R. Bewley-Taylor, (2012) **International Drug Control: Consensus Fractured**. Cambridge University Press

re-evaluated cannabis policies, leading to the development of the current cannabis *'coffee shop'* system. The International Narcotics Control Board (INCB, the *"independent, quasi-judicial expert body"* overseeing implementation of the treaties) has long criticized the Dutch model as falling outside the bounds of the Conventions (although without providing the detailed legal reasoning behind that criticism).[201]

A second wave of reforms — which has been referred to as a *"quiet revolution"* of decriminalisation — has occurred more recently in multiple Latin American and European countries and within Australian states and territories.[202] The cannabis social clubs movement in Spain has since pushed the limits of what is tolerated under a decriminalisation model further towards *de facto* legal production and supply (see p.65).[203]

In addition, a range of medical cannabis systems has emerged in many parts of the world, notably in more than 20 U.S. states. These systems have often been the focus of INCB criticism. While the INCB is on firm ground regarding its criticisms related to the 1961 Single Convention's requirements to establish national-level agencies in charge of medical cannabis, the INCB exceeds its mandate when questioning the medical usefulness of the substance.

Tensions also exist in relation to the traditional and religious use of cannabis. Acknowledging the challenges of eradicating the culturally and religiously ingrained use of cannabis within many societies, the Single Convention included a transitional reservation, allowing signatories to abandon such use gradually within 25 years of the Convention coming

201 See **www.incb.org/incb/en/about.html**. On the INCB's position on the Dutch 'coffeeshops' and cannabis policies more generally, and see D. Bewley-Taylor, T. Blickman and M. Jelsma, **The Rise and Decline of Cannabis Prohibition. The History of Cannabis in the UN Drug Control System and Options for Reform**, Transnational Institute: Amsterdam/Global Drug Policy Observatory: Swansea, March 2014, pp. 32-42.

202 Eastwood, N., Fox, E., and Rosmarin, A. and Eastwood, N. (20163) **A quiet revolution: drug decriminalisation in practice across the globe**, Release. **www.release.org.uk/sites/default/files/pdf/publications/A%20Quiet%20Revolution%20-%20Decriminalisation%20Across%20the%20Globe.pdf**

203 Murkin, G., **Cannabis social clubs in Spain: legalisation without commercialisation**, 2015 **http://www.tdpf.org.uk/blog/cannabis-social-clubs-spain-legalisation-without-commercialisation**

into force.[204] With this deadline having quietly passed in 1989, it is clear that, unlike the more formalized policy shifts mentioned above, many countries — particularly in the *"global south"* — are choosing to *"turn a blind eye"* to the cultivation and use prohibited under the Conventions.[205] Furthermore, within the context of a greater appreciation of indigenous and religious rights, some countries, such as Jamaica, are finding themselves in an increasingly difficult position vis-à-vis the relationship between national legal instruments, the international drug control conventions, and other UN treaties on human and indigenous rights.[206]

Meanwhile at the multilateral level, recent sessions of the Commission on Narcotic Drugs (CND)— the UN's central policy making body on drug issues — have seen some Member States, including Argentina, the Czech Republic, Ecuador, and Mexico, call openly for a re-evaluation of some aspects of the current treaty framework.[207]

The tensions around cannabis within the treaty framework have come most dramatically to the fore in the Americas, with recent passage of laws that explicitly legalise and regulate cannabis for non-medical, non-scientific uses, a policy that is expressly forbidden by the UN drug treaties. The successful ballot initiatives in 2012 in the U.S. states of Colorado and Washington to establish legally taxed and regulated cannabis markets

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204 Article 49, Single Convention on Narcotic Drugs, 1961; India, Nepal, Pakistan, and later Bangladesh made use of that transitional exemption with regard to cannabis.

205 See for example the situation in Morocco. D. Bewley-Taylor, T. Blickman and M. Jelsma, **The Rise and Decline of Cannabis Prohibition: The History of Cannabis in the UN Drug Control System and Options for Reform**, TNI/GDPO, March 2014, pp. 12-13. Also of note in this regard is India. Beyond the use of *'bhang'* (cannabis leaves) that is permitted within the Single Convention, there remains widespread cultivation and use of cannabis within many parts of the country. See R. Bhattacharji, **View from the Ground: Heading for the Hills; Cannabis in Malana, http://gdpo.swan.ac.uk/?p=365.**

206 For example, in a September 2015 report prepared as contribution to the 2016 UNGASS, the UN High Commissioner for Human Rights noted that: *"Indigenous peoples have a right to follow their traditional, cultural and religious practices. Where drug use is part of these practices, the right of use for such narrowly defined purposes should in principle be protected, subject to limitations provided for in human rights law."* **www.unodc.org/documents/ungass2016//Contributions/UN/OHCHR/A_HRC_30_65_E.pdf.**

207 See, for example, International Drug Policy Consortium, **The 2015 Commission on Narcotic Drugs and its Special Segment on Preparations for the United Nations General Assembly Special Session on the World Drug Problem: Report of Proceedings**, May 2015, **https://www.tni.org/files/publication-downloads/cnd-proceedings-report-2015.pdf.**

have been followed by initiatives in Alaska and Oregon. Other states, including California — the world's seventh largest economy — are likely to follow imminently.

At the national level, in December 2013, Uruguay became the first country in the world to legally regulate its cannabis market, with the passage of Law 19 granting the government control over the import, export, cultivation, production, and sale of cannabis through the newly established Institute for the Regulation and Control of Cannabis (Instituto de Regulación y Control del Cannabis, IRCCA).[208] Even more recently, Canada's new government was elected in 2015 pledging to legalize and regulate cannabis for non-medical, non-scientific use, and announced at the 2016 UN General Assembly Special Session (UNGASS) on drugs, that it will introduce legislation in Spring 2017. And, with varying levels of political support, legislative proposals for cannabis regulation are also under consideration in Guatemala, Italy, Mexico, and Morocco.

Clearly, tensions in the treaty regime around cannabis are long-standing and growing. The international community, including the UN drug control bureaucracy, has been well aware of these tensions for some time. Indeed, in a 2008 report, *"Making Drug Control Fit for Purpose,"* the Executive Director of the UN Office on Drugs and Crime (UNODC) wrote that *"Cannabis is the most vulnerable point in the whole multilateral edifice. In the Single Convention, it is supposed to be controlled with the same degree of severity as cocaine and the opiates. In practice, this is seldom the case, and many countries vacillate in the degree of control they exercise over cannabis."*[209]

Since then, *"soft defections"* with regard to cannabis policy have given way to direct breaches of the Conventions' ban on cannabis for non-medical

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208 For a description of Uruguay's cannabis regulation law, including its passage, contents, objectives, and challenges, see Walsh, J., and Ramsey, G.,(2016) **"Cannabis Regulation in Uruguay: Major Innovatives, Major Challenges"** Brookings **https://www.brookings.edu/wp-content/uploads/2016/07/Walsh-Uruguay-final.pdf**

209 Costa, A. (2008) **Making drug control "fit for purpose": Building on the UNGASS decade**, UNODC. **www.unodc.org/documents/commissions/CND-Session51/CND-UNGASS-CRPs/ECN72008CRP17.pdf**

or non-scientific purposes. As more jurisdictions appear likely to enact reforms to legalise and regulate cannabis, these treaty tensions have become the *"elephant in the room"* in key high level forums, including the 2016 UNGASS on drugs — obviously present, but studiously ignored in the official discourse (albeit not in informal discussions).

Different countries and international agencies have different reasons for seeking to avoid directly engaging the question of what to do about these tensions. But the kinds of treaty breaches that may have seemed merely hypothetical only a few years ago are already a reality today, and will not simply disappear. Governments and the UN system should give serious consideration to options for managing these policy shifts in ways that can help to modernize the drug treaty regime itself, and to thereby reinforce the UN pillars of human rights, development, peace and security, and the rule of law.

Options for change

A difficult dilemma has thus entered the international drug policy arena. There is no doubt that recent policy developments with regard to cannabis regulation have moved beyond the legal latitude of the treaties. But initiating a formal procedure to review or amend the current treaty framework, however, would immediately trigger an avalanche of political frictions with some of the most powerful countries in the world. Indeed, even as many governments continue to tout the supposed global consensus on drug policy, officials are quite aware of the significant and growing policy differences among drug treaty Member States; to the extent that a truly global consensus ever existed, it is now fractured, and there is no new consensus to take its place.

Under such conditions, it is not difficult to understand why many countries would prefer to avoid or delay confronting the treaty questions raised by cannabis regulation. Indeed, such concerns go far in explaining the attraction of the legally fallacious — but politically potent — stance

that the drug treaties as they stand are flexible enough to accommodate the regulation of cannabis markets for non-medical use.

Different countries have different reasons for finding appeal in the notion of treaty flexibility. During the March 2016 negotiations in Vienna of the UNGASS Outcome Document, different strands of support for the idea of flexibility converged around language declaring that new challenges *"should be addressed in conformity with the three international drug control conventions, which allow for* ***sufficient flexibility*** *for States parties to design and implement national drug policies according to their priorities and needs…"* (Emphasis added).[210] The same language was able to serve different, even contradictory, purposes.

The wording of *"sufficient flexibility"* originates from the European Union (EU) common position on the UNGASS, where it was accompanied by the EU's commitment to *"maintain a strong and unequivocal commitment to the UN conventions."* For the EU then, flexibility applies to policies such as harm reduction, decriminalisation of possession and cultivation of cannabis for personal use, and alternatives to incarceration, but certainly not to cannabis regulation, which the EU considers as falling outside the scope of policy options allowed under the treaties.

However, for governments for whom it would be politically convenient to maintain that cannabis regulation fits within the boundaries of the Conventions — especially the United States — *"sufficient flexibility"* could be read as covering cannabis regulation. During the negotiations, that paragraph also received support from countries at the other end of the policy spectrum, including Russia and China. After all, they argued, the Single Convention also says that *"a Party shall not be, or be deemed to be, precluded from adopting measures of control more strict or severe than those provided by this Convention"* (article 39); the treaties therefore provide

210 United Nations Economic and Social Council, E/CN.7/2016/L.12/Rev.1, 22 March 2016, **https://documents-dds-ny.un.org/doc/UNDOC/LTD/V16/017/77/PDF/V1601777.pdf?OpenElement.**

countries with *"sufficient flexibility"* to continue with forced treatment or the death penalty. Attempts to rein in that line of argumentation achieved only a vague reference in the paragraph that national policies need to be consistent with *"applicable international law."*

For countries like Jamaica or the Netherlands, implications of the term are very different. In those cases, where the principle of legal regulation enjoys broad political support, the fact that regulation would contravene international treaty obligations is considered an impediment for its implementation. As such, agreeing to language about *"sufficient flexibility"* amounts to taking a political stance against cannabis regulation, because, with a concern for international law, it is based on an understanding (an accurate understanding, and one shared by the INCB) that the UN drug conventions expressly disallow legal regulation.

Lest there be doubt about the INCB's views, INCB President Werner Sipp directly addressed the issue of flexibility in his keynote speech at the March 2016 session of the CND, as the UNGASS document was under negotiation. Some proponents of new laws that permit the non-medical use of cannabis, he said, *"...pretend that the flexibility of the conventions allows such regulations. In fact, the debate on flexibility is at the core of the general debate on future drug policy because it regards the possibilities and the limitations of the Conventions. Undoubtedly, there exists flexibility in the Conventions—but not in each and every respect."* For example, Sipp explained, there is *"no obligation stemming from the conventions to incarcerate drug users having committed minor offences,"* and they *"provide for flexibility in the determination of appropriate sanctions."* However, there is *"**no flexibility** in the conventions for allowing and regulating any kind of non-medical use"* (Emphasis in the original).[211]

The UNGASS document negotiators — in settling on language with such different and even contradictory meanings to different sets of

211 Statement by Mr. Werner Sipp, President, International Narcotics Control Board (INCB), **Fifty-ninth session of the Commission on Narcotic Drugs**, 14 March 2016, **http://www.incb.org/incb/en/news/speeches/2016/ungass_cnd.html.**

countries — did achieve what most countries wanted: a way to avoid opening a debate on the adequacy of the treaties themselves.

The fact remains, however, that the accelerating process of national reforms has already moved cannabis policies beyond the boundaries of what the Conventions can legally accommodate. To move the debate forward, the following discussion aims to illuminate the available options for countries to ensure that their new domestic cannabis laws and policies are aligned with their international obligations, thereby modernizing the global drug control system in ways consistent with international law and the overarching purposes of the UN system.

Mindful of the political tensions evident during the 2016 UNGASS process, it is important to emphasize that treaty reform does not necessarily require negotiating a new global consensus. This discussion therefore distinguishes four categories of reforms, acknowledging that the different options are often overlapping and not necessarily mutually exclusive:

I. Treaty reform that applies to all signatory states, requiring consensus approval;

II. Treaty reform that applies to all signatory states, requiring majority approval;

III. Treaty reform that applies to a selective group of states; and

IV. Treaty reform that applies to an individual state.

I. Treaty reform that applies to all signatory states, requiring consensus approval

Treaty Amendment

Any State party can notify the UN Secretary General of a proposed amendment, including the reasoning behind the move. The Secretary General then communicates the proposed amendment and the reasons for it to the State parties and to the Economic and Social Council (ECOSOC), which can decide to:

- Convene a Conference of all the Parties (COP) of the treaty to consider the amendment;
- Ask the Parties if they accept the amendment; or
- Take no action and wait to see whether any State party submits any objection.

In the event of no Party rejecting the amendment within 18 months (24 months for the 1988 Convention), the amendment is automatically accepted. In the case of the 1961 and 1971 Conventions, the amendment then immediately comes into force for all Parties (that is, no objections equals acceptance), while in the case of the 1988 Convention, the amendment only comes into force for those parties that *"deposited with the Secretary-General an instrument expressing its consent to be bound by that amendment"* (that is, explicit notification of acceptance is required).[212] In the event State parties register objections to a proposed amendment, ECOSOC can decide to:

- Still approve the amendment (in which case it would not be applicable to the objecting states);

212 Treaty amendments that are adopted through this procedure do not apply to parties that have registered objections in the case of the 1961 and 1971 conventions, or those that have not notified their explicit consent in the case of the 1988 Convention. 1961 Convention (as amended) Article 47; 1971 Convention Article 30; 1988 Convention, Article 31.

- Reject it (if multiple objections are raised that argue convincingly that such an amendment would compromise the object and purpose of the treaty); or
- Convene a COP to consider the amendment.

In addition, ECOSOC may also submit proposed amendments to the General Assembly for consideration.[213] Moreover, the General Assembly even has the power to discuss and adopt amendments to UN conventions by simple majority vote.

In theory, all three UN drug control conventions could be amended using these procedures. While many consider this to be a politically unlikely scenario for the foreseeable future, it is important to recall that the 1961 Single Convention was amended with the 1972 Protocol, after a COP was convened and agreed to substantial treaty changes. At that stage, the U.S. government argued that it was *"time for the international community to build on the foundation of the Single Convention, since a decade has given a better perspective of its strengths and weaknesses."*[214] Notably the latitude under the 1961 Single Convention with regard to alternatives to incarceration — which has been the focus of many recent debates — only exists due to a treaty amendment agreed in the 1972 Protocol.[215]

For historical perspective, it is also useful to recall that many decisions in the process of negotiating the drug treaties were taken by majority vote. The false perception that the UN drug control system has always relied on full consensus is a more recent construct, intended to reinforce an

213 In accordance with Article 62, paragraph 3 of the UN Charter.

214 United Nations, **"Memorandum of the United States of America Respecting its Proposed Amendments to the Single Convention on Narcotic Drugs, 1961,"** E/CONF.63/10, in United Nations Conference to Consider Amendments to the Single Convention on Narcotic Drugs, 1961 Geneva, 6–24 March 1972: Official Records, vol. 1, New York: UN, 1974, pp. 3–4.

215 Article 36 of the amended 1961 Convention reads: ***"Parties may provide, either as an alternative to conviction or punishment or in addition to conviction or punishment, that such abusers of drugs shall undergo measures of treatment, education, after-care, rehabilitation and social reintegration."*** See: D. Bewley-Taylor and Martin Jelsma, **Regime change: Re-visiting the 1961 Single Convention on Narcotic Drugs,** International Journal of Drug Policy, Volume 23, 2012, pp. 72–81.

image of universal agreement even as tensions were becoming ever more visible. Moreover, in the event that treaty amendments are approved, States can opt not to become part of the amended agreement. As the 1969 Vienna Convention on the Law of Treaties (VCLT) makes clear: *"The amending agreement does not bind any State already a party to the treaty which does not become a party to the amending agreement."* (Article 40.4). As such, States that do not wish to be bound by the treaty as amended may retain the older obligations.

Most modern treaties, including the 2000 Transnational Organized Crime Convention (UNTOC), the 2003 Convention against Corruption (UNCAC), and the 2003 WHO Framework Convention on Tobacco Control (FCTC) have an inbuilt COP mechanism that requires them to undergo periodic reviews and enables them to evolve and modernize if necessary. The international drug control treaty regime, however, with its roots predating the UN, lacks such a periodic review mechanism — which helps to explain its outdated nature and resistance to reform. The challenge of modernizing the drug control regime via a COP mechanism is further complicated by the fact that that the regime consists of three separate treaties, all of which would require amendment. A more rational course of systemic evolution could be to try and resolve the inconsistencies between the 1961 and 1971 Conventions by merging them, together with the precursor controls under the 1988 Convention, into a new Single Convention that featured:

- A structured periodic review mechanism;
- An improved scheduling procedure, striking a better balance between assuring availability of controlled substances for legitimate uses versus preventing abuse;
- A more tolerant and legally consistent approach to traditional, spiritual, and non-problematic social uses; and
- Incorporation of the other elements from the 1988 drug treaty into the subsequent treaties addressing organized crime and corruption, with which the 1988 drug treaty is already closely aligned.

Discussions on more substantive reforms of this nature have yet to occur formally, although they have been suggested in the Organization of American States' 2013 report Scenarios for the Drug Problem in the Americas.[216]

II. Treaty reform that applies to all signatory states, requiring majority approval

Rescheduling/Modification

As noted above, cannabis first entered the international drug control system under the League of Nations on dubious procedural grounds, and its current placement in schedules I and IV of the Single Convention has never been properly reviewed by the WHO Expert Committee.[217] This is in itself sufficient reason to question on procedural grounds the legitimacy of the current classification of cannabis.

The 1961 Single Convention allows for the WHO or any State party to initiate, at any time, the modification process that could reschedule a specified drug or delete it from the Conventions. The WHO is the only body mandated to make scheduling recommendations, which must subsequently be agreed by the UN Commission on Narcotic Drugs (CND). Modifying schedules does not require consensus; these are the only decisions the CND takes by vote. New substances are routinely scheduled in this way, and the treaty system is thus constantly being modified. In the case of cannabis, scheduled under the Single Convention, a rescheduling decision would be taken by a simple majority of its *"members present and voting."*[218] Delta-9-THC (the main active ingredient

216 OAS, **Scenarios for the Drug Problem in the Americas**, 2013 **http://www.oas.org/documents/eng/press/Scenarios_Report.PDF.**

217 E. Danenberg, L.A. Sorge, W. Wieniawski, S. Elliott , L. Amato, W.K. Scholten, **"Modernizing methodology for the WHO assessment of substances for the international drug control conventions,"** in Drug and Alcohol Dependence, Volume 131, Issue 3, pp. 175-181,1 August 2013, **http://dx.doi.org/10.1016/j.drugalcdep.2013.02.032.**

218 United Nations Office on Drugs and Crime, **E/CN.7/2014/10**, 2014, p. 18.

in cannabis, or dronabinol, as the pharmaceutical extract is known), is scheduled as a *'psychotropic substance'* under the 1971 Convention, where a rescheduling decision requires a two-thirds majority; in fact, dronabinol has been recommended for de-scheduling several times already.[219]

For cannabis, however, this process is further complicated by the fact that it (along with coca and opium) is also mentioned explicitly in specific articles within the 1961 and 1988 Conventions. Re-scheduling or de-scheduling cannabis may therefore not be sufficient to allow for fully regulated markets along the lines of the changes now being enacted in various jurisdictions today. Most likely, some form of amendment, modification, or reservation to those treaties would also be required.

III. Treaty reform that applies to a selective group of states

"Inter Se" treaty modification

The 1969 Vienna Convention on the Law of Treaties (VCLT) also allows for the option to modify treaties between certain parties only, offering in this context an intriguing and under-explored legal option somewhere between selective denunciation and a collective reservation (see below). According to Article 41 of the VCLT, *"Two or more of the parties to a multilateral treaty may conclude an agreement to modify the treaty as between themselves alone,"* as long as it *"does not affect the enjoyment by the other parties of their rights under the treaty or the performance of their obligations"* and it is not *"incompatible with the effective execution of the object and purpose of the treaty as a whole."*

In principle, both conditions could be met. It would require that the agreement include a clear commitment to the original treaty obligations vis-à-vis countries not party to the *inter se* modification agreement,

219 For more details on scheduling, see: Hallam, C., Bewley-Taylor, D., & Jelsma, M., (2014)"**Scheduling in the international drugcontrol system,"** Series on Legislative Reform of Drug Policies No. 25, TNI/IDPC **http://idpc.net/publications/2014/06/scheduling-in-the-international-drug-control-system**

especially concerning prevention of trade or leakage to prohibited jurisdictions. All the provisions in the treaties — including those pertaining to cannabis — would remain in force vis-à-vis the treaty's State parties that are not part of the *inter se* agreement. Over time, such an *inter se* agreement might evolve into an alternative treaty framework to which more and more countries could adhere, while avoiding the cumbersome (if not impossible) process of unanimous approval of amendments to the current regime.[220]

In theory, modification *inter se* could be used by a group of like-minded countries that wish to resolve the treaty non-compliance issues resulting from national decisions to legally regulate the cannabis market, as Uruguay has already done, and Canada appears poised to do. Such countries could sign an agreement with effect only among themselves, modifying or annulling the cannabis control provisions of the UN conventions. This could also be an interesting option to explore in order to provide a legal basis justifying international trade between national jurisdictions that allow or tolerate the existence of a licit market of a substance under domestic legal provisions, but for which international trade is not permitted under the current UN treaty obligations.

The drafters of the 1969 VCLT considered the option of *inter se* modification as a core principle for international law, and the issue was discussed at length at the International Law Commission in 1964: *"The importance of the subject needed no emphasis; it involved reconciling the need to safeguard the stability of treaties with the requirements of peaceful change."*[221] From the very beginning, the evolutionary nature of treaties was seen as fundamental to the UN system — a system in which all Member States *"undertake to respect agreements and treaties to which they have become contracting parties without prejudice to the right of revision,"* according to the Egyptian delegate

220 M. Jelsma, **UNGASS 2016: Prospects for Treaty Reform and UN System-Wide Coherence on Drug Policy,** Journal of Drug Policy Analysis, 2016, **http://www.degruyter.com/view/j/jdpa.ahead-of-print/jdpa-2015-0021/jdpa-2015-0021.xml.**

221 International Law Commission (ILC), **Summary Record of the 745th Meeting: 15 June 1964,** A/CN.4/SR.745, in: **Yearbook of the International Law Commission**: 1964, vol. 1, New York: UN, 1965, p. 144, paragraph 49.

at the time. He underscored that it was therefore *"equally important to ensure that arbitrary obstacles were not allowed to impede the process of change. There had been many instances in the past of States, by their stubborn refusal to consider modifying a treaty, forcing others to denounce it."* [222]

A leading authority on international treaty law, Jan Klabbers, describes the *inter se* option as *"perhaps the most elegant way out,"* but also notes that though *inter se* modification is based on an ancient principle of international law, *"practical examples are hard to come by."*[223] It seems this is essentially uncharted legal territory. However, a good case could be made that the increasing tensions between cannabis policy trends and the frozen drug treaty system provides a clear example of circumstances for which this exceptional option was designed and deemed to be of crucial importance. Indeed, though its use has been rare, the *inter se* option has been understood since the outset of the UN system as a means of reinforcing treaty regimes, not undermining them. Where regimes are exceptionally resistant to reform, and therefore liable to become brittle and antiquated, an option such as *inter se* modification could actually strengthen the regime by demonstrating that it is capable of modernization.

IV. Treaty reform that applies to an individual state

A. Withdrawing from the Treaties

In light of the outdated nature of the drug control treaties and the seemingly insurmountable procedural and political obstacles to modernizing them, the question is often raised why countries should not simply withdraw from the UN drug control treaty regime. The option exists for any signatory Member States to withdraw from the treaties via the process of

222 Ibid., paragraph 53.

223 J. Klabbers, **"Treaties, Amendment and Revision,"** in Max Planck **Encyclopedia of Public International Law**, December 2006, pp. 1084-1089 **http://opil.ouplaw.com/view/10.1093/law:epil/9780199231690/law-9780199231690-e1483.**

denunciation; treaty exit would technically 'solve' the problems of breach or non-compliance from a legal perspective.

However, as mentioned, a key reason reform states may wish to remain party to the UN drug control treaties is that they also regulate the global trade in drugs for licit medical purposes, including substances on the WHO list of essential medicines. Inadequate access to controlled medicines is already a severe problem in most developing countries, and withdrawing from the INCB-administered global system of estimates and requirements operating under the UN drug control conventions could risk making it even worse.

For countries receiving development aid or benefitting from preferential trade agreements, denunciation would also risk triggering economic sanctions. Being State party to all three of the drug control conventions is a condition in a number of preferential trade agreements or for accession to the European Union. The U.S. government — though now more likely to be lenient towards cannabis reforms elsewhere due to the changes underway within U.S. borders — still maintains the disciplinary certification mechanism, and withdrawal from the drug control treaties altogether would almost certainly lead to decertification and sanctions. Denunciation can therefore have serious political and economic implications, especially for less powerful and poor countries. Even for countries that are less economically vulnerable, simply withdrawing from the drug treaties could carry the risk of reputational costs in key international fora.

B. Selective Denunciation

The 1969 VCLT stipulates that a historical *"error"* (Article 48) or a *"fundamental change of circumstances"* (*rebus sic stantibus*, Article 62) are

valid reasons for a Member State to revoke its adherence to a treaty.[224] However, recourse to the *rebus sic stantibus* doctrine and the option of *"selective denunciation"* are rarities in international law. The Beckley Foundation's Global Cannabis Commission report concluded in 2008 that *"taking this path might be less legally defensible than denunciation and re-accessions with reservations"* (see below), which would have the same end result.[225] And for a group of countries, the option of an *inter se* agreement seems to be the more elegant way out, with similar effect.

C. Denunciation followed by Re-accession with a Reservation

At the moment of signing, acceding, or ratifying a treaty, states have the option to make reservations regarding specific provisions, as many countries in fact did in the case of all three drug control treaties.[226] Reservations or other formal unilateral *"interpretive declarations"* are meant to exclude or modify the legal effect of certain provisions of a treaty for the reserving state.

Under the procedure of treaty denunciation followed by re-accession with a reservation, a country can withdraw itself from the treaty entirely, with the intention of rejoining with specific reservations. In the case of the 1961 Convention, if one third or more State parties object, the country would be blocked from re-acceding.[227] Denunciation and re-accession

224 According to one commentary, "[I]f the fundamental situation underlying treaty provisions becomes so changed that continued performance of the treaty will not fulfil the objective that was originally intended, the performance of those obligations may be excused." See M. Leinwand, '**The International Law of Treaties and United States Legalization of Marijuana',** Columbia Journal of Transnational Law, Volume 10, 1971, pp. 413-441.

225 R. Room, W. Hall, P. Reuter, B. Fischer, S. Lenton, and A. Feilding, (convener), **Cannabis Policy: Moving Beyond Stalemate, Global Cannabis Commission**, The Beckley Foundation, 2008, p. 155.

226 Reservations can be found in the UN Treaty Collection database, **https://treaties.un.org/.**

227 The 1988 Convention does not contain specific rules for reservations and is therefore governed by the general rules established in the 1969 Vienna Convention on the Law of Treaties, specifically articles 19-23, which do not establish a threshold of objections. Usually that means that reservations are accepted without having any effect for objecting State parties.

with a reservation is recognized as a legitimate procedure, although its practice has been limited to exceptional cases.[228]

In the case of the drug treaties, there is a recent precedent: in 2011, Bolivia notified the UN Secretary-General that it had decided to exit the Single Convention, taking effect in January 2012, intending to re-accede with reservations regarding coca. The INCB condemned the move, and 15 countries—including every member of the G8 — submitted formal objections. But the number of objections fell far short of the 62 (one third of all State parties to the Convention) that were needed to block Bolivia from re-acceding. In early 2013, Bolivia's re-adherence to the treaty was formally accepted, with reservations upholding the right to allow in its territory traditional coca leaf chewing, the use of the coca leaf in its natural state, and the cultivation, trade, and possession of the coca leaf to the extent necessary for these licit purposes. (Bolivia had initially tried to amend the treaties, but was blocked by a small number of objections.) The procedure thus successfully resolved the legal tensions, at least for Bolivia, between the 1961 Single Convention's obligation to abolish its indigenous coca culture, versus Bolivia's legal obligations under the 2007 UN Declaration on the Rights of Indigenous Peoples and its national Constitution to protect it.

A reservation by which a state would exempt itself from implementing the Convention's obligations for cannabis could therefore be attempted following the same treaty procedure, but there are differences to be taken into account. The main legal issue relates to article 19 of the VCLT, which requires that a reservation must not be *"incompatible with the object and purpose of the treaty."* Those overall aims of the Single Convention are expressed in the preamble's opening paragraph regarding concern about *"the health and welfare of mankind"* and the treaty's general obligation to limit controlled drugs *"exclusively to medical and scientific purposes."* Making

228 L.R. Helfer, **Not fully committed? Reservations, risk and treaty design,** Yale Journal of International Law, Volume 31, 2006.

a reservation exempting a particular substance from the treaty's general obligation to limit drugs exclusively to medical and scientific purposes is explicitly mentioned in the Commentary on the Single Convention as an option that could be procedurally allowable, for coca leaf as well as for cannabis.[229] While the absence of any accompanying cautionary text seems to imply that exemption by means of a reservation of a specific substance from the general obligations would not in itself constitute a conflict with the object and purpose of the treaty as a whole, this would certainly be an important legal discussion to be had in the context of crafting reservations. The same issues would arise with an inter se agreement (see above), which comes close to a form of *"collective reservation."*

Implementing cannabis regulation in situations of treaty non compliance

The treaty reform options described above — with their varying procedural and political considerations — all assume a decision on the part of at least one State to proactively alter its relationship to the current treaties with respect to cannabis. States might alternatively opt to sidestep the treaty questions that arise in the context of their cannabis reforms, or assert that the changes underway within their countries are allowable under the treaties as they stand, therefore denying that treaty reform options of any sort ought or need to be considered. Another option — acknowledging the fact of temporary non-compliance and working toward an eventual realignment of domestic law and treaty obligations — would open the door to deliberately pursuing some set of treaty reform options. These two further options are explored below.

Sidestepping or denying issues of non-compliance

229 United Nations, **Commentary on the Single Convention on Narcotic Drugs**, 1961, New York, 1973, p. 476.

The first two States to proceed with development and implementation of formal non-medical cannabis markets are the United States and Uruguay. Their situations are very different and they have provided contrasting commentaries on the implications of their moves, while both arguing that policy shifts within their borders do not put them in breach of the UN drug control conventions.

Uruguay has argued its policy is fully in line with the original objectives that the drug control treaties emphasized, but have subsequently failed to achieve — namely, the protection of the health and welfare of humankind. Uruguayan authorities have specifically argued that the creation of a regulated market for adult use of cannabis is driven by health and security imperatives and is therefore an issue of human rights. As such, officials point to wider UN human rights obligations that need to be respected, specifically appealing to the precedence of human rights principles over drug control obligations. As the first country courageous enough to take the step of regulating cannabis for all uses, it is enormously significant that Uruguay has explained its reform with reference to its overarching human rights obligations under international law.[230] Moreover, while reluctant to acknowledge its cannabis regulation model represents non-compliance with the drug treaties, Uruguay has noted that it creates legal tensions within the treaty system that may require revision and modernization. At the 2013 CND session, for example, Diego Cánepa, head of the Uruguayan delegation, declared: *"Today more than ever we need the leadership and courage to discuss if a revision and modernization is required of the international instruments adopted over the last fifty years."* [231]

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230 In 2015, Uruguay co-sponsored a UN Human Rights Council resolution calling upon the UN High Commissioner for Human Rights (UNHCR) to prepare a report ***"on the impact of the world drug problem on the enjoyment of human rights."*** Uruguay's contribution to UNHCR's preparations laid out the country's stance regarding the primacy of human rights: ***"We reaffirm the importance of ensuring the human rights system, underscoring that human rights are universal, intrinsic, interdependent and inalienable, and that is the obligation of States to guarantee their priority over other international agreements, emphasizing the international drug control conventions."*** See Junta Nacional de Drogas, **Impact of the World Drug Problem in the exercise of Human Rights,** 15 May 2015, **http://www.wola.org/sites/default/files/Drug%20Policy/AportedeROUalaUNGASS2016enDDHHENG.pdf.**

231 Commission on Narcotic Drugs, Intervención del Jefe de Delegación de Uruguay, 56° Período de Sesiones de la Comisión de Estupefacientes, Prosecretario de la Presidencia del Uruguay, 11 March 2013.

U.S. officials, for their part, have argued that since the cultivation, trade, and possession of cannabis taking place in multiple U.S. states remain criminal offenses under U.S. federal law, the Federal Government as State party to the Conventions is not in breach. This is despite the Federal Government's decision to accommodate the state-level developments, provided they proceed within certain parameters.[232] A recent U.S. discourse, promoted by Ambassador William Brownfield (Assistant Secretary for International Narcotics and Law Enforcement Affairs), maintains that the extant treaty framework possesses sufficient flexibility to allow for regulated cannabis markets.[233] This argument is strained by any reasonable understanding of the treaties and their overtly prohibitionist object and purpose — and appears to reflect political expediency rather than convincing legal reasoning.[234] A good case can be made that the main objective of Ambassador Brownfield's flexibility argument is to *"prevent clear treaty breaches of state-level cannabis legalization initiatives from triggering an open international debate on treaty reform."*[235] Nevertheless, such a debate is now inevitable, not least since the INCB has made clear statements that both Uruguayan and U.S. cannabis regulation models are not in compliance with the treaties, and Brownfield has himself acknowledged the INCB's authority in determining whether or not State parties are in compliance.[236]

An argument has also been made (although not by any State parties) that legal regulation is possible within the bounds of the treaties by interpreting

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232 See memo from Deputy US. Attorney General James M. Cole, August 2013, **https://www.justice.gov/iso/opa/resources/3052013829132756857467.pdf**

233 **"Fatal Attraction: Brownfield's Flexibility Doctrine and Global Drug Policy Reform,"** The Huffington Post, 11 November 2015,**http://www.huffingtonpost.co.uk/damon-barett/drug-policy-reform_b_6158144.html.**

234 For more in-depth discussion of the U.S. stance that the treaties are flexible enough to encompass legal regulation of cannabis, see Bennett, W., Walsh, J. (2014) **"Marijuana Legalization is an Opportunity Modernize International Drug Treaties,"** Brookings and WOLA, **http://www.brookings.edu/~/media/research/files/reports/2014/10/15-marijuana-legalization-modernize-drug-treaties-bennett-walsh/cepmmjlegalizationv4.pdf.**

235 See M. Jelsma, **'UNGASS 2016: Prospects for Treaty Reform and UN-System-Wide Coherence on Drug Policy,** Journal of Drug Policy Analysis, **http://www.degruyter.com/view/j/jdpa.ahead-of-print/jdpa-2015-0021/jdpa-2015-0021.xml.**

236 **"Trends in Global Drug Policy,"** Roundtable with William R. Brownfield, U.S. Assistant Secretary of State, 8 March 2016. **http://fpc.state.gov/254116.htm.**

the Conventions' *"scientific purposes"* language to include experimentation with alternative regulatory options, so long as these are researched. This, however, misunderstands the meaning of *"scientific purposes"* within the treaties, confusing the uses to which substances may be put with the scientific or evidence base for policy. It also takes the phrase out of its context, both within the article concerned and the treaty as a whole, contrary to basic Vienna Convention rules on interpretation.[237]

Proceeding in "Principled non-compliance"

Rather than attempting to argue why legally regulating cannabis would not constitute a compliance problem with the 1961 and 1988 Conventions, States that wish to proceed with legal regulation could instead openly acknowledge that doing so would result in non-compliance. Crucially, this option requires that the State sets out its reasons for national policy reform, how this affects compliance, and in particular why this is necessary for the realization of other international legal and policy commitments. Moreover this situation of non-compliance should be seen and presented as temporary, with the aim of ensuring the realignment of the country's new domestic laws and practice with its treaty obligations as part-and-parcel of the reform initiative. The State should, in parallel, request multilateral discussions to resolve the situation, for example through supporting an expert advisory group on the reform of the conventions,[238] and supporting a later Conference of the Parties (COP). Pending those developments, the State would carry on in conformity with its remaining

237 See, for example, All Party Parliamentary Group for Drug Policy Reform, **"Guidance on Drug Policy: Interpreting the UN Drug Conventions,"** **https://www.unodc.org/documents/ungass2016//Contributions/Civil/APPG_for_Drug_Policy_Reform/Guidance_print_copy.pdf.** Also see John Collins, **"Development First: Multilateralism in the Post-'War on Drugs' Era,"** and Francisco Thoumi, "**Re-examining the 'Medical and Scientific' Basis for Interpreting the Drug Treaties: Does the 'Regime' Have Any Clothes,"** in London School of Economics, After the Drug Wars: Report of the LSE Expert Group on the Economics of Drug Policy, pp. 9-29, **http://www.lse.ac.uk/IDEAS/publications/reports/pdf/LSE-IDEAS-After-the-Drug-Wars.pdf.**

238 See TNI **"UNGASS 2016: Background memo on the proposal to establish an expert advisory group,"** November 2015, **https://www.unodc.org/documents/ungass2016//Contributions/Civil/Transnational_Institute/Background_memo_November_UNGASS_2016_final.pdf.**

commitments under the treaties, report as usual to the INCB, and report to the CND on the outcomes of its policies.

Clearly, open non-compliance with international legal obligations is not desirable, but all of the reform options set out in this chapter are driven by necessity. The problem here is not that countries are opting for regulatory approaches. Rather, outmoded and unworkable treaty provisions are the problem that gives rise to the need for a temporary and transitional period of principled non-compliance. In this context the recognition of the fact that a State can no longer fully comply with the Conventions' obligations regarding cannabis need not be seen as disrespect for the rule of law. To the contrary, it confirms that treaty commitments matter. Indeed, treaty non-compliance as domestic laws and practice change is a fairly common feature of regime evolution and modernization.[239] Waving away worries about non-compliance by resorting to dubious legal justifications is much more an expression of disrespect for international law. Many governments reforming their cannabis laws are doing so based on health, development, human rights, security, or other grounds, and out of a concern for the international legal commitments made in these areas, the realization of which has been negatively affected by the implementation of the drugs conventions. As the Global Commission on Drug Policy has argued:

"Unilateral defections from the drug treaties are undesirable from the perspective of international relations and a system built on consensus. Yet the integrity of that very system is not served in the long run by dogmatic adherence to an outdated and dysfunctional normative framework. The evolution of legal systems to account for changing circumstances is fundamental to their survival and utility, and the regulatory experiments being pursued by various states are acting as a catalyst for this process. Indeed, respect for the rule of law requires challenging those laws that are generating harm or that are ineffective."[240]

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239 J.K. Cogan, **"Noncompliance and the International Rule of Law,"** Yale Journal of International Law, Vol. 31, 2006, pp. 189-210.

240 Global Commission on Drug Policy, **Taking Control: Pathways to Drug Policies That Work**, 2014, **http://www.gcdpsummary2014.com.**

Moreover, what we can now see is that it is not the case that States will face significant condemnation from the international community for cannabis reforms that are increasingly common practice across the world. Opting for reform and acknowledging non-compliance can help set the stage for treaty reform options that can be implemented collectively among like-minded States, such as the *inter se* option.

Discussion and recommendations

More and more States are acknowledging the powerful arguments for questioning the treaty-imposed prohibition model for cannabis control. For a range of reasons, multiple forms of soft defection, non-compliance, decriminalisation, and *de facto* regulation have persisted in countries where traditional use is widespread, and have since blossomed around the world to almost every nation or territory where cannabis has become popular in the past half century.

Decades of doubts, soft defections, legal hypocrisy, and policy experimentation have now reached the point where *de jure* legal regulation of the whole cannabis market is gaining political acceptability, even if it violates certain outdated elements of the UN Conventions. Tensions are likely to further increase between countries pursuing regulatory approaches and those strongly in favor of defending the status quo as well as the UN drug control system and its specialized agencies.

In the untidy conflict of procedural and political constraints on treaty reforms versus the movement towards a modernized global drug control regime, the system will likely go through a further period of legally dubious interpretations and questionable justifications for growing numbers of national and sub-national reforms. And the situation is unlikely to change until a tipping point is reached and a group of like-minded countries is ready to engage in the challenge to reconcile the multiple and increasing legal inconsistencies and disputes.

The inevitability of further cannabis reforms looks set to be the issue that opens the debate around the UN drug control treaty system, and questions around potential regulation models for other drugs are likely to appear on the table sooner or later. In fact, that debate has already started with regard to coca leaf and other psychoactive plants, and has regularly surfaced in the context of responses to New Psychoactive Substances (NPS). While the arguments driving the current dynamic towards cannabis regulation do not all apply in the same way to other controlled substances, ongoing reforms focused on cannabis are not the end of the story, but are likely to act as the catalyst for reviewing the efficacy of the international drug control system for other substances as well. Such a situation must be taken into account as discussions around cannabis develop.

Indeed, the question now appearing on the international policy agenda is no longer whether or not there is a need to reassess and modernize the UN drug control system, but rather when and how. The question is if a mechanism can be found soon enough to deal with the growing tensions and to transform the current system in an orderly fashion into one more adaptable to local concerns and priorities, and one that is more compatible with basic scientific norms and modern UN standards. Key elements of an effective strategy for moving forward should include:

Promoting high level dialogue on resolving the tensions between emerging State practice and outdated and counterproductive treaty obligations

States seeking to explore, develop, or actively implement cannabis regulation models will all face different legal and political challenges, domestically and internationally. Whatever reforms are undertaken, States should ensure that the issue is explored, rather than ignored, in key multilateral fora. Leadership from reform-minded States in promoting this debate will be vital. There are a number of ways in which this dialogue can be informed and encouraged:

- Supporting proposals for an expert advisory group to consider issues around emerging challenges — including cannabis regulation — and modernization of the international drug control framework, and make recommendations to inform the UN debate in the lead up to 2019, when a new UN Political Declaration and Plan of Action are due to be adopted. Such proposals are already being actively promoted by a number of State parties.[241]
- Proceeding with formal mechanisms for reforming the treaty system — such as amendment, modification, reservation options, or more substantive change. Even if not initially successful, such actions will both ensure the question of treaty modernization is meaningfully considered within established fora, and demonstrate the desire of reform states to resolve tensions and potential non-compliance issues using established legal mechanisms.
- Convening informal drug policy dialogues or intergovernmental conferences for like-minded States to discuss shared concerns and dilemmas outside of the institutional framework of the UN and regional structures such as the OAS and EU, and perhaps prepare resolutions for consideration in the CND and other UN or regional fora.

Pursuing Domestic Reforms in parallel with Multilateral dialogue and reform processes

Modernization of the treaty framework to accommodate the needs of reform States is now seemingly inevitable as the number of dissenting States grows. Unless the treaty system can begin to prove itself capable of modernizing, it risks drifting into irrelevance, affecting not only

241 For example, in May 2105, Jamaica also called for the establishment of an "expert advisory group" during the **"UN General Assembly High-Level Thematic Debate in Support of the Process towards the 2016 UNGASS,"** **http://www.undrugcontrol.info/images/stories/documents/JamaicaStmt-HLTD-NY07052015.pdf.** Similarly, as part of its August 2015 input to the UNGASS process, Uruguay called for the creation of a "consultative group of experts," **http://www.infodrogas.gub.uy/images/stories/pdf/uy_ungass_2016_esp-eng.pdf.** And during the 59th session of the CND in March 2016, Colombia called for the creation of an "expert-level group," **https://www.unodc.org/documents/commissions/CND/CND_Sessions/CND_59/Statements/08_Colombia_English.pdf.**

those elements that are clearly outmoded and ripe for reform, but also elements upon which relative consensus still exists. Achieving formal multilateral reforms, however, is likely to entail a difficult and protracted process. Until these are concluded, reforms in the short term are likely to involve multiple States moving into technical, transitionary non-compliance. The challenges this raises can be minimized by:

- Avoiding sidestepping or denial of non-compliance by offering implausible legal justifications.
- Acknowledging temporary *"principled non-compliance"* and providing reasoning for doing so, rooted in the health and welfare of citizens, and wider UN charter commitments.
- Actively promoting multilateral debate and reform efforts (as above) in parallel with domestic reforms.
- Establishing a cannabis regulation model - as outlined in this guide - that clearly establishes public health and wellbeing as a central goal; operates under a national agency; minimizes negative impacts for neighboring States; and is supported by a comprehensive monitoring and evaluation framework — that reports back to relevant UN agencies.

Pursuing Collective Action

Any attempts to promote high-level dialogue, explore domestic reform, or achieve reforms of the multilateral framework will be facilitated by collective action of like-minded reform States working towards a common cause. By building on the diversity of the various countries, such an alliance of reform-minded States can lay the groundwork for a more effective approach to cannabis policy that, over time, can prove itself and attract more adherents. By working in coordination rather than in isolation, the initial reform States can learn from one another and also provide leadership in opening the political space for other countries to move beyond prohibitionist approaches that have proven so detrimental to human health, development, security, and the rule of law itself.

Further reading:

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- Rolles, S. (2012) **Report of TNI/IDPC Expert Seminar on the Future of the UN Drug Conventions**. **http://ssrn.com/abstract=2185889 or http://dx.doi.org/10.2139/ssrn.2185889**
- Room, R. (2012) **Roadmaps to reforming the UN drug conventions**, The Beckley Foundation. **www.beckleyfoundation.org/Roadmaps-to-Reform.pdf**

Appendices

Appendix 1

Cannabis regulation around

	Prohibition	Uruguay	California*	Washington
General model	Absolute ban on production, supply and possession of cannabis for non-medical use (*de jure* illegal)	Government-controlled model – similar to the Borland model (see p.57.) (*de jure* legal)	Regulated private companies are licensed to produce and supply cannabis (*de jure* legal)	Regulated private companies are licensed to produce and supply cannabis (*de jure* legal)
Production	• No production controls – solely law enforcement efforts to eradicate or intercept illicit production • Cannabis is sourced from the illicit market, where it is produced with no regulatory oversight	• A handful of private companies are contracted by the government to produce cannabis • Production is monitored by the government-run Institute for the Regulation and Control of Cannabis (IRCCA), which is also responsible for granting production licences • Production takes place on state land, which is overseen by both private security personnel paid for by the licensed producers, as well as state security services (military or police)	• Bureau of Marijuana Control within the Department of Consumer Affairs responsible for licensing/regulation of transportation, distribution and sale • The Dept. of Food and Agriculture license/oversee cultivation • Dept. of Public Health license/oversee manufacturing and testing • Large-scale licenses banned until Jan. 1, 2023 to prevent monopolies developing • Selling without a license punishable by up to six months in jail, a fine up to $500, or both	• Production licences are granted by the State Liquor Control Board to individuals or companies that pass background checks and meet specified security and quality control criteria • Producers must submit samples of cannabis for regular safety and potency testing by an independent laboratory • Producers may hold no more than 3 production and/or processor licences • The state-wide area dedicated to cannabis production must not exceed 2 million sq ft
Preparation	• No restrictions on the varieties of cannabis or cannabis products available • The content of products is unregulated, unknown and highly variable. Adulterants are common in resin and have also been observed in herbal cannabis	• 5 varieties of cannabis are licensed for production and supply	• No restrictions on the range of cannabis strains or cannabis-infused products that are legally available • Edible products to have standardised dosage with 10mg maximum THC per serving * Precise details of California's regulatory model are still to be decided at time of going to print	• No restrictions on the range of cannabis strains or cannabis-infused products that are legally available

the world

	Colorado	The Netherlands	Spain	Transform recommendations
	Regulated private companies are licensed to produce and supply cannabis (*de jure* legal)	Cannabis *'coffee shop'* system (*de facto* legal)	Not-for-profit cannabis social clubs (*de facto* legal)	Borland regulated market model + legal provision for home growing and regulated cannabis social clubs (*de jure* legal)
	• Production licences are granted by the state's Marijuana Enforcement Division to individuals or companies that pass background checks and meet specified security and quality control criteria • For the first year of the new regulatory system, producers and sellers of cannabis must be part of the same company • Producers must submit samples of cannabis for regular safety and potency testing by an independent laboratory	• No formal controls as production remains illegal • Cannabis is still sourced from the illicit market with no regulatory oversight. Some is produced domestically, some is still imported from traditional producer regions	• No licence required and no formal regulatory oversight • Club workers or volunteers oversee production under an informal code of conduct	• Commercial producers licensed by government agency that acts as sole buyer and supplies licensed vendors • Commercial producers can compete for the government tender • Government agency also specifies nature and potency of products and oversees monitoring of quality controls
	• No restrictions on the range of cannabis strains or cannabis-infused products that are legally available	• A range of cannabis products are legally available through the coffee shops	• Mostly herbal cannabis, although edibles, tinctures and other preparations are often available	• A range of quality- and potency-controlled products made available, with details determined by government regulatory body • Product range initially an approximate mirror of pre-reform illicit market • Changes to market range introduced incrementally – and carefully monitored • Controls on available preparations aim to encourage safer using behaviours • Wider range of products available via home grow or cannabis social clubs

	Prohibition	Uruguay	California	Washington
Potency	• No THC/potency limits and no information provided to user about the strength of what they are purchasing – except informally via illicit vendors	• The government only licences the production and supply of cannabis with a predetermined THC and CBD content	• No THC/ potency limits, but packaging must indicate THC levels/content	• No THC/potency limits, but packaging must indicate THC levels/content
Price	• Price determined by the interaction of criminal supply and user demand in an unregulated market	• The price of cannabis is between 20 and 22 Uruguayan pesos per gram. This price takes into account a government tax, which will be used to fund the IRCCA, as well as a national campaign to educate the public about the consequences of cannabis use	• Retail price is determined by the market and taxes	• Retail price is essentially determined by the market and taxes
Age access threshold	• No age access controls: illicit dealers do not enforce age restrictions	18	21	21
Purchaser restrictions	• Anyone can purchase cannabis and no sales limits are set	• Cannabis sales are restricted to residents of Uruguay • They can purchase no more than 40 grams per month (maximum 10 grams per week), with the volume of sales to individual users monitored via an anonymised central government database • Purchasers must present a medical prescription or be registered in the database in order to access cannabis	• Up to 1 ounce of marijuana and quarter ounce of concentrated marijuana would be legal to possess. • Possession on the grounds of a school, day care center, or youth center while children are present would remain illegal • Consumption only in private homes or licensed venues	• Both residents and non-residents of Washington may purchase up to 1 ounce of cannabis per transaction

	Colorado	The Netherlands	Spain	Transform recommendations
	• No THC/potency limits, but packaging must indicate THC levels/content	• No limits on the potency of products sold • Informal testing and labelling of cannabis products – in particular for THC content – takes place • The Dutch government has proposed a ban on cannabis products with a THC level of over 15%, but this has yet to be implemented	• Strains of varying strength cultivated • No formal mandatory potency testing	• Range of products with various potencies available • Decisions on potency of retail products made by government agency (see above) • Safer THC:CBD ratios • More specialist demand for non-retail products met via home growing or cannabis social clubs
	• Retail price is essentially determined by the market and taxes	• No price controls in place, although prices remain relatively high because of higher staff, tax, venue etc costs than illegal vendors, and pricing in risk of arrest faced by producers and traffickers	• Users pay membership fees proportionate to their consumption, which are then reinvested back into the management of the clubs	• Price parameters determined by government agency, using price as tool to achieve stated policy aims • Initially maintaining price at or near illicit market levels • Higher prices on more risky products to encourage safer using behaviours • Changes in price incremental and based on careful impact monitoring
	21	18	18	• 18 appropriate in most places but decision will need to be shaped by local cultural and political environment
	• Residents of Colorado can purchase up to 1 ounce of cannabis per transaction; non-residents are restricted to a quarter of an ounce per transaction	• Coffee shops may not sell more than 5 grams per person per day • Some border municipalities enforce residents-only access for the coffee shops	• In most clubs, membership can be awarded only upon invitation by an existing member, or if someone has a medical need for cannabis • Members' allowances of cannabis are typically limited to 2 or 3 grams per day	• Limits on individual transactions to minimise bulk buying and potential re-sales • Residents-only or membership access schemes may be appropriate under certain local circumstances

	Prohibition	Uruguay	California	Washington
Vendor	• Illicit dealers have no duty of care to their customers and may not even be aware of the contents of the cannabis they are selling	• Qualified pharmacists must hold cannabis commerce licences – which are awarded by the Ministry of Public Health – in order to legally sell the drug	• Penalties for breaches of licensing conditions, such as sales to minors • No formal training of vendors is required	• Penalties for breaches of licensing conditions, such as sales to minors • No formal training of vendors is required
Outlet	• Illicit dealers can sell wherever they deem fit	• Private producers sell the cannabis to the government, which then distributes the drug via licensed pharmacies to registered users • Pharmacies are allowed to sell cannabis alongside other, medical drugs	• Stores cannot be located within 600 feet of schools and other areas where children congregate • Outlets cannot sell goods other than cannabis and cannabis products • Local government can ban outlets in their areas completely, or require additional licenses	• Outlets cannot sell goods other than cannabis and cannabis products • Minors are forbidden from entering stores • Stores cannot be set up within 1,000 ft of schools or other areas where children are likely to gather • Retailers may own no more than 3 outlets and each one must be in a different county
Tax	• All revenue flows, untaxed, direct to illicit dealers and criminal organisations	• Tax revenue is used to fund the IRCCA, as well as a national campaign to educate the public about the consequences of cannabis use	• State excise tax 15% on retail sales. State cultivation taxes per dry weight ounce of $9.25 for marijuana flowers, and $2.75 for leaves • Local government can also levy additional taxes	• Cannabis is subject to a 25% excise tax at three stages in the supply chain – when it is sold by the grower to the processor, when it is sold by the processor to the retailer, and when it is sold by the retailer to the consumer. On top of this, cannabis is taxed at the standard state sales tax rate of 8.75%
Marketing	• No marketing controls, although illicit vendors do not have access to conventional marketing channels	• All forms of cannabis advertising, promotion or sponsorship are prohibited	• Mandatory packaging and labeling requirements on all products • Ban on marketing directly to minors, including products designed to appeal to kids, or could easily be confused with candy • Advertising banned within 1000 feet of where children congregate, and only displayed where around 72% + of the audience is 21 or over	• Advertisements of any kind cannot be displayed within 1,000 ft of schools and are not allowed on publicly owned property or transport • Advertising is forbidden from promoting over-consumption • Storefront window displays of cannabis products are also banned

Colorado	The Netherlands	Spain	Transform recommendations
• Penalties for breaches of licensing conditions, such as sales to minors • Vendors can be awarded a *'responsible vendor designation'* upon completion of a training programme approved by the state licensing authority	• Penalties for breaches of licensing conditions, such as sales to minors • No formal training of vendors is required	• No formal training of vendors is required, although clubs usually employ staff or volunteers with a substantial knowledge of cannabis and its cultivation	• Vendors are required to adhere to licensing conditions and are subject to penalties for licence violations, such as fines or loss of licence • Mandatory training requirements for retail vendors, with additional training for vendors in sale and consumption venues
• Outlets cannot sell goods other than cannabis and cannabis products • Minors are forbidden from entering stores • For the first year of the new regulatory system, outlets were required to produce at least 70% of what they sold	• Local governments have the power to decide whether to accept coffee shops in their area • Coffee shops are not permitted within a 250m radius of schools • Coffee shops are not allowed to sell alcohol, and are only permitted to hold 500g of cannabis on the premises at any time	• No restrictions on where clubs can be established • Cannabis is distributed on-site, by club workers, and limited amounts can be taken away for consumption	• Controls on location and hours of opening, determined in line with county or municipal government and local community input • Cannabis-only sales – no alcohol or other drugs. Food and drink sales allowed for retail and consumption venues
• 15% excise tax on wholesale price and a 10% retail sales tax • $40 million of the revenue generated by the excise tax goes to school construction each year, with revenue from the sales tax being used to fund the new regulatory system	• Coffee shops do not pay VAT, but do pay various income, corporation and sales taxes • In 2008, Dutch coffee shops paid €400m on sales of over €2bn	• CSCs pay rent tax, employees' social security fees, corporate income tax, and in some cases VAT on products sold	• Tax models built into price controls (see above) • Tax rates locally determined • Proportion of tax could be earmarked for otherwise non-funded social /community spending
• Marketing campaigns that have a *"high likelihood of reaching minors"* are banned • Storefront window displays of cannabis products are also banned	• Coffee shops are not permitted to advertise • External signage is forbidden from making explicit references to cannabis, however signs displaying the words *'coffee shop'*, as well as Rastafari imagery and palm leaves, make them easily identifiable • Product menus are generally kept below the counter so as to avoid any promotional effect	• No advertising of products or clubs themselves is permitted	• Default ban on all forms of marketing and promotions, modelled on WHO Framework Convention on Tobacco Control guidelines

	Prohibition	Uruguay	California	Washington
Driving	• Driving under the influence of cannabis is illegal in all jurisdictions	• Final *per se* THC limits have not been confirmed at time of going to print. Blood tests or potentially other forms of testing will be used to establish THC levels	• Driving while impaired is illegal with no quantitative threshold, meaning prosecution relies heavily on the observation of the arresting officer and the testimony of expert witnesses • Motorists barred from having an open container of marijuana/products	• *Per se* whole blood THC limit of 5ng/ml is enforced, making anyone caught driving over this limit automatically guilty of driving under the influence of cannabis
Home growing	• Home growing is illegal – although in some jurisdictions it is tolerated as part of decriminalisation approach	• Home cultivation of up to six plants is allowed, and the resulting product should not exceed 480 grams per year • Alternatively, residents can pool their allowances via cannabis clubs. The clubs are permitted to grow up to 99 cannabis plants each and must consist of no more than 45 registered members. The clubs' yields must be recorded, with any excess reported and turned over to the IRCCA	• Residents permitted to grow up to 6 plants for personal use within a private home, as long as the area is locked and not visible from a public place	• Home growing is prohibited

Colorado	The Netherlands	Spain	Transform recommendations
• If a driver exceeds a limit of 5ng/ml THC in whole blood, this gives rise to a *"permissible inference"* that they were driving under the influence of cannabis. The limit therefore acts essentially as a guideline, encouraging juries to prosecute drivers found to have exceeded it, rather than acting as an automatic trigger for a penalty	• Impairment-based testing, with sanctions including suspension of licence (for up to 5 years), fines, and imprisonment (variable depending on whether bodily injury caused or reckless driving involved). Proposed *per se* thresholds for different drugs have yet to be established	• Impairment-based testing, with a range of criminal and administrative sanctions potentially applicable	• Clear message that cannabis-impaired driving is risky and illegal • Effect-based standard for prosecutions centred around field sobriety testing • Blood tests used to prove recent use once probable cause has been established • Thresholds for blood THC levels subject to review in light of emerging evidence
• Residents are permitted to grow up to 6 plants for personal use	• Cultivation of up to 5 cannabis plants is considered a *"low priority for prosecution"*	• Cultivation of up to 2 cannabis plants is permitted	• Home growing allowed for adults within certain parameters • Key aim is to protect minors and prevent for-profit secondary sales • Provision for licensed cannabis social clubs to operate under formal regulation. Controls similar to existing informal guidelines for Spanish cannabis social clubs

Appendix 2

Further information and contacts

Transform is available to support and inform the public debate or policy development and implementation process around cannabis regulation and wider drug policy reform issues. Please contact our UK Office

Email info@tdpf.org.uk
Website http://www.tdpf.org.uk
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Other useful organisations

There are many organisations working in the field of drug policy reform. Below are a some with particular relevant expertise in issues relating to cannabis policy:

The Beckley Foundation
www.beckleyfoundation.org/category/policy/
Research and policy advocacy on drug law reform – including substantial resources on cannabis policy

Drug Policy Alliance
www.drugpolicy.org
Leading US-based policy advocacy organisation closely involved with all recent US cannabis reforms

Global Commission on Drug Policy
www.globalcommissionondrugs.org
High-powered commission producing publications and campaigns on drug policy and law reform

International Drug Policy Consortium
www.idpc.net
A global network promoting objective and open debate on drug policy, with an extensive library of resources

Marijuana Policy Project (MPP)
http://www.mpp.org
US-based cannabis reform advocates and campaigners

National Organisation for the Reform of Marijuana Laws (NORML)
www.norml.org
US-based cannabis reform advocates and campaigners

OSF Global Drug Policy Program
www.opensocietyfoundations.org/about/programs/global-drug-policy-program
Supporting umbrella body for a global network of NGOs working to reform drug policy

RAND drug policy research center
www.rand.org/multi/dprc
US-based academic think tank doing substantive research on cannabis policy

Regulación Responsable – Uruguay
www.regulacionresponsable.org.uy
Campaigning organisation supporting reforms in Uruguay

Release
www.release.org.uk
UK-based centre of expertise on drugs and the law

Transnational Institute drugs and democracy program
www.druglawreform.info
Centre of expertise on international drug policy reform – extensive library of resources

Acknowledgements

Written by
Steve Rolles
George Murkin

Edited by
Martin Powell

Additional material and editorial input by
Danny Kushlick
Writers Ltd.
www.writerscopywriting.com

Updates to the 'Cannabis and the UN conventions' chapter includes (edited text from) the June 2016 briefing, "Cannabis regulation and the UN drug treaties: Strategies for reform" written by **David Bewley-Taylor** (GDPO)**, Martin Jelsma** (TNI)**, Steve Rolles** (TDPF)**, and John Walsh** (WOLA) - available at www.tdpf.org.uk

Design
Tim Barnes
www.herechickychicky.com

Additional design and layout (Second edition)
Ben Campbell

The views expressed in this report are those of the authors and Transform Drug Policy Foundation, but not necessarily the contributors, or the funders and supporters of Transform Drug Policy Foundation

ISBN 978-0-9556428-5-2

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Thank you to the many individuals who have contributed to the production of this publication through participation in workshops, peer reviewing or helping us to explore the issues and arguments in other ways. Among others, these include:
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Aram Barra (OSF)
Clive Bates
Damon Barrett
Dave Bewley-Taylor (IDPC/GDPO)
Paul Birch
Tom Blickman (TNI)
Julio Calzada
John Collins (LSE)
Niamh Eastwood (Release)
Suzi Gage
Rupert George (Release)
Dale Gieringer (NORML)
Ben Goldacre
Roger Goodman
Mark Haden (HOBC)
Amanda Harper (Transform)
Jorge Hernández Tinajero (CuPihD)
Hannah Hetzer (DPA)
Alison Holcomb (ACLU)
Mike Jay (Transform)
Martin Jelsma (TNI)
Beau Kilmer (RAND)
Rick Lines (HRI)
Phillipe Lucas
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Shaleen Title (LEAP)
Tamar Todd (DPA)
Brian Vincente (Sensible Colorado)
Dan Werb (ICSDP)

Sara Williams (New Zealand Drug Foundation)
Nazlee Magshoudi (ICSDP)

Thanks for support from
Open Society Foundations
J P Getty Jnr Charitable Trust
The Esmée Fairbairn Foundation
The Linnet Trust
Glass House Trust
New Zealand Drug Foundation
Ken Aylmer
Henry Hoare
Paul Birch
Kate Francis
and other donors

Individual donors
This publication would also not have been possible without the generous support of the people below, and all those who wished to remain anonymous:
John Adams
Chris Blackmore
Frederik Brysse
Adam Corlett
Helen Watson Cox
Penny FitzLyon
Michael Hoskin
Georgina Hughes
William Humbert
Alex Hunter
Dr Grant Lewison
Gareth Main
Charles Manton
John Masters
Martin Pickersgill
Martin Powell
Jason Reed
Mary Rendall
Nicholas Rochford
Ian Sherwood
Chris Stevens
Henry Stewart
Prof. Harry Sumnall

All the ink used is vegetable based, all papers are made from sustainable sources and are fully recyclable