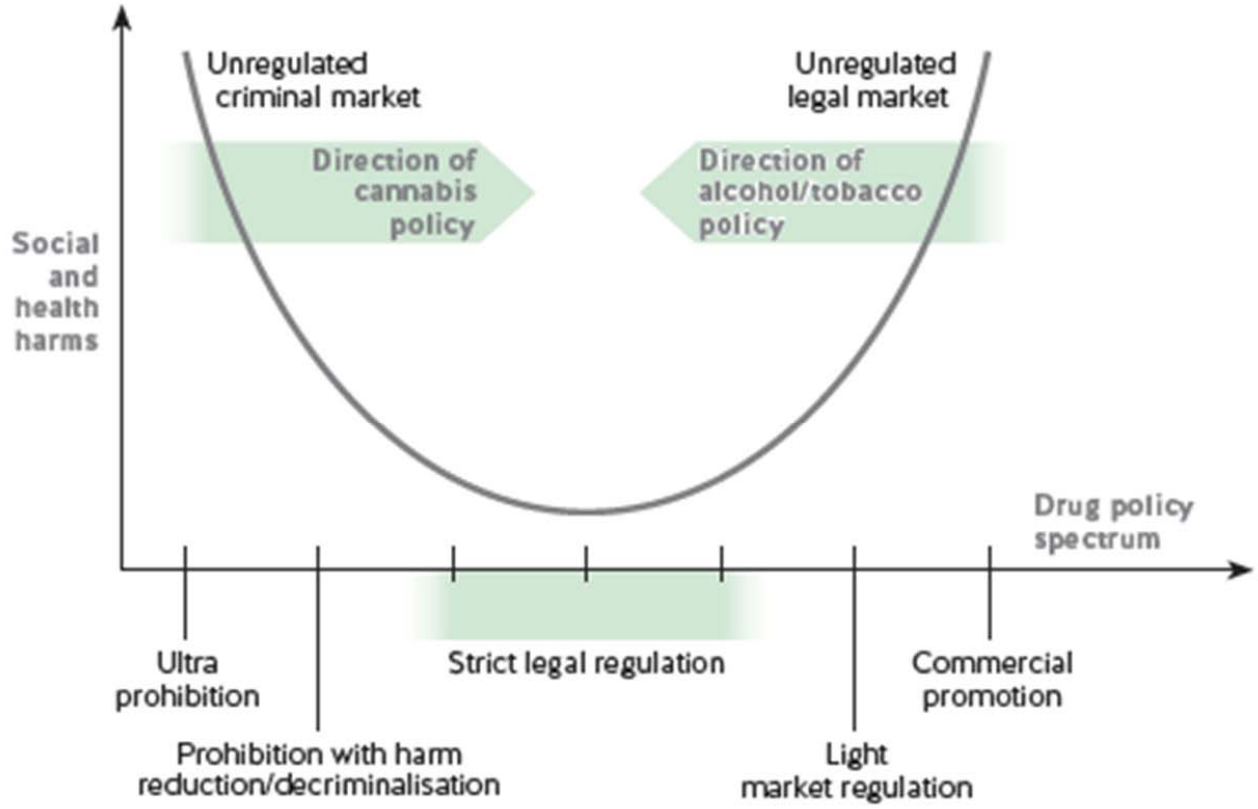
ALICE RAP Policy Paper Series

Policy Brief 5.

CANNABIS – FROM PROHIBITION TO REGULATION

"When the music changes so does the dance"



Cannabis policies and social/health harm: A conceptual model

(Transform, 2013; Marks, 2008)

AR Policy Paper 5

CANNABIS – FROM PROHIBITION TO REGULATION
"When the music changes so does the dance"

ALICE RAP (Addictions and Lifestyles in Contemporary Europe – Reframing Addictions Project) is the first major Europe-wide project studying addictions as a whole and their influence on health and wealth. The aim of this five-year €10-million co-financed EU project is to stimulate and feed scientific evidence into a comprehensive public policy dialogue and debate on current and alternative approaches to addictions and to inform the development of more effective and efficient interventions.

The ALICE RAP Policy Paper series aims to provide concise evidence briefs for decision-makers and advocates working on key addiction-related issues. This fifth paper in the series focuses on cannabis.

An estimated 2,500 tons of cannabis are consumed every year in the EU and Norway, corresponding to a retail value of between 18 and 30 billion Euros. 23 million people (6.8 % of all 15- to 64-year-olds) have used the drug in the past year and about 12 million (3.6 % of all 15- to 64-year-olds) in the last month. The vast majority of these cannabis smokers in Europe are supplied by unregulated criminal markets; users remain unprotected from negative health and social impacts; public revenues are lost in supporting criminal justice systems and often discriminatory enforcement policies; and, potential tax revenues remain uncollected. Driven by public demands for change, multiple jurisdictions around the world are now debating, developing and, in some cases, implementing models of legal cannabis regulation.

Drawing on global and European experience in regulating tobacco and alcohol, this Policy Paper makes the case for why current prohibitionist approaches need to be changed and how legal regulatory cannabis policies can be crafted that protect public health, wealth and well-being.
For most jurisdictions cannabis offers a blank canvas. It provides an opportunity to learn from past errors, and replace criminal markets with regulatory models that are built on principles of public health and well-being from the outset, without a large-scale legal commercial industry resisting reform. By removing political and institutional obstacles and freeing up resources for research and 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.

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The AR policy papers undergo a process of drafting and consultation whereby the full network of project partners are invited to comment on pre-final drafts of the brief.

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Introduction- Times are changing

Major cannabis policy and law changes are now being actively considered in mainstream public, media and political debates in many parts of the world. Policymakers on all levels are challenged to re-evaluate current *'war on drugs'* prohibitionist governance approaches and decide if it is time to treat cannabis, more like alcohol and tobacco, as a legal, marketed, regulated and taxable commodity.

Box 1 – The cannabis policy debate

Can legal regulatory approaches to non-medical cannabis use reduce health and social harms more effectively than current prohibitionist approaches?
The core argument against ending prohibitionist approaches is that it threatens to reduce or remove existing barriers to availability and will thus lead to increased use, dependence and related harms. It is additionally argued that such changes could send out the 'wrong message', particularly to young people. Those advocating for reform or legalisation note that current prohibitionist approaches are not reducing availability nor deterring use. They also note that the costs of enforcement are very high and that prohibition has created a wide range of negative health, social and economic consequences (BMA, 2013, Chapter 6). Proponents of reform argue that whether legalisation is a net positive or negative for public health and safety largely depends on regulatory decisions and how they are implemented (Caulkins et al., 2012a).

To support policy makers in addressing these challenges, concerns and opportunities, this policy brief will focus on answering two questions:

1. What can we learn from the health, social and economic impacts of current prohibitionist approaches? and,
2. How can legal regulatory cannabis policies be crafted and implemented so that public health, wealth and well-being are protected?

Changes underway

Significant reforms related to cannabis policy and laws have already been realised across many EU Member States. The vast majority of these reforms have moved toward less punitive approaches to users which place greater emphasis on public health interventions and human rights. A common trend, for example, is the implementation of lesser sanctions for cases involving possession of small quantities of cannabis, for personal use, without aggravating circumstances (Room, 2012). Decriminalisation and depenalisation (see Box 2) with fines, cautions, probation, exemption from punishment and counselling are now favoured by most European justice systems (EMCDDA, 2013).

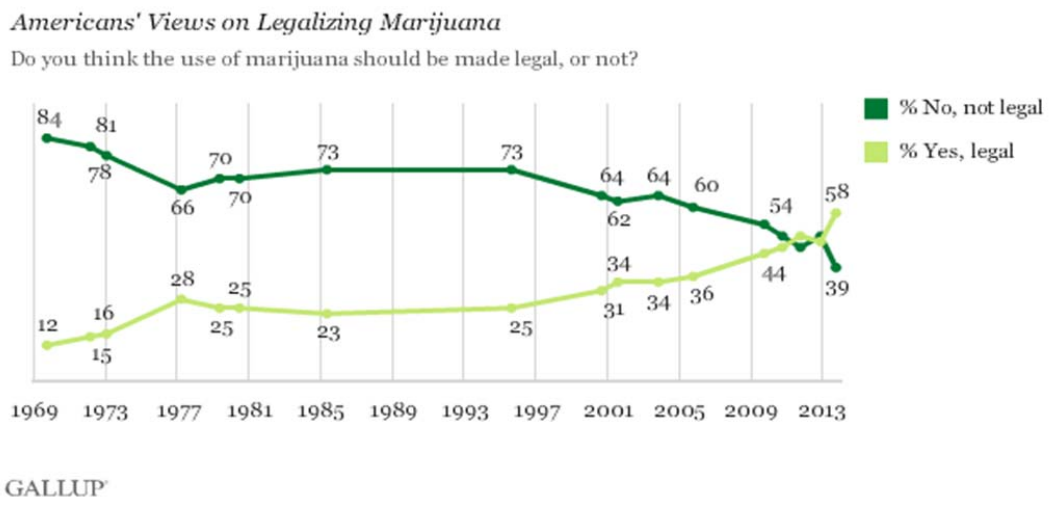
Box 2. Definition of terms

Cannabis is a generic term for preparations (e.g., marijuana, hashish, and hash oil) derived from the *Cannabis sativa* plant that produce euphoria and relaxation, heighten the senses, and increase sociability. The use of cannabis has been shown to cause a variety of beneficial medical effects and to be associated with some acute and chronic health harms (see Box 6).
De jure and de facto reforms. Under *de jure* models, e.g., Uruguay and Colorado (see Boxes 7 and 8), new laws are explicitly formulated which end prohibitionary approaches. Under *de facto* models laws are not reformulated but new approaches are realised 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 still prohibited under law, yet is *de facto* legal, given it is tolerated within the licensing framework of the country's cannabis *'coffee shops'*.
Decriminalisation refers to the removal of criminal status from a certain behaviour or action. This does not mean that the behaviour is legal, as non-criminal penalties may still be applied. With respect to the cannabis debate, this concept is usually used to describe laws addressing personal possession or use rather than drug supply.
Depenalisation refers to reducing the severity of penalties.
Legalisation refers to making an act lawful when previously it was prohibited. In the context of cannabis, this usually refers to the removal of all criminal and non-criminal sanctions, although other regulations may limit the extent of the permission. This term is generally used in the context of drug production and supply.
Legal Regulation implies that a set of rules and restrictions is placed around the production, supply and possession/use of a substance as is the case for alcohol and tobacco. Penalties for breaching these rules may be criminal or non-criminal.
N.B. 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. (EMCDDA, 2013; BMA, 2012)

Importantly, some jurisdictions are now developing and implementing a range of legally regulated market models for non-medical cannabis use. These include commercial enterprises in the US and the Netherlands; and, Uruguay's government-controlled model (see Boxes 7-11). Current moves towards the legal regulation of markets are driven to a large extent by a significant shift in levels of public support for cannabis decriminalisation/legalisation[1]. The results of a recent poll in UK, for example revealed that over half of the public (53%) support cannabis legalisation (legal regulation of production and supply) or decriminalisation of possession of cannabis[2]. Gallup reports similar findings in the US (see Fig 1) [3].

[1] This was not the case in Uruguay, where the majority of the population did not seem to support the introduction of the new bill (Kilmer et al, 2013).
[2] http://tdpf.org.uk/campaign/changing-public-opinion
[3] http://www.gallup.com/poll/165539/first-time-americans-favor-legalizing-marijuana.aspx

Figure 1 Gallup poll US public opinion on cannabis legalization (2013)



Such approaches to legalisation and regulation, with the exception of the Netherlands, have not seriously been on policy agendas until recently. Specific provisions related to cannabis in the UN Drug Conventions adopted in 1961, 1971 and 1988 (see Box 2) have substantially constrained national and local reform efforts to move in this direction and decriminalise possession *and* supply. These UN treaties require that use and possession of controlled drugs, including cannabis, must be prohibited for other than medical and scientific purposes, and that possession must be a criminal offence[4]. Importantly, the treaties also require that signatory nations, which include all EU Member States, must forbid any domestic market in the substances, other than for medical or scientific purposes.

[4] Although the penalty is not defined – which allows room for different interpretations.

Box 3. The UN Drug Conventions

The 1961 Single Convention on Narcotic Drugs (and a 1972 protocol amending it), classifies cannabis as a narcotic drug and placed in the strictest schedule IV[5], 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".*
The 1971 Convention on Psychotropic Substances, reinforced the 1961 convention and extended drug control reach to cover a wide range of manufactured psychoactive medications used pharmaceutically, including amphetamines and benzodiazepines, as well as LSD and other psychedelic substances; and,
The 1988 Convention against Illicit Traffic in Narcotic Drugs and Psychotropic Substances specifically requires signatory nations to 'establish [possession of cannabis and other named drugs] as a criminal offence under domestic law'.

This has meant that no nation, prior to recent initiatives in Uruguay and sub-national jurisdictions (i.e., Colorado and Washington States) in the US (operating with tacit approval of the US federal government- see Box 7 [6]) has a fully formed system of regulatory control of these substances for any purpose other than for medical use (Room, 2012). As jurisdictions move from prohibitionist approaches to the elaboration of legal regulatory policies, unprecedented public health opportunities have emerged to: learn lessons from the ending of alcohol prohibition; avoid mistakes made in setting up "free enterprise" alcohol and tobacco markets; and, benefit from knowledge gained in the slow and difficult process of developing regulatory controls on these industries.

While prohibitionist policies have been primarily shaped by and continue to be promoted by ideological, political and economic interests, new regulatory approaches offer the opportunity to craft policies that build on critical scientific thinking and health and social policy norms such as evaluation of interventions using established indicators of health and wellbeing (Rolles, 2010; Kilmer, in press).

1. What can we learn from the health, social and economic impacts of current prohibitionist approaches?

1.1 Prohibitionist approaches haven't achieved their stated goals

Experience of the past 50 years has demonstrated that prohibitionist policies have never achieved their stated aims of completely eradicating the non-medical use of cannabis and other controlled substances. On a consistent basis for more than two

[5] Based on classification systems of International Narcotics Control Board (INCB)
[6] The fact that this is happening in the U.S. is especially important, given the history of the US's special role as enforcer of the drug treaties.

generations, global cannabis production, consumption, availability and related health and social problems have risen in the face of increasing elaborate globally applied prohibitionist actions (e.g., interdiction, criminalisation, etc.).

Cannabis today, is the most commonly used illicit drug across the world. The United Nations Office on Drugs and Crime (UNODC) estimates, probably conservatively, that 180 million people use cannabis worldwide each year. In the EU and Norway an estimated 2 500 tons of cannabis are consumed every year. 23 million people (6.8 % of all 15- to 64-year-olds) have used the drug in the past year and about 12 million (3.6 % of all 15- to 64-year-olds) in the last month (Trautmann et al, 2013).

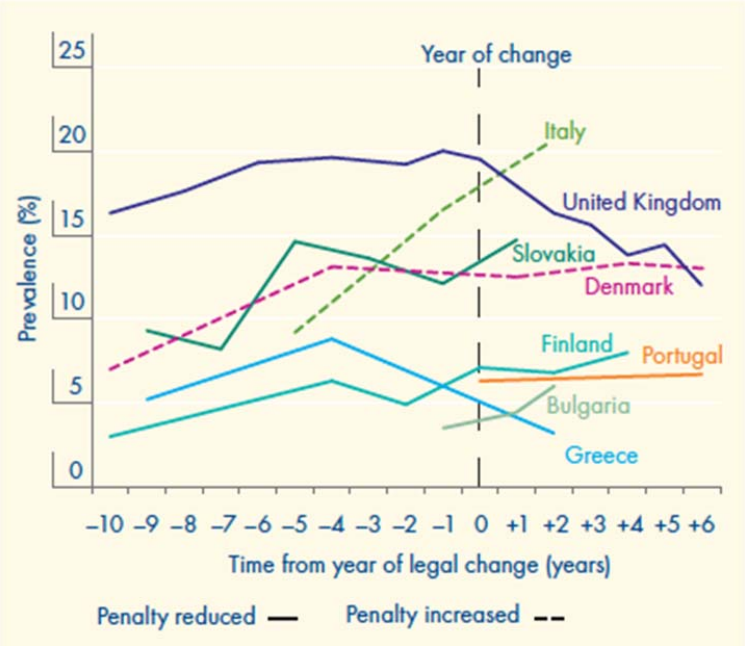
1.2 Prohibition as a deterrent to use is not well evidenced

International comparisons show no consistent correlation between the harshness of enforcement and prevalence of cannabis use. The research that does exist suggests that social and cultural variables are most important and that enforcement-related deterrence is, at best, a marginal factor in influencing decisions to use cannabis.

The Netherlands, where cannabis is available from licensed premises, does not have significantly different levels of use from its prohibitionist neighbours. The UK, which has one of the harshest regimes, has one of the highest levels of drug use in Europe. Prohibitory policies in some countries have shown different effects on different drugs. Sweden with its prohibitory national policy, for example, has rather low cannabis use prevalence but higher levels of opiate and stimulant use. Different states within the US and Australia, for example, have very different enforcement regimes for cannabis possession – from very punitive regimes to *de facto* decriminalisation. Comparing the different states (see Box 4) shows there is no correlation between enforcement and prevalence (Room et al., 2009).

Box 4. Looking for a relationship between penalties and cannabis use

Over the past 10 years, a number of European countries have changed their drug laws regarding cannabis, and many of these have prevalence estimates for the use of the drug before and after the legal change. This analysis was performed using prevalence data for 15- to 34-year-olds. In the graph, last year cannabis prevalence is plotted against time, with zero on the horizontal axis representing the year of legal change. Because of differences between countries in the year in which they changed their laws and in the extent of their survey data, the trend lines cover varying times.



Countries increasing the penalty for cannabis possession are represented in the graph by dotted lines, and those reducing the penalty by solid lines. The legal impact hypothesis, in its simplest form, states that a change in the law will lead to a change in prevalence, with increased penalties leading to a fall in drug use and reduced penalties to a rise in drug use. On this basis, the dotted lines would fall and the solid lines would rise after the change. However, in this 10-year period, for the countries in question, **no simple association can be observed** between legal changes and cannabis use prevalence (EMCDDA, 2011).

1.3 Prohibition has had significant "unintended" social and health consequences

The drug control system has created a huge untaxed income stream for criminal profiteers. Prohibition has been dubbed 'a gangster's charter' (Rolles, 2010) which has abdicated control of a multi-billion euro market in dangerous substances to violent organized criminal networks and unregulated dealers. In the EU and Norway, for example, cannabis use corresponds to a retail value of between 18 and 30 billion euros

per year (Trautmann et al 2013). UNODC estimates that retail expenditure on the drugs globally is valued at between 40 and 120 billion Euros. Many commercial cannabis-growing operations in the EU, for example, are now run by criminal organisations which rarely restrict their activities to one criminal area, and their involvement in the cannabis trade increases the likelihood of an association developing between cannabis production and other criminal activities. Belgium, Denmark and the Netherlands, for example, all report increases in criminal activities, including violence and intimidation, linked to cannabis production[7] (EMCDDA, 2012).

On an individual and community level, adverse social effects include stigma and discrimination of drug users and negative effects that drug users' behaviours have on community well-being (e.g., public drug use, drug dealing, and discarded injection equipment) and public safety (e.g., violence between drug dealers, and property crime to finance illicit drug use). Many who receive a criminal record due to cannabis possession or sale experience negative consequences in terms of their civil rights, employment, accommodation, interpersonal relationships, driver's licenses and other stigma associated with criminality.

Compromise provisions which lower penalties for possession, for example, often end up being more widely applied ('net-widening', in the parlance of criminologists) and criminalising more people (Room et al., 2012). In the United States, in 2011, 660,000 people were arrested for possession of cannabis (marijuana) and over 50,000 are in prison on cannabis possession charges. In the United Kingdom, about 1 million people have been convicted for cannabis possession (numbers for people imprisoned are not available) (Nutt, 2013).

1.4 Prohibition drains public funds

Prohibition drains public funds into criminal justice systems, has high opportunity costs and forfeits potential tax revenues. The total annual government expenditure on drug policy in the United Kingdom, for example, is around £1.1 billion annually (Davies et al, 2011). The majority of this expenditure is on treatment, with only around £300 million spent on enforcement. By contrast, it is estimated that the total government expenditure on drug-related offending across the criminal justice system is more than ten times this figure, at £3.355 billion.

Opportunity costs - Drug law enforcement budgets translate into reduced options for other areas of expenditure – whether other enforcement priorities, other drug-related public health interventions (such as education, prevention, harm reduction and treatment), or wider social policy spending. Further opportunity costs accrue from the

[7] In producer/transit countries, such as in Latin America, the suffering caused by this war is vastly more widespread, and affects whole populations by the destabilisation of political and social systems through the corruption, violence, and institutional collapse that result from directing hundreds of billions of dollars annually into the hands of criminals.

productivity and economic activity that is forfeited as a result of the mass incarceration of drug offenders. (UNODC, 2008)

Lost tax revenue - Lost tax revenue is another opportunity cost of the war on drugs. The Dutch coffee shops, for example, reportedly pay over €400 million in tax annually, and turn over somewhere in the region of €2 billion. A more speculative report by Harvard economist Jeffrey Miron suggested that legalising and regulating drugs in the US would yield tens of billions of dollars annually in both taxation and enforcement savings (Miron & Waldock, 2011).

1.5 Prohibition has led to discriminatory enforcement

There are sizable gaps in many European countries between formal cannabis policy and cannabis policy as implemented (Reuter, 2009). One key factor relates to whom responsibility for policy enforcement is entrusted. Different policies, for example "officially" assign discretionary power to regional police authorities, enforcement officials, prosecutorial officials, and/or judicial officials. These officials may opt for a more punitive or more permissive approach, depending on their own or their organisation's agenda.

Such discretionary power has resulted in discriminatory enforcement. Cannabis laws have been selectively enforced by police officers, for example, who focus on certain groups for cannabis control and "stop and search" checks. In the UK, for example enforcement of drug laws has been shown to be unfairly focused on Black and Asian communities, despite their rates of drug use being four times lower than the white majority. Eastwood, Shiner and Bear (2013) note that in the UK in "2009/10 the overall search rate for drugs across the population as a whole was 10 searches per 1000 people. For those from the white population it was 7 per 1000, increasing to 14 per 1000 for those identifying as mixed race, 18 per 1000 for those identifying as Asian and to 45 per 1000 for those identifying as black" (Ibid, p.12).

1.6 Prohibition makes accurate research difficult

Criminalisation of drug use makes it difficult to collect high quality data to study patterns of use and harms. There is insufficient evidence, for example, to assess whether the all-cause mortality rate is elevated among cannabis users in the general population (Hall & Degenhardt, 2009). Moreover, prohibitive drug control has hindered research into the therapeutic potential of cannabis. Access to cannabis for research purposes is limited, difficult to obtain and restrictive. Research using these substances can be undertaken only after approval of a government agency. In the United Kingdom, for example, control is exercised by the Home Office, which can provide sites such as laboratories and hospitals with licences to produce or hold these drugs. Production or use of controlled drugs without such a licence is illegal and can bring severe penalties of up to life imprisonment (Nutt, 2013).

2. How new regulatory policies can be crafted to protect public health and well-being

2.1 Reframe[8] the debate

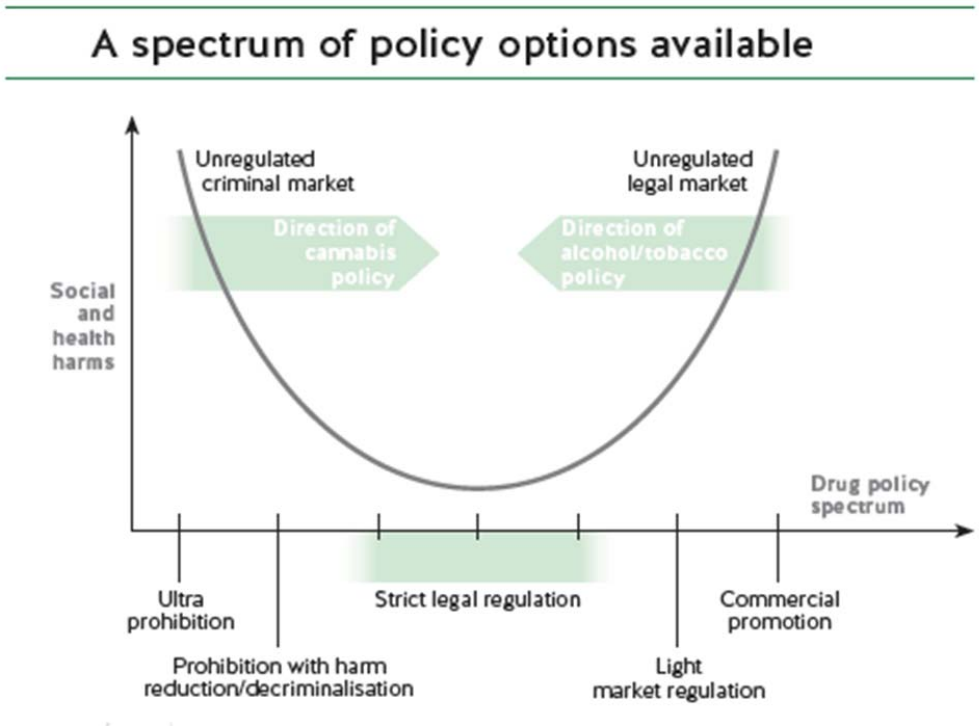
When policies have been implemented for decades, communities find it hard to believe that there are realistic alternatives to existing policy. Fears and anxiety about alternative approaches are common. Re-framing approaches must therefore pay careful attention to ample discussion, communication and knowledge diffusion. While specific reframing strategies, language and messaging will need to be customized to context, emphasising evidence of effectiveness (or lack of effectiveness) has been identified as a key part of re-conceptualising the debate as a rational/scientific one rather than a moral/ideological one (Rolles, 2010). A clear articulation of principles and aims, such as reducing health and social harm, are essential for developing policy and evaluating its impacts to facilitate future improvement (see 2.2 and Box 4).

Figure 1 describes a U-shaped relationship of unregulated criminal and/or legal markets to social and health harms and makes the case for strict legal regulatory approaches (Transform, 2013)[9]. This figure provides a conceptual mapping of options and shows that there is a spectrum of legal/ policy frameworks available for regulating the production, supply and use of non-medical cannabis. At one end 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 end. At either end of this spectrum are effectively unregulated markets which are associated with high levels of both social and health harm. Strict drug market regulation models found in this central part of the spectrum are hypothesised as best able to reduce social and health harms (Transform, 2013).

[8] Framing/Re-framing is 'selecting some aspects of a perceived reality and making them more salient…in such a way as to promote a particular problem definition, causal interpretation, moral evaluation and/or treatment recommendation.' (Entman,cited in Chapman 2004, p362). Framing/Re-framing strategies are at the heart of health communication. The language - verbal and visual - in which an issue is couched, and the terms in which it is presented, can determine the way in which it is perceived and responded to by both members of the public and policy makers. This framing/re-framing creates the context within which all policy debates take place. In a sense, debates over public health policy issues often represent a battle to re-frame the issue in the eyes of the public and policy-makers in a way most conducive to success for one protagonist or another.

[9] See John Marks - http://www.youtube.com/watch?v=0dTBfV9TspM

Figure 1 - Cannabis policies and social/health harm: A conceptual model



(Transform, 2013; Marks, 2008)

2.2 Set ground rules and clear measureable objectives

Meaningful ground rules and objectives (with measurable performance indicators) will need to be established for all aspects of the legal regulation cannabis market and it's 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, patterns or impacts of cannabis use (particularly among young people), levels of crime, expenditure and revenue, should also be evaluated on an on-going basis. Such monitoring should be used to regularly review and adapt policies as needed in light of emerging evidence. Since it is unlikely that any pioneering jurisdiction will get cannabis legalisation "right" on the first attempt, it would be wise to build flexibility into the system (Kilmer, in press).

Box 5. "Ground rules": Examples – Netherlands coffee shops and US Federal Guidance on cannabis law enforcement	
Netherlands (AHOJ-G) criteria for coffee houses	USA –US Department of Justice Guidance regarding marijuana (cannabis) enforcement (2013)- Policy efforts will focus on:
• No Advertising • No selling of Hard drugs • No Nuisance (*Overlast*) • No selling to Young persons under 18 (*Jongeren*) • No big (*Groot*) quantities, i.e. above 5 grams per transaction.	• Preventing the distribution of marijuana to minors; • Preventing revenue from the sale of marijuana from going to criminal enterprises, gangs, and cartels; • Preventing the diversion of marijuana from states where it is legal under state law in some form to other states; • Preventing state-authorized marijuana activity from being used as a cover or pretext for trafficking of other illegal drugs or other illegal activity; • Preventing violence and the use of firearms in the cultivation and distribution of marijuana; • Preventing drugged driving and the exacerbation of other adverse public health consequences associated with marijuana use; • Preventing the growing of marijuana on public lands and the attendant public safety and environmental dangers posed by marijuana production on public lands; and, • Preventing marihuana possession or use on federal property.

Box 6. Proposed objectives for regulatory cannabis policies (Transform 2013)

- 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

2.3 Raise awareness about therapeutic uses and potential (and relative) harms

2.3.1 Medical use of cannabis

The medical use of cannabis has a very long history and has been used for thousands of years in Indian and other Asian medicine. It was first introduced to the west in the mid-nineteenth century was taken up enthusiastically by physicians in Europe and the US and was widely used for almost a hundred years until it fell out of favour as new and more easily standardized medicines became available and international drug treaty related government regulations were imposed. Tincture of cannabis finally left the British Pharmacopoeia in the mid-1970s (Crowthers et al. 2010)

Recent research identifies a variety of potential uses and neuroscience interests in cannabis (see Figure 2). Self-reports reveal that cannabis is commonly smoked as self-medication to improve sleep and reduce anxiety symptoms, and there is growing interest in its possible use in attention-deficit hyperactivity disorder. Plant derived tetrahydrocannabinol (THC) also has utility in the treatment of pain and spasticity in conditions such as multiple sclerosis and AIDS. Other ingredients of the cannabis plant, such as cannabidiol (CBD) and tetrahydrocannabivarin (THCV), have a pharmacology that is quite different from that of THC and may have utility in the treatment of seizure disorders, anxiety, psychosis and addiction (Nutt et al, 2013).[10]

Figure 2- Therapeutic, potential therapeutic and neuroscience interest (Nutt et al, 2013)

Drug	Therapeutic uses	Potential therapeutic uses	Neuroscience research interests
Cannabinoid THC	• Spasticity • Pain • Appetite stimulation	• Attention-deficit hyperactivity disorder • Post-traumatic stress disorder • Insomnia	• Nature of consciousness • Model of psychosis • Mechanisms of pain and appetite
Cannabinoid THCV		• Anxiety • Insomnia	• Emotion regulation

[10] It has been suggested (Kilmer, 2013) that jurisdictions seeking to reduce anxiety and capitalize on CBD's antipsychotic properties could, for example, impose a maximum THC concentration, a minimum CBD concentration, or a THC:CBD ratio below a certain threshold.

2.3.2 Potential and relative harm

Like all drugs, cannabis has risks (see Box 7) and its use can be dangerous and that is why it needs to be properly regulated. Trautmann et al (2013) noted that while most cannabis use at the population level is likely to be transitory and at low levels, a significant minority of users use the substance intensively and/or for long periods of time. These patterns of use are reported to be most significantly associated with harms to the user and possibly with a need for treatment. Trautmann et al. estimated that there are around 3 million daily or almost daily cannabis users in the EU and Norway.

Box 7. Acute, Chronic and Relative adverse health effects of cannabis

Findings from reviews show no evidence that cannabis use increases overall mortality.
Acute adverse effects of cannabis use include anxiety and panic in naive users, and increased risk of accidents if users drive while intoxicated. These risks are less than those for alcohol and fewer drivers use cannabis—the estimated proportion of road-traffic accidents attributable to cannabis in France between 2001 and 2003 was 3% (vs.30% for alcohol). Use during pregnancy could reduce birth weight, but does not seem to cause birth defects. Whether cannabis contributes to behavioural disorders in the offspring of women who smoked cannabis during pregnancy is uncertain.
Chronic cannabis use can produce a dependence syndrome in as many as one in ten users. The substance is currently the most frequently mentioned drug by those demanding drug treatment for the first time in the EU and Norway. This is likely a reflection of levels of use rather than relative addictiveness. Regular users have a higher risk of chronic bronchitis and impaired respiratory function, and psychotic symptoms and disorders, most probably if they have a history of psychotic symptoms or a family history of these disorders. The most probable adverse psychosocial effect in adolescents who become regular users is impaired educational attainment. Adolescent regular cannabis users are more likely to use other illicit drugs, although the explanation of this association remains contested.
Regular cannabis use in adolescence might also adversely affect mental health in young adults, with the strongest evidence for an increased risk of psychotic symptoms and disorders. In the case of depressive disorders and suicide, the association with cannabis is uncertain. For cognitive performance, the size and reversibility of the impairment remain unclear (Calabria et al., 2010; Hall, et al., 2009)
Relative effects. The public health burden, toxicity and social dangerousness of cannabis use is identified as modest compared with that of alcohol, tobacco, and other illicit drugs (Nutt 2007, 2013; Roques 1999).

2.4 Address the practical details of policy development

While specific actions taken by any jurisdiction will depend on the nature of the existing market, policy frameworks, and social and political environment, all jurisdictions will need to agree a set of rules and restrictions around the **production, supply and possession/use** of non-medical cannabis. All will need to make system design choices aimed at achieving agreed goals, e.g., protecting public health, youth and

the vulnerable. There are a wide variety of good resources available describing practical considerations related to legal regulation (see Transform, 2013; Kilmer, 2013; EMCDDA, 2013; Caulkins et al. 2012a, 2012b; Room, 2013). These draw on existing experience and decades of research in a wide variety of settings.

Acknowledging the difficulties involved in strengthening regulatory controls on tobacco and alcohol and their well-established and culturally embedded legal commercial markets, experts recommend to start out with strong government controls related to all aspects of the cannabis trade. This should also be complemented with prevention and education measures aimed at curbing potential increases in use. The aim would be to move to less restrictive or interventionist models once new social norms and social controls around legal cannabis markets have been established. As different jurisdictions gain experience, new entries will benefit from others experience.

Specific issues related to **production, supply and possession/use** include:

2.4.1 Production

Aims - The aims here are to:

- ensure quality through appropriate testing;
- prevent leakage to unregulated illicit markets; and
- provide effective supply chain management.

Tools - Key policy implementation tools here would include: licensing, tracking systems that monitor from "***seed to sale***", quality control sampling, production limits and fair trade principles.

Issues and questions to be addressed could include:

- **Licensing** - how many suppliers and licensing agreements are key issues; e.g. Netherlands, Uruguay, Colorado and Washington using very different strategies (see Boxes 7-11);
- **Purity of product** - forensic testing can be used to identify impurities, such as moulds and pesticides;
- **Formulations** – which will be allowed; e.g., will additives and concentrates be allowed? Will cannabis products be allowed to be infused with alcohol or tobacco? Will electronic cigarettes with hash-oil solutions be allowed?
- **Home growing** - age restrictions and production limits need to be set, e.g. in European countries specific limits have been set in some countries where self-cultivation of cannabis receives "lowest prosecution priority"(Kilmer et al 2013): Belgium has a 1 plant limit, Spain 2 plants, Switzerland (some cantons) 4 plants; and in the Netherlands, when up to five plants for personal consumption are found, the police would normally only seize them (see http://www.government.nl/issues/drugs/toleration-policy-regarding-soft-drugs-and-coffee-shops).

- **Indoor versus outdoor production** - this has important implications for security and the ability to properly monitor production systems (e.g., under the new medical cannabis regulations in Canada – all production is to be done indoors (Health Canada, 2012)).
- **Production limits** - imposing a limit on the amount of space that can be used for cannabis production (e.g., Washington set a limit at 2 million square feet - Washington State Liquor Control Board, 2013).

2.4.2 Supply

Aims - The aims here would be to:

- effectively control **price** - strike a balance between dissuading use, reducing size of competing illegal markets, displacing use from and to other drugs and generating sales and **tax revenues**;
- effectively **integrate taxation** policy into pricing structures;
- regulate availability of **different preparations** and promote lower risk products;
- ensure that **potency** is regulated and that consumers are informed of potency risks;
- ensure that **packaging** is child resistant, contains appropriate information, preserves freshness and is not designed to encourage use;
- ensure that **vendors** are trained, licensed and regulated; and
- create safe controlled **outlets (**retail-only and/or on-site consumption) that meets demand, reduces illicit-market competition, while at same time prevents potential increases in use.

Tools - Key policy implementation tools would be licensing and training requirements for vendors; controls on opening hours, locations (e.g., not near schools, playgrounds, places where young people gather, etc.), appearance (functional not promotional); restrictions on outlet density and signage; limitations on sale to cannabis only (no alcohol, tobacco, or other drugs).

Issues and questions to be addressed include (Kilmer, in press):

- **Potency -** An important question for jurisdictions seeking to regulate cannabis is whether a limit on THC should be imposed (e.g., there is currently a discussion in the Netherlands as to whether cannabis with THC potency higher than 15% should be moved to list 1 of the Dutch drug law listing drugs presenting unacceptable risks to user and society. Currently cannabis is on list 2 (drugs with less serious risks (Amsterdam Herald, 2013)).
- **Price** - users and potential users are sensitive to the price of cannabis: a 10% decline in price is likely to lead to approximately a 3% increase in cannabis participation (Pacula, 2010; Gallet, 2013);

- **Taxes** - If taxes are set too high, users could turn to the black market for an untaxed and unregulated product (Kilmer et al., 2010b; Caulkins et al., 2013b). One has to look no further than tobacco to observe the smuggling that occurs when taxes are set too high (Caulkins et al., 2010; GAO, 2011). Since it can be difficult to identify tax rates that create the right balance, they may need to be adjusted over time (Kilmer, in press)

2.4.3 Possession/Use

Aims – The aims here include:

- determining the optimum age threshold and enforcing age access controls;
- preventing excessive bulk purchases for re-sale on illicit market or to minors;
- determining appropriate public locations where cannabis can be consumed;
- preventing the promotion of cannabis and cannabis use;
- implementing adequate marketing restrictions (including branding, advertising, point-of-sale, sponsorship;
- complementing activities with evidence-based prevention, peer-education and harm reduction programmes;
- ensuring the sustainability of interventions; and,
- involving users in the development, monitoring and evaluation of policies.

Tools - Key policy implementation tools would include: tough penalties for underage sales (similar to alcohol and tobacco); sales limits/rationing (e.g. 40gm/a month in Uruguay; 5gm per person per day in Netherlands); no smoking in public places which could mimic those for tobacco (although vaporizer technology could allow cannabis to be consumed indoors in that it does not pose second-hand smoke threats).

Issues and questions - to be addressed include

- **underage use** will certainly be an issue as it is for alcohol and tobacco strict enforcement is a big challenge e.g. in UK selling alcohol to underage person is punishable by £ 80 to member of staff and £5000 fine and license review to proprietor;
- developing and sustaining **preventive programmes**;
- implementing and enforcing **complete advertising bans** - e.g., Article 13 of the WHO Framework Convention on Tobacco Control (FCTC) provides a blueprint for this.

2.4.4 Build institutional capacity

All these initiatives will need adequate human and 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 co-ordinate between all relevant government departments,

or a new umbrella body will need to be created. The costs of developing and implementing these new regulatory infrastructures should be easily supported through new tax revenues and would represent only a fraction of the ever-increasing resources currently directed into efforts to control supply. Twinning programs, for example, between cities and different types of institutions, to exchange experience, know how and best practices should be considered.

2.4.5 Integration

The short-term benefits of **r**egulation will relate in large part to reducing problems that stemmed from prohibition and the illicit trade it has created. Regulation alone, however, cannot tackle the underlying drivers of problematic drug use (such as, inequality and social deprivation) and will need to be integrated into more comprehensive public health/intergovernmental strategies and action.

2.5 Learn from alcohol and tobacco experiences

Alcohol and tobacco are the most widely used legal (and risky) drugs, and public health interventions aimed at reducing their health and social harm provide invaluable lessons for developing effective cannabis regulation models.

2.5.1 Commercial dominance

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. 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 craft and adopt more 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.

Policy development for cannabis regulation is starting from a very different place. 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[11].

[11]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.

2.5.2 EU and WTO Trade issues

An EU specific area to learn from is the importance of cannabis being exempt from any "single-market" rules forcing it to be allowed across state borders. The experience with snus,[12] allowed in Sweden but not elsewhere in the EU, can be drawn on here.

Both the single market mechanisms of the European Union and the trade agreements administered by the World Trade Organisation have created substantial difficulties for alcohol and tobacco control regimes (e.g., Room and West, 1998; Taylor et al., 2000). The Framework Convention on Tobacco Control helps to remedy this situation, but the issue of whether it overrides trade agreements is not settled (Room, 2006). It would thus be wise for any move to legalise cannabis, however restrictive the regulations, to take into account the need to exempt hazardous substances from coverage under trade agreements and disputes.

Cannabis regulation now offers an unprecedented 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. And if, as some studies indicate, cannabis use can decrease alcohol consumption, many lives will actually be saved. (Transform 2013)

[12] Snus is a moist powder tobacco originating from a variant of dry snuff in early 18th century Sweden. The sale of snus is illegal in the EU but, due to special exemptions, it is still manufactured and consumed primarily in Sweden, Norway and Denmark (loose only).

2.6 Learn from action on all levels

Box 7- Uruguay National Cannabis Programme

"Cultivating freedom, Uruguay grows"

Uruguay has adopted a unique national law on cannabis which allows the state to regulate the production and sale of cannabis, reduce the harm caused by the illicit market and provide education and prevention opportunities. The law is to be administered by a National Institute for the Regulation and Control of Cannabis (INCA). Users may grow up to six plants themselves or join a cannabis club of 15 to 45 members, and possess up to 40 g; all growers must be registered at the INCA. Unauthorised cultivation or supply remains punishable by 20 months to 10 years in prison.

While the government will regulate the market and license land for marijuana plantations, the whole chain of production, distribution and sale through pharmacies will be in private hands. Buyers of the commercially produced cannabis, which will be sold over the counter through pharmacies, will have to sign up on a confidential registry, and purchases will be capped at 40 g per month. Uruguay's government will also control the psychoactive level of the cannabis sold through the pharmacies to the consuming public by testing the THC (tetrahydrocannabinol) content of the plants grown under the new system. The National Drugs Board is setting the THC content at between 5% and 12%. The price of cannabis is set by the government at around USD$1-3 per gram, which is on par with prices on Uruguay's illicit cannabis market. Cannabis sales are restricted to Uruguayan citizens only. Purchasers must present a medical prescription or be registered in the database in order to access cannabis. An Institute for Regulation and Control of Cannabis is set up to run the registry, as well as to issue and enforce regulations controlling the market, and to advise the government.

Government is framing the issue in terms of public health and safety and on how the law will change some current threats to the health and well-being. "As things stand today, drug dealers try to push harder drugs on teenagers who go to them for cannabis. This law will change that and prevent cannabis from at least in this sense being a step to more potent drugs."

Key aspects of system

A handful of private companies are contracted by the government to produce cannabis

Production is monitored by the Government-run National Institute for the Regulation and Control of Cannabis (INCA), which is also responsible for granting production licenses

All advertising and promotion of cannabis products in any medium are to be prohibited.

Taxes, although not mentioned in the current bill, are likely to be imposed.

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 Qualified pharmacists must hold cannabis commerce licences – which are awarded by the Ministry of Public Health – in order to legally sell the drug

5 varieties of cannabis are licensed for production and supply

DOIC- A per se THC limit is enforced, although at the time of writing the precise limit has not been specified. Blood tests or potentially other forms of testing will be used to establish THC levels

Home cultivation of up to six plants is allowed, and the resulting product should not exceed 480 grams. 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

Box 8 - Colorado, USA

The Rocky Mountain High

In November 2012, voters in Colorado voted to set up legal markets in cannabis for non-medical use. Colorado's scheme went live on 1 January 2014. This move which contravenes the UN Treaties is driven by a significant shift in levels of public support in US for cannabis decriminalisation/legalization, which have risen from around 15% in the 1980s to be over 50% today. This public opinion change underpins the US Attorney General decision not to seek, at the present time, to nullify or disrupt the new State regimes which violate federal law (Room, 2013).

The change is being framed around the aim of freeing up resources to fight violent and property crimes, regulate the visible trade and gain tax revenue from that trade. As in the Netherlands, the States licenses outlets, has established age limits (21 years, as for alcohol), restricts advertising, limits personal possession (to 1 oz./28 g) and prohibits use in public. Unlike the Netherlands, they have established a state licensing system for production and processing to supply the outlets.

The Department of Revenue, which is also in charge of alcohol and tobacco licensing and enforcement and has run the medical marijuana system there, has developed the legislation for the retail marijuana market. The constitutional amendment passed by the voters (Amendment 64) provides a good deal of autonomy for localities to set regulations on the 'time, place, manner and number of marijuana establishment operations', and provides that they may prohibit local stores and cultivation operations. This has resulted in marijuana stores being concentrated in only about 20 cities or counties. After consultations with 'stakeholder working groups', the Department set up rules for licensing for growers, manufacturers, producers and for transport and storage and for testing facilities.

Key aspects of system:

No THC/potency limits, but packaging must indicate THC levels/content

Retail price is essentially determined by the market and taxes

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

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

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 must produce at least 70% of what they sell

Marketing campaigns that have a "high likelihood of reaching minors" are banned

Storefront window displays of cannabis products are also banned

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

Residents are permitted to grow up to 6 plants for personal use

Box 8 - Colorado, USA, continued

Retail weed will have a 25% state tax -- plus the usual state sales tax of 2.9% -- making recreational pot one of the most heavily taxed consumer products in Colorado. Some communities are adding even more taxes to the product. The additional revenue will initially amount to $67 million a year, with $27.5 million of it designated to build schools, state tax officials say. (Transform, 2013; CNN, 2014)

Box 9 – The Netherlands

Front door – Back door approach

In the Netherlands, cultivation, supply and possession of cannabis are criminal offences, punishable with prison sentences. However, a practice of tolerance, first set out in local guidelines in 1979, has evolved into the present-day concept of 'coffee shops', cannabis sales outlets licensed by the municipality. About three-quarters of municipalities do not allow coffee shops, and the number of coffee shops across the country is steadily decreasing, from 846 in 1999 to 651 in 2011.

Wholesale cultivation and distribution of cannabis is not tolerated in the Netherlands, resulting in what is known as 'the back-door problem', i.e. drugs may be sold at the front but not supplied at the back. Although there have been many discussions on this inconsistency, to date no solution has been agreed.

Netherlands has a medical cannabis programme that has production controls in accordance with European Good Agricultural Practice criteria. An independent laboratory tests it for purity. From May 2012, a scheme to convert coffee shops into closed clubs with registered members was implemented in the three southern provinces (e.g., see Utrecht model (Bennett-Smith, M, 2013). From January 2013, the coffee shops should be for residents of the Netherlands only. Implementation of this rule varies, however, by municipality.

Key aspects of system

Cannabis is still sourced from the illicit market with no regulatory oversight. Some is produced domestically, some is still imported from traditional producer regions

A range of cannabis products are legally available through the coffee shops

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 putting high potency cannabis (with a THC level of over 15%) on list 1 (the so-called hard drugs) but this has yet to be implemented

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

Coffee shops may not sell more than 5 grams per person per day

Some border municipalities enforce residents-only access for the coffee shops

No formal training of vendors is required

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

Coffee shops do not pay VAT, but do pay various income, corporation and sales taxes. In 2008,

Box 9 – The Netherlands, continued

Dutch coffee shops paid €400m on sales of over €2bn
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
DOIC- Impairment-based testing, with sanctions including suspension of license (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
Cultivation of up to 5 cannabis plants is considered a "low priority for prosecution"

Box 10 – Spain

Cannabis clubs

Cannabis social clubs exist on the basis that consumption of illegal drugs has never been a crime under Spanish legislation and operate on the principle of "shared consumption". Under this principle of shared consumption, which was established by the Supreme Court in the 90s as a harm-reduction measure in response to public health problems of heroin consumption in Spain, giving drugs for compassionate reasons and the joint purchase by a group of addicts - as long as this does not involve profit-seeking - are not crimes. The extent to which cannabis social clubs meet these criteria remains unclear.

Cannabis social clubs establish operating rules in order to avoid charges of trafficking, drug supply or encouraging drug use, which are still subject to criminal penalties under Spanish law. For example, the advocacy group Encod (2011) has proposed that clubs should operate as a collective agreement, with a register of members, costs calculated to reflect expected individual consumption and the amount produced per person limited and intended for immediate consumption. Clubs should be closed to the public and new members should be established cannabis users who are accepted only by invitation. Many different interpretations of this model exist. For example, some clubs propose a maximum number of members of around 100, while other clubs may have more than 5000 members.

The cannabis club model, although variously promoted by activists in Belgium[13], France, Spain and Germany, is nevertheless not yet tolerated by national authorities in any European country. This means that cannabis social clubs are likely to be subject to legal sanctions should they be identified or at best may be operating in a legal grey area.

[13] In Belgium there are four Cannabis Social Clubs at the moment: 'Trekt Uw Plant' (since 2006), the Mambo Social Club (since April 2013), Ma Weed Perso (exact date unknown) and Weed' Out in Andenne (exact date unknown). 'Trekt Uw Plant' is the most established one (and longest running) consisting of around 300 members. For more information, please see Kilmer et al (2013).

Box 10 – Spain, continued

Currently, in Spain[14], there are around 600 clubs, with 350 of these in Catalonia and 75 in the Basque country. There are as least 9 Spanish federations, of which more than 100 clubs are members, which exist for lobbying purposes.

Key aspects of system

- No license required and no formal regulatory oversight
- Club workers or volunteers oversee production under an informal code of conduct
- Mostly herbal cannabis or hashish, although edibles, tinctures and other preparations are often available
- Strains of varying strength cultivated
- No formal mandatory potency testing
- Users pay membership fees proportionate to their consumption, which are then reinvested back into the management of the clubs
- 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
- No formal training of vendors is required, although clubs usually employ staff or volunteers with a substantial knowledge of cannabis and its cultivation
- 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
- Cannabis is distributed on-site, by club workers, and limited amounts can be taken away for private consumption at the member own risk (there are fines for possession or consumption in public spaces)
- No advertising of products or clubs themselves is permitted
- DOIC- Impairment-based testing, with a range of criminal and administrative sanctions potentially applicable
- Cultivation of plants is permitted, although the number of plants allowed is unspecified.

[14] There is currently an open debate at Health Policy Committees of the Catalan Basque Country Parliaments to establish a regulatory process for cannabis clubs that will acknowledge the reality of the phenomenon and provide for more effective public health interventions.

Box 11 – Comparison Table

	Netherlands	Spain- Cannabis Clubs	Colorado State	Uruguay
Level of law	National prosecutor guidelines	No licensing- Membership informal code of conduct	State law (conflict with federal law)	National law
Retail authorisation	Licensed (municipality)	No formal regulatory authority	Licensed (locality)	Licensed/registered (national institute)
Production authorisation	Production and supply to outlets is illegal	No formal regulatory authority	Licensed (locality)	Licensed/registered (national institute)
Age limit for possession	18	Not mentioned	21	Not mentioned
Growing at home	Up to five plants if for own use	Permitted – number unspecified	Up to six plants (can not be sold)	Up to six plants/480 g
Maximum amount permitted for possession	5 g (limit for investigation) 30 g (limit for prosecution)	Member limit 2-3 g/day	1 oz (28.5 g)	40 g

2.7 Change the treaties

The world is now saddled with drug treaties which are not fit for purpose. Dating from 1961 to 1988, the treaties are over-reaching artefacts of the Cold War era, when one of the few issues on which the parties could agree was that drugs were suitable enemies for the modern state (Room 2013, quoting Christie & Bruun's analysis).

Reforms that are allowing experiments with models of legal market regulation (such as those in Uruguay, Colorado and Washington) are likely to be the driver of a renegotiation of the treaties, and, in fact, precipitate a wider structural reorientation in how drug markets in different societies are managed at an international level. The challenge will be 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 overnight destroying the entire edifice (Babor, et al, 2010). 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 use 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.

A number of options have been suggested for (re)formulating a new international drug control infrastructure (Room, 2012), including,

a) Encouraging countries to set up regulatory regimes controlling commercial production and sale of psychoactive drugs (e.g., like the Framework convention on tobacco control (FCTC)), in order to limit health and social harms from use of the substances. Such regulation would enable control over ingredients and percentages, much in the same way as alcoholic drinks and the information of purity, strength and ingredients on the packaging. Decisions regarding the form and content of the regime would be taken at national or sub national level, and the prohibition of production and sale of the substance is an option.

b) Requiring countries to respect national decisions about the domestic market for a particular psychoactive substance, including forbidding commercial export to a country where sale of the substance is prohibited, and requiring that a country's advertising or promotion restrictions on a psychoactive substance be respected by media directed across borders.

c) Setting up an international oversight agency which would have the tasks of monitoring production and trade in psychoactive substances and patterns of use globally, and coordinating international action to minimise health and social harms (e.g. WHO with the FCTC) [15].

d) Adopt a new drug-specific treaty; e.g., for cannabis.

This is essentially uncharted territory: all of these options present complex legal and diplomatic challenges and come with significant (if diminishing) political costs. However, despite diplomatic and institutional inertia, it is clear that the failings of cannabis prohibition are now tipping the balance in favour of reform at both state and multilateral level. It is also clear that there are now countries that are simply ignoring the treaties (such as Uruguay and the US - in states of Colorado and Washington). The fact that the INCB does not seem able to do much about 'deviators' is of course interesting. It is sometimes used in debates as argument for not putting so much effort in changing the treaties but simply let them 'fade away'. For some countries treaties do not take precedence over national laws.

It is also worth noting that any change to the scheduling of cannabis under the international drug control system is likely to undermine the whole so-called " War on Drugs" approach. Without cannabis within the system's remit, the proportion of illegal drug-users in the global population is just over 1 % - far too small to justify the vast

[15]See more at: http://reformdrugpolicy.com/beckley-main-content/global-initiative/a-new-convention/#sthash.RAFOu9GG.dpuf

costs, both in financial terms and human suffering, which result from the current efforts to enforce the ideals behind prohibitionist approaches. (Room, 2012)

3. Summary

This policy paper has looked at the health, social and economic impacts of current prohibitionist approaches and how legal regulatory cannabis policies could be crafted that better protect public health, wealth and well-being. For most jurisdictions cannabis regulation provides a unique opportunity to replace un-regulated criminal markets with legal regulatory approaches that are built and evaluated on public health principles and outcomes from the outset. Whether such legalisation is a net positive or negative for public health and safety will depend on how well regulations are formulated and implemented. By removing political and institutional obstacles, by freeing up resources for research and evidence-based public health and social interventions, legal regulation can potentially create a more conducive environment for achieving improved drug policy outcomes, with reduced social and health harms , in the longer term.

References

Amsterdam Herald(2013). Utrecht sets up Netherlands' first 'cannabis club' to create legal supply chain. *Amsterdam Herald* [online] 11 September 2013. Available from: http://www.amsterdamherald.com/index.php/news-specials/the-new-wietpas-rules-for-coffeeshops/974-20130911-utrecht-sets-up-netherlands-first-cannabis-club-decriminalise-supply-chain-justice-ivo-opstelten-dutch-politics [Accessed 20 Feb 2014].

Babor T, Caulkins J, Edwards G, et al.(2010). Drug policy and the public good. Oxford: Oxford University Press.

Barrett D, Lines L, Schleifer R, Elliot R, Bewley-Taylor D.(2008). *Recalibrating the regime - The Need for a Human Rights-Based Approach to International Drug Policy.* Beckley Foundation. International Harm Reduction Association. Report number: 13, 2008. [online] Available from: http://www.aidslaw.ca/publications/interfaces/downloadFile.php?ref=1295 [Accessed 20 Feb 2014].

Bennett-Smith M,(2013). First Cannabis Cultivation club Reportedly Forms in Dutch City of Utrecht. *The Huffington Post*. [online] 12 September 2013 Available from:. www.huffingtonpost.com/2013/09/11/cannabis-cultivation-club-utrecht_n_3909025.html [Accessed 20 Feb 2014].

British Medical Association (BMA) Board of Science(2013). *Drugs of Dependence: The Role of Medical Professionals*. BMA, London 2013. Available from: http://bma.org.uk/news-views-analysis/in-depth-drugs-of-dependence/full-report [Accessed 20 Feb 2014].

Calabria B, Degenhardt L, Hall W, Lynskey M. Does cannabis use increase the risk of death? Systematic review of epidemiological evidence on adverse effects of cannabis use. *Drug Alcohol Rev* 2010;29;318–330.

Carter C, Macpherson D. (2013).*Getting to tomorrow: a report on Canadian drug policy.* Canadian Drug Policy Coalition. SFU 2013. Available from: http://drugpolicy.ca/progress/getting-to-tomorrow/ [Accessed 20 Feb 2014].

Caulkins JP, Chandler S.(2005). *Long-Run Trends in Incarceration of Drug Offenders in the US.* Heinz Research 2005. Paper 21. p. 8. http://repository.cmu.edu/heinzworks/21 [Accessed 20 Feb 2014].

Caulkins JP.(2010). *Estimated cost of production for legalized cannabis*. RAND Corporation 2010, WR-764, Santa Monica, CA, USA. Available from: http://www.rand.org/pubs/working_papers/WR764/ [Accessed 20 Feb 2014].

Caulkins JP, Hawken A, Kilmer B, Kleiman MAR. (2012a). *Marijuana legalization: What everyone needs to know*. Oxford University Press 2012a.

Caulkins JP, Lee MA, Kasunic AM.(2012b). Marijuana Legalization: Lessons from the 2012 State Proposals. *World Medical & Health Policy* 2012b; 4(3-4): 18-19.

Caulkins J, Andrzejewski S, Dahlkemper L.(2013). *How much revenue could the cannabis tax generate, under different scenarios?* BOTEC Analysis Corporation 2013. I-502 Project #430-8b.

Caulkins JP, Hawken A, Kilmer B, Kleiman A, Pfrommer K, Pruess J, Shaw T. (). High Tax States: Options for Gleaning Revenue from Legal Cannabis. *OR. L. REV.*2013;91: 1041-1047.

Chapman, S. (2004) Advocacy for public health: a primer. J Epidemio Community Health 58:361-365.

Crowthers M, Reynolds I, Tansey M. (2010). *The Medicalization of cannabis.* Transcript of a Witness Seminar held by the Wellcome Trust Centre for the History of Medicine at UCL, London, on 24 March 2009. Welcome Trust, London 2010.

Cusick L, Martin A, May T. *Home Office Research Study 268. Vulnerability and involvement in drug use and sex work.* London: Home Office Research, Development and Statistics Directorate 2003.

Davies C, English L, Stewart C, Lodwick A, McVeigh J, Bellis, M.(2011). *United Kingdom drug situation: annual report to the EMCDDA 2011.* UK Focal Point Drug Situation Report 2011. [online] Available from: http://www.emcdda.europa.eu/attachements.cfm/att_191569_EN_UnitedKingdom_2011.pdf [Accessed 21 Feb 2014].

Degenhard L, Chiu W-T, Sampson N, Kessler RC, Anthony JC, Angermeyer M, et al.(2008). Toward a global view of alcohol, tobacco, cannabis, and cocaine use: findings from the WHO World Mental Health Surveys. *PLoS Med* 2008;5:e141.

Eastwood N, Shiner M, Bear D.(2013). The numbers in black and white: Ethnic disparities in the policing and prosecution of drug offences in England and Wales. Report number: 2. LSE consulting 2013. Available from: http://www.lse.ac.uk/businessAndConsultancy/LSEConsulting/pdf/ReleaseReport.pdf [Accessed 21 Feb 2014].

EMCDDA(2011). *Annual report* [online] 2011. Available from: http://www.emcdda.europa.eu/online/annual-report/2011/boxes/p45 [Accessed 21 Feb 2014].

EMCDDA(2012a). *Statistical bulletin 2012*. European Monitoring Centre for Drugs and Drug Addiction, Lisbon, 2012a. Available from: http://www.emcdda.europa.eu/stats12 [Accessed 21 Feb 2014].

EMCDDA,(2012b). *Cannabis production and markets in Europe*, European Monitoring Centre for Drugs and Drug Addiction, Lisbon, 2012b. Available from: http://www.emcdda.europa.eu/publications/insights/cannabis-market [Accessed 21 Feb 2014].

EMCDDA,(2012c). *Annual report 2012*: *The state of the drugs problem in Europe*. [online] European Monitoring Centre for Drugs and Drug Addiction, Lisbon 2012c. Available from: http://www.emcdda.europa.eu/publications/annualreport/2012 [Accessed 21 Feb 2014].

EMCDDA,(2013). *Models for the legal supply of cannabis: recent developments.* Perspectives on Drugs Series 2013. Available from: http://www.emcdda.europa.eu/topics/pods/legal-supply-of-cannabis [Accessed 21 Feb 2014].

EMCDDA,(2013). *EU Drug Markets Report - A Strategic Analysis*. European Monitoring Centre for Drugs and Drug Addiction, 2013. Available from: http://www.emcdda.europa.eu/publications/joint-publications/drug-markets [Accessed 21 Feb 2014]

Felbab-Brown V.(2009) *Shooting up: counter-insurgency and the war on drugs*. Brookings Institution Press.

Fountain J, Howes S, Marsden J, Taylor C, Strang J.(2003). Drug and alcohol use and the link with homelessness: results from a survey of homeless people in London. *Addiction Research and Theory* 2003; 11; 245-56.

United States Government Accountability Office(2011). *Illicit Tobacco: Various Schemes Are Used To Evade Taxes And Fees*. GAO-11-313, 2011; 14 app. 1. Available from: http://www.gao.gov/new.items/d11313.pdf [Accessed 21 Feb 2014].

Gallet CA.(2014) Can price get the monkey off our back? A meta-analysis of illicit drug demand. *Health Economics*, 2014 Jan;23(1):55-68 DOI: 10.1002/hec.2902.

Gordon HW.(2002). Early environmental stress and biological vulnerability to drug abuse. *Psychoneuroendocrinology,* 2002;27: 115-26

Hall W, Degenhardt L.,(2009). Adverse health effects of non-medical cannabis use. *Lancet*, 17 October 2009; 374.

Health Canada. *Backgrounder — Safety and Security Requirements for Licensed Producers.* [online] Available from: http://www.hc-sc.gc.ca/ahc-asc/media/nr-cp/_2012/2012-193bkc-eng.php. [Accessed 21 Feb 2014]

Hughes C, Stevens A. What can we learn from the Portuguese decriminalisation of illicit drugs? *Br J Criminology* Br J Criminol (2010) doi: 10.1093/bjc/azq038

Kilmer B., Kruithof K., Pardal M., Caulkins, J., RubinJ. (2013) Multinational overview of cannabis production regimes. Rand Europe Available from: http://www.rand.org/pubs/research_reports/RR510.html [Accessed 7April 2014]

Kilmer, B., Caulkins, J. P., & Bond, B. M. (2010a). *Reducing drug trafficking revenues and violence in Mexico: Would legalizing marijuana in California help?*. RAND Corporation, Occasional paper OP-325, Santa Monica, CA: RAND.

Kilmer, B., Caulkins, J. P., Pacula, R. L., MacCoun, R. J., & Reuter, P. H. (2010b). *Altered state? Assessing How Marijuana Legalization in California Could Influence Marijuana Consumption and Public Budgets*. RAND Corporation, Occasional paper OP315, Santa Monica, CA:RAND.

Kilmer, B. (2013). 7 key questions on marijuana legalization. *USA Today*. Retrieved from: http://www.usatoday.com/story/opinion/2013/04/25/marijuana-legalization-column/2104229/.

Kilmer, B. (In press). Policy Designs for Cannabis Legalization: Starting with the Eight P's. *American Journal of Drug and Alcohol Abuse*.

MacCoun, R. (2010) Estimating the Non-Price Effects of Legalization on Cannabis Consumption. Rand Drug Policy Research Center. WR-767-RC July 2010

Meier PS, Donmall MC & McElduff P (2004) Characteristics of drug users who do or do not have care of their children. *Addiction* **99**: 955-61

Miron J, Waldock K. (2010).*The Budgetary Impact of Ending Drug Prohibition.* CATO Institute Paper,.

Nutt, D., King,L., Nichols, D.(2013) Effects of Schedule I drug laws on neuroscience research and treatment innovation. Nature Reviews Neuroscience | AOP, published online 12 June 2013; doi:10.1038/nrn3530

Office of National Drug Control Policy(2004). *The Economic Costs of Drug Abuse in the United States: 1992–2002*. Washington.

UNODC World Drug Report 2008.

Pacula, R., B. Kilmer, A. Wagenaar, F. Chaloupka, & J. Caulkins. (In press). Developing public health regulations for marijuana: Lessons from alcohol and tobacco. *American Journal of Public Health*

Reuter, P. (2009) *The unintended consequences of drug policies*, in Reuter P, Trautmann F (eds.). *A Report on Global Illicit Drugs Markets 1998-2007*. Brussels, European Commission. Trimbos/RAND report on the global illicit drugs market 2009 p 233-`252.

Rolles S.(2007). *Tools for the debate*. Transform Drug Policy Foundation. Available from: www.tdpf.org.uk

Rolles S. (2009). *After the war on drugs: blueprint for regulation*. Transform Drug Policy Foundation. Available from: www.tdpf.org.uk/Transform_Drugs_Blueprint.pdf

Rolles S et al.(2012). The Alternative World Drug Report, Count the Costs initiative. Available from: www.countthecosts.org;

Rolles S. (2010). An alternative to the war on drugs. *BMJ* 17/7/2010: vol 341 p.127-8. *BMJ* 2010;340:c3360

Room R, Reuter P.(2012) How well do international drug conventions protect public health? *Lancet* 2012; 379: 84–91

Room, R., ed. (2012) *Roadmaps to Reforming the UN Drug Conventions*. Beckley Park, Oxford, UK: Beckley Foundation. Available from: http://www.beckleyfoundation.org/Roadmaps-to-Reform.pdf

Room, Robin. (2013) Legalizing a market for cannabis for pleasure: Colorado, Washington, Uruguay and beyond. *Addiction* doi:10.1111/add.12355

Room R, Hall W, Reuter P, Fischer B, Lenton S. (2009) Global cannabis commission report. Beckley Foundation.

Roques, B. (1999). La dangerosité de drogues: rapport au secrétariat d'État à la santé (The dangerousness of drugs: report to the state secretariat for health). Paris: La Documentation française-Odile Jacob.

Rugg J (2000) *Making connections: tackling youth homelessness through a multi-agency approach*. London: Shelter

Strategy Unit. (2005). Strategy Unit Drugs Report, May 2003. London: Prime Minister's Strategy Unit. http://image.guardian.co.uk/sys-files/Guardian/documents/2005/07/05/Report.pdf

Transform (2013) *How to regulate Cannabis: A practical guide* . Transform Drug Policy Foundation, Bristol, UK.

Trautmann, F., Kilmer, B., Turnbull, P., editors (2013). Further insights into aspects of the EU illicit drugs market. Luxembourg: Publications Office of the European Union.

UNODC (2008) 2008 World Drug Report, p.212. Available from: www.unodc.org/documents/wdr/WDR_2008/WDR_2008_eng_web.pdf

Washington State Liquor Control Board (2013) Proposed Rules Highlights. Available from: www.liq.wa.gov/publications/Marijuana/I-502/I-502-Draft-Rule-Summary-VI-9-4-13.pdf.

Waterfeld, B.,(2011). *'Maastricht loses "£26 million-a-year" after drug tourism ban'*, The Daily Telegraph, 03/11/2011. _http://www.telegraph.co.uk/news/worldnews/europe/netherlands/8867662/Maastricht-loses-26-million-a-year-after-drug-tourism-ban.html

Werb D, Rowell G, Kerr T, Guyatt G, Montaner J, Wood E.(2010). Effect of drug law enforcement on drug-related violence: evidence from a scientific review. International Centre for Science in Drug Policy, 2010

Wincup E, Buckland G & Bayliss R (2003) *Home Office Research Study 258. Youth homelessness and substance use: report to the drugs and alcohol research unit*. London: Home Office Research, Development and Statistics Directorate.

Van het Loo M., Hoorens S., van'tHof C. & Kahan J. (2205) *Cannabis Policy, Implementation and Outcomes. Rand . see* *http://www.rand.org/content/dam/rand/pubs/monograph_reports/2005/MR1805.pdf* (Accessed 19April, 2014)