



Senate

Sénat

CANADA

CANNABIS :
OUR POSITION FOR A
CANADIAN PUBLIC POLICY

**REPORT OF THE SENATE SPECIAL
COMMITTEE ON ILLEGAL DRUGS**

VOLUME I : PARTS I AND II

CHAIRMAN

DEPUTY CHAIRMAN

PIERRE CLAUDE NOLIN

COLIN KENNY

SEPTEMBER 2002

Ce document est disponible en français

Available on the Parliamentary Internet :

www.parl.gc.ca/illegal-drugs.asp

ORDER OF REFERENCE

Extract from the Journals of the Senate of March 15, 2001:

Resuming debate on the motion of the Honourable Senator Nolin, seconded by the Honourable Senator Molgat:

That a special committee of the Senate be struck to examine:

- The approach taken by Canada to cannabis, its preparations, derivatives and similar synthetic preparations, in context;
- The effectiveness of this approach, the means used to implement it and the monitoring of its application;
- The related official policies adopted by other countries;
- Canada's international role and obligations under United Nations agreements and conventions on narcotics, in connection with cannabis, the Universal Declaration of Human Rights and other related treaties; and
- The social and health impacts of cannabis and the possible consequences of different policies;

That the special committee consist of five senators, three of whom shall constitute a quorum;

That the Honourable Senators Banks, Kenny, Nolin, Rossiter and (a fifth Senator to be named by the Chief Government Whip) be named to the committee.

That the committee be authorized to send for persons, papers and records, to hear witnesses, to report from time to time, and to print from day to day such papers and evidence as may be ordered by it;

That the briefs and evidence heard during consideration of Bill C-8, *An Act respecting the control of certain drugs, their precursors and other substances and to amend certain other Acts and repeal the Narcotic Control Act in consequence thereof*, by the Standing Senate Committee on Legal and Constitutional Affairs during the Second Session of the Thirty-fifth Parliament be referred to the committee;

That the documents and evidence compiled on this matter and the work accomplished by the Special Senate Committee on Illegal Drugs during the Second Session of the Thirty-sixth Parliament be referred to the committee;

That the committee be empowered to authorize, if deemed appropriate, the broadcasting on radio and/or television and the coverage via electronic media of all or a part of its proceedings and the information it holds;

That the committee present its final report no later than August 31, 2002; and that the committee retain the powers necessary to publicize its findings for distribution of the study contained in its final report for 30 days after the tabling of that report;

That the committee be authorized, notwithstanding customary practice, to table its report to the Clerk of the Senate if the Senate is not sitting, and that a report so tabled be deemed to have been tabled in the Senate.

After debate,

The question then being put on the main motion as amended, it was adopted.

Extract from the Journals of the Senate of May 9, 2002:

The Honourable Senator Nolin moved, seconded by the Honourable Senator Stratton,

That the date of presentation by the Special Senate Committee on Illegal Drugs of the final report on its study into reassessing Canada's anti-drug legislation and policies, which was authorized by the Senate on March 15, 2001, be extended from August 31, 2002 to September 13, 2002.

The question being put on the motion, it was adopted.

ATTEST:

Paul C. Bélisle
Clerk of the Senate

A WORD OF THANKS

I am very proud of the report on cannabis being made public today by the Senate Special Committee on Illegal Drugs. It marks a stage in Canada's public policy on drugs, and I have no doubt that it will find an attentive readership, despite its impressive size.

The report is the product of a team effort over a period of two years. At the risk of leaving anyone out, and I hope I will be pardoned should I do so, I would like to express my gratitude to those most closely involved with the project.

I would first thank all Canadians, who, from near and far, shared in our efforts, by writing us, by attending our hearings and our open forums in the regions, by watching us on television and, quite simply, by taking the time to learn about this important social policy issue. Their contributions, their questions and their comments were a source of inspiration. We will not forget the welcome given us by the Chiefs of the Piapot tribe in Saskatchewan. The ceremony they held for us was truly healing.

The Committee could not have done its work without the immense contribution of its research team. This small group was under the able direction of sociologist Dr Daniel Sansfaçon, whose rigour and devotion enabled the Committee to meet the highest standards of quality in its work and in the drafting of its report. Mr Gérald Lafrenière and Ms Chantal Collin, researchers with the Parliamentary Research Branch of the Library of Parliament working with him, provided invaluable support. I would take the opportunity to thank the Parliamentary Research Branch and its Director General specifically for their diligence and professionalism in responding to our imposing program of work. Finally, I wish to mention the contributions by Ms Barbara Buston Wheelok, assistant to Senator Rossiter, to Mr François Dubois, my research assistant, and to Messrs Jean-Guy Desgagné and David Newman in Communications.

The Committee benefited in its work from the expertise and the generosity of the many experts who testified before it or whom it met privately, and whose names are appended. I would thank them one and all.

We were also able to draw on the competence of the committee clerks and on the efficiency of their administrative personnel in organizing our many working and public meetings. My thanks to Blair Armitage, Daniel Charbonneau and Adam Thompson.

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Our report, with its great concern for transparency and rigour, exemplifies the highest standards maintained by the Senate. I would thank my colleagues in the Senate, who entrusted us with this mandate. In concluding, I would like to express my gratitude to my colleagues who took part in our work and especially to each of the members of the Senate Special Committee on Illegal Drugs: its Deputy Chair, Senator Colin Kenny, and Senators Tommy Banks, Shirley Maheu and Eileen Rossiter. They did a remarkable job.

My colleagues, I believe Canadians may rightly be proud of our parliamentary institution.

Pierre Claude Nolin

Senator

Chair, Senate Special Committee on Illegal Drugs

MEMBERS OF THE SENATE SPECIAL COMMITTEE ON ILLEGAL DRUGS

1. MEMBERS OF THE SENATE SPECIAL COMMITTEE ON ILLEGAL DRUGS

Honourable Pierre Claude Nolin
(Chair)

Honourable Colin Kenny
(Deputy Chair)

Honourable Tommy Banks

Honourable Eileen Rossiter

Honourable Shirley Maheu

Honourable John Lynch-Staunton *

Honourable Sharon Carstairs, P.C.* **

Honourable Noël A. Kinsella *

Honourable Fernand Robichaud, P.C. *

2. OTHER SENATORS WHO PARTICIPATED IN THE PROCEEDINGS OF THE COMMITTEE

Honourable Michel Biron

Honourable Laurier LaPierre

Honourable Pat Carney, P.C.

Honourable Jean Lapointe

Honourable Thelma Chalifoux

Honourable Edward M. Lawson

Honourable Ione Christensen

Honourable Lorna Milne

Honourable Ethel M. Cochrane

Honourable Yves Morin

Honourable Pierre De Bané, P.C., Q.C.

Honourable Lucie Pépin ***

Honourable Consiglio Di Nino

Honourable Marie-P. Poulin

Honourable Joyce Fairbairn, P.C.

Honourable Marcel Prud'homme, P.C.

Honourable Sheila Finestone, P.C.

Honourable Gerry St. Germain, P.C.

Honourable J. Michael Forrestall

Honourable Peter A. Stollery

Honourable Jerahmiel S. Grafstein, Q.C.

Honourable Terry Stratton

Honourable Mobina S.B. Jaffer

Honourable John Wiebe

Honourable Lois M. Wilson

* *Ex Officio* Members

** The Honourable Sharon Carstairs was a member of the Committee from April 2000 to October 2000

*** The Honourable Lucie Pépin was a member of the Committee from April 2000 to October 2000

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GLOSSARY OF KEY TERMS

Abuse

Vague term with a variety of meanings depending on the social, medical and legal contexts. Some equate any use of illicit drugs to abuse: for example, the international conventions consider that any use of drugs other than for medical or scientific purposes is abuse. The Diagnosis and Statistical Manual of the American Psychiatric Association defines abuse as a maladaptive pattern of substance use leading to clinically significant impairment or distress as defined by one or more of four criteria (see chapter 7). In the report, we prefer the term excessive use (or harmful use).

Acute effects

Refers to effects resulting from the administration of any drug and specifically to its short term effects. These effects are distinguished between central (cerebral functions) and peripheral (nervous system). Effects are dose-related.

Addiction

General term referring to the concepts of tolerance and dependency. According to WHO addiction is the repeated use of a psychoactive substance to the extent that the user is periodically or chronically intoxicated, shows a compulsion to take the preferred substance, has great difficulty in voluntarily ceasing or modifying substance use, and exhibits determination to obtain the substance by almost any means. Some authors prefer the term addiction to dependence, because the former also refers to the evolutive process preceding dependence. (toxicomanie a de l'information additionnelle)

Agonist

A substance that acts on receptor sites to produce certain responses.

Anandamide

Agonist neurotransmitter of the endogenous cannabinoid system. Although not yet fully understood in research, these neurotransmitters seem to act as modulators, THC increasing the liberation of dopamine in nucleus accumbens and cerebral cortex.

At-risk use

Use behaviour which makes users at-risk of developing dependence to the substance.

Cannabinoids

Endogenous receptors of the active cannabis molecules, particularly 9-THC. Two endogenous receptors have been identified: CB1 densely concentrated in the hippocampus, basal ganglia, cerebellum and cerebral cortex, and CB2, particularly abundant in the immune system. The central effects of cannabis appear to be related only to CB1.

Cannabis

Three varieties of the cannabis plant exist: *cannabis sativa*, *cannabis indica*, and *cannabis ruderalis*. *Cannabis sativa* is the most commonly found, growing in almost any soil condition. The cannabis plant has been known in China for about 6000 years. The flowering tops and leaves are used to produce the smoked cannabis. Common terms used to refer to cannabis are pot, marihuana, dope, ganja, hemp. Hashish is produced from the extracted resin. Classified as a psychotropic

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drug, cannabis is a modulator of the central nervous system. It contains over 460 known chemicals, of which 60 are cannabinoids. Delta-9-tétrahydrocannabinol, referred to as THC, is the principal active ingredient of cannabis. Other components such as delta-8-tétrahydrocannabinol, cannabiniol and cannabidiol are present in smaller quantities and have no significant impacts on behaviour or perception. However, they may modulate the overall effects of the substance.

Chronic effects

Refers to effects which are delayed or develop after repeated use. In the report we prefer to use the term consequences of repeated use rather than chronic effects.

Commission on narcotic drugs (CND)

The Commission on Narcotic Drugs (CND) was established in 1946 by the Economic and Social Council of the United Nations. It is the central policy-making body within the UN system for dealing with all drug-related matters. The Commission analyses the world drug abuse situation and develops proposals to strengthen international drug control.

Decriminalization

Removal of a behaviour or activity from the scope of the criminal justice system. A distinction is usually made between *de jure decriminalization*, which entails an amendment to criminal legislation, and *de facto decriminalization*, which involves an administrative decision not to prosecute acts that nonetheless remain against the law. Decriminalization concerns only criminal legislation, and does not mean that the legal system has no further jurisdiction of any kind in this regard: other, non-criminal, laws may regulate the behaviour or activity that has been decriminalized (civil or regulatory offences, etc.).

Diversion

The use of measures other than prosecution or a criminal conviction for an act that nonetheless remains against the law. Diversion can take place before a charge is formally laid, for example if the accused person agrees to undergo treatment. It can also occur at the time of sentencing, when community service or treatment may be imposed rather than incarceration.

Depenalisation

Modification of the sentences provided in criminal legislation for a particular behaviour. In the case of cannabis, it generally refers to the removal of custodial sentences.

Dependence

State where the user continues its use of the substance despite significant health, psychological, relational, familial or social problems. Dependence is a complex phenomenon which may have genetic components. Psychological dependence refers to the psychological symptoms associated with craving and physical dependence to tolerance and the adaptation of the organism to chronic use. The American Psychiatric Association has proposed seven criteria (see chapter 7).

Dopamine

Neuromediator involved in the mechanisms of pleasure.

Drug

Generally used to refer to illicit rather than licit substances (such as nicotine, alcohol or medicines). In pharmacology, the term refers to any chemical agent that alters the biochemical

or physiological processes of tissues or organisms. In this sense, the term drug refers better to any substance which is principally used for its psychoactive effects.

European Monitoring Centre on Drugs and Drug Addiction (EMCDDA)

The European Monitoring Centre was created in 1993 to provide member states objective, reliable and comparable information within the EU on drugs, drug addictions and their consequences. Statistical information, documents and techniques developed in the EMCDDA are designed to give a broad perspective on drug issues in Europe. The Centre only deals with information. It relies on national focal points in each of the Member States.

Fat soluble

Characteristic of a substance to irrigate quickly the tissues. THC is highly fat-soluble.

Gateway (theory)

Theory suggesting a sequential pattern in involvement in drug use from nicotine to alcohol, to cannabis and then "hard" drugs. The theory rests on a statistical association between the use of hard drugs and the fact that these users have generally used cannabis as their first illicit drug. This theory has not been validated by empirical research and is considered outdated.

Half-life

Time needed for the concentration of a particular drug in blood to decline to half its maximum level. The half-life of THC is 4.3 days on average but is faster in regular than in occasional users. Because it is highly fat soluble, THC is stored in fatty tissues, thus increasing its half life to as much as 7 to 12 days. Prolonged use of cannabis increases the period of time needed to eliminate is from the system. Even one week after use, THC metabolites may remain in the system. They are gradually metabolised in the urine (one third) and in feces (two thirds). Traces on inactive THC metabolites can be detected as many as 30 days after use.

Hashish

Resinous extract from the flowering tops of the cannabis plant and transformed into a paste.

International Conventions

Various international conventions have been adopted by the international community since 1912, first under the Society of Nations and then under the United Nations, to regulate the possession, use, production, distribution, sale, etc., of various psychotropic substances. Currently, the three main conventions are the 1961 Single Convention, the 1971 Convention on Psychotropic Substance and the 1988 Convention against Illicit Traffic. Canada is a signatory to all three conventions. Subject to countries' national constitutions, these conventions establish a system of regulation where only medical and scientific uses are permitted. This system is based on the prohibition of source plants (coca, opium and cannabis) and the regulation of synthetic chemicals produced by pharmaceutical companies.

International Narcotics Control Board (INCB)

The Board is an independent, quasi-judicial organisation responsible for monitoring the implementation of the UN conventions on drugs. It was created in 1968 as a follow up to the 1961 Single Convention, but had predecessors as early as the 1930s. The Board makes recommendations to the UN Commission on Narcotics with respect to additions or deletions in the appendices of the conventions.

Intoxication

Disturbance of the physiological and psychological systems resulting from a substance. Pharmacology generally distinguishes four levels: light, moderate, serious and fatal.

Joint

Cigarette of marijuana or hashish with or without tobacco. Because joints are never identical, scientific analyses of the effects of THC are more difficult, especially in trying to determine the therapeutic benefits of cannabis and to examine its effects on driving.

Legalisation

Regulatory system allowing the culture, production, marketing, sale and use of substances. Although none currently exist in relation to « street-drugs » (as opposed to alcohol or tobacco which are regulated products), a legalisation system could take two forms: without any state control (free markets) and with state controls (regulatory regime).

Marijuana

Mexican term originally referring to a cigarette of poor quality. Has now become equivalent for cannabis.

Narcotic

Substance which can induce stupor or artificial sleep. Usually restricted to designate opiates. Sometimes used incorrectly to refer to all drugs capable of inducing dependence.

Office of national drug control policy (ONDCP) USA

Created in 1984 under the Reagan presidency, the Office is under the direct authority of the White House. It coordinates US policy on drugs. Its budget is currently US \$18 billion.

Opiates

Substance derived from the opium poppy. The term opiate excludes synthetic opioids such as heroin and methadone.

Prohibition

Historically, the term designates the period of national interdiction of alcohol sales in the United States between 1919 and 1933. By analogy, the term is now used to describe UN and State policies aiming for a drug-free society. Prohibition is based on the interdiction to cultivate, produce, fabricate, sell, possess, use, etc., some substances except for medical and scientific purposes.

Psychoactive substance

Substance which alters mental processes such as thinking or emotions. More neutral than the term "drug" because it does not refer to the legal status of the substance, it is the term we prefer to use.

Psychotropic substance (see also psychoactive)

Much the same as psychoactive substance. More specifically however, the term refers to drugs primarily used in the treatment of mental disorders, such as anxiolytic, sedatives, neuroleptics, etc. More specifically, refers to the substances covered in the 1971 Convention on Psychotropic Substances.

Regulation

Control system specifying the conditions under which the cultivation, production, marketing, prescription, sales, possession or use of a substance are allowed. Regulatory approaches may rest on interdiction (as for illegal drugs) or controlled access (as for medical drugs or alcohol). Our proposal of an exemption regime under the current legislation is a regulatory regime.

Society of Nations (SDN)

International organisation of States until 1938; now the United Nations.

Tetrahydrocannabinol (Δ^9 -THC)

Main active component of cannabis, Δ^9 -THC is very fat-soluble and has a lengthy half-life. Its psychoactive effects are modulated by other active components in cannabis. In its natural state, cannabis contains between 0.5% to 5% THC. Sophisticated cultivation methods and plant selection, especially female plants, leads to higher levels of THC concentration.

Tolerance

Reduced response of the organisms and increased capacity to support its effects after a more or less lengthy period of use. Tolerance levels are extremely variable between substances, and tolerance to cannabis is believed to be lower than for most other drugs, including tobacco and alcohol.

Toxicity

Characteristic of a substance which induces intoxication, i.e., "poisoning". Many substances, including some common foods, have some level of toxicity. Cannabis presents almost no toxicity and cannot lead to an overdose.

United Nations Drug Control Program (UNDCP)

Established in 1991, the Programme works to educate the world about the dangers of drug abuse. The Programme aims to strengthen international action against drug production, trafficking and drug-related crime through alternative development projects, crop monitoring and anti-money laundering programmes. UNDCP also provides accurate statistics through the Global Assessment Programme (GAP) and helps to draft legislation and train judicial officials as part of its Legal Assistance Programme. UNDCP is part of the UN Office for Drug Control and the Prevention of Crime.

World Health Organization (WHO)

The World Health Organization, the United Nations specialized agency for health, was established on 7 April 1948. WHO's objective, as set out in its Constitution, is the attainment by all peoples of the highest possible level of health. Health is defined in WHO's Constitution as a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

INTRODUCTION

The question of illegal drugs is one of the societal issues that can readily become a moral and indeed emotional matter. Who among us does not have an opinion on drugs and "drug addicts"? Who does not have a parent, friend, young cousin or uncle who has had personal problems at school or at work, perhaps even run-ins with the police and the criminal justice system, as a result of using drugs? Who has not heard of drug traffickers, veritable anti-heroes, whom we find both repulsive and fascinating, all of whom we consider the worst kind of scum, who grow rich by selling adulterated and dangerous products to our children? Every day brings its share of newspaper articles and television news reports on anti-drug operations conducted by police forces: sometimes massive, and almost always spectacular arrests, huge seizures of drugs, cash and weapons of all kinds. Every day we also see articles on money laundering and the corruption of honest men through the illegal drug market. Even closer to home, the events of September 11 shed new light on the ambiguous and alleged relations between the drug trafficking world and the financing of "terrorist" networks. Security is now the key buzz word.

The drug issue involves the political values of life in society. In what kind of society do we want to live? What place should, and can, drugs occupy in it? For some, drugs are substances that keep individuals in a state of dependence. Using them weakens their moral fibre, makes them more malleable, more subject in particular to (bad) outside influences, and reduces their ability to be productive individuals in society. If they don't bring about human downfall, drugs do prevent the full achievement and realization of human potential. For others, drugs are tools to achieving greater productivity, being more competitive and thus better positioned in a hyper-competitive world. The obvious example of this is doping among elite athletes. For still others, drugs are a preferred means of entering into contact with other aspects of their being, spiritual, artistic aspects, or simply peace and serenity. The history of art is full of examples. These almost diametrically opposed conceptions often leave little room for dialogue and result in considerable prejudice on all sides.

In the past 20 years, we have introduced stringent anti-tobacco programs. And we have definitely achieved a measure of success. We have also adopted stricter measures to put a stop to impaired driving. Here too, we believe we have made significant inroads. The fight against drugs is a kind of metaphor for the type of social policies we expect of governments: policies based on the improved well-being of citizens.

Of course, everything depends on what each person means by the word "drugs". The term is clearly not neutral: it elicits varying degrees of fear and anxiety. And we do not necessarily all include the same substances under that heading. The examples cited above concern illegal drugs, alcohol, tobacco and performance-enhancing substances. A number of psychotropic drugs could also be included. And yet, when we think of drugs, the first things that come to mind are illegal substances: cocaine and heroin, of course, crack and amphetamines for the more sophisticated among us, and, obviously, cannabis and hashish. However, an increasing number of scientific studies and government policies strive to show the interrelationships between different drugs, discussing at-risk behaviours in relation to each drug. As will be seen below, the mere fact of considering alcohol as one drug among others signifies a genuine cultural revolution in a country such as France, a major producer and consumer of wine. And tobacco companies would certainly object to comparing nicotine to heroine.

The members of the **Senate Special Committee on Illegal Drugs** addressed the question of drugs as everyone else does, that is to say with the same preconceptions, with the same basic attitudes, the same fears and the same anxieties. Of course, we had at our disposal the study which a number of our colleagues had conducted in 1996 on government legislation dealing with illegal drugs, which had enabled them to hear a number of witnesses over several months. We also knew at the outset that research expertise would be available to us, but let there be no mistake, it is nevertheless difficult to go beyond attitudes and opinions that have long been taken for granted. Whether one is in favour of enhanced enforcement or, on the contrary, greater liberalization, opinions tend to resist the facts, particularly since, in a field such as this, the production of facts, even through scientific research, is not necessarily a neutral enterprise. It follows then that we too, like you, have our prejudices and preconceptions. And together we must make the effort to go beyond them. That is one of the objectives of this report.

Our report is divided into four parts. Part I outlines our general orientations and comprises four chapters. Chapter 1 describes the Committee's origins and mandate, while Chapter 2 outlines the work we have undertaken, explaining certain choices we have made. Chapter 3 is central to the entire architecture of the report and, as it were, provides a "reading grid". In it, we state what we have called the **guiding principles** for a public policy on illegal drugs. Lastly, Chapter 4 offers a broad overview of the present situation with regard to illegal drugs, placing our efforts in the context of the changes that are occurring in various countries and on the international scene more generally.

Part II is the heart of our report. It provides a comprehensive outline of scientific research findings and the opinions of the experts we heard. Chapter 5 describes the plant from which smokable cannabis and hashish are derived and the pharmacological properties of the cannabinoids, which are their active ingredient. It also provides some figures on sources of production of cannabis and its main trafficking routes. Chapter 6 contains information on uses and users: who uses cannabis, in what circumstances,

what do we know about their user trajectories and, in particular, the highly controversial question as to whether cannabis use leads to the use of other drugs. Chapter 7 describes the physiological and psychological effects and consequences of cannabis, focusing as well on the important issues of cannabis dependence and tolerance. Chapter 8 deals specifically with the important issue of driving under the influence of cannabis. Given the current debates on the issue of therapeutic uses of cannabis, Chapter 9 reviews existing findings. Chapter 10, the last chapter in the section, addresses public opinion, outlining public opinion polls and surveys, reporting also what we were told in the consultations we held in the regions following the publication of our discussion paper in May 2002.

Part III concerns public policy and practices in Canada. When we think of drugs, we immediately think of the legislation governing them. In so doing, we forget that the law is never more than one of a number of elements involved in a public policy. Chapter 11 focuses on the National Drug Strategy, which was in effect in Canada between 1987 and 1997. It must be considered since only in this period in the history of our public drug policies was an attempt made to adopt a comprehensive and integrated strategy. Chapter 12 then describes the history of Canadian drug legislation. Chapter 13 examines the current regulatory regime for therapeutic uses of cannabis. The following four chapters deal with the various components of the implementation of the public policies on illegal drugs. Chapters 14 and 15 discuss respectively police practices and legal practices central to the implementation of those statutory provisions, while Chapters 16 and 17 briefly examine prevention practices and health care practices. Finally, in Chapter 18, we conclude this third part of our report with a series of three observations on these practices, examining in particular the economic costs and unexpected consequences of current public policies.

Part IV addresses public policy options. When it comes to drugs, we cannot avoid the architecture of the international conventions that have governed these substances since 1912. This is the subject of Chapter 19. However, beyond this global framework, countries have chosen different approaches to respond to drug related issues and problems. Chapter 20 describes in detail the public policy frameworks in seven industrialized countries. Finally, chapter 21 is key to understanding our recommendations and their links with our guiding principles. This chapter shows that the criminal law is but one of the tools of public policy in this field. It then distinguishes between the various legal options and clarifies heavily loaded terms such as decriminalisation and legalisation. Finally, based on the accumulated knowledge, our reading of public opinion and our principles, this chapter explains our framework for a comprehensive public policy on cannabis.

Based on all this knowledge gathered, we state a certain number of conclusions and offer our recommendations, which express the fundamental premise underlying our report: *in a free and democratic society, which recognizes fundamentally but not exclusively the rule of law as the source of normative rules and in which government must promote autonomy insofar as possible and therefore make*

only sparing use of the instruments of constraint, public policy on psychoactive substances must be structured around guiding principles respecting the life, health, security and rights and freedoms of individuals, who, naturally and legitimately, seek their own well-being and development and can recognize the presence, difference and equivalence of others.

We are aware, as much now as we were at the start of our work, that there is no pre-established consensus in Canadian society on public policy choices in the area of drugs. In fact, as we have seen, there are few societies where there is a broadly shared consensus among the general public and between the public and experts. We are also aware, perhaps more so than at the outset, that the question of illegal drugs, viewed from the standpoint of the public policies that govern them, is part of a broader international context and that we cannot think or act in isolation. We are aware that our proposals are provocative, that they may meet with some resistance. However, we are convinced that Canadian society has the maturity and openness to welcome this informed debate.

In this, as in so many other areas of public policy, we say that action must be taken and that the knowledge accumulated fully supports the orientations we propose, but that first and foremost the sharing of knowledge and public debate are both necessary and desirable in the democratic life in our society.

PART I
GENERAL ORIENTATION

REPORT OF THE SENATE SPECIAL COMMITTEE ON ILLEGAL DRUGS: CANNABIS

CHAPTER 1

OUR MANDATE

WORDING

On April 16, 2000, pursuant to a motion by Senator Pierre Claude Nolin, the Senate adopted the following order of reference:

That a Special Committee of the Senate be appointed to reassess Canada's anti-drug legislation and policies, to carry out a broad consultation of the Canadian public to determine the specific needs of various regions of the country, where social problems associated with the trafficking and use of illegal drugs are more in evidence, to develop proposals to disseminate information about Canada's anti-drug policy and, finally, to make recommendations for an anti-drug strategy developed by and for Canadians under which all levels of government work closely together to reduce the harm associated with the use of illegal drugs;

That, without being limited in its mandate by the following, the committee be authorized to:

- *review the federal government's policy on illegal drugs in Canada, its effectiveness, and the extent to which it is fairly enforced;*
- *develop a national harm reduction policy in order to lessen the negative impact of illegal drugs in Canada, and make recommendations regarding the enforcement of this policy, specifically the possibility of focusing on use and abuse of drugs as a social and health problem;¹*
- *study harm reduction models adopted by other countries and determine if there is a need to implement them wholly or partially in Canada;*
- *examine Canada's international role and obligations under United Nations conventions on narcotics and the Universal Declaration of Human Rights and other related treaties in order to determine whether these treaties authorize it to take action other than laying criminal charges and imposing sentences at the international level;*
- *explore the effects of cannabis on health and examine whether alternative policy on cannabis would lead to increased harm in the short and long term;*

¹ Emphasis in the original.

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- *examine the possibility of the government using its regulatory power under the Contraventions Act as an additional means of implementing a harm reduction policy, as is done in other jurisdictions;*
- *examine any other issue respecting Canada's anti-drug policy that the committee considers appropriate to the completion of its mandate.*

Upon adoption of the motion, the Committee chairman asked the Senate to name the members who would form the Committee. The following senators were thus appointed: Pierre Claude Nolin, Chair, Sharon Carstairs, Deputy Chair, Colin Kenny, Lucie Pépin and Eileen Rossiter.

The Committee thus constituted approved a work program and a budget, which it then submitted to its peers in the upper Chamber. The Committee's budget was approved in June 2000, thus making it possible to hire the scientific and administrative personnel who would support its work. The Committee organized its program of hearings of expert witnesses and held its first hearings on October 16, 2000.

However, the Committee was dissolved when the general election was called in October 2000, and restructured on March 15, 2001, but with an amended mandate: the scope of its work was now restricted to cannabis. The Committee's mandate in its present form therefore reads as follows:

That a special committee of the Senate be struck to examine:

- *the approach taken by Canada to cannabis, its preparations, derivatives and similar synthetic preparations, in context;*
- *the effectiveness of this approach, the means used to implement it and the monitoring of its application;*
- *the related official policies adopted by other countries;*
- *Canada's international role and obligations under United Nations agreements and conventions on narcotics, in connection with cannabis, the Universal Declaration of Human Rights and other related treaties; and*
- *the social and health impacts of cannabis and the possible consequences of different policies;*
- *that the special committee consist of five senators, three of whom shall constitute a quorum;*
- *that the Honourable Senators Banks, Kenny, Nolin, Rossiter and (a fifth Senator to be named by the Chief Government Whip) be named to the committee;*
- *that the committee be authorized to send for persons, papers and records, to bear witnesses, to report from time to time, and to print from day to day such papers and evidence as may be ordered by it;*
- *that the briefs and evidence heard during consideration of Bill C-8, An Act respecting the control of certain drugs, their precursors and other substances and to amend certain other Acts and repeal the Narcotic Control Act in consequence thereof, by the Standing Senate Committee on Legal and Constitutional Affairs during the 2nd Session of the 35th Parliament be referred to the committee;*

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- *that the documents and evidence compiled on this matter and the work accomplished by the Special Senate Committee on Illegal Drugs during the 2nd Session of the 36th Parliament be referred to the committee;*
- *that the committee be empowered to authorize, if deemed appropriate, the broadcasting on radio and/or television and the coverage via electronic media of all or part of its proceedings and the information it holds;*
- *that the committee present its final report no later than August 31, 2002; and that the committee retain the powers necessary to publicize its findings for distribution of the study contained in its final report for 30 days after the tabling of that report;*
- *that the committee be authorized, notwithstanding customary practice, to table its report to the Clerk of the Senate if the Senate is not sitting, and that a report so tabled be deemed to have been tabled in the Senate.*

ORIGINS

The Committee's mandate is a continuation of the history of drug legislation passed by the Parliament of Canada in 1996, the *Controlled Drugs and Substances Act*. That legislation, which revised drug statutes in Canada by repealing the *Narcotic Control Act* and certain sections of the *Food and Drugs Act*, grew out of a relatively lengthy history of which we will provide only a brief overview here, since Chapter 12 is devoted to a detailed history of drug laws in Canada.

Bill C-7, which was tabled by the newly elected government in February 1994, proposed a revision of illegal drug legislation, in particular to make it more coherent and to render national legislation consistent with Canada's obligations under the *United Nations Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances* signed in 1988. Following prorogation, it was reintroduced in the House of Commons at the start of the 2nd Session, on March 6, 1996, as Bill C-8. It was adopted by the House on the same day and was referred to the Standing Senate Committee on Legal and Constitutional Affairs which conducted a detailed study of it and heard a number of witnesses.

In its report, the Senate Committee on Legal and Constitutional Affairs proposed 15 amendments as well as the striking of a joint parliamentary committee of the House of Commons and the Senate, which would review Canada's drug policy. Bill C-8 was passed and received Royal Assent on June 20, 1996, and is thus Canada's current illegal drug legislation.

While this legislation was being studied by the Sub-Committee on Bill C-7 of the Standing Committee on Health of the House of Commons in 1994 and 1995, "*the vast majority of witnesses (...) were highly critical of the bill. The most general criticisms concerned three points: first, the lack of basic principles or an express statement as to the purpose of the act; second, the*

fact that the bill followed the prohibition system of the 1920s, subsequently codified in the Narcotic Control Act, and third, the absence of any emphasis on damage reduction and prevention criteria which form the basis of Canada's Drug Strategy."² Despite the amendments made by the Subcommittee of the House, the testimony of the persons heard by the Senate Committee was equally critical. Witnesses noted that the Act did not categorize drugs on the basis of the dangers they represented, that it did not contain any specific, rational criteria and that it was impossible, particularly in view of the Act's complexity, to determine how it would be implemented in practice.

All of these criticisms led the Senate Committee to "*propose energetically*" the creation of a Joint Committee of the House of Commons and the Senate that would review all Canadian drug legislation, policies and programs.³

However, the 1997 federal election rendered this suggestion moot. Senator Nolin, convinced of the need for action and faced with the inaction of the House of Commons, thus tabled his first motion in 1999--that a Senate Committee be struck and given a mandate to examine the legislation, policies and programs on illegal drugs in Canada. The motion was adopted by the Senate in April 2000. In support of the motion, Senator Nolin had commissioned a study on drugs and drug policy in Canada. The purpose of this study, in particular, was "*to assist in analyzing policy on the control of drug use from a new angle, without being influenced by the often unfounded prejudices that Canadian society has of drug addicts*".⁴ Senator Nolin wrote further that a Senate Special Committee "*would be charged, first, with transmitting to the Canadian public accurate and objective information on the use of illegal drugs, their effects on individuals and society and control measures in place. Second, it could conduct consultations on desirable amendments that Parliament should make to legislation on the control of drug use in the years to come.*"⁵

INTERPRETATION

Our mandate comprises four components:

1. examine the federal government policy on cannabis, the means used to implement it, its control and its effectiveness;
2. examine the policies and approaches followed in other countries;
3. examine the implications of the international conventions and treaties; and
4. examine the social and health effects of cannabis and the possible impacts of different policies.

² Allain, J. (1997) *Bill C-8: Controlled Drugs and Substances Act*. Ottawa, Library of Parliament, page 35.

³ Standing Senate Committee on Legal and Constitutional Affairs, Eleventh rapport, June 1996, page 8.

⁴ Nolin, P.C. (1998) Preface. In Riley, D. (1998), *Drugs and Drug Policy in Canada. A Brief Review and Commentary*. Ottawa. page 10.

⁵ *Ibid.*, page 11.

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We chose to interpret our mandate in the broadest manner possible. Some asked us whether it was our ambition to be a second Le Dain Commission.⁶ Others told us we did not have the resources to be so exhaustive and rigorous in our examination. Still others regretted the fact that we were restricted in the first phase of our work to cannabis, as though the various substances could be separated and their users classified accordingly.

Chapter 2, on our work program, will show that we were motivated by a desire to be rigorous and to cast our net wide. We are nevertheless aware of the scope and limits of our role as a Senate Committee, all the more so since the means put at our disposal were as limited as our ambition was generous.

The question of the distinction among substances is more problematical for various reasons. First, recent research shows that it is more important to distinguish between user behaviours than between substances. Based on this view, it is thus not so much the drugs themselves that should be distinguished as the different ways in which they are used and the environments in which those uses take place, and hence the risks a certain number of users run. Here we will discuss at-risk behaviours⁷, which are not determined so much by the characteristics of the substances as by those of the users and the conditions in which they are used. Second, the distinctions between substances have no clear scientific basis. Thus, entirely different classifications are arrived at depending on how one views the pharmacological properties of the various drugs, their effects on physical health and their origins or cultivation methods. And third, a comprehensive and integrated drug policy cannot be put forward on the basis of this distinction between substances.

However, the result of this decision, which forced us to limit our work to cannabis, was something more than just disadvantages and limits. We should admit, first of all, that embracing the entire field of illegal drugs with so little in the way of resources would have been a monumental undertaking. And as recent commissions of inquiry and international scientific conferences have chosen, as we did, to survey the state of knowledge on cannabis, we were able both to make use of their work and to compare it to our own. Lastly, and more particularly, experiments conducted in other countries, in particular the Netherlands, demonstrate the merit in treating cannabis separately, in a "market separation" approach.

In short, while restricting our work to cannabis, we invited the witnesses not to limit themselves to it alone and to show us the links between it and the various at-risk behaviours of users when they occur. We also bore in mind the necessity of addressing

⁶ The Le Dain Commission, which investigated illegal drugs in the early 1970s, will be discussed more fully in Chapter 12. See Canada (1970), *Interim Report of the Commission of Inquiry into the Non-Medical Use of Drugs*. (Le Dain Commission) Ottawa: Queen's Printer.

⁷ See among others : Reynaud, M., P.J. Parquet et G. Lagrue (1999) *Les pratiques addictives. Usage, usage nocif et dépendance aux substances psychoactives*. Rapport préparé à la demande du Directeur général de la Santé. Paris : Secrétariat d'État à la Santé et aux Affaires Sociales.

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drugs in the context of an integrated policy, particularly with regard to the major parameters of public policy, legislation or knowledge infrastructure, for example.

CHAPTER 2

OUR WORK

Designing, developing and implementing public policy is the very essence of the role of government, of political life in the broad sense. This fundamental activity presupposes a choice between various alternatives and, in a democratic system, an explanation and justification of the choice that has been made. A public policy, regardless of its object, stands at the confluence of various influences: partisan political considerations of course, economic considerations as well, even increasingly so. However, if it lays claim to a certain degree of rationality and citizen support, a public policy must also be based on rigorous and objective data, preferably from scientific research, and on an understanding of society's expectations and resistance. Lastly, a public policy, in our view, should be founded on, and at the same time promote, guiding principles. By that, we mean a clear and express vision of the principles that guided the choice among various alternatives and that reflect a conception of government and of the relationship between government institutions and civil society.

From the outset, our Committee chose to remain above partisan issues. This is the advantage of belonging to the Senate, which makes it possible to take, on various questions, a more objective view not influenced by concern for re-election. Economic considerations affected us in two different ways. The first, a trivial matter, was related to the budgets allocated to us, which necessarily limited the scope of our work, the second to the economic impact of various public policy options which are discussed in Chapters 18 and 21.

Our work thus focused on the other three sources that should influence a choice of public policy on illegal drugs: knowledge, public opinion and guiding principles.

At the Committee's public hearings, the Chair presented the research program as follows:

In order to fully satisfy the mandate conferred upon the committee, the committee has adopted an action plan. This plan centres around three challenges. The first challenge is that of knowledge. We will be hearing from a wide variety of experts, both from Canada and afar, from academic settings, the police, legal specialists, medical specialists, the government sector and social workers. (...)

The second challenge, surely the most noble challenge, is that of sharing knowledge. The committee hopes that Canadians from coast to coast will be able to learn and share the information that we will have collected. In order to meet this challenge, we will work to distribute this knowledge and make it accessible

*to all. We would also like to hear the opinions of Canadians on this topic and in order to do so, we will be holding public hearings in the spring of 2000 throughout Canada. And finally, the third challenge for this committee will be to examine and identify the guiding principles on which Canada's public policy on drugs should be based.*¹

This chapter describes the various measures we took to ascertain the state of knowledge and public opinion on cannabis and to determine guiding principles. Chapter 3 presents our guiding principles in detail, while Parts II and III outline all the information we were able to gather. First, however, a few words on two working principles which we considered essential to the complete realization of this Committee's mandate.

TWO WORKING PRINCIPLES

In view of the formulation of our mandate, which included an obligation to provide Canadians with objective and rigorous information, we have emphasized rigour and openness throughout the entire process.

It was all the more imperative that we do our work in a rigorous manner since opinions on all sides of the illegal drugs issue are strong and often categorical. Like everyone else, we too had our opinions and preconceptions regarding illegal drugs when we began our work. How could it be otherwise? Like you, we have children. We have had friends and relatives whose lives have been ruined by addiction problems. Our study of the government bill (C-8), which afforded us the opportunity to hear from a certain number of stakeholders and experts, provided us with information, of course, but also revealed major gaps in our knowledge. It then seemed clear to us that opinions were often based on partial and at times incorrect information. On what basis can it be said that cannabis leads to the use of other drugs? What is the empirical basis that supports the notion of cannabis dependence? What leeway does a nation have under the provisions of the international conventions governing the production, trafficking in and possession of illegal drugs?

One cannot assert both one thing and its opposite. However, on the subject of drugs, and specifically cannabis, such very assertions were made to us, and with conviction. How to determine who was right? And to tell opinions from facts?

These findings convinced us that the highest degree of rigour was necessary in the course of our work, as will be seen in the next section.

But rigour is not enough. For this information to reach Canadians, we could not reserve it for our exclusive use, hence the second principle that guided us: openness. From the outset, we insisted that all our work be made available as soon as possible on

¹ Senate of Canada (2001) *The Proceedings of the Special Committee on Illegal Drugs*. Issue No. 1, page 23.

our Web site. There was nothing new in posting witnesses' testimony to a Web site, since this is common practice for most parliamentary committees. However, in addition to this testimony, we also posted a number of studies we had commissioned, many from the Parliamentary Research Branch of the Library of Parliament. These studies, which are often not made public until after a Committee's report is published, were made available to Canadians as they were completed.

Being legislators, we would of course like our work to have an impact on public policy. We also believe it important to provide Canadians with information that is as factual as possible to allow them to benefit from it.

STATE OF KNOWLEDGE

When the Commission of Inquiry into the Non-medical Use of Drugs conducted its work in the early 1970s, like most commissions of inquiry, it had a large staff and budgets enabling it to carry out a vast research program. That was all the more necessary since, at the time, no large pool of knowledge on illegal drugs existed. Virtually nothing was known about the active ingredients of cannabis or even about the pharmacological properties of more traditional drugs, such as heroin and cocaine, and little was known about user trajectories; criminological studies on the relationship between drugs and crime were virtually non-existent, and public policy impact studies were in their earliest stages.

To say the situation has completely changed would be an understatement. In all scientific disciplines, from molecular biology to anthropology, countless studies have been conducted over the past 25 years on illegal drugs in general, and cannabis in particular. They come from the United States, of course, but also from Australia, England, France, Switzerland, Italy, Germany, Sweden, Finland and Denmark to name only a few. They have been conducted by academics interested in these questions on a purely individual basis, by pharmacological laboratories and by research groups within organizations operating in the drug addiction field and in the context of scientific commissions appointed by the governments of various countries.

The Committee asked the Parliamentary Research Branch to prepare a survey of illegal drug research under way or completed in the past five years at the federal level and in the provinces and territories.² That survey, which lays no claim to being exhaustive, but offers an overview of the extent and scope of recent research, clearly shows that, despite minuscule budgets compared to those allocated in the United States, research on illegal drugs is doing relatively well in Canada. We can only imagine

² Leduc, D., et al., (2001) *Federal Research on Illegal Drugs and Related Issues*. Ottawa: Library of Parliament; and Miller Chenier, N., & S. Norris (2002) *Territorial Research on Illegal Drugs and Related Issues*. Ottawa : Library of Parliament. Reports prepared for the Senate Special Committee on Illegal Drugs. Available at www.parl.gc.ca/illegal-drugs.asp.

that it would be a formidable task to survey the studies under way in the United States on the question of illegal drugs.

Ascertaining the state of knowledge on the subject thus first meant finding the means to prepare a rigorous synthesis. To that end, the Committee adopted a research program focusing on all aspects. However, as it lacked the financial resources to produce an extensive series of studies, and also wishing to ensure that the information was broadly transmitted to the public, the Committee designed a program of public hearings of expert witnesses who would likely be able to assist in more clearly determining the state of current knowledge on the subject.

The Committee approved a research program divided into five major axes of knowledge, sub-dividing each one into specific issues:

❖ *the socio-historical, geopolitical, anthropological, criminological and economic issues of the use and regulation of cannabis.* This axis of work will establish the context for a better understanding of modern practices in the production and use of cannabis. The main questions are:

- What are the key historical patterns in the production, use, consumption and circulation of cannabis?
- Is there a relationship between cannabis use and religious or cultural practices?
- What are the relationships between the production, use, consumption, and circulation of cannabis and the socio-demographic characteristics of populations? More specifically, what do we know about cannabis users?
- What are the key domestic and international drug routes and how are they related to national and international political and policy issues?
- What are the relationships between various drugs and how have current distinctions between licit and illicit drugs been created?
- What are the relationships between the production, use, consumption, circulation and regulation of drugs and criminality?
- What are the key economic issues in the production, use, consumption, circulation and regulation of cannabis?

❖ *the medical and pharmacological aspects of the consumption, use and regulation of cannabis.* The use of cannabis for medicinal purposes occupies an important place in current debates on regulatory systems governing it. The idea here is to produce state of the art reviews on knowledge related to the physiological and psychological effects of various drugs. The key research questions are:

- How has cannabis been used for medicinal purposes?
- What is the state of knowledge on the therapeutic properties of cannabis?
- What is the state of knowledge on the physiological effects of cannabis, especially in respect of addictive capacity?

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- What is the state of knowledge on the psychological effects of cannabis, especially in respect of dependence?
 - What is the current state of knowledge on the effects of various forms of treatment for dependence and addiction problems, their impacts and their costs?
- ❖ *the legal aspects from a national perspective.* Federal legislative mechanisms exist in Canada to control the use, consumption, production and circulation of drugs, even though treatment and other areas, for example, are under the jurisdiction of the provinces and territories. Additionally, the courts have interpreted the relevant acts and regulations, particularly regarding policing powers. Overall, this section will examine the legislative and control arsenal, its rationality and objectives, from the standpoints of criminology, law, history, sociology and economics. The key questions guiding this third axis of the research program are:
- What are the history of and logic to the different regulatory and control modes of cannabis in Canada?
 - What are the history and logic behind criminalization and penalization in Canada?
 - What is the state of case law in respect of the legislative and regulatory arsenal relating to the production, use, consumption and circulation of drugs in Canada?
 - What is the state of case law on police powers and sentences in relation to drug issues?
 - What are the effects of criminalization and penalization in matters of drugs on the justice system (and its various components), the prison system and the criminal careers of delinquents?
 - What are the economic and social costs of the various modes of regulation, control and criminalization in matters of drugs?
 - What are the relations among justice and public health policies and government departments in matters of drugs?
- ❖ *the legal and political issues in an international perspective.* Canada is a party to various treaties and conventions on the production, trafficking and possession of psychoactive substances. It was important to assess how precise and binding these instruments are on domestic legislation. Also, these treaties and conventions are themselves part of a larger array of international instruments, especially on human and political rights; it was essential to determine the interrelationships between these instruments. Finally, drugs are an issue in international relations, in particular in relations between Canada and the United States. Although not legally binding, these factors may influence policy reorientations and will thus be interesting to look at. The key questions are:

- What are the main treaties and conventions in matters of drugs, their history and their provisions?
 - What constraints, if any, do these treaties and conventions impose on Canada?
 - Beyond treaties and conventions, what other aspects of international relations have implications for Canada in adopting a regulatory mode in matters of drugs?
 - What are the regulatory approaches adopted by other countries, what are their impacts, and to what extent are they pertinent for Canada?
- ❖ *the ethical issues and Canadians' moral and behavioural standards.* Ethical issues and knowledge of the standards adopted by Canadians are also relevant in determining policy and legislative orientations. The key questions are:
- What are the ethical principles relevant to examining issues related to the production, use, consumption, circulation and control of drugs?
 - What are the pertinent ethical principles in relation to the medicinal use of cannabis and the medical and psychological treatment of drug addictions and dependence?
 - What are the current norms of behaviour of Canadians in relation to cannabis production, consumption, use and circulation?
 - What are the norms of tolerance of Canadians?
 - To what extent do ethical principles and norms of tolerance in the population accord?

As can be seen, the undertaking was a vast one. In an attempt to answer these questions in the most effective and most economical manner possible, the Committee agreed to perform two tasks concurrently: conduct a research program and hear expert witnesses—complementary activities.

Research program

Lacking both a research budget that would have enabled us to commission studies and a full-time research staff, we asked the Parliamentary Research Branch to produce syntheses and analyses of the relevant literature.³ The research is divided into three major categories:

³ A complete list of the studies produced by the Parliamentary Research Branch is provided in Appendix 3. All the research reports, are available on line at the Committee's Web site: www.parl.gc.ca/illegal-drugs.asp. The Committee wishes to express its appreciation of the work performed for it by the Parliamentary Research Branch.

- ❖ legal studies: analyses of case law and international conventions and treaties;
- ❖ socio-criminological studies: analyses of the relationship between drugs and crime, of developments in denunciations, charges and sentences; cannabis use practices; economic aspects of drugs;
- ❖ comparative studies: syntheses of public policies in certain countries.

We also received a synthesis of the literature on the physiological and psychological effects of cannabis.⁴ Lastly, we commissioned a qualitative study on Canadians' opinions and attitudes by a public survey firm.⁵

In all, the Committee received 23 reports and benefited from summaries of work conducted in other countries, particularly through its attendance at international conferences.

Expert Witnesses

Aware of the research program's limits, and particularly of the need to question some of the researchers whose work was cited in the studies conducted and to compare their analyses with those of other researchers and with the positions of other expert organizations (police forces, for example), we conducted a series of hearings of expert witnesses in Ottawa and certain other cities across the country.⁶

The hearings began on October 16, 2000 during the 36th Parliament and resumed on April 30, 2001, during the 37th. They ended on June 10 of this year with presentations from the principal departments responsible for illegal drug policy in Canada. As far as possible, the Committee maintained a rate of one hearing every two weeks.

In every case, the Committee asked the witnesses to prepare a written brief responding to specific questions. The Committee did not expect the experts to give their opinion or tell it what to think. The expert witness hearings were part of an effort to increase members' knowledge. Knowing that our ability to conduct studies was limited and acknowledging that research data were incomplete, if not contradictory, we wanted to take full advantage of this exceptional opportunity to clarify and better disseminate certain findings.

⁴ Wheelock, B. (2002) *The Physiological and Psychological Effects of Cannabis: A Survey of the Literature*. Document prepared for the Senate Special Committee on Illegal Drugs. (The Committee particularly wishes to thank Senator Rossiter, who made the preparation of this paper possible.)

⁵ Léger Marketing (2002) *An Exploratory Study Among Canadians on the Use of Cannabis*. Montréal: author. Report prepared for the Senate Special Committee on Illegal Drugs. Available at www.parl.gc.ca/illegal-drugs.asp.

⁶ A complete list of the witnesses heard as well as subjects, places and dates is provided in Appendix 2. All the evidence and certain supplementary documents provided by witnesses are available on line at the Committee's Web Site.

Who were these experts? How did the Committee select them? These are important questions to the extent that a certain number of stakeholders questioned the Committee's credibility as a result of certain choices it made. First, we wanted to cover each of the major fields of investigation. Consequently, we heard sociologists and lawyers, psychologists and physicians, police officers and criminologists. Second, we wanted to hear as many Canadian experts as possible from those various research areas. Third, for the most part, we selected experts known for their publications in the field. The researchers included Professors Harold Kallant and Marie-Andrée Bertrand, who were closely involved in the work of the Le Dain Commission 30 years ago and researchers closely associated with such major institutes as the Ontario Centre on Mental Health and Addiction (the former Addiction Research Foundation) and the Canadian Centre on Substance Abuse. Lastly, we were interested in inviting experts who, in certain cases, could speak on behalf of major institutions such as the Canadian Medical Association, the Federation of Canadian Municipalities, the Canadian Association of Chiefs of Police and the Royal Canadian Mounted Police. It will be seen from a close look at the list of experts heard and the subjects of their presentations that they coincided with all our areas of concern.

When the hearings focused on the situation in other countries, we sought to strike a balance between those persons who could describe public policy and researchers whose work was recognized in their country and internationally. As the number and length of our hearings were limited, we had to make choices. At most we could hear four persons per hearing. As a general rule, we tried to choose a senior government official and three researchers.

One could also question our choice of countries heard: France, the Netherlands and Switzerland. We had initially intended to hear representatives from England, particularly because that country's public drug policies have been examined in many high-quality studies. Unfortunately, changes under way in there prevented us from holding those hearings. Similarly, we did not have enough time to hear from Sweden or Australia. However, we had the Parliamentary Research Branch prepare syntheses on each of those countries.

The case of the United States deserves particular attention. Chapter 20 describes American drug policy. However, at our hearings on the United States, which is much more complex and less monolithic than is often thought, we were unable to hear from those responsible within the U.S. government, although not for lack of trying. The Director of the prestigious National Institute on Drug Abuse (NIDA) had tendered his resignation a week before the scheduled date of the hearings, after accepting our invitation. And the Director of the Office of National Drug Control Policy in Washington declined our invitation. In short, we are dissatisfied at having been unable to hear the senior officials responsible for drug policy in the United States. Nevertheless, on June 10 2002, we held a private meeting with Dr. Hanson, the new Director of NIDA, and on June 11 we had an *in camera* meeting with Mr. Walters, the Director of ONDCP and some of his key advisors in Ottawa.

In all, the Committee held more than 40 days of public hearings in Ottawa and other Canadian cities, hearing more than 100 persons from all backgrounds.

One further note. It can be said that we did not handle the testimony of researchers and those of practising experts in the same way. That is true in part. To the extent that researchers presented data lending itself to critical review, containing verifiable data, which does not mean proof, on specific subjects, making it gradually possible to answer our empirical questions, we attached a certain degree of importance to them, which will be reflected in the passages cited throughout this report. The information from practitioners is not in itself any less significant or important in our view. However, the practitioners more often tended to express opinions than to present study data. They also did not have the same concern to give precise answers to the questions put to them. Those opinions are important, as are those of the Canadians whom we heard and who wrote to us, but they are nevertheless opinions, not cold hard data.

The challenge of synthesis

Faced with this massive amount of information, the greatest challenge was to synthesize it. The scientific literature on all of the topics addressed, particularly those concerning the effects of cannabis and users and types of use, is abundant. Experts reported to us on their research and that of other researchers. The reports prepared at our request are full of information, and our research team stayed on the look-out for recent publications and attended various international scientific conferences. In short, the task was to make sense of all this data, which, in addition, contained contradictory information at times.

At the same time, the data on certain subjects are still fragmentary. This is the case of data on trends in the use of cannabis and other drugs in Canada (Chapter 6), on the specific nature of therapeutic applications of cannabis, evidence of which often does not go beyond the anecdotal (Chapter 9) and simply on police practices (Chapter 14) or the decisions of Canadian courts (Chapter 15).

Synthesizing this information thus also meant making choices. While fully respecting the diverse range of perspectives, we nevertheless had to draw conclusions, accepting that some of the conclusions might be preliminary and that they might be contradicted by subsequent research. It is in the very nature of science that it is constantly in motion, and we accept that state of affairs. As a result, we are aware that we have left ourselves open to criticism. So much the better, we might add, first, because criticism will stimulate public debate, second, because it will undoubtedly pique the curiosity of researchers, who will verify some of our findings empirically, thus improving the state of our present knowledge, and, third, because our choices will be made plain in light of the guiding principles that are outlined in the next chapter.

TAKING OPINIONS INTO ACCOUNT

Public opinion is hard to grasp, first, because it does not exist in itself but is created by the manner in which the pollsters' questions are asked, by the manner in which the media report a debate, and by a broader context of representations the actual determinants of which are never precisely known.

Understanding public opinion on a complex subject such as drugs is not a simple matter such as discovering what type of laundry detergent respondents will buy at the supermarket. A seemingly simple question quickly becomes complex once Pandora's box is opened. A public opinion poll may ask the public whether they are in favour of decriminalizing cannabis. However, do we know whether every respondent understands the term "decriminalization" in the same way? The complex nature of this term is addressed in Chapter 21. Do we know whether respondents are for or against decriminalization for the same reasons? And once it has been determined that a majority is for or against it, do we know how that public policy choice would be implemented?

If it is the case, taking opinions into account is a necessity in a democracy. For us, taking opinions into account meant we had two closely related responsibilities: first, it meant we had a duty to inform, indeed to educate, although we hope those who are offended by that term will pardon us for using it, but we are convinced that on public policy topics, which are societal issues, it is the duty of political leaders to transmit information that educates, not merely convinces. The level of knowledge about drugs, even about cannabis which is the best known drug, is often limited and wrapped up in numerous myths. Our second responsibility in taking public opinion into account was to go and discover it. We did so in three ways.

First, we publicized our work as widely and as openly as possible to enable everyone to learn about it and react to it. Many chose to do so by writing to us, although they were relatively few compared with the number of people in this country.

Second, we commissioned a qualitative public opinion study. The focus groups conducted across the country as part of that study are described in detail in Chapter 9.

Third, we held public hearings in various cities across the country (eight in all), thus enabling a certain number of citizens to come and tell us what they thought, what they knew and what they had experienced.

We are aware that informing and seeking public opinion also means having a hand in forming it. It is thus not a neutral activity.

INTERPRETING IN LIGHT OF PRINCIPLES

All this knowledge, in the form of research and public opinion, still needs to be interpreted. Scientific knowledge is subject to constant verification. It at times contains contradictions, as will be seen in Chapters 7 and 8 in particular. Knowledge of public opinion necessarily remains fragmentary and evolving. Thus the importance of interpretation.

Beyond this, a public policy, as noted above, is not based on knowledge alone, no matter how rigorous. Guiding principles are necessary, principles that can permit an informed interpretation of data and assist in the establishment of conclusions. This is the subject of the next chapter, which will describe the method we used to determine our *guiding principles* and the *principles themselves*.

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CHAPTER 3

OUR GUIDING PRINCIPLES

What should public policy on illegal drugs consist of, policy here being understood in the strict sense of the word, as government through public debate and not party politics? As we are part of the Senate of Canada and therefore of Parliament, and having legislative authority, one might wonder why we ask ourselves the question. As legislators, are we not guided by the principles of good government, that is to say by public interest? In fact, what is public interest, and how is it determined? Does our position as Senators give us the *de facto* ability to say what is, or what should be, in the interest of Canada? We do not believe so.

When faced with social issues such as illegal drugs, we are like all Canadians, struggling with our beliefs, our knowledge, our values, our doubts and our myths. Our special access to some one hundred expert witnesses, our reading of numerous research papers and our discussions with dozens of people across the country have forced us to confront our preconceived ideas and images about drugs and to compare them with those of “others”, and if not to change them, at least to refine them along the way. However, this is not sufficient to determine what is in the public interest. Experts, no more so than the many citizens we heard from, do not determine what is in the public interest. Studies show only the most superficial aspects of what Canadians think. In addition, when polls that are more sophisticated provide us with a more in-depth picture of public opinion, we will be no further ahead in trying to decide on the direction that public policy on cannabis should take. This is primarily because the greater good is not determined by polling to see which way the winds of public opinion are blowing, and also because, as is the case with our personal opinions, public opinion relies on unverified information, on preconceived ideas that are sometimes biased, and on values that are not always clear.

We heard quite frequently that the public policy decisions should be based on the future of our children, on the kind of society in which we wish to live and that we wish to leave them. Over the last two decades, Canadian society has implemented costly anti-smoking programs. Do we want to be in conflict with these by allowing the smoking of cannabis? Cannabis is a psychoactive substance that can impair certain cognitive abilities linked to learning in young people. Do we want to send the message that it is okay for them to take drugs?

Others said that the fundamental values of Canadian society, values of respect for people's rights and freedoms, of tolerance and openness towards diversity, were compromised by existing legislation on cannabis. They added that these laws are no longer in step with society, reflecting an inter-generational conflict between adults and youth, they bring about more harmful consequences than good, and on top of being ineffective they are iniquitous.

This is an issue of values, therefore, which opposes various ideas about public health, of community health, meaning both the physical well-being of people as well as of the entire community, of its moral fiber as well as the model of inter-relationships that it proposes. However, we do not all share the same values.

In the fragmented, disillusioned world in which we live, a world open to the sharing of cultures and of identities, albeit not always by choice, the issue of values is constantly at stake, and from this the very meaning of social life. Even the transcendental values that we all share, of sacred respect for life and of immanent justice, are not readily turned into public policy: abortion or capital punishment, for example. As for other values, such as freedom, truth or law, they are the subjects of constant debate in democratic societies and they are precisely the kinds of values that are at stake in a public policy on illegal drugs.

It has now been thirty years since the Royal Commission of Inquiry on the Non-Medical Use of Drugs, the Le Dain Commission, named for its Chairman, studied issues similar to those we are studying today. Its report on cannabis, whose scientific conclusions on the effects of the drug were generally accepted by all members of the commission, nevertheless led to ... three reports: a majority report by three of the members, and two minority reports. During our first day of public hearings, Professor Line Beauchesne presented the fundamental differences of opinion among the members:

The dissension stems primarily from different visions of the values that should underlie a drug policy. I will refer to the report to illustrate the three positions that can be taken on drug use.

The first position, based on legal moralism, is that advocated by Ian Campbell. This public policy approach founded on legal moralism justifies the current prohibition and resulting repression on the grounds that it protects common values. (...) Briefly put, the government is perceived as having the responsibility of establishing common values, which are then imposed on society with a view to achieving optimum social harmony. If everyone thinks the same way, then there will be fewer problems.

(...) The second position, held by the majority of the Le Dain Commission members, is based on legal paternalism. Public policy based on legal paternalism justifies current prohibitions on the grounds that the State has a responsibility to protect non-independent persons, particularly young persons.

(...)

When we come to the third position, that taken by Marie-Andrée Bertrand advocating the legalization of cannabis, this brings us around to the whole question of values (...). Legal liberalism implies that the government maintains some responsibility for preserving individual autonomy to the maximum extent possible. (...) A public drug policy based on legal liberalism is founded on the premise that the

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*government's role is to maximize opportunities for each individual to be a full citizen and to ensure that criminal law is never used.*¹

Moralism is an affirmation of a set of shared values. Paternalism is protection of the weak. Liberalism is maximization of the independence of citizens. These three categories do not include all of the possibilities: communitarianism, for example, represents another approach. In some areas of public policy, at certain times, these various approaches can co-exist. Nevertheless, each one expresses a different concept of the role of the State and of criminal law, and the roles of science and ethics in the choices that must be made.

Having examined each of these subjects, we have elected to set down the guiding principles that clarify the concept we have of the roles that the state, criminal law, science and ethics must play in the development of a public policy on cannabis. These principles will then help us in our analysis of the information resulting from the research and current practices in Canada, and most of all, influence our recommendations. In this way, the reader will have the benefit of our attempts to make explicit the principles which all too often remain implicit, therefore giving the opportunity to all to take us to task for inconsistency, or to voice their disagreement with our conclusions, because they do not share these principles. We feel this exercise has the virtue of being both clear and transparent.

In order to assist our preparations for this work on the guiding principles, we asked four Canadian academics, well known both in their respective fields and for their independence, to prepare issue papers on each of the four main themes: governance, criminal law, science and ethics.² We strongly encourage Canadians to read these texts, which are of an exceptional richness and quality. We will use these texts freely, without pretending to render the complexity of their thinking, but neither will we simply echo their sentiments. Just as we did not ask witnesses to tell us what to think, but rather to share their knowledge with us while being as rigorous and as precise as possible, whether their knowledge comes from research or from experience, so we asked for issue papers and not for answers to our questions. We must formulate our own responses to the illegal drug issues before us, and that is what is expected of us.

We will begin with a reflection on ethics. We feel that such an examination, insofar as it affects the very bedrock of our values, as it imposes a requirement for

¹ Professor Line Beauchesne, witness appearing before the Special Committee on Illegal Drugs, Senate of Canada, 36th Parliament, 2nd Session, October 16, 2000, Issue 1, pages 33-36.

² They are: R. Macdonald, Professor of Public and Constitutional Law, McGill University, *The Governance of Human Agency*; A.P. Pires, Professor of Criminology, University of Ottawa, *Legislative Policy and "Two-Sided" Crimes: Some elements of a pluridimensional theory of the criminal law*; T. de Koninck, Professor of Philosophy, University of Laval, *The Role of Knowledge and Culture in Public Policy on Illegal Drugs*; and J.F. Malherbe, Professor of Social Work, Université du Québec à Montréal, *The Contribution of Ethics in Defining Guiding Principles for a Public Drug Policy*. These texts are available on line at: www.parl.gc.ca/illegal-drugs.asp.

communication and dialogue³, is the cornerstone upon which the other guidelines are based. Our principles dealing with governance – that is to say the role of the State – and with criminal law as a tool for achieving social conditions, then, hinge on this ethical concept. We will conclude with thoughts on the role of science, or more specifically of knowledge.

ETHICS, OR THE PRINCIPLE OF RECIPROCAL AUTONOMY

Let us assume that science, with supporting evidence, had shown the harmfulness of a given drug – say tobacco – and that it is a “cause” of serious, indeed fatal illnesses. To what extent are doctors, judges, and in the end, the State, authorized to go to ensure that people do not smoke? What limits are there on intervention? This is the question posed by ethics, more specifically the ethics of “health”. Should we simply ban tobacco and punish both its users and its producers? Should we educate people through prevention campaigns? Should we discourage smokers through their pocketbooks, for example with a surtax for the hospital care that their habit could make necessary?

We see that ethical reflections take us through what is, through the realm of facts, to the realm of what should be, of what would be desirable. Moving therefore from recognized facts (that cigarettes “cause” lung cancer) to standards (the majority recognizes that smoking is harmful), but, more important than standards, to values (health is the greater good) and finally to the means of passing on and above all implementing these values (smoking is forbidden and subject to a fine). At any of these steps, one could speak out and say just a minute, I do not agree. I do not agree with the statement of fact: what is the basis of, what studies support this “finding”, one might ask. I do not agree with the standard: even though a public opinion poll may show that most people believe cigarettes cause lung cancer, is that reason enough to put an end to the debate? I do not agree with the established values: freedom is the greater good and not health--what is the use of being in good health under a totalitarian regime? Finally, disagreeing with the means chosen to implement the value--it being

³ On this subject, see the work of the German sociologist and philosopher Jürgen Habermas, particularly *De l'éthique de la discussion*. Paris : Cerf. The author presents the process of ethical discussion as follows: Through debates, all participants must acknowledge that, in principle, each person participates fully, freely and equally, in the cooperative search for truth in which the unlimited strength of the best argument will carry the day. Practical discussion is considered as a demanding form of argumentative training of the will, which (...) must guarantee, through the universal presuppositions on communication, the fairness of all possible normative agreements negotiated under these conditions. (...) Furthermore, practical discussion is considered to be a process of inter-comprehension in which, due to its own nature, all participants ideally adopt a role. Therefore, the individual and ideal adoption of a role played by each person in particular and *privatim* is transformed into a practical public operation by all, intersubjectively and in common. (page 18-19).

unacceptable to ban cigarettes under the pretext that they cause cancer because the means is disproportionate to the fact.

Anyone who has followed the debates on cannabis to any degree will have drawn a parallel. Because cannabis “causes” health problems (both physical and moral), the standard states that its use is “dangerous” and, under the banner of public health values (and of the protection of the most vulnerable: children, adolescents, etc.), its production, manufacture, sale and use, etc. will be prohibited. This is the basis of the existing public policy.

As Professor Malherbe reminds us, this way of setting out the cannabis problem—as in fact is true for other substances—encourages us to rethink our ideas on health, medicine and science. Moreover, going one step further, it obliges us to consider the issue of risk and of life itself in society.

We live in a risk-taking society, but in a paradoxical manner. On the one hand, we place great value on risk-taking: venture capital, risk management, putting no limits on success. We see this as much in the appreciation of certain kinds of political or corporate decisions, as in the emulation of certain kinds of risky activities, such as Formula 1 racing, paragliding, and other extreme sports. On the other hand, we are becoming intolerant of risks of life in society, of the risks that others represent to our individual lives. It is a search for safety, both individually and collectively, vis-à-vis the smalltime crook or the terrorist. Risk would be in conflict with safety and security as illness would be in conflict with health.

Between these two apparently opposed attitudes towards risk, a subtle change in connotation slips in and partly explains the paradox. In the first sense (risks we like to take or will accept others taking), the issue is clearly risk. Here, risk is seen as being positive, and offers a number of options: when faced with this kind of risk, the person can decide to forge ahead, to wait, or to give up. In any case, there is a broadening of possibilities, therefore of autonomy, an extension that is no doubt linked to the admiration these people elicit, which is also tinged with envy as we observe this action that our position as “mere mortals” rarely permits us. The shift in meaning happens with the second sense, which does not relate to our ideas on safety but rather of danger. Safety is a collective and individual good, as in food or occupational safety. Danger, on the other hand, is usually a loss or a limitation of freedom of action: when faced with danger, most of us stop, and withdraw from the scene. In this sense, danger reduces the range of autonomy. Therefore, it is not safety that is in conflict with risk, but rather danger.⁴ The distinction is fundamental, because it refers us to the degree—whether real or perceived—to which we control our own existence. We sense that the “crazy Canuck” bombing down the slopes is at least in relative control of the risks he is taking; danger is different in that it implies loss of control.

We are collectively learning how to manage this risk/danger equation. The “risk” here, if one can put it this way, is thinking of risk as a kind of acquired individual

⁴ There is an interesting discussion on the subject in Professor Pires: pages 41 passim.

autonomy, and of danger as a limitation of this very autonomy by “the other” , bringing about in its wake withdrawal, intolerance, and concisely, fear. For if risk is the source of intense pleasure, danger generally gives rise to fear. If risk points to the improvement of the means that allow me to be more in control of my safety, danger points to threats coming from the outside, chiefly from the ‘other’, over which I have little control.

Some concepts in medicine, and in science in general, add to this paradox when they address risk factors, such as when smoking is considered a risk factor for lung cancer. This is also the case with delinquency: dropping out of school is a risk factor as regards delinquency. Within these meanings, risk here becomes a danger factor, the ultimate danger, of course, being death (cancer). This mechanistic and causalist concept of prevention erases the fundamental difference between the body-machine we occupy and the body-subject we are, to use the distinctions proposed by Professor Malherbe. There is, in fact, no direct link between the “objective” characteristics of our environment (including the personal traits of genetic history, family and culture, etc.) and the subjective perception we have of ourselves and of our relationship with our environment. In other words, it is precisely why two children born in a similar environment, in the same era and friends from a very young age, will take two entirely different paths in life. We have a body with a genetic inheritance and pre-dispositions; what we do with it and how we interact with others and our environment is something else entirely. Just as there is no immediate transfer of the recognized fact to the norm, neither is there any direct translating my biopsychological make-up into actions and thoughts.

The scientific approach searching to identify a statistical “norm”—the correlation between two facts—does not take into account the fact that we are not all equal in the face of this risk / danger equation. What for some would constitute a risk—going down an icy mountain on skis—would represent a real danger for another.

[Translation] *Despite all we think we know about addiction, a considerable number of well-informed subjects “happily continue committing suicide” through their dependencies. While health education is largely thwarted, and not only in the field of toxic substances, it is because human subjects are in fact subjects, that is to say “subjective” beings whose behavioural reactions are linked much more to the meaning they attach to their behaviours than to the objective mechanical-medical consequences which statistical analysis claims to define.*

Some risks are no doubt worth taking for life to be worth the trouble of being lived, for it not to dissolve into a maniacal and fearful sequence of endless precautions (...). Lastly, what is most human (the most autonomy, we dare wonder): succumbing to fearful hypochondria and enclosing oneself in a cocoon of universal prevention (to the point of death by asphyxiation and loss of will) or living one’s life through risks freely chosen and accepted.⁵

⁵ Malherbe, J.F. (2002) *op. cit.*, page 7.

This is where the central position of the concept of autonomy comes in. Autonomy, however, is to be understood here in a critical manner as *reciprocal autonomy*, and not as autonomy where isolated individuals establish standards to their own liking. It should be borne in mind that autonomy, etymologically speaking, means “establishing one’s own laws”. This is not a question of arbitrary legislation, created for oneself, but of laws that permit, whenever possible, the successful interaction with others, which is the very bedrock of society. This autonomy is based on the ability to recognize the existence, the difference, and the equivalence of the other, allowing one to assume solitude, finiteness and uncertainty, respectively, to then move on to practice solidarity, dignity and liberty in return.⁶

The “dependent” person is not autonomous, some would say. Indeed, in their dependency, the drug addict, the alcoholic and the inveterate smoker are not. Neither the emotionally dependent person nor the person addicted to gambling, money or sex is fully autonomous. Next comes the question of the extent to which the state or society can intervene to encourage the slow achievement of this autonomy, and how to go about it. What are the respective roles of collective governance and criminal law as mechanisms of this governance? How can science contribute to this emancipation?

In any case, we note Professor Malherbe’s comment, that:

[Translation] (...) *the fundamental problem of our civilization is not whether it is acceptable to prohibit the trade in cannabis derivatives or even their use, but rather not to repress the expression of anxiety when it arises and, even better, to invent new ways of taming it. On this point, it is useful to recall that every unjustified restriction, which adds to the already heavy burden of civilized individuals, can only increase their sense of being the object of some form of totalitarianism rather than the subject of their own destiny. From this standpoint, anti-drug campaigns seem decidedly like attempts to deny death rather than recognize its presence in collective and individual life. (...) In this respect, we agree with N. Bensäid, who says that preventive medicine conceals our fear of death by making us die of fear.*⁷

From this base ensues a definition of ethics as “constant work, to which we can consent and which we perform with one another in order to reduce, as far as possible, the inevitable difference between our values as practiced and our values as stated.”⁸ With one another, indeed, thereby imposing constraints so that reciprocity and equivalence of the ‘other’ can be realized; this is the role of governance.

As a guideline, we will adopt the principle that an ethical public policy on illegal drugs, and on cannabis in particular, must **promote reciprocal autonomy built through a constant exchange of dialogue within the community.**

⁶ See Malherbe’s discussion of the subject on pages 23-26.

⁷ *Ibid.*, page 21.

⁸ *Ibid.*, pages 27-28.

GOVERNANCE: MAXIMIZING THE ACTIONS OF INDIVIDUALS

We are social beings. It is a trivial assertion, however it must be stated because it means that, *necessarily*, we always find ourselves in paradoxical situations where to a certain degree, each person has the free will to make decisions, and makes free decisions for himself, while at the same time, in order to regulate interactions with others, rules are established, a normativity, that is more or less complex or more or less formal, as is appropriate. This is true of relationships between couples, families, in sports, and at work, as it is of relationships between citizens and the government. Self-governance—acquired through the arrival of liberal democracy—is never complete and inevitably yields in part to the governance of the community.

Governance is relatively easy to develop within simple relationships: within couples, families, or businesses. This is not to say that its practice is easy: anyone with any experience of relationships as a couple will be well aware of how difficult it can be to make implicit rules explicit, and to agree on the rules of a shared life. However, the standards that are established between friends, between lovers, between parents and children, are in fact a set of relatively simple rules, and most importantly, rules whose effectiveness does not require the intervention of other parties, except in the case of a break-up or of abuse.

In feudal, pre-modern or pre-democratic societies, the prevailing rules for even the simplest social relationships were stipulated from the outside: by the sovereign, the lord, the church representative, the father or forefather, the head of the business, each one could issue orders and expect to be obeyed, being all powerful in his domain. The establishment of normativity was largely done without the involvement of “subjects”, without their consent, and without any input on their part; they were excluded from the power relationship. Over the centuries, during which our modern-day democracies were built, we have moved on to styles of governance of ourselves and others that allow people to participate more and more in the development of the rules of life, both personal and social. We have also moved on from a situation whereby each person’s life was decided by his or her destiny, and limited to the narrow prospects dictated by the place of birth and status, to an “indeterminate” life situation, which is open to the building a personal identity and history.

These are therefore (1) changes in the sources of normativity and their operationalization in society, and (2) changes in our relationship to these norms. In the first case, we are slowly becoming involved in the external formalization of the sources of behavioural norms. As they no longer ensue from divine right, from the sovereign or the church prelate, they are built through the political manifestation of the will of the people. They are entrenched in national constitutions, in legal decisions (in British Common Law) or in legal codes (the Civil Code). It follows that the supra-legal normativity (inherited from divine right) or the infra-legal (not set out in law), lose both their symbolic value and their real influence on social relationships, to the benefit of legal rules that are registered according to a recognized and legitimate procedure in the

social system by means of statutory provisions. Modern societies are legal societies, that is to say societies that base their management of relationships between people and between individuals, groups and institutions, on the rule of law. Never completely incorporated into the legal system, other sources of normativity have not disappeared completely but the pre-legal or infra-legal sources of normativity are less apparent, and sometimes less legitimate.

With this change of source comes a change in operation: while the sovereign or the church representative could convict, or even execute, without challenge to the legitimacy or rationality of their decision—except by risking the same fate—the means of expressing the will of the people, setting it out in the legal system, is now in the hands of judges and the legal system entirely. The legal establishment of norms is set in motion either by the public authority provided in the legislation (civil and criminal cases, for example) or by citizens themselves (private and civil lawsuits) and is put in effect primarily by the courts. Remedies exist, and most importantly, these remedies are theoretically the same for, and accessible to, one and all.

The relationship that a person has to the norms, and through this to all aspects of social life, is the third change. Choice and uncertainty have both increased, to the point that, today, the connection is not so much to the other person, but to the risk represented by being in contact with them. Normativity in and of itself is no longer considered inevitable, nor even a duty. Without being rejected, social normativity is called into question based on personal experience and worldview. The gap between the subject of the norm and the norm itself seems to be widening, while conflict resolution models are being made more formal.

Through the conjunction of these processes, governance becomes more and more instrumental. The mechanisms of formal normativity, i.e. lawyers, judges and the courts, sometimes take on a greater importance than the actual substance of the norms themselves: the immediate personal question is whether I have access to the recognized mechanisms of conflict resolution, or if, through my condition or my actions, I am excluded in one way or another. In other words, the means is replacing the end, the rule of law is replacing the requirement for a connection to the other, which is the very basis of normativity and of social life itself.

Modern societies are therefore faced with a series of sometimes paradoxical injunctions. Collective governance must: (1) allow social relationships to be regulated in the most orderly but least restrictive manner possible, (2) give expression to the norms and values shared by the community and (3) give each person the opportunity to define themselves in relationship to these norms and values. How can these seemingly obvious opposites be reconciled?

Based on Professor Taylor's work⁹, we can say that there are two central spheres or preferred means of governance: the governance of relationships with others, and the governance of the self. The governance of collective relations is obviously part of

⁹ Among others: Taylor, C., (1989) *Les sources du moi*. Montréal: Boréal.

the traditionally recognized areas of intervention of the state, even if the form and substance change. On the other hand, governance of the self does not come immediately or systematically under the jurisdiction of the state.

Collective governance

The state is far from the only source of normativity. But the fact that democratic states must act in accordance with the law and that most public policies come in the form of legislative texts, produces a kind of short-circuit whereby the source of law and the state appear as one.

Yet, as Professor MacDonald rightly points out, if the actions of the state are subject to the rule of law, the legal sphere is not limited to the State. In all known societies, rules have always been established for the governance of the self and of collective relations. They are implicit or explicit, formal or informal, all-encompassing or limited in their application, codified or recorded in the collective memory, extensive or limited to certain spheres of activity. In every case, whatever the nature or specific form of the rules, they serve to express for members of the community the conditions of collective life. They deal with marriage and parenthood, the ways in which one respects the life and property of others, as well as the connections to the invisible and the beyond. They take the form of prescriptions and bans, are implemented by the bishop or the mullah, by the king or his representative, or by the judge. Much as we might like to believe, we in modern times have not invented the codification of laws because the first legal code goes back to Hammurabi, the King of Babylon. In Roman law, Justinien was the first to suggest a code of laws, not to mention the Ten Commandments “handed down” to Moses.

In this sense, we agree with Professor MacDonald as concerns legal pluralism, according to which there are multiple sources of normativity and therefore of rules of action that are not exhausted by formal legislation. This is the distinction between law and “juridicity”. As we mentioned above, juridicity can be derived as much from the family as from business, from school as from the trade union, from political parties as from religion. In this sense, juridicity “is the business of subjecting action to rules-based governance”.¹⁰

Juridicity, of course, co-exists with other ways of governing individual and community actions: the brute exercise of power and war are examples of other forms. One of the main differences, however, between juridicity and other forms comes from the nature and the origin of its legitimacy. The establishment of legal rules of action involves a form of consent, if not of active participation, in the development and implementation of the rule, qualities that are not needed nor sought out in the case of domination by a tyrant or an occupying army.

¹⁰ MacDonald, *op. cit.*, page 24 of the English version.

The development of a formal juridicity, in the form of legal texts passed by legislative assemblies prescribing both objective and subjective rights, is at the very heart of modernity. It is in fact around these kinds of issues that the more specific question of the role of the State arises: when and to what extent should formal legal rules be developed, and how should they be enforced?

Modern societies are unique in that they have, amongst other things, given precedence to the formal rule of law over other sources of juridicity as regards the governance of social relationships, established the need for these formal laws to be adopted and implemented by legislative and executive arms of the State, and set up arbitration systems in the form of courts of law born of the State but having an arm's length relationship with the former two.

This formality of the law, or to be more precise, the legal normativity found in the legislative texts passed by the State, in no way signifies the disappearance of the other forms of normativity. Here Professor MacDonald gives us a relevant example of this:

For example, activity that the official criminal law sanctions and stigmatizes may be rewarded and valued in certain other normative communities. In socio-economically impoverished neighbourhoods where economic opportunities are limited, the manufacture and sale of illicit drugs may be an attractive means of escaping poverty. For those who are successful in the enterprise, the consequent advancement in social standing may more than offset the potential harms visited by criminal sanctions. Similarly, in an international context, in countries where the raising of traditional crops which are capable of being converted into illicit drugs is an indigenous cultural activity, and where conditions of poverty are such that the attendant economic benefits are necessary for subsistence, the criminal law (whether domestic or international) has little purchase.¹¹

In other words, juridicity is not exhausted in the formal law, and the role of the State is not limited to the processes of passing, enforcing and arbitrating formal legislation.

Governance of the self

Historically, juridicity has often been equated with moral standards, or has tried to model itself on them. These standards could come from religion, from philosophy, from an ethic, or a universal theory of nature as in Plato. In every case, they tried to say what constituted the "good life", how to conform one's life with the immanent rules of life, ending the cycle of reincarnations, or avoiding eternal damnation. In every case as well, the good life corresponded more or less to "life" in the most abstract sense, that is to say the focus was not so much on the destiny of the individual, but on that of the community, the group, the clan.

¹¹ *Ibid.*, page 25.

It is only as of the second half of the second millennium, during what we refer to as the Age of Enlightenment, that individual life slowly began to register as a primary concern in the governance of the community . This major change resulted in what Taylor calls “ordinary life”, that of the “average sensual man”, at the heart of which we find his connection to the world and his manner of connecting with it through the agency of family and work, being suddenly recognized. Having had no means by which to participate in the development of juridicity in general until then, the “citizen” acquired some legal authority and right to active participation (to simplify things, we could give as an example the right to vote), not only as a member of the community but as a whole and unique individual.

Up until that time, communities had a juridicity that was largely based on relationships with others, granting strong objective rights (the right to life: you shall not kill; the right to property: you shall not steal; etc.), with a weak cognitive component: while admitting that it continues (unfortunately one might add), to pose certain problems (take racial or sexual inequality) even throughout the twentieth century, - accepting respect for life as a universal norm has not met with great opposition. It is in this sense that we speak here, particularly following Pires’ work discussed in the following section, of norms with weak cognitive components. These fundamental norms, which certain philosophers of law have said are natural laws, do not require a strong empirical justification. The same cannot be said of other norms concerning conduct such as homosexuality, abortion... or taking drugs. These norms are an issue of what we might call subjective rights that relate to individual behaviours that express personal choices achieved through a consensual exchange and thus being of little or less direct concern to the community. This is why we could say this is an issue of norms with a strong cognitive component: in order to be imposed as negative laws, that is to say as constraints or prohibitions, these standards need an exogenous justification drawn from the external knowledge of juridicity itself.

In this way, parallel to the process of legal formalization of the norms of governance in the community described in the preceding sub-section, the modern individual has acquired more and more room for governance of the self. This space is no longer, as in the past, entirely dictated by the determinations stemming from one’s birth in a given place, in a given family, with given genetic “baggage”. Except in some totalitarian regimes, neither is this space for the governance of the self entirely subjected to collective or religious rules. This space consists of a vast area of uncertainty that, in part, precisely explains why it is sometimes called “disenchantment with the world”, or more prosaically “loss of sense” or “lack of values”. In fact, we would say that neither comes into play, so much as a process of slow and hesitant reinvention of social life, in and through new ways of relating as individuals.

The role of governance

Governance is part of both the spheres of collective governance of the State and of governance of the self. If the State's chosen vehicle is formal law, the passing of legislation does not exhaust all the possibilities in terms of collective governance. Moreover, governance of the self is the slow discovery – in the strong sense of the term – of the juridicity that underlies human action.

Professor MacDonald addresses the issue eloquently:

*How ought law and legal institutions to be deployed to achieve the symbolic governance of human agency in a manner that facilitates the just achievement of individual and collective human purposes?*¹²

The issue brings us back to the purposes of community governance, which is to facilitate human relationships and self-realization, with a minimum of interference in such a way as to stimulate individuals' discovery of the source of normativity rather than having it dictated by external an body. It is not the responsibility of State governance to ensure either the health or the happiness of its citizens. It is, however, its duty to ensure that the rules that it enacts and the way in which they are carried out do the least possible harm to the individual's ability to develop his or her own moral code. Not a single morality, or at least a morality for everyone, as the majority position of the Le Dain report maintained, but a facilitation of access to morality for citizens, morality here being understood in the sense of the ethical discovery of fundamental laws regarding relationships with others, as Professor Malherbe pointed out.

Professor MacDonald proposes a definition of governance that is drawn from the work of the Law Reform Commission, which gives guidance: the goal of governance is freedom, and not control. It is a question of defining the goals of society through policies and action programs that are then implemented through systems and processes and upheld by actors, allowing for the encouragement and affirmation of human action. The law, vehicle of choice of governance, does not seek instrumental purposes of simple expressiveness of rules or limitations passed for and on behalf of citizens, but a reciprocal process of building social relationships through which people, citizens and governments, can constantly adjust their expectations in terms of behaviour.

We therefore accept as a guiding principle for governance that **all of the means the State has at its disposal must work towards facilitating human action, particularly the processes allowing for the building of arrangements between collective government and governance of the self.**

¹² MacDonald, *op. cit.*, page 78.

CRIMINAL LAW AND THE LIMITS OF PROHIBITION

During the course of this report, we will have plenty of opportunity to describe the degree to which criminal law is at the very heart of any discussion of illegal drugs. It has come to the point that debates between those we refer to as prohibitionists on the one hand, and liberalists on the other, have overshadowed all other considerations. The Italian sociologist Pareto (1848-1923), quoted by Professor Pires in his issues paper, said of human beings that even if we would like to believe that we are rational, we are above all argumentative beings, that is to say that we want “to give a logical aspect to behaviours that do not have the substance thereof.”¹³ In the context of the debate on cannabis, this sentiment takes on its fullest meaning: both sides hurling their arguments at the other, claiming they are recognized “truths”.

Any discussion on the role and the place of criminal law as concerns illegal drugs, here being a question of cannabis, in effect poses questions regarding principles of the appropriateness of turning to criminal law. In general, both sides are quick to escape this stringent argument on the principles to turn to justifications. As is true of both sides, justification has nothing to do with the mechanism itself, being the criminal law, but with the target, being cannabis. The result is the litany of “proofs” of the effects of cannabis. For some, the effects are significant enough to “justify” turning to the criminal law, and to list the risks associated with the use of cannabis: addiction, learning difficulties, delinquency, and impaired driving. For others, these same risks are so minimal, or are already covered by other criminal legislation (driving under the influence), that they do not justify the use of the criminal law. Whatever the case may be, the debate is no longer in relation to the principles but on justification.

This reflection on the role of criminal legislation is specifically intended to bring us back to principles of the appropriateness of turning to criminal law. The central issue is to attempt to identify the criteria that will help us decide in what circumstances society can—or must—turn to criminal law. It must then be determined if these criteria justify the use of the criminal law in relation to cannabis.

Requirement for distinctions

Raising the question as to whether or not the use of criminal law as concerns cannabis is justified necessarily brings us back to a primary observation: the use of criminal law is not justified in all cases, but, in some cases, it must be. This observation is supported by three findings: (1) that most social relationships are regulated without the use of criminal law; (2) that certain behaviours are forcibly within the sphere of criminal law; and (3) that certain behaviours legislation has criminalized, at certain points in time, have since been excluded from this domain. The possibility of including

¹³ Quoted in Pires, A.P. (2002), *op. cit.* page 8.

or excluding human actions from the sphere of criminal legislation rests on the ability to make distinctions.

However, a significant difficulty arises as soon as this principle of distinction is accepted *in practice*, and not simply in theory. Once an act has been recognized as being a “crime”, it becomes part of the body of what defines all offences: behaviours against society. According to the internal logic of criminal law, the only eligible distinction would *precede* the decision to incorporate a behaviour into the law or not. If the behaviour at issue is one that goes against the common good, it is a crime. Otherwise, it would be an uncivilized act, perhaps even an immoral one, but certainly not a crime. Once such a decision is taken, the only remaining distinctions to make would be with respect to form: the kind of procedure to follow and the severity of the punishment according to the nature of the offence.

Everything is done as if there were no positive distinctions made within criminal law between offences, as if the distinction was made only from the outside, before making the act an offence. In fact, distinctions between types of offences do exist. These are the distinctions made by Professor Pires, between standard prohibited behaviours and “two-sided” prohibited behaviours. It is more usual to distinguish between “victimless” crimes and crimes “with victims”, but this categorization is incorrect. On the one hand, under criminal law, the victim is all of society. There are certainly individual victims, but by some kind of extension, the harm has in fact been done to all of society. This would explain the principle of deterrence, in criminal legal theory: by punishing a guilty party, we try to dissuade all those who might be tempted to behave in the same way.

On the other hand, this categorization brings us back to a single aspect, the subject of the offence, losing view of the other processes by which criminal law distinguishes between different kinds of offences. In this way, another kind of distinction that is intrinsic to criminal law falls under the modes of justification. A decision to criminalize homicide does not require, as Professor Pires stresses, the undertaking of comparative studies in order to determine if one kind of murder is more or less harmful than another to the victim. The cognitive component is weak: here, there is no need to turn to external arguments to justify the criminalization. The act, in and of itself—this is the concept of *malum in se*—is enough to establish the legitimacy of the criminal standard. There is no such thing when the issue is drugs: since the beginning of prohibition, external justifications were needed regarding the harm caused by drug use. These subjects of criminalization have a strong cognitive component, in that they require a higher level of justification.

The distinction between kinds of prohibitive behaviours is therefore an analytical tool that is necessary in order to understand and think about the role of the criminal law as concerns drugs. What then are the criteria we can use in order to make these distinctions? This is the goal of the following sub-section.

Criteria for distinction

Professor Pires proposes seven criteria allowing for distinctions to be made between the various kinds of prohibitive behaviours in criminal law.

Seven criteria to distinguish between offences	
Nature of the offence	Is this an issue of a conflict or an exchange?
Capacity of the law for discernment	Can the law see a victim and distinguish them from the deviant?
Referentiality	Is the actor able to appreciate the consequences of his actions on another person?
Limitation on natural liberty	Is it possible that there could be limitation of the freedom of the person to act?
Justification of the offence	Must the law turn to outside knowledge in order to justify the enacted standard?
Application of the law	Does application of the law require any active intervention?
Effects of the law	Can the effects of applying of the law compromise the standard?

We will briefly examine these, one at a time.

The nature of the offence

In order for there to be an offence, harm must have been done, which brings us to the victim. As we said above, in the broadest sense, criminal law sees society as the ultimate victim of any offence. The direct victim of an assault or theft is a witness, in the technical sense of the law. However, at a concrete level, the law recognizes direct victims. In certain cases, the concept of victim falls somewhere between the two: it is the neighbourhood or the surrounding area, for example, in the case of nuisance caused by solicitation for the purposes of prostitution. However, these nuisance situations are themselves at the limit of criminal law, in a sort of gray area between standard offences and two-sided offences.

What is remarkable is that the criminal law cannot take all three levels into account at the same time. If it recognizes the direct victim, then society becomes invisible. If it considers the neighbourhood, it becomes even more evident that it can no longer recognize a direct victim or society as a whole. Finally, and above all, if it takes the perspective of society as a whole, then it loses sight of not only the direct victim, but what is more, it loses its specificity. In effect, in the latter case, one could say that civil law also protects society: without respect for sales contracts and debts, society would go down the drain.

It is therefore not only the harm caused, nor even the presence of a victim that gives certain acts their criminal character, but the fact that they bear witness to conflict, abuse of power, infringement of one social actor upon another. Obviously, civil law also serves to resolve conflicts, from which comes the need for more criteria.

Capacity of the law for discernment

Is the law able to differentiate a victim from a perpetrator? In the case of standard prohibited behaviours, it generally can. For example, the victim of a homicide can clearly be distinguished from the perpetrator. Of course, there are exceptions to these standard scenarios, for example, where the victims themselves face criminal charges. A case in point would be where a victim of sexual assault is convicted of contempt of court for refusing to testify against her attacker.

When faced with two-sided prohibited behaviours, criminal law is hard-pressed to distinguish the victim from the perpetrator. Or, it finds the perpetrator to be the victim that must be protected from himself. Consequently the perpetrator becomes the victim of his/her own behaviour.

Alternatively, cognisant of the limitations and difficulty involved in punishing the victim--for example, a prostitute--criminal law shifts from the phenomenological world (the facts) to a different mode of reasoning. It moves from an analysis-based mode of reasoning (evidence enabling deduction) to one based on consequentialism or teleology (the goals underlying behaviour). For instance, criminal law justifies its intervention by the need to protect children. Consequently, it loses, and causes us to lose, sight of the (ultimately inexplicable) reasons why the offence was brought before the courts in the first place.

Referentiality

This term refers to the capacity of perpetrators of the offence to recognize – despite “explanations”, denial or other self-justification methods – the harm caused to others by their actions. Even in case of some borderline standard prohibited behaviours, such as cruelty to animals, the perpetrator of the offence – who, for example, has hanged his neighbour’s dog from a tree – may recognize the harm caused by his/her action to the animal’s owner. The criminal act in the case of two-sided prohibited behaviours may be self-destructive, but is not motivated by maliciousness towards others, since it does not create a direct relationship with others. Indeed, the sociologist A. Ehrenberg raises the issue of the absence of a relationship with others exhibited in all types of drug use when interpreted as a form of withdrawal from the world. However, this is already beyond the issue of criminal law into to the realm of political discussion on democracy.

Limitation on natural liberty

We shall deal only briefly with this issue here since it is discussed at greater length later. Suffice it to say, however, that the law places special restrictions on what Kant called the “unfettered freedom of action”: criminal law restricts an individual’s liberty to take the life or property of others. Consequently, it institutes specific rights and freedoms, i.e. the right to enjoy life and property. Fundamental problems arise where the law seeks to restrict the very rights and freedoms that it provides. A case in point is

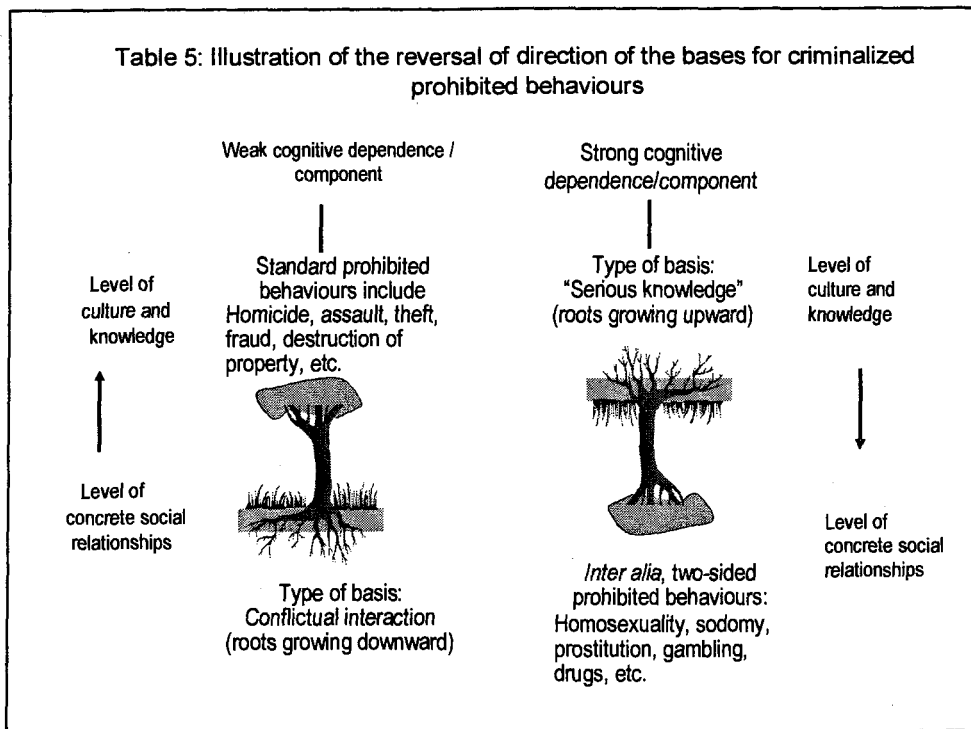
prostitution, where the law seeks to restrict the very right to enjoy one's own body and the freedom provided for by the law.

Justification of the offence

Criminal law very seldom uses external sources to justify the criminalization of offences. A good example to illustrate this is our original homicide scenario. Criminal law does not refer to sociology, anthropology, history, economics or medicine to establish the various effects of different types of homicides and various ways of taking life. The same rationale can be applied to sexual assaults, theft, fraud, etc. The cognitive component in the justification process is weak. The rationale underpinning the standard prohibited behaviour is deeply rooted in the social relationship. It is quite clear that any society even considering legalizing homicide would become untenable and would cease to be a society at all. Consequently, our society does not question the validity of the criminalization of homicide. The sole issue that arises in some countries, but which was addressed in Canada a long time ago, is the sentence society imposes on murderers.

Quite the opposite situation exists for two-sided prohibited behaviours. They require empirical demonstration and justification with a strong cognitive component. As one might expect, this issue is central to any debate on drugs. Indeed, this report accords a great deal of importance to this matter.

Below professor Pires deals with this issue in graph form.



As professor Pires points out, the criterion here is not to establish whether there is consensus or “dissensus” on the criminal standard or on the terms relating to the type and possibility of democratic debate but rather to determine whether the source of the legitimacy of the standard is endogenous or exogenous. In the case of standard prohibited behaviours, the source is endogenous. In the case of two-sided prohibited behaviours, it is exogenous. However, the criminal law creation process remains the same, i.e. democratic debate resulting in the adoption of enabling legislation. It is for this reason that it is all too easy to lose sight of the fact that the two types of offences are not in fact of the same nature.

[Translation] *The important point to remember is that all two-sided prohibited behaviours to which this criterion applies exhibit certain specific problems. (i) They all have a more precarious, more ideological or more fragile endogenous basis because they are not rooted in a concrete, conflictual deviance and because the norms are not sufficiently detached from certain forms of (purely moral or religious) knowledge or are not sufficiently unaffected by knowledge of facts. (ii) They are therefore more subject to a process of selection from the available knowledge and to the actual value of the knowledge that we select or that is available to us in respect of them at a particular point in time. That means that a critical and serious examination of the knowledge is of crucial importance. (iii) They are, to all intents and purposes, more polemical and subject to public debate at a particular point in time, and more likely to be based on major cultural or cognitive misapprehensions.*¹⁴

Application of the law

In the vast majority of cases involving standard prohibited behaviours, offences are brought to the attention of the police by way of a complaint. Complaints to the police most often involve theft, sexual assault and homicide. Indeed, approximately 90% all offences that come to the attention of the police do so through complaints. In the case of two-sided prohibited behaviours, close to 100% of offences are discovered pro-actively.

One might point to the increase in complaints from people living near cannabis plantations in British Columbia. However, these people’s complaints perhaps deal either with the very real danger of fire – since the illegal nature of cannabis production forces producers to illegally tap into electricity lines – or with pressure on them from criminals to keep quiet – also because producers are forced to operate illegally.

The pro-active application of the criminal law in the case of two-sided prohibited behaviours has harmful consequences, including social and human costs but also the possibility of discriminatory application of the law or police corruption. This raises the question of whether the endogenous basis of the offence warrants these consequences.

¹⁴ Pires, A.P., (2002) *op. cit.*, page 59.

Effects of the law

The effects of the law stem, to a certain extent, from the previous criterion and all the others before it. This criterion relates to the legitimacy of the standard. The difficulties and criticism arising from pro-active police action, changes in social normativity or in the knowledge base, make the law counter-productive, which, in turn, raises questions *sui generis* as to its basic tenets and legitimacy.

We have compiled Professor Pires' suggested criteria under three headings. Each criterion includes an "action-related" and a "law-related" element, which can be used in distinguishing between various criminal offences.

Nature of the offence. The action here refers to the relationship between the "victim" and the "perpetrator", i.e. are they in a conflict or exchange-type situation? The law-related criterion focuses on establishing whether criminal law is able to distinguish between the victim and the perpetrator.

Justification. The action in this case is to determine whether perpetrators are able to recognize the harm caused to others by their actions. The legal aspect of the equation deals with determining the basis of the legitimacy of the standard.

Operativity. The action relates to identifying whether the application of the appropriate standard is triggered by the victim or witness or whether pro-active action is required by law-enforcement agencies. The legal side of the equation is to establish whether the enforcement of the standard could potentially sabotage itself.

It is our view that the analysis of *Criminal Code* offences based on these three criteria addresses the fundamental issue of whether limiting the liberty of an individual to act is justified in the criminal law. It is for this reason that we are less concerned about the criteria themselves than about the result of the application of these criteria to the criminal law standard.

Application to illegal drugs issues

Are illegal-drug-related offences two-sided prohibited behaviours under criminal law? Undoubtedly so.

The offence created implies an exchange-type situation and it is relatively unimportant whether the subject of the transaction is a prohibited substance or not. It is deemed to be a consented exchange between two parties. In the case of cannabis use – or the personal use of the opium or cocaine that just happens to be growing in my garden, -- no exchange with another party takes place. Nevertheless, possession is prohibited in Canada, as is use in certain other countries.

Criminal law is hard pressed to find a victim. With respect to impaired driving endangering the lives of others, the *Criminal Code* contains a provision for the punishment of an individual operating a vehicle under the influence of any substance. The argument that cannabis poses enforcement difficulties is not valid. The same difficulties apply to driving under the influence of prescription drugs. What about the issue of children? It is difficult to see how cannabis use harms children, except where

an “uncontrolled” market, brought about either by a lack of regulations or by the current illegality of cannabis fostering illegal markets, does cause harm to children.

In relation to referentiality, a user or even a seller does not see himself or herself as causing harm to others. At least, this is the case for cannabis derivatives. Of course, a situation where “grass” is mixed with other substances and adulterated substances are sold to users is reminiscent of the era of prohibition and is one of the reasons why prohibition was scrapped. To justify behavioural standards and the offence, criminal law has to refer to external sources over which—and the interpretation of which—it exerts no control.

The operativity of the standard raises both application problems and on-going questions as to the legitimacy of the standard itself.

On the whole, the legal basis of the criminal law is weak where the prescribed standard (1) does not concern a relationship with others and where the characteristics of the relationship do not create a victim and a perpetrator able to recognize his/her actions; (2) has to find its justification outside fundamental social relationships; and (3) results in a form of enforcement, the harmful effects of which, undermine and challenge the very legitimacy of the law. (Where criminal law is involved in these issues, the very standard prescribed by the law makes the perpetrator the victim and tries to protect him from himself, which it can do only by producing a never-ending stream of knowledge, which remains constantly out of his reach.)

This analysis indicates to us that **only offences involving significant direct danger to others should be matters of criminal law.**

SCIENCE OR APPROXIMATE KNOWLEDGE

The public is generally willing to leave the choice of control methods to the interaction between health care experts and government agencies because they recognize that the drug is being used essentially for their well-being and they rely on expert knowledge to decide the best way to protect that.

(...)

Therefore, in formulating social policy on non-medical use, you must consider not only at the harm done by the law or at the harm done by the drug, but as far as possible a full cost/benefit analysis of drug use and the control measures, and any change in control measures that you may contemplate. This is a matter for all of society to decide - not for experts to decide as a matter of scientific knowledge.¹⁵

From the very outset of the Committee’s proceedings, we have been aware that knowledge – even science-based, is not of itself a sufficient basis for the development of public policy on illegal drugs, in particular cannabis. One might be tempted to think

¹⁵ Evidence by Dr. Harold Kalant, professor at the University of Toronto, before the Senate Special Committee on Illegal Drugs, Senate of Canada, first session of the thirty-seventh Parliament, issue no 4, pages 69 and 78.

that a Special Committee on Illegal Drugs—in this case, cannabis—should base its conclusions and recommendations solely on knowledge. However, no amount of knowledge alone could determine public policy. There are several reasons for this.

Firstly, the process of knowledge development is ongoing. This process is by definition a continuing study of the unknown. The pursuit of knowledge, in view of the scale and complexity of the task, is always approximate—or, as the French anthropologist Claude Lévi-Strauss would have put it, cobbled-together. To search for knowledge is to acknowledge our ignorance of fundamental questions, which by definition remain open-ended. According to Professor de Koninck:

[Translation] *It is appropriate for us to celebrate the ignorance we have at last discovered because it is now part of our known ignorance (ordinary ignorance, in the classical vocabulary), as opposed to unknown ignorance (twofold ignorance) -- thanks to neuroscience, oceanography, astrophysics, but also to depth psychology, the history of religion (to cite only two of the advanced "humanities") and to other disciplines which have particularly progressed in our era. We must celebrate it with the wonder and puzzlement which are still the necessary prerequisite of all discovery.*¹⁶

This situation might seem ironic, since never at any other time has such a wealth of information been produced—in all areas of human culture but also specifically on the issue of drugs—than in the modern era. So much knowledge has been gained in fact, that experts, such as economists, sociologists, criminologists, psychologists, and geneticists have become necessary players in the whole public policy justification process. It is only thanks to the ability of a team of scientists to successfully influence decision-makers that the greenhouse effect and the global warming phenomena have been acknowledged as real and that action has been taken to protect our environment. Governments' macro-economic decisions will be explained to the public on the nightly news by a senior economist. Where urban violence occurs or a serial killer is on the rampage, psychologists and criminologists are brought in to explain what is taking place, or to justify the thrust of criminal policy. The mass production of information and reference to experts in policy development give the public decision-making process at least credibility, if not legitimacy. Consequently, people who feel disenfranchised or even disillusioned by what they perceive as the disparity between the real world and the world presented to them in the media, will feel less inclined to challenge political decisions which are based on the “authority of knowledge”. Information is becoming knowledge, the learned are becoming experts and politicians, (who are increasingly allergic to independent reflection on principles and fundamental issues), have come to rely on this handy army of “experts”, who are ever ready to proffer advice.

However, information is not knowledge. Indeed, knowledge cannot be reduced to mere information. The Internet teems with information, but no one would dare contend that all of it could be deemed knowledge.

¹⁶ De Koninck, T., (2002) *op. cit.*, page 25.

Secondly, the knowledge production process is fragmented and, like modern life itself, has difficulty addressing the issue of meaning. No better knowledge is produced with the addition of academic disciplines all studying issues through the lens of their own field of expertise than is produced when one of these disciplines works in isolation. The promotion of inter-disciplinary and trans-disciplinary approaches will remain as meaningless as calls for a social “partnership”, until there is genuine resolve to grasp the issues of meaning and comprehension. Prestigious institutes such as NIDA may have huge research budgets and conduct research, which in itself, is both fascinating and useful, but they function as if their sole goal were to demonstrate the bio-psychological mechanisms of “drug addiction” and the dangerous abuse that results from the consumption of “drugs of abuse”, as they call them.

However, the reasons for particular practices cannot be reduced to the sum of their constituent parts, or a jumble of re-enactments. Remarkable knowledge about cell mechanisms and genetics does not provide answers to the ethical and political issues raised by cloning. In the same way, knowledge about the mechanisms of the atom and nuclear fission did not provide answers to the issue of the manufacture and use of nuclear weapons. The highly abstract and math-based discipline of economic “science” is so far removed from reality that it is no longer able to explain the gulf that exists between nations or between extravagant wealth and human misery.

Researchers seem more concerned with mathematical equations and abstractions, and as a result, fail to ask fundamental questions. Their fields of knowledge are patchy and highly compartmentalized and there often remains a confusion between knowledge, information and technology. To ask fundamental questions, is to link issues and to re-acknowledge the complex nature of these issues in an attempt to identify the underlying reasons. There are on-going debates between scientists and philosophers over linking issues and over the shift towards an integrated knowledge base of human beings.¹⁷

Thirdly, this raises the whole issue of the so-called “learned idiot” “experts”.

[Translation] Idiots is the right word (from the Latin *idiota*, meaning “ignorant person”, borrowed from the Greek *idiôtês*, of the same meaning, as opposed to *pepaideumenos*, “cultivated man”). What is unfortunate is that their unearned reputation as experts extends all the more the influence of this “idiocy” in societies such as ours where “science” exercises a magic power and “that power appears increasingly legitimized by ‘learned’ experts,” as Jacques Testart notes. “Indeed, the expert provides reassurances and citizens are reluctant to decry the absurdity or cynicism of a political decision approved by ‘the most qualified experts’.”¹⁸

¹⁷ Based on a very eloquent exchange between a philosopher and a neurobiologist: Changeux, J.P. et P. Ricoeur (1998) *What makes us Think* (translation of : *Ce qui nous fait penser. La nature et la règle.* Paris : Odile Jacob), pages 77-78

¹⁸ De Koninck, T. (2002) *op. cit.*, page 6.

We are not trying to take issue with science but rather to challenge the difficulty scientists have in reflecting on their research. It is one thing to conduct cutting-edge research on specific issues, but it is quite another to claim to use the resultant fragmented knowledge to provide “explanations”. It is yet another to attempt to provide answers that science is quite simply not able to provide. It is one thing to conduct studies of the behaviour of laboratory rats, which have been administered a dose of Delta 9-THC (the principal active component in cannabis), but it is quite another to claim that this type of experiment is useful in understanding cannabis use and its effects on human beings. It is still another issue to contend that this research can provide an answer to cannabis public policy-related issues.

Drug use is a social action and forms part of a particular individual’s behavioural pattern and as such, cannot be reduced to mere neuro-psychological mechanisms. It might be useful to understand the mechanisms involved but this knowledge alone will not explain the reasons underlying drug use in our society.

Fourthly, the colonization of the mind by the authority of experts-acting as mediators between politicians and the community—equates to the dangerous colonization of social sciences by natural sciences. This is nothing new. This process began in the 19th century but significantly accelerated during the 20th century. The most significant manifestation of this process is the ever-closer links between psychology and neuro-science. Consequently, a transposition of methods and problem-approach systems has taken place. As a result, human sciences have now taken on a quantitivist-reductionist approach, which in turn has led to a knowledge crisis. A sample of 100 young people chosen at random to undergo a battery of psychological tests aimed at determining why they use cannabis will provide apparently serious anecdotal research and a series of correlations, which are unlikely to reveal the reasons behind drug use.

In some academic and decision-making circles, it is fashionable to refer to “*evidence-based*” policies. By this, we mean policies based on “scientific” evidence of approaches that work. One of the most striking examples of this approach was the Crime Reduction Strategy implemented in the United Kingdom in 1998 by the then newly-elected Labour government. Under this scheme, considerable money was earmarked to support those crime prevention initiatives that studies had shown to be effective with the goal of reducing various types of crime by a specified percentage over a five-year period.¹⁹ Despite this scheme, the United Kingdom is currently facing a crime “crisis”, in part because crime rates have risen, and the Crime Reduction Strategy is a shambles.

¹⁹ Chapter 20 discusses this issue in greater detail since the strategy includes a drug-related initiative.

It is tempting to ask how the outcome could have been any different. Social engineering strategies in areas such as population control and crime prevention date back to the 19th century and have rarely provided tangible results. These initiatives, which are built on one or two “formulae”, themselves drawn from a small number of controlled experiments, do not take account of the complex nature of the modern world, with its ever-growing, increasingly fluid and intangible interdependent and multi-level relationships. Is it in an attempt to flee this reality that we seek refuge in the mathematical abstraction of correlations between supposedly predictive variables?

The Committee’s report—especially the second part—has put great emphasis on research-based knowledge. This focus is an attempt to do justice to the knowledge that has been developed over the past few decades. We considered it important and indeed necessary to give it detailed consideration. Indeed, the Committee recommends that the drive for knowledge acquisition on specific issues that we deem to be important be continued.

We do not claim, however, to have answered the fundamental question of why people consume psychoactive substances, such as alcohol, drugs or medication. We were indeed surprised, given the quantity of studies conducted each year on drugs, that this area has not been covered. It is almost as if the quest for answers to technical questions has caused science to lose sight of the basic issue!

Scientific knowledge cannot replace either reflection or the political decision-making process. It supports the process. Indeed, we consider that its greatest contribution to public drug policy is in doing so. Our guiding principle is that **science, which must continue to explore specific areas of key issues and reflect on overarching questions, supports the public policy-development process.** No more, but no less.

CONCLUSIONS

One of the greatest challenges for modern societies is to collectively invent new forms of social life and community belonging that stretch beyond the tools of formal law. As individuals with objective and subjective rights, people can participate fully in the development – we would even go as far as to say the conquest—of the collective project of creating a society. It is no longer sufficient just to develop legislation and for people to automatically accept this legislation just because it was democratically decided by Parliament. We need to promote ethical participation—through discussion—in the development of collective and individual governance. The groups from civil society, whether they oppose the “behind-closed-doors” globalization process or support promoting fair and sustainable development, are asking how we can collectively develop a joint-participation normativity process, in which collective governance and individual governance are mutually supportive.

This discussion brings us to the conclusion that **public policy on illegal drugs, specifically cannabis, ought to be based on an ethic of reciprocal autonomy and a resolve to foster human action. It ought to defer to criminal law only where the behaviour involved poses a significant direct danger to others. It ought to promote the development of knowledge conducive to guiding and fostering reflection and action.**

CHAPTER 4

A CHANGING CONTEXT

Our work is being conducted at a time in history, in a given historical period. That history is not simply a field external to us, something outside us, exercising no influence on what we do. It is closely bound up with our actions, influencing them in various subtle ways. At the same time, because we are living through and making that history, we do not have the necessary distance from it to reconstitute all its elements or to understand all its implications. However, to re-situate our work in its complexity and uncertainty, we have a responsibility to attempt to ascertain certain elements of this history-in-the-making. This brief chapter is an attempt to identify certain historical elements we think are relevant to our effort. We have identified six elements which we have divided into two spheres, international and national, recognizing that those two spheres necessarily interact with each other. The international elements are: the globalization of markets and the trend toward economic and even political integration; the spiralling increase in discourse on safety and the drug-crime equation; and the aspects of change becoming apparent in certain countries with regard to drug policies. The national elements are judicial activism, which is reflected in significant court decisions at least with regard to the therapeutic use of cannabis; the adoption of the National Strategy on Community Safety and Crime Prevention; and the fight against organized crime.

CHANGES IN THE INTERNATIONAL SPHERE

The last two decades have witnessed significant changes in the international arena and in the structure of national states. The idea here is not to write the history of or to analyze this period. A few of those changes, however, have had a definite impact on drugs.

Globalization and integration

Since the early 1980s, with market deregulation, we have witnessed a globalization of trade and a more significant degree of continental integration. The end of the Cold

War and the disappearance of the Soviet Bloc, as well as the opening of China to capitalist markets, have merely increased the pace of these movements. As a result, we have seen, in particular, an increasing degree of integration of the European economy under the Maastricht accords and in the North American Free Trade Agreement between Canada, the United States and Mexico.

At the same time, rapid technological change, particularly through the Internet and satellite communications, has helped to further open borders, although in varying ways and to various degrees, depending on the level of development in the various countries, to the movement of goods and capital. Similarly, the increase in population flows and travel has led, at times by default or even against the will of certain states, to freer movement of people.

These changes have had a significant impact on the illegal drug markets. The opening of markets and borders has of course created new money laundering opportunities, while making it more difficult to monitor borders and transportation. However, we all too often forget certain effects of macro-economic policies governing global capital flows and expected structural adjustments, particularly in developing countries. One study produced for the United Nations International Drug Control Program clearly shows this.

Efforts to achieve (balance of payments) stability often aim to reduce the external deficit by reducing the level of domestic consumption. Macroeconomic stabilization often requires a reduction in expenditure by government and/or the private sector.

In situations of reduced money growth, an infusion of hard currency can bolster a country's foreign reserves, ease the hardship associated with expenditure-related policies, and moderate foreign indebtedness. Drug money could in this light be perceived as a potentially stabilizing force, a source of capital without the strings of conditionality attached. Clearly, there are "benefits" which accrue to countries which serve as reservoirs of the revenues from the international drug trade.¹

In addition, the trend toward the privatization of entire sectors of national economies, particularly in Eastern European countries after the fall of the Berlin Wall, but also in a number of Latin American and Asian countries, in an environment in which internal regulation measures are weak and bank credit tight, fosters the inflow of money from organized crime particularly through the laundering of drug money. It has been observed moreover that the concentration of industrial production in those countries is not necessarily reduced following privatization, thus further favouring penetration by organized crime.²

Observers also too often forget the role of investors from the developed countries, where the push for deregulation and market liberalization originates. In those countries, as Campodónico has noted, "(r)are indeed are prosecutions against drug traffickers or

¹ Keh, D.I. (1996) *Drug Money in a Changing World. Economic Reform and Criminal Finance*. Vienna: UNDCP, technical paper no. 4.

² *Ibid.*, pages 11-13.

financial institutions of the industrialized world, which is precisely where most of the proceeds of drug trafficking are kept."³ The result is a kind of dual discourse in which the necessity of liberalization of capital for multinationals makes it impossible to distinguish between clean and dirty money. The example of Peru developed by Campodónico and that of Russia examined by Keh show striking structural similarities.

The end of the Cold War also meant that the countries allied to the Soviet Bloc, or internal guerrilla groups, had to turn to other sources of financing. This is the analysis of the Geopolitical Drug Watch and its founder Alain Labrousse, who appeared before the Committee on May 28, 2001, citing the example of Kosovo:

*What happened in Kosovo is a good example in this regard. The creation of the KLA was financed by intense heroin traffic from Istanbul. The heroin was sold in Switzerland to buy Kalashnikovs and handguns. They were more or less freely available and were stored in the Albanian part of Macedonia.*⁴

And as though to make the connection with the perverse effects of liberalization and the involvement of macroeconomics, Mr. Labrousse wrote in an earlier book:

[Translation] *According to estimates, drug trafficking in the world generates between 420 and 577 billion francs in business annually. The growing role that these funds play in the democratization and economic restructuring process is leading to an explosion in drug production and trafficking in Asia, Africa and the East. It is this windfall, drawn on by local powers of all kinds, that fuels nationalist, ethnic and religious conflicts in the Third World and countries of the former Communist Bloc. Drugs, an economic issue and a tool of power, are now a given in international relations. Apart from a few major traffickers, the banking systems of the rich countries, the IMF and the major international organizations are involved.*⁵

Like other analysts, Mr. Labrousse observes that the developed countries are not immune to criticism since they "close their eyes" when their interests, particularly strategic and economic, are at stake.

[Translation] *An incident occurred and was reported by the press when the international financial action group prepared a list of countries suspected of engaging in money laundering; it did not include either the Anglo-Norman island of Jersey or the Principality of Monaco, which surprised everyone. It was subsequently discovered that France and England had negotiated with each other to ensure neither appeared on the relatively infamous list.*⁶

³ Campodónico, H. (1996) "Drug trafficking, laundering and neo-liberal economics: Perverse effects for a developing country." in Dorn, N. et al. (eds) *European Drug Policies and Enforcement*. London: Macmillan Press, page 231.

⁴ Senate of Canada (2001) Proceedings of the Special Committee on Illegal Drugs, Ottawa: Senate of Canada, Issue No. 3, page 27. The reports of the OGD may also be consulted at: www.ogd.fr.

⁵ Labrousse A. and A. Wallon (1993) *La Planète des drogues: organisations criminelles, guerres et blanchiment*. Paris: Seuil.

⁶ Labrousse, *op. cit.*, pages 28-29.

This is also the case of European interests in Morocco and Africa more generally, as well as American interests elsewhere, in tax havens.

Chapter 1 of the 2001 report of the International Narcotics Control Board (INCB), a UN agency responsible for monitoring implementation of international drug control treaties, concerns the effects of globalization and new technologies. The agency writes that, apart from their "innumerable benefits" globalization and new technologies have had perverse effects: undermined cultural identities, political and social itemization, marginalization and growing poverty in certain sectors. According to the Board, "*these disparities are exploited by drug dealers and traffickers in their attempts to develop new markets. Moreover, in the course of the last decade, the growth in trade and financial activity has provided criminals with greater possibilities for concealing the illicit transfer of goods such as internationally controlled drugs and precursor chemicals and for disguising the proceedings therefrom.*"⁷ According to the report, drug traffickers use new technologies to enhance the effectiveness of product delivery and distribution, to protect themselves and their illegal activities and to commit conventional offences using new methods or to commit new types of offences.⁸ Among other things, the Board also notes:

- the Inter-American Drug Abuse Control Commission noted for 1999-2000 that the Internet had become the most widely used medium for expanding the production of synthetic drugs in some countries of that region;
- according to the International Criminal Police Organization (Interpol), in 2000, over 1,000 Web sites world-wide offered to sell illicit drugs, mostly cannabis;
- increasing recourse to electronic means of financial transfer, together with a massive growth in the volume and speed of monetary flows, lead to reduced capability for detecting illicit capital movements; and
- the Financial Action Task Force on Money Laundering (FATF) has warned that there are three characteristics of Internet use that could aggravate certain conventional money-laundering risks: ease of access, depersonalization of contact and rapidity of electronic transactions.⁹

In short, while the search for greater coherence, and indeed for better predictability of international markets, is highly promising, particularly as regards the developing countries, it also has untoward effects, regardless of all other geopolitical considerations. Moreover, these characteristics also afford "unexpected" benefits... for organized criminal groups.

⁷ *Report of the International Narcotics Control Board for 2001*. Vienna: author, page 1.

⁸ *Ibid.*, page 2.

⁹ *Ibid.*, pages 2-4.

Difficulties of the security debate

Over the same period, in various Western countries, a preoccupation for domestic security has gradually arisen in response to the perceived or actual increase in crime and to the public's feelings of insecurity. The effects of this have been observed in election campaigns based on law and order and in a shift toward measures considered repressive by some, such as zero-tolerance policies.¹⁰

With regard to drugs, this social discourse has had two main components. The first, starting in the early 1980s under Ronald Reagan's presidency, was the "war on drugs", which went far beyond U.S. borders. The second, starting in the late 1980s, an attitude increasingly emerged that equated drugs with crime.

The war on drugs made it possible to allocate unprecedented resources to the effort. It was at this time, it will be remembered, that Canada launched the first phase of its antidrug strategy with a budget of \$210 million over five years. In its "war on drugs" the United States allocated 17 times that amount, increasing federal spending alone from \$100 million in the early 1970s to more than \$17 billion in 2002. The combined spending of the federal government and the states on the war against drugs was estimated at more than \$40 billion in 2002.¹¹ As a result, that war led to a quadrupling of the American prison population, from 500,000 inmates in the early 1980s to more than two million in the late 1990s.

*During the 1990s, corrections constituted one of the fastest growing line items in state budgets. On average, corrections consumed 7 percent of state budgets in 2000. Today, it is costing states, counties and the federal government nearly \$40 billion to imprison approximately two million state and local inmates, up from \$5 billion in combined prison and jail expenditures in 1978. Twenty-four billion of that was spent on the incarceration of non-violent offenders. Despite the modest recent decline in state prison populations, the massive growth in state prisoners over the past two decades has meant that **one out of every 14 general fund dollars spent in 2000 was spent on prisons.** (...) The expansion of America's prisons has been largely driven by the incarceration of non-violent offenders. The percentage of violent offenders held in state prisons declined from 57 percent in 1978 to 48 percent in 1999. From 1980 to 1997, the number of violent offenders committed to state prison nearly doubled (up 82 percent), the number of non-violent offenders tripled (up 207 percent) while the number of drug offenders increased 11-fold (up 1040 percent).¹²*

In Canada, as will be seen in Chapter 14, while the overall crime rate has been declining regularly in the past 10 years, the percentage of drug-related incidents has constantly increased, and the overall prison population has remained stable. There are

¹⁰ On this point, see, for example, the work of Wacquant, L. (2000) *Les prisons de la misère*. Paris.

¹¹ McNamara, J.D. (2000) "Commentary: Criminalization of Drug Use." *Psychiatric Times*, Vol. XVII, No. 9.

¹² Greene, J. and V. Schiraldi (2002) *Cutting Correctly: New Prison Policies for Times of Fiscal Crisis*. Washington, D.C.: The Justice Policy Institute. See also Schiraldi, V., Holman, B. and P. Beatty (2000) *Poor Prescription: The Costs of Imprisoning Drug Offenders in the United States*. Washington, D.C.: Justice Policy Institute. Available on line at: www.cjci.org.

even grounds to suggest that the percentage of inmates with addiction-related problems has in fact risen.

This discourse has resulted in a host of national and international measures, in particular increased policing powers in the war against drugs in various countries, a reinforced international police infrastructure, use of the war against drugs in international diplomacy and its reflection in UN proceedings, particularly at the United Nations' extraordinary session on drugs in 1998.

The other aspect of the debate is the drug-crime equation. For a significant proportion of citizens, drug use is associated with crime, when it is not simply reduced to one of its major causes. Witness the following comments:

*We cannot continue to apply policies and programs that do not deal with the root causes of substance abuse and attendant crime.*¹³

*In countries that have adopted permissive policies toward drug use, violent crime and organized criminal activity have increased proportionately to the drug trade.*¹⁴

*The social harm from other illicit drugs (such as cannabis - ed.) presents a different picture. In some communities or neighbourhoods across the country, the harm caused to innocent victims of violent crime and property crime is very great. (...) This results from drug-addicted users committing crimes to get money to feed their habit.*¹⁵

Deeply rooted in perceptions and attitudes, this belief, which is discussed later in Chapter 6, and which research data support only in part, has resulted in a series of measures including the creation of special drug treatment courts and the introduction of treatment orders for offenders with known dependence problems, the spread of urine testing programs in the work place and in prisons, as well as the remodelling of socio-community intake systems.

This association of drugs and crime sprang from fertile ground, for a number of reasons: changes caused by globalization and the realignment of the role of the state, which explain at least in part the increased social and economic inequalities between North and South, but also within countries, in the North and in the South; the increased insecurity of general living conditions following the 30 years, from 1945 to 1975, of unprecedented prosperity and employment security; divisions within communities caused by uncertainty and inability to manage mixed populations. For all these reasons the increase in "ordinary" crime (break and enter, car theft, vandalism and so on) has become the perfect metaphor for the insecurity of living conditions. Being

¹³ McCaffrey, B.R., Remarks before the First Annual Criminal Justice and Substance Abuse Conference, Albany, New York, June 29, 1999.

¹⁴ Testimony of Mr. Dale Orban, for the Canadian Police Association, before the Senate Special Committee on Illegal Drugs, in Senate of Canada, Issue No. 3, May 28, 2001, page 49.

¹⁵ Testimony of Mr. Michael J. Boyd, for the Canadian Association of Chiefs of Police, before the Senate Special Committee on Illegal Drugs, Senate of Canada, Issue No. 14, March 11, 2002, page 76.

an easy target that has considerable, very real impact on everyday life in neighbourhoods already subject to other social and economic problems, minor crime now elicited a stern, repressive response. Hence, in all Western countries, the number of prison terms and length of sentences increased starting in the mid-1980s. In addition to this collective security "crisis", there was a division between generations, as a result of which youths as a group came to be viewed as a source of concern, if not simply potential criminals. For example, during that period, Canada experienced an unprecedented increase in its reliance on detention for minors, placing it at the top of the list of industrialized countries in that regard.¹⁶ Since young people are the principal drug users, the rest of equation was quickly established.

From anti-drug policies to drug policies

However, the advent of AIDS in the 1980s helped to cast doubt on prohibitionist policies on illegal drugs. Toward the end of the decade, it was discovered that intravenous drug users had a high rate of HIV and other pathologies such as hepatitis. In fact, intravenous drug use was the second leading cause of infection among men, after homosexual and bisexual practices, and the second leading cause as well among heterosexual women.¹⁷ Repressive policies, based on prohibition of use, do not make it possible to adequately inform users or to adopt risk reduction and preventive measures, such as needle exchanges or supervised injection sites. The increase in harm reduction practices in a number of countries would be based on this new reality.

The creation of agencies monitoring illegal drug use trends was another factor in the questioning of drug policies. Until the mid-1980s, the U.S.A., England and Australia were virtually the only countries with systems for regular and repeated epidemiological surveying of drug use trends in the population. Starting in 1993, the European Union developed its tools to monitor trends in use and policy responses with the establishment of the European Monitoring Centre for Drugs and Drug Addiction and its focal points in individual EU countries. This regular monitoring system showed, among other things, that drug use trends may not vary so much with public policies as with social, cultural and symbolic factors.

Lastly, some states began to question their public policies on the basis of impact assessment studies. That was the case in particular of Australia and Switzerland as well as certain American states. Apart from the often emotional rhetoric, it was discovered in those studies that, in addition to having little impact on drug use, policies had significant untoward effects and high economic costs. It was moreover the results of certain cost benefit studies that led California and other U.S. states to review their

¹⁶ On this point, see, *inter alia*, the work of Bala, N. (2002) *Juvenile Justice Systems. An International Comparison of Problems and Solutions*. Toronto: Thompson Educational Publishing.

¹⁷ Riley, D., *op. cit.*, page 14.

highly repressive approaches (involving, for example, automatic incarceration on the third offence, whatever it might be).¹⁸

While national legislation on illegal drugs, particularly cannabis, did not in fact change, there was nevertheless a distinct trend toward questioning practices, particularly legal practices, and seeking alternatives while still complying with the international conventions. That was the case of Spain, Italy, certain Australian states, Belgium and, more recently, Portugal and Switzerland.

CHANGES IN CANADA

We have identified three major causes of change in Canada over the same period which have had at times paradoxical effects: the judicial activism resulting from the coming into force of the Canadian Charter of Rights and Freedoms in 1982, the adoption of the National Strategy on Community Safety and Crime Prevention and the fight against organized crime. Since we will be discussing each of these causes more fully in subsequent chapters of this report, we will only briefly sketch out the broader context here.

Judicial activism

With regard to cannabis, there is undoubtedly no better example than the decision by the Ontario Court of Appeal in the *R. v. Parker*.¹⁹ In that case, the Ontario Appeal Court considered the constitutional validity of the prohibition against marijuana under the *Controlled Drugs and Substances Act* in the context of its use for medicinal purposes. The Court unanimously held that Terrance Parker's allegations that the prohibition violated his fundamental rights under section 7 of the Canadian Charter of Rights and Freedoms were founded. Rosenberg J.A., writing for the majority, found that Mr. Parker needed marijuana to control the symptoms of his epilepsy and that the prohibition against marijuana possession was accordingly unconstitutional. The Court thus held that the statutory provision was null and void. However, they suspended the declaration of invalidity for one year, thus giving the government time to amend the act accordingly. In July 2001, as a result of that decision, the government made regulations circumscribing the use of cannabis for medicinal purposes.

Other judicial decisions altered the applicability of drug legislation in various ways, particularly regarding police powers. Certain of these decisions are briefly reviewed in Chapters 14 and 15.

¹⁸ See, for example, the study by Rydell, C.P. and S.S. Everingham (1994) *Controlling Cocaine: Supply vs. Demand Programs*. Rand: Santa Monica.

¹⁹ *R. v. Parker* 49 O.R. (3d) 481.

Generally speaking, it has been observed that, since the Charter came into force, the courts have played an increasingly significant role in Canadian political life, and the drug issue has not fallen outside the scope of this judicial activism. Moreover, a decision on the issue of the use of cannabis for non-medicinal purposes is to be rendered by the Supreme Court of Canada in the coming months.

A national crime prevention strategy

In 1999, as a result of the work of the National Crime Prevention Council, the federal government introduced the National Strategy on Community Safety and Crime Prevention. The purpose of this national strategy, originally allocated an annual budget of \$35 million, which increased to approximately \$65 million this year, is to prevent crime through social development actions in the communities by taking action in particular on risk factors among children and youths. While the Strategy does not specifically mention prevention of drug use, a certain number of its projects and activities have focused on that issue in various ways.

The Centre has seen fit to fund two special drug treatment court pilot projects, in Toronto and Vancouver, for the purpose of preventing repeat drug abuse and related criminality. The Centre also supports an initiative of the Federation of Canadian Municipalities to introduce drug-free communities in a certain number of cities. It is also supporting the evaluation of alternative measures programs for youths accused of cannabis possession.

The fight against organized crime

If there is one legal subject that has given rise to extensive public debate, led to the passage of new legislation granting greater powers to police forces and resulted in spectacular police operations and no less spectacular trials, it is organized crime, in particular criminalized motorcycle gangs in Quebec, the Italian-Canadian Mafia in Montreal and the Asian heroin rings on the West Coast.

In 1995, Parliament passed Bill C-95 granting police officers more effective tools for investigating and prosecuting individuals taking part in gang activities. Four years later, three problems led the government to propose amendments to the *Criminal Code* and other statutes: the problems involved in implementing the act, the growing influence of organized crime in Canada and the illegal activities committed by police officers in undercover operations. In 1999, in passing Bill C-51 (an omnibus bill amending the *Criminal Code*), Parliament granted immunity from prosecution to police officers who had to commit offences related to money laundering in the course of an investigation or in performing other duties. According to the government, the purpose of that amendment was to support police officers in the fight against organized crime and money laundering.

In addition, on October 19, 2000, the Sub-Committee on Organized Crime of the House of Commons Standing Committee on Justice and Human Rights tabled a report proposing a series of amendments that could be made to the *Criminal Code* to facilitate the fight against criminal organizations. The Sub-Committee began its work in April 2000, and, in view of the nature of the subject under study, its members decided at the outset to perform their work in camera. Among other things, the Committee recommended that the *Criminal Code* be amended in such a way as to group together all provisions concerning activities relating to organized crime in a specific part entitled "Organized crime, designated substance offences, gangs and money laundering". A number of the Committee's recommendations were incorporated into Bill C-24, which received Royal Assent in December 2001.

A SOCIETAL DEBATE

These considerations of the global environment help put the drug issue in context. Always considered as a public security question, this issue more fundamentally concerns the upheavals societies are currently experiencing as a result of globalization. The place of drugs in those societies, which are shifting painfully from the modern to the post-modern world, attempting to reinvent society after individual destiny, so central to the cultural "revolutions" of the 1960s, has replaced family and collective destiny, raises questions about the boundaries of the individual and his relationship to others and about the very possibility of community given the significance of the individual. As the sociologist A. Ehrenberg has emphasized:

[Translation] (...) *drugs appear as the condenser of uncertain responsibility. For democratic societies, it is the opportunity for a consideration of the limits of private freedom, that is to say of the tension between minimum contact with one's self, without which one cannot enter into relations with others, and minimum distance from self, without which one cannot make a society.*²⁰

In another way, this is also what B. Alexander said in a brief he submitted to the Senate Committee:

*Because western society is now based on free-market principles which mass-produce dislocation, and because dislocation is the precursor to addiction, addiction to drug use and to other substitute life styles within western society is not the pathological state of a few, but, to a greater or lesser degree, the general condition. Because free-market society increasingly provides the model for globalization, addiction is becoming more and more prevalent everywhere on earth (...).*²¹

²⁰ Ehrenberg, A. (1995) *L'individu incertain*. Paris: Calman Lévy, page 163.

²¹ Alexander, B.K. (2000) "The globalization of addiction." *Addiction Research*, Vol. 8, No. 6, page 504.

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As may be seen, the drug issue cannot simply be raised in terms of criminalization or decriminalization because it refers to much deeper societal issues relating to the role of government of the self in a context in which political government of the community is changing, and to the relationship between the two. Reducing the drug issue to a question of more or less repressive or more or less liberal criminal legislation is to rule out broader questions and to play the game of the particular interests of institutions which have every interest in reducing the figure of the addict to that of the "other", the deviant, the pathological case, and drugs to mere illegal drugs, whereas the faces of drugs are many and diverse. As the International Narcotics Control Board states in its 2000 report, trafficking in licit psychoactive drugs and their increased use are, in many respects, much more disturbing phenomena than the illegal drug market. There is a great risk that we will mistake the tip of the iceberg for the iceberg as a whole and allow ourselves to drift away on notions as simplifying as they are dangerous for a true public policy on drugs.

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PART II

CANNABIS: EFFECTS, TYPES OF USE, ATTITUDES

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CHAPTER 5

CANNABIS: FROM PLANT TO JOINT

Cannabis, marijuana, pot, grass, kif, grifa, ganja—from so many cultures, so many names for the drug made from *cannabis sativa indica*, one of the two main varieties of hemp. Beyond these various names are also different ways in which the drug is used and the context of those various usages: here marijuana is rolled with cigarette tobacco in a cigarette paper (joint), there kif is smoked in a pipe and elsewhere *ganja* is smoked in a water pipe. Sometimes it is baked into cookies or cakes. The French *pétard*, the English joint or the Indian *bangh* are all names for the product consumed and, at the same time designate different usages: marijuana is most often composed of the plant's flowering tops and dried, powdered leaves; *sinsemilla* is a preparation consisting of female tops of a private variety of seeds, whereas Indian ganja consists solely of fertilized flowering tops.¹

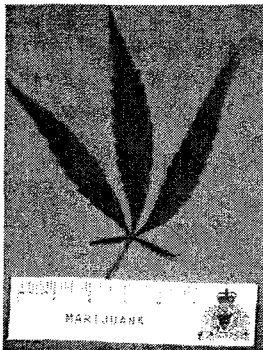
These names are not mere accidents of folklore: like other substances, cannabis has codified uses that vary across cultures. The words used to name the same drug refer to a set of relations that populations of various cultures maintain with it, a kind of code of manners, but also of reasons to use the drug. In North America (United States and Canada), marijuana has long been identified with youth and the sexual liberation of the 1960s; in India and Jamaica, *ganja* has religious aspects which it does not necessarily possess in the West; and this same drug has still other cultural meanings in the Maghreb. We return to this question in Chapter 6.

This chapter first describes the cannabis plant and the various forms in which it becomes a consumer drug. We then take a brief look at the geographical origin of the cannabis plant and the routes along which it circulates in the modern world, noting at the same time its current modes of production (soil-based and hydroponic) which have developed in certain regions of Canada. We then describe the pharmacokinetics of the cannabis plant, in particular its main active ingredients and their metabolism in the body.

¹ See in particular INSERM (2001) *Cannabis. Quels effets sur le comportement et la santé ?* Paris: Les Éditions Inserm, page 143 passim; Ben Amar (in preparation); Wheelock, B.B. (2002) *Physiological and Psychological Effects of Cannabis: Review of the Findings*. Report prepared for the Senate Special Committee on Illegal Drugs, Ottawa: Senate of Canada.

ONE PLANT, VARIOUS DRUGS²

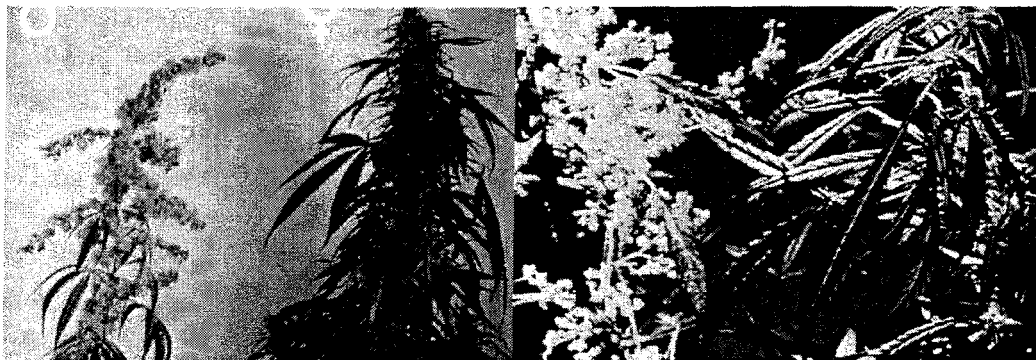
There are a number of varieties of cannabis. The best known are *Cannabis sativa*, *Cannabis indica* and *Cannabis ruderalis*. *Cannabis sativa* is the main variety which grows in virtually any climate. In dry, sandy and slightly alkaline soils, it yields plants that can reach up to seven meters in height. In Canada, the preferred variety for soil-based cultivation is *Cannabis indica*, which is a shorter plant, but with higher concentrations of Δ^9 -THC (the main active ingredient of cannabis, discussed more fully below). There are male and female plants. In general, female plants are richer in Δ^9 -THC than the males, which are often smaller and bare of leaves. Δ^9 -THC is mainly found in the resin secreted by the flowering tops.



Flowering tops and leaves of cannabis

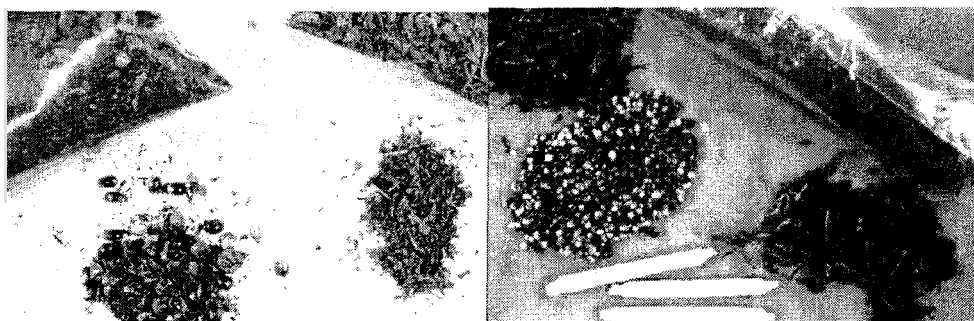
It appears that cannabis was first known in China some 6,000 years ago, then subsequently in India, then the Middle East, Africa, Mexico and South America. Cannabis can be cultivated in a number of ways, in greenhouses or hydroponically, which makes it possible to increase plant productivity and achieve high Δ^9 -THC levels. Methods for genetically selecting the best greenhouse varieties and crops have also made it possible to increase the active ingredient content.

² This section draws freely on various papers, in particular those by Ben Amar (in preparation), of INSERM, *op. cit.*, and Pelc, I., (2002) (ed.) *International Scientific Conference on Cannabis*, Brussels. In particular, we wish to thank Professor Ben Amar for his permission to reproduce the plates.



Male and female cannabis plants

Marijuana, which is a Mexican term initially used in reference to cheap tobacco, but which subsequently designated certain parts of the cannabis plant, is generally green or brown in colour and produces a characteristic odour when burned. It resembles oregano or coarse tea.³ Marijuana comes from all the parts of the plant once dried. In this form, its THC content is lower; THC content is increased by selecting the flowering tops of the female plant. Dried and coarsely powdered, marijuana is most often rolled into thin cigarettes together with cigarette tobacco (joint), and sometimes smoked in a pipe or, less frequently, in cigar form. A typical joint contains between 0.5 and 1 g of cannabis. Like hash, it can also be baked into cookies and cakes, and be drunk as an herbal tea as well. A number of specialists told us that domestic cannabis made through controlled greenhouse production costs approximately \$100 an ounce, and is then sold on the street at average prices ranging between \$200 and \$250. While we consider this estimated production cost high, the only other available studies concern production costs in developing countries such as Morocco.

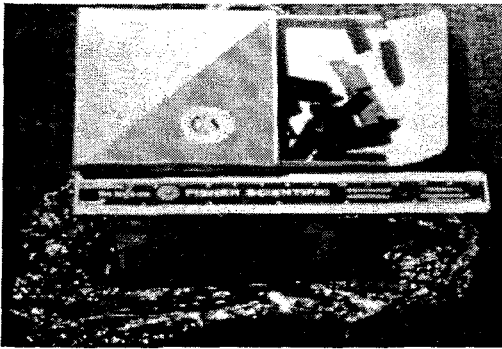


Marijuana and joints

³ On these questions, see in particular: McKim W.A. (2000) "Cannabis" in McKim, W.A. (ed.) *Drugs and Behaviour. An Introduction to Behavioral Pharmacology*. Upper Saddle River: Prentice Hall; Health Canada (1990) *Straight Facts About Drugs and Drug Abuse*. Ottawa: Department of Supply and Services; and Comité permanent de lutte à la toxicomanie (2001) *Drogues. Savoir plus. Risquer Moins*. (Édition québécoise) Montréal: Stanké.

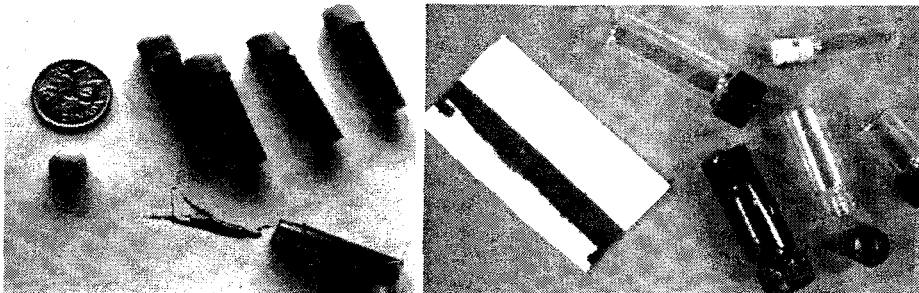
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Hashish, also known as hash, shit, kif (in North Africa) and *charas* (in India), is the viscous resin produced by the marijuana plant and obtained by pounding then compressing the dried leaves and flowering tops to obtain what, in France, is called a "barrette" or here a cube or block. It takes approximately 45 to 75 kg of cannabis to produce 1 kg of hash, which is sold in light brown to black pieces of hard or soft consistency. It is frequently smoked, alone or mixed with tobacco or marijuana, in a cigarette (joint), pipe or, more rarely, cigar. It may also be baked into cookies or cakes. The Δ^9 -THC content of hash is generally between 3% and 6% in normal production. As is the case for cannabis, Δ^9 -THC content can be increased through growing methods and resin concentrations to achieve levels of more than 10% on average. Slightly more expensive than marijuana, hashish sells for approximately \$300 to \$350 an ounce on the street.



Haschich

There are two other cannabis-based products, marijuana and hashish oils, which are extracted from resin using 90-proof alcohol, which is subsequently evaporated through exposure to the sun. These oils are viscous, greenish brown to blackish, foul-smelling liquids, with generally higher cannabinoid concentrations of up to 30% to 60% Δ^9 -THC. Oils are generally dripped onto cigarette paper or tobacco then smoked. They are scarce and more expensive than other products.



Cannabis oils

The following passage from a report prepared by Labrousse and Romero for the *Observatoire français des drogues et des toxicomanies* (OFDT; French Monitoring Centre for Drugs and Drug Addictions) in 2001 on cannabis production in Morocco describes the various stages of production very clearly.

From Cannabis to Oil – The Production Process in Morocco

Kif is the name given to the cannabis plant as a whole. (...) Cut and dried in the sun (generally on rooftops) for at least a month and a half, it is preserved in houses for several months under plastic tarpaulins. Chopped by hand with a special knife on a board, it is then mixed with tobacco for smoking. The traditional mixture consists of one-third kif, two-thirds tobacco and is smoked in a *sebsi*, a long wooden pipe with a terracotta or stone pipe bowl.

Chira is the powder resulting from solidification of the small resin drops exuded by the flowering tops of the female plants. To separate the resin from the dried plants, processors pound or shake the plants over a stretched thin nylon veil that serves as a screen. The first powder to fall, golden beige in colour, is called *sigirma*. This is the top quality, so-called double-zero powder which is said to contain as much as 20% THC. The next powder to fall is called *hamda*, which is mixed with plant waste giving it a greenish colour. *Hamda* is lightly screened to yield various product qualities: zero, no. 1, no. 2, no. 3 and no. 4 (the lowest quality), containing respectively from 10% to 2% THC. (...) It takes approximately 100 kg of kif to obtain 1 kg of top-quality hashish.

Peasants (...) told us that the rest of the operation, when carried out by traffickers, took place in ostensibly secret buildings isolated in the mountains. (...) There the powder is placed in cellophane bags, then heated and compressed to yield resin or hashish, readied for the market in the form of small bars (generally 250 grams) called *thibla* or "little plate". (...) The "double zero" quality, which derives its name from the two holes made in the bar with the end of a lit cigarette, is reserved for domestic consumption and preferred customers. Misinformed foreign customers often receive hash that has been cut with black polish, glue, henna, fig, earth or even medication.

(...) Cannabis oil is derived from no. 3 and no. 4 quality resins and produced by diluting hashish in a container with pharmaceutical alcohol. After six to eight hours of distillation, the liquid is filtered and stirred until all the alcohol has evaporated. Local production of this high value-added liquid (it takes 10 kg of hashish to produce one liter of oil) is less marginal than is generally thought.

Labrousse, A. and L. Romero (2001) *Rapport sur la situation du cannabis dans le RIF marocain*. Paris: OFDT.

CANNABIS ROADS

Where does the cannabis and hashish available in Canada come from? What quantities are imported and how much is produced locally? What routes are used to transport the drugs between provinces? What quantities are exported to other countries? What is the monetary value of this market? These are constantly recurring questions. They serve various purposes: to underline the scope of the drug "problem" generally, to explain the power of organized crime which makes money from drugs, as well as to substantiate the discrepancy between the size of the problem and the limited resources governments allocated to reducing supply. But this information can also assist in better understanding the extent of the problem experienced by peasants in the

various producer countries, the ecological issues raised by the cultivation of drugs, as well as the strategic position of drugs in geopolitics.

The cultivation of cannabis is the most widespread of all illegal drugs, which is not surprising since, not only does the plant grow readily in a number of climates, but it also requires little processing before becoming marijuana. According to the 2000 report of the *United Nations Drug Control Program* (UNDCP):

Over the last decade, 120 countries reported illicit cultivation of cannabis in their territory. Interpol identifies 67 source countries for cannabis through seizures made in 1998. (...) Estimating the extent of illicit cannabis cultivation, production and trafficking is much more difficult than for other plant-based drugs because of the significant amount of wild cannabis growth, the diverse nature of cultivation and the sheer magnitude of trafficking. In contrast to other plant-based narcotic drugs, illicit cannabis products can originate from three qualitatively distinct sources of supply: outdoor illicit cultivation; naturalized cannabis plant populations (wild growing cannabis); and plants cultivated indoors by means of sophisticated growing technology. (...) The large number of countries reporting an increase in cannabis consumption (two-thirds of all countries reporting drug abuse trends in 1996) would suggest that overall production must have increased; but this is only partly confirmed by seizure data. (...) Cultivation estimated (including wild growth), based on reports from Member States in the 1990s, ranges from 670,000 hectares to 1,850,000 hectares. Production estimates vary by a factor of 30, from 10,000 tonnes to 300,000 tonnes. Linking production and consumption estimates, UNDCP estimates world wide cannabis production to be at about 30,000 tonnes.⁴

As may be seen, estimates vary greatly and are enormously difficult to validate. How can anyone estimate the number of cannabis plants that are transformed into marijuana? The data provided by the governments of various countries on cultivated areas are themselves only approximations. As to the number of greenhouses and other forms of production, there is quite literally no way of knowing.

The work of the team at France's *Observatoire géopolitique des drogues*, under the direction of Alain Labrousse, is exemplary in the field. The box from the same report produced for the OFDT in 2001, describes a three-month field project in which the authors cross-checked data from various sources.

Variable Estimates – The Case of Morocco

In their study, Labrousse and Romero state that, according to the Department of Agriculture, cannabis was produced on 75,000 hectares in 2000. (By comparison, in its 2000 report, the ODCCP cites the figure of 50,000 hectares in cannabis production in Morocco, an official figure provided by the Department of the Interior.)

Based on their own work in the field, they estimate that 90,000 hectares were in production in 1999 and between 110,000 and 120,000 in 2001. That production involved approximately 200,000 families, between one and one and a half million persons. Based on those areas, production would be between 1,600 and 3,000 tonnes, after deducting the quantities of kif set aside for national consumption.

Labrousse and Romero, *op. cit.*

⁴ United Nations Office for Drug Control and Crime Prevention (2001) *World Drug Report 2001*. Oxford: Oxford University Press, pages 30-32. Available on line at http://www.undcp.org/adhoc/world_drug_report_2000/report_2001-01-22_1.pdf.

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In particular, it has been observed that, when linked to the population of potential cannabis users (which the Centre estimates at some 120 million persons), the estimated global production of 30,000 tonnes is much nearer the 10,000 tonne floor than the 300,000 tonne ceiling.

According to the UNDCP, the main producers are Colombia and Mexico (marijuana) and Morocco (hashish). According to the International Criminal Police Organization (Interpol), Morocco, Afghanistan and Pakistan are the main sources of hashish and Colombia, Niger and South Africa of cannabis. Lastly, according to Labrousse, marijuana production is exploding, with Colombia becoming again the major producer it was in the 1970s, and production rapidly increasing in West Africa (Nigeria, Ghana, Congo, Ivory Coast, Senegal), although the great steppes of the Commonwealth of Independent States (Kazakhstan, Kirghizistan, Ukraine, Belarus and Azerbaijan) have virtually unlimited export potential, while Afghanistan and Pakistan likely produce 2,000 tonnes of hashish, the equivalent of Morocco's production.⁵ In addition, Canada has been a cannabis exporting country for a number of years now.⁶

Traditionally, the cannabis available in Canada comes mainly from Mexico, Jamaica and the countries of the horn of Africa, while hashish originates mainly in Asia and the Middle East:

The hashish market in Central Eastern Canada is known world-wide. U.S. criminals are among the international traffickers who orchestrate multi-tonne shipments of this drug from Pakistan directly to Montreal by mothership or container. In 2001, some shipments transited the United Arab Emirates, Africa and Europe before reaching Canada. Multi-kilo quantities are also imported from Jamaica by couriers travelling on board commercial airlines.⁷

While a large portion of cannabis sold in the Canadian market was of foreign origin until the 1980s, the situation has radically changed since that time. It is estimated that national production has now supplanted imports. In its 1999 report, the Royal Canadian Mounted Police writes:

It is estimated that more than 50% of the marihuana available in Canada is produced domestically. Of the foreign marihuana seized in or en route to Canada in 1999, at least 5,535 kilograms originated from Jamaica, 825 kilograms from South Africa and 860 kilograms from Mexico. Foreign shipments arrive directly into Canadian ports of entry or transit through the United States before reaching Canada. On June 11, 1999, U.S. Customs intercepted 2,464 kg of Jamaican marihuana and 141 kg of hash oil at Newark, New Jersey in a marine container bound for Montreal. Furthermore in Project JOULE

⁵ Labrousse, A. (2000) *Drogues. Un marché de dupes*. Paris: éditions alternatives; see also "L'approvisionnement des marchés des drogues dans l'espace Schengen." *Les Cahiers de la Sécurité Intérieure*, 32, 2^e trimestre 1998.

⁶ See, for example, in OGD (1996) *Atlas mondial des drogues*. Paris: PUF.

⁷ Royal Canadian Mounted Police (2002) *Drug Situation in Canada (2001)*. Ottawa: author.

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on June 20, 1999, 2,617 kg of Jamaican marihuana destined for Canada were seized in Stuart, Florida.⁸

How much cannabis and hashish are available in Canada? What is the monetary value of those drugs? It is in fact impossible to answer these questions, for obvious reasons, since the drugs are illegal. While we know the amount of tobacco produced and sold in cigarette form, and the volume of alcohol produced or imported and consumed, and sales turnover can be calculated in both cases on the basis of those volumes, it is impossible to do this for illegal drugs.

For a time, the United Nations International Drug Control Program suggested that the total value of the illegal drug "industry" was approximately US \$400 billion, greater than the oil industry.⁹ The total value of cannabis obviously cannot be separated from that amount, even though we know that the largest number of persons who use drugs use cannabis. No one really knows how or on what basis these figures are advanced, whether they were produced using a rigorous calculation method or merely noted down on a napkin over a meal.¹⁰ And yet they often serve as a reference. In a series of articles published on the illicit drug issue in 2001, *The Economist* cited the \$400 billion amount before suggesting a more conservative estimate of US \$150 billion.¹¹ By comparison, the value of the pharmaceutical industry is near US \$300 billion, that of the tobacco industry \$204 billion and that of the alcoholic beverages industry \$250 billion.

Since the authors provide itemized accounts of their calculation methods, we will now continue our analysis of the Moroccan example.

⁸ Royal Canadian Mounted Police (2000) *Drug Situation in Canada (1999)*. Ottawa: author.

⁹ UNDCP (2000) *op. cit.*

¹⁰ The Committee invited the Executive Director of UNDCP or a delegate to testify before it, but the invitation was turned down.

¹¹ "Stumbling in the Dark", *The Economist*, July 28 – August 3, 2001.

Yields and Returns from Cannabis – The Case of Morocco

Cannabis is a not very demanding plant that grows in poor soils, which it quite quickly renders unfit for any other form of agriculture. As a result of the illegal nature of this crop, the income it generates is disproportionately high compared to that from legal food and cash crops. It is also a non-perishable product that can be sold from the home, into an ever certain market and on credit. In particular, it enables local populations to improve their living conditions and opens the way to initiatives by the peasants themselves.

Estimates of per-hectare cannabis income vary with soil type, rainfall, degree of irrigation, whether the cannabis is processed into chira (powder), period of sale and other factors. In addition, researchers give various estimates based on the same criteria. This is due to the fact that it is difficult to obtain reliable data from mistrustful peasant farmers. Income from the production of unprocessed kif varies, depending on sources, from 12,450 to 210,000 French francs per hectare.

(...) while cannabis is highly profitable on irrigated perimeters, it is much less so on pluvial lands, particularly in poor years. (...) Many peasant farmers who likely cultivate only 1.5 ha to 3 ha (non irrigated) of cannabis, earn, in poor years, only 20,000 F to 40,000 F from that crop to support families of, in many cases, more than 10 persons.

(But) cannabis is 12 to 46 times more profitable than grain crops.

In 1997, based on production of 1,397 tonnes of hashish for the Rif as a whole, Pascual Moreno estimated the return for Moroccan producers (from the peasant farmer to the major trafficker) at \$1.816 billion. Since a certain number of Moroccan traffickers operate outside the country, Moreno estimated the return to the Moroccan economy from cannabis profits at \$2 billion, compared to \$750 million for textile exports, \$460 million from foreign investments and \$1.26 billion for tourism. He also estimated the profits of European traffickers at \$3 billion (apparently not including street sales).

However, since cannabis is more profitable than any other crop, peasant farmers tend to abandon food crops and to supply themselves from the market. As a result, there is a growing food shortage in the region.

Labrousse and Romero (2001) *op. cit.*: 12-15.

We know of no similar field work for Canada or Mexico. In addition, in Canada, climatic conditions have stimulated development of greenhouse and hydroponic crops, and the ratio of these cultivation methods to soil cultivation methods is not known.

We therefore use the following figures and data on cannabis production, cannabis and hashish imports and the monetary value of those drugs in the Canadian market, with considerable reservation and prudence.

According to the RCMP, "*the annual production of marijuana in Canada [is] at least in the 800 tonne range. This estimate appears overwhelming, however investigators believe it is quite conservative, and it is supported by intelligence and seizures of marijuana in plant and bulk forms.*"¹² The same figures are stated in the 1998 and 2002 reports. Note as well that, at 800 tonnes, Canadian production represents approximately 2.5% of global production, as stated by the UNDCP.

In its 1998-1999 annual report, the Observatoire géopolitique des drogues stated that, based on police sources, the value of the illegal drug market in Canada was \$7 billion to \$10 billion a year.¹³ For 2001, the RCMP estimated that the market value

¹² Royal Canadian Mounted Police (2000), *op.cit.*

¹³ World Geopolitics of Drugs (1999) *Annual Report 1998/1999*. Paris: WGD, page 178.

of all illegal drugs was \$18 billion.¹⁴ It is impossible to estimate the share of cannabis and hashish in that total. As we most often do not know the calculation basis for these estimates, they must also be prudently considered. As the Assistant Deputy Solicitor General stated in his appearance before the Committee, the calculation methods, based on the assumption that police and customs organizations seize 10% of all drugs, are unscientific and unreliable.¹⁵ We nevertheless note an apparent inconsistency: the seeming stagnation of cannabis production at 800 tonnes and of hashish imports at 100 tonnes since 1998, as well as the declining prices of heroin and cocaine in a stable, even declining market (RCMP reports) are not consistent with the presumed doubling in total value of the drug market. As a result, in dealing with these various estimates of the quantity of drugs produced and monetary value of the drug market, the Committee often had the impression that, ultimately, no one really knew how big it was.

With regard to hashish, the RCMP believes that it

*is easier to estimate the quantity of hashish entering the Canadian market annually than the quantity of any other illegal drug. Unlike what is observed for other drugs, such as cocaine and marijuana, that can be found across Canada and the United States, hashish use in North America is a localized phenomenon. The drug is very popular in Quebec, Ontario and the Atlantic Provinces, whereas demand is limited elsewhere in Canada and supply is sporadic at best in the northeastern United States. Consequently, Montreal organized criminal groups are specialized in the massive importing of hashish and have a monopoly on its distribution in bulk. In view of these facts and of information on multi-tonne hashish shipments seized in Canada and abroad and on those we know have entered the Canadian market, RCMP analysts estimate that at least 100 tonnes of the drug are imported into Canada each year.*¹⁶

Canada is also an in-transit country for drugs to the United States, and a significant portion of Canadian cannabis is intended for export, in particular to that country.

*Smuggling of Canadian marijuana to the United States remains a source of concern for enforcement officials on both sides of the border. Though this activity is particularly noticeable on the British Columbia–U.S. border, it is not limited to that province. There is intelligence that the Hell's Angels in Quebec are supplying marijuana to their U.S. counterparts. Intelligence also indicates that there is marijuana smuggling activity across the Great Lakes. Despite the foregoing, few U.S. marijuana seizures can be traced back to Canada.*¹⁷

In 1999, Washington officials suggested that Canada could be placed on the list of countries suspected of a soft stance in the fight against drug production and trafficking.

¹⁴ Greater Toronto Area Combined Forces Special Unit (2002) *Fact Sheet – Heroin*. Available on line at: <http://www.cfseu.org/heroin.html>.

¹⁵ Mr. Paul Kennedy, Testimony before the Senate Special Committee on Illegal Drugs, June 10, 2002.

¹⁶ *Ibid.*

¹⁷ Royal Canadian Mounted Police (2000) *op. cit.*

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More recently, officials of the Drug Enforcement Administration repeated that Canada's trafficking in cannabis toward the United States was a significant problem. One RCMP officer told a national newspaper that approximately 70% of marijuana grown in Canada wound up in the United States,¹⁸ whereas, according to the 2002 report of the International Drug Control Agency, the figure was approximately 60%.¹⁹ We have heard, and RCMP officers confirmed it, that cannabis from British Columbia has such a high value that it was traded on par with cocaine. According to those police officers specialized in the war on drugs, British Columbia's triple A quality cannabis is worth approximately \$4,000 a pound in Canada and one kilogram of cocaine is currently worth US \$11,000. However, while reference is made to this supposition in the annual report for 1999, it is not confirmed:

*Canadian marihuana is sometimes used as a currency to purchase cocaine that is warehoused in the U.S.A. The exchange ratio is about three to one. Exchanges of one to one have been rumoured but never substantiated. Furthermore, such a rate of exchange does not make sound commercial sense considering that a kilo of cocaine sells for \$13,000 U.S. (in lots of 50 kilos or more) while the wholesale price of a kilo of marihuana ranges around \$6,000 or \$8,000 U.S.*²⁰

In its 2002 report, the RCMP merely mentions the fact that Canadian cannabis is exchanged for cocaine, without saying whether it is on an equal weights basis. We also note a certain inconsistency here as the price of a kilogram of cocaine is expressed in US dollars, whereas that of a kilogram of marijuana is expressed sometimes in Canadian dollars, at other times in US dollars.

British Columbia, Ontario and Quebec are the main producers in Canada. British Columbia's large production can be attributed in particular to suitable climatic conditions, but there are probably also sociocultural explanations, as the Pacific Coast mentality explains in part why cannabis appears to have taken root there to a greater extent.

Cannabis production in British Columbia appears to have increased significantly over the past 10 years, becoming, according to some analysts, one of the province's biggest industries in terms of monetary value, which some analysts set at \$6 billion, whereas, according to some police officers, a conservative estimate would be \$4 billion.²¹ If marijuana sells for \$225 an ounce, at 16 ounces a pound, British Columbia would appear to produce the equivalent of 550 tonnes of cannabis a year, more than two-thirds of the total amount of cannabis circulating in Canada.

¹⁸ National Post, May 17, 2002. The Committee is interested, and somewhat amused, to note that this article and a previous report on the Global television network on May 13, 2002, outlining the concerns of American representatives, followed the Committee's publication of its Discussion Paper.

¹⁹ International Narcotics Control Board (2001) *Report of the International Narcotics Control Board for 2000*. Available on line at: <http://www.incb.org>.

²⁰ Royal Canadian Mounted Police (2000) *op. cit.*

²¹ RCMP, private meeting.

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Testifying in Richmond, B.C., on 14 May 2002, RCMP Superintendent Clapham said there were between 15,000 and 20,000 illegal cannabis production sites in British Columbia (figures from the Drug Enforcement Administration), while RCMP narcotics specialists, the next day, put the figure at 7,000. Regardless of the true number, the figures, as may be seen, must necessarily be considered very carefully.

As to growing methods, soil-based production is still the most popular, but the more sophisticated, hydroponic and aeroponic,²² methods are expanding, particularly among criminal gangs that have the necessary infrastructure.

It is not uncommon to find indoor grow operations involving over 3,000 plants. Those figures vary considerably from one province to another, overall less than 10 percent of all marihuana seized in Canada was grown using hydroponics (a method of growing plants with the roots in nutrient mineral solutions rather than in soil). Indoor grow operations still rely mostly on soil-based organic cultivation but hydroponics is gaining in popularity. Despite the availability of highly sophisticated technologies designed to increase the yield even more, most growers do not bother to go to such lengths, preferring simpler and proven methods. Marihuana remains the most popular illicit drug, both in terms of consumption and trafficking. The annual marihuana production has been estimated to be around five million plants. Given the relatively low cost of setting up a grow operation and the considerable profits it generates, this activity has become increasingly attractive, even to otherwise law-abiding citizens. In the majority of regions, large operations are invariably run by outlaw motorcycle gangs, although Asian-based organizations have been making inroads in British Columbia and Alberta. More and more groups are using "crop sitters" and other go-betweens to tend their plantations. This hands-off approach makes it difficult for police to link the operation to the people who are actually behind it. Outdoor crops are often grown on Crown lands located in remote areas in order to reduce the risk of detection.²³

In all, with considerable reservations as to the validity of the data, the Committee submits the following:

	Marijuana	Hashish
Estimated quantity - national production	800 tonnes approximately 50%	100 tonnes ?
Source	National production (British Columbia, Ontario, Quebec) Imports: Mexico, Jamaica	Imports: Pakistan, Afghanistan, Morocco
Value (wholesale)	\$2,000 to \$4,000/pound	?
Retail value (ounce)	\$225 to \$250	\$325 to \$350

²² Technique whereby the roots are suspended and sprayed regularly with water enriched with nutrient material, still very rare and the effectiveness of which remains to be proven. (Source: RCMP (2002)).

²³ RCMP, Drug Situation in Canada (1999) *op. cit.*

PROPERTIES OF CANNABIS

Classified in the pharmacopoeia as a hallucinogenic, psychodysleptic or psychotomimetic, cannabis is a disrupter or modulator, that is to say that it alters perceptions and emotions. Classified in the international conventions and national legislation as a narcotic, cannabis belongs to the class of psychotropics which comprises five major groups: depressants (alcohol, Valium), stimulants, minor (coffee, nicotine) and major (cocaine, amphetamines), disrupters (cannabis, LSD), antipsychotics and medication for mood disorders (lithium).

More than 460 known chemical constituents are present in cannabis.²⁴ Of that number, more than 60 are identified as cannabinoids. The main active ingredient in cannabis, which was identified by the team of Dr. Mechoulam in 1964,²⁵ is Δ^9 -tetrahydrocannabinol, common called THC. Other cannabinoids present in Indian hemp include delta-8-tetrahydrocannabinol, cannabiniol and cannabidiol, but they are present in small quantities and have no significant effect on behaviour, compared to Δ^9 -THC,²⁶ although they can modulate the product's overall effect.²⁷ Cannabiniol also has anti-inflammatory effects.

For a better understanding of the effects of cannabis discussed in the following chapters, we will first consider its pharmacological properties. Consequently, readers may skip this technical section without risk of not properly understanding the rest of the report. In the following paragraphs, we first discuss Δ^9 -THC levels and, second, specifically examine the pharmacological properties of that substance.

²⁴ See in particular Grinspoon, L. and J.B. Bakalar (1997) *Marijuana. The Forbidden Medicine*. New Haven and London: Yale University Press; Clark P.A. (2000) "The ethics of medical marijuana: government restrictions vs. medical necessity", *Journal of Public Health Policy*, 21: 40-60; as well as Wheelock (2002) for the Senate Committee.

²⁵ Gaoni, Y. and R. Mechoulam (1964) "Isolation, structure and partial synthesis of an active constituent of hashish", *Journal of the American Chemistry Society*, 86: 1646-1647; and Mechoulam, R. and Y. Gaoni (1965) "A total synthesis of delta-9-tetrahydrocannabinol, the active constituent of hashish", *Journal of the American Chemistry Society*, 87: 3273-3275.

²⁶ Smith, D.E. (1998) "Review of the American Medical Association Council on Scientific Affairs Report on Medical Marijuana", *Journal of Psychoactive Drugs*, 30: 127-136; McKim W.A. (2000) "Cannabis", in McKim, W.A. (ed.) *Drugs and Behavior. An introduction to behavioral pharmacology*. Upper Saddle River: Prentice Hall.

²⁷ Ashton, C.H. (2001) "Pharmacology and effects of cannabis: a brief review", *British Journal of Psychiatry*, 178: 101-106.

Δ^9 THC Concentrations

The Δ^9 THC content of marijuana generally varies in natural growing conditions from 0.5 to 4%.²⁸ Δ^9 THC content serves first as a basis for distinguishing the drug type of plant from the fibre type: permitted concentrations vary by country—in Canada, as in France, it is 0.3% for the fibre type. For more than a decade now, techniques for selecting powerful strains and cultivation (in greenhouses and hydroponically) have made it possible to achieve Δ^9 THC concentrations of 15% or more. Δ^9 THC content is also used to distinguish between various cannabis products and thus to determine their price: the content of sinsemilla, for example, generally varies between 7% and 14% and is more expensive than "regular" cannabis.

The question of Δ^9 THC content, its variability, how it is determined and its effects has raised numerous issues. While all specialists agree that maximum active ingredient concentrations have increased over the past 20 years, opinion is divided on average concentrations in cannabis available on the market. Estimates vary as to the preponderance and consequences of Δ^9 THC concentrations.

First, it should be emphasized that studies show that concentrations are subject to extreme variability, for a number of reasons. First, failing a control system at source, the Δ^9 THC content of marijuana is estimated on the basis of police seizures. However, only a portion of the drug seized is analyzed for THC content,²⁹ and analyses are not all equally reliable, depending on how police or customs officials conducted the seizures and how the products were preserved and transported to the lab. In addition, between a seized product in clandestine lab or at a customs post and the product sold on the street, a number of changes can be made: tobacco, herbs and other products can be added to the gram of "pot" sold at a school which alter the nature of the drug and thus the quantity of active ingredient. This is even truer for hashish, as seen above in the example on processing in Morocco.

Second, since cannabis is a widespread illegal product, it is impossible to take a representative sample of the drug available on the market at a given time for analysis. Thus it is impossible to measure the difference between the Δ^9 THC content of cannabis seized at the production or delivery site and that of cannabis used by individuals. And third, the active ingredient concentration varies with the geographical area of origin, climatic conditions and production conditions. Likely circulating in the

²⁸ Huestis, M.A *et al.* (1992) "Characterization of the absorption phase of marijuana smoking", *Clinical Pharmacology and Therapeutics*, 52: 31-41.

²⁹ Note, for example, that, in the United States, there is no systematic method for measuring THC. As emphasized in a comparative analysis of changes in price of heroin, cocaine and marijuana, "Another problem is that the DEA does not test marijuana for THC content, so there is no marijuana counterpart to the pure grams reported for cocaine and heroin. The difficulty this causes is the STRIDE data provide no basis for adjusting price changes for marijuana's quality." Abt Associates (2001) *The Price of Illicit Drugs: 1981 through the Second Quarter of 2000*. Washington, DC. Report prepared for the Office on National Drug Control Policy.

market at any given time is a significant variety of cannabis products reflecting the diverse conditions in which they were produced. It follows that two samples seized in Vancouver in the same week could have very different concentrations, as would be the case for samples seized the same week in Vancouver, Montreal and St. John's.

Experts told the Committee that cannabis in the Canadian market was 700% more powerful than the same drug in the 1970s. Some suggested that the average Δ^9 THC content of cannabis on the market is approximately 30%, compared to 3% to 4% in the 1970s.

*The cannabis used today is up to 500 percent higher in THC — that is a range between five percent to 31 percent — than the cannabis most adults remember from the 1960s and 1970s.*³⁰

In its 1999 annual report, the Royal Canadian Mounted Police estimated the average content of seizures at 6%.³¹ In Quebec, the Montreal Police Department asserted that the THC content of cannabis is now 25%. In a private meeting with Committee members, RCMP narcotics experts in British Columbia emphasized that it is *impossible in the current state of affairs to determine the average content of cannabis in the country or in a given province, in particular as a result of the extreme variability of seizures and methods of analysis*. The officers who conduct the seizures do not always pay attention to the manner in which they preserve the product, such that it may lose its Δ^9 THC content: heat, light and humidity affect the stability of cannabis. Lastly, the experts providing cannabis for therapeutic purposes whom we met said they kept various grades of cannabis, based in particular on Δ^9 THC concentrations, and that, in certain cases, the products offered to patients reached concentrations of 27%.

The most exhaustive studies on changes in Δ^9 THC levels in cannabis have been conducted in Australia, the Netherlands, France and the United States. They show, first, that more powerful products have appeared in the market beside the traditional forms of cannabis: "skunk" (a variety originating in the United States and the Netherlands), "super-skunk" and "pollen" (stamens of male plants). Canada has not lagged behind, with *BC Bud* and *Quebec Gold* in particular.

More specifically, the studies on Δ^9 THC concentrations show similar trends:

- In Australia, a study by Wayne and Wendy on 31,000 seizures conducted between 1980 and 1997 shows that average content varied little over the period and was between 0,6 % and 13 %. Among other things, it appears that the main development has been a more significant selection than

³⁰ Testimony of Michael J. Boyd, Chair of the Drug Abuse Committee and Deputy Chief of the Toronto Police Service, for the Canadian Association of Chiefs of Police, Senate Special Committee on Illegal Drugs, Issue No. 14, page 74.

³¹ Royal Canadian Mounted Police (1999), *Annual Report*.

previously of the parts of the plant with the highest concentrations.³² The authors of this study make the following observation which applies equally to Canada:

*A number of factors probably explain the persistence of the belief that the THC content of cannabis plants in Australia has increased 30 fold in the absence of any supporting data. First, defenders of the claim often point to reports of single samples with unusually high THC content tested by the police. At best, such samples indicate the maximum THC content that has been achieved (assuming that there were no errors in the test results) but they do not tell us what the THC content is in the cannabis that is typically used by consumers. Second, biases in the sampling of tested cannabis are amplified by the attention that the print and electronic media give to unusually potent samples, creating the false impression that cannabis with exceptionally high THC is the norm. Third, uncontested repetition of these assertions in the media has established them as « facts »; those who contest these claims are asked to prove that they are false rather than the (usually nameless) proponents being asked to provide evidence that they are true. Fourth, an increase in average THC content seems to explain an apparent increase in the number of cannabis users who experience problems as a consequence of their use.*³³

- In the Netherlands, the *Drug Information Monitoring System* of the Trimbos Institute has conducted various studies since 2000 on average Δ^9 THC content. The local variety, *Nether-Weed*, contained an average of 8.6% THC in 2000 and 11.3% in 2001, whereas imported varieties were stable at approximately 5%. One of the reasons given for this difference was that the local variety was fresher and contained a lower ratio of cannabiol to Δ^9 THC. In addition, *Nether-Weed* resembles *sinsemilla*, which comes from the unfertilized flowers of the female plant and is cultivated in greenhouses.
- In France, the Roques report referred to concentrations of up to 20% in the case of certain Dutch hydroponic varieties.³⁴ In its recent report, France's *Institut national de la santé et de la recherche médicale* notes a toxicological study conducted by Mura on the Δ^9 THC concentrations of seizures since 1993. From 1993 to 1995, the average concentration was 5.5%, but approximately 8% since 1996, with spikes of up to 22%.³⁵ In 2000, 3% of marijuana samples analyzed contained Δ^9 THC levels of more than 15%.
- Lastly, in the United States, data for 2000 show an average concentration of 6%, compared to 4.1% in 1997. In fact, recalling a study recently conducted in Mississippi, Dr. John Morgan noted:

³² Wayne, H. and S. Wendy (2000) "The THC content of cannabis in Australia: evidence and implications", *Australian and New Zealand Journal of Public Health*. 24: 503-508.

³³ *Ibid.*, page 504.

³⁴ Roques, B. (1999) *La dangerosité des drogues*. Paris: Odile Jacob.

³⁵ INSERM (2001) *Cannabis: quels effets sur le comportement et la santé?* Paris: Les Éditions Inserm.

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(...) in the midst of this furore over the remarkable increases in marijuana potency, it is interesting that the potency of the commercial crop sold in the United States has not varied enormously over the 30 years that potency has been assessed by the analysis of THC content in criminally seized marijuana. In fact, I recently looked at the report, which also comes from Mississippi, that the mean THC content of some 40,000 seizures since 1974 is about three percent. It has gone up in the last 10 years. In fact, in the last 10 years I believe the arithmetic mean is more than four percent while in the 10 years before that it was about 3.5 percent. ³⁶

The following table summarizes some of the data on a historical basis for certain countries.

Year analysed	Domestic Marijuana (USA)			Sinsemilla (USA)		
	Foreign Marijuana (Netherlands)			Nether-Weed (Netherlands)		
	≥ 3 %	≥ 5 %	≥ 9 %	≥ 3 %	≥ 5 %	≥ 9 %
USA, 1996 ¹	63%	25%	3%	93%	77%	49%
USA, 1997 ¹	63%	29%	6%	96%	85%	64%
USA, 2000 ²	Average of 6.07% (DEA)			Average of 13.65% (DEA)		
Netherlands, 2000-2001 ³	75%	48%	7%	93%	87%	35%
Netherlands, 2001-2002 ³	80%	55%	4%	100%	99%	78%
Australia, 1997 ³	Between 0.6% and 13%					
Western Australia	Average of 3,8%					
Canada 1999 ⁴	Average of 6%			Not available		

- (1) Source: Rieger H. and M. von Laar (2002) "Epidemiological Aspects of Cannabis Use", International Scientific Conference on Cannabis, Brussels, page 32.
- (2) Drug Enforcement Administration, <http://www.usdoj.gov/dea/concern/marijuana.html>
- (3) Source: Hall, W. and W. Swift (2000) *op. cit.*, page 505
- (4) Source: RCMP, Annual Report for 1999.

In short, it appears that the main change has been in maximum concentrations obtained as a result of sophisticated cross-breeding and cultivation methods, whereas average concentrations have not significantly changed over the past 30 years.³⁷ What conclusion can be drawn from this? In the minds of some, if cannabis could still be called a "soft drug" in the 1970s, that is no longer the case today. Some are not reluctant to say it is a drug comparable to heroin or cocaine in its addictive power. As an example, the Canadian Police Association has issued the following opinion on the risks associated with cannabis.

Generally, marijuana and its derivative products are described [as soft drugs] to distance the drug from the recognized harm associated with other illegal drugs. This has been a successful yet dangerous approach

³⁶ Dr. John Morgan, Professor at the City University of New York Medical School, testimony before the Senate Special Committee on Illegal Drugs, June 11, 2001, Issue No. 4, page 29.

³⁷ ElSohly, M.A., *et al.* (2000) "Potency trends of delta9-THC and other cannabinoids in confiscated marijuana from 1980-1997", *Journal of Forensic Sciences*, 45(1): 24-30.

*and contributes to the misinformation, misunderstanding and increasing tolerance associated with marijuana use. Marijuana is a powerful drug with a variety of effects. (...) Marijuana use is associated with poor work and school performance and learning problems for younger users. Marijuana is internationally recognized as a gateway drug for other drug use. Risk factors for marijuana dependence are similar to those of other forms of drug abuse.*³⁸

Others associated the increase in demand for treatment for cannabis dependence with the increase in active ingredient concentrations. As the National Post reported:

*The potent BC Bud, which has a THC content as high as 25% compared to the 2% typical in the 1970s, is also leading to health concerns in the United States. Admissions for marijuana drug treatment in Washington State now exceed the rate for treatment of alcoholism. Cannabis admissions in Cook County, Ill., have risen by 400% in the last year.*³⁹

Can it be said that cannabis has in fact become a "hard" drug like cocaine and heroin? Apart from the validity of the effects of cannabis itself as described by the Police Association, and as will be discussed in detail in the Chapter 7, that contention does not take into account the way in which the drug is used or the lack of knowledge of the effects of Δ^9 THC concentrations. Studies on the ways in which cannabis is used, considered in Chapter 6, show that regular users appear to prefer medium to mild cannabis, and that they adjust their use to the strength of the drug. Interviews with individuals who use cannabis for medical purposes tend moreover to confirm this perception. More significantly, for lack of any specific studies on the question, the effects of higher Δ^9 THC concentrations are simply not known. Lastly, as will be shown in the following section, the bio-availability of Δ^9 THC, that is to say the proportion that is actually absorbed by the body following combustion, is highly variable. As emphasized in the report of the World Health Organization (WHO) on cannabis, considering all these factors, the actual quantity of THC absorbed by the cannabis user is difficult to estimate.⁴⁰ Ultimately, while it can be a legitimate preoccupation, the real issue of Δ^9 THC content has more to do with our ability to control it and better know its effects, rather than making all kinds of alarmist and unfounded statements about its level.

³⁸ Sergeant Dale Orban, Regina Police, at the Senate Committee hearing on May 28, 2001.

³⁹ National Post, May 17, 2002.

⁴⁰ World Health Organization (1997) *Cannabis: a health perspective and research agenda*. Geneva: WHO, 1997. On line at: www.who.org.

Pharmacokinetics⁴¹

Upon inhalation, and depending on the smoker's way of smoking and smoking experience, between 15% and 50% of the Δ^9 THC present in the smoke is absorbed into the bloodstream. The percentage also depends on the Δ^9 THC concentration in the smoked product. The substance is absorbed very quickly, and maximum blood concentrations are achieved in less than 15 minutes after the start of inhalation. The effects felt almost immediately after absorbing the smoke diminish gradually over the next 60 minutes and generally last a maximum of three hours after inhalation. In other words, THC levels in the blood plasma are highest immediately after absorption, whereas maximum effects are felt approximately 30 to 40 minutes later. The following table reproduced from the INSERM collective assessment, shows the time to appearance and duration of detection of cannabinoids in the blood.⁴²

Concentration, time to appearance¹ and duration of detection² of cannabinoids in the blood after smoking a marijuana cigarette containing 15.8 mg or 33.8 mg of Δ^9 THC

Component	Maximum concentration	Time to appearance of peak (hr)	Duration of detection (hr)
Δ^9 THC	84.3 (50-129) ³	0.14 (0.10-0.17)	7.3 (3-12)
	162.2 (76-267) ⁴	0.14 (0.08-0.17)	12.5 (6-27)
11-OH- Δ^9 THC	6.7 (3.3-10.4)	0.25 (0.15-0.38)	4.5 (0.54-12)
	7.5 (3.8-16.0)	0.20 (0.15-0.25)	11.2 (2.2-27)
Δ^9 THC-COOH	24.5 (15-54)	2.43 (0.8-4.0)	84.0 (48-168)
	54.0 (22-101)	1.35 (0.54-2.21)	152.0 (72-168)

- (1) average interval between start of consumption and appearance of a concentration peak
- (2) average interval between start of consumption and moment when lowest concentration of component is detected (> 0.5 mg/ml)
- (3) cigarette containing 13.8 mg (1.75%) of Δ^9 THC
- (4) cigarette containing 33.8 mg (3.55%) of Δ^9 THC

Bio-availability of Δ^9 THC is slower and weaker when the drug is ingested orally (cookies, cakes, herbal teas): approximately 4% to 12%; although slower to be felt and different in quality, its effects are longer lasting.

In all, we do not know how the effects of THC (concentration) interact with personal factors (way of smoking, health status, alcoholism or medication). However, it is likely that the same THC concentration does not have the same effect on all smokers, which moreover tend to be confirmed by the plasticity of cannabis in the hormonal stream (see below).

⁴¹ This section is based to a large extent on the INSERM 2001 report as well as the European scientific report 2002 and the survey work done by Wheelock 2002 for the Committee.

⁴² INSERM (2001) *Cannabis. Quels effets sur le comportement et la santé ?* Paris: author, page 340.

Δ^9 THC is highly lipophilic and is quickly distributed to all fatty tissues, including the brain. It is also characterized by an entero-hepatic cycle and renal reabsorption which results in persistent effects. In a driving simulator study, a significant linear correlation was found up to seven hours following absorption, particularly on the trajectory control.

Δ^9 THC undergoes oxydative metabolism resulting in the production of various elements, in particular 11-hydroxy-tetrahydrocannabinol (11-OH Δ^9 THC) a psychoactive metabolite which, transported by albumin, whereas Δ^9 THC attaches mainly to lipoproteins, penetrates the brain more deeply than Δ^9 THC; 8 β -hydroxy- Δ^9 -tetrahydrocannabinol, potentially psychoactive but whose action would be negligible; and various other components not known for their psychoactive effects. In addition to the potentially psychoactive elements, cannabis contains approximately 200 derivatives of combustion and pyrolysis comparable to those found in tobacco, though some of which are highly carcinogenic and are more concentrated in cannabis smoke than tobacco smoke.

Cannabinoids are eliminated in various ways: through digestion, the kidneys and perspiration. Approximately 15% to 30% of Δ^9 THC in the blood is eliminated in urine, 30% to 65% through stools. Because it binds strongly to tissues, Δ^9 THC is eliminated slowly in urine: the urine of regular heavy users contains traces of Δ^9 THC-COOH 27 days after they have last used cannabis.

Regular users metabolize Δ^9 THC up to twice as fast as individuals who have never previously used the drug. One study showed, in particular, that the intravenous administration of one 5 mg dose of Δ^9 THC resulted in higher blood levels in regular users than occasional users.⁴³

Cannabinoids act on the body through the endogenous cannabinoid system, consisting of neurochemical substances (endogenous ligands) and specific receptors. The behavioural and central effects of cannabis are due to the agonistic action of its main ingredients (in particular Δ^9 THC, exogenous cannabinoid), on the endogenous cannabinoid receptors (anandamide, 2-arachidonoylglycerol) present in the nervous tissues of the brain.

Although the chemical structure of Δ^9 THC was identified by Mechoulam in 1964,⁴⁴ it wasn't until very recently that the characteristics and location of the endogenous cannabinoid system was determined.⁴⁵ Two types of cannabinoid receptors have been isolated: CB1 in 1990⁴⁶ and CB2 in 1993.⁴⁷ CB1 is mainly expressed in the

⁴³ Cited in INSERM (2001) *op. cit.*, page 148.

⁴⁴ Guoli and Mechoulam (1964) *op. cit.*

⁴⁵ Devane, W.A. *et al.* (1992) "Isolation and structure of a brain constituent that binds to the cannabinoid receptor", *Science*, 258 (5090): 1946-1949.

⁴⁶ Matsuda, L.A. *et al.* (1990) "Structure of a cannabinoid receptor and functional expression of the cloned cDNA", *Nature*, 346(6284) 5561-564.

central and peripheral nervous system. CB2 is expressed essentially in the cells of the immune system. It follows from this distribution that CB1 is essentially involved in psychotropic effects and CB2 in immunomodulatory effects.

The main endocannabinoids are arachidonylethanolamide (also called anandamide—a word derived from Sanskrit, literally meaning congratulated) and 2-arachidonoylglycerol (2-AG). These are the only two endogenous molecules known to be capable of binding to cannabinoids receptors CB1 and CB2 and replicating the pharmacological and behavioural effects of Δ^9 THC. Anandamide levels in the brain are comparable to those of other neurotransmitters such as dopamine and serotonin. The highest levels corresponding to high CB1 density areas, that is to say the hippocampus, striatum, the cerebellum and the cortex. Like anandamide, 2-AG reproduces all the behavioural effects of Δ^9 THC or anandamide, but its action is less powerful.

The CB1 receptors are among the most abundant neuronal receptors in the central nervous system, and their distribution correlates remarkably with the behavioural effects of cannabinoids on memory, sensory perception and control of movements, as shown in the table below.

Location of CB1 receptors in the CNS and correlated pharmacological effects ⁴⁸

Structures	Marking	Physiological consequences	References
Forebrain			
Amygdala	+		Herkenham et al., 1990
Olfactory systems	+		Herkenham, 1992
Cerebral cortex	++	Cognitive effects	Tsou et al., 1998, 1999
Basal nuclei	++	Locomotive effects	Katona et al., 1999
Hippocampus	++	Cognitive effects (short-term memory inhibition) and antiepileptic action	Rinaldi-Carmona et al., 1996
Thalamus/hypothalamus	+	Endocrine and antinociceptive effects	Matsuda et al., 1990, 1993 Hohmann, 1999 Marsiaco and Lutz, 1999 Westlake et al., 1994
Midbrain	-		
Grey nucleus	-		
Colliculi	-		
Optic nuclei	-		
Black substances/ventral tegmental area	-		
Hindbrain			
Grey periaqueductal area	+	Antinociceptive effects	
Locus ceruleus	-		
Raphe	-		

⁴⁷ Munro, S. *et al.* (1993) "Molecular characterization of a peripheral receptor for cannabinoids", *Nature*, 365: 61-65. Note that a recent scientific conference of the National Institute on Drug Abuse in the United States reported on the work of researchers on the hypothesis that there are additional receptors and other ligands. To our knowledge, the latter have not yet been formally identified in the research setting.

⁴⁸ Table reproduced from INSERM (2001), *op. cit.*, page 298.

Structures	Marking	Physiological consequences	References
Bridged nucleus	-		
Brainstem	-	No lethal dose, no acute mortality	
Cerebellum	++	Motor effects (balance)	

++: abundant marking; +: intermediate marking; -: little or no marking.

This concentration of CB1 receptors largely explains the effects of Δ^9 THC. Intense expression of CB1 receptors in the basal nucleus and molecular layer of the cerebellum is thus consistent with the inhibiting effects of cannabinoids on psychomotor performance and motor coordination. Their expression in the cortex and hippocampus is consistent with the modulation of elementary forms of learning, explaining in particular the reversible deleterious effects on short-term memory and cognitive function. Their lack of marking in the brainstem explains the absence of acute toxicity or lethal doses of cannabis derivatives. The CB1 receptors in the thalamocortical system participate in the sensory disturbances and analgesic properties of cannabis. Similarly, the presence of receptors in the periaqueductal area and the dorsal horn of the spinal cord contribute to its antinociceptive power.

We also note that the CB1 receptors do not merely inhibit brain function. As a result of circuit effects, cannabinoids can stimulate certain neuron populations, in particular dopaminergic cells in the mesolimbic pathway. Together with the observation that prolonged treatment with cannabis (at doses corresponding to the equivalent of 575 cannabis cigarettes a day!) appears to induce lasting adaptive changes to the central nervous system and to the positive relationship between cannabinoids and stress hormones (corticotrophine), this explains the difficulties (irritability, sleep disorders and so on) observed in regular users when they have stopped using cannabis. We return to this issue in the Chapter 7 in the discussion on cannabis tolerance and dependence.

Lastly, recent works suggest there are significant interindividual variations in the effects of cannabinoids depending on sex steroid hormones in men and women: it appears that the effects of exogenous and endogenous cannabinoids can be modulated by the hormonal state of each individual and that, in exchange, the CB1 receptors and endocannabinoids are able to regulate hormonal activity.

As was observed in the WHO report in 1997, various research questions remain unanswered, in particular how and to what extent cannabis use alters the endogenous cannabinoid and what the relationship is between blood plasma cannabinoid levels and induced behavioural effects.

CONCLUSIONS

In conclusion, the Committee makes the following findings:

Conclusions of Chapter 5	
On production	<ul style="list-style-type: none">➤ The size of the cannabis market is estimated at 800 tonnes a year.➤ The size of the national production has significantly increased, and it is estimated that 50% of cannabis available is now produced in the country.➤ The main producer provinces are British Columbia, Ontario and Quebec.➤ Estimates of the monetary value of the cannabis market are unreliable. For example, if 400 tons are grown yearly in Canada, at a street value of \$225 per ounce, the total value of the Canadian production would be less than \$6 billion per year, less than the often quoted value of the BC market alone.➤ An unknown proportion of national production is exported to the United States.➤ A portion of production is controlled by organized crime elements.
On THC	<ul style="list-style-type: none">➤ THC is the main active ingredient of cannabis; in its natural state, cannabis contains between 0.5% and 3% THC.➤ Sophisticated growing methods and genetic progress have made it possible to increase THC content in recent years, but it is impossible to estimate the average content of cannabis available in the market; it is reasonable to consider that content varies between 6% and 31%.➤ THC is fat soluble and readily spreads in the innervated tissues of the brain; it reaches a peak in the blood plasma in less than nine minutes and falls to approximately 5% after one hour.➤ The body is slow to eliminate THC and inactive THC metabolites can be detected in urine up to 27 days after use in the case of regular users.➤ Psychoactive effects generally last two to three hours and as many as five to seven hours after use.

CHAPTER 6

USERS AND USES:

FORM, PRACTICE, CONTEXT

Who uses cannabis? How do the patterns of use in Canada compare to those in other countries? In what context is cannabis used? Why? What populations are most vulnerable? What are the social consequences of cannabis, specifically on delinquency and criminal behaviour? Most important, what trajectories do cannabis users follow, specifically with respect to consumption of other drugs?

Partial answers to these questions, at the very least, are prerequisite to establishing policy on a substance. If the aim is to deter, one needs to know what is to be deterred and within what target group. If the aim is to help people for whom consumption poses a problem, one must have at least an idea of the composition and size of the group in question. And if one is looking for indications that a public policy reduces all use or at-risk use, then knowing the evolution of patterns of use within a population is a requisite.

In Canada, knowledge of patterns and contexts of cannabis use verges on the abysmal. In the early 1980s, the USA, the United Kingdom, and Australia introduced monitoring systems for the general population and the student population and use them as the basis of annual (USA) or biannual (United Kingdom and Australia) reports on trends. In the last five years, a number of European countries have introduced data collection systems as part of the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA). Canada, by contrast, has carried out only two epidemiological general population surveys specific to drugs (1989 and 1994), and only some provinces conduct surveys of the student population, using different methods and instruments that preclude data comparison. Furthermore, everything suggests that few sociological or anthropological studies are conducted on the circumstances or context of illegal drug use (specifically for cannabis). At any rate, very little has been brought to our attention. The result is that our pool of knowledge on users and characteristics of use is lacking.

We have no explanation for this situation, at least no satisfactory explanation. In the 1970s, following up on the work done by the Le Dain Commission, Canada could have set up a trend monitoring system. In the 1980s, when Canada's Anti-Drug Strategy—to which the federal government allocated \$210M over five years—was adopted, a data collection system could have been created. The fact that it wasn't could

be due to an absence of leadership or vision; a fear of knowing; the division of powers among levels of government; or the absence of a socio-legal research tradition within the departments responsible for justice and health. In fact, all of the above are probable factors. Whatever the case, it is our contention that the situation, unacceptable by definition, requires timely remedial action. We must resign ourselves to working with the scarce available data, and more significantly the virtually non-existent comparable data. We will also look at studies and data from other countries.

The chapter is divided into four sections. The first covers consumption patterns in the population as a whole and specifically in the 12-18 year age group and compares the patterns in various countries. The second section looks at what we know about reasons for and details on use, including origins and cultural differences. The third section deals specifically with cannabis user trajectories, including escalation. The fourth and last section covers the relationship between cannabis use and delinquency and crime.

PATTERNS OF USE

Epidemiological surveys are the main method of measuring consumption patterns. These surveys cover the general population (usually 15 years of age and over) and specific populations, usually students. Most epidemiological surveys of the general population are done by telephone and based on a validated questionnaire. Personal interviews are involved in some cases. Some surveys of students are based on a questionnaire distributed in class.

Due to the low consumption of illegal drugs by the population as a whole, samples must necessarily be large (in Canada over 12,000 respondents). Whatever the sample size, these surveys inevitably underestimate consumption. Respondents tend to under-report, either because individuals simply refuse to respond because of the legal implications, or because some at-risk persons are not included in a telephone survey. Then there is the matter of memory: the more time elapsed between consumption and the survey, the less reliable one's memory of occasions, circumstances, and quantities.

Furthermore, some reports, including the report by the French National Institute for Health and Medical Research (INSERM) and the *Canadian Profile* of the Canadian Centre on Substance Abuse (CCSA), use data on police and customs seizure as indirect indicators of use. We have opted to discuss data on seizures and other police and customs activities in Chapter 14. In our opinion, these data, rather than accurately reflecting use, are indicators of police drug-related activities and to some extent, market conditions.

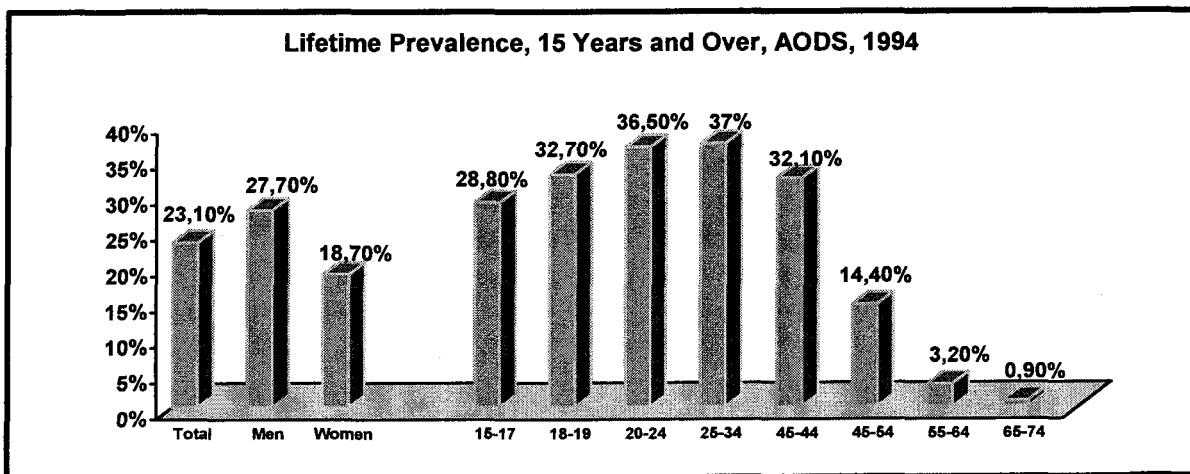
Not all surveys measure phenomena in the same way, although, in the past two years, significant strides have been made toward improving data comparability. Generally speaking, lifetime prevalence (minimum one time consumption) is measured.

This episodic or experimental consumption is distinguished from consumption within the previous year. Frequent consumption (e.g., within the past month) is less frequently measured. Heavy users are even more rarely studied. Furthermore, regular consumption tends to be measured in terms of dependency criteria—described in detail in the following chapter—rather than quantity-related indicators. As described in greater detail later in this chapter, this makes it difficult to distinguish among categories of users, specifically at-risk users and heavy users. Such information is essential to identifying target groups for preventive measures.

Consumption by the population as a whole

In Canada, five national surveys are the sources of data on consumption of psychoactive substances, alcohol, tobacco, and illegal drugs. The Health Promotion Survey (HPS) was conducted in 1985 and 1990; the Alcohol and Other Drugs Survey (AODS) in 1989 and 1994. The 1993 General Social Survey (GSS), a survey conducted on a regular basis, includes drug-related data. These are the data referred to in the following paragraphs.

In the 1994 survey, 23% of respondents reported consuming cannabis at least once in their lifetime. As shown in the bar graph below, men are more likely than women to have consumed cannabis, as are persons under 35 years of age.



Consumption varies by province. According to the AODS, consumption is highest in British Columbia (35.4%), followed by Alberta (29.4%), Manitoba (25.2%), Nova Scotia (25.1%) and Quebec (24.7%); and lowest in Newfoundland (16.3%), Ontario (16.6%) and Prince Edward Island (18.6%).

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Lifetime prevalence was unchanged from the 1989 study. At the time of the Le Dain Commission, in 1970, the figure stood at 3.4%; by 1978 it was up to 17%, showing a steady increase in cannabis consumption.

Prevalence over the previous twelve months is a more sensitive indicator of current consumption as reporting is less dependant on long-term memory. The following table shows the evolution of this indicator beginning with the 1985 study.

Cannabis consumption in the last 12 months, 15 years and over¹

Year	Survey	Sex		Total
		Men	Women	
1985	Health Promotion Survey	6.9%	4.3%	5.6%
1989	National Alcohol and Other Drugs Survey	8.9%	4.1%	6.5%
1990	Health Promotion Survey	7.0%	3.0%	5.0%
1993	General Social Survey	5.9%	2.5%	4.2%
1994	National Alcohol and Other Drugs Survey	10.1%	5.1%	7.4%

By comparison, the percentage of users in the last year was 1% in 1970 and 9.7% in 1979.

The rate of use reported in these surveys is twice as high for men as for women. It is important to note the variations among studies. Because the AODS deals specifically with psychoactive substances, rather than being part of a broader survey of health or living conditions, it would appear to be more reliable.

We have no detailed data on incidence (i.e., new consumers) or rate of discontinuation. As will be seen further on, rising prevalence among young people would indicate increased incidence. With respect to discontinuation, it is generally believed that the vast majority of users do not continue using, although we are lacking specific information in Canada on this issue.

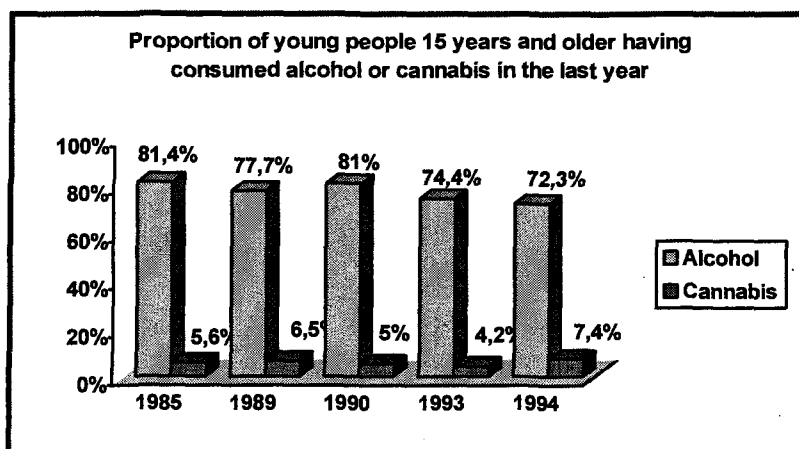
We are aware that there are limitations to comparing the various psychoactive substances. As properly pointed out by Dr. Zoccolillo in his testimony, each has its own characteristics and effects.

There is little point in comparing the levels of harm from cocaine, marijuana and alcohol. Each drug has specific kinds of harm. If you were to compare the effects of tobacco and cocaine in young people, you would conclude that cocaine is terrible but tobacco is not worth worrying about, because the harm from

¹ Table reproduced from CCSA-CAMH (1999), *Canadian Profile. Alcohol, tobacco and other drugs*. Ottawa: author, page 142.

*tobacco takes 30 years to appear. The point is that there are different patterns of harm and making comparisons among them is not a useful exercise.*²

Nonetheless, to place the phenomenon in context, we believe it is valid to compare Canada's consumption of cannabis in the general population to consumption of other substances. The 1994 Alcohol and Other Drugs Survey shows that, of total illegal drug consumption, cocaine accounts for less than 1%, and heroin, LSD, and amphetamines together for approximately 1%. In the case of legal drugs, alcohol consumption is about 75%, tobacco approximately 30%. The accompanying graph compares consumption of cannabis and alcohol among those over 15 years of age.



General population studies have been conducted in Ontario since 1977, giving the province the most extensive database in Canada. Of even greater interest, is the fact that Ontario (again since 1977) has conducted studies in schools. This practice provides for a better tracking of trends.

According to the 2000 report of the Centre for Addiction and Mental Health (CAMH)³, more than one third (35%) of Ontarians over 18 years of age have consumed cannabis at least once in their lifetime and 10.8% within the last 12 months. The figure for users within the past year has changed little since 1984 (11.2%), although it is up slightly from the 1977 figure (8%). The 18-29 age group shows the steadiest increase, from 18.3% in 1996 to 28.2% in 2000; the 1984 figure for the cohort is 28.5%. In the long term, we also see an increase in consumption within the last 12 months in the 30-49 age group (from 6.5% in 1977 to 18.7% in 2000). The following table sets out selected data from the report.

² Testimony by Dr. Mark Zoccolillo, Professor of Psychiatry and Pediatrics, McGill University and Montreal Children's Hospital, Special Senate Committee on Illegal Drugs, Second session, Thirty-sixth Parliament, October 16, 2000, Issue 1, page 80.

³ Adlaf, E.M. and A. Ialomiteanu (2000) *CAMH Monitor eReport: Addiction and Mental Health Indicators among Ontario Adults, 1977-2000*. Toronto: Centre for Addiction and Mental Health, pages 61-67.

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Proportion of Ontarians 18 years old and over using cannabis users in the previous 12 months

(N =)	1977 (1059)	1982 (1026)	1984 (1043)	1987 (1075)	1989 (1098)	1991 (1047)	1992 (1058)	1994 (2022)	1996 (2721)	1997 (2776)	1998 (2509)	1999 (2346)	2000 (2406)
Total	8.1	8.2	11.2	9.5	10.5	8.7	6.2	9.0	8.7	9.1	8.6	10.4	10.8
M	11.2	12.3	15.6	12.3	13.0	11.5	9.1	11.4	12.6	11.4	12.1	13.2	14.3
W	4.5	4.1	7.1	6.8	8.2	6.0	3.6	7.0	5.3	7.0	5.4	7.8	7.7
18-29	22.6	22.7	28.5	20	24.6	19.9	13.3	19.6	18.3	21.4	25.2	27.1	28.2
30-39	3.9	4.2	9.5	11.6	11.8	9.1	6.6	10.2	11.3	9.8	8.2	10.3	12.3
40-49	2.3		2.2	5.4	3.9	3.0	2.4	4.3	6.1	4.3	4	6.8	6.4
50-64	1.2	1.3	1.8		1.4		1.3			1.7	1.4	4.1	2.9
65+													

Of those who consumed cannabis at least once in their lifetime, 68% did not consume within the last 12 months, 15% consumed less than once a month, and 17% more than once a month. Of users within the last year, 47% consumed less than once a month and 53% at least once a month.

In Quebec, general population studies were done in 1987, 1992, and 1998. *L'enquête sociale et de santé* (ESS)⁴ reports that 31.3% of people 15 and over used cannabis or another illegal drug at least once in their lifetime, and 13.5% had consumed cannabis at least once in the past few months. As elsewhere, consumption is a function of age: in the 15-24 age group, consumption of illegal drugs is 39.7%; it is 18.4% in the 25-44 age group, 8% in the 45-64 age group, and 5.5% in the 65 plus age group. Although 83.7% of the 45-64 age group and 93.8% of the 65 plus age group report never having used a prohibited drug, over 40% of the 25-44 age group and half (50.3%) of the 15-24 age group report current or past consumption.

Consumption among young people

A number of witnesses have reported “worrying” increases in cannabis consumption among young people (under 18).

*Given the existing research on the escalating rates of cannabis use in the general population of young people, our street youth and our youth at risk, coupled with knowledge about the harms associated with drug use, we know that our problem is growing.*⁵

⁴ Chevalier, S., et O. Lemoine (2000) « Consommation de drogues et autres substances psychoactives. » in *Enquête sociale et de santé 1998*, Québec : Institut de la Statistique du Québec, chapter 5, page 137.

⁵ Testimony of M.J. Boyd, Chair of the Drug Abuse Committee and Deputy Chief of the Toronto Police Service, Canadian Association of Chiefs of Police, Special Committee on Illegal Drugs, Senate of Canada, First session, Thirty-seventh Parliament, March 1, 2002, Issue 14, page 77.

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*Special consideration needs to be given to minors when developing drug policy. A policy created only with adults in mind may have strong, unintended negative consequences for adolescents. We have a parental obligation to adolescents. They are not adults.*⁶

*The Ontario students survey is equally disconcerting. A dramatic upswing is noted in the use of all drugs since 1993.(...) The use of cannabis has more than doubled to 29 per cent.(...) Unfortunately, the only statistic that has decreased is the one that records the students who do not use drugs. That figure has decreased from 36 per cent to 27 per cent. From almost one-third of the students not using drugs, we now have almost a one-quarter of the students not using drugs. We are clearly in a time where young people are turning to drugs as an answer to life's problems.*⁷

It is a fact that consumption of psychoactive substances by young students has increased significantly in the past several years. Nationally, the survey conducted among Grade 6, 8, and 10 students (approximately 2,000 young people in each grade) in 1990, 1994, and 1998⁸, reports the following with regard to marijuana use:

Proportion of Grade 8 and 10 students who have consumed cannabis at least once

	1990	1994	1998
Grade 8			
girls	10%	11%	18%
boys	11%	13%	21%
Grade 10			
girls	24%	27%	41%
boys	26%	30%	44%

Surveys on consumption of psychoactive substances, including cannabis, among young people have been conducted in some provinces. These give a clearer and more detailed picture of the evolution of cannabis consumption among young people in those provinces, although the results cannot be compared from province to province.

Atlantic

In the Atlantic provinces (Newfoundland and Labrador, Prince Edward Island, Nova Scotia, and New Brunswick) identical comprehensive surveys on cannabis consumption by high school students were first conducted in 1996.⁹ The process was

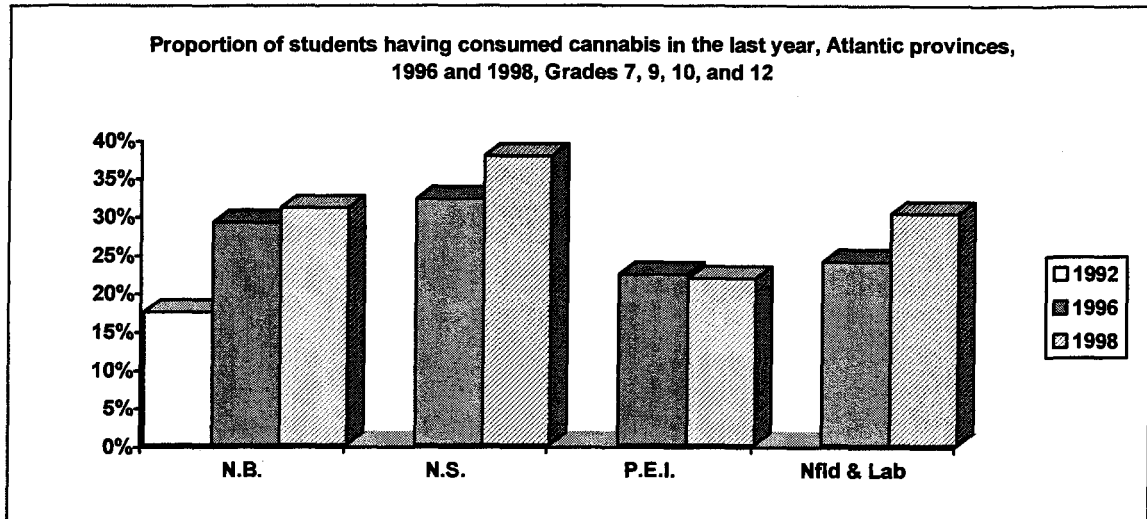
⁶ Testimony of Dr. Mark Zoccolillo, *op. cit.*, page 77.

⁷ Testimony of R.G. Lesser, Chief Superintendent, Royal Canadian Mounted Police, Special Committee on Illegal Drugs, Senate of Canada, First session, Thirty-seventh Parliament, October 29, 2001, Issue 8, page 9.

⁸ King, A.J.C. et al., (1999) *Trends in the Health of Canadian Youth. Health Behaviours in School-Age Children*. Ottawa: Health Canada.

⁹ New Brunswick conducted student population studies in 1986, 1989, and 1992.

repeated in 1998. The 1996 survey covered 14,908 students and the 1998 survey, 13,539 in grades 7, 9, 10, and 12.¹⁰ The following graph illustrates the data from the two surveys and the 1992 reference year for New Brunswick.



Cannabis consumption among students in the Atlantic provinces rose from 28% in 1996 to almost 33% in 1998. The provincial trends follow.

❖ In Nova Scotia, between 1991 and 1998:

- the percentage of students using illegal drugs nearly doubled;
- the percentage of students reporting consumption of cannabis within the last year was close to 38% in 1998, compared to 32% in 1996;
- distribution by school grade: 11.4% in Grade 7, 41% in Grade 9, 47.6% in Grade 10 and 51.7% in grade 12;
- the percentage of students using cannabis more than once a month tripled, from 4.4% to 13.5%; more men (17.5%) than women (9.3%) consumed cannabis once a month.

❖ In New Brunswick:

- the proportion of students reporting cannabis consumption climbed from 17.4% in 1992 to 29% in 1996 and 31% in 1998;
- among cannabis users, 5.5% experimented during the year and 11% were frequent users (more than once a month);

¹⁰ See <http://www.gov.ns.ca/health/student-drug-use/contents.htm> for Nova Scotia and <http://www.gnb.ca/0378/en/sdus1998/index.htm> for New Brunswick. A summary is also available on the CCSA's website at: <http://www.ccsa.ca/Reports/STUDENT.HTM>

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- as in the other provinces, more men (33.4%) than women (28.3%) consumed cannabis.

By comparison, in 1996 56% of students in the Atlantic provinces reported consuming alcohol at least once during the last year; the corresponding figure for 1998 is 59%.

Manitoba

In Manitoba, a 2001 non-random survey of schools in the province was conducted among 4,680 students in 32 schools.¹¹ Although the sample is not completely representative of all students in Manitoba, it is sufficiently large to give a satisfactory representation of the situation in the province.

Virtually all students reporting consumption of illegal drugs in the course of the preceding year used marijuana (96%). 47.7% of students consumed it at least once in their lifetime, 39.7% in the course of the preceding year (compared to 37.4% in 1995 and 38.8% in 1997). The mean age of initial use is 14.1 years. More boys (40.4%) than girls (35.4%) consumed cannabis in the course of the preceding year. Of the users, 8.5% consumed it approximately once a month and 15.8% more than once a month (20.5% of boys and 11.2% of girls).

By comparison, 87.4% of students consumed alcohol at least once in their lifetime, and 80.4% at least once in the course of the preceding year. The mean age of first consumption is 13.3 years. Of those who consumed alcohol in the course of the preceding year, 26% reported consumption once or more weekly, 46.5% at least once a month. Weekly consumption rises with school grade, from 17% in the 1st year of high school to 33% in the 4th. Finally, 27.7% of students consumed cannabis, alcohol, and tobacco in the course of the preceding year.

Ontario

In Ontario, in the 2001 Ontario Student Drug Use Survey (OSDUS)¹² an average of 33.6% of young people in Grade 7 to Grade 13 report using cannabis at least once, and 29.8% in the past several months (the corresponding figures for tobacco are 33.8% and 23.6%; for alcohol 70.6% and 65.6%). Rate of use is significantly higher for boys than girls. Examination of changes in trends shows that, following a dip in the early 1990s, the results in the two most recent surveys are similar to those in the late '70s and early '80s.

¹¹ Patton, D., et al., (2001) *Substance use among Manitoba high school students*. Winnipeg: Addictions Foundation of Manitoba. Available at www.afm.mb.ca

¹² Adlaf, E.M. and A. Paglia (2001) *Drug Use among Ontario Students 1977-2001. Findings from the OSDUS*. Toronto: Centre for Addiction and Mental Health.

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Proportion of Ontarians in grades 7 to 13 using cannabis in the previous 12 months

(N =)	1977 (4687)	1979 (4794)	1981 (3270)	1983 (4737)	1985 (4154)	1987 (4267)	1989 (3915)	1991 (3945)	1993 (3571)	1995 (3870)	1997 (3990)	1999 (2868)	2001 (2326)
Total	25.1	31.7	29.9	23.7	21.2	15.9	14.1	11.7	12.7	22.7	24.9	29.2	28.6
M.	29.4	36.4	33.2	28.0	24.4	18.7	14.7	13.2	14.8	25.7	25.7	32.5	32.1
W.	21.1	26.	26.3	19.4	17.9	13.2	13.5	9.9	10.7	19.8	24.1	25.8	25.1
7th	5.6	10.4	5.7	5.2	4.7	3.8	0.9	0.7	1.7	2.8	3.4	3.6	5.1
8th	-	-	-	-	-	-	-	-	-	-	-	-	-
9th	23.2	29.2	27.1	25.1	18.3	12.1	12.9	8.1	8.7	19.6	23.9	25.5	28.8
10th	-	-	-	-	-	-	-	-	-	-	-	-	-
11th	39.4	50.2	44.2	42.1	35.1	24.3	22.5	20.2	22.3	40.7	42.0	48.1	45.7
12th	-	-	-	-	-	-	-	-	-	-	-	-	-
13th	42.4	43.6	37.4	36.5	30.8	30.5	28	20.5	21.6	27.5	31.9	43.3	43.9

Comparison of cannabis use trends to trends for other substances shows that:

- in the past 12 months, tobacco consumption fell from 30.4% to 22.3% of students;
- in the past 12 months, alcohol consumption fell from 76.3% to 62.6% of students;
- heroin [heroin being a female hero] consumption slipped from 2.0% to 1.2%;
- cocaine consumption remained steady at 3.8%;
- amphetamine consumption edged up from 2.7% to 3.1%; and
- ecstasy consumption shot up from 0.6% in 1993 (first inclusion) to 6.0% in 2001.

The Ontario survey examines frequency of consumption. Of those who used cannabis in 2001, 25% did so once or twice, 30% from 3 to 9 times, and 45% more than 10 times. Overall, 16.9% of students consumed cannabis at least 6 times in the course of the past 12 months. The following table illustrates the evolution of consumption frequency in the preceding 12 months (1981 base year).

Frequency of consumption in the preceding 12 months among users in Ontario¹³

	1981 (1002)	1983 (1304)	1985 (907)	1987 (701)	1989 (570)	1991 (515)	1993 (455)	1995 (873)	1997 (1019)	1999 (778)	2001 (636)
Freq.											
1-2	28.2	32.4	33.7	39.8	42.6	37.1	41.1	31.7	29.5	28.8	25.6
3-5	12.4	15.1	18.3	16.2	17.2	17.7	17.5	17.1	16.3	14.7	17.1
6-9	14.0	12.5	11.3	9.0	10.5	12.2	10.1	10.4	12.4	13.9	11.4
10-19	13.0	11.4	11.3	14.1	11.8	9.8	9.0	12.5	12.3	11.9	14.9
20-39	10.7	9.0	8.3	6.2	8.3	8.9	8.8	9.0	9.8	9.5	10.2
40 +	21.7	19.5	17.1	14.8	17.1	14.3	13.6	19.4	19.7	21.2	20.9

¹³ Table reproduced from Adlaf and Paglia, *op. cit.*, page 57.

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On a smaller time scale, the study looks at consumption over the past four weeks. Overall, 8.4% of students consumed cannabis weekly, and 3.1%, daily. The proportion of students who did not consume cannabis in the past month fell from 90.2% in 1987 to 66.6% in 2001.

The following table illustrates the evolution of monthly consumption among users over the preceding 12 months for the 1987-2001 time period. There is a marked reduction in the percentage of students who had used no cannabis in the past month (from 41% in 1987 to 30% in 2001) and, conversely, an increase in the number of students who used it daily (from 3.5% in 1987 to 9.1% in 2001).

Frequency of monthly usage among users in the preceding 12 months, OSDUS¹⁴

	1987 (701)	1989 (570)	1991 (515)	1993 (455)	1995 (873)	1997 (1019)	1999 (778)	2001 (636)
Never								
Total	41.1	46.0	44.1	37.2	30.9	33.0	30.5	30.6
Men	38.1	44.8	38.6	29.7	28.4	28.9	28.5	23.2
Women	45.3	47.2	51.8	47.5	33.8	36.9	33.0	39.8
1-2 times a month								
Total	36.6	38.3	34.5	36.9	35.7	34.2	34.8	33.2
Men	36.7	33.8	33.4	35.8	33.8	30.4	31.1	32.9
Women	36.4	42.9	36.0	38.1	37.9	37.9	39.4	33.6
1-2 times a week								
Total	9.7	9.6	7.9	9.9	14.4	13.7	12.5	11.3
Men	9.8	10.6	8.7	12.7	15.5	14.6	12.9	12.
Women	9.5	8.5	6.7	6.1	13.2	12.8	12.0	10.1
3-4 times a week								
Total	4.9	2.6	5.8	5.9	9.2	7.6	8.5	8.3
Men	4.6	4.8	8.5	7.4	9.4	10.2	10.2	9.9
Women	5.5	0.4	2.0	3.8	9.0	5.1	6.3	6.4
5-6 times a week								
Total	4.1	1.0	2.4	5.1	3.6	3.9	4.4	7.4
Men	5.3	1.9	3.2	7.5	4.4	4.5	5.9	7.5
Women	2.5		1.2	2.0	2.5	3.4	2.6	7.3
Daily								
Total	3.5	2.6	2.6	5.0	6.3	7.6	9.3	9.1
Men	5.6	4.1	4.1	6.9	8.6	11.4	11.3	14.3
Women	0.8	1.1	1.1	2.4	3.6	3.9	6.6	2.8

¹⁴ *Ibid.*, page 58.

OSDUS also provides information on quantity consumed. Among 2001 users over the past 12 months, 15% smoked less than one joint, 21% approximately one, 22% two or three, and 15% more than four. The study also looks at the question of age at the time of first consumption. Again in 2001, 10.2% of students used cannabis for the first time, including 31.7% of cannabis users over the past 12 months. The age of initial use does not vary with sex or region, but is significantly linked to educational level: between Grade 8 and Grade 9 (14-15 years of age), the proportion of those who have smoked cannabis shoots up from 6% to 14.9%. Early initiation (Grade 7, approximately 12 years of age) to cannabis has fallen over the years: in 2001, 2% of Grade 7 students said they had used cannabis at least once in the preceding year (at about 11 years of age), a figure below those for 1997 (5%) and 1991 (8%).

Quebec

In Quebec, some observers report a “disturbing” increase in regular consumption of cannabis by young people. According to Michel Germain, Director of the CPLT, increased use is closely related to social values, specifically messages relating to a relaxed attitude to drug use, as opposed to socio-demographic factors such as family income or composition.

The data available are not directly comparable to those collected in Ontario. They come from three general population surveys conducted by *Santé Québec* in 1987, 1992, and 1998 and cover the 15-24 year age group. Respondents numbered 3,136, 3,912, and 3,587 respectively, and were divided into three age groups (15-17, 18-19, and 20-24).¹⁵

At first glance, the study reveals a statistically significant drop between 1987 and 1998 in the number of young people who report no drug consumption (71.3% in 1987, 57.4% in 1992, and 50.3% in 1998). The figures for “current” consumers (last 12 months) are 39.7% for 1998 and 27% for 1992. By age group, the increase in illegal drug consumption (significant in each case to $p < .001$) is as follows:

- 15 – 17 years: 26.2% to 37.6%
- 18 – 19 years: 28.1% to 41.6%
- 20 – 24 years: 26.2% to 40.3%

Among drug users, the percentage of those who use marijuana exclusively climbed from 15% in 1992 to almost 26% in 1998, whereas the proportion of those who use other drugs remained steady at approximately 13%.

¹⁵ Vitaro, F, Gosselin C. and A. Girard (2002) *Évolution de la consommation d'alcool et de drogues chez les jeunes au Québec de 1987 à 1998 : constatations, comparaisons et pistes d'explication*. Montreal: Comité permanent de lutte à la toxicomanie.

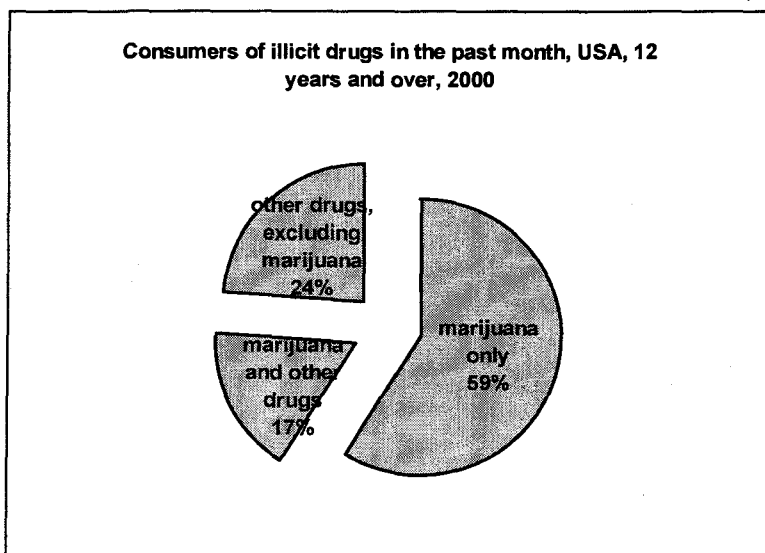
Use patterns in other countries

Obviously, use patterns are not immediately comparable from one country to another, not only because of cultural differences but because the systems for collecting data on use patterns do not all measure the same things in the same way, or even for the same time period. In Europe, the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) is gradually working toward uniformization of data collection in the various countries of the Union with a view to improving comparability. Nonetheless, significant differences among countries remain.

In spite of these reservations, it is interesting to compare use patterns among the various countries. We will begin by looking at the situation in the United States, the United Kingdom, France, and the Netherlands, and then attempt to compare some of the indicators selected.

United States

In the United States, two major surveys have been conducted for a number of years: a general population survey conducted by the Department of Health and Social Services, and the University of Michigan *Monitoring the Future* study of cohorts of graduates conducted for the *National Institute on Drug Abuse* (NIDA).



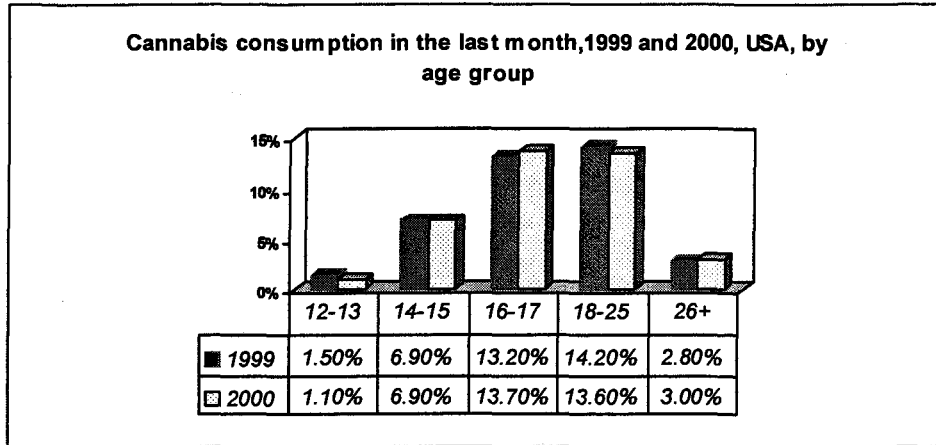
The 2000 general population survey¹⁶ shows that 6.3% of Americans 12 years and over used illegal drugs during the past month, and 4.8% (4.7% in 1999) consumed cannabis. Overall, 14 million Americans are considered *current users* of illegal drugs, i.e., consumers in the past month. Among this group of users, 76% are consumers of marijuana and 59% of marijuana only.

The estimated number of new users in 1999 was 2 million, compared to 2.6 million in 1996 and 1.4 million in 1990. Two thirds of the new consumers were between 12 and 17 years of age, the others in the 18-25 age group. Average age at the first experiment with cannabis was 17 in 1999, compared to about 19-20 at the end of the 1960s.

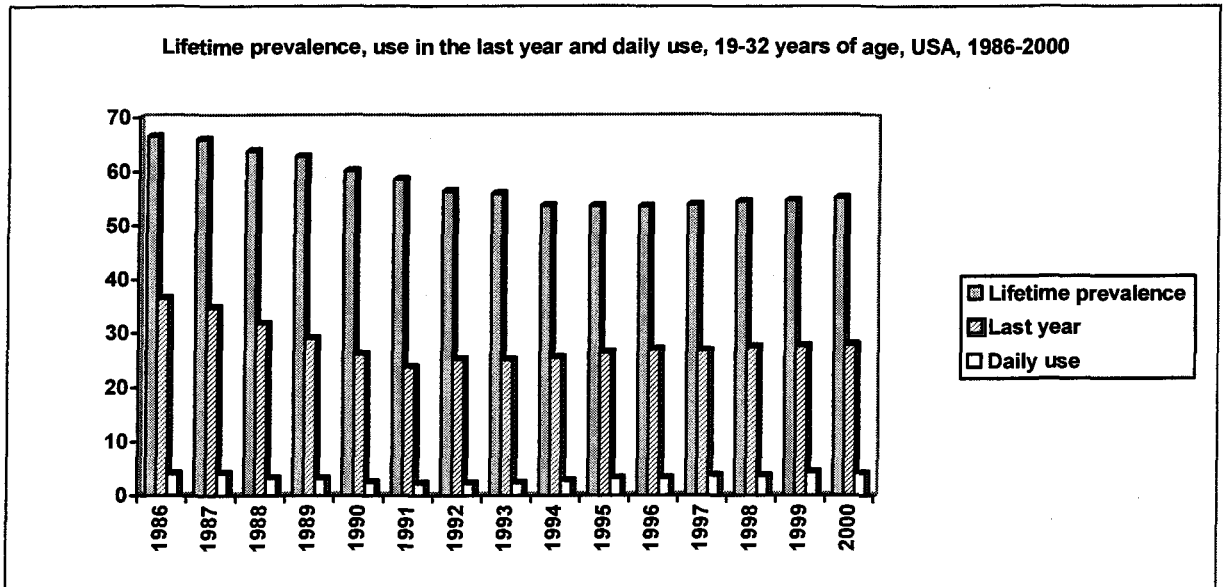
¹⁶ Substance Abuse and Mental Health Services Administration (2001) *Summary of findings from the 2000 national household survey on drug abuse*. Washington, DC: Department of Health and Social Services

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Frequency of consumption among current users increased between 1999 and 2000: in 1999, 31.6% consumed cannabis 100 days or more during the preceding year, compared to 34.7% in 2000. Finally, the distribution by age group follows the expected trends, as shown in the following chart.



The *Monitoring the Future 2000*¹⁷ survey gives use patterns beginning in 1986 for cohorts of young graduates between 19 and 32 years of age. The following figure summarizes the data.



¹⁷ Johnston, L.D., et al., (2001) *Monitoring the future. National Survey Results of Drug Use, 1975-2000. Volume II College Students and Young Adults Ages 19-40.* Bethesda, Michigan: NIDA.

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In 2000, lifetime prevalence in the 31-32 age group was 73% for all illegal drugs, 68% for marijuana.

United Kingdom

In the United Kingdom, the *British Crime Survey*¹⁸ has measured illegal drug use patterns every two years since the early 1980s. Since establishment of the EMCDDA, *Drugscope*,¹⁹ the United Kingdom correspondent, annually reports use patterns and related indicators.

The percentage of respondents between the ages of 16 and 59 who consumed an illegal drug during the last year in the United Kingdom rose from 9.9% in 1994 to 10.7% in 2000. The figures for cannabis are 8.4% and 9.4% respectively. Lifetime prevalence of cannabis use in the 16-29 age group climbed from 34% in 1994 to 44% in 2000. As a function of age, the use patterns over the last year are as follows:

- 16-19 years of age: from 29% in 1994 to 25% in 2000 ;
- 20-24 years of age: from 23% in 1994 to 27% in 2000 ;
- 25-29 years of age: from 12% in 1994 to 17% in 2000.

In all instances, consumption by men is greater than consumption by women.

The report notes that the most significant change is in consumption of cocaine by young men in the 16-29 age group (up from 1.2% to 4.9%).

France

The work of the *Observatoire français des drogues et de toxicomanies* (OFDT) [French monitoring centre for drugs and drug addiction] has greatly improved monitoring and understanding of trends in France. The OFDT publishes a bi-annual report on use patterns and related indicators (e.g., seizures, enquiries, applications for treatment) and a series of studies and technical reports on specific issues. In its 2002 report, the OFDT²⁰ gives the following figures on cannabis consumption:

- lifetime prevalence: 21.6% of adult population (18-75)
- occasional use (at least once in the past year): 6.5%
- repeated use (at least ten times within the past year): 3.6%
- regular use (ten times per month and over): 1.4 %

¹⁸ The 1998 and 2000 reports are available on-line at the Home Office website:
<http://www.homeoffice.gov.uk/rds/pdfs/hors224.pdf>

¹⁹ The 2000 report is available on-line at the following website:
<http://www.drugscope.org.uk/wip/11/3/pdf/UK%20DRUG%20SITUATION%202001.pdf>

²⁰ Observatoire français des drogues et de toxicomanies (2002) *Drugs and Drug Addiction: Indicators and Trends 2000*. Paris: author, pages 98-99.

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More than twice as many men as women experiment with marijuana; in the 18-34 age group, 40.5% of men have tried it. The proportion of experimenters drops with age. Repeated consumption is reported by 14.6% in the 18-25 age group, compared to 1.6% in the 26 and over age group. The OFDT reports that the percentage of the adult population (18-34 age group) who have experimented with cannabis continues to rise due to increased “trivialization” of cannabis. Among adolescents, consumption has risen significantly. In 1993, 34% of boys and 17% of girls reported having consumed cannabis by the age of 18, compared to 59% and 43% respectively in 1999. The OFDT report goes on to say that experimentation with cannabis has become standard behaviour for young people in late adolescence.

Interestingly enough, the OFDT report allows for construction of a user typology and, without too great a stretch, identification of the warning signs of possible at-risk behaviour.

The following table shows frequency of consumption among young people in late adolescence.²¹ In addition to the differences according to sex found in other epidemiological surveys, this table shows that fewer than one quarter of 17 year-old boys report occasional use, compared to one third of 19 year-olds. At the same time, the figure for boys, between the ages of 17 and 19, who abstain drops by 10 points.

Frequency of cannabis consumption by young people in late adolescence in 2000, by age, sex and type of consumption

Type of consumption	Definition	Girls, 17 yrs	Boys, 17 yrs	Boys, 18 yrs	Boys, 19 yrs
Abstinence	Never	59.2	49.9	45.1	39.8
Experimental	Past consumption, but not in the last year	5.0	5.4	6.5	8.2
Occasional	Between 1 and 9 times a year	23.3	20.9	19.9	19.4
Repeated	More than 9 times a year, less than 10 times a month	7.4	9.3	9.9	10.1
Regular	Between 10 and 19 times a month	2.6	6.4	6.2	6.8
Intensive	20 times or more a month	2.	8.0	12.4	15.8

The other interesting breakdown in the OFDT study—one that points to potential problems (and could be useful for preventive purposes) even though the report makes it clear that no equivalence was made between these profiles and risk—concerns circumstances of use. A separate category is created for those who smoke alone or in

²¹ *Ibid.*, page 100.

the morning or at noon. A near-perfect linear relationship can be seen between type and circumstances of use, as shown in the table below.²²

Frequency of cannabis use, in the morning or alone, by young people in late adolescence, in 2000, by type of consumption

Type of use	Morning or noon			Alone		
	Never	Occasionally	Often	Never	Occasionally	Often
Occasional	57.2	40.4	2.4	81.9	16.2	1.9
Repeated	17.9	69.8	12.3	46.4	46.6	7.0
Regular	4.7	58.9	36.4	19.9	60.2	19.8
Heavy	1.1	22.7	76.1	4.5	38.2	57.3

The situation was explained by Jean-Michel Coste, Director of the Monitoring Centre in his testimony to the Committee:

I think it is extremely important to answer the concerns of authorities when, in matters of prevention, those authorities are looking for something whose objective is not only to prevent first use, but also to prevent going from regular use to use that turns into a problem. From the investigation point of view, it is important to define this idea of problematic use and grade the users. It is possible to do this by trying to find occasional users, those who use repeatedly or regularly and those who constitute a problem.

*Right now, we are trying to define three user criteria. We are trying to see if the young person uses cannabis on an intensive or daily basis, if he often uses alone or uses often in the morning. If we get a combining of those three criteria, I think we can define something covering the notion of problematic use of cannabis.*²³

The Netherlands

The Netherlands is a country of particular interest because of the unique approach it adopted in 1976.²⁴ An epidemiological survey of use patterns of the general population was conducted in 1997; the results of a second (2001) survey are expected soon. For individuals between the ages of 15 and 64, the data show a lifetime prevalence of 19.1%, consumption in the preceding year of 5.5%, and consumption within the past month of 2.5%. First-time users in the preceding year account for 1% of the population, and average user age is 28. In the 15-34 age group, lifetime prevalence is 31.8% and use within the last year, 14.2%.

²² *Ibid.*, page 101.

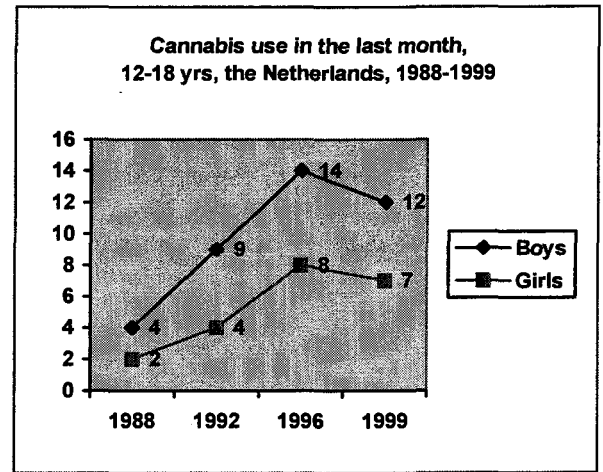
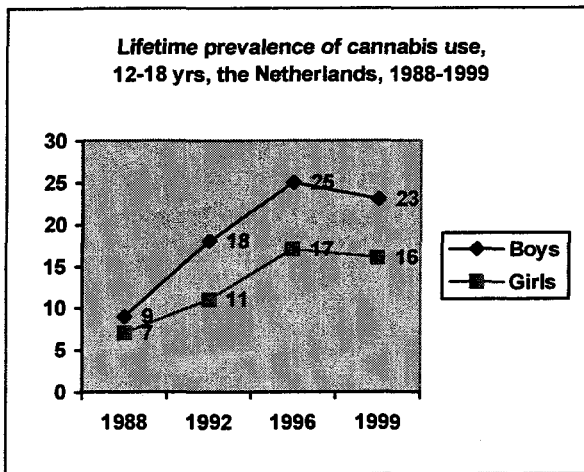
²³ Mr. Jean-Michel Coste, Director, *Observatoire français des drogues et des toxicomanies*, testimony given before the Special Senate Committee on Illegal Drugs, Senate of Canada, First session, Thirty-seventh Parliament, October 1, 2001, Issue 7, pages 31-32.

²⁴ Chapter 20 discusses public policy approaches in various countries in greater detail.

Among recent users (within the past month), frequency is distributed as follows:

- consumption on 1 to 4 days during the course of the month – 45%
- between 5 and 8 days – 14%
- between 9 and 20 days – 15%
- over 20 days – 26%

In addition, since 1984, the Netherlands has conducted surveys of students between the ages of 10 and 18. The data produced show a significant increase in lifetime use and current use (past month) as in the following charts (data for 12-18 age group only).²⁵



As in the other studies, more boys than girls are consumers and prevalence increases with age: in the 16-17 age group, lifetime prevalence for boys is 43%, for girls 31%, with current use figures 22% and 11% respectively.

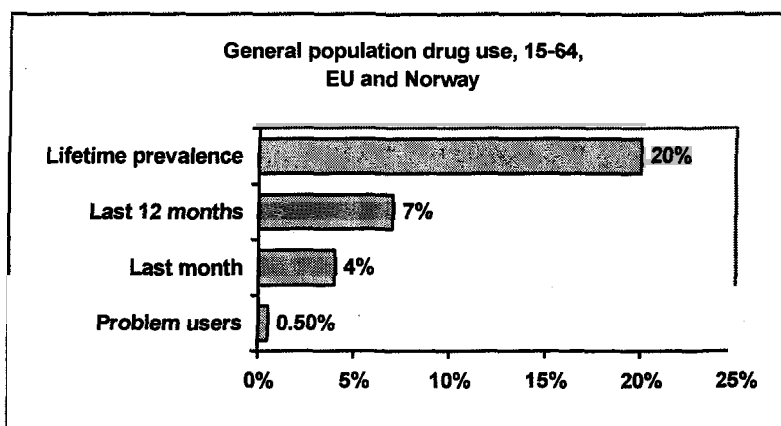
Use patterns in Europe, ages 15 - 64

EMCDDA publications covering Europe and Norway reveal an interesting gradation in the nature of illegal drug use. Although the table shown here covers all illegal drugs, we know that cannabis is the drug of choice for at least 90% of users in all countries. The table is relevant here because we will be attempting to estimate proportions of users in Canada by cannabis use.

²⁵ Trimbos-Instituut (2000) *The Netherlands Drug Situation 2000*. Report to the EMCDDA. Available on-line at: http://www.emcdda.org/multimedia/publications/national_reports/NRnetherlands_2000.PDF

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In other words, of the approximately 50 million people who have experimented with an illegal drug at least once in their lifetime, approximately 17.5 million have used drugs in the preceding 12 months, 10 million, in the past month, and 0.5% are considered at-risk users.



International comparisons

In spite of significant differences in survey methods (type of questionnaire and form of entry), indicators, years and age range covered, the following tables provide valuable indications of prevalence in a group of countries.

The first table sets out information on year of survey, age of respondents, and proportions reporting prevalence of cannabis consumption in their lifetime and in the last year. For purposes of comparison, we have added the most recent Ontario data on the general population.

Lifetime prevalence and consumption in the last year, general population ²⁶

Country	Year	Form of entry	Sample	Age	Lifetime prevalence	Last year
Australia	1998	Mixed	10,000	14+	39%	18%
USA	1999	Mixed	66,706	12+	35%	9%
USA	2000	Mixed	71,764	12+	34%	8%
U.K.	2000	Mixed	13,021	16-60	27%	9%
Denmark	2000	In person	14,228	16-65	24%	4%
France	1999	Telephone	11,526	15-65	23%	8%
Belgium	1998-1999	Telephone	3,311	18-50	21%	?
Germany	2000	Mail	6,332	18-60	21%	6%
Ireland	1998	Mail	10,415	15-65	20%	9%
Spain	1999	In person	12,488	15-65	20%	7%
Netherlands	1997	In person	22,000	15-65	19%	6%
Switzerland	1997	Telephone	13,004	15-60	19%	5%
Greece	1998	In person	3,752	15-65	13%	4%
Sweden	2000	In person	2,000	15-65	13%	1%
Germany (East)	2000	Mail	1,430	18-60	11%	5%
Finland	1998	Mail	2,568	15-70	10%	3%
Ontario	2000	Telephone	2,406	18 +	35%	10.8%

²⁶ Table adapted from Rieger, H. and M. von Laar (2002) "The Epidemiology of cannabis use." in Pelc, I. (ed.), *International Scientific Conference on Cannabis*. Brussels.

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Lifetime consumption prevalence is 10% in Finland compared to 39% in Australia; consumption in the preceding year in Sweden is only 1%, in Australia, it is 18%. The Ontario figures of 35% and 11% respectively are among the highest cannabis consumption figures reported.

The second table is specifically about young people.

Prevalence of consumption by young people, 15-16 years old, 1995 and 1999 ²⁷

Country	Lifetime prevalence		Last month		> 6 times in the last month	
	1995	1999	1995	1999	1995	1999
USA	34%	41%	16%	19%	7%	9%
Russia	41%	35%	24%	16%	9%	6%
France	-	35%	-	22%	-	9%
Ireland	37%	32%	19%	15%	7%	5%
Netherlands	29%	28%	15%	14%	6%	5%
Italy	19%	25%	13%	14%	5%	4%
Denmark	17%	24%	6%	8%	1%	1%
Norway	6%	12%	3%	4%	1%	1%
Finland	5%	10%	1%	2%	0%	1%
Greece	2%	9%	1%	4%	0%	2%
Portugal	7%	8%	4%	5%	1%	2%
Sweden	6%	8%	1%	2%	0%	0%

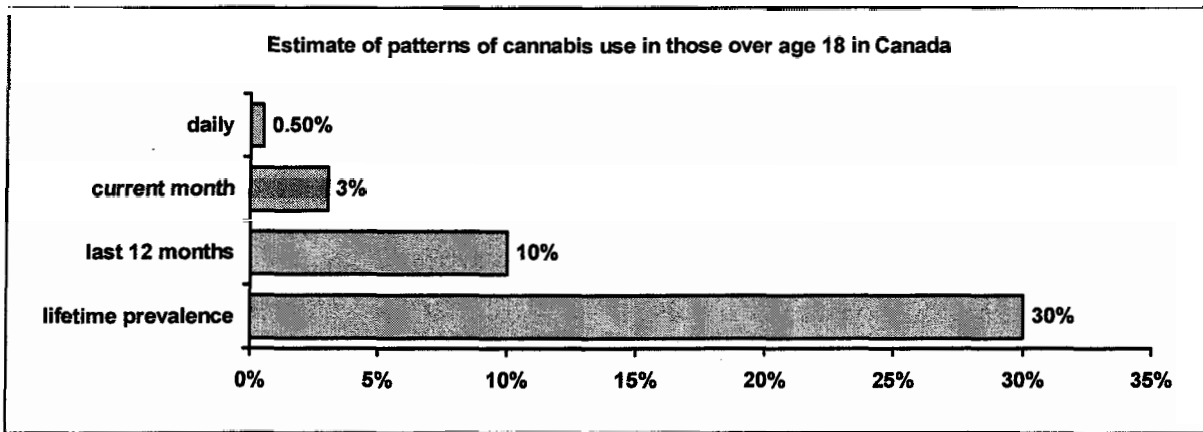
We lack readily-comparable data for Canada. Returning to the Ontario data, we see that, in 1995, 40.7% of Grade 10 students had consumed cannabis at least once in the preceding year; the figure for 2001 is 45%. Similarly, in 1995, 19% of all high school students consumed cannabis more than six times monthly; the figure for 2001 is 25%. This means that, consumption levels in Canada appear to be among the highest in the world for this age group.

To summarize

In the absence of recent reliable data on a national scale, we can only hypothesize. For the population over age 16, there is reason to believe that cannabis use is as follows:

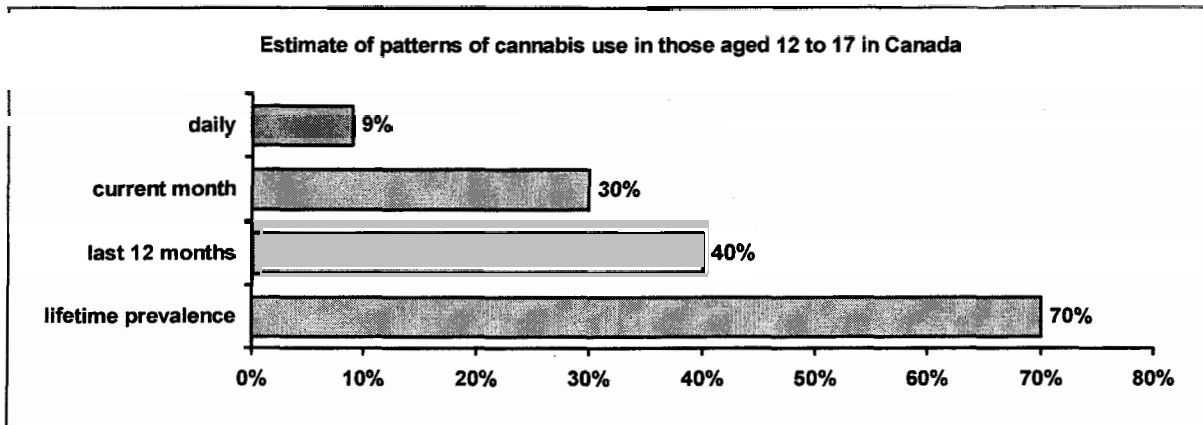
²⁷ Table adapted from Rigter and von Laar, *op. cit.*, page 20.

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Based on the last census, there are approximately 20 million Canadians between the ages of 18 and 64. If we accept the values used in this graph, there are then approximately 2 million Canadians over age 18 who have used cannabis during the preceding 12 months, approximately 600,000 who have used it during the past month, and approximately 100,000 who use it daily.

In young people aged 12 to 17, the situation could be as follows:



According to the latest census, there are approximately 2.5 millions young persons aged 12 – 17 in Canada. If 40 % have used cannabis in the preceding year and 30 % in the past month, this means 1 million and 750,000 young users in each category respectively. Approximately 225,000 would make daily use of cannabis.

Overall, these epidemiological trends indicate a number of things. At the simplest level, they clearly show division by generation and gender: people under the age of 35 consume more than those over 35; and men are more frequent consumers than

women. Furthermore, users are more likely to be single. The data appear constant both over time and among countries.

At the same time, there have been changes to the user profile. Rates for the 30-49 age group have tended to increase, supporting to some extent the hypothesis that these are the first cohorts of '70s users. Although the tendency in the '60s was to identify users as working-class or unemployed, there has been an increase in employed individuals with post-secondary or university education.

Some authors link usage to living in an urban area—for example, in the Netherlands, use is far more widespread in metropolitan than in rural areas. This factor does not apply in Canada. In Ontario for example, students outside Toronto consume more cannabis than do those in Metro Toronto. Cannabis use is also related to non-practice of religion, families in which at least one parent has a post-secondary education, and single parent families.²⁸

According to the Ontario studies, age of initial use seems to be lower than it was in the 1970s (close to 16 years of age); it now stands at between 13 and 15 years of age (a mean of approximately 14). On the other hand, as we have said, early initial experience is down (currently 2% compared to 8% in the early 1980s). If age of first experience appears related to regular consumption in late adolescence and early adulthood (18-25 years) as suggested by the American studies, it is clear that consumption is inversely proportional to age and the rate of cessation is high. For those who continue to consume in the long term, the age of cessation is delayed until the late 30s.

On a more complex level, these trends would lend support the OFDT hypothesis concerning “trivialization” of cannabis consumption. The following section shows that a number of researchers—including persons who have testified before the Committee—impute this “trivialization” to a reduction in the perception of cannabis-related risks (health and legal consequences) and greater availability. Aside from “trivialization”, there is also an acculturation aspect, the idea that cannabis will eventually be considered a psychoactive substance akin to alcohol or tobacco, whose risks we learn to recognize and manage.

Furthermore, cannabis consumption rates vary widely from one country to another with no apparent relation to public policy. This is one of the strong hypotheses that we will revisit in greater detail in our Chapter 21 examination of public policy.

²⁸ See for example Rigter, H. and M von Laar (2002) “Epidemiological aspects of cannabis use.” in Pelc, I. (ed.) *International Scientific Conference on Cannabis*. Brussels.

PATTERNS AND CIRCUMSTANCES OF USE

Why do people use cannabis? In fact, why have people felt the desire or the need to use all manner of psychoactive substances since time immemorial? We suspect that these questions are highly charged with symbolic and political meaning: when it is a question of cannabis, sometimes the focus is on its “soft drug” nature, its festive and sociable side, and sometimes the focus is more on its role as part of a marginal, if not pre-delinquent, trajectory and the risks associated with moving on to other drugs. When it comes right down to it, and rather surprisingly, we know very little about users’ motivations and experiences.

We can distinguish two large groups of studies: socio-anthropological studies that try to identify users’ practices and certain environmental factors that put these practices in context, and psychological studies that try to relate personality and family-related factors to cannabis use. Although both types of studies are just as relevant to understanding the nature of the phenomenon, their approaches and their results are often difficult to reconcile. But, first, a few historical notes on the uses of cannabis.

Cannabis in history²⁹

Although the historical routes of cannabis still remain obscure, archaeologists discovered a Chinese village where they uncovered the oldest use of the cannabis plant, dating back approximately 10,000 years. It was primarily used for clothing, ropes and fishing nets, paper and other decorative purposes. It was also considered one of China’s five cereals. Around 2000 B.C. the Chinese became aware of the psychotropic and medicinal properties of cannabis oil (resin) and used it in particular for the treatment of menstrual fatigue, gout, rheumatism, malaria, constipation and absentmindedness, and as an anaesthetic. Religious uses were also identified, and the Chinese noted that its use allowed communication with spirits and lightened the body. In the first century B.C., Taoists used cannabis seeds in their incense burners to induce hallucinations that they considered a way to achieve immortality.

Several historians attribute the origins of cannabis to the Scythians around Siberia and North Central Asia towards the 7th century B.C. According to Herodotus, a Greek historian who lived in the 5th century B.C. marijuana was an integral part of the cult of the dead that the Scythians followed to honour the memory and spirit of their departed leaders. Indications of cannabis use, often for religious purposes, have also been found with the Sumerians and, according to some, in certain passages of the Bible.

The first ethnographic description of ancient people inhaling marijuana as a psychotropic stimulant was confirmed by a Russian anthropologist, Rudenko, in 1929.

²⁹ This section is based extensively on Spicer, L. (2002) *Historical and Cultural Uses of Cannabis and the Canadian “Marijuana Clash”*, Ottawa: Library of Parliament, report commissioned by the Committee from the Library of Parliament.

Not only did he find the embalmed body of a man and a bronze cauldron filled with burnt marijuana seeds, but he also found shirts woven from hemp fibre and metal censers designed for inhaling marijuana smoke. Apparently this activity was not religious in nature but was a daily activity in which both men and women participated, as confirmed by the discovery of the frozen body of a 2,000-year-old woman in the same cemetery where Rudenko made his first discovery. Archaeologists found some of her possessions, including a small container of cannabis that would have been smoked for pleasure and used in pagan rituals, buried in a hollow tree trunk.

In India, cannabis has been closely associated with magical, medical, religious and social customs for thousands of years. According to legend found in the Vedas, Siva is described as "The Lord of Bhang", a drink made of cannabis leaves, milk, sugar and spices. This drink is still part of the traditions of certain castes. Cannabis is also renowned for its use in Tantric sexual practices. Approximately one hour before the yoga ritual, the devotee drinks a bowl of bhang after reciting a mantra to the goddess Kali. Similarly, "charas" holds a special place in the prayer ceremony called Puja. Lastly, cannabis was used for medical purposes.

Although not indigenous to Africa, the cannabis plant is part of religious, medical and cultural traditions across almost the entire continent. In Egypt, it has been grown for over a 1,000 years, while the first evidence of its presence in central and southern Africa dates back to 14th century Ethiopia where ceramic smoking-pipes containing traces of cannabis were discovered. In North Africa, cannabis influenced music, literature and even certain aspects of architecture since in some homes, a room was set aside for kif where family members gathered to sing, dance and tell stories. The plant was also used as a remedy for snake bite (Hottentots), to facilitate childbirth (Sotho) and as a remedy for anthrax, malaria, blackwater fever and blood poisoning (former Rhodesia).

In South America, it would have been primarily slaves imported from Africa who brought cannabis. East Indian labourers brought cannabis to the Antilles, and Jamaica in particular, where it is not only used recreationally but is integrated in many aspects of Jamaican, and particularly Rastafarian, culture.

As for North America, it is not known exactly when the psychotropic properties of cannabis were discovered. Some think that it played a role in several native cultures; others doubt that it ever played a significant role. The oldest evidence of the existence of cannabis in North America dates back to Louis Hébert, Champlain's apothecary, who introduced cannabis to white settlers in 1606, essentially as a fibre to be used to make clothing, cordage, sails and rigging for ships. However its psychotropic properties were not discovered until the 19th century. Between 1840 and 1900, it was used in medicinal practice across almost all of North America. It was prescribed for various conditions such as rabies, rheumatism, epilepsy and tetanus, and as a muscle relaxant. Moreover, its use became so widespread that cannabis preparations were sold freely in drug stores.

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The first study of cannabis was conducted in 1860 by the *American Governmental Commission*. When presenting the findings of the Commission to the *Ohio State Medical Society*, Dr. Meens said:

*Cannabis effects are less intense than opium, and the secretions are not so much suppressed by it. Digestion is not disturbed; the appetite rather increases; the whole effect of hemp being less violent, and producing a more natural sleep, without interfering with the actions of the internal organs, it is certainly often preferable to opium, although it is not equal to that drug in strength and reliability.*³⁰

At the same time, other doctors criticized its use because of the variability and uncertainty of its effects. As for its recreational uses, they seem to have been noted for the first time at the beginning of the 20th century and quickly became the subject of social concern, especially because of the association of cannabis with Mexican and then black American workers, strengthening fears about its criminogenic and aphrodisiac effects. In 1915, California became the first state to prohibit possession of cannabis. Canada followed suit in 1923, while the United States outlawed possession in 1937. However, in 1944, the La Guardia report, from the State of New York, emphasized the harmless effects of cannabis. It was followed by reports from the Le Dain Commission in Canada and the Schafer Commission in the United States at the beginning of the 1970s. On the international scene, cannabis was prohibited by the Single Convention of 1961 (which will be discussed more fully in Chapter 19).

In Canada, mass use of cannabis came with the 1960s. Prior to that, the phenomenon was almost invisible and there were only 25 convictions for cannabis possession between 1930 and 1946. In 1962, the RCMP reported 20 cannabis-related cases. Then came the explosion: 2,300 cases in 1968 and 12,000 cannabis convictions in 1972. According to the Le Dain Commission, the sudden growth in cannabis use could be attributed to the hippies, the Vietnam War, underground newspapers and the influence of the mass medias. On top of these major counterculture movements, Canada became more open to the world: more and more young Canadians were travelling and Canada itself received more and more visitors and immigrants. Since then, except for a few years, cannabis use for non-medicinal purposes has increased as we saw in the previous section.

Trajectories of use

Most studies identify quantity and frequency of use. Thus as we saw in the previous section, the OFDT report, for example, identifies experimentation, occasional, repeated, regular and heavy use, with frequency of use (number of times a month) and circumstances (alone or in a group, morning or evening) as the preferred indicators of at-risk use. However, this knowledge of certain characteristics of use by young people in particular tells us very little about what will follow. If we could stop time at a given

³⁰ Quoted in Spicer, *op. cit.*, page 29.

moment in a user's history, the knowledge would not help us determine what would happen next. For example, with this knowledge we could not answer the question of whether or not cannabis use begun during adolescence is part of a trajectory leading to increased use. Now, a certain number of those who testified before the Committee told us that they had observed dependence in cannabis users. Also, certain government documents, in the US in particular, do not hesitate to point in this direction by measuring requests for treatment and by reporting that requests for treatment of cannabis dependence are on the rise. For example, documents given to us by American drug authorities indicate that 40% of people who meet the DSM IV diagnostic criteria for dependence (which will be dealt with in the following chapter) have a primary diagnosis of cannabis dependence.³¹ Unless we believe that a few occasional uses lead to dependence, we must accept that a relatively significant number of young people who try cannabis during adolescence will embark on a trajectory of use that will lead to dependence.

But what is the situation exactly? What are these trajectories of use? What are the stages? Is there a progression?

First of all, like Professor Mercier, we must point out that the idea of a trajectory is itself slightly inaccurate.

The concept of trajectory is based first of all on the basic principle whereby individuals will go through a number of stages or successive phases. It is true that the concept of trajectory is somewhat incorrect. A trajectory is somewhat of a metaphor for the trajectory of the planets and the stars, that is something very focused and in continuous motion. The word "journey" ("trajet") would be more accurate. A journey includes detours, round trips, et cetera. So we must bear in mind that this concept of trajectory is not necessarily linear, but that there will be different situations and different paths. The word "journey" is a more accurate way of describing the relationship an individual will have with psychotropic substances during his or her life. There is another important concept as well. In addition to trajectories, phases and stages, there are also transitions and passages, when individuals move from one stage to another.³²

Some, like the INSERM report, speak of contact, experimentation and commitment phases. Contact is seeing cannabis or knowing people who use it. Experimentation, of course, is trying it, and may be limited to a single time. Lastly, commitment refers to the various ways of managing use, from relative commitment where there are significant changes in use to true commitment where there are fewer changes. The report specifies that these three stages are not in all trajectories and do not always follow one another in a coherent fashion. Furthermore, there will often be periods of cessation, followed by resumption or a definitive cessation. Nevertheless, according to INSERM, "commitment probably constitutes the most important stage if we want to

³¹ Office of National Drug Control Policy (2002) *National Drug Control Strategy*. Washington, DC: The White House.

³² Professor Céline Mercier, testimony before the Special Senate Committee on Illegal Drugs, Canadian Senate, First Session of the Thirty-Seventh Parliament, December 10, 2001, Issue No. 12, Page 6.

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*understand what cannabis use corresponds to. However, the data on this commitment phase seems the most inconsistent as most works deal with initiation.*³³ [translation]

In fact, the data on committed use is still very sketchy, such that beyond a few generalities, we really know very little about the circumstances and trajectories of cannabis use. It is as if we were first worried about classifying users according to their risk of becoming dependent, or were trying to make them fit into a ready-made model. While testifying before the committee, Professor Mercier recalled the five stages in the classic pattern of addiction: initiation, gradual start of abuse, dependency, treatment and reintegration. However, as she pointed out, this is only one of the possible trajectories, the one that has been studied most frequently with regard to drugs (alcohol, heroin and cocaine in particular), and yet it hardly applies to cannabis. In any event, it is clear that with cannabis users, there is great variability in use.

The epidemiological data presented in the previous section indicate fairly clearly that cannabis use decreases significantly with age. More specifically, the rate of cessation is significant, as the following table shows.

Rate of Cessation (percentage of lifetime users who did not use cannabis in the previous year), USA, 1996³⁴

Age Group	Women	Men
12-17	26%	20%
18-25	54%	39%
26-34	82%	74%
35 +	91%	82%

Consequently, the rate of continuation is relatively low. It was 24% in the US in 2000, 17% in Denmark, 29% in France and Germany (West), 24% in Switzerland and 8% in Sweden. The only exception is Australia with a rate of continuation of 46%.

That being said, these data says nothing about the period during which cannabis use is continued, the frequency of use or the quantities used. Epidemiological studies tend to establish that most users stop consumption during their thirties, but only ethnographic studies can provide more information. Unfortunately they are few.

The INSERM report describes studies conducted in Australia, France and the United States. Most show progress towards regulated cannabis use, that is, use both stabilized—fewer variations in use—and use more integrated into social living conditions, that is, more integrated into personal and professional life. A significant proportion of

³³ INSERM (2001), *op. cit.*, page 28.

³⁴ Rigter, H. and M. von Laar, *op. cit.*, page 27.

long-term regular users are men, and are more likely to be single and have creative occupations. Most say they use cannabis to relax and relieve stress, to help them sleep, or to alter their state of consciousness.³⁵

In Canada, Hathaway studied regular users³⁶, using open-ended interviews from October 1994 to June 1995. The study involved a sample of 30 regular users (15 men and 15 women), aged 22 to 47 (average age 32). Participants had used cannabis for 3 to 31 years with the average being 17 years; 40% had used it daily for 20 years or more. This data is in complete agreement with what INSERM suggested. Long-term users integrate their regular cannabis use into their daily lives and social activities while remaining aware of the symbolic value of this “tolerable deviance”. While most started after coming into contact with a small group of users who served as more or less long-term support, the users who were most at peace with their drug use were those who regulated their use independently.

*In this study, I found that moving from a pattern of use that is dependent on one's level of participation with other users to one that is independently regulated marks a crucial transition in the marijuana user's relationship to the drug. (...) their continuing use of the drug does not necessarily suggest an inability to commit to conventional adult roles. Instead, adapting one's marijuana use to suit an otherwise conventional way of life appears to make the practice significant on a more personal level than that previously fostered through affiliation with marijuana-using groups.*³⁷

For a certain number of users, this acculturation of the drug occurs after a more or less prolonged period of abstinence during which they distance themselves from the group of users. This makes it possible for them to determine for themselves the role cannabis will play in their lives. Moreover, every participant in the study had managed to integrate their use into their personal or professional life. Users associate their drug use primarily with free time and relaxation after a day at work; some even compare its role with that played by alcohol. Although 97% used cannabis at least weekly and 37% used it daily, only 7% (2 people) defined their use as problematic. Most went through periods of abstinence or of decreased use without experiencing difficulties.

Another study, reported by Rigter and von Laar,³⁸ was conducted in the State of New York on a cohort of users who were followed for a period of twenty years. This study identified four types of users:

- early-onset heavy-use: start around age 15 and become regular users around age 17.5; daily use for a duration of 131 months on average; 49% still use around age 34-35;

³⁵ INSERM (2001), *op. cit.*, pages 55-58.

³⁶ Hathaway A. D. (1997a) “Marijuana and lifestyle: exploring tolerable deviance.” *Deviant Behaviour: An Interdisciplinary Journal*, 18, pages 213-232; and (1997b) “Marijuana and tolerance: revisiting Becker's sources of control.” *ibid.*, pages 103-124.

³⁷ Hathaway, A.D. (1997a), *op. cit.*, page 219.

³⁸ Rigter, H. and M. von Laar, *op. cit.*, pages 28-29.

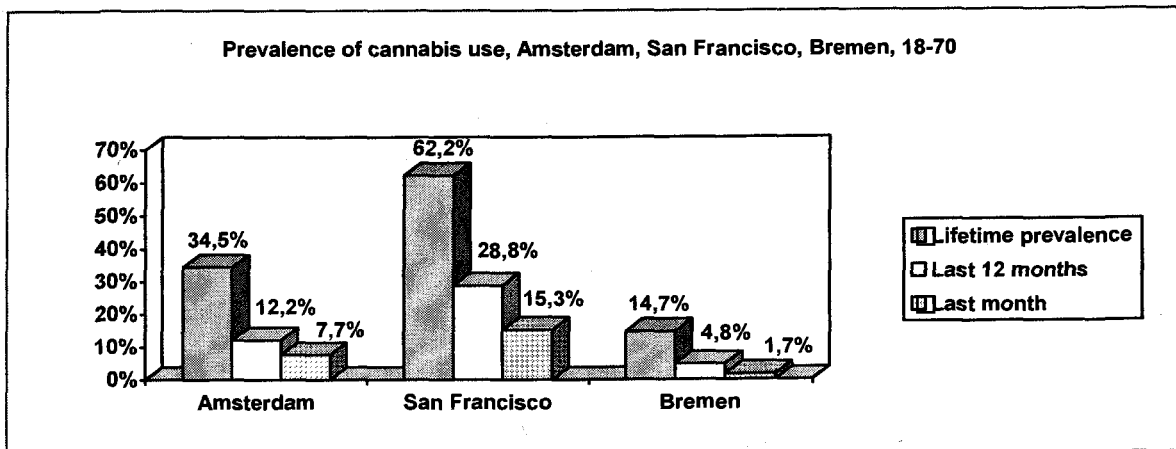
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- early-onset light-use: start around age 15 but fewer (44%) go on to daily use (for an average duration of 28 months); only 10% still use at age 34-35;
- mid-onset heavy-use: start around age 16; two-thirds become daily users (average duration 42 months) and still use at age 34-35;
- late-onset light-use: start at age 19.5 and a minority become daily users (21%). Almost all discontinue use around age 34-35.

In all, this study shows that there were clearly more light users than heavy users. The latter had less education, went to church less often, were more likely to have a history of delinquency, and changed jobs more often. Early-onset users showed a greater tendency towards episodes of delinquency and mental disorders, started to drink and smoke tobacco sooner, had a greater tendency to experiment with other drugs, and tended to identify positive reasons for using marijuana.

But it is risky to propose typologies, because boundaries are fluid and users switch from one type of use to another fairly easily. This was shown in particular by the comparative study conducted by Cohen and Kaal in Amsterdam, San Francisco and Bremen.³⁹

The study involved a sample of experienced users consisting of 216 people in Amsterdam, 265 in San Francisco and 55 in Bremen. The sophisticated method of selecting candidates from epidemiological studies conducted in the general population of these cities is important because it reveals the prevalence of use. The following chart shows this data.



³⁹ Cohen, P.D.A. and H.L. Kaal, *The irrelevance of drug policy. Patterns and careers of experienced cannabis use in the population of Amsterdam, San Francisco and Bremen.* Amsterdam: University of Amsterdam, CEDRO.

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The average age of participants varied between 33 and 37; most had a spouse and a stable job. The average age for initiation into cannabis use in the three cities was 16, that is, at a younger age than people who had only occasional exposure to cannabis (21.2 in Amsterdam and 19.5 in Bremen). Most were introduced by friends and their first experience was as part of a group. At age 19, they were regular users (at least once a month) and their heaviest use was around age 21.5. Trajectories of use were determined using six patterns:

- 1) more to less: after an initial period of heavy use, the individual gradually decreased his use
- 2) gradually more: the individual gradually increased his use
- 3) stable: amount and frequency did not change
- 4) up-top-down: use increased, reached a peak, and then decreased
- 5) intermittent: frequent discontinuation after initiation
- 6) varying: use rises and falls

As the following table shows, no less than 75% of respondents in the three cities correspond to patterns 4 (48.7%) and 6 (25%).

Patterns of Use in Regular Users ⁴⁰

	Amsterdam		San Francisco		Bremen	
	Number	%	Number	%	Number	%
Pattern 1	17	8	18	7		
Pattern 2	13	6	17	6	6	11
Pattern 3	24	11	5	2	5	9
Pattern 4	104	48	133	50	24	44
Pattern 5	7	3	25	9	2	4
Pattern 6	51	24	66	25	18	33

During their period of heaviest use, approximately 45% of those studied used cannabis regularly. However, during the preceding year, approximately 35% used it less

⁴⁰ *Ibid.*, page 48.

than once a week and more than 35% did not use it all. During the past three months, more than 50% did not use cannabis at all, and less than 10% used it on a daily basis. As for amounts, the authors of the study concluded that they are low. During their period of heavy use, less than 18% of those studied smoked more than one ounce per month, whereas during the preceding year, approximately 60% had smoked less than 4 grams (1/7 of an ounce) per month. Users were divided fairly equally between those who preferred medium or mild cannabis and those who preferred a stronger variety (with a more marked preference for the mild varieties in Amsterdam). Users have a certain number of rules regarding use: no smoking at work or school (more than 35%), during the day, or in the morning.

Most long-term users had had periods of abstinence that varied from one month to a year or longer, most often because they no longer felt the need or the desire to smoke. Moreover, between one-third and one-half had decided to decrease their use at various times.

Thus we can see that trajectories of use do not follow a linear progression, and are marked by key periods when the user integrates cannabis use into his social and personal life, distances himself from groups of users, stabilizes the role marijuana plays in his personal life, with periods of heavy use, especially at the beginning of the trajectory, followed by periods of either decreased use or of ups and downs in terms of frequency and amount.

Factors related to use

Following logically from what we saw in the previous section, studies on factors that could explain the use of drugs, and cannabis in particular, deal primarily with initiation or experimentation.

The INSERM report examines a set of studies on factors that could explain cannabis use: the influence of the family environment (use by parents, socialization, parental teaching methods, quality of the parent-child relationship, parental models), peers (symbolic values of use, norms) and educational and social environments.⁴¹ There is no clear conclusion, but the report notes that the studies manage either poorly or not at all to take into account the user's role in social situations and consequently the incremental impact on use arising from the variability of social stresses as well as the methods of integration. We would also add that these studies do not reflect trajectories of use.

First of all, along with *DrugScope*, we note that the epidemiological approach to analysis of drug use, cannabis in particular, is based on a medical model of analysis of the prevalence of disease, whereas the reasons (which are not necessarily the causes) for drug use can very easily lie outside the medical field and, in a broader sense, outside the psychosocial model. Attributing dependence – understood here in terms of a disease –

⁴¹ INSERM (2001) *op. cit.*, pages 28-50.

to factors pertaining to the relationship between the locus of control and the environment has consequences for the understanding of the phenomenon as well as for public policy. The report by this British body contains a table of the explanations of drug use we feel it useful to reprint here.

Attribution Explanations of Drug Use ⁴²		
Attribution	Common Sense Meaning	Resulting Public Policy
Internal x stable	Drug use is a disease (dependence model)	Treatment model
Internal x unstable	Drug use is the periodic seeking of pleasure	Reduced demand model (replace drugs with something else)
External x stable	Shortcomings in the environment explain drug use	Change the environment
External x unstable	Availability of drugs explains their use	Reduced supply model

In fact, we must not forget that, with regard to psychoactive substances, the medical model of disease is still a dominant model for comprehension and forms the other part of the public response along with the penal model.⁴³ As we were told several times, drugs, and cannabis in particular, are not dangerous because they are illegal, they are illegal because they are dangerous. We will have occasion to comment on this statement in greater detail in the following chapters.

For now it is enough to remember that attempts to explain drug use most often involve looking for defects in personality or the environment rather than trying to understand the choices made by users.

Among the factors related to the locus of control, studies identify primarily:

- peer influences: the first uses depend on the influence of other young people in the group;
- family influences: a family environment where parental supervision is lacking, where drug use is tolerated, where siblings or parents have criminal backgrounds, and where parents themselves are users;

Among the factors related to the environment, studies mention:

- the availability and accessibility of drugs: the more drugs are available, the greater their use will be;
- social tolerance: the more drug use is accepted, the higher levels of use will be;

⁴² DrugScope (2001) *United Kingdom. Drug Situation 2000*. Report to the EMCDDA, page: 19.

⁴³ On this subject, see for example the work of Bergeron, H. (1996) *Soigner la toxicomanie. Les dispositifs de soin entre idéologie et action*. Paris : L'Harmattan ; and Barré, M.D., M.L. Pottier et S. Delaître (2001) *Toxicomanie, police, justice : trajectoires pénales*. Paris : OFDT.

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- perception of risk: the less the risk of social disapproval or the perceived risk to health, or the risk of legal action, the greater the use there will be.

According to the report *Monitoring the Future*, there is no doubt that young people's perceptions of drugs and their attitudes towards them determine the levels of use, which in return must determine public policy:

*Early in the decade of the 1990s we noted an increase in the use of a number of illicit drugs among secondary students and some important changes among the students in terms of certain key attitudes and beliefs related to drug use. (...) Specifically, the proportions seeing great risk in using drugs began to decline, as did the proportions saying they disapproved of use. As we predicted, those reversals indeed presaged "an end to the improvements in the drug situation that the nation may be taking for granted." The use of illicit drugs rose sharply in all three grade levels after 1992, as negative attitudes and beliefs about drugs continued to erode. This pattern continued for some years.*⁴⁴

And further on:

*We can summarize the findings on trends as follows: over more than a decade – from late 1970s to the early 1990s – there were very appreciable declines in use of several illicit drugs among twelfth-grade students, and even larger declines in their use among college students and young adults. These substantial improvements – which seem largely explainable in terms of changes in attitudes about drug use, beliefs about the risks of drug use, and peer norms against drug use – have some extremely important policy implications. One is that these various substance-using behaviours among American young people are malleable – they can be changed. It has been done before. The second is that demand-side factors appear to have been pivotal in bringing about those changes. The reported levels of availability of marijuana, as reported by high school seniors, has held fairly steady throughout the life of the study. (Moreover, both abstainers and quitters rank availability and price very low on their list of reasons for not using.) And in fact the perceived availability of cocaine actually was rising during the beginning of the sharp decline in cocaine and crack use, which occurred when the risks associated with that drug suddenly rose sharply. (...) Over the years, this study has demonstrated that changes in perceived risk and disapproval have been important causes of change in the use of several drugs. These beliefs and attitudes surely are influenced by the amount and nature of public attention paid to the drug issue in the historical period during which young people are growing up. A substantial decline in attention to this issue in the early 1990s very likely helps to explain why the increases in perceived risk and disapproval among students ceased and began to backslide.*⁴⁵

In other words, social disapproval—through government information campaigns, for example—can generate attitudes that reject drug use and will be reinforced by actions likely to increase the risks associated with use (the risk of arrest, for example).

⁴⁴ Johnston, L.D., et al., (2001) *op. cit.*, page: 6.

⁴⁵ *Ibid.*, page 30.

A study conducted in Newfoundland and Labrador involving a sample of 3,293 people is an example of this approach applied in Canada.⁴⁶ The questionnaire included questions about activities (family activities, housework, extracurricular activities, school work, sports, work, religious life), the availability of cannabis, use by parents, peers and the individual, parental and peer norms regarding cannabis, personal preferences and norms regarding cannabis. Analysis of variance dealt with the interaction of these various variables to explain personal use of cannabis. Overall, the model explains only 57% of use in the provincial sample, 65% for boys and 54% for girls. The results show that peer use is the main factor related to personal use (29% of variance), followed by personal preferences (themselves influenced by peer norms), personal norms and having to do chores around the home. Availability is not directly related to use and works through peer norms and use. Parental use is strongly linked to perceived availability. The authors conclude that this model has clear implications for interventions to prevent cannabis use:

*In the province wide sample, Peer Use, Peer Norms, Availability, Own Preferences and Own Norms together account for 56% of the 57% of Own Use predicted by the model. Peer Norms and Availability work through Peer Use, so important targets for intervention should be Own Norms, Own Preferences and Peer Use. Of these variables, Own Preferences and Peer Use contribute the most to prediction of Own Use, together accounting for 48.8% of the variance. It is of interest that a large part of availability is predicted by Parental Use, suggesting Peer Use arises from possible supplies of the marijuana/hashish from parental sources. This ought to be a target for intervention strategies as well. The model suggests sources of influence on target variables that ought to be considered in any intervention strategies.*⁴⁷

Taking into consideration the limits of the model as well as the differentiation between the sexes and provincial health districts with respect to the relative weight of the independent variables, we have to wonder if this type of analysis is a true reflection of use, including initial use. Furthermore, in the light of international trends in use on the one hand, and studies on users on the other, we wonder about the postulates of this type of mechanical model based on the rationality of the actors.

Finally, Aquatias et al., conducted a study on cannabis use among youth in the suburbs of Paris.⁴⁸ The authors make a particularly interesting distinction between forms of use based on user characteristics and the ideological representations of cannabis use. They demonstrate in particular (1) that there exist “hard” uses of soft drugs and (2) that the traditional distinction between the festive, socially integrated and group-regulated forms of use among middle class youth, and the excessive and socially

⁴⁶ Wasmeier, M., et al., (2000) *Path analysis survey of substance use among Newfoundland and Labrador Adolescents. Marijuana/hashish and Solvent use*. Memorial University of Newfoundland.

⁴⁷ *Ibid.*, page 15.

⁴⁸ Aquatias, S., (1999) « Usages du cannabis et situations sociales. Réflexion sur les conditions sociales des différentes consommations possibles de cannabis. » in Faugeron, C. (éd.) *Les drogues en France*. Paris : Georg. Pour l'étude originale : Aquatias, S. et coll. (1997) *L'usage dur des drogues douces, recherche sur la consommation de cannabis dans la banlieue parisienne*. Paris : OFDT.

unregulated uses of disadvantaged youth does not hold. Depending on factors related to their environment, both groups can have regulated and unregulated forms of use.

Factors traditionally associated with unregulated use such as social disenfranchisement, poor living conditions in the suburbs and the lack of professional integration, are only part of the picture. Other factors related to tensions arising in the environment (for example family-related problems or being in conflict with the law) and the capacity to remain autonomous from their social milieu also play an important role in the trajectories of these cannabis users.

[Translation] *In trying to understand what factors determined these different forms of cannabis use among these youths, we have obviously noted the importance of factors related to social dislocation: difficulties in social integration and a lack of financial resources capable of fostering their autonomy from the living environment.*

However, facing similar difficulties to get a job and socio-economic resources, some smoke cannabis without any excess, some not at all and others smoke considerably. Even within the group of youth who have a job, some smoke high potency cannabis intensively while others have more regulated forms of use and consume less.

Social dislocation is obviously a factor explaining the different forms of use just as integration in the job market serves to regulate these practices. But these complementary factors only constitute the more general context to these behaviours of intensive and prolonged use of cannabis.

(...)

Among those who experience social dislocation the most, those who smoke cannabis in an intensive and prolonged manner also experience the strongest social tensions such as problems with their local reputation, being in conflict with the law or family related problems... (...).

*Conversely, those who have a more regulated use are both better integrated in their environment and at the same time more autonomous with respect to local social life.*⁴⁹

The authors propose a classification of forms of use which we reproduce since it has, in part, inspired our own classification.⁵⁰

	Regulated solitary uses	Regulated group uses	Unregulated solitary uses	Unregulated group uses
Intensive use	After work	Boredom	Personal problems	Holidays, parties
Medium or low level of use	Before and after work	Generally in the evening Boredom		

Finally, the authors distinguish between four levels of use:

⁴⁹ Aquatias, S. (1999) *op. cit.*, pages 48-49.

⁵⁰ *Ibid.*, page 45.

- Occasional: from experimentation to use in parties;
- Moderate daily use: 3 to 5 joints per day or about one gram;
- Strong daily use: 5 or 6 joints per day or between 0.9 and 1.2 grams;
- Intensive daily use: over 1.2 gram per day.

To summarize

From an analysis of the life stories of users and their “trajectories”, we have learned primarily that, for a proportion of experimenters, which varies between 15% and 20% of the population, who will become regular users, the circumstances and patterns of their “career” as a user vary considerably but that for a significant proportion of these long-term users, use is integrated into their social and personal life.

Further, contrary to some studies, uses of cannabis are not determined only by a series of psychological or environmental factors. In all cases, it seems that specific events, elements of one’s particular life story, can trigger unregulated forms of uses, characterized in particular by intensive and solitary use. While such unregulated uses appear to be temporary, we did not come across any study that examined the trajectories of these users.

We also note that negative social attitudes and the characteristic of the cannabis market appear to have little impact on patterns of use.

Finally, we note that regular use does not necessarily mean problem use. At the same time, we have learned that early onset and rapid progression towards regular use are factors in problem use. In other words, and this will be important for choosing public policy and interventions, initiation at a young age (under age 16) and rapid progression towards regular use (under age 20) are markers that should be used to identify and prevent heavy use. Chapter 7 will discuss this issue in greater detail.

STEPPING STONE TO OTHER DRUGS?

The stepping stone theory holds considerable sway in debates on marijuana. In fact, the concern is that cannabis use leads to the use of other drugs, in particular, the so-called hard drugs, such as heroin and cocaine.

It logically follows that more people using drugs will increase the number of people being harmed by them. Cannabis is believed to be the foundation upon which most young people begin experimenting with illicit drugs. (...) The “gateway” concept has been around for a long time, and again, although there is no definitive evidence, the National Institute on Drug Abuse has reported that neuro-toxicological research suggests that marijuana “may alter the brain in ways that increase the susceptibility to other drugs.”

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*Many believe that cannabis use provides the impetus for those people looking to increase the psychotropic effect a drug has on them.*⁵¹

We should first define our terms. The “stepping stone” theory holds that cannabis use inevitably leads to use of other drugs. In this theory, cannabis use would lead to neurophysiological changes, affecting in particular the dopaminergic system (also called the reward system), thus creating the need to move on to the use of other drugs. This theory has been completely dismissed by research. We share this conclusion with several international bodies doing drug research, including the British organization *DrugScope*.

*The Stepping-Stone theory has proved unsustainable and lacking any real evidence base. The “evidence” that most heroin users started with cannabis is hardly surprising and demonstrably fails to account for the overwhelmingly vast majority of cannabis users who do not progress to drugs like crack and heroin. The Stepping-Stone theory (often confused among the general public for the Gateway theory) has been dismissed by scientific inquiry. The notion that cannabis use “causes” further harmful drug use has been, and should be, comprehensively rejected.*⁵²

The “gateway” theory suggests that users’ trajectories offer them choices as they start their trajectory of use and that one of these choices is to use other drugs. According to this theory, certain factors, such as early initiation and more regular and heavier use, reinforce this possibility. However, these factors themselves, and early initiation to cannabis in particular, are related to earlier factors, arising from the family environment and social living conditions, that predispose the more vulnerable young people to this early initiation and more rapid progress towards regular and heavy use.

*The link between cannabis and other drug use, according to this explanation, is thus a reflection that there are a number of risk factors and life pathways that predispose young people to use cannabis and that they overlap with the life pathways that predispose young people to use other illicit drugs.*⁵³

In addition to these factors that predispose some young people to heavier use of psychoactive substances—including alcohol and tobacco first of all—the sociological conditions under which users can obtain cannabis are such that they are in contact with an environment that is at least marginal if not criminal. Dealers are often the same people who also sell heroin, crack, amphetamines, cocaine and ecstasy such that the probability that a young cannabis user, already more vulnerable due to the factors of his personal trajectory, would come into contact with these other substances more easily.

⁵¹ M. J. Boyd, Chair of the Drug Abuse Committee and Deputy Chief of the Toronto Police Service, Canadian Association of Chiefs of Police, testimony before the Special Senate Committee on Illegal Drugs, Canadian Senate, First Session of the Thirty-Seventh Parliament, Issue 14, page 75.

⁵² *DrugScope* (2001) *Evidence to Home Affairs Committee Inquiry into Drug Policy*. Available on-line at: <http://www.drugscope.org.uk/druginfo/evidence-select/evidence.htm>

⁵³ *Ibid.*

We would also add that wholesalers and dealers “cut” or even mix their products; we were told at times that ecstasy, for example, could contain many things other than MDMA.

Furthermore, if it is true that use of substances such as heroin and cocaine develops almost necessarily out of prior use of marijuana, then it also develops out of the use of other substances, nicotine and alcohol in particular, which are more gateways to a trajectory of use than cannabis.

If we come back to trends in drug use in the population, while more than 30% have used cannabis, less than 4% have used cocaine and less than 1% heroin.

However, it is true that regular and heavy users are more likely than occasional users to use other substances. The study by Cohen and Kaal⁵⁴ discussed in the previous section shows for example that more than 90% of long-term cannabis users have also used tobacco and alcohol during their lifetime. Above all, it also shows that 48% in Amsterdam and 73% in San Francisco have used cocaine at least once in their life, and 37% in Amsterdam, 77% in San Francisco and 47% in Bremen have used hallucinogens at least once. Nevertheless, no regular cannabis users were regular users of other substances. The authors also show that the most common sequence is alcohol (around age 14), tobacco (around age 15), cannabis (around age 17), followed by other drugs in the early 20s.

We feel that the available data show that **it is not cannabis itself that leads to other drug use** but the combination of the following factors:

- factors related to personal and family history that predispose to early entry on a trajectory of use of psychoactive substances starting with alcohol;
- early introduction to cannabis, earlier than the average for experimenters, and more rapid progress towards a trajectory of regular use;
- frequenting of a marginal or deviant environment;
- availability of various substances from the same dealers.

CANNABIS, VIOLENCE AND CRIME

It is clear that there is some association between psychoactive substances and crime. It is just as clear that this link is much more complex than is sometimes thought, as Professor Brochu pointed out during his testimony before the Committee.

Just in my office at the Université de Montréal, I have 2,973 studies that attempt to show a link between psycho-active substances and crime. Most of these studies come from the United States or from English-speaking countries, which tends to colour their perspective somewhat, since we know that our

⁵⁴ Cohen and Kaal, *op. cit.*, page 92-93.

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*neighbours to the south have very clearly opted for a punitive approach to illegal drugs. What comes out of all these studies is that the link between drugs and crime is very complex.*⁵⁵

Since his testimony, Professor Brochu has released the study he mentioned to the Committee.⁵⁶

We can examine the drug-crime relationship from at least three angles: the effects of the substance itself, the effects of the cost of the substance, and the drug's position in the criminal world.

A significant proportion of offenders have psychoactive substance abuse problems, predominantly with alcohol. In fact, the study concludes that alcohol is the substance most frequently associated with violent crime; in the case of crimes against property, illegal drugs predominate. Cannabis ranked third (3% to 6% according to the study), far behind alcohol (24%) and cocaine (8% to 11%).

With respect to the second approach, the authors establish that between 17% and 24% of inmates committed a crime to obtain the money needed to buy their substance of choice, most often cocaine.

Lastly, regarding the third approach, because illegal drugs are marginalized, users are exposed to a deviant environment. In the previous section we noted that, with regard to cannabis, the fact that dealers can offer heroin or crack as well as cannabis could promote a gateway trajectory towards these other drugs. Similarly, the fact that these substances are illegal could contribute to leading people to a trajectory of delinquency. Furthermore, the drug trafficking environment is a relatively violent environment where a whole series of crimes are committed. Lastly, the simple fact of selling cannabis is itself a criminal offence, and we know that a certain number of people are imprisoned for doing so.

All in all, cannabis itself does not lead to a trajectory of delinquency and it is more likely to be the other way around: someone who embarks on a trajectory of delinquency when young is exposed to illegal drugs more quickly and can experiment at a younger age and begin a career as a user when younger.

Furthermore, simply because of its relaxing and euphoristic psychoactive effects and its effect of relaxing muscle tone, cannabis is hardly likely to lead to acts of violence.

Data from studies on long-term users confirm this global picture of the relationship between cannabis and crime. Thus, Cohen and Kaal noted that less than 5% of their respondents had committed offences to obtain cannabis (pilfering, shoplifting, theft). The offence committed most frequently in order to obtain cannabis was selling it.

⁵⁵ Professor Serge Brochu, Université de Montréal, testimony before the Special Senate Committee on Illegal Drugs, Canadian Senate, First Session of the Thirty-Seventh Parliament, December 10, 2001, Issue 12, page 18.

⁵⁶ Pernanen, K. et al., (2002) *Proportions of crimes associated with alcohol and other drugs in Canada*. Ottawa: Canadian Centre on Substance Abuse.

In short, the Committee has learned that cannabis is not a cause of violence or crime except in rare cases, and of course excluding driving while under the influence, which will be dealt with in Chapter 8.

CONCLUSIONS

We have learned the following from all the information on trends, patterns, circumstances, trajectories and social consequences of cannabis use:

Conclusions of Chapter 6	
On trends in use	<ul style="list-style-type: none">➤ The infrastructure of national knowledge about the trends and circumstances of cannabis use is fundamentally weak and desperately needs strengthening.➤ The epidemiological data available indicates that close to 30% of the population has used cannabis at least once.➤ Approximately 10% used cannabis during the previous year.➤ Up to 30% of those who used cannabis in the last year are current users (have used cannabis this month).➤ Approximately 15% of current users would be daily users➤ Use is highest between the ages of 16 and 24.➤ The prevalence of use during the current year is highest, approximately 40%, in young people of high school age.➤ The prevalence of monthly use in young people is approximately 30%.➤ The prevalence of daily use in young people is approximately 9%.
On trajectories	<ul style="list-style-type: none">➤ The average age of introduction to cannabis is 15.➤ Most experimenters stop using cannabis.➤ Regular users were generally introduced to cannabis at a younger age.➤ Long-term users most often have a trajectory in which use rises and falls.➤ Long-term regular users experience a period of heavy use in their early 20s.➤ Most long-term users integrate their use into their family, social and occupational activities.
On the gateway effect	<ul style="list-style-type: none">➤ Cannabis itself is not a cause of other drug use.➤ Cannabis use can be a gateway because it is illegal, which puts users in contact with other substances.
On violence and crime	<ul style="list-style-type: none">➤ Cannabis itself is not a cause of delinquency and crime.➤ Young people with a trajectory of regular and heavy use are often already on a deviant if not delinquent trajectory.

➤ Cannabis is not a cause of violence.

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CHAPTER 7

CANNABIS: EFFECTS AND CONSEQUENCES

Cannabis, as we saw in Chapter 5, acts on the central and peripheral nervous systems in various ways. While research has established a fairly clear role for some of the components of cannabis, Δ^9 THC in particular, the main active component, we are less sure of the role of other chemicals. Similarly research, which is often conducted on laboratory animals or in an even more specialized manner on molecules extracted for experimental purposes, does not reflect the conditions under which the average user uses marijuana. We have seen that, in some cases, dosages used for experimental purposes on laboratory animals, in particular to determine the chronic effects of regular use, are dosages that are unimaginable for humans, the equivalent of 570 marijuana cigarettes a day. Since THC content varies greatly with the cannabis available on the market, since users make different use of the drug depending on the place and circumstance, and since individual characteristics interact with the actual effects of cannabis, knowledge of the effects is necessarily influenced.

From an even more technical standpoint, we should point out that a statistical association – that is, the fact that two facts are concomitant – in no way indicates causality. To infer causality, a certain number of methodological prerequisites must be satisfied. In addition to the statistical association, we must be able to dismiss chance and alternative hypotheses, and show that the causative factor does precede the inferred consequence. According to the WHO:

*Causal inferences can be drawn from research findings by judging the extent to which the evidence meets widely accepted criteria. These include: strength of association, consistency of association, specificity, dose-response, biological plausibility, and coherence with other knowledge. These criteria are not sufficient to show that an association is causal but the more are met, the more likely it is that the association is causal.*¹

¹ World Health Organization (1997), op. cit., page: 3; on this question also see: Hall, W. (1987) “A simplified logic of causal inference” *Australian and New Zealand Journal of Psychiatry*, 21: 507-513.

Moreover, a strong tradition in the philosophy of science holds that you can never prove a hypothesis. The most you can do is falsify—that is, dismiss—alternative hypotheses.²

To try to meet the requirements of causality, researchers have developed sophisticated research methods, providing in particular for the random selection of subjects for a study, the random assignment to experimental conditions and non-experimental conditions (control group), the use of double blind and placebo techniques, the careful control of intervening variables that could represent as many alternative hypotheses as researchers are trying to eliminate. This is how, for example, they usually try to test medications that are put on the market.

For most questions involving human behaviour, *a fortiori* in society, it is difficult and rarely possible to establish such a causality relationship for the simple reason that each of these methodological requirements can rarely be met. In our case, the effects of cannabis use, the methodological constraints are particularly obvious. We cannot gather a random sample of cannabis users since we don't know the population. Therefore we must rely on alternative methods for selecting subjects (volunteers, for example). It is difficult to have people smoke cannabis who would otherwise never use it³⁸ without running the risk of contravening certain rules of ethics, or even legal provisions. And if we resort to people who have already smoked it, there is necessarily contamination of the control group. The cannabis that is used in the lab may be completely different from that of users who buy it off the street. And controlled laboratory conditions definitely do not reproduce the methods of cannabis use, which we know are usually a form of social ritual. As for studies—and they are numerous—conducted on animals (monkeys, mice, rats...), they may be interesting, but the possibility of transposing their results onto humans is limited. Lastly, we note that, as most cannabis smokers also smoke tobacco and drink alcohol, it is difficult to separate the effects of one from the effects of the others.

Obviously that does not prevent researchers from conducting studies, and these studies are also necessary. However, it does require researchers to be as prudent as possible when interpreting their results, in particular with respect to the ability to generalize about all marijuana users and to draw causal inferences. This is a caution that we do not always find, far from it, as this chapter will repeatedly show.

Lastly, we should note the distinction between effects and consequences. Smoking cannabis has immediate effects, some physiological and some psychosocial, that we must describe. But smoking cannabis, especially repeatedly, can also have consequences, some immediate – for example, the ability to perform certain tasks or

² On this subject, see the works of Karl Popper in particular (1978 for the French edition) *The Logic of Scientific Discovery* Paris : Payot, and (1985) *La connaissance objective*. Bruxelles : Complexe.

³ It is even a little ironic that the National Institute on Drug Abuse (NIDA) in the US finances studies that have people smoke when the Institute believes that cannabis is a gateway drug: for example, see the study by Haney, M. et al. (1999) "Abstinence symptoms following smoked marijuana in humans" *Psychopharmacology*, 141; 395-404.

the ability to drive a vehicle—and others more distant—for example if smoking cannabis results in a greater risk of lung cancer and if it has a lasting effect on memory.

We are aware of just how arbitrary these distinctions can be insofar as a human being is a whole, an organism integrated into his emotional and social environment and into his ecosystem. The physiological, psychological and social effects interact with one another, infiltrate one another, influence one another and act together rather than separately. In some ways, these distinctions remain the reflection of our incompetence, or at least of our inability, to think about the various systems of a human being as a whole, from every angle. This same incompetence can, also in part, explain the difficulty we have in creating a drug policy. It is to be hoped that those who come after us will be able to develop an integrated, holistic approach. For now, we are forced to use the means at our disposal, our fragmented understanding.

One last preliminary note. We were constantly guided by the need to be rigorous. Be that as it may, our resources did not enable us to be completely thorough and to examine the studies one by one for all these questions. In total, we know that approximately ten thousand studies have been published on cannabis over the last forty years! However, as Nelson points out, “*Although the total volume of this literature is somewhat daunting at first glance, a sampling of the material soon reveals that much is repetitive and a relatively small number of papers are continually referred to by most authors.*”⁴ Despite this repetition, we could not go without examining a certain number of these studies. That is why we commissioned the preparation of a summary report⁵ and also examined the summaries of scientific literature that were prepared in recent years.⁶

This chapter is divided into five sections. The first is a collection of statements on the presumed effects of marijuana that the Committee heard or that it was made aware of through its research. The following three sections examine the acute effects of cannabis, followed in turn by the physiological and neurological consequences, the psychological consequences and the social consequences. Then, because of its significance and the central place it holds in social and political concerns, we turn our attention specifically to the question of dependence possibly arising from prolonged use of cannabis.

⁴ Nelson, P.L. (1993) “A critical review of the research literature concerning some biological and psychological effects of cannabis” in Advisory Committee on Illicit Drugs (eds.) *Cannabis and the law in Queensland: A discussion paper*. Brisbane: Criminal Justice Commission of Queensland.

⁵ Wheelock, B. (2002) *op. cit.*

⁶ In particular the previously mentioned INSERM report (2001), *op. cit.* and the report from the International Scientific Conference on Cannabis (2002); as well as the report from the National Institute of Medicine in the US and the book edited by Professor Kalant, one of our witnesses.

EFFECTS AND CONSEQUENCES OF CANNABIS: WHAT WE WERE TOLD

During the hearings, many witnesses told us what they knew about the effects of cannabis. Some of this knowledge came from their own research work. Other knowledge came from their professional experiences. And lastly, other knowledge was either their interpretation of scientific literature or anecdotes. In this section, we will not make distinctions between the testimony and we will not evaluate its validity. We only want to highlight the richness, as well as the complexity, of what we were told.

*Message number one is that drugs, including cannabis, are harmful. (...) There is considerable misinformation about the physiological consequences of cannabis use. There is no doubt that heavy use has negative health consequences. The most important are in the following areas: respiratory damage, physical coordination, pregnancy and postnatal development, memory and cognition, and psychiatric effects. (...)*⁷

*Generally, marijuana (cannabis) and its derivative products are described in this context to distance the drug from the recognized harm associated with other illegal drugs. This has been a successful yet dangerous approach and contributes to the misinformation, misunderstanding and increasing tolerance associated with marijuana use. Marijuana is a powerful drug with a variety of effects. Marijuana users are subject to a variety of adverse health consequences that include respiratory damage, impaired physical coordination, problem pregnancy and postnatal deficits, impaired memory and cognition, and psychiatric effects. Marijuana use is associated with poor work and school performance and learning problems for younger users. Marijuana is internationally recognized as a gateway drug for other drug use. Risk factors for marijuana dependence are similar to those of other forms of drug abuse. (...) It was the consensus of the international community to put marijuana and other substances under international control. That decision was based on evidence of its harmfulness to human health and its dependence potential.*⁸

I wish to briefly review two of what I believe are fairly well-established, harmful effects of marijuana, and a number of other areas where there is considerable contention. (...) By far the most consistent and clear-cut effect of marijuana is disruption of short-term memory. Short-term memory is usually described as "working" memory. It refers to the system in the brain that is responsible for short-term maintenance of information needed for the performance of complex tasks that demand planning, comprehension and reasoning. The relatively severe impairment of working memory may help to explain why, during the marijuana high, subjects have difficulty maintaining a coherent train of thought or conversation. (...)

⁷ Testimony of Michael J. Boyd, Chair of the Drug Abuse Committee and Deputy Chief of the Toronto Police Service, for the Canadian Association of Chiefs of Police, Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, Issue No. 14, page: 74.

⁸ Testimony of Dale Orban, Detective Sergeant, Regina Police Service, for the Canadian Police Association, Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, Monday, May 28, 2001, Issue 3, page: 47. It should be immediately noted that the last statement is completely false as we will see in Chapters 19 and 12 on international agreements and Canadian legislation that have placed cannabis on the list of controlled drugs since 1924, with no knowledge of its physical or psychological effects at that time, and for completely different reasons, when there were any.

*Obviously this is relevant if you are going to school stoned. (...) It is becoming increasingly clear that cannabis is a drug on which regular users become dependent, and that this adversely affects large numbers of people.*⁹

*Marijuana has been shown to be associated with reckless drivers and motor vehicle accidents. Evidence suggests that marijuana may contribute to an appreciable number of traffic deaths and injuries in Canada. It has been shown to negatively affect the academic and social development of some adolescents. Marijuana can cause emotional and medical problems. Chronic use may be associated with lung diseases such as bronchitis, emphysema and cancer. A psychosis may develop in some individuals while other psychiatric symptoms such as anxiety, low mood, depression and panic do occur. Marijuana is known to be addictive. Although the rate of addiction varies, it is between 5 per cent and 10 per cent. I should like to stress that addiction is a disease and marijuana has the potential to be addictive to a genetically predisposed group of individuals.*¹⁰

*The evidence was that 95 per cent of the marijuana users in Canada are low, occasional, moderate users. Their consumption of marijuana does not impact on their health as long as they are healthy adults. The other 5 per cent are chronic users, people who smoke one or more marijuana cigarettes per day. If they continue to do that, they will ultimately get chronic bronchitis from the smoking process. The same would be true if they were to roll up the grass off their lawns and smoke that. They would inhale heated material over their large airways and cause damage to them. There were three primary vulnerable groups: pregnant women, which we submit is something between the woman and her doctor; the mentally ill, particularly paranoid schizophrenics (...) then, most importantly, immature youth. Young people who become involved with marijuana — particularly on a regular basis — seem to suffer from a disruption of their studies and the maturation process. As is the case with most intoxicants, it is recommended that they not become involved with them until they have matured.*¹¹

*I have one resource from the Center for Substance Abuse Prevention in the U.S., where recent marijuana research and a number of studies indicate some of the risks. We already know and accept that cannabis has negative effects on many systems - respiratory, motor skills, memory and immune - and that it creates drug dependency and tension. In addition, we now know from numerous research studies that there is a definite and acute withdrawal syndrome associated with chronic cannabis use. (...) There is research that suggests there are effects on the developing fetus. (...) I will speak to visual scanning, specifically, attention dysfunction in the form of impaired visual scanning and related functioning. Visual scanning develops particularly in early adolescence, so earlier onset is associated with some concerns there.*¹²

⁹ Dr. Mark Zoccolillo, Professor of Psychiatry and Assistant Professor of Pediatrics, McGill University and the Montreal Children's Hospital, Special Senate Committee on Illicit Drugs, Second Session of the Thirty-Sixth Parliament, October 16, 2000, Issue No. 1, page 77.

¹⁰ Dr. Bill Campbell, President, Canadian Society of Addiction Medicine, Special Senate Committee on Illicit Drugs, First Session, Thirty-Seventh Parliament, March 11, 2002, Issue No. 14, page: 56.

¹¹ Mr. John Conroy, Barrister, Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, March 11, 2002, Issue No. 14, page 11.

¹² Dr Colin Mangham, Director, Prevention Source BC., Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, September 17, 2001, Issue No. 6, page: 71.

*There are a number of negative health effects that have been created in the lab or have been observed with long-term users (...). There are, of course, health risks and negative health consequences with using the substance, but the majority of those risks only occur under specific circumstances. The majority of the risks are associated with long-term persistent and frequent use, and therefore must be understood as such. There is at this point agreement that the so-called dependence or withdrawal symptom may arise with heavy chronic users, but it is very much limited to that small population. (...) a seminal report by Hall and colleagues from Australia (...) concluded that the major risks of cannabis use can be significantly reduced by avoiding driving under the influence, by avoiding chronic and daily use, and by avoiding deep inhalation. These were the key factors that allowed us to avoid many of the major harms and risks associated with it.*¹³

In any event, we are talking about plant derivatives that contain a number of psychoactive alkaloids. The psychoactive effects are predominantly of mild euphoria and time distortion, though disorientation and panic attacks may occur. The appreciation of music, art and food are said to be enhanced, as is appetite, and this later function seems important for one of the claimed medical benefits in offsetting the effects of the chronic wasting syndrome in AIDS and the prolonged nausea that accompanies chemotherapy. (...) Because the drug is usually smoked, it has acute and chronic effects that are shared with tobacco. These include airway irritation, cough, and probably with chronic use, bronchitis, chronic obstructive pulmonary disease, and lung and pharyngeal cancers. Its impact on the immune system is generally to impair the function of the immune system, but the impact on human health of this impairment is probably minor. (...) The effects of cannabis consumption on reproductive health are negative in animal studies. (...) This obviously has some relevance to human health. However, human studies have yet to show any measurable adverse impact beyond some evidence of adverse behavioural and developmental impacts on the children of mothers who smoked cannabis heavily during pregnancy. (...) The impact of cannabis on cognition is well documented. Short-term memory is adversely affected and chronic use may lead to chronic measurable defects in cognitive functioning. However, this may be more the result of persistent chronic intoxication than impairment in the substance and the working of the brain. Psychomotor skills are adversely affected by cannabis use. Driving or operating heavy machinery when intoxicated is contraindicated. Again, in contradistinction to alcohol, cannabis intoxication tends to slow drivers down rather than increase their speeds. Similarly, cannabis smokers tend not to be involved in acts of physical violence and aggression, and violence and aggression when intoxicated is reportedly very rare. Cannabis use may provoke schizophrenic symptoms in those with active schizophrenia or schizophrenic tendencies. Panic attacks and dysphoria are also mentioned in the literature. There is an amotivational syndrome described in the literature and cannabis is said to induce it, but most researchers have discredited that over the last decade. (...) Concerns have legitimately been raised about the effects of cannabis consumption on adolescent development. As use tends to peak in late adolescence, this is an important consideration. The adverse effects that have been noted include an association with risk of discontinuation of high school, job instability and progression to the use of harder drugs. The degree to which these associations are causal is very controversial. Alternative hypotheses are that cannabis use, like adolescent alcohol use, early onset of sexual activity, and tobacco smoking, are in fact markers for other risks of adverse social conditions (...) All researchers agree, however, that intoxication interferes with academic prowess. Recent studies seem to demonstrate measurable though reversible drops in IQ associated with

¹³ Dr. Benedikt Fischer, Professor, Department of Public Health Sciences, University of Toronto, Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, September 17, 2001, Issue No. 6, page 9.

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*heavy, persistent cannabis use and that engagement in illicit activities carries substantial risks, especially perhaps for youth whose connections to the school community are tenuous at best.*¹⁴

*I would like to first focus on the acute effects and then on the chronic effects. "Acute effects" are those effects that you experience during the course of action of a single dose. In the nervous system that includes a period of several hours in which (...) you become "chemically stupid." Side effects include decreased arousal and drowsiness, which acts together with the drowsiness produced by alcohol and other central nervous system depressants. Other side effects are impaired short-term memory, slowed reactions, less accuracy in test performance and less selectivity of attention. (...) Low doses generally produce the effects that cause people to like smoking pot. They include mild euphoria, relaxation, increased sociability and a non-specific decrease in anxiety. However, high doses produce a bad mood, anxiety and depression. There can be increased anxiety to the point of panic or even an acute toxic psychosis which, fortunately, is of very short duration and goes away when the drug effect wears off. High doses cause impaired motor coordination, unsteadiness of control and decreased muscle tone, which is therapeutically useful. (...) With low doses, perception is enhanced. That is part of the pleasure. In high doses, the same action produces sensory distortion, hallucinations and the acute toxic psychosis to which I have already referred. (...) It does not seriously affect the cardiovascular system. (...) As to chronic effects, in the central nervous system there is impaired memory, vagueness of thought, decreased verbal fluency, and learning deficits in chronic, heavy users. I emphasize "heavy" because the social user does not, by and large, show any significant health effects. Neither does the social user of alcohol. (...) These effects on cognitive functions fortunately tend to go away if the heavy user stops, for whatever reason. As long as use continues, there is a chronic intoxication, apathy, confusion, muddled thinking, depression, and sometimes paranoia. (...) Cannabis dependence, as defined in the conventional diagnostic criteria for dependence as set out in the latest edition of the American Psychiatric Association, or the equivalent publication of the World Health Organization, has been well documented in regular, heavy users. Numerous studies now show that a significant percentage of regular users are dependent. In some studies in Australia of long-term heavy users, mainly daily users for periods of 15, 17, 20 years, 60 per cent or more of them met the diagnostic criteria (...). Tolerance has been shown. By and large, it is not a terribly serious effect, and the physical withdrawal syndrome is not severe. Nevertheless, it is there, which indicates that physical dependence, in addition to psychological dependence, occurs as well.*¹⁵

*The long-term chronic effects of cannabis essentially cause the following symptoms: memory loss, faulty attention and concentration, a slow-motivation syndrome of passivity and low initiative, increased risk of respiratory disease, more specifically asthma, bronchitis and emphysema and a higher risk of cancer. (...) There may be hormone problems causing low fertility in men and women. In men, this can cause the development of breasts which is very unesthetic (...). Finally, in the long-term, it can also cause lower resistance to infectious disease.*¹⁶

¹⁴ Dr. Perry Kendall, Health Officer for the Province of British Columbia, Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, September 17, 2001, Issue No. 6, pages 33-33.

¹⁵ Dr. Harold Kalant, Professor Emeritus at the University of Toronto, Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, June 11, 2001, Issue No. 4, pages 74-76.

¹⁶ Dr. Mohamed ben Amar, Professor of Pharmacology and Toxicology, University of Montreal, Special Senate Committee on Illicit Drugs, First Session of the Thirty-Seventh Parliament, June 11, 2001, Issue No. 4, pages 9-10.

As we can see, opinions sometimes agree and often differ. They agree at least on the nature of the consequences that may be of concern. One by one, we have seen effects that were physiological (risks of cancer, effects on reproduction and the immune system, deterioration of brain cells), effects that were psychological (amotivational syndrome, risks of psychosis, impaired cognitive function and memory in particular), and effects that were social (affecting the family and work, as well as the ability to drive vehicles and operate machinery). Opinions differ primarily on the scope of the conclusions that can be drawn from this knowledge. To what extent, in fact, can we generalize about the effects we observe in often small and rarely random samples of subjects? Also, to what extent can we generalize about the data on chronic users who represent – as we saw in the previous chapter – only a small percentage of cannabis users? And especially, to what extent does this data allow us to establish causal relationships?

The Committee also finds that most witnesses stressed the negative aspects and rarely the positive. However, if people use drugs in general, and cannabis in particular, surely it isn't just to destroy themselves or because these drugs have only negative effects. Given the limitations of making any comparison between substances, we can still draw a parallel with alcohol: most of us know the pleasure of sharing a glass of wine with friends over a good meal, just as we also know the dangers of alcohol abuse and alcoholism. The Committee also notes that it is difficult, even for the most experienced researchers, to sift through the knowledge without assigning it a valence relative to the direction public policy should take. The same knowledge may be interpreted negatively here and more moderately there, based on the interpreter's preconceptions of the "best" choice for public policy. We are not immune to this bias. Moreover, we do not deny that we had preconceptions, derived from our personal histories, our reading, and the hearings we held in 1996 to review Canada's drug legislation. Among these preconceptions, which oriented our reading of the testimony, at least at first, we note:

- the conviction that the current system does not achieve its objectives, if only because of the increase in cannabis use, by young people in particular;
- a preference for an approach that is more consensual and more in keeping with Canadian attitudes;
- a preference for a harm-reduction approach as indicated by the wording of our first mandate;
- a tendency to distinguish between soft drugs – including cannabis – and hard drugs (heroin, cocaine);
- a certain lack of knowledge about the specific effects of cannabis, from the standpoint of the toxicological and pharmacological studies conducted in recent years.

This being said, we did not work in isolation. Not only were we accompanied by our research team—sociologists, lawyers, criminologists—throughout our work, not only were we also under the close surveillance of the witnesses in a way and of the public in a larger sense, but primarily, other committees, in other countries, have conducted similar reviews in recent years. Their work was a source of inspiration and knowledge and as well a benchmark against which to compare our own conclusions.

ACUTE EFFECTS OF CANNABIS

In toxicology, acute effects are those that are produced immediately after use and while the psychoactive effects are being experienced. These effects also correspond to what has been called cannabis intoxication ever since Moreau de Tours in 1845.¹⁷ The “real” effects – on biological systems – and the effects experienced by users can vary based on a set of factors, such as the user’s experience with cannabis and other drugs (including tobacco), the user’s expectations and the context of use. In fact, [translation] *“the psychoactive effects of cannabis, more than any other substance, vary from one subject to another and, for the same subject, from one experience to another.”*¹⁸ Additionally, with no reliable method to measure THC content in plasma, it is difficult to link the duration and strength of effects to the various cannabis preparations, in particular because of variations in the composition of the substance and in the bioavailability of THC. It is even more difficult to attribute relatively rare effects (for example, the appearance of psychotic symptoms) insofar as it is hard to decide if the co-occurrence is coincidental, if these effects stem from other substances often associated with cannabis use or from very high doses of cannabis, or from interactions between these various factors.¹⁹

The acute effects of cannabis are relatively well documented. Research sometimes distinguishes between central and peripheral effects²⁰, sometimes between somatic effects and psychological or psychomotor effects²¹, and sometimes is simply content to list the effects of one type or another.²²

Cannabis intoxication is generally considered to consist of two main phases:

❖ The first phase, the “high”, includes the following effects:

¹⁷ Moreau de Tours, J., *Du haschich ou de l’aliénation mentale, étude psychologique*. Paris: Masson.

¹⁸ INSERM, *op. cit.*, page 118.

¹⁹ See WHO, 1997, *op. cit.*, 3.

²⁰ For example, this is the case with the classification proposed by Ben Amar (at press).

²¹ This is the case with the collective expertise of INSERM (2001).

²² This is the case with most works: WHO, 1997; Swiss Federal Commission for Drug Issues (1999) *Rapport sur le cannabis*. Berne: Swiss Federal Office of Public Health; and the report by Wheelock (2002).

- a change in general mood, accompanied by gaiety or even hilarity, talkativeness, and a carefree feeling
 - a change in physical experience, including a feeling of well-being and satisfaction, a feeling of calm and relaxation, sociability
 - alteration of intellectual functions, including increased self-confidence, magical thinking (feeling of being able to perform tasks more easily), distorted perception of time, space and self-image
 - sensory changes, marked by increased sensory perceptions (colours, sounds sometimes seem more intense), stronger tactile impressions.
- ❖ The second phase, “coming down”, is characterized by a feeling of sluggishness or drowsiness that appears gradually a little while after use.

More specifically, depending on their type of action, a distinction is made between truly somatic effects and more psychological ones.

❖ Somatic Effects:

- cardiovascular effects: approximately 10 minutes after use, heart rate, cardiac output and cerebral blood flow increase. Tachycardia (accelerated heart rate) can achieve increases of 20% to 50% compared to normal rhythm and could help trigger anxiety and panic attacks in some subjects. It can be responsible for palpitations, reduced exercise tolerance in subjects with heart conditions, and can even facilitate the development of heart problems in subjects who are at risk or are predisposed. A recent study suggests that the risk of myocardial infarction increases by 4.8 times in the first hour after using marijuana and is 1.7 times higher in the second hour, thus suggesting that cannabis may represent a risk in the 60 minutes following its use. Hypotension while the subject is lying down is also mentioned. These effects vary based on the dose and concentration of THC.
- bronchopulmonary effects: the effects are similar to those of tobacco. Bronchodilator activity in the 60 minutes following use is mentioned. However this does not prevent the inflammatory consequences of smoking cannabis nor the secondary bronchial hyperreactivity that is translated in particular by a cough that results from the action of the THC and the irritating potential of the products of combustion;
- ocular effects: redness of the eyes due to vasodilation and conjunctival irritation is mentioned;
- other somatic effects: dry mouth due to decreased saliva secretion, increased appetite due to hypoglycemia (drop in blood sugar level), and more rarely nausea and vomiting, diarrhea and urine retention.

❖ Psychological and Psychomotor Effects:

- diminished short term memory (so-called “working” memory): remembering words, pictures, stories and sounds;
- disturbances in psychomotor performance, including diminished ability to pay attention and concentrate, diminished reflexes, slowed reaction time, problems with coordination of movements, and impaired and diminished ability to perform complex tasks. Thus, a study by Fant et al. describes diminished visual tracking in the central and peripheral fields of vision after 15 minutes, capable of lasting for more than 5 hours.²³ Moreover, we note that according to professor Roques, studies on the effects of cannabis on learning abilities, in particular short term memory and working memory, are open to criticism from the standpoint of methodology and their contradictory results, “*the heaviest users were the least affected*”.²⁴ [translation]

Somatic, cognitive and psychomotor effects are related to the amount of cannabis inhaled and the concentration of THC. Thus, according to INSERM:

*A quantity that corresponds to 25 puffs impairs psychomotor skills and cognitive performance, and more markedly than consumption of 10 puffs or 4 puffs. Maximum plasma levels then rise from 57 ng/ml (for 4 puffs from a cigarette containing 1.75% Δ^9 THC) to 268 ng/ml (for 25 puffs from a cigarette containing 3.55% Δ^9 THC). Heishman et al. (1997) established an approximate equivalence between 16 puffs at 3.55 % Δ^9 THC and approximately 70g of alcohol. At these levels, memory, cognitive and psychomotor performance and mood are impaired.*²⁵ [translation]

The cognitive and psychomotor effects may continue for more than five hours, and some cognitive impairment may extend for 24 hours.

At high doses, or with inexperienced users, cannabis may cause a certain number of negative reactions that can even include a genuine paranoid, hallucinatory, manic or hypomanic psychotic experience. However these experiences are brief. Some disorders documented with high doses include:

- anxiety, even panic attacks
- confusion or disorientation
- vertigo, nausea or vomiting
- convulsions

²³ Fant, R.V. et al. (1998) “Acute and residual effects of marijuana in humans.” *Pharmacology, Biochemistry and Behavior*, 60: 777-784.

²⁴ Roques, B. (1999) *La dangerosité des drogues*. Paris: Odile Jacob, page: 184.

²⁵ INSERM, *op. cit.*, page: 203.

- depersonalization
- hallucinations
- paranoia
- acute psychosis

These phenomena are relatively rare (less than 1 in a thousand psychiatric admissions). Primarily, it is difficult to establish that cannabis was the cause. In fact, in most cases, the most likely hypothesis is that these subjects were already predisposed, or had even already had psychotic or schizophrenic experiences. Use of other substances, alcohol, other illicit drugs, or medications, could also play an important role.

*The link between cannabis use and psychosis is a very controversial issue. At the moment, we lack a corpus of comparable, methodologically sound studies repeatedly yielding similar conclusions. The results of existing studies are often complex or ambiguous and the personal opinions of the researchers often interfere with the interpretations. Further deepening our scientific knowledge is still necessary. However, there is extensive, albeit incomplete, consensus on the ability of heavy cannabis consumption or intoxication to induce an acute transitory psychotic state in healthy subjects. The frequency of this condition is unknown and the mechanisms are hypothetical.*²⁶

In accordance with the collective expertise of INSERM, we can establish the following:

*The psychotic disorders caused by cannabis use are brief psychotic episodes that last less than two months, even four months[sic], sometimes a week. The premorbid personality does not present a pathological aspect. Regular users are at greater risk than occasional users. Onset is abrupt, in two or three days, with or without a recent increase in the use of toxic agents, sometimes with a psychological or somatic precipitating factor. Some symptoms appear more specific: behavioural problems, aggression, visual hallucinations, polymorphic nature of the delirium along various themes, psychomotor disinhibition. (...) Compared to a schizophrenic disorder, subjects are younger, 20 to 30 years of age rather than 25 to 30, with a greater proportion of poorly socialized males.*²⁷ [translation]

However, here too, the data are relatively contradictory and, according to professor Roques, there is support for the belief that usage is more widespread among people with previous mental disorders.²⁸

CONSEQUENCES OF CHRONIC USE

²⁶ Hanak, C. et al. (2002) "Cannabis, mental health and dependence." in Pelc, I. (ed.), *International Scientific Conference on Cannabis*, Brussels.

²⁷ INSERM, *op. cit.*, page 124.

²⁸ Roques, B., *op. cit.*, page 186.

Most of the works consulted in pharmacology, toxicology and psychiatry speak of chronic effects. For our part, we prefer to speak of *consequences* resulting from chronic use. There are two reasons for this. First of all, because these consequences result not so much from the substance itself as from the way it is used. Therefore we are not dealing with the effects of the substance, but rather with the consequences that may arise from repeated, or even heavy, use. The second reason is that, as we saw in Chapter 6, chronic cannabis users account for a small fraction (often less than 10%) of lifetime users of cannabis. As a result, the consequences in question in this section concern this small portion of the population of users and not the substance itself.

We feel this distinction is fundamental because it is common, at all levels of public discussion—whether involving politicians, the public at large, or experts—to blame the substance—here cannabis, there alcohol or medications, even other illicit drugs—when in fact we must *learn to distinguish between patterns and methods of use*. By that we mean at-risk behaviour, which varies with the substance of course, and which does not depend solely on the intrinsic properties of the substance, but stems, in an overall approach, from the relationship between the substance and its place in society (integrated or not) from the individual's characteristics, and from the society in which the substance is used.²⁹ Of course by that it should be clear that *we consider as separate, for cannabis as for alcohol, use, at-risk use and heavy use* (or abuse)³⁰, and that we reject the equivalency often made between use and abuse where any form of use is perceived as abuse. At the same time, we are aware of the vagueness that continues to surround these various types of behaviour—or practices—and that there is no clearly defined boundary, even less a universal boundary, between use, harmful use and dependence. For the purposes of this chapter, the consequences in question in the following three sections refer, without being more specific, to chronic use (which then includes at-risk and heavy use).

Physiological consequences of chronic use

The main physiological consequences of the chronic use of cannabis dealt with in scientific literature concern the respiratory system and the carcinogenicity of cannabis, the immune system, the endocrine system and reproductive functions and, to a lesser degree, the cardiovascular system.

Consequences for the respiratory system

Except for the nicotine in tobacco and the cannabinoids in cannabis, the smoke of these two products shares common irritating, even carcinogenic, properties.

²⁹ This question has been discussed more fully in Chapter 6. For now it is enough to refer the reader to the work of Reynaud et al. (1999) *Les pratiques addictives. Usage, usage nocif et dépendance aux substances psycho-actives*. Paris: La Documentation française.

³⁰ We will more clearly establish the parameters we used to make this distinction in the next chapter on use and users. Further on in this chapter we will see that dependence is a consequence of heavy use.

Although not recent, a comparative analysis of these products has shown that the concentration of certain strongly carcinogenic ingredients such as benzopyrene and benzoanthracene is higher in cannabis smoke than tobacco smoke.³¹ A more recent study cited by INSERM confirms this higher concentration of benzopyrene: 2.9 micrograms/100 joints compared to 1.7 for 100 cigarettes.³² Of course, it will be argued that tobacco users generally smoke many more cigarettes a day than even chronic users of marijuana, that it is the total volume of toxic substances inhaled over time that counts, and that it can be difficult to distinguish the effects of cannabis from those of tobacco since joints often contain both products and users of cannabis are also often tobacco smokers.³³

However we note other worrisome characteristics with respect to the potential effects on the respiratory tract of smoking cannabis. First of all, the concentration of benzopyrene in marijuana tar is 70% higher than that in the same weight of tobacco tar. Furthermore, an equal product weight of cannabis provides up to 4 times more tar than a strong tobacco. According to a study cited by INSERM, tar from a joint varies between 40 and 56 mg/cigarette whereas the allowable dose for a European tobacco cigarette is 12 mg.³⁴ In addition, a marijuana cigarette is generally smoked much more completely than a tobacco cigarette, inhalation – an important part of the ritual – is deeper and the smoke is held in the lungs longer and the combustion temperature of cannabis is higher than that of tobacco. Consequently, the percentage of tar deposited in the lungs is higher after smoking cannabis (> 80%) than after inhaling tobacco (64%) and the deposits are even greater for cannabis with a lower concentration of THC, probably because smokers draw on the joint more.³⁵

According to INSERM's report, chronic use of cannabis "*results in unquestionable bronchial disorders (...) chronic bronchitis with a chronic cough, expectorations and a sibilant rale*"³⁶ [translation], a conclusion shared by the Institute of Medicine in the United States in its recent report on marijuana³⁷ as well as by the WHO.³⁸ Moreover, macrophages (cells that attack foreign bodies) in the pulmonary alveoli seem to lose their ability to neutralize bacteria when exposed to cannabis smoke, hence the greater susceptibility of the bronchi and lungs to bacterial infections. According to some authors, in theory, a cannabis cigarette could cause as much damage as 4 to 10 tobacco cigarettes.³⁹ This data on the reduced ability of alveolar macrophages to destroy bacteria also suggests

³¹ Institute of Medicine (1982) *Marihuana and Health*. Washington, DC: National Academy of Sciences.

³² INSERM (2001), *op. cit.*, page 222.

³³ For example, those are the criticisms made by Zimmer L., and J.P. Morgan (2000 for the French version; 1997 for the American original) *Marijuana. Mythes et réalités*. Paris: Georg editor.

³⁴ *Ibid.*, page 221.

³⁵ *Ibid.*, page 221

³⁶ *Ibid.*, page 218.

³⁷ Joy, J.E. et al., (1999) *Marijuana and Medicine: Assessing the Science Base*. Washington, DC: Institute of Medicine.

³⁸ WHO (1997) *op. cit.*

³⁹ Ben Amar (at press), *op. cit.*, page 18.

that cannabis could have an immunosuppressive action that decreases the ability of the organism, here the lungs, to fight carcinogenic cells.

The work of Tashkin in particular, but also of other researchers, is not as confirmatory on the effects of cannabis on the respiratory tract. Thus a recent study by Tashkin on heavy cannabis smokers showed that there was no decrease in the forced expiratory volume in one second to vital capacity ratio, even for those who smoked 3 joints a day, compared to tobacco smokers who registered a significant decrease.⁴⁰ Tashkin's team also questioned the development of emphysema in cannabis users and bronchiole obstruction.⁴¹ Similarly, a study by the *Kaiser Permanent Medical Care Program* revealed that daily cannabis users who did not use tobacco were hardly more likely than non-smokers (36% vs. 33%) to consult for colds, the flu and bronchitis.⁴² We also note that to date, studies are contradictory about the additivity of the effects of tobacco and cannabis.

Carcinogenic potential

With respect to the carcinogenic potential of cannabis, there is a distinction between the carcinogenic effects of cannabis smoke – a potential source of lung cancer in particular – and the mutagenic effects of THC on cells. According to the majority of authors, THC itself does not seem to be carcinogenic.⁴³ However, cannabis smoke, like tobacco smoke, does seem to be able to increase the incidence of cancerous tumors.

The work of Fliegel⁴⁴ indicates that the histological changes that are considered the precursors of carcinomata are present in chronic smokers of cannabis. This data is also supported by clinical cases of cancers of the upper aerodigestive tract in young adult cannabis smokers. These cancers are types rarely observed in young subjects. Namely:

- thirteen cases of brain and neck cancer in young adults under the age of forty, eleven of whom were daily cannabis smokers;⁴⁵

⁴⁰ Tashkin, D.P. et al., (1997) "Heavy habitual marijuana smoking does not cause an accelerated decline in FEV1 with age: a longitudinal study." *American Journal of Respiratory Critical Care*, 155: 141-148.

⁴¹ See Zimmer and Morgan, op. cit., page 148.

⁴² Polen, M.R. (1993) "Health care use by frequent marijuana smokers who do not smoke tobacco." *Western Journal of Medicine*, 158: 596-601.

⁴³ In particular, see the conclusions of INSERM (2001), op. cit.; as well as the report by Wheelock (2002) op. cit. for the Senate Committee.

⁴⁴ Fliegel S.E.G. et al., (1988) "Pulmonary pathology in marijuana smokers", in Chesher G. et al. (eds.), *Marijuana: An International Research Report*, National Campaign Against Drug Abuse, Monograph 7, 43-48, Canberra, Australian Government Publishing Service; and Fliegel, SEG et al., (1997) "Tracheo-bronchial histopathology in habitual smokers of cocaine, marijuana or tobacco" *Chest*, 112: 319-326.

⁴⁵ Donald P.J. (1991) "Marijuana and upper aerodigestive tract malignancy in young patients", in Nahas, G. and C. Latour (eds.), *Physiopathology of Illicit Drugs: Cannabis, Cocaine, Opiates*, 39-54, Oxford; and (1991) "Advanced malignancy in the young marijuana smoker", in Friedman, H. et al., (eds.), *Drugs of Abuse, Immunity and Immunodeficiency*, 33-36, London.

- ten cases of cancers of the upper respiratory tract in young adults under the age of forty, seven of whom were probable regular users of cannabis;⁴⁶ and
- two cases of carcinoma of the tongue in men between 37 and 52 years of age for whom the only common risk factor was the regular and daily use of cannabis.⁴⁷

We note first of all the small number of cases, especially when compared to the large number of cannabis users. These clinical cases also present a certain number of important limitations: none compares the prevalence of cancer with a control group or evaluates the use of cannabis in a standardized way. Interpretation is also limited by the fact that the patients also smoked tobacco and drank alcohol.

The data available seems to indicate that the consequences of chronic and intense cannabis use (several joints per day for several years) are similar to those of cigarettes in terms of carcinogenic risks for the respiratory tract as well as the mouth, the tongue and the esophagus.⁴⁸ THC is generally considered to alter the functions of certain cells, namely lymphocytes, macrophages and polymorphonuclear cells, especially in *in vitro* models. However conducting controlled studies is largely recognized as a research priority in this field.⁴⁹

Consequences for the immune system

Apart from the possible consequences for the respiratory tract defense system essentially caused by smoke, there is no conclusive data regarding the effects of cannabis on the immune system. Some studies on rodents show that high levels of cannabinoids, including THC, alter cellular immunity. In some cases, the experimental activity of cannabinoids is immunosuppressive and in others it is stimulating. These variations depend on experimental factors such as the concentration of the substance, the time and duration of administration, and the type of cell function studied. Very little work has been done on humans. According to the WHO report, if it is clear that cannabinoids have immunomodulating effects, it is also clear that the immune system is resistant to this substance. Several of the effects are relatively minimal and completely reversible, and are only experienced at higher doses than those required for the drug's psychoactive effect in humans. Lastly, still according to the WHO report, even with respect to the immunomodulating effects of cannabis smoke, the studies are not

⁴⁶ Taylor, F.M. (1988) "Marijuana as a potential respiratory tract carcinogen: A retrospective analysis of a community hospital population", *Southern Medical Journal* 81: 1213-1216.

⁴⁷ Caplan, G.A. and B.A. Brigham (1990) "Marijuana smoking and carcinoma of the tongue: Is there an association?" *Cancer* 66: 1005-1006.

⁴⁸ MacPhee, D., (1999) "Effects of marijuana on cell nuclei", in Kalant, H. et al. (eds.), *The Health Effects of Cannabis*, Toronto: Addiction Research Foundation.

⁴⁹ In particular WHO (1997), *op. cit.*; Hall, W. and N. Solowij (1998) "Adverse effects of cannabis" *The Lancet*, 352, no. 9140, page 6; INSERM (2001), *op. cit.*

conclusive and it is hard to compare the doses used in experiments with animals to the doses used by humans. The report concludes that rigorous studies on this question are necessary.⁵⁰

Consequences for the endocrine system and reproduction

Endocrine abnormalities are well documented in animals. In the male rat, decreased testosterone secretion with testicular atrophy, impaired production, mobility and viability of sperm, and changes in sexual behaviour have been noted with high doses. The ovulatory cycle of the female is altered. In humans, the results are contradictory, in particular because findings are not constant from one study to another, but also because similar changes occur following the absorption of prescription drugs. Furthermore, the changes observed are often borderline normal and their clinical consequences remain controversial.⁵¹

With respect to reproduction, the fact that the active ingredients in cannabis cross the placental barrier is well established. Nevertheless, the question of the potential effects of cannabis on the fetus is far from resolved, especially since the studies are methodologically poor. Thus, when studying pregnant women who are cannabis users, the women often come from low socio-economic backgrounds – and we know that socio-economic level is a determining factor in the size and weight of babies – and it is difficult to isolate the effect of other factors, including the use of tobacco and alcohol – which we know are risk factors for premature birth, lower weight and smaller size. In fact, studies on occasional cannabis smokers do not show any significant difference with respect to non-smokers. All in all, most studies did not observe any significant differences.⁵² Nevertheless, reports from the WHO and the collective expertise of INSERM conclude that, despite methodological difficulties, there is reasonable evidence that cannabis use during pregnancy harms fetal development, in particular restricted growth and behavioural abnormalities, but that these abnormalities are rather minor.⁵³

As for the neonatal consequences of cannabis use by mothers during pregnancy, longitudinal studies on cohorts of children conducted in Ottawa since 1978 by psychologist Peter Fried's team⁵⁴ are not conclusive. All the measurements taken reveal more similarities than differences between the children of smokers and non-smokers. And when differences are observed, they are minor and it is impossible to dissociate the effects of the various substances, tobacco and alcohol in particular. Lastly, these studies

⁵⁰ WHO (1997), *op. cit.*, page 26.

⁵¹ INSERM (2001), *op. cit.*, page 219-220.

⁵² Wheelock, B. (2002), *op. cit.*, page 29.

⁵³ WHO (1997), *op. cit.*, page: 24; INSERM, *op. cit.*, page 237.

⁵⁴ Fried, P.A. (1995) "Prenatal exposure to marijuana and tobacco during infancy, early and middle childhood: Effects and attempts at a synthesis." *Archives of Toxicology*, 17; and Fried P.A. and B. Watkinson (1999) "36- and 48-month neurobehavioral follow-up of children prenatally exposed to marijuana, cigarettes and alcohol." *Journal of Deviant Behavior and Pediatrics*. 11: 49-58.

involve a small sample of children and generalizations cannot be drawn from them. Another longitudinal study, reported by INSERM, involving 636 subjects, concluded [translation] “*there is a significant relationship between behavioural problems at age 10 and prenatal exposure to cannabis.*” However the report from INSERM also notes that [translation] “*if the results from these two studies seem to converge well (...) we must remember nevertheless that the postnatal environment can play an important role in the continuation of behavioural abnormalities.*”⁵⁵

Consequences for the cardiovascular system

Chronic use of cannabis may lead to cardiovascular complications for predisposed individuals. In fact, the use of significant quantities can slow the heart rate. Also, cannabis can have similar effects to those of tobacco on heart function by increasing the muscle workload. Furthermore, some studies point out the role that the carbon monoxide found in cannabis smoke plays in the risk of cardiovascular complications.

Cognitive and psychological consequences

The main cognitive and psychological consequences of chronic cannabis use concern brain functions involved in memory and verbal and math skills; motivation; and psychiatric disorders.

Brain functions

We have seen that cannabis has acute effects on short-term memory, attention and concentration. Does chronic use eventually result in effects on cognitive function that may be irreversible? These questions first raise the question of the neurotoxicity of cannabis, defined as “*a reversible or irreversible impairment of the structure and/or functions of the central (and/or peripheral) nervous system by physical, chemical or biological agents*”⁵⁶ [translation]

According to professor Roques:

[translation] *Cannabis dependence does not result in neurotoxicity (...). Thus old results suggesting anatomical changes in the brain of chronic cannabis users, as measured by tomography, have not been confirmed by precise modern techniques of neuro-imaging. Similarly, morphological changes in the hippocampus of the rat following administration of very high doses of THC (Landfield et al., 1988) have not been repeated (Slikker et al., 1992). (...) Several studies have been devoted to the effects of cannabis on evoked responses and on electroencephalograms of humans. Intermittent use produces reversible changes in α wave patterns in the frontal cortex, probably with respect to the state of drowsiness induced by THC. In the very long term (more than fifteen years) and with heavy daily use, δ hyperfrontality and an increase in θ frontal activity have been observed (Struve et al., 1990, 1994). The possible connection with behavioural changes and changes in neuropsychological tests is not in question, nor moreover is that which is possible with the anticonvulsive effects of THC.*⁵⁷

⁵⁵ INSERM (2001) *op. cit.*, page: 235.

⁵⁶ Roques, B., (1999) *op. cit.*, page: 73.

⁵⁷ Roques, B., (1999) *op. cit.*, page 187.

The results of studies reported by the collective expertise of INSERM are contradictory as some observe changes while others do not. Even when changes are observed, they are often of minor amplitude and are reversible after a period of abstinence. The INSERM report observes that studies using neuro-imaging techniques have not confirmed the neurotoxicity of cannabis in either man or baboon.⁵⁸ Therefore it is through observing functioning and behaviour that we are still best able to examine the question of the neurological effects of cannabis.

Unfortunately, studies are just as contradictory here and the results are inconclusive. Studies performed in the 1970s in countries where cannabis use is traditional (Jamaica, Costa Rica, India) did not point out any significant differences in cognitive functions of users and non-users, whereas more recent studies, in particular in Costa Rica in the 1980s, did show differences: [translation] *"In particular, long-term users recalled fewer words on a list they had been shown earlier and response time was longer."*⁵⁹ In the United States, studies conducted in the 1970s found contradictory results for memory functions, whereas more recent studies reported subtle deficits in cognitive functions of heavy users after a brief period of abstinence. Some studies also showed continued memory impairment in adolescents after six weeks of abstinence.⁶⁰

Most studies tend to show that overall, ex-users recover all cognitive functions, but depending on the length of use, subtle impairments can persist, in particular with regard to the ability to process complex information.

Still according to the collective expertise of INSERM, the age when use begins can be a determining factor. Thus, a recent study shows the persistence of some visual scanning impairments (related to attention) in young people who began to use cannabis before age 16, whereas those who began use after age 16 show no difference from non-users.⁶¹

In all, we cannot really establish that cannabis use has negative consequences for brain functions, even in chronic users, unless use begins before age 16.

Motivation

Some studies suggest the presence of an amotivational syndrome in chronic cannabis users, a syndrome that could affect the performance of young people at school and employees in a professional environment in particular. In its 1997 report, the WHO pointed out that our knowledge has not advanced since its previous report in 1981: the amotivational syndrome has still not been clearly defined, its effects have still not been clearly distinguished from the effects of intoxication itself, and the data available comes from clinical case reports with no control group.⁶²

In order to evaluate the impact of cannabis on motivation, Canadian researchers

⁵⁸ INSERM, *op. cit.*, page 206.

⁵⁹ *Ibid.*, page 204.

⁶⁰ *Ibid.*, page 205.

⁶¹ *Ibid.*, page 206.

⁶² WHO (1997), *op. cit.*, page 18.

developed a study where subjects received cannabis in exchange for work performed. Even though it is not recent, the study is no less interesting. They observed that subjects worked less efficiently immediately after using cannabis. However, their level of productivity then increased rapidly and exceeded levels achieved during periods of abstinence. Although working fewer hours, the subjects using cannabis were not less productive because they worked harder. Furthermore, over the course of the period of heaviest use, the subjects organized a strike and successfully negotiated a “salary” increase, after which they worked even harder.^{63 64}

Studies do not enable us to establish if motivational problems, when observed, preceded or followed cannabis use, or if other emotional or psychosocial factors played a greater role, or were even determining factors in the chronic use or abuse of cannabis in young people in particular. These conclusions are shared by the collective expertise of INSERM and by the authors of the report submitted to the International Scientific Conference on Cannabis in March 2002.⁶⁵

Psychiatric disorders

Various psychiatric disorders have been associated with chronic cannabis use: mood disorders and depressive episodes, anxiety disorders, personality disorders, as well as more severe conditions, such as psychoses and schizophrenia. For each of these situations, the conclusion drawn by the authors of the report on mental health and cannabis prepared for the International Scientific Conference on Cannabis generally applies:

*There are three possible ways to account for the relationship between cannabis and mood disorders. First, both may share common risk factors, so that their relationship is not causal. Second, mood disorders may predispose people to use cannabis. Third, cannabis use may trigger or increase depressive symptoms. As yet, there is no clear answer to this question of “which comes first”.*⁶⁶

Specifically with regard to mood disorders, depressive states and anxiety disorders, it seems probable that they precede chronic use. However, study results are extremely disparate: for mood disorders in so-called dependent people, the prevalence varies (depending on study methods), from 10% to almost 50%; with respect to major depressive episodes in clinical populations, studies report percentages varying from 4% to almost 20%. INSERM’s report presents a review that we feel is much more enlightening with regard to the situation for adolescents:

⁶³ Miles G.C. et al., (1974) *An Experimental Study of the Effects of Daily Cannabis Smoking on Behavioural Patterns*, Toronto: Addiction Research Foundation, Toronto.

⁶⁴ Campbell, I. (1976) *The Amotivational Syndrome and Cannabis Use With Emphasis on the Canadian Scene*, Annals of the New York Academy of Sciences 282, 33-36.

⁶⁵ INSERM, *op. cit.*; Hanak, C. et al., (2002) “Cannabis, mental health and dependence”, Pelc, I. (ed.), *International Scientific Conference on Cannabis, op. cit.*, page 61.

⁶⁶ Hanak, C. et al. (2002), *op. cit.*, page 62.

[Translation] *Acquiring new knowledge has allowed for a better assessment of the burden of “early onset depression” in terms of individual suffering and public health. Its prevalence, around 5% in adolescence, makes it one of the most common pathologies for this period. The risk of suicide is high, and the functional deficits inherent in depressive syndromes are a source of school and family problems, and cause withdrawal from peers, for which the psychosocial consequences can be severe, especially if the disorder is prolonged. Additionally, depression is rarely an isolated disorder in a young subject: anxiety or behavioural disorders often precede or accompany depressive episodes and can survive them; moreover, the existence of a depressive disorder is a risk factor for addiction (alcohol or any other psychoactive substance) and eating disorders.*⁶⁷

With respect to psychotic disorders and schizophrenia, the two subjects are controversial, the methodologies weak, the data contradictory and the interpretations are often based on simplistic models of causality. If, in certain circumstances, cannabis can trigger psychotic episodes, they are most often short and resolve rapidly. As for schizophrenia, if it is true that cannabis use is more prevalent in these subjects than in the general population, some feel that it is self-medicating behaviour while others feel that the chronic use of cannabis is a trigger for the schizophrenic process. We feel that the conclusion of professor Roques’ report agrees best with current data:

[Translation] *No mental pathology directly related to the overuse of cannabis has been reported, which distinguishes this substance from psychostimulants such as MDMA, cocaine or alcohol, heavy and repeated use of which can give rise to characteristic psychotic syndromes. Similarly, cannabis does not seem to precipitate the onset of pre-existing mental dysfunctions (schizophrenia, bipolar depression, etc.).*⁶⁸

As it is, most scientific reports come to the same conclusion: more research is needed, with more rigorous protocols, allowing in particular for comparison with other populations and other substances.

Behavioural and social consequences

The main behavioural and social consequences examined in scientific literature deal with social and family adjustment, aggression, and the ability to perform complex tasks.

Social and family adjustment

According to some studies, chronic cannabis use could have consequences for social and family adjustment. Thus chronic users would have more difficulty keeping a job, would be unemployed more often and would have more interpersonal adjustment problems.⁶⁹

⁶⁷ INSERM (2001), *op. cit.*, page 98.

⁶⁸ Roques, B., (1999) *op. cit.*, page 186.

⁶⁹ INSERM, (2001) *op. cit.*, page 206-207.

However, most of these studies suffer from methodological problems and interpretation difficulties. Most studies involve samples of people who, by and large, come from underprivileged socio-economic backgrounds. Above all, beyond the statistical association, it is difficult to determine to what extent other factors play a preponderant role, of which cannabis is itself a symptom and not a cause.

Aggression

Unlike other psychoactive substances, alcohol and cocaine in particular, cannabis does not lead to aggression. When examining withdrawal symptoms once dependence is established, some authors note greater irritability; but this is even less significant proportionally than that caused by tobacco.

Performing complex tasks

No study on chronic cannabis use has been able to establish that cannabis causes long-term effects on the ability to perform complex tasks. This data is in keeping with cannabis' lack of neurotoxicity.

TOLERANCE AND DEPENDENCE

When we think drugs we think drug addiction since, as F. Caballero states, a drug is [translation] “*any substance likely to lead to addiction*”.⁷⁰ In France and Europe, monitoring groups created in recent years are called monitoring centres for drugs and drug addiction. In Quebec, the advisory body created by the government is called the “*Comité permanent de lutte à la toxicomanie*” [standing committee on the fight against drug addiction]. The expression “drug addiction” is found everywhere: in legislation, in information documents, and in everyday language. However, since 1963, the WHO has recommended that we abandon this expression because it is imprecise and refer instead to states of physical and psychic dependence, defined as follows:

Psychic dependence is a “condition in which a drug produces a feeling of satisfaction and a psychic drive that requires periodic or continuous administration of the drug to produce pleasure or to avoid discomfort.

*Physical dependence is an “adaptive state that manifests itself by intense physical disturbance when the administration of the drug is suspended or its action is opposed by a specific antagonist. These disturbances, that is the abstinence or withdrawal symptoms, consist of physical and psychic symptoms and signs that are characteristic for each drug.”*⁷¹[translation]

Furthermore, with the extension of the notion of drugs to other substances (pharmaceutical products, tobacco, alcohol), and with the extension of international control of substances to psychotropic drugs, in 1969 the WHO created a new definition

⁷⁰ Caballero, F. and Y. Bisiou (2000) *Droit de la drogue*. Paris, Dalloz, 2nd edition, page 3.

⁷¹ WHO (1964) *Expert Committee on Addiction-Producing Drugs*, Technical Report Series, no. 273, quoted in Caballero and Bisiou, *op. cit.*, page 5-6.

for the term drug dependence that, though its application was initially limited to medication only, has come to be more widely accepted over time:

*Drug dependence. A state, psychic and sometimes also physical, resulting from the interaction between a living organism and a drug, characterized by behavioural and other responses that always include a compulsion to take the drug on a continuous or periodic basis in order to experience its psychic effects, and sometimes to avoid the discomfort of its absence. Tolerance may or may not be present. A person may be dependent on more than one drug.*⁷²

But it is even more interesting for our purposes to quote even older definitions from the WHO dealing with habituation and addiction:

Drug habituation (habit) is a condition resulting from the repeated consumption of a drug. Its characteristics include:

1. *a desire (but not a compulsion) to continue taking the drug for the sense of improved well-being which it engenders;*
2. *little or no tendency to increase the dose;*
3. *some degree of psychic dependence on the effect of the drug, but absence of physical dependence and hence of an abstinence syndrome;*
4. *detrimental effects, if any, primarily on the individual.*

Drug addiction is a state of periodic or chronic intoxication produced by the repeated consumption of a drug (natural or synthetic). Its characteristics include:

1. *an overpowering desire or need (compulsion) to continue taking the drug and to obtain it by any means;*
2. *a tendency to increase the dose;*
3. *a psychic (psychological) and generally a physical dependence on the effects of the drug;*
4. *detrimental effect on the individual and on society.*⁷³

This definition is important because, more than the previous two, it allows us to better distinguish between drugs that create primarily a habit and those that create an addiction, that is, the overwhelming need to use them. Now, as we will see in this chapter, cannabis corresponds much more to the criteria of a substance likely to create some degree of habituation and not an addiction.

In addition to drug addiction, thinking about drugs means also thinking about illicit substances. Now, as a wide range of works and an increasing number of practices have established, for practical purposes, the actual distinction is made on the combined levels of the substance's toxicity (its dangers) and the uses (use, abuse, heavy use) that characterize it, not on the level of its legal and symbolic status.

⁷² WHO (1969) *Expert Committee on Drug Dependence*, Technical Report Series, no. 407, quoted in Caballero and Bisiou, (2000), *op. cit.*, page 6.

⁷³ WHO (1952) *Expert Committee on Drugs Liable to Produce Addiction*, Technical Report Series, no 57, quoted in Caballero and Bisiou (2000), *op. cit.*, page 4-5.

Cannabis dependence

Let us first establish that animal studies on dependence and withdrawal are not very pertinent since most of them use doses that have nothing in common with the doses used by humans, even chronic users. Moreover, we note that studies on naïve animals (no experience with other drugs) have not been able to establish self-administering behaviour and that is the only technique that allows for the direct assessment of the reinforcing properties of a molecule. One of the probable explanations stems from the long plasma half-life of Δ^9 THC, which we know is eliminated slowly by an organism (up to 25 days as we saw in the Chapter 5).⁷⁴ We also note that even after administration of very high doses of Δ^9 THC, somatic signs of spontaneous withdrawal were not observed in rodents, pigeons, dogs or monkeys.⁷⁵ Lastly, we note that all in all, we know little about the biophysiological and psychological mechanisms of dependence.

The idea of cannabis dependence has been the subject of criticism due to its overly medical aspect (having little regard for the differences in social context of the ways and situations in which it is used) and circular reasoning (for example, the fact that drugs are illegal means that their use is necessarily illegal, yet this is one of the criteria for dependence).⁷⁶ Nevertheless, when measured in accordance with the criteria of the DSM, a cannabis dependence syndrome presents no differences from an alcohol or heroin dependence syndrome. Furthermore, establishing the relative dangers of cannabis is not contrary to the objectives of public health.

The nosologic criteria of the DSM-IV (*Diagnostic and Statistical Manual of Mental Disorders*) of the *American Psychiatric Association* undoubtedly remain the most widely used in studies on dependence, especially since the majority of drug research is conducted in the United States and Commonwealth countries (England, Australia, Canada...) that use this instrument.

The DSM-IV distinguishes between criteria for substance abuse and criteria for dependence. We have reprinted them here in accordance with the INSERM report.

Diagnostic Criteria for Substance Abuse according to the DSM-IV	
A.	A maladaptive pattern of substance use leading to clinically significant impairment or distress, as manifested by one (or more) of the following, occurring within a 12-month period:
1.	Recurrent substance use resulting in a failure to fulfill major role obligations at work, school, or home;
2.	Recurrent substance use in situations in which it is physically hazardous;
3.	Recurrent substance-related legal problems;
4.	Continued substance use despite having persistent or recurrent social or interpersonal

⁷⁴ INSERM, (2001), *op. cit.*, page 274-275.

⁷⁵ *Ibid.*, page 270.

⁷⁶ Cohen, P. testimony before the Senate Committee; also Alexander

problems caused or exacerbated by the effects of the substance.

- B. The symptoms have never met the criteria for Substance Dependence for this class of substance.

Diagnostic Criteria for Substance Dependence according to the DSM-IV

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three (or more) of the following, occurring at any time in the same 12-month period:

1. Tolerance, as defined by either of the following:
 - a. A need for markedly increased amounts of the substance to achieve intoxication or desired effect;
 - b. Markedly diminished effect with continued use of the same amount of the substance.
2. Withdrawal, as manifested by either of the following:
 - a. The characteristic withdrawal syndrome for the substance;
 - b. The same (or a closely related) substance is taken to relieve or avoid withdrawal symptoms.
3. The substance is often taken in larger amounts or over a longer period than was intended;
4. There is a persistent desire or unsuccessful efforts to cut down or control substance use;
5. A great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover from its effects;
6. Important social, occupational, or recreational activities are given up or reduced because of substance use;
7. The substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.

The existence of a cannabis dependence syndrome in humans can be inferred using various methods: epidemiological investigations and clinical studies (which usually use DSM criteria), and requests for treatment.

Epidemiological investigations

Some epidemiological studies show that cannabis use can lead to psychological dependence. In some cases, they estimate that half of chronic users would develop this kind of dependence.⁷⁷ People who use cannabis on a daily basis for several months would be at greater risk of becoming dependent.⁷⁸ Interpretation and intercomparison of the various studies is difficult because the denominator is not always common, or even specified (in some cases, it is the general population while in others it is cannabis users and in the latter case, there is not always a distinction among life-long, recent and

⁷⁷ WHO (1997) *op. cit.*

⁷⁸ Channabasavanna, M, et al, (1999) "Mental and behavioural disorders due to cannabis use", in Kalant H. et al. (eds.), *The Health Effects of Cannabis*, Toronto: CAMH.

regular users). The authors also do not always specify if the dependence is recent or life-long.

In the United States, several investigations were conducted into the frequency of use of various psychoactive substances and dependence. Through the *Epidemiological Catchment Area* study, close to 20 000 people were interviewed in five years during the 1980s. The prevalence (in the general population) of cannabis dependence was 4.4%.⁷⁹ The *National Comorbidity Survey*, an investigation to estimate the comorbidity between substance abuse and other mental disorders, undertaken between 1990 and 1992 and involving more than 8,000 subjects from the general population between the ages of 15 and 55, also estimated the prevalence of dependence. For the purposes of the investigation, DSM criteria were used and dependence was observed when respondents presented at least three of the nine criteria. According to this study, 4.2% of the 15-54 year olds presented cannabis dependence (14% were dependent on alcohol and 24% on tobacco). Of those who had used cannabis at least once during their life (46%), 9% were considered dependent, compared to 32% for tobacco and 15% for alcohol. Cannabis dependence was more common in men than women (12% versus 5.5% of users), and in those 15-24 than in the others (15% versus 8%).⁸⁰ Combining the results of three large investigations into the use of psychoactive substances conducted on households (nearly 88,000 respondents aged 12 and up) Kandel et al.⁸¹ observed that 8% of those who had used cannabis in the previous year (0.7% of the sample) were considered dependent.

In New Zealand, a longitudinal study involving a cohort of 1,265 children born in 1977 in an urban setting and followed since birth revealed that at age 21, not less than 70% had used cannabis. Of those, 13% had had a problem with dependence measured in accordance with the DSM-IV during their lifetime.⁸² Another New Zealand study involving a cohort of 1,000 people found similar results: at age 21, 62% had used cannabis and at age 26, 70% had. The prevalence of dependence using DSM III-R criteria went from 3.6% at age 18 to 9.6% at age 21 (or nearly 15% of users).⁸³

⁷⁹ Anthony J.C. and J.E. Helzer (1991) "Syndromes of drug abuse and dependence", in Robins L.N. and D.A. Regier (eds.), *Psychiatric Disorders in America*, New York, Free Press, pages: 116-154.

⁸⁰ Anthony, J.C. et al., (1994) "Comparative epidemiology of dependence on tobacco, alcohol, controlled substances and inhalants: basic findings from the National Comorbidity Survey." *Experimental and Clinical Psychopharmacology*, 2: 244-268.

⁸¹ Kandel, D. et al. (1997) "Prevalence and demographic correlates of symptoms of last year dependence on alcohol, nicotine, marijuana and cocaine in the US population." *Drugs, Alcohol and Dependency*, 44: 11-29. See also Kandel D. and M. Davies, (1992) "Progression to regular marijuana involvement: Phenomenology and risk factors for near daily use", in M. Glantz and R. Pickens (eds.), *Vulnerability to Drug Abuse*, 211-253, Washington DC, American Psychological Association.

⁸² Fergusson, D.M. and L.J. Horwood (2000) "Cannabis use and dependence in a New Zealand birth cohort." *New Zealand Medical Journal*, 113: 156-158

⁸³ Poulton, R., et al., (2001) "Persistence and perceived consequences of cannabis use and dependence among young adults: implications for policy." *New Zealand Medical Journal*, 114: 13-16.

In Australia, an investigation involving more than 10,000 people from the general population who were over 18 years of age showed that approximately 1.5% of users during the previous year and 20% of current users showed signs of dependence based on the DSM-IV.⁸⁴

In the Netherlands, a study involving a sample of the national population aged 18 to 65 (7,000 subjects) showed that 10% of users had had signs of dependence during their lifetime.⁸⁵

Clinical studies

It is difficult to generalize based on the results of clinical studies, but it is interesting to see to what extent their results are similar to those of epidemiologic studies. Kosten examined the validity of DSM-III R criteria to identify syndromes of dependence on various psychoactive substances including cannabis. He observed that the criteria for syndromes of alcohol, cocaine and opioid dependence were strongly consistent. The results were more ambiguous for cannabis. A criterion-referenced analysis revealed that there were three dimensions to the cannabis dependence syndrome: (1) compulsion – indicated by a change in social activities attributable to the drug; (2) difficulty stopping – revealed by the inability to reduce use, a return to previous levels after stopping temporarily and a degree of tolerance of the effects; and (3) withdrawal signs – revealed by their disappearance with re-use and continuing use despite recognized difficulties.⁸⁶

Studies on long-term users

In Canada, Hathaway conducted a study between October 2000 and April 2001 to identify problem use and dependence in long-term users based on the DSM-IV criteria.⁸⁷ The sample was made of 104 individuals (64 men and 40 women) aged 18 to 55 (mean age 34). 80% had used cannabis on a weekly basis, 51% on a daily basis during the preceding 12 months, and close to half (49%) had used one ounce (28 grams) or more per month. Reasons to use included: to relax (89%), to feel good (81%), to enjoy music or films (72%), because they are bored (64%) or as a source of inspiration (60%).

⁸⁴ Swift, W. et al., (2001) "Cannabis use and dependence among Australian adults: results from the National Survey of Mental Health and Well-being." *Addiction*, 96: 737-748.

⁸⁵ Van Laar, M., et al., (2001) *National Drug Monitor. Jaarbericht 2001*. Utrecht: NDM Bureau.

⁸⁶ T.R. Kosten et al., Substance-use disorders in DSM-III-R, *British Journal of Psychiatry*, 151, 8-19, 1987.

⁸⁷ Hathaway, A.D. (2001) « Cannabis effects and dependency concerns in long-term frequent users : a missing piece of the public health puzzle. » Transmis au Comité du Sénat sur les drogues illicites lors de la comparution du professeur Hathaway devant le Comité spécial du Sénat sur les drogues illicites, Sénat du Canada, première session de la trente-septième législature, 14 mai 2001, fascicule no2.

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Respondents were asked if they had ever engaged in deviant activity related to cannabis use. The most frequent answer was to have been in an uncomfortable situation in order to get cannabis. Other activities included borrowing money, selling cannabis to support their own drug use, and taking on extra work to buy cannabis. Only 6% ever had recurring legal problems due to their use of cannabis. With respect to dependence, 30% reported a lifetime prevalence of three or more of the criteria, 15% during the 12 months prior to the interview.

In light of this finding, the most frequently encountered problems with cannabis have more to do with self-perceptions of excessive use levels than with the drug's perceived impact on health, social obligations and relationships, or other activities. Lending support to the highly subjective nature of his evaluative process, no significant correlations were found between amounts nor frequency of use and the number of reported DSM-IC items. For those whom cannabis dependency problems progress to the point of seeking out or considering formal help, however, the substantive significance of perceived excessive use levels cannot be overlooked.⁸⁸

The comparative study by Cohen and Kaal presented in the previous chapter also included data on dependency symptoms. Between 21% and 24% of the subjects presented 3 or more DSM-IV criteria in their lifetime as the following table shows.

**Number of positive DSM IV answers
Amsterdam, San Francisco, Bremen⁸⁹**

Number of criteria	Ever experienced				Last twelve months			
	Amsterdam		San Francisco		San Francisco		Bremen	
	N	%	N	%	N	%	N	%
0	85	39	129	49	233	88	43	78
1	37	17	53	20	17	6	5	9
2	43	20	30	11	9	3	4	7
3	19	9	28	11	3	1	2	4

⁸⁸ *Ibid.*, page 15.

⁸⁹ Cohen, P.D.A. et H.L. Kaal, (2001) *The irrelevance of drug policy. Patterns and careers of experienced cannabis use in the population of Amsterdam, San Francisco and Bremen.* Amsterdam : University of Amsterdam, CEDRO, page 99.

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4	15	7	15	6	3	1	1	2
5	9	4	7	3				
6	8	4	3	1				
Total	216	100	265	100	265	100	55	100
Average incl. 0	1,5		1,2		0,2		0,4	
Average excl. 0	2,5		2,3		1,8		1,9	

The authors observe a significant correlation between amount of cannabis use (in grams) during top period of use and the number of DSM-IV items ever experienced. However, no correlation was found between the amount of cannabis use during top period of use and number of criteria experiences in the last twelve months.

Requests for treatment

Lastly, we can examine dependence indirectly through requests for treatment. Obviously, this is a very indirect and definitely very imperfect means for several reasons. The very great majority of cannabis users use it irregularly and stop when they reach their twenties. Of those who continue and become regular users, we have just seen that between 10% and 20% will present the criteria for dependence. Most users do not think they need help, which their ability to stop without outside assistance would confirm. Lastly, those who ask for help could be influenced simultaneously by the availability of services as well as the interaction of other problem substances, alcohol, medication or other drugs, or other mental disorders. In fact, it seems that in a significant proportion of cases, requests for treatment related to cannabis come from people with multiple disorders.

Nevertheless, we have heard testimony to the effect that requests for treatment for problems with cannabis dependence are on the rise and that this increase could be related to the THC content.

In Europe, requests for treatment where the main problem is cannabis-related vary widely from country to country, ranging from 6% in Spain (one of the countries where use is most widespread and most tolerated) to 25% in Belgium. Sweden, which however has a relatively low rate of use, is at 14%, comparable to France (16%) which, however, has a much higher rate of use. In the United States, demand is just as variable depending on the state, from 5% to 30%.⁹⁰

Severity of dependence

Severity of dependence has been evaluated in different ways. In the United States, a study examined approximately 1,100 subjects who had used cannabis more

⁹⁰ Rigter, H. and M. van Laar (2002) "Epidemiological aspects of cannabis use." in Pelc I., (ed.) *International Scientific Conference on Cannabis*. Brussels.

than six times and evaluated the severity of their dependence based on DSM-IV criteria. The level of dependence (low, intermediate or high) corresponded to the number of criteria met.⁹¹ The following results were obtained:

Severity of cannabis dependence based on use ⁹²												
Dependence (number of criteria)	Distribution of subjects based on type of use											
	Low			Intermediate			Heavy			Total		
	T	A	C	T	A	C	T	A	C	T	A	C
Nil (0-2)	18	88	85	14	45	53	5	8	35	13	47	59
Low (3-4)	28	8	11	30	22	21	22	12	34	27	14	18
Moderate (5-6)	34	3	2	39	15	14	51	19	23	40	12	13
Severe (7-9)	19	1	3	17	17	12	23	61	17	20	27	10

T = tobacco; A = alcohol; C = cannabis

We see a consistent situation in which the link between heavy use and dependence is lower for cannabis than for tobacco and alcohol, and in which, over all, dependence on cannabis is the lowest of the three substances.

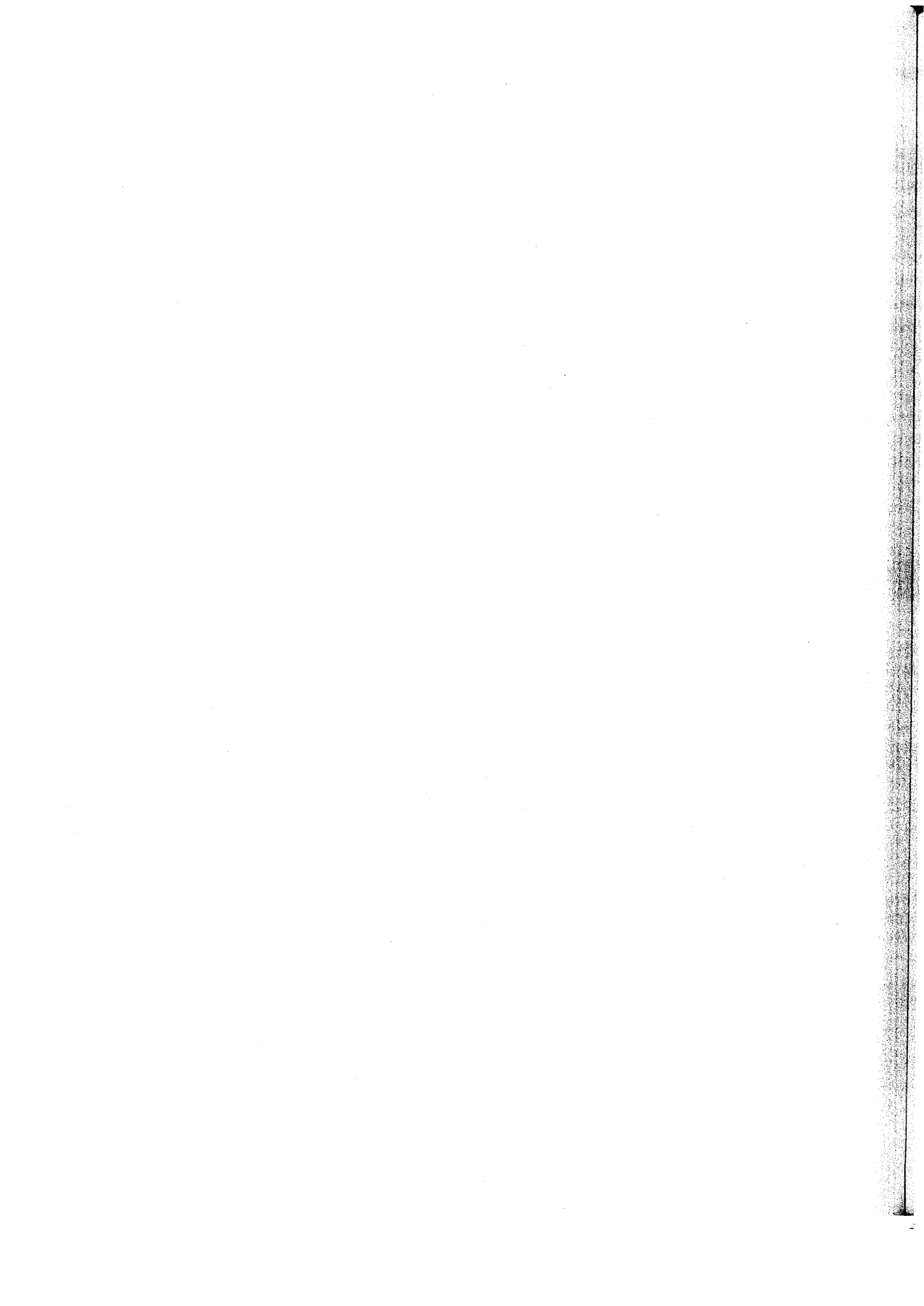
For his part, professor Roques proposes three classes of products based on their dangers. The first includes heroin, cocaine and alcohol; the second psychostimulants, hallucinogens, tobacco and benzodiazepines; and cannabis is set apart in a separate class. He classifies the dangerousness of drugs using a diverse set of criteria. We have reprinted his table of the dangerousness of drugs on the following page.

⁹¹ Woody G.E. et al., (1993) "Severity of dependence: Data from the DSM-IV field trials" *Addiction* 88, 1573-1579.

⁹² Reprinted from INSERM (2001) *op. cit.*, page 73.

Danger Factors of "drugs" (reprinted from Roques, B. (1999), page: 296

	Heroin	Cocaine	MDNA	Psycho-stimulants	Alcohol	Benzo-diazepines	Cannabi-noids	Tobacco
Dopamine Overactivation	+++	++++	+++	++++	+	±	+	+
Hypersensitivity to Dopamine	++	+++	?	+++	±	?	±	?
Activation of Opioid System	++++	++	?	+	++	+	±	±
Physical Dependence	very high	low	very low	low	very high	average	low	high
Psychic Dependence	very high	high but intermittent	?	average	very high	high	low	very high
Neurotoxicity	low	high	very high (?)	high	high	0	0	0
General Toxicity	high	high	possibly very high	high	high	very low	very low	very high (cancer)
Danger to Society	very high	very high	low (?)	low (exceptions)	high	low	low	0
Replacement Therapy	yes	yes	no	no	yes	not researched	not researched	yes



In closing, we note that there is no known physical dependence on cannabis, even though in the most severe cases, withdrawal is sometimes accompanied by physical signs such as trembling, insomnia, irritability, etc.

Tolerance

From a technical standpoint, tolerance is defined as follows:

*the property of the human organism to endure the administration of usually effective doses of a given substance without displaying a reaction. With respect to drugs, this tolerance can lead to increased doses in order to achieve the desired effect.*⁹³ [translation]

Development of tolerance is associated with pharmacodynamic changes. In some animal studies, chronic administration of THC reduced the density of receptors in some regions of the brain⁹⁴ and increased it in others; these effects were reversible.⁹⁵

In man as in animals, studies have observed the phenomenon of cannabis tolerance. However, the data must be interpreted with care insofar as some studies and clinical cases have also found that regular users needed less cannabis to achieve the desired effect.⁹⁶ Nevertheless, a study by Wiesbeck et al. involving 5,611 subjects reported that 16% of frequent cannabis users had a history of a withdrawal syndrome.⁹⁷

It is tolerance of a substance that leads to withdrawal symptoms. In recent years, clinical data has been accumulated on withdrawal symptoms in heavy cannabis users (several doses per day in an ongoing manner for several years). The symptoms observed include agitation, loss of appetite, nausea, disturbed sleep, irritability or hyperactivity and an increased body temperature.⁹⁸ These symptoms appeared after 24 hours of abstinence, peaked after two to four days and diminished within seven days. The symptoms were markedly less severe and of shorter duration than with other psychoactive substances. Furthermore, clinical studies showed that most subjects continued to perform their daily activities in a normal fashion.

⁹³ OMS (1969), in Caballero et Bisiou (2000), *op. cit.*, page 6.

⁹⁴ Rodriguez de Fonseca, F. et al., (1994) "Downregulation of rat brain cannabinol binding sites after chronic delta-9-THC treatment", *Pharm. Biochem. Behav.* 47, 33-40.

⁹⁵ Westlake, T.M. et al., (1996) "Chronic exposure to delta-9-THC fails to irreversibly alter brain cannabinoid receptors" *Brain Research*, 544, 145-149.

⁹⁶ Beardsley, R.M. et al., (1986) "Dependence on THC in rhesus monkeys", *Journal Pharmacol. Exp. Ther.*, 239 (2), 311-319.

⁹⁷ Wiesbeck, G.A., et al., (1996) "An evaluation of the history of a marijuana withdrawal syndrome in a large population." *Addiction*, 91 (10): 1573-1579.

⁹⁸ Kouri, E.M. et al., (2000) "Abstinence symptoms during withdrawal from chronic marijuana use." *Experimental and Clinical Psychopharmacology*, 8: 483-492.

To summarize

In Chapter 6, we have seen that use does not follow a single pattern, even less so a pattern inevitably leading to increased use. Even in chronic users, the use of cannabis is sometimes irregular and involves periods of abstinence and of more intensive use. We have also seen that current epidemiological studies are not sensitive enough to the complex interactions between the multiple factors that influence patterns of use. These various difficulties make it more difficult to estimate the number of problem users, even more so the number of persons who may become dependent.

In our view, it is clear that the term addiction, severely criticized for its medical and moral overtones, is inadequate to properly describe the different forms of at-risk and problem uses. It is even less useful when it comes to cannabis, whose addictive potential is low. It is therefore of limited use to inform public policies aiming to prevent at-risk and problem use and to assist excessive users. Further, we are of the view that dependency is but one of the many consequences of excessive use of cannabis and that this possibility must not be overestimated.

For these reasons, we propose to distinguish between different uses on the basis of four criteria: context, quantity, frequency, and duration and intensity.

Proposed Criteria for Differentiating Use Types

	Environment	Quantity	Frequency	Period of use and intensity
Experimental / Occasional	Curiosity	Variable	A few times over lifetime	None
Regular	Recreational, social Mainly in evening Mainly in a group	A few joints Less than one gram per month	A few times per month	Spread over several years but rarely intensive
At-risk	Recreational and occupational (to go to school, to go to work, for sport...) Alone, in the morning Under 16 years of age	Between 0.1 and 1 gram per day	A few times per week, evenings, especially weekends	Spread over several years with high intensity periods
Excessive	Occupational and personal problems No self regulation of use	Over one gram per day	More than once per day	Spread over several years with several months at a time of high intensity use

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Given the poor knowledge base on use patterns in Canada, we have no choice but to speculate on the number of persons falling in each of these types of uses. We propose the following broad parameters:

- ❖ In adults: we have estimated that approximately 100,000 persons over 18 would use cannabis daily.
 - If 30% to 40% use between 0.1 to 1 gram per day, this means that 30,000 to 40,000 may be at-risk;
 - If 5% to 10% use more than 1 gram per day, this means that 5,000 to 10,000 adults have excessive use patterns.
- ❖ In youth 14 to 17, we have estimated that as many as 225,000 use cannabis daily.
 - If it is agreed that any use below the age of 16 is excessive use, and that youths 14-15 who use cannabis may represent approximately 25% of this group, then about 50,000 may use excessively;
 - Of the remaining 175,000, if 30% to 40% use 0.1 to 1 gram per day, approximately 50,000 to 70,000 would be at-risk;
 - If 5% to 10% of the remaining 175,000 use more than 1 gram per day, then approximately 8,000 to 17,000 use excessively.

We are aware that these estimates do not account other variables, such as context and duration of use. We can only hope that future epidemiological studies, which must be undertaken regularly, will help further explain the complexity and variability of these uses.

CONCLUSIONS

In total, based on all the data from the research and the testimony heard regarding the effects and consequences of cannabis use, **the Committee concludes that the state of knowledge supports the belief that, for the vast majority of recreational users, cannabis use presents no harmful consequences for physical, psychological or social well-being in either the short or the long term.**

More specifically, this conclusion is based on the following conclusions.

Conclusions of Chapter 7

Acute effects of cannabis

- The immediate effects of cannabis are characterized by feelings of euphoria, relaxation and sociability; they are accompanied by impairment of short-term memory, concentration and some psychomotor skills.

Distinctions between uses

- For purposes of public policy, the Committee does not feel that the traditional distinctions between acute and chronic effects are useful.
- Similarly, the Committee does not feel the dichotomy of use and dependence is useful.
- The research data does not allow for a clear distinction between use, at-risk use and heavy use.
- The amount consumed is an indicator, but other factors, psychosocial factors and factors relating to the context of use and the quality of the substance, are equally determining in the passage from use to at-risk use and heavy use.

At-risk use and heavy use in adults

- Nevertheless, the Committee feels that for people over the age of 16, at-risk use lies within the range of 0.1 to 1 gram per day; anything more than that is heavy use, which can have negative consequences on the physical, psychological and social well-being of the user.
- According to this distinction, and in accordance with the epidemiological data available, there is reason to believe that approximately 100,000 Canadians could be at-risk users and approximately 80,000 could be heavy users.

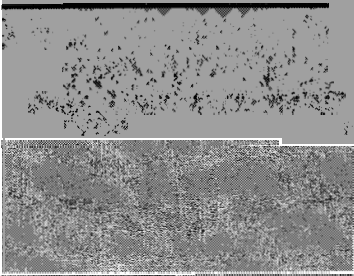
Any use in those under age 16 is high-risk use

- The Committee feels that, because of its potential effects on the endogenous cannabinoid system and cognitive and psychosocial functions, any use in those under age 16 is at-risk use;
- Our estimation would suggest that approximately 50,000 youths fall in this category.
- For those between the ages of 16 and 18, heavy use is not necessarily daily use but use in the morning, alone or during school activities;

Consequences of heavy use

- Heavy use of smoked cannabis can have certain negative consequences for physical health, in particular for the respiratory system (chronic bronchitis, cancer of the upper respiratory tract).
- Heavy use of cannabis can result in negative psychological consequences for users, in particular impaired concentration and learning and, in rare cases and with people already predisposed, psychotic and schizophrenic episodes.

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- Heavy use of cannabis can result in consequences for a user's social well-being, in particular their occupational and social situation and their ability to perform tasks.
- Heavy use of cannabis can result in dependence requiring treatment; however, dependence caused by cannabis is less severe and less frequent than dependence on other psychotropic substances, including alcohol and tobacco.

CHAPTER 8

DRIVING UNDER THE INFLUENCE OF CANNABIS¹

Stan Thompson was 18 when he and four other teenagers from Kanata were killed in a horrific car accident near Perth that summer day. A youth was found responsible for the fatal accident and served eight months of a 12-month sentence. Cannabis and alcohol-impaired driving was the cause. ... The year following Stan's death, his father, Greg Thompson, went to local high schools to talk about the tragedy. He spoke to students about what went wrong and how the tragedy could have been prevented. ... His message was that driving a vehicle and smoking marijuana does and will affect driving abilities. He pleaded with the kids not to do it. ... Cannabis is not a benign substance. There is very little in the way of research that allows anyone to determine levels of impairment related to cannabis and driving ability, much less the levels of impairment related to cannabis and alcohol and driving ability. We have seen in the Manitoba survey, over one-half of the kids that are using cannabis do so in cars and during school hours. There is no technical or scientific ability to test for cannabis impairment. We do not have the technology, scientific data or the research. We do not have the proper legislation. Studies done in British Columbia indicate that 12 per cent to 14 per cent of the drivers involved fatal motor vehicle accidents had cannabis in their systems. The Government of Quebec and the insurance board in Quebec are presently doing road surveys where people are voluntarily submitting to urine or blood tests. The findings in these tests are that between 12 per cent and 14 per cent of those drivers has cannabis in their system while driving.²

If there is one issue, other than the effects of cannabis use on young people or the effects of substance abuse, that is likely to be of concern to society and governments, then it is certainly the issue of how it affects the ability to drive a vehicle. We are already familiar with the effects of alcohol on driving, and the many accidents involving injuries or deaths to young people. In spite of the decreases in use noted in recent years, it is not difficult to admit that one fatal accident caused by the use of a substance is already one accident too many.

¹ In addition to the specific studies we consulted, which will be referred to appropriately, this chapter is largely based on the surveys carried out by INSERM (2001) *op. cit.*, Ramaekers et al., for the International Science Conference on Cannabis in Pelc, I., *op. cit.*, and Smiley (1999) in Kalant (ed.) *op. cit.*

² R.G. Lesser, Chief Superintendent, Royal Canadian Mounted Police, testifying before the Special Senate Committee on Illegal Drugs, October 29, 2001, Issue 8, page 17.

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As it happens, after alcohol, cannabis is the most widely used psychoactive substance, particularly among young people in the 16-25 age group. Casual use occurs most often in a festive setting, at weekend parties, often also accompanied by alcohol. People in this age group are also the most likely to have a car accident and are also susceptible to having an accident while impaired.

We have seen that cannabis affects psychomotor skills for up to five hours after use. The psychoactive effects of cannabis are also dependent on the amount used, the concentration of THC and the morphology, experience and expectations of users. But what are the specific effects of cannabis on the ability to drive motor vehicles? What are the effects of alcohol and cannabis combined? And what tools are available to detect the presence of a concentration of THC that is likely to significantly affect the psychomotor skills involved in vehicle operation?

Here again, the witnesses heard by the Committee vary in their interpretation of the study results. Thus, the Canadian Police Association told us:

*Driving while intoxicated by drugs impairs judgment and motor coordination. In one study involving aircraft 10 licensed pilots were given one marijuana joint containing 19 milligrams of THC - a relatively small amount. Twenty-four hours after smoking the joint, they were tested in a flight simulator. All 10 of the pilots made errors in landing and one missed the runway completely.*³

Two weeks later, Dr. John Morgan of the City University of New York Medical School said in reference to the same study:

*A California-based scientist named Jerome Yesavage wrote the study. It was done in the early 1980s, I think, and it attracted enormous attention. ... Doctor Yesavage's study ... was completely uncontrolled. ... As you all have heard, it is difficult to control for marijuana use. When Doctor Yesavage was funded by the federal government to repeat the study with the simple controls that others and I had suggested, they were unable to show any impact of marijuana use after four hours in a similar group of people. Therefore, I believe that the truth is that marijuana use will impact airplane and driving simulators and to some degree driving performance for three hours to four hours after use; however there is no sustained impact. Any impact is relatively minor.*⁴

Making reference to Robbe's work, which we will be examining in greater detail in this chapter, Professor Morgan added:

A Dutch scientist who has for years worked on driving experiments found that marijuana using drivers have a little difficulty staying right in the middle of the road. That is most sensitive test. If you smoke marijuana, you tend to weave a little bit more than completely sober people do. That is important,

³ Dale Orban, Detective Sergeant, Regina Police Service, for the Canadian Police Association, testimony given before the Special Senate Committee on Illegal Drugs, May 28, 2001, Issue 3, page 47.

⁴ Dr John Morgan, Professor at the City University of New York Medical School, testimony before the Special Senate Committee on Illegal Drugs, June 11, 2001, Issue 4, page 40-41.

although there have been no studies to show that that amount of weaving had a gross impact on driving ability.

The Dutch scientist included in his report that the amount of weaving was approximately the same in individuals consuming very small amounts of alcohol, very small doses of benzodiazepenes and very small doses of antihistamines.⁵

On the same day, Professor Kalant of the University of Toronto responded as follows:

Dr. Morgan referred to some experimental studies this morning. A number of studies, reviewed by Dr. Smiley in the report of the World Health Organization Committee on Health Effects of Cannabis, indicate a fair measure of agreement on what the predominant effects on driving are. The lane control, as Dr. Morgan mentioned, is impaired. The person does not steer as accurately. In addition, there was slower starting time and slower braking time. There was decreased visual search. In other words, when you drive, you must monitor for sources of danger to both sides and not just ahead of you. There was decreased monitoring, decreased recognition of danger signals. The effects were synergistic with those of alcohol. The one favourable thing about cannabis compared with alcohol was that there was less aggressiveness in the cannabis smokers than in the drinkers, so they were less likely to pass dangerously or to speed. Nevertheless, driving ability was impaired not just by weaker, poorer steering control, but also by less alertness to unexpected things that might happen and pose a hazard.

I will not go into the statistics of actual field studies of the involvement of cannabis in driving accidents. However, I would like to say that a number of studies have shown that there has been evidence of cannabis presence in the blood or the urine of people who have been stopped for impaired driving who did not have alcohol present.⁶

As we can see, and as was the case with respect to the effects and consequences on the health of users, there are divergent opinions about the interpretation of studies and their meaning in connection with the specific effects of marijuana on driving.

This chapter is divided into three sections. The first considers the ways of testing for the presence of cannabinoids in the body. The second analyses studies on the known prevalence of impaired driving, in both accident and non-accident contexts. The third and last summarizes what is known about the effects of cannabis on driving based on both laboratory and field studies. As in the other chapters, the Committee will then draw its own conclusions.

⁵ *Ibid.*

⁶ Dr Harold Kalant, Professor Emeritus, University of Toronto, testimony before the Special Senate Committee on Illegal Drugs, June 11, 2001, Issue 4, page 75.

FORMS OF TESTING

There are five known media for testing the presence of cannabinoids in the organism: blood, urine, saliva, hair and perspiration.

Blood is the most appropriate medium for detecting recent cannabis use because only a blood analysis can distinguish between the active ingredients of cannabis and metabolites that have no psychoactive effects. However, as we have already seen, blood concentrations of Δ^9 THC peak 9 minutes after smoking; after 10 minutes only two-thirds of the concentration remains, and it is down to 5 to 10% at the end of an hour; after two hours, it becomes difficult to detect. Thus not all methods are appropriate for testing because of the strong possibility of obtaining false negatives and false positives. The most reliable method, gas chromatography using mass spectrometry for detection, is extremely sensitive and can also estimate the time that has elapsed between the most recent use and the taking of the blood sample.

We saw in Chapter 7 that there was a dose-response relationship: 25 puffs affect cognition more than do 10 puffs, and 10 have more of an effect than 4. But not much data is available on the relationship between concentration and effects on people, and the ability to answer the key road safety question, namely at what concentration can one consider that faculties are impaired? In France, the Δ^9 THC level that constitutes testing positive has been set at 1ng/ml⁷ for drivers involved in fatal accidents. Another author has come up with a formula that establishes a relationship between Δ^9 THC, 11-OH Δ^9 THC and Δ^9 THC-COOH to determine a cannabis influence factor with a positive threshold of 10ng/ml. An equal concentration of Δ^9 THC and COOH suggest use approximately 30 minutes beforehand, and hence a very high probability of psychoactive effects, whereas a higher concentration of COOH than Δ^9 THC suggests that use was more than 40 minutes beforehand. However, a concentration of COOH in excess of 40 μ g/l would indicate a chronic user, and hence it becomes impossible to determine when the last use occurred. Other research has established that a blood concentration of 10 to 15 ng/ml suggests recent use, without however being able to give an exact figure.⁸

Urine tests are also frequently employed and remain the most appropriate method for rapidly determining whether subjects have been using. On the other hand, traces of cannabis can remain in urine for weeks. Furthermore, the traces that remain are of Δ^9 THC-COOH, an inactive metabolite. Consequently, urinalyses are primarily useful for epidemiological measurements of cannabis use, and cannot contribute to information about impaired driving.

⁷ In this chapter, ng means nanogram (i.e. one billion of one gram) and μ g means microgram (one million of one gram)

⁸ INSERM (2001), *op. cit.*, pages 152-153.

The levels of concentration of Δ^9 THC-COOH in urine are very high: for someone who smokes a joint a day, the level is between 50 to 500 ng/ml and may reach several thousands ng/ml in heavy users; the currently recommended threshold level for testing positive is 50ng/ml urine.

Saliva is a very promising option for road safety because it is non intrusive and can indicate recent use with some accuracy. The presence of Δ^9 THC in saliva essentially results from the phenomenon of bucco-dental sequestration during inhalation. Concentrations are very high in the few minutes following absorption, varying between 50 and 1,000 ng/ml, but then decline very quickly in the hours that follow, though they remain detectable for an average of four to six hours. The European ROSITA project compared the reliability of samples taken from urine, perspiration and saliva compared to that taken from blood. Saliva is by far the most reliable, showing an exact correlation in 91% of cases. However, the low level of concentration during the period when the psychoactive effects are active means that sensitive analytical methods are essential. There is unfortunately not yet a sufficiently accurate and reliable rapid detection tool that can be used in driving situations. Hence the driving detection tools correctly identified only 18 to 25% of cases and led to many false negatives.⁹

Perspiration is generally considered poor for detection purposes, because of the persistence of Δ^9 THC in sweat, and the fact that it is also excreted into sweat in small quantities.

Hair looks very promising because the significant amount of Δ^9 THC can determine time since and level of use (low, moderate, high). However, concentrations are only a few ng per mg of hair, which requires highly efficient testing.

The following table, taken from the INSERM report, summarizes the main characteristics of the various biological testing media; where available, we have added the threshold detection level adopted.

⁹ Ramaekers, J.G. et al., 2002 "Performance impairment and risk of motor vehicle crashes after cannabis use" in Pelc, I. (ed.) *International Scientific Conference on Cannabis*, Brussels, page 81.

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Main Characteristics of Biological Testing Media					
	Primary cannabinoids	Maximum detection period	Useful for	Methodologies available	Threshold for positive test
Urine	THC-COOH (inactive)	Occasional use: 2 to 7 days Regular use: 7 to 21 days	Identifies use	Yes, many rapid tests	50ng of Δ^9 THC-COOH per ml
Saliva	THC (active)	2 to 10 hours	Identifies recent use	No, no rapid tests	not determined
Perspiration	THC	Highly variable	Not useful	No, no rapid tests	not useful
Hair	THC	Infinite	Identifying & monitoring regular user	Yes, CPG-SM	not determined
Blood	THC 11-OH THC THC-COOH	2 to 10 hours	Confirmation, identification, dosage	Yes, CPG-SM	1ng/ml (France)

In all instances, the handling and transportation of samples and the toxicological dosages are essential to the quality of the analyses.

There is still considerable uncertainty about thresholds that make it possible to affirm that the presence of Δ^9 THC would impair the driver. Furthermore, there is still no reliable rapid screening test to identify recent use (urine tests cannot do this). Moreover, other drugs besides alcohol, including many types of prescription medicines, may have an impact on driving. That is why many authors, and a number of witnesses, suggested to us that Canada adopt the Drug Evaluation and Classification Program (DEC) and recognize police officers trained as Drug Recognition Experts. This practice has now been adopted in most U.S. states (at least 34, as well as the District of Columbia), British Columbia, Australia, Norway and Sweden.

The typical scenario for driving under the influence of psychoactive substances other than alcohol is as follows: a vehicle attracts the attention of a police officer, who pulls the vehicle over and questions the driver; if there are reasonable grounds to believe that the driver is intoxicated, a breathalyser test is administered; however, when the test yields a result below the legal limit, the police officer may still not be convinced that the driver is capable of driving, but how is this to be proven? Before, more often than not, the police officer had to release the driver. As we have just seen, there are no equivalents to the breathalyser test for drugs and medicines, and, for cannabis in particular, traces found in urine in no way establish that use was recent. It was in this context that the police officers working for the Los Angeles Police Department developed the Drug Recognition Expert System (DRE) in the early 1980s. Police

officers are given specific training in the detection of people driving under the influence of psychoactive substances and in the use of the DEC.

The system allows police officers who have reason to believe that drivers are intoxicated to call on an officer specially trained in drug recognition, who can then evaluate the driver on the basis of a set of systematic and rigorous factors that are recognized as signs of the presence of drugs. The process involves 12 steps:

- Breath alcohol test: This test will have been conducted by the police officer who stopped the vehicle. The Drug Recognition Expert is only called in when the test is negative.
- Interview by the arresting officer: The DRE asks the arresting officer a series of conventional questions: in what condition did he or she find the suspect, what he or she had observed, if he or she found drugs in the vehicle, suspect's statement, etc.
- Preliminary examination (the first of three pulse measurements): This involves determining whether there are reasonable grounds to suspect the presence of drugs, and hence eliminate the possibility that there is a medical condition. The DRE observes the suspect's overall condition, and questions the suspect about health, examines the pupils and gaze, and takes the first of three pulse measurements. If the DRE feels that there are no signs, the suspect is released. If the condition is medical, a medical evaluation is requested. However, if drugs are suspected, the examination continues
- Examination of the eyes: This consists of three tests: horizontal gaze, vertical gaze and convergence. Apparently when under the influence of any drug, it is impossible to have an involuntary jerky movement of the pupils on the vertical axis without first provoking such movements on the horizontal axis. Thus if there are only vertical jerky pupil movements, it is likely a medical condition (e.g. brain damage). If there is horizontal jerkiness, there are likely drugs involved. To determine horizontal movements, the DRE moves a pen or other object horizontally in front of the suspect's eyes. For vertical movement, the pen is moved from top to bottom. Furthermore, as certain drugs prevent eyes from being able to converge towards the bridge of the nose, the DRE performs a convergence test by placing the pen or object on the person's nose and asking the suspect to look at it
- Divided attention psychophysical tests: The tests include balancing, walking, standing on one leg and the finger-to-nose test
- Vital signs examination: This is the second of three pulse measurements, as well as a measurement of blood pressure and body temperature
- Dark room examination: This involves examining the pupils under four different lighting conditions: room lighting, darkness, indirect light and direct light
- Examination of muscle tone: arm movements

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- Examination for injection sites
- Questions about suspect's drug use and living habits
- Opinion: On the basis of all the evidence, the DRE forms an opinion based on a reasonable amount of certainty
- Toxicological examination: The purpose of this examination is to corroborate the analysis by the DRE officer. The decision concerning prosecution is made only when the analyses are returned.

The system was standardized in the early 1980s with the assistance of the U.S. National Highway Traffic Safety Administration. It was first tested in a laboratory study.¹⁰ In the study, four Drug Recognition Experts evaluated subjects who had received either a placebo or a dose of drugs. Neither the subjects nor the officers knew who had received the drugs. In 95% of cases, the officers correctly identified the subjects who had not been given drugs. In 97% of cases, they correctly identified the subjects who had been given drugs and in 98.7% of cases, they were able to determine which subjects were under the influence of drugs.

A field study was then conducted in 1985, once again with the assistance of the Highway Traffic Safety Administration.¹¹ In the study, blood samples of 173 drivers arrested for driving under the influence of drugs were analyzed by an independent laboratory. The study showed that the analyses carried out by the Drug Recognition Expert officers correctly predicted the presence of drugs other than alcohol in 94% of cases. In 79% of the cases, the analyses of the officers identifying the presence of a specific drug turned out to be accurate.

The most complete study was carried out in Arizona in 1994. In this study, the files of over 500 persons arrested for driving under the influence of drugs were analyzed, and toxicological analyses were conducted. The study showed that the toxicological analyses corroborated the conclusions of the officers in 83.5% of cases. Similar studies conducted in other states yielded comparable results: 81.3% in Texas, 84.5% in Minnesota, 88.2% in California, 88.2% in Hawaii and 88% in Oregon.

With respect specifically to cannabis, the expected signs listed in the system are generally the following: no horizontal or vertical shaking, but no convergence in gaze, dilated pupils, accelerated pulse and high blood pressure.

In short, given the limits of detection in the field of the influence of cannabis and the results of these studies, it would appear that it would be highly desirable to adopt the DEC and train police officers in drug recognition.

¹⁰ Bigelow, G.E. (1985) *Identifying types of drug intoxication; laboratory evaluation of a subject procedure*. Cited in Sandler, D. (2000) "Expert and Opinion Testimony of Law Enforcement Officers Regarding Identification of Drug Impaired Drivers." *University of Hawaii Law Review* 23 (1), 150-181.

¹¹ Compton, P.R. (1986) *Field Evaluation of the Los Angeles Police Department Drugs Detection Procedure*. Cited in Sandler, *op. cit.*, page 151.

EPIDEMIOLOGICAL DATA

According to a number of the witnesses we heard, more than 40% of people whose driving abilities are impaired would drive under the influence of cannabis. Others have said that approximately 12% of accidents causing injury could be attributed to the use of cannabis. What do the studies reveal?

Data on the frequency of driving under the influence of cannabis (whether on its own or together with other substances) are, for obvious reasons, difficult to obtain. First, for drivers involved in an accident, a positive breathalyzer test means most of the time that no other measurements are taken because a blood alcohol level above the legal limit is enough to take legal action. Second, the methods available to detect the presence of THC are intrusive (blood, urine), unlike the breathalyzer, and hence pose specific legal and ethical problems. Other forms of measurements, such as saliva samples, do not, for the time being, allow roadside detection. Lastly, in studies of all drivers, the consent of drivers is required to take a blood or urine sample, thus limiting the possibility of generalizing results. Nevertheless, we will summarize the main points of a number of studies conducted in recent years.

Studies not involving accidents

Two types of studies were conducted: surveys of all drivers selected at random from the flow of traffic at various times of the day and week, and studies where it was presumed that the people were driving under the influence during police checks. The following table, drawn from the various data available from INSERM, summarizes these studies.

Detection and prevalence of cannabis in Europe and Quebec where no accidents are involved ¹²				
Reference country	Population	Detection method	Sample	Prevalence (%)
No presumption of driving under the influence of psychoactive substances				
Germany, Kruger et al., 1995	All drivers	Screening: FPIA saliva Confirmation: CG/SM saliva	2 234 (of 3 027)	0.6
Netherlands, Mathijssen, 1998	Night drivers on weekends	Screening: combined saliva, perspiration and urine test	293 (of 402)	5
Italy, Zancanner et al., 1995	Night drivers on weekends	Clinical screening, clinical and toxicological check (blood, urine)	1 237	1.5

¹² Table reproduced from INSERM (2001), *op. cit.*, page 175.

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Detection and prevalence of cannabis in Europe and Quebec where no accidents are involved¹²				
Reference country	Population	Detection method	Sample	Prevalence (%)
Canada Dussault et al., 2000	Highway drivers (representative survey)	Urine	2 281	5
		Saliva	2 260	(in progress)
		Breathalyzer (alcohol)	5 281	> 0.8 : 0.8
With presumption of driving under the influence of psychoactive substances				
Norway, Skurtveit et al., 1996	Drivers	Screening: immunoassay blood; Confirmation: CG/SM	2 529	26
Denmark, Worm and Steentoft, 1996	Drivers	blood	317	10
		Screening: RIA blood	221	17
		Confirmation: CG/SM		
United Kingdom, Scotland, Seymour and Oliver, 1999	Drivers	blood	640	26
		Screening: immunoassay blood;		
		Confirmation: CG/SM blood		

In all, it was observed that the detection rates for the presence of cannabis varied between 1% and 5% when there was no presumption of impaired driving. However, the missing data, which likely resulted from refusals to supply a sample, made it impossible to draw clear conclusions. The studies with presumption of driving under the influence of drugs had clearly higher results: between 10 and 26%. These results do not necessarily reveal a much higher prevalence of driving under the influence of psychoactive substances, but rather a higher level of vigilance by the police. Indeed, as we shall see immediately, the prevalence of cannabis detection in fatal accidents is no higher in Norway (7.5%) than in other countries.

Studies where an accident was involved

It is difficult to compare studies between countries because the detection methods, even in an accident context, varies widely from country to country. We wish to note once again that simply finding traces of cannabis in drivers involved in accidents is not necessarily a sign that its use was the cause of the accident. Nor does the absence of any screening result mean that no one was driving under the influence of cannabis.

The following table, adapted from INSERM results, refers to a number of recent studies in Europe, America and Australia.

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Prevalence of impaired driving (ID) when there are accidents ¹³				
Country	Population	Detection method	Sample	Prevalence of cannabis (%)
Belgium Meulemans et al., 1997	Casualty accidents (2-wheeled and cars)	Screening: urine Confirmation: urine CG/SM and urine blood comparison	1 879	6 (urine) 3.6 (blood)
Spain Alvarez et al., 1997	Fatal accidents with suspected ID	Screening: immunoassay blood Confirmation: CG/SM blood	979	1.5 not reliable
France, Mura et al., 2001	Casualty accidents (control group: patients)	No screening Confirmation: CG/SM blood	420 (381)	11.2 (10.8)
France, Kintz et al., 2000	Casualty accidents	Screening: urine Confirmation: CG/SM urine and blood, saliva and perspiration tests Screening: EMIT urine	198	13.6 (urine) 9.6 (blood)
Italy, Ferrara, 1990	Injuries Friday night checks		4 350 500	5.5
Norway, Christophersen, 1995	Injuries, non-fatal accidents	Screening: immunoassay blood Confirmation: CG/SM blood	394	7.5
United Kingdom, Tunbridge, 2000	Fatal accidents (including 516 drivers)	Screening: immunoassay urine Confirmation: CG/SM blood	1 138 516	12 10
Australia, Longo, 2000	Injuries (non-fatal accidents)	Screening: immunoassay blood Confirmation: CG/SM blood	2 500	11
Canada, Ciburra, 1990	Killed		1 169	11
United States, Logan, 1996	Killed		347	11

Three of these studies are particularly interesting. The Mura et al. study (2001) shows a significant difference by driver age: among 18-20 year olds, the Δ^9 THC was present in 18.6% of drivers, and in 50% of cases it was present alone (without alcohol). An earlier study by Mura (1999) had shown that cannabis was particularly common among young drivers: from 35% to 43% in the under 30 age group, with an even higher prevalence (43%) for the under 20s, whereas past the age of 35, the prevalence drops to 3%.¹⁴

¹³ Adapted from INSERM (2001) *op. cit.*, pages 171 and 174.

¹⁴ See INSERM, (2001), *op. cit.*, page 172.

The study by Kintz et al. (2000) is interesting primarily because it clearly shows that, after alcohol (13.6%) cannabis is the substance most frequently present among drivers involved in accidents (9.6%). This study also shows that in the whole sample, the incidence of cannabis as measured by taking a blood sample (9.6%) is close to the level of driving under the influence of alcohol (10.6%).¹⁵

Then, Longo's study is of special interest because of the size and representativeness of the sample and the fact that separate analyses were done of Δ^9 THC and Δ^9 THC-COOH. The study detected the presence of cannabinoids in 10.8% of drivers: 8% for Δ^9 THC-COOH alone and 2.8% for Δ^9 THC-COOH and Δ^9 THC together, thereby showing a lower percentage of positive tests for Δ^9 THC than the other studies. Furthermore, as in the other studies, subjects testing positive to Δ^9 THC were younger and more often men.

Closer to home, Mercer and Jeffery examined the toxicological analyses for 227 drivers killed in traffic accidents in British Columbia between October 1999 and September 1991.¹⁶ Samples had been taken during autopsies within 24 hours of death, which according to the authors, may indicate an under-estimation of the presence of alcohol or drugs. Of the 227 people killed, 186 (43%) showed no signs of either alcohol or drugs, 83 (37%) alcohol only, 23 (11%) alcohol and drugs, and 21 drugs only. As for cannabis, 29 of the people killed (13%; 26 men and 3 women) tested positive to Δ^9 THC-COOH, showing an average concentration of 15.9 ng/ml. In the +alcohol/+drugs group, (23 subjects), 17 tested positive to THC metabolites and 8 were also positive to Δ^9 THC (13%). For the 0alcohol/+drugs group, (21 subjects), 8 (all men) were positive to Δ^9 THC-COOH, and 4 to Δ^9 THC. Even though the authors concluded that Δ^9 THC / Δ^9 THC-COOH was present in 13% of cases, which is a percentage comparable to most of the other studies, only 12 subjects killed tested positive to Δ^9 THC with or without alcohol and only 4 without alcohol.

Lastly, a more recent epidemiological study dealt with 1,158 cases of fatal accidents (391) or of cases of driving under the influence of psychoactive substances when the percentage of alcohol in the blood was below 0.1 (767) reported in Canadian forensic laboratories on November 12, 1994.¹⁷ The most frequent substances identified were benzodiazepines (590 cases), alcohol (580), cannabis (551), stimulants (224), opiates (176) and barbiturates (131). For cannabis, we get the following table:

¹⁵ *Ibid.*

¹⁶ Mercer, W.G. and W.K. Jeffery (1995) "Alcohol, Drugs and Impairment in Fatal Traffic Accidents in British Columbia" *Accid. Anal. And Prev.*, 27 (3), pages 335-343.

¹⁷ Jeffery, W.K. et al. (1996) "The involvement of drugs in driving in Canada: An update to 1994." *Can. Soc. Forens. Sci. J.*, 29 (2), pages 93-98.

	Presence of cannabis in Canada (1994)		
	Total	with alcohol	without alcohol
THC			
> Impaired driving	181	129	52
> Death	198	98	100
THC-COOH			
> Impaired driving	127	29	98
> Death	45	24	21

In all, cases in which Δ^9 THC without alcohol was present accounted for 13% of the total, which is close to the figure found in the other studies.

Out of all the studies, it was found that the presence of cannabis among drivers who were injured or killed varies between 3.6% (confirmed by blood analysis) and 13% (unconfirmed). Where there was confirmation of the presence of Δ^9 THC compared to Δ^9 THC-COOH, the presence of the active substance decreases by half. In addition, the risk of testing positive is much higher for young men than other drivers. These conclusions are largely shared by other authors.¹⁸

Epidemiological studies on youth

In recent years, epidemiological studies on youth in the school environment have asked questions about the frequency of driving under the influence of psychoactive substances, cannabis in particular. In Ontario, the 2002 OSDUS study described in Chapter 6 shows that 19.3% of the students had driven their car one hour or less after having taken cannabis at least once in the past twelve months.¹⁹ More interesting is that this compares with 15% who said they had taken their car less than an hour after one or two drinks. In Manitoba, the survey of youths in school reveals that almost 20% see nothing wrong in driving after taking cannabis.²⁰

¹⁸ Including the INSERM report (2001), *op. cit.*; Ramaekers, J.G. et al., (2002) "Performance impairment and risk of motor vehicle crashes after cannabis use" in Pelc, I. (ed.) *International Scientific Conference on Cannabis*, Brussels.

¹⁹ Adlaf, E.M. et A. Paglia (2001) *Drug Use among Ontario Students 1997-2001. Findings from the OSDUS*. Toronto : Centre for Addiction and Mental Health, page 134.

²⁰ Patten, D., et coll., (2000) *Substance Use among High School Students in Manitoba*. Winnipeg : Addictions Foundation of Manitoba.

Finally, the Cohen and Kaal study on long term consumers had shown that no less than 42% of the respondents in Amsterdam and 74% in San Francisco had driven their car under the influence of cannabis.²¹

Risk assessment

Given the difficulties of conducting reliable epidemiological studies on driving under the influence of cannabis, a number of authors have analyzed the probability of responsibility and the risk ratio involved in the use of cannabis. These studies distinguish between drivers who are responsible for accidents and those who are not. The former are the subjects and the latter the control group. Comparisons are then made of their intoxication to various substances. Clearly, placing drivers into the two categories of responsible / not responsible may depend on an investigator's perception of whether or not psychoactive substances are present.

The following table, which is reproduced from the Ramaekers et al. report (2002) for the International Scientific Conference on Cannabis summarizes the results of various studies.²² It should be pointed out that the probability of responsibility for drivers showing traces of cannabis (Δ^9 THC and/or Δ^9 THC-COOH, whether measured in blood or urine) is compared to the responsibility of drivers involved in an accident not testing positive to any substance (including alcohol). The risk ratio for drivers not testing positive to any substances is 1.0 and is used as a point of comparison to determine the statistical significance of observed change in the risk level of impaired drivers. When the reference value is above the statistical confidence level of 95%, the obvious conclusion is that the drug is 95% associated with an increased risk of responsibility.

Level of culpability relative to driving under the influence of cannabis				
Authors	Substance	Odds ratio	Confidence interval at 95%	N of drivers culpable / not culpable
Tethune & Fell (1982), U.S.	Drug free cases	1.0		94/179
	Alcohol	5.4*	2.8 – 10.5	45/16
	THC	2.1	0.7 – 6.6	9/8
	Alcohol/THC	-		-
Williams et al. (1985), U.S.	Drug free cases	1.0		55/23
	Alcohol	5.0	2.1 – 12.2	120/10
	THC or THC-COOH	0.2	0.2 – 1.5	10/9
	Alcohol/THC or THC-COOH	8.6*	3.1 – 26.9	123/6

²¹ Cohen, P.D.A. et H.L. Kaal (2001) *The Irrelevance of Drug Policy. Patterns and careers of experienced cannabis use in the populations of Amsterdam, San Francisco and Bremen.* Amsterdam : University of Amsterdam, CEDRO, page 68.

²² Ramaekers et al. (2002), op.cit., page73.

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Terhune et al. (1992), U.S.	Drug free cases	1.0		541/258
	Alcohol	7.4*	5.1 – 10.7	587/38
	THC	0.7	0.2 – 1.8	11/8
	Alcohol/THC	8.4*	2.1 – 72.1	35/2
Drummer (1994), Australia	Drug free cases	1.0		392/140
	Alcohol	5.5*	3.2 – 9.6	261/17
	THC-COOH	0.7	0.4 – 1.5	29/14
	Alcohol/THC-COOH	5.3*	1.9 – 20.3	59/9
Hunter et al. (1998), Australia	Drug free cases	1.0		944/821
	Alcohol	6.8*	4.3 – 11.1	173/22
	THC			
	> ≤ 1.0 ng/ml	0.35	0.3 – 2.1	2/5
	> 1,1 – 2,0 ng/ml	0.51	0.2 – 1.4	7/12
	> > 2 ng/ml	1.74	0.6 – 5.7	12/6
	THC-COOH			
	> 1 – 10 ng/ml	0.69	0.5 – 2.2	19/24
	> 11 – 20 ng/ml	1.04	0.4 – 2.1	18/15
	> 21 – 30 ng/ml	0.87	0.6 – 4.8	12/12
	> > 30 ng/ml	1.62	0.6 – 4.8	13/7
	Alcohol/THC	11.5*	4.6 – 36.7	66/6
	Lowenstein & Koziol-McLain (2001), U.S.	No substance	1.0	
Alcohol		3.2	1.1 – 9.4	17/6
THC-COOH		1.1	0.5 – 2.4	17/17
Alcohol/THC-COOH		3.5*	1.2 – 11.4	16/5
Drummer et al. (2001) & Swann (2000), Australia	No substance	1.0		1209/372
	Alcohol	5.7*	4.1 – 8.2	720/39
	THC	3.0*	1.2 – 7.6	49/5
	THC > 5 ng/ml	6.4*	1.3 – 115.7	24/0
	THC-COOH	0.8	0 – 1.3	68/26
	Alcohol/THC	19*	2.6 – 136.1	65/62

The study findings show that cannabis alone does not increase the likelihood of responsibility in an accident. However, most of the studies used a measurement of THC-COOH, an inactive metabolite that can remain in urine for several days. When the authors separated out THC alone, the risk ratio was slightly higher, even though it did not reach the required level of significance. In addition, as the concentration of THC increases, the more the ratio increases, once again suggesting a dose-response relationship. Furthermore, the cannabis and alcohol combination significantly increases risk. Without being able to draw any definite conclusions, there are some signs that their effects are in synergy and not merely additive.

Studies on injured drivers (Terhune (1982) and Hunter (1998)) have ratios somewhat higher than in the other studies on fatal accidents. According to Bates and Blakely (1999), the apparent reduction in the risk of a fatal accident stems from the fact that drivers under the influence of cannabis drive less dangerously, for example by reducing their speed.²³

To conclude, we are rather in agreement with INSERM concerning these studies:

[translation] *The findings definitely confirm the significant risk of alcohol, but generally fail to demonstrate that there is an effect of cannabis alone on the risk of being responsible for a fatal accident or an accident involving serious injury. The methodological difficulties that make such a demonstration difficult contribute considerably to the absence of statistically indisputable results. Analyses of responsibility nevertheless suggest that the association between alcohol and cannabis increases the risk of being responsible for an accident, compared to drinking alone; however, this finding needs to be consolidated. Lastly, the most recent data tend to show that there is a risk of becoming responsible at heavy concentrations of Δ^9 THC. This involves using cannabis immediately before driving, and perhaps applies also to chronic users.*²⁴

EXPERIMENTAL STUDIES

Epidemiological studies indicate a relatively high level of driving under the influence of cannabis, between 5% to 12% of drivers, mostly among young men. At the same time, neither these studies nor the responsibility/risk analyses reach clear conclusions concerning the role of cannabis in dangerous driving. Hence the interest in studies on how cannabis affects driving ability and driving itself. Studies on the psychomotor and cognitive skills needed to drive vehicles have measured factors such as: motor coordination, reaction time, attention, visual attention and deductive reasoning. There are two types of studies on driving: simulated studies and field studies, whether on a track, in the city or on a highway. Most studies focus on single doses for recreational users. They use control group protocols and cross-linked protocols, including placebos and comparisons with alcohol. However, they are limited by the fact that they mainly measure the acute effects of single doses, making it difficult to determine whether more experienced users would react in the same way. The following sections examine both types of study.

²³ Cited in INSERM (2001), *op. cit.*, page 192.

²⁴ INSERM (2001), *op. cit.*, page 194.

Non-driving activities

In 1985, Moskowitz published a remarkable synthesis of studies on the psychomotor and cognitive effects of cannabis.²⁵ In this synthesis, he examined motor coordination, reaction time, tracking and sensory functions. The author observed the following:

- motor coordination, measured by hand stability, body balance and movement accuracy was significantly affected. However, the application of these results to driving a car is limited, except in driving situations that require considerable coordination, such as emergency situations. The limits in terms of dose and number of subjects tested (between 8 and 16) also need to be noted
- reaction time was not significantly changed: "*There are a sufficient number of experiments involving both simple and complex reaction time situations to leave us relatively well assured that neither the speed of initial detection nor the speed of responding are, per se, impaired by marihuana. Rather, when marihuana produces a reaction time increase, there is some dimension of the information processing task which the subject must execute which bears the brunt of the experiment.*"²⁶ Attention rather than reaction time was affected by marijuana use
- straight line: this dimension was particularly sensitive to the effects of marijuana, and the vast majority of studies showed a significant reduction in the ability to go in a straight line or correct deviations from the line
- the sensory functions (hearing and visual) are often affected, but the studies did not yield precise results concerning the distinction between simple tasks and complex tasks.

Ramaekers et al. (2002), reported a meta-analysis on 87 controlled laboratory studies on the psychomotor effects of cannabis conducted by Berghaus et al. (1998). These authors found that the number of psychomotor functions linked to driving (following, reaction time, perception, hand-eye coordination, body balance, signal detection and divided and continuous attention) affected by THC reached a maximum during the first hour after smoking, and one to two hours after oral ingestion. The maximum figures were comparable to those obtained with an alcohol concentration equivalent to > 0.05 g/dl. The number of functions affected reached zero after three to four hours, and only higher doses continued to have an effect. The studies surveyed also showed that THC concentration in the blood is highly correlated to psychomotor effects: a concentration of between 14 ng/ml and 60 ng/ml affected between 70% and 80% of tasks.²⁷

The following table summarizes these data:

²⁵ Moskowitz, H., (1985) "Marihuana and Driving." *Accid. Anal. Prev.*, 17 (4), pages 323-345.

²⁶ *Ibid.*, page 330.

²⁷ Ramaekers J.G. et al. (2002), *op. cit.*, page 77.

Deterioration of performance on psychomotor tests by dose, time and method of ingestion										
THC dose	Time (in hours)									
	< 1		1-2		2-3		3-4		4-5	
	Tests (n)	% affected	Tests (n)	% affected	Tests (n)	% affected	Tests (n)	% affected	Tests (n)	% affected
Smoked										
< 9mg	271	61%	33	36%	10	30%	10	0%	11	0%
9-18 mg	193	53%	48	38%	8	38%	6	0%	2	0%
≥ 18 mg	64	64%	28	36%	10	40%	15	53%	3	67%
Total	528	58%	109	37%	28	36%	31	26%	16	13%
Oral										
< 9mg	3	33%	49	14%	37	8%	13	8%	-	-
9-18 mg	3	0%	41	39%	45	18%	17	18%	-	-
≥ 18 mg	3	0%	45	60%	15	33%	15	33%	11	45%
Total	9	11%	135	37%	97	20%	45	20%	11	45%

More recently, after surveying the studies carried out in recent years, the reports prepared by INSERM and the International Scientific Conference on Cannabis reached largely similar conclusions: cannabis affects reaction time where choice is involved, road tracking, shared attention and continuous attention, as well as memory processes, but does not significantly affect simple reaction time or visual or eye-movement functions.

While driving

One of the weaknesses of the laboratory studies is the difficulty of relating psychomotor and cognitive tasks directly to driving. Several tests measured in these studies are short and relatively simple and do not necessarily reflect real situations. The advantage of simulated driving studies and field driving studies is that it brings the conditions closer to reality.

Most contemporary studies have similar characteristics: subjects have had a driver's licence for at least three years. They are often regular cannabis users. The subjects receive either cannabis or a placebo in a double-blind situation that is very strictly timed to control the level of THC transmitted. In some instances, the experimenters also include comparisons with alcohol and an alcohol placebo. However, it is impossible to control how much subjects inhale and actually absorb. The cannabis prepared by the U.S. National Institute of Drug Abuse (NIDA) varies between 1.75% THC for low doses, 2.67% for moderate doses and 3.95% for strong doses. Converted into µg/kg of weight, the doses correspond to 100, 200 and 300 µg/kg, whereas the heavy dose usually preferred by regular users is generally 308 µg/kg. The subjects are

familiarized with the equipment used and the tasks to be performed, and are accompanied by instructors on actual driving studies. Measurements include the standard deviation of lateral position in relation to the road, the control over longitudinal position (distance) in relation to the vehicle ahead, decision-making in emergencies, style of driving and risk taking.

The following table, adapted from INSERM data, summarizes a number of the more recent studies.

Effects of cannabis on car driving ²⁸				
Reference / environment	Subject / Dose / Protocol	Tasks	Measurements	Results
Simulator Liguori et al., 1998	10 users Placebo Cigarette 1.77% THC smoked in 5 mn Cigarette 3.95% THC smoked in 5 mn Test: 2 mn after Duration: 1 hour	Avoid a barrier that suddenly appears by braking (55 to 60mph)	Total braking time	↑ Slightly significant at 1.77 THC, slightly more at 3.95
			Lag time to take foot off accelerator and step on brake	No difference
		Judgment: maintain speed of 30mph on marked road and select widest lane at intersection	Average speed Number of cones knocked over Number of successful choices	No effect
Sexton et al., 2000	15 users Placebo Grass, low dose 1.77% THC Heavy dose: 2.67% THC 1 resin cigarette: 1.70% THC Blood and saliva sample 10 mn after start Test 30 mn Duration: 25 mn	Highway section with vehicle ahead passing	Average reaction time	↑ At low dose (high level of variability at heavy dose: ns)
		Highway section with vehicle ahead braking	Average reaction time	↑ At low dose (ns)
		16.7 km of highway section	Maximum, minimum and average speed	↓ Average of 6mph at low and heavy dose
		Left and right turns	Standard deviation for perfect line	↑ Variation at heavy dose versus low dose or placebo
		Intersection with traffic lights, with 4 lane road	Response time in going through amber	↓ At heavy dose

²⁸ Table adapted from INSERM (2001) *op. cit.*, pages 183-184.

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Effects of cannabis on car driving²⁸				
Reference / environment	Subject / Dose / Protocol	Tasks	Measurements	Results
			Average waiting period at a point 10m from the stop line	↓ At heavy dose (high level of variability: ns)
Actual driving				
Robbe, 1998 study No. 1 Closed portion of highway (cannabis)	24 users Placebo 100, 200 and 300 Test: 40 mn and 1 hour 40 mn after	Constant speed at 90km/hr and tracking over 22km	Standard deviation of lateral position Average lateral position deviation Average speed and standard deviation	↑ Instability at all 3 doses No effect No effect
Study No. 2 Normal traffic on highway (cannabis)	16 users same doses as study 1 Test: 45 mn after	Tracking control (Ibid.) 64km, 50 mn Following cars over 50m at variable speed (between 80 and 100km/h) over 16 km, 15 mn	Same measurements Average reaction time Average distances and standard deviations	Same effects ↑ ns Distance increased by 8, 6 and 2 m for 100, 200 and 300 THC
Study No. 3 City driving (cannabis)	16 users Placebo 100 Test: 30 mn after	City driving 17.5 km Dense, moderate or light traffic	External observations Internal observations: skill, manoeuvres, turns...	No significant change No effect
Study No. 3 City driving (alcohol)	16 users Placebo Alcohol level: 0.5 g/l	Ditto	External observations Internal observations: skills, manoeuvres, turns...	No significant change 0.34 g/l alcohol level modifies control and manoeuvres
Robbe, 1998 Highway driving (cannabis and alcohol)	18 users THC: 100, 200 Alcohol: 0.4 g/l Preparation: Alcohol 0 + THC 0 Alcohol) + THC 100 Alcohol 0 + THC 200 Alcohol 0.4 + THC 0 Alcohol 0.4 + THC 100	Tracking: speed at 100km and constant lateral position	Standard deviation of lateral position	↑ Tracking variability; low alcohol alone, THC 100 alone; Moderate: THC 200 Heavy: alcohol 0.4 and THC two doses

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Effects of cannabis on car driving ²⁸				
Reference / environment	Subject / Dose / Protocol	Tasks	Measurements	Results
	Alcohol 0.4 + THC 200 Alcohol plus cannabis 60 mn after Tests between 9:00 p.m. and 11:15 p.m.	Following: follow a vehicle over 50 m with speed varying by \pm 15km/hr every 5mn	Reaction time	\uparrow Reaction time for 0.4 alcohol and THC 200
		Driving in traffic	Average distances and standard deviations	\uparrow Variability in distance between cars in all cases
Lamers and Ramaekers, 2000 City driving (cannabis and alcohol)	16 users THC 100 Alcohol 0.5 g/l 4 preparations: Alcohol 0 + THC 0 Alcohol 0.5 + THC 0 Alcohol 0 + THC 100 Alcohol 0.5 + THC 100 Tests: 15 mn after Duration: 45 mn	City driving 15 km Visual search monitoring	Frequency of appropriate eye movements Quality of driving	No effect with alcohol alone or cannabis alone \downarrow Performance if alcohol + cannabis No effect

It is interesting to recall that one of the first driving studies on the road was conducted for the Le Dain Commission.²⁹ In this study, on a closed track, 16 subjects were each given the 4 following preparations: placebo, marijuana 21 and marijuana 88 μ g/kg THC and a dose of alcohol equivalent to BAC 0.07. The tests were conducted immediately after use and three hours later. The subjects were to complete six circuits of the track (1.8 km) with manoeuvres involving slowing down while going forward and backwards, maintaining a trajectory and weaving through cones. The alcohol and heavy dose of marijuana decreased driver performance in tests conducted immediately after use. At the heavy cannabis dose, drivers drove more slowly. On the second test, the differences were less clear.

When the results of this study are compared to those conducted more recently using much more sophisticated methods, it can be seen that the results are remarkably similar.³⁰ Thus the following was observed:

- lateral control: this is the variable that is most sensitive to the effects of THC, but the effects are variable, depending on the dose and time; only heavy

²⁹ See Hansteen, R.W, et al. (1976) "Effects of cannabis and alcohol on automobile driving and psychomotor tracking." *Annals of the New York Academy of Science*, 282, pages 240-256.

³⁰ See notably the survey of studies and the discussion in Smiley, A., (1999) "Marijuana: On-Road and Driving Simulator Studies" in Kalant, H. et al., (ed) *The Health Effects of Cannabis*. Toronto: Addiction Research Foundation, pp. 173 passim.

doses significantly affected lateral control over the vehicle. In comparison, alcohol has a greater effect on vehicle lateral control and speed (linked variables)

- speed control: in almost all cases, the use of cannabis significantly decreases speed
- risk-taking: in addition to decreasing speed, it is generally found that there is an increase in distance between vehicles among marijuana users, and less of a tendency to pass or attempt dangerous manoeuvres
- decision time: this variable is particularly important in actual driving situations. The results do not appear to be very consistent. Smiley suggests that reaction time is unaffected when the subjects are told that they need to respond rapidly, whereas on the other hand, when the obstacles are completely unexpected, the subjects who used cannabis do not perform as well
- combined effects of alcohol and cannabis: when the researchers checked the effects of the two substances, the combined effects of cannabis and alcohol were systematically greater than alcohol alone or, even more so, than cannabis alone.

Lastly, with low doses, subjects had the impression that their driving was not as good as observers felt it was, which was not necessarily the case with higher doses, where the perceptions of both the drivers and the observers agreed.

CONCLUSIONS

The Committee feels it is likely that cannabis makes users more cautious, partly because they are aware of their deficiencies and they compensate by reducing speed and taking fewer risks. However, because what we are dealing with is no longer the consequences on the users themselves, but the possible consequences of their behaviour on others, the Committee feels that it is important to **opt for the greatest possible caution** with respect to the issue of driving under the influence of cannabis. Given what we have seen in this chapter, we conclude the following.

Conclusions of Chapter 8	
Epidemiological data	<ul style="list-style-type: none">➤ Between 5% and 12% of drivers may drive under the influence of cannabis; this percentage increases to over 20% for young men under 25 years of age.➤ This in itself does not mean that drivers under the influence of cannabis represent a traffic safety risk.➤ A not insignificant percentage of drivers test positive for cannabis and alcohol together

Data on effects on driving

cannabis and alcohol together.

- Cannabis alone, particularly in low doses, has little effect on the skills involved in automobile driving.
- Cannabis, particularly in the doses that match typical doses for regular users, has a negative impact on decision time and trajectory.
- Cannabis leads to a more cautious style of driving.
- The effects of cannabis when combined with alcohol are more significant than for alcohol alone.

Testing

- Blood remains the best medium for detecting the presence of cannabinoids.
- Urine cannot screen for recent use.
- Saliva is promising, but rapid commercial tests are not yet reliable enough.
- The visual recognition method used by police officers has yielded satisfactory results.

Further studies

It is essential to conduct studies in order to:

- Develop a rapid testing tool.
- Learn more about the driving habits of cannabis users.

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CHAPTER 9

USE OF MARIJUANA FOR THERAPEUTIC PURPOSES

There has been renewed interest in the issue of the use of marijuana for therapeutic purposes in recent years, particularly in Canada. In the wake of an Ontario Court of Appeal ruling which found the provisions of the *Controlled Drugs and Substances Act* to be unconstitutional pertaining to the therapeutic use of marijuana, the federal Health Minister made new regulations in July 2001 that give people with specified medical problems access to marijuana under certain conditions. Later that same year, an international conference on medicinal cannabis held in The Hague, Netherlands, drew delegates from Canada and several other Western countries.¹ Earlier, in 1999, the National Institute of Medicine in the United States published an assessment of the science base of marijuana and medicine.²

However, the scientific community – the medical community in particular – is divided on the real therapeutic effectiveness of marijuana. Some are quick to say that opening the door to medical marijuana would be a step toward outright legalization of the substance. Witness the following two quotes, the first of which is from a former director of the National Institute on Drug Abuse (NIDA) in the United States:

*It is primarily the political muscle of the marijuana legalization proponents that today creates the motivation to do additional research on marijuana smoke. [...] There is one explanation for the strident insistence of marijuana legalization proponents that only smoked marijuana will do as 'medicine'. They appear to be determined to have sick medical patients smoking marijuana in the public eye. They want that outcome because that act legitimizes the use of marijuana by changing the common public perception of marijuana from a harmful drug to a useful medicine.*³

*Although many who champion medical marijuana use do so on compassionate grounds, with the firm conviction that smoked marijuana provides benefits unavailable by other means, much support comes from those who advocate the liberalization of drug policy and the decriminalization of drug use.*⁴

¹ *International Conference on Medicinal Cannabis*, November 22-23, 2001, The Hague, Netherlands.

² Joy, J.E., S.J. Watson and J.A. Benson (1999) (eds.), *Marijuana and Medicine: Assessing the Science Base*. Washington, D.C.: National Academy Press.

³ DuPont, R.L. (1999), "Examining the Debate on the Use of Medical Marijuana", *Proceedings of the Association of American Physicians*, Volume 111, No. 2, page 169.

⁴ Rosenthal, M.S., and H.D. Kleber (1999), "Making Sense of Medical Marijuana", *Proceedings of the Association of American Physicians*, Volume 111, No. 2, page 159.

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It is true, as Professor Mark Ware pointed out in his testimony before the Committee, that in the current legal and political context, it is difficult to conduct studies and, more importantly, do so without being influenced by the heated debate over marijuana.

*Let us look at the effect that current drug policy has had on our understanding of cannabis. All our data on the health effects of cannabis have been collected under a paradigm of prohibition. This may seem self evident but it constitutes an important source of bias. In examining the health effects of cannabis, an estimate of the use of cannabis in the healthy population is important. [...] Surveys of illicit drug use are notorious for poor response rates. It hampers our ability to draw conclusions on what cannabis does, if we don't really know who is doing it. It is important to estimate the size of the bias, and the effect it has had, and good research will always try to minimize it. However, in my experience of critically reviewing the literature on cannabis effects on health, examples exist where important estimates of risk are based on studies which have inappropriate control selection. [...] The question therefore changes from 'how has cannabis policy affected health?' and becomes 'has cannabis policy affected our understanding of the health effects of cannabis?'*⁵

It is also true that the issue of medicinal marijuana challenges us on the very concept of modern medicine and its links with the pharmaceuticals industry, since research on cannabinoids has already led to the development of synthetic THC compounds. Drug companies are known to have played a major role in international negotiations leading to the adoption of the first international conventions on the control of psychoactive substances.⁶ Moreover, the marijuana plant itself, because it cannot be patented, is of no interest to major pharmaceutical research groups.

Beyond the scientific "proof" that marijuana is effective and the prospect of physicians prescribing marijuana with sufficient confidence, many people believe, based on personal experience, that marijuana has a direct impact in terms of improving their well-being with minimum adverse effects. That view is what led to the creation of "compassion clubs", organizations that distribute marijuana to growing numbers of clients. One of the questions this raises is how much evidence is needed before people can be allowed to freely use marijuana to relieve a medical condition. Indeed, do we have to think of marijuana in strictly medical terms?

We saw in Chapter 7 that the long-term effects of using marijuana, even on a regular basis, are limited and that even the most serious effects, such as lung cancer, have yet to be clearly demonstrated. We also saw that the adverse effects of prolonged use on cognitive function are more prevalent in people who are already vulnerable because of their young age when they started using, for example, or their personal condition (for example, psychotic predispositions). We also saw that, even assuming

⁵ Dr. Mark Ware, Assistant Professor of Family Medicine and Anesthesia, McGill University, testimony before the Special Senate Committee on Illegal Drugs, Senate of Canada, May 31, 2002.

⁶ See in particular the study by W.B. McAllistair, *Drug Diplomacy in the 20th Century*. This point will be discussed later in chapter 19.

some tolerance and a certain level of psychological dependency, those effects are minor, the signs of withdrawal minor, and treatment shorter and less often necessary than for other drugs. To a degree, it appears that the psychoactive properties of marijuana, which some see coupled with rejection of society, others with a weak personality and still others with immoral behaviour, make the substance suspect, whether in medical or non-medical applications.

In that sense, the issue of medical marijuana is not so much a question of legalization through the back door as it is a question of open examination of each person's underlying conception of the "drug". In a way, it is a prime opportunity to explore our preconceptions and prejudices. Stating, as we did in Chapters 6 and 7, that the psychological, physiological or social effects of marijuana use are by all indications relatively benign says nothing about the therapeutic benefits of the plant in the same way that medical uses of the poppy say nothing about the individual or social harm that can be caused by heroin. Dr. Kalant echoed this view:

The separation of the control methods between medical and non-medical use is generally clearly understood. Both heroin and cocaine have limited but recognized medical uses. [...] Yet, nobody argues that, because these drugs have some limited medical use, that they should therefore be legalized for non-medical use. [...] Cannabis is perhaps the one exception in which possible medical uses are often claimed by some proponents of legalization of cannabis as a justification for legalization for non-medical use. This to me seems quite irrational. There is no logical reason why having a medical use should be any argument at all, either for or against, availability for non-medical use.⁷

However, as Dr. Ware reiterated, "the safety of cannabis in humans has been extensively studied, thanks in part to the massive Western cohort of 'healthy human volunteers' of the last 40 years. Cannabis may have undergone the most extensive and unorthodox Phase I clinical trials of any drug in history."⁸ While it is true that research protocols to allow medical use of a substance are and must remain rigorous, there is no clear boundary between the two areas of research. This was illustrated to some extent in the review in Chapter 7 of studies on the effects and consequences of marijuana. Indeed, the opposite approach struck us as more common, where, based on the presumed harmful effects of marijuana on psychological and physical health, the therapeutic usefulness of marijuana becomes at least suspect. We take as an example the position of the Canadian Medical Association.

In his testimony before the Commission, current CMA president Dr. Henry Haddad said:

⁷ Dr Harold Kalant, Professor Emeritus at the University of Toronto, testimony before the Special Senate Committee on Illegal Drugs, Senate of Canada, First Session, 37th Parliament, June 11, 2001, Issue 4, pages 70-71.

⁸ Dr Mark Ware, *op.cit.*

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While our understanding of all the possible long-term health effects that prolong Canada's use is still evolving, what we do know is troubling. The health risks range from acute effects such as anxiety, dysphoria, or the feeling of being ill; cognitive impairment to the chronic effects such as bronchitis, emphysema and cancer. Canada's youth have also been subject to pulmonary damage comparable to that produced by tobacco use but the effects are much more acute and rapid. Evidence suggests that smoking two or three cannabis cigarettes a day has the same health effect as smoking 20 cigarettes a day. Therefore, the potential long-term health effects of cannabis use could be quite severe.

The CMA's concerns regarding the impact of cannabis are in part why we are opposed to the federal government's current medical marijuana access regulations. In our May 7, 2001, letter to the Minister of Health, the CMA noted 'lack of credible information on the risks and benefits of medical marijuana.'

During discussions on the government's medical marijuana regulations, we highlighted the health concerns and research that indicates that 'marijuana is an addictive substance that is known to have psychoactive effects and in its smoke form is particularly harmful to health.'

We have concluded that while benefits of medical marijuana are unknown, the health risks are real. Therefore, it would be inappropriate for physicians to prescribe marijuana to their patients, a position that was supported by the Canadian Medical Association.

[...]

The CMA is concerned that this debate concerning decriminalization and the medical marijuana issue has, to some extent, legitimized its use for recreational purposes. It is important that our message to you regarding decriminalization be clear and understood. Decriminalization must be tied to a national drug strategy that promotes awareness and prevention and provides for comprehensive treatment in addition to research and monitoring of the program.

[...]

The CMA believes that any changes regarding illegal drug policy should be gradual. Like any other public health issue, education and awareness of the potential harms associated with cannabis and other illegal drug use is critical to reducing drug usage.⁹

If we were to succeed in showing that the effects are not as bad as had been thought, would it change in any way the issues related to medical use of marijuana? The acute effects identified by the CMA are possible but relatively rare and often the product of personal predispositions, context or a particular crop of marijuana. In fact, the primary acute reactions, the reactions documented by most of the research, are pleasant and help the user relax. If we were to convince the medical association that marijuana is not particularly addictive and that even where it is, the effects are relatively benign, would that clear the way for medical use of marijuana? Aside from the fact that

⁹ Dr. Henry Haddad, President, Canadian Medical Association, testimony before the Special Senate Committee on Illegal Drugs, Senate of Canada, First Session, 37th Parliament, March 11, 2002, Issue 14, pages 52-53 and 54-55.

marijuana is only tenuously linked to “drug addiction”, there is by no means consensus in the scientific community on the very notion of drug addiction, viewed primarily as a disease.

The question lies elsewhere – in two places, in fact. First, knowledge of the potentially harmful effects of marijuana says nothing about the qualities of the plant as a medicine. To be sure, knowledge of the secondary effects of drugs, including their addictive potential, is essential to the pharmacopoeia. However, those substances must first be established as drugs, particularly in terms of effectiveness and reliability. Second, the whole issue is broached as if resistance to medical use of marijuana were based not so much on the absence of medical knowledge *per se* – which is the case to some extent, as we will see later in this chapter – as on the link between marijuana and drug addiction. From that perspective, the issue is quickly resolved: in keeping with the medical maxim “*first do no harm*”, a physician will not prescribe a treatment the effects of which could lead to an illness at least as serious as the illness being treated in the first place. If marijuana is listed as an illegal drug, banned in some contexts because of its harmful effects and capable of leading to drug addiction, what compelling arguments could be put forward to “save” medical marijuana?

But none of that should matter to physicians or scientists. It is not a question of defending general public policy on marijuana or even all illegal drugs. It is not a question of sending a symbolic message about “drugs”. It is not a question of being afraid that young people will use marijuana if it is approved as a medicine. The question – the only question – for physicians is whether, to what extent and in what circumstances, marijuana serves a therapeutic purpose. Physicians would have to determine whether people with certain diseases would benefit from marijuana use and weigh the side effects against the benefits. If they decide the patient should use marijuana, they then have to consider how he or she might get it. The issue of deciding whether cannabis has therapeutic benefits is obviously clouded by the current legal context on cannabis. This may be inevitable, but those who take public positions on cannabis for therapeutic purposes should say so.

The rest of this chapter is devoted to the history of the use of marijuana for therapeutic purposes and the status of contemporary knowledge of marijuana and synthetic cannabinoids. We then give a brief account of compassion clubs and other organizations that supply marijuana for therapeutic use, as well as various public policy regimes. We conclude with our views on medical use of marijuana. In a later chapter, we discuss which public policy regime would be most appropriate given the status of medical use of marijuana.

HISTORY

The therapeutic potential of marijuana has apparently been known since the beginning of recorded history. In fact, marijuana was likely used for medicinal purposes even before its psychoactive properties were tapped.

The medical history of marijuana is closely related to its analgesic properties, as noted by Ethan Russo:

Cannabis has a history as an analgesic agent that spans at least 4000 years, including a century in mainstream Western medicine. [...] The reasons lie in the remarkable pharmacological properties of the herb and new scientific research reveals the inextricable link that cannabinoids possess with our own internal biochemistry. In essence, the cannabinoids form a system in parallel with that of the endogenous opioids in modulating pain. More important, cannabis and its endogenous synthetic counterparts may be uniquely effective in pain syndromes in which opiates and other analgesics fail.¹⁰

According to Russo, written documents and ethnographic traces of medical use of marijuana have been found in many countries. In China, a second-century medical paper reported that marijuana was used as a surgical anesthetic. In India, marijuana was used to treat migraines and chronic pain 2000 B.C. In Egypt, where most scholars thought that marijuana had not been introduced, there is evidence that it had been in use in medicine since the days of the pharaohs; traces of marijuana were found in the tombs of Amenophis IV and Ramses II. Marijuana was apparently used to treat glaucoma and labour pain. Marijuana was administered orally, rectally or vaginally, applied to the skin, inserted in the eyes and smoked.

In Assyria, Babylonia and Arcadia, marijuana was apparently used as an analgesic to treat migraines and menstrual pain and for its psychoactive properties. Evidence of marijuana use to control labour pain has also been found in Palestine and Israel. The Greeks and Romans used marijuana for general pain control and specifically for gout and rheumatism. In the Muslim world, there are references to therapeutic use dating back to the ninth century.

In the mid 17th century, western medicine discovered the medicinal properties of marijuana. A compendium of plants published in 1640 in England made reference to marijuana being used in the form of a paste containing essence from the plant and other ingredients. In France, the work on hemp published by Mercandier described a number of uses: dried and applied as a plaster, it eased the pain associated with tumours; boiled and applied as a plaster, it helped ease the pain of rheumatism, gout and various muscle inflammations; crushed into a powder and mixed with butter, it soothed burns. In his classification of plants, Linnée recognized the medicinal properties of marijuana as a pain reducer.

¹⁰ Russo, E.B. (2002), "The role of cannabis and cannabinoids in pain management", in Weiner, R.S. (ed.), *Pain Management. A Practical Guide for Clinicians*, Boca Raton, London, New York, Washington: CRC Press.

Medical use of marijuana became more widespread in England in the middle of the 19th century when the plant was brought back from India. Even the personal physician of Queen Victoria, Russell Reynolds, used it: he treated his celebrated patient for dysmenorrhea throughout her adult life using cannabis extract. In an 1868 paper, he wrote that unlike opiates, marijuana could be used today without causing problems tomorrow.¹¹

Between 1890 and 1940, English, Irish, French and then American physicians and pharmacists testified in different ways to the usefulness of various marijuana preparations in relieving pain. One British pharmacologist even reintroduced the smoking of marijuana in 1899, pointing out that smoking was particularly useful if an immediate effect was desired.¹²

Marijuana is still part of the pharmacopoeia, at least informally, of many countries in southeast Asia. Marijuana use in India was recently described as follows:

*Charas is the resinous exudation that collects on the leaves and flowering tops of plants (equivalent to the Arabic hashish) ; it is the active principle of hemp ; it is a valuable narcotic, especially in cases where opium cannot be administered it is of great value in malarial and periodical headaches, migraine, acute mania, whooping cough, cough of phthisis, asthma, anaemia of brain, nervous vomiting, tetanos, convulsion, insanity, delirium, dysuria, and nervous exhaustion ; it is also used as an anaesthetic in dysmenorrhoea, as an appetizer and aphrodisiac, as an anodyne in itching of eczema, neuralgia, severe pains of various kinds of corns, etc.*¹³

It is also used in Colombia, Jamaica and Brazil.

It is tempting, of course, enamoured as we are with our modern science, to dismiss these traditional uses as "home remedies" – and the stuff of quacks. However, the fact that marijuana has been used so long for the same types of condition, that it has sometimes been described so accurately, that it has transcended cultures and histories, and that modern medicine suggests that marijuana could in fact be useful in treating the chronic pain associated with various medical conditions should stop us from being too cynical about these "old-fashioned" uses.

CONTEMPORARY KNOWLEDGE

Two questions strike us relevant here. The first is whether marijuana in fact has the therapeutic effects that have been ascribed to it traditionally and more recently in the personal stories of people suffering from chronic pain and other conditions. If

¹¹ Quoted in Russo, *op. cit.*, page 359.

¹² *Ibid.*, page 360.

¹³ *Ibid.*, page 361.

those benefits are real, the second question, altogether different and based on different criteria, is whether marijuana should be considered a drug.

Therapeutic uses

Knowledge of the mechanics of cannabinoids and the endogenous cannabinoid system allows a number of observations to be made. Generally, and bearing in mind what was written in Chapter 5, the action of cannabinoids can be described as follows:

[...]the overall effect is that of a cellular inhibition rather than cellular activation. It settles down nerve firing through a number of different types of reactions, primarily through changes that lead to changes in the flow of ion channels, which changes the firing behaviour of the cell which then changes how it communicates with other cells down the line.

Opening of potassium channels with decreased cell firing and closing of calcium channels with decreased release of neurotransmitters or overall cellular inhibition, which quiets things down. Those could have major therapeutic implications in certain clinical situations, such as pain and spasticity. They have implications in settling down nerve firing within pain conducting systems.¹⁴

More specifically, cannabinoids act on various neurophysiological systems associated with pain, either alone or in combination with the endogenous opiate system.¹⁵ Cannabinoids affect the release of serotonin, which is itself associated with different types of pain, migraines in particular. Anandamide and other cannabinoid antagonists block the release of serotonin and ketanserin, both of which are linked to migraines, suggesting the potential effect of THC. Cannabinoids are also related to the dopamine system, which has been linked with migraines and other types of pain. Further, cannabinoids inhibit prostaglandin, producing an anti-inflammatory effect. Some studies have shown that THC is in that sense a more powerful analgesic than aspirin or even cortisone. Interacting with the endogenous opioid systems, cannabinoids increase the production of beta-endorphins, which reduce the effect of migraines. According to some studies, THC may have greater therapeutic potential than morphine, either because the applications would be more specific in some cases, because in other cases morphine aggravates some symptoms, or because THC lacks the sedative properties of morphine. Moreover, THC may have an antinociceptive effect on the periaqueductal grey. Finally, THC acts as a glutamate blocker and thereby reduces muscle and inflammatory pain.

¹⁴ Dr. Mary Lynch, Director, Canadian Consortium for the Investigation of Cannabinoids, Professor, Dalhousie University, testimony before the Special Senate Committee on Illegal Drugs, Senate of Canada, First Session, 37th Parliament, June 11, 2001, Issue 4, page 49.

¹⁵ The following information is taken primarily from Russo, *op. cit.*, Hartel, C.R., "Therapeutic Uses of Cannabis and Cannabinoids", in Kalant, H. (ed.), *The Health Effects of Cannabis*, Toronto: Addiction Research Foundation, and INSERM (2001), *op. cit.*

*Italian researchers Nicolodi, Sicuteri and colleagues have recently elucidated the role of NMDA antagonists in eliminating hyperalgesia in migraine, chronic daily headaches, fibromyalgia, and possibly other mechanisms of chronic pain. Gabapentin and ketamine were suggested as tools to block this system and provide amelioration. Given the above observations and relationships, it is logical that prolonged use of THC prophylactically may exert similar benefits, as was espoused in cures of chronic daily headache in the 19th century with regular use of extract of Indian hemp.*¹⁶

In real terms, these mechanisms mean that cannabinoids can be beneficial in a number of situations that involve pain, but not pain alone. The following are foremost among them.

- **Emesis:** Nausea is a common condition in cancer patients undergoing chemotherapy. As a result of a series of clinical trials involving people who reported using marijuana to relieve their vomiting, synthetic dronabinol (or Marinol) and nabilone (or Cesamet) were developed and tested primarily in the United States and Great Britain beginning in the 1970s. According to Dr. Lynch, *"cannabinoids are thought to be modest antiemetics. There are more effective antiemetic agents available. However, because antiemetics work through a number of different mechanisms and because often we need to be able to target more than one mechanism to treat nausea and vomiting, cannabinoids are looking like they may be useful because they may offer us another option."*¹⁷
- **Cachexia:** A significant number of people with AIDS/HIV suffer progressive anorexia coupled with weight loss. Some studies show that cannabinoids can help improve their situation, mainly because THC increases appetite. Some reservations have been voiced regarding the harmful effects of smoked THC on the immune system: *"More recently, Nieman et al (1993) have shown that cigarette smoking by HIV seropositive individuals is associated with a more rapid development of AIDS because smoking increases the incidence of Pneumocystis carinii pneumonia (PCP)."*¹⁸ Others, however, have come to different conclusions: *"A particular public health concern surrounds cannabis effects on HIV/AIDS. Four studies among others may reduce related concern. Kaslow et al. (1989) demonstrated no evidence that cannabis accelerated immunodeficiency parameters in HIV-positive patients. DiFranco et al. (1996) ascertained no acceleration of HIV to full-blown AIDS in cannabis smokers. Whitfield, Bechtel and Starich (1997) observed no deleterious effects of cannabis usage in HIV/AIDS patients, even those with the lowest CD4 counts. Finally, Abrams et al. (2000) studied the effects of cannabis smoking on HIV positive*

¹⁶ Russo, *op. cit.*, page 365.

¹⁷ Dr. Mary Lynch, *op. cit.*, page 52.

¹⁸ R.D. Hartel, *op. cit.*, page 465.

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*patients on protease inhibitor drugs in a prospective randomized, partially blinded placebo-controlled trial. No adverse effects on CD4 counts were observed secondary to cannabis.*¹⁹

- **Glaucoma:** Glaucoma is an eye disease in which intraocular pressure builds because the fluid in the eye has difficulty draining and which leads to gradual destruction of the ocular nerves. Marijuana, in particular paste made from cannabis leaves, has been used to reduce intraocular pressure since ancient times, as we saw in the previous section. Recent studies suggest that marijuana – including smoked marijuana – helps reduce the effects of glaucoma. However, there have been some reservations because of some of the side effects of smoking marijuana (redness and drying of the eyes). In a case study by Russo *et al.* on four patients who smoked marijuana, one patient with glaucoma stated in court that the marijuana saved her sight.
- **Spasms and convulsions:** The anticonvulsive properties of marijuana that help control epileptic seizures and the antispasm properties that are useful in treating multiple sclerosis are well known in Canada; marijuana use for epilepsy gave rise to the Ontario Court of Appeal decision in Parker. Smoked marijuana and synthetic cannabinoids appears to be effective in controlling these conditions. However, because of the bioavailability of synthetic compounds (between 20% and 30%) and their delayed effect relative to smoked marijuana, patients seem to prefer smoking.
- **Pain:** The analgesic effects of marijuana in easing different types of pain have also been known since ancient times. We described the analgesic effect of marijuana above. More importantly, marijuana has specific effects on some types of pain that opiates do not.

Marijuana as a drug?

In order for a product to be recognized as a drug in the pharmacopoeia, it must meet at least three criteria:

- quality: the dosage must be determined based on a constant and known composition that is easy to administer to the patient;
- effectiveness: rigorous clinical trials must have demonstrated the effectiveness of the drug; and

¹⁹ Russo, E.B., *et al.* (2002), “Chronic cannabis use in the compassionate investigational new drug program: An examination of benefits and adverse effects of legal clinical cannabis”, *Journal of Cannabis Therapeutics*, Vol. 2, No. 1, page 45.

- safety: studies must show the known and foreseeable side effects of the drug.

Because of the lack of rigorous clinical studies using recognized protocols, whole marijuana has not yet met these criteria. There are a number of reasons for this. First, the research protocols needed to test drugs involve double-blind tests with control groups and randomly selected subjects, all conditions that are hard to achieve with marijuana. Second, the current legal climate limits the potential for such studies in terms of both the availability of marijuana and test conditions. Third, the marijuana provided by the National Institute of Drug Abuse (NIDA) for medical research—including research conducted by Health Canada—is of dubious quality:²⁰ THC concentration may be a determining factor in the quality of the therapeutic effects, yet NIDA marijuana contains only 1.8% to 5% THC. Moreover, weaker marijuana requires more draws and releases more CO than marijuana with a higher THC content. Other cannabinoids are not measured, yet they are known to also have a bearing on the medical properties of marijuana. The paper in which the marijuana is rolled is of poor quality. The marijuana is often more than two years old and may not have been stored under conditions that would preserve all its qualities. Finally, the marijuana contains many seeds and other plant debris. Fourth, it is difficult to control the amount of marijuana actually absorbed by the subjects: the way a person draws on the cigarette, whether or not the person is accustomed to smoking, the subject's preferences and the length of time the subject inhales are factors which can affect the test conditions and which researchers have not yet been able to measure accurately.

It must also be possible to answer the following and other questions:

- is there a difference between synthetic cannabinoids and whole marijuana?
- what is the optimum marijuana profile in a given situation?
- do different doses and different forms of ingestion produce significantly different effects?

In recent years, analyses of the scientific literature have been conducted by the Institute of Medicine in the United States and the British Medical Society and in various government reports in England, the Netherlands and elsewhere. The Institute of Medicine concluded that there is evidence of the therapeutic potential of marijuana as an analgesic, antiemetic and appetite stimulant. It noted, however, that smoking is a difficult way to control the ingestion of marijuana and also has side effects related specifically to its carcinogenic potential and the link with respiratory diseases. The institute also found that the psychoactive effects of marijuana are sometimes, but not always, beneficial for some patients. Finally, the institute pointed out that smoking marijuana should not be recommended over the long term because of the potential

²⁰ Russo, *op.cit.*, discusses these weaknesses in greater detail.

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mental effects, but could be prescribed for persons with terminal or degenerative diseases, where long-term considerations are secondary. In the Netherlands, the National Health Council issued a notice in 1995 stating that scientific evidence on medical use of marijuana was insufficient because of poor research and uncertainty as to the properties of smoked marijuana. The council also noted that marijuana could have therapeutic applications in the following areas: nausea and vomiting related to chemotherapy, appetite stimulation for people with AIDS or cancer, multiple sclerosis and glaucoma. In 2001, the Netherlands created a medical marijuana bureau in the ministry of health and began clinical studies. In England, the House of Lords has taken a position similar to that of the Institute of Medicine in the United States, and the Ministry of Health is currently conducting at least one clinical study.

Clearly, **not enough is known about marijuana to establish it as a drug in the strict sense of the word, and we only have partial knowledge of cannabinoids.** Most cannabinoids are a single cannabinoid compound, whereas marijuana contains many substances the effects of which interact to produce the therapeutic effects. Yet researchers have still not specifically identified the role of the various cannabinoids. Patients who use synthetic dronabinol or nabilone-based compounds generally report not feeling the same beneficial effects as when they smoke marijuana. It may take longer for the effects to be felt, and the effects may be less specific. Further, isolating only one of the components of marijuana could, according to some studies, increase the risk of panic attacks and even marijuana-induced psychosis.

*A significant benefit of whole marijuana is that it can be delivered in smoked format, with a rapid onset of action and a titratable effect by the patient. [...] In practice, both patients and oncologists report that smoked marijuana is somewhat more effective than and as safe as the legally available oral cannabinoids. Another major difference between marijuana and THC, besides the availability of a smokeable, titratable delivery system with whole marijuana, is that 9-THC alone can produce the relatively common effects of anxiety disorder and panic attack. [...] The adverse effects can also occur with marijuana use, but are felt to be diminished by the presence of cannabidiol, a nonpsychoactive compound with antipsychotic properties.*²¹

Finally, the cost of synthetic compounds, which is much higher, has to be taken into account.

The advantages of smoked marijuana are that patients can determine the necessary dose on their own and feel the effects more quickly, while limiting the adverse side effects other than the effect on the respiratory system. It should be noted in passing the importance of self-regulation by patients: most of the clinical cases reported and most of the testimony from compassion club representatives agree that patients prefer to use marijuana with a higher THC content than recreational marijuana

²¹ Gurley, R.J., R. Aronow and M. Katz (1998), "Medicinal marijuana: A comprehensive review", *Journal of Psychoactive Drugs*. Vol. 30, No. 2, page 139.

but only ingest the quantity they need to achieve the calming effects. However, the problems related to specific knowledge of the effectiveness and quality of marijuana limit the ability of physicians to prescribe the appropriate dose. More advanced knowledge of smoked marijuana pertains to the degree of safety, although there is variation in interpretation of the data. We generally concur in the finding of Professor Scholten:

Cannabis use for medicinal reasons by patients with a somatic disease is relatively safe, on condition that it is not smoked ; when smoked it has the same carcinogenic potential as tobacco. The alternatives are oral administration or inhalation using a vaporiser.

The acute toxicity of cannabis is very low ; it is almost impossible to die of an overdose (users would have to eat or smoke their own weight in fresh cannabis, or 7,500 grams of dried cannabis to achieve this). The principal side effects in therapeutic use are psychosis and euphoria. Little is known about this drug's addictive effect in medical use, though experience with the use of morphine for pain relief has shown that the risk of psychological addiction is low – much lower than when used as a stimulant. As the addictive effect of cannabis is also quite low when used as a stimulant, it may be assumed that this will always be very low in a medical setting.

When estimating the chronic toxicity of cannabis, it should be borne in mind that the doses used in therapeutic applications will probably be lower than those used for "recreational" purposes, decreasing the risks of side effects.²²

Does this mean that medical use of marijuana, smoking in particular, should be discouraged or even banned? The last section addresses this question.

CURRENT THERAPEUTIC PRACTICES

The main reservations about therapeutic use relate to the lack of comprehensive knowledge based on controlled medical studies and also to the long-term impact on the respiratory system and carcinogenic potential. In some cases, reservations have been expressed regarding the psychoactive properties of marijuana. There is a growing consensus on the therapeutic potential of marijuana, particularly smoked marijuana. While marijuana cannot, strictly speaking, be considered a drug, at least for the time being, it still has therapeutic properties. How then do we classify and regulate it?

Canada, the United States and many other countries have developed a parallel practice of allowing people with certain conditions to use marijuana. The most familiar example in Canada is without question the Vancouver Compassion Club.

In its mission statement, the club advocates a holistic approach to health. It not only supplies marijuana, but also delivers other forms of natural medicine (herbal

²² Scholten, W.K. (2002), "Medicinal cannabis: A quick scan on the therapeutic use of cannabis", in Pelc, I. (ed.), *International Scientific Conference on Cannabis*, Brussels.

therapy, acupuncture, massage, etc.). The club is built on the values of compassion, emancipation and complementarity between approaches.

In the six years since the Compassion Club was founded, an intimate knowledge of the therapeutic effects of marijuana has been acquired. The club offers a daily menu comprising seven to ten varieties of marijuana, one or two varieties of hashish, cannabis tincture, and baked goods containing marijuana. It sells marijuana for \$3 to \$10 a gram, depending on the variety. It currently serves more than 2,000 members/clients.

Our members have a huge range of symptoms and conditions such as HIV and AIDS, cancer, multiple sclerosis, arthritis, chronic pain, fibromyalgia, seizure disorders, glaucoma, hepatitis C, anxiety, depression, insomnia, eating disorders and many others. [...]

It is important that medicinal users have access to a variety of strains, as the effect of cannabis varies depending on which strain is being used and the method of ingestion. Our members are made aware of the differences and can then select the best strain of cannabis to most effectively treat their symptoms.

Indica and sativa are the two main varieties of the cannabis plant used as medicine. Many strains are crosses of those two varieties. Within each of those varieties and crosses there are a huge number of individual strains, each with a different cannabinoid profile and effect.

According to the anecdotal evidence, the indica strains are a relaxant, effective for anxiety, pain, nausea, appetite stimulation, sleep, muscle spasms and tremors, among other symptoms. The sativa strains are more of a stimulant, effective in appetite stimulation, relieving depression, migraines, pain and nausea. We are now aware of specific strains that are effective for specific conditions and symptoms. Members keep track of their use in order to find the most effective strain for themselves. We also keep close records monitoring members' purchases in order to assist members to track their own consumption and for us to prevent reselling and to encourage responsible use.²³

Having read that testimony and the documents given to us by the club, visited the club's premises and examined its records, and heard the testimony of other people who work for similar organizations in Montreal and Toronto, we can safely say that there are links between this therapeutic practice and the data produced by research on medical uses of marijuana.

We also observe that this organization, like others that provide a similar service in Canada, keeps detailed records of their clients and their marijuana use; these records allow treatment to be monitored, but could also be excellent material for empirical research. **We can only lament the fact that Health Canada has not undertaken clinical research in cooperation with this organization.** We share the reservations voiced by Hilary Black regarding the traditional protocols used in research on therapeutic use of marijuana:

²³ Hilary Black, Director, Vancouver Compassion Club, testimony before the Special Senate Committee on Illegal Drugs, Senate of Canada, First Session, 37th Parliament, November 7, 2001, Issue 10, page 36.

*We created a research proposal with a team of research scientists from Vancouver. However, we were turned down because we refuse to facilitate a study using a placebo or low-quality, low-potency cannabis imported from the US National Institute on Drug Abuse. Any study attempting to prove the efficacy of cannabis as a medicine using such a low-potency herb, or unknown strains such as those currently being grown in Canada by Plant Prairie Systems, is destined to fail. There is no need to import cannabis for research, considering the high quality and huge quantity of cannabis being produced in Canada. The information we could gather is being requested by doctors, patients, pharmaceutical companies, Plant Prairie Systems and Health Canada, yet we are not financially empowered to facilitate this research.*²⁴

No one will deny that research on therapeutic uses of marijuana, whether smoked or synthetic, must continue in an effort to further clarify the key elements of quality, effectiveness and safety. Everyone agrees that we should learn more about the strains and doses appropriate to various conditions. For all that, do we have to think of marijuana as a drug like the other drugs listed in the pharmacopoeia? Do we have to have the same requirements as those applicable to prescribed drugs, or should we relax the rules to view marijuana a natural health product? Were it not for the legal system and the international conventions governing marijuana, would the plant not be considered more a natural health product like other plants and herbs?

Casting the issue in those terms forces us to think differently about the therapeutic use of marijuana. If the aim is to make it a approved therapeutic product, the reservations of the medical profession, or at least of some representatives of the profession, are understandable: they cannot endorse the approach until the proper controlled studies are carried out so that physicians can prescribe marijuana as confidently as they prescribe other approved therapeutic products. If marijuana is recognized as having therapeutic uses in some cases – at least as proven as any other plant used in homeopathy or herbal therapy – the aim is instead to give it the same status as other natural health products.

CONCLUSIONS

The Committee is of the opinion that the potential therapeutic uses of marijuana have been sufficiently documented to permit its use for therapeutic purposes. It should be acknowledged that smoking marijuana can have harmful side effects, particularly for the respiratory system, and users should be informed accordingly. It should also be acknowledged that research is needed to further clarify the specific field of marijuana use and the long-term effects of marijuana.

²⁴ *Ibid.*, page 39.

Conclusions of Chapter 9

Therapeutic applications

- There are clear, though non-definitive indications of the therapeutic benefits of marijuana in the following conditions: analgesic for chronic pain, antispasm for multiple sclerosis, anticonvulsive for epilepsy, antiemetic for chemotherapy and appetite stimulant for cachexia.
- There are less clear indications regarding the effect of marijuana on glaucoma and other medical conditions.

Marijuana as a drug

- Marijuana has not been established as a drug through rigorous, controlled studies.
- The quality and effectiveness of marijuana, primarily smoked marijuana, have not been determined in clinical studies.

Marijuana and synthetic compounds

- There have been some studies of synthetic compounds, but the knowledge base is still too small to determine effectiveness and safety.
- Generally, the effects of smoked marijuana are more specific and occur faster than the effects of synthetic compounds.
- The absence of certain cannabinoids in synthetic compounds can lead to harmful side effects, such as panic attacks and cannabinoid psychoses.
- Smoked marijuana is potentially harmful to the respiratory system.
- People who smoke marijuana for therapeutic purposes self-regulate their use depending on their physical condition and do not really seek the psychoactive effect
- People who smoke marijuana for therapeutic purposes prefer to have a choice as to methods of use.

Therapeutic practices

- Measures should be taken to support and encourage the development of alternative practices, such as the establishment of compassion clubs.
- The practices of these organizations are in line with the therapeutic indications arising from clinical studies and meet the strict rules on quality and safety

Research

- The studies that have already been approved by Health Canada must be conducted as quickly as possible.
- The qualities of the marijuana used in those studies must meet the standards of current practice in compassion clubs, not NIDA standards.
- The studies should focus on applications and the specific doses for various medical conditions.
- Health Canada should, at the earliest possible opportunity, undertake a clinical study in cooperation with Canadian compassion clubs.

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CHAPTER 10

CANADIANS' OPINIONS AND ATTITUDES

One of our main objectives throughout our study was to get Canadians involved. We wanted people to share their opinions, experiences and fears regarding marijuana. We also wanted to provide access to the information we held so as to contribute, within our modest means, to better knowledge of the realities of marijuana, if only to raise the level of public debate. At the start of each public hearing the Committee Chair stated:

The second thrust is the sharing of knowledge. This is definitely our most noble objective. The committee wants all Canadians to become informed and share the information we collect. Our challenge will be to plan and organize a system to ensure that the knowledge is available and distributed. We would also like to hear what people think about this knowledge. In order to do this, in the spring of 2002, we will be holding public hearings in various parts of Canada.

This was indeed a major challenge. It is one thing to passively make available such information as proceedings of our hearings and our commissioned research reports. It is another thing to actively disseminate that information widely, having the means to do so. And it is another thing again to take the pulse of Canadian society.

To convey the information to Canadians, we chose to make full use of our Internet site, posting all of our documents as they were ready. To boost circulation, we used two main tools. The first was a conventional tool: the media. We worked to get as much media coverage as possible in order to promote our work or simply let people know the Committee existed. With the same goal in mind, some members of the Committee took part in conferences, round table discussions and open-line shows. The second tool, one we considered essential in promoting our work, was the discussion paper we released in May 2002. The paper laid out some of our preliminary research findings on eight key issues, put forward a number of public policy options and proposed questions for the public hearings. The main aims of the paper were to convey our knowledge and generate public interest. A third objective was to provide a backdrop for the public hearings we held throughout the country in May and June 2002.

Only time will tell whether and to what extent we were successful in promoting our work and, more importantly, in increasing public knowledge of marijuana. We did not have the financial means to conduct a far-reaching public information campaign or

an opinion poll before and after the release of the discussion paper to determine whether we had any impact on Canadians.

It is much harder to gauge the public's opinions, attitudes and concerns. The traditional method of surveying a representative sample of the population was too expensive. Surveys also have limits, which we will discuss in more detail later. However, we did commission a qualitative study using focus groups, the results of which will be presented in this chapter. We will also report the results of other surveys that came to our attention. As well, many Canadians wrote to us or sent us e-mails, and some came out to our public hearings. We obviously cannot draw any conclusions from this: the only people who wrote to us were probably people to whom the issue is very important, regardless of which way they lean. Some will be cited but we reiterate that nothing is to be drawn from these opinions in terms of representativeness.

No account of Canadians' opinions on and attitudes toward drugs in general would be complete without an examination of the role of the media in shaping those opinions and attitudes. In recent years, as a result of this Committee's work and other initiatives, various Canadian newspapers and magazines have run stories or written editorials on the issue. These will be the focus of the first part of the chapter. The next part presents the results of surveys and polls, including the survey we commissioned and surveys conducted in different provinces. The last part covers our understanding of what Canadians told us.

THE MEDIA

At the start of the century, the media played a key role in creating a moral "panic" over illegal drugs. First it was the "Yellow Peril" and the opium crisis in the early 20th century, primarily in Vancouver.¹

[...] tolerance for the habit of smoking opium lasted only as long as British Columbia's tolerance for the Chinese. In the early years of the twentieth century, both a labour surplus and anti-Asian resentment developed [...] If you look at the Vancouver Province, virtually any front page in the first five years of the 20th century, there are racist cartoons warning about the yellow peril, about how British Columbia is going to be swallowed up by the Chinese, and about another boatload arriving.²

The following appeared in *Canadian Magazine* in 1900:

¹ See the analyses by Giffen, P.J., *et al.* (1991), *Panic and Indifference. The Politics of Canada's Drug Laws*, Ottawa: Canadian Centre on Substance Abuse; Boyd, N. (1991), *High Society: Illegal and Legal Drugs in Canada*, Toronto: Key Porter Books.

² Boyd, N., *op. cit.*, pages 27-29.

*It was quite evident he (the Chinese servant) had had his share and a night of it, for there are Chinese dens in Vancouver where opium is smoked and unspeakable infamies are practised, and no matter how meek and mild your Chinaman may look, no matter how gentle his voice or confiding his manner, Saturday night is almost certain to find him 'doped' in his bunk, weaving dreams under the poppy's subtle spell.*³

Then it was the cocaine plague in Montreal as described by the following article in the Montreal *Witness* in 1910:

*This curse of cocaine [...] has existed for a short time in the city. It is a real evil. It is a social plague, and it goes on spreading so fearfully that it is time for society to take marked notice. Alcoholism and morphia are nothing to cocaine. It is the agent for the seduction of our daughters and the demoralization of our young men. [...] Those who know what cocaine is and what its evils are, are those who can hurt society most.*⁴

This vision of the decay and degeneration of the working class and, more broadly, Anglo-British and Christian civilization, would subsequently be picked up by temperance movements. A key figure in women's history in Canada, Emily Murphy, would play a leading role in the 1920s in articulating this apocalyptic vision. Murphy, a writer and journalist, was president of the Canadian Women's Press Club (1913-1920), the founding president of the Federated Women's Institute and a member of the National Council of Women of Canada before becoming a judge in Alberta. She also fought to have women's rights recognized in the Canadian constitution. She was a tireless fighter in the war on drugs. In a series of articles published in *MacLean's* magazine in 1920, she attacked the "plague" of drugs.

*[...] whatever form these drugs are taken, they degrade the morals and enfeeble the will. No matter what their status has been, inveterate users of drugs become degraded. All are liars: nearly all become dishonest. Being deprived of the drug, they will go any length to get it, even to thievery and prostitution. While sober they are uncomfortable, and prolonged abstemiousness hurts them like nails driven into the flesh.*⁵

In 1922, in her book *The Black Candle*, she also attacked marijuana, which she described as follows:

Persons using this narcotic smoke the dried leaves of the plant, which has the effect of driving them completely insane. The addict loses all sense of moral responsibility. Addicts to this drug, while under its influence, are immune to pain, and could severely injured without having any realization of their condition. While in this condition they become raving maniacs and liable to

³ Quoted in Giffen, P.J., *op. cit.*, page 61.

⁴ Quoted by McKenzie King in Hansard, House of Commons, January 26, 1911, pages 2641-2642.

⁵ Murphy, E., (1920), "The underground system", *MacLean's*, March 15, 1920.

kill or indulge in any form of violence to other persons, using the most savage methods of cruelty without, as said before, any sense of moral responsibility. When coming under the influence of this narcotic, these victims present the most horrible condition imaginable. They are dispossessed of their natural and normal will power and their mentality is that of idiots. If the drug is indulged in any great extent, it ends in the untimely death of the addict. ⁶

Beyond the verbal impact of these articles and racism toward Asians, there is some similarity between the messages being conveyed at that time and some contemporary messages about drugs: drugs attack the moral roots of society, the family in particular. They put young people at risk and cause crime and violence. Dealers are everywhere, especially around schools, ready to do whatever it takes to expand their client base. And drugs, by definition, lead to drug addiction.

That does not mean, of course, that the newspaper articles were the main reason why drugs were criminalized. Nor does it mean that people ultimately believed what was written. Still, analysts of the evolution of drug laws in Canada agree that the media played an important role in shaping Canadian drug legislation.

Where do Canadian media stand on drugs today? We did not analyse all the press coverage of drugs in Canada, although the exercise would probably have been interesting in sociological terms in identifying key notions and seeing just how public opinion is shaped. All we do here is examine two main types of media article. The first is news related to criminality, the second, feature stories and editorials.

News stories on illegal drugs usually focus on police operations: raids, seizures, dealer arrests and dismantling of organized crime rings. The best-known modern example was surely the 2001 arrest in Quebec of more than 70 Hells Angels members known to be involved in narcotics trafficking and other illegal activities. And then there are seizures, month after month, of kilograms – even hundreds of kilograms – of drugs, more and more often marijuana.

We do not know how this information helps shape public opinion on drugs or what impact it has on the public's demands concerning drugs. However, these articles probably give people the impression that the "drug problem" is first and foremost an organized crime problem. But while there may have been an impression until the mid 1980s, shall we say, that marijuana was a problem exported into Canada from other countries, the growing number of articles on raids of domestic producers – as opposed to shipments from overseas – is giving more and more people cause to think of marijuana as a home-grown problem.

Other news stories focus on the relationship between drugs and crime, especially prostitution, residential break-ins, and "incivilities" experienced by street youth and the homeless. Some of these activities are at least in part associated with drugs. For prostitution, it is the fact that people, mostly women, are forced to work as street prostitutes in order to support their habit. Residential break-ins are also tied to

⁶ Murphy, E., (1922) *The Black Candle*. Toronto : Thomas Allans, pages 332-333.

supporting drug habits, although the perpetrators are different: most break-ins are committed by young men. For street youth, the main problem is intravenous drug use and the risk of spreading AIDS. None of this is directly related to marijuana. Except for schools. Virtually every big city in Canada – and every not-so-big city, too, for that matter – has seen some kind of police operation in schools. School raids usually elicit two types of reaction, both rooted in indignation: people are indignant when they learn that drugs are so much a part of the school environment while others think the police are abusing their authority and failing to respect young people's rights.

Several years ago, there were a number of feature reports in newspapers and the electronic media. The series written by journalist Dan Gardner of the *Ottawa Citizen* in 2000, which was picked up by most of the newspapers in the Southam chain, is surely the best-known example. In his 10-article series, Gardner explained why the “war on drugs” is a patent failure. He began his series as follows:

Uncle Sam's global campaign to end drug abuse has empowered criminals, corrupted governments and eroded liberty, but still there are more drug addicts than ever before. On June 6, 1998, a surprising letter was delivered to Kofi Annan, secretary general of the United Nations. 'We believe,' the letter declared, 'that the global war on drugs is now causing more harm than drug abuse itself.' The letter was signed by statesmen, politicians, academics and other public figures. Former UN secretary general Javier Perez de Cuellar signed. So did George Shultz, the former American secretary of state, and Joycehyn Elders, the former American Surgeon General. Nobel laureates such as Milton Friedman and Argentina's Adolfo Perez Esquivel added their names. Four former presidents and seven former cabinet ministers from Latin American countries signed. And several eminent Canadians were among the signatories. The drug policies the world has been following for decades are a destructive failure they said. Trying to stamp out drug abuse by banning drugs has only created an illegal industry worth \$400 billion US. 'or roughly eight per cent of international trade.' [...] This powerful statement landed on Mr. Annan's desk just as the United Nations was holding a special assembly on global drug problems. Going into that meeting, the governments of the world appeared all but unanimous in the belief that the best way to combat drug abuse was to ban the production, sale or possession of certain drugs. [...] Still, the letter to Mr. Annan showed that this view is far from unanimous. In fact, a large and growing number of world leaders and experts think the war on drugs is nothing less than a humanitarian disaster.⁷

In a way, Gardner's series echoed editorials that ran in the *Ottawa Citizen* in 1997 calling for the decriminalization of drugs.⁸ The following appeared in the second article in the series: “*The recent history of drug enforcement, in both Canada and the United States, is largely a record of failure. Tax dollars are lavished on enforcement. Police powers are expanded at the expense of civil liberties. Criminal gangs grow richer. And drug use goes on regardless.*”

In 1998, the *Toronto Globe and Mail* expressed a similar view under the headline “*What are G8 Leaders Smoking?*” The newspaper wrote, “*Prohibition does not work and*

⁷ Gardner, D., “Why the war on drug has failed: Uncle Sam's war”, *Ottawa Citizen*, September 5, 2000.

⁸ Editorial, “Decriminalizing Drugs”, *Ottawa Citizen*, April 12, 1997, April 14, 1997, April 15, 1997, and April 16, 1997.

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cannot work, and its costs are higher than those of a policy of properly supervised and regulated access to drugs. Given that the elimination of drugs from our society is not an option, the G8 leaders should have been asking themselves how they can minimize the harm that drugs represent. As it is, their policies maximize the damage.” The *Globe and Mail* did the same thing in a two-part editorial in July 2001, recommending decriminalization of marijuana. The *Vancouver Sun* followed suit in October 1998, and the *National Post* also called for an end to the prohibition on marijuana. More recently still, in the wake of the tragic events of September 11, 2001, the *Citizen* editorial staff responded to those who suggested that money from drug trafficking was being used to finance terrorism. The editorial read:

The latest drug-war scare, from Solicitor General Lawrence MacAulay and others, is that terrorists may be using drug money to finance their evil deeds. If so, you can see why. Terrorism, like any real crime, produces victims rather than satisfied customers, so it's not exactly self-financing. The drug trade, by contrast, turns a regular profit because it involves transactions so mutually satisfactory that buyers and sellers will risk jail to conduct them. [...] In short, the drug war not only brings the law into contempt and threatens public safety, it also funnels money to terrorists and helps them move between countries. And people want more of it? I say a virtuous choice must be a choice to be virtuous, so I'd repeal the drug laws on moral grounds. But put aside my distaste for paternalism. If fighting the war on drugs increases the danger of losing the war on terror, surely it's doing far more harm than good.⁹

These editorials and features are interesting for many different reasons. First, they mark a major shift from the positions that were more tentative or simply favoured prohibition that had held sway since the beginning of the century. They were also part of a constant questioning of the government's role and the appropriateness of government spending and reflected growing concern for individual freedoms.

We do not know how they affect public opinion. We are not in a position to say if they reflect views held widely among the public or whether they are skewed. Only one thing strikes us as relatively certain: most major media outlets in Canada have distanced themselves quite significantly from prohibitionist policies.

⁹ John Robson, “How many burbs must the drug war burn, before we call it a bust?”, *Ottawa Citizen*, May 17, 2002.

SURVEYS

According to one of our witnesses:

From public opinion data assembled over the last 10 years, some by Health Canada, we know that more than two thirds of Canadians think that no one should go to jail for cannabis use, and approximately half of Canadians explicitly advocate the decriminalization or depenalization of cannabis use. This has been consistently the case over the last 25 years. In other words, there has been a public opinion message for a quarter of a century that so far has been ignored by lawmakers and policy-makers.¹⁰

One of the biggest limitations of opinion polls is their superficial nature: the questions are often inserted into more general surveys covering a variety of subjects, there is little opportunity to ask multiple questions, and the meaning of the terms is rarely explored. For example, the terms “legalization” and “decriminalization” do not necessarily mean the same thing to all respondents. But general surveys are not able or rarely have the means to bring those differences to light. If the survey asks a single question about marijuana along the lines of “are you in favour of decriminalizing the possession of small quantities of marijuana?”, there is no way of knowing what the respondents think when they hear “decriminalizing” and “small quantities”. For some, decriminalization may mean no penalty; for others, it may mean a fine. And the difference between 5 grams and 30 grams is enormous.

Like the media, and in an equally complex way, surveys help shape public views. And also like the media, it is hard to determine the role they play in changing attitudes and, more importantly, behaviour. With those reservations out of the way, we provide in the following paragraphs a sample of data from a number of different surveys.

In the 1994 national survey on alcohol and drugs, the respondents were asked to give their opinion on marijuana: 27% said that possession of small quantities should be legal; 42% said it should be illegal but should not result in a penalty or should result in a fine only; and 17% said that possession of marijuana should lead to a possible prison sentence for a first offence. Men and younger people are more inclined to favour legalization of marijuana, as are residents of British Columbia, Quebec, Alberta and Ontario.¹¹

¹⁰ Dr. Benedikt Fischer, Professor, Department of Public Health Sciences, University of Toronto, testimony before the Special Senate Committee on Illegal Drugs, Senate of Canada, First Session, 37th Parliament, September 17, 2001, Issue 6, page 13.

¹¹ Canadian Centre on Substance Abuse (1999), *Canadian Profile, 1999: Alcohol, tobacco and other drugs*, Ottawa: author, pages 214-215.

In 2000, the *National Post* reported the results of a survey which showed that almost two thirds of Canadians were in favour of decriminalizing marijuana and that the punishment for possession of small quantities for personal use should be a fine.¹²

More recently still, in a May 2001 survey, 47% of Canadians said they favour legalization of marijuana, up from 31% in 1995 and 26% in 1975.¹³

A smaller survey of public perceptions was conducted in Quebec in 2001 using a sample of 2,253 respondents (response rate 70%).¹⁴ The survey focused solely on drugs, drug addiction and HIV and measured knowledge, perception of risk, perception of drug addicts, and possible policies and measures. What makes this type of study interesting is that because the questions were limited to drug addiction and drugs, it provides clearer and more comprehensive information on certain issues.

The study showed that the majority (66%) of Quebecers think that drug use is increasing. It also showed that “[translation] *marijuana is in a class of its own*” in terms of perception of risk because “[translation] *only one in four people felt that marijuana is dangerous the first time it is used, which is less than the opinion reported for tobacco, even though tobacco is legal. Moreover, marijuana is the only substance that a relatively large number of respondents described as never harmful to health. [...] People consider it less dangerous than tobacco.*”¹⁵ The surveys also show that marijuana is the substance least likely to lead to addiction: approximately 15% of respondents think that marijuana creates a dependency the first time it is tried, whereas more than 40% said it would have to be used every day and 8% said that marijuana never creates dependency.¹⁶

As to opinions on public policy, the study showed a clear preference for prevention and education over controls and repressive measures. Almost 35% of those asked what measures would be likely to eliminate drug problems said that the controlled sale of marijuana and hashish would help reduce the adverse effects. According to the authors, the public “[translation] *is very open to some form of legalization of hashish and marijuana. More than 90% said that people with certain serious illnesses should be allowed to get prescription hashish and marijuana in order to relieve their pain. Far fewer people, although still a majority (60%), would be willing to allow those drugs to be used under certain conditions perhaps like alcohol.*”¹⁷ Fewer than 40% thought that current laws help prevent people from using (and approximately 60% disagreed somewhat or completely with that statement).¹⁸

¹² National Post, “Two-thirds favour decriminalizing pot”, May 15, 2000.

¹³ Julian Beltrame, “Reefer Madness: The Sequel”, *MacLean's*, August 6, 2001, Vol. 114, pages 22-25.

¹⁴ Hamel, D., et al. (2001), *Perceptions de la population québécoise en lien avec les programmes de prévention de la toxicomanie et du VIH*, [public perceptions in Quebec regarding substance abuse and HIV prevention programs], Quebec City: Institut national de santé publique du Québec.

¹⁵ *Ibid.*, page 3.

¹⁶ *Ibid.*, page 27.

¹⁷ *Ibid.*, page 4

¹⁸ *Ibid.*, page 38.

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In Ontario, the school survey also looked at students' perception of risk and disapproval of marijuana use. The results are shown in the following table.

Perceptions of Ontario high-school students, 1989-2001¹⁹

	1989	1991	1993	1995	1997	1999	2001
Disapprove of experimentation							
Total	40.8%	43.2%	37.1%	28.8%	23.4%	26.0%	28.6%
Grade 7	58.9%	58.0%	48.6%	44.9%	40.8%	44.3%	48.2%
Grade 9	38.0%	48.3%	38.8%	30.1%	21.6%	25.7%	23.7%
Grade 11	33.0%	32.5%	30.2%	16.3%	13.2%	18.2%	19.4%
Grade 13	26.7%	28.4%	27.7%	25.7%	18.8%	13.4%	20.7%
Disapprove of regular use							
Total	61.0%	60.8%	55.9%	47.2%	45.2%	43.1%	41.7%
Grade 7	73.7%	72.1%	66.6%	62.3%	58.7%	63.6%	64.0%
Grade 9	59.8%	62.5%	54.3%	48.6%	41.1%	43.6%	34.3%
Grade 11	54.9%	52.4%	50.9%	33.6%	30.9%	31.2%	29.8%
Grade 13	50.1%	56.1%	51.1%	48.6%	42.6%	32.8%	40.7%
Associate high risk with experimentation							
Total	27.8%	30.7%	27.3%	18.5%	17.1%	18.4%	18.6%
Grade 7	39.2%	37.0%	35.3%	30.7%	26.2%	28.4%	27.0%
Grade 9	29.7%	35.4%	29.3%	18.6%	14.3%	16.6%	18.5%
Grade 11	18.0%	25.2%	21.8%	10.5%	12.8%	15.2%	11.1%
Grade 13	19.2%	21.2%	19.7%	14.2%	16.4%	12.5%	17.7%
Associate high risk with regular use							
Total	75.4%	73.3%	69.3%	58.1%	56.1%	52.0%	48.2%
Grade 7	72.6%	72.1%	69.8%	67.6%	60.5%	63.6%	61.1%
Grade 9	79.1%	74.0%	73.7%	60.8%	59.3%	53.1%	47.8%
Grade 11	74.7%	73.9%	66.9%	50.8%	49.4%	44.9%	36.8%
Grade 13	73.3%	73.1%	63.4%	50.6%	55.7%	45.2%	47.8%

These results show that Ontario high-school students' attitudes on all indicators are either less alarmist or more liberal, depending on one's point of view. Fewer students disapproved of experimentation (one or two times) with marijuana and regular use in 2001 than in 1989. However, more students still disapproved of regular use than occasional use. The level of disapproval decreases as level of schooling increases. Further, fewer Ontario students associated a high risk with marijuana use in 2001 than in 1989, but still almost three times as many associated a high risk with regular use than with experimentation. It bears noting that students who associate a high risk with

¹⁹ Adlaf, E.M., and A. Paglia (2001), *Drug Use among Ontario Students 1977-2001. Findings from the OSDUS*, Toronto: Centre for Addiction and Mental Health.

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regular marijuana use now make up less than half the student population, down from three quarters in 1989.

By and large, these data are in line with the results of the study the Committee commissioned from the firm Léger Marketing.²⁰ The objective of this qualitative study using focus groups was to determine whether it was possible to identify elements that could serve as the basis of a social consensus on the use of cannabis. More specifically, the study was designed to determine the overall perception of drug use in general and cannabis in particular; the images associated with cannabis; attitudes and social behaviour toward the use of cannabis for recreational purposes; fears and prejudices; knowledge of the legislative framework; and the expectations of citizens with regard to a public policy on the use of cannabis for recreational purposes. Léger held 16 focus groups and conducted 15 in-depth interviews in Montreal, Trois-Rivières, Halifax, Winnipeg, Vancouver, Toronto and London. In all, more than 130 people took part in the study. In each city, there were at least two focus groups, one with adults over the age of 18, and one with youth 14 to 17 years of age.

The participants in the focus groups did not spontaneously mention drugs as everyday concerns; they reported being more concerned about health, education, employment and poverty. When the subject was raised by the interviewers, the participants first named crime related to the sale of drugs and drug smuggling as primary concerns, not drug use by Canadians. In some cities (Montreal, Vancouver), the participants also voiced concern about the impact illegal drugs have on quality of life and safety in some neighbourhoods.

Questioned about marijuana, almost all of the participants spontaneously made a distinction between soft drugs (marijuana, hashish) and hard drugs (cocaine, heroin); some even thought the word “drug” was inappropriate in reference to marijuana. That distinction is based on two major elements: composition and effect. Hard drugs are more closely associated with chemical products that have destructive effects, particularly a greater tendency to develop an addiction. Marijuana and marijuana derivatives are associated with plants or natural products, and the risk of dependency is virtually nil, except among people who are especially predisposed or vulnerable. There were many comparisons with alcohol: alcohol can be used in reasonable quantities without a problem, and only a small proportion of users develop dependency problems. Nor was marijuana associated with crime: *“I can’t picture a guy robbing the corner store to buy himself a joint. This is something heroin addicts would do. First, pot is cheap, second it doesn’t make you want it desperately.”* The only exception more common in Quebec than elsewhere was the association with organized crime, that is, motorcycle gangs.

In contrast to “hard” drugs, which are considered part of a world of moral and physical distress and social decay, the participants generally associated marijuana with relaxation and pleasure, a drug used primarily in social settings, like alcohol.

²⁰ Léger Marketing (2002), *An Exploratory Study Among Canadians About the Use of Cannabis*, Montreal: author. Available on-line at the Committee’s site.

In any event, recreational use of marijuana was generally well accepted: *"it doesn't bother me that people do marijuana. As long as they are aware of their decision and what they are doing, I respect it."* In fact, several participants in each group spontaneously mentioned their own past or current experiences with marijuana use: *"I sometimes smoke pot and it doesn't keep me from being a productive guy at work or a good family man."* And like alcohol, the difference lay more in the notions of abuse and responsibility, although the participants were harder on alcohol abuse, which they associate with violence. *"I used to go out to bars a lot. Every night there would be a fight. A guy gets drunk and then starts insulting somebody else or feels another is flirting with his girlfriend. At one point punches get thrown around. But you know what? I have never seen a guy stoned on pot go nuts and want to knock somebody out."* While they did not associate marijuana use with violence or crime, the participants did express concern about people's behaviour when under the influence of marijuana. Finally, the participants did not associate marijuana use with a particular social class: young people use marijuana, but so, too, do professionals, artists, lawyers, government employees and others.

The researchers did not observe any generational differences in recreational use of marijuana. If there were a difference, it would be rooted more in socio-occupational features: people with less education and people in rural areas appear to be more resistant. Further, people who oppose recreational use of marijuana do so more for moral and sometimes even religious reasons. Another difference is that women with school-age children said they were very concerned about how readily available marijuana is in schools. [translation] *"I don't care if they legalize it or not. All I want is for marijuana to be kept away from children. It makes me furious that they sell it in primary school, because that gets them hooked at a very young age."*

As the public opinion surveys discussed earlier showed, the participants generally supported the legalization of marijuana for medical use. However, some of the respondents said they would like to see a clear distribution structure put in place in health care establishments and that dosages should be geared to the intensity of the pain.

Generally, the participants felt that occasional use had no adverse health effect. Spontaneously making a comparison with alcohol and tobacco, they felt that marijuana was not the most dangerous of the three substances. Further, most of the respondents were not afraid of people getting hooked on marijuana, noting that dependency is a function of the person's maturity and frequency of use. *"This is the key question. I don't think you can get hooked on it really. Not as much as booze or nicotine for sure. But that's the kind of proof or medical evidence I would like to have if you want me to make up my mind on it."* The participants also did not think that marijuana is a gateway to other drugs or "hard drugs", because the user's personality and maturity have more influence than the marijuana itself.

The interview guide asked the participants to react to two research findings: the proportion of Canadians who have used marijuana in the past 12 months is approximately 10%, and about 30,000 charges are laid a year for simple possession of

marijuana. In both cases, the participants were incredulous. Regarding the proportion of users, all the participants felt that there were far more: “[translation] *I’m surprised that only 10% of the population are users. I would have said 50% or 60%.*” Regarding the number of charges, the participants unanimously felt that police should focus more on fighting crime rings: “*30,000 people charged per year seems like a waste of taxpayers’ money, if it is just for possession. It’s a lot of money to prosecute and they all get thrown out anyway.*” [translation] “*When you think about other, more serious crimes, when you think how it clogs up the courts, I think it’s ridiculous.*” Nevertheless, the participants felt that Canada is a relatively tolerant society when it comes to recreational use of marijuana, at least in comparison with other countries, and spontaneously named the United States and Saudi Arabia as repressive and Switzerland and the Netherlands as tolerant; Canada fell somewhere in between.

The interviews were conducted after the Committee released its discussion paper in which it set out a number of public policy options. The focus group participants were first urged to freely voice their opinions on the public policies they would prefer to see and were then presented with the Committee’s proposals and asked to react.

By and large, the response from the participants fell somewhere between decriminalization and legalization. That position was most prevalent in Montreal, Toronto, Vancouver and Halifax; more participants in Vancouver and Montreal favoured legalization with government controls: “*The best option is decriminalization leaning towards government legalization. The worst option would be depenalization: to legalize without getting involved.*” According to the participants, those options would make it possible to increase the ability to provide information about risk, user health, public safety, respect for individual rights and freedoms, and the effectiveness of government spending, and would reduce illegal trafficking and the involvement of organized crime. They also said they would anticipate an increase in recreational use of marijuana but did not think that there would necessarily be an increase in use or abuse among young people. On the contrary, several participants felt that decriminalization would lead to a decrease in use among young people because the appeal of the forbidden fruit would be gone.

There is still a hard core minority who think that current laws are not harsh enough and that society should move toward greater criminalization of recreational use of marijuana. That position was voiced most loudly in Winnipeg among persons over 40 and in Trois-Rivières.

Finally, the participants said they would like to be informed and “educated” about marijuana use and in particular would like to be made aware of scientific knowledge of the short- and long-term effects, the real risk of dependency and escalation, ways of protecting children against early use, and the impact of decriminalization on the war on organized crime.

The authors of the study identified the following key factors:

- the protection of youth and children is central to any discussion of a public policy on marijuana;

- decriminalization of use is the preferred option, as it would make it possible to recognize the social reality and at the same time focus on the “real” problems;
- some participants expressed support for legalization but wondered about the nature and control of production and quality standards, methods of distribution and marketing, and the establishment of quotas in order to prevent abuse.

Because this was a qualitative survey, we cannot extrapolate the results to the entire Canadian population. Our financial resources did not allow us to conduct a comprehensive study using a representative sample of the population, which would have allowed us to validate these “hunches”. Still, we are able to state the following: 1. these results are similar in many ways to the data from the opinion polls; and 2. the commonalities between the focus groups in most of the cities and between age groups suggest there is some validity to these hunches.

ATTITUDES AND OPINIONS SHARED WITH THE COMMITTEE

Hundreds of Canadians from all over the country wrote to us, and dozens appeared at our public hearings in the regions. They came to recount their personal experiences, state their opinions and voice their fears. They represented rights and freedoms advocacy groups, compassion clubs, which distribute medical marijuana, treatment and prevention organizations, and women’s groups. They were mayors, police chiefs, users of medical marijuana, parents, educators, physicians, lawyers and recreational marijuana users, young and old alike. They often spoke from the heart, and we were moved by what they said. Appendix 2 is a list of all the people the Committee heard during its public hearings. We would like to thank all those who took part in our proceedings.

It is impossible to present in this report all the contributions to our discussions and highlight their extraordinary worth. Fortunately, the transcripts of the hearings will remain on our Internet site. The following will summarize the opinions conveyed to us in reaction to our discussion paper.

We should point out first of all that the people who shared their views were for the most part very happy with the diligence of our work and, more specifically, were very appreciative of the opportunity they were given to take part in this social debate.

I have followed with great interest the proceedings of the Special Committee on Illegal Drugs and would like to thank the person who decided to publish the brief so completely and honestly. This speaks volumes of transparent government, which is a key element in resolving the debate.

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I would first of like to commend the Senate for its Special Committee on Illegal Drugs and its impartial and ground-breaking work on marijuana.

Thank you for taking the time to review my submission. I would like to commend the Senate Committee on Illegal Drugs for its excellent research on the facts and criticism of the myths surrounding illegal drugs.

First of all, I would like to thank the Committee for skilfully separating the facts from the propaganda surrounding this issue. [...] Thank you for taking the time to get public input on the issue. I only hope that this will not fall on deaf ears as was the case with the LeDain Commission before you. Again, I believe the Committee is trying to do its best for the people of Canada.

I read your discussion paper on marijuana and the accompanying documentation and found the material to be most interesting. I would like to commend you for your willingness to launch a public debate in this area of policy.

Most of the people who took the time to respond to us also said they found the discussion paper to be well done, useful and balanced. Moreover, the respondents said they agreed with the research data we presented in the paper. Where there were reservations, they pertained to:

- biased interpretation of the data: for some people, marijuana is unquestionably a gateway drug;
- an overly cautious side: saying that marijuana is a drug and therefore should not be used was perceived as “politically correct”;
- a lack of compassion and concern for youth and children.

Many Canadians from different walks of life shared with us their concerns about the prospect of marijuana being decriminalized and about the message that that kind of decision would send to young people.

[Translation] It doesn't make any sense to use to legalize a drug with all the question marks and solid facts that are seen as consequences of marijuana use. If we had to do it over again, I don't think with the information we currently have that we would want to legalize nicotine or even alcohol. Once we consider legalizing a drug, we can assume that the drug will become more readily available and that there will therefore be more use and more problems. Remember: marijuana is not harmful because it is illegal; marijuana is still illegal because it is harmful.²¹

Informed public debate is healthy and valuable, but it requires exposure to a full range of viewpoints. Regrettably, this is not the case in regard to the non-medical use of drugs. Rather, we have had constant and copious representation of the view that the only way to deal with the drug problem is to accept its inevitability and even its normalcy. (...)

²¹ Brief from A. Maillet and C. Cloutier-Vautour to the Special Senate Committee on Illegal Drugs, Moncton, June 5, 2002.

*In discussion about drug strategies, the harm of illegal drugs is usually identified, not with the drug's intrinsic chemical effects on the human body, especially on brain function and behaviour, but rather on extrinsic consequences of the illegality of the drug. Thus, the general havoc wreaked on the lives of addicts and their families is ignored in favour of deploring the harm that a criminal record can do to self-esteem. Further, the property crime and violence carried out by drug users are attributed to the illegality of the drugs rather than to the diminished work habits and lack of earning capacity which result from drug use.*²²

*Our concerns with the Discussion Paper released by the Committee centre primarily on cannabis policies and the resulting effects on youth and families. (...) We suggest to the Committee that rather than focusing on reforming our drug laws, efforts would be much better spent on examining strategies focused on prevention. (...) Much rhetoric exists around the supposed 'war on drugs': have we lost the war, what do we do now and were we really fighting a war to begin with? The challenge presented to this Committee is not an easy task: to recommend workable, feasible policies regarding cannabis use. To this end, we trust that the Committee will be prudent in its decisions, innovative in its policy recommendations and resistant to the urge to simply give sway to 'hemp mania'. We owe it to our young people.*²³

*Please, ladies and gentlemen, please do not just rely on research and the experts. There are many well-financed documents and experts that are paid to promote legalization. THC, the active ingredient of cannabis can be taken in pills, we do not have to promote smoking in another form. [...] If I could suggest the following: 1. Provide more treatment resources and services; 2. Change our system of incarceration when it comes to drug-induced crime – mandatory treatment; and 3. Have our country adopt a zero tolerance to illegal drugs and provide the ability to our police to enforce the policy and mandate our courts to address the issue. Please do not provide another avenue for our children to escape reality.*²⁴

That said, most of the people who responded to the questionnaire also said they were in favour of decriminalization or controlled legalization of marijuana and marijuana derivatives. For that reason, we have to be very careful still regarding the meaning of the comments we received: most of those who wrote to us are probably interested, for personal reasons, in seeing the current legislation amended to introduce more tolerance. That view probably coloured their assessment of our discussion paper and the quality of our research findings.

²² Brief from Real Women, submitted to the Senate Special Committee on Illegal Drugs, June 6, 2002, pages 1-2.

²³ Brief from Focus on the Family to the Special Senate Committee on Illegal Drugs, Richmond, May 14, 2002.

²⁴ Letter from Kathy Bedard, Prince Rupert, British Columbia, May 15, 2002.

CONCLUSIONS

What is the status of public opinion in Canada? We are not able to come up with firm answers to that question. We do think, however, that:

Conclusions of Chapter 10	
Opinions on marijuana	<ul style="list-style-type: none">➤ Public opinion on marijuana more liberal than it was 10 years ago.➤ Tendency to think that marijuana use is more widespread than it used to be.➤ Tendency to think that marijuana is more available than it used to be.➤ Tendency to think that marijuana is not a dangerous drug.➤ Relatively significant concern about organized crime.➤ Strong support for medical use of marijuana.
Opinions on public policy options	<ul style="list-style-type: none">➤ Tendency to favour decriminalization or, to a lesser degree, legalization.➤ Critical attitude toward law enforcement for simple possession of marijuana.➤ Concern for youth and children.