

Towards an integrated policy on psychoactive substances: a theoretical and empirical analysis

Richard Muscat, Dike van de Mheen and Cas Barendregt
and members of the Pompidou Group research platform

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Countries covered by the empirical study

Germany

Ireland

The Netherlands

Norway

Portugal

Switzerland

The United Kingdom

The Pompidou Group

The Co-operation Group to Combat Drug Abuse and Illicit Trafficking in Drugs (the Pompidou Group) is an inter-governmental body formed in 1971. Since 1980 it has carried out its activities within the framework of the Council of Europe's Directorate General III – Social Cohesion. Thirty-five countries are now members of this European multidisciplinary forum in which policy makers, professionals and experts can exchange information and ideas on a whole range of drug misuse and trafficking problems. Its mission is to contribute to the development of multidisciplinary, innovative, effective and evidence-based drug policies in its member states. It seeks to link policy, practice and science.

By setting up in 1982 its group of experts in the epidemiology of drug problems, the Pompidou Group was a precursor of the development of drug research and monitoring of drug problems in Europe. The multicity study – which aimed to assess, interpret and compare drug-use trends – is one of its major achievements. Other significant contributions include the piloting of a range of indicators (treatment-demand indicator) and methodological approaches such as a methodology for school surveys, which gave rise to the ESPAD (European School Survey Project on Alcohol and other Drugs).¹

The research platform has superseded the group of experts in epidemiology active between 1982 and 2004. There has been a change of function from developing data collection and monitoring methodologies to assessing the impact of research on policy. This started with the 2004 strategic conference on linking research, policy and practice – Lessons learned, challenges ahead – which identified as a major gap the lack of exchange of knowledge.

The research platform's prime role is to support better the use of research evidence in policy and practice, thus facilitating the development of evidence-based policy. It also highlights the latest issues arising from social and biomedical drug research and promotes interaction between these disciplines and psychological drug research. Reports on these subjects are published regularly. An achievement is

1. See Pompidou Group list of documents and publications at the end of this publication.

the online register of current drug-research projects, set up in 2007 in collaboration with the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) to improve the exchange of knowledge.

The present publication was commissioned by the Pompidou Group from Professor Richard Muscat, Chairperson, research platform 2007-2010, and Professor Dike van de Mheen. It follows the original request from the Office Fédéral des Drogues et des Toxicomanies to acquire information on the ways in which drug policy is formulated and applied by other countries. This information provided the basis for the publication *From a policy on illegal drugs to a policy on psychoactive substances* (Council of Europe, 2008), a retrospective analysis of drug policy in 17 member countries taking into account the social and cultural context. This analysis was aided by a synoptic reflection on the move from single policies on alcohol, tobacco and drugs to one which incorporates all these substances.

This publication is a further attempt to understand the scientific basis for choosing a separate policy for each substance or a single policy incorporating all substances and it also provides empirical information on how such a choice today is put into practice. The seven countries considered here – Germany, Ireland, The Netherlands, Norway, Portugal, Switzerland and the United Kingdom – cover in turn the whole spectrum from the point of view of those opting for a single policy to one that incorporates all substances.

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1. Theoretical overview

1.0. Background

The result of the first attempt at examining the state of play in drug policy – looking at which countries have opted for a single drug policy and which seem to be moving in the direction of an all-encompassing policy that includes all psychoactive substances – prompted the next set of questions to be tackled.

The publication that resulted, *From a policy on illegal drugs to a policy on psychoactive substances*, outlined the development of drug policy in each country, taking into account on a national level the ratification of any UN conventions, the adoption of EU drug strategies and any major changes that may have influenced the path taken by the country concerned and resulted in the situation in that country today.

The development of drug policy was framed in the context of each particular country – the size of the country, its geographical position and its relation to its neighbours, the state of the drug problem and public opinion – and supported by the political context, that is, the political ideology of the time and place.

This has resulted in descriptions of the development of drug policy in each country and how the evidence from science has generally not been taken into account, with the exception of epidemiology. This, as recorded, may be because some countries put drug policies in place some time ago and the science then was not what it is now, especially in relation to cognitive neuroscience, which has provided new vistas on the way we view brain and behaviour, and more notably mental health.

The majority of the 17 countries opt for a separate policy for each psychoactive substance. The minority, those favouring an all-encompassing policy, were Switzerland, France, Ireland, Germany, Portugal, the Czech Republic and Norway. Norway appears to be the one country that has fully embraced integration; the United Kingdom

and the Netherlands seem steadfast in opting for separate policies on illegal drugs, tobacco and alcohol.

On the basis of these findings, Germany, Ireland, the Netherlands, Norway, Portugal, Switzerland and the United Kingdom were selected to participate in the empirical study that follows, which in turn reflects the fact that the UK and Norway are at opposite ends of the scale, with the other countries on a continuum between these two countries. Consequently the study asked two questions:

- What does the term “integrated policy” refer to in each of the seven countries?
- How is “integrated policy” operationalised in the country?

This study of the seven countries follows the overview, which looks at theoretical rationales of opting for a single policy or one that includes all psychoactive substances.

A key finding from the previous effort was that in all these countries the overarching policy consideration was health. For example, Norway makes it quite explicit why their policy includes both drugs and alcohol: it is because cognitive neuroscience has shown that all these substances affect the brain and behaviour and thus mental health status. The rationale for prevention is also made plain, being based on scientific findings that stopping early use prevents problems later on. In addition, harm-reduction measures – including substitution programmes and needle-exchange programmes – were introduced throughout Europe in response to the imminent health risks associated with injection drug use, which could have furthered the spread of HIV across Europe. Thus the threat to health of the citizens of Europe required policy responses that dealt directly with the problem. This latter example may have provided the foundations for a general move in the direction of basing drug policy on the health and well-being of the citizens in question.

On a more general note, the EU seeks to look after the health, security and well-being of its member nations; the Council of Europe seeks not only to secure their health and well-being but also to uphold the human rights of its 47 member states. Public policy seems the obvious domain through which to achieve these aims, so drug policy per se or a policy for psychoactive substances can provide a tool to address the health and well-being of the nations in question, as part of a comprehensive health policy.

A person’s well-being can be related to their physical, social and mental state. In essence, these factors provide the basis for a person to live life

to the full and therefore be a fully active member of society. Some basic needs have to be met, but this is what public policy is all about – ensuring that they are met – while putting the individual at the centre of any policy development. Monitoring health status provides one of the indicators of well-being, and this monitoring should include determining the use of tobacco, alcohol and drugs, all of which can have a detrimental effect on health and well-being (Johnston 2009, Wilkinson and Pickett 2009). Consequently, focusing on the mental and physical state of the individual addresses two of the three aspects directly related to well-being; and the third in a sense may also be taken into account in policy indirectly by adopting the Zinberg 1984 model, which addresses the social domain.

On the same line of thought, it is said that all these substances, tobacco, alcohol and illegal drugs, are more than just chemical agents which affect the brain and behaviour, and thus mental state; one must also consider the personality, attitudes, expectations and motivations of the user, as well as the context, because these have a significant influence on the user and the patterns of drug use. All these factors are determined by the complex wiring of the brain that in turn gives rise to these characteristics and is at the basis of why decisions are made to use or not to use such chemical agents and thus affect mental health. A scientific understanding of those brain systems that give rise to personality, or for that matter to motivation, is thus at the core of evidence-based policy development in this field, with the aim of assuring well-being through a healthy mind and body. The fact that treatment works is a further endorsement for a better understanding of the brain systems involved in mental health and well-being, and for the use of findings from neuroscience as a base for drug policy or a substance-misuse policy.

1.1. Introduction

It is suggested that, in most domains, structure serves function or structure enables function. From a policy perspective having the appropriate ministries, departments and overall linking bodies provides the basis for policy implementation and monitoring. In the same way, the brain's intricate wiring system allows communication between the circuits within particular structures and is the source of our behaviour. Thus again it would appear that structure serves function. This first part of the book deals with the theoretical perspective for a single policy or a policy that integrates all substances, thus providing the background

for policy formulation, and thus it has overarching consequences for the structure–function approach.

Indeed the very term “integrated policy” conjures up different perceptions of what this could be. If one were only referring to an individual drug policy, then “integrated” would be understood to cover both supply of and demand for drugs. These then could be further broken down into their respective elements, namely from the supply standpoint, customs, police, the judiciary and the prison system; from the demand side, these elements could include prevention, treatment, harm reduction and social integration with an overall slant on research, evaluation and international collaboration. Thus from a single policy perspective, integration implies the inclusion of all necessary elements in a coherent manner.

If one were opting for a single policy for all psychoactive substances, then one’s perspective on the term “integration” would be slightly different; the attempt here would be to include all psychoactive substances in an appropriate manner. Thus “integrated policy” tends to take on different hues depending, in the first instance, on which policy option has been chosen.

Once such a decision has been taken, the term “integration” may then be applied to a second level, namely that of structure–function: that is, what structures are required to be in place before the policy can be implemented to provide the necessary outcomes. This has been addressed by the empirical study that follows, which gives some insight into how policies in this field have been implemented. It is discussed in Chapter 3, which also looks at the overall conclusions arising from both this overview and the empirical study.

The next question that arises is why bother with science in this policy domain? Epidemiology over the years has been the mainstay of most research done in the drugs field, and even more so in relation to alcohol. Thus from government, the main question has always been the size of the problem of use of psychoactive substances and their impact on society. Epidemiology has provided a means to estimate the size of the problem through population surveys, school surveys and snowball surveys, for example, that provide estimates of use over a lifetime, the past year and past month. These three, lifetime use, past-year use and past-month use, may be interpreted as trying the substance/s once, irregular use and regular use. Mathematical estimates may also be used to calculate numbers, for example of problem drug users that may need direct intervention and numbers in treatment, that show how well the said policy is having its desired effect. Finally, treatment outcomes may further support the policy in place.

Thus epidemiology has provided a means to determine the size of the problem. At the time of writing, the figures for drug use in Europe indicate that about 23 million people have used cannabis in the past year (irregular use), some 4 million people have used cocaine, 2.6 million have used ecstasy and 2 million used amphetamine. Problem drug users or users of heroin and cocaine, the drugs that cause most harm and the most health and social costs, number about 2 million and there are approximately 7 500 fatal drug overdoses each year related to such problem drug use. There is also a high co-morbidity between drug use and mental disorders, both serious and more common.

In the case of alcohol use, Europe remains the heaviest drinking region in the world with a yearly capita consumption of 11 litres of pure alcohol, which is double the world average. It is estimated some 55 million Europeans drink harmful levels of alcohol; of these 23 million are considered to be dependent. Such levels of harmful drinking are estimated to be responsible for some 195 000 deaths each year across Europe as a result of cancer, liver cirrhosis, neuropsychiatric conditions, suicides, road traffic and other accidents, and homicides (European Commission 2009a). We may note that those road-traffic accidents where alcohol use is a contributing factor are predicted to rise to fifth place overall in the leading causes of death in 2030, from ninth in 2004 (1.3 million to 2.4 million). The World Health Organization have announced that all 193 member countries agree to confront the harmful use of alcohol by adopting a global strategy; its ten target areas include health services, community actions, pricing policies and reducing the health impact of illegal alcohol production (WHO 2010).

Tobacco-related deaths worldwide in 2004 totalled 5.4 million and these are expected to rise to some 8.3 million by 2024, which would account for 10% of all deaths (WHO 2004). Tobacco use also contributes to cardiovascular disease, cerebrovascular disease, chronic obstructive pulmonary disease and some cancers. Moreover, the three leading causes of death worldwide in 2004 were ischaemic heart disease, cerebrovascular disease and lower respiratory infections.

Thus the prevalence of tobacco, alcohol and drug use in Europe is, to say the least, a problem that needs to be redressed because of the impact of these substances on mental and physical health and thus overall well-being.

As referred to above, use of these substances has an impact on our whole physiology and plays a major role in our health and well-being, and thus our ability to live productive lives. Epidemiology has provided the means of estimating the global burden of disease,

but in addition it has extended the concept of the disability-adjusted life year (or DALY) to incorporate “potential years of life lost due to premature death to include equivalent years of ‘healthy’ life lost by virtue of being in states of poor health or disability” (WHO 2004). Biomedical research has now started to provide us with the ability to understand the mechanisms that give rise to use in the first place and the changes that result in a switch to dependence and the consequences. Cognitive neuroscience is the field of research that is at the forefront of brain research tackling such issues.

One caveat needs to be mentioned before we look at the brain systems thought to be at the centre of substance use. This is the fact that these psychoactive substances also have effects on other body organs; thus, for an integrated policy, these too should be taken into account. To some extent, as highlighted below, these effects will be considered, but not in all cases, so one should keep this mind when trawling through this text.

Psychoactive substances are so named because they primarily interact with the workings of the brain and thus alter behaviour. This implies that the brain is made up of a number of functional regions each specifically responsible for generating a particular aspect of our cognitive abilities to enable us to make decisions and behave in the appropriate manner in the context we find ourselves.

Which cognitive abilities do they affect? These types of substance seem to interfere with our ability to take decisions, make value judgments and restrain our behaviour, and with our faculties of learning, memory, emotion and interoception. Hence, altering such functions may result in pathological behaviour, which has become the typical diagnostic criterion used to determine dependence (American Psychiatric Association, *Diagnostic and Statistical Manual of Mental Disorders*, revd 2000; WHO 2003). These cognitive abilities also result from brain regions that sub-serve such functions; they include the frontal cortex (for decision making) and the hippocampus (for particular types of learning and memory). Moreover, the findings from scientific literature that these cognitive abilities become compromised in patients with damage to such areas of the brain are further evidence of the role of these specific areas.

Before addressing each of these psychoactive substances in the next part of this overview, we need to examine briefly how these substances can affect brain function by interacting with neuronal communication. The brain is made up of some hundred billion cells – nerve cells – which in effect are the wires that make up the circuits within regions

of the brain and also connect all these regions in one way or another. Unlike the wiring in your house, which normally requires that an electrical device be plugged into the mains to connect it to the supply of electricity, nerve cells are individual components – that is, they are not joined. But they need to pass electrical signals to one another and, to get around this problem, they make use of “chemical signalling”. An electrical signal is changed into a chemical signal to get it across the gap between the nerve cells and is then converted back to an electrical signal in the next cell.

The machinery of chemical transmission uses the lock-and-key concept: after the electrical signal arrives at the terminal, the nerve cell needs to produce and release the appropriate chemical; and the following cell needs to have in place the lock, the receptor, through which the key (the chemical) may open the gate. Understanding these mechanisms gives us the opportunity to come up with medicinal drugs that can correct aberrations in these processes, aberrations that have resulted in brain diseases ranging from depression to drug dependence itself. There are some one hundred brain chemicals, known as neurotransmitters, that are released from nerve cells, and there are some hundred trillion connections operating on this principle. It is akin to having the wiring of the whole telephone network serving North and South America packed into some 1.2-1.3 kg of matter – that is what the brain weighs – mainly nerve cells, forming 2% of body weight.

1.2. Scientific evidence

1.2.1. Psychoactive substances

In the main, all psychoactive substances – that is, alcohol, tobacco and other drugs – interact with nerve cells to alter the way in which neuronal signalling takes place. More specifically, alcohol gets into most tissues or cells of the body as it is miscible in water and carried round the body in the bloodstream after it is absorbed following oral ingestion. The greater the blood supply to a particular organ, the greater the chances that alcohol gets into that organ – the brain, for example. Tissues, cells or organs that do not have such a good supply of blood take longer to absorb any alcohol through passive diffusion; however, when most of the alcohol has moved from the blood to parts of the body that have a rich supply of blood, then the reverse happens. Since alcohol in these tissues or cells is in a higher concentration than in the blood, some of it now moves back into the blood.

All in all, alcohol seems to get into most organs of the body, but it has specific effects on the nervous tissue found in the brain. Once in the brain, it interacts with nerve cells that release the inhibitory neurotransmitter gamma amino butyric acid (GABA for short) and these nerve cells' corresponding receptors known as GABA A receptors; the effect is to prevent inhibition in some areas of the brain. Consequently, alcohol is thought to be a stimulant because it relieves some inhibition – for example, self-restraint – but in truth it is a depressant: further intake of alcohol disrupts speech, locomotor activity and fine co-ordinated movements. Alcohol also elevates mood and interacts with the reward pathway by removing inhibitory inputs via the GABA system; thus one gets an elevation of the reward-signalling neurotransmitter dopamine, resulting in the feel-good factor as explained below.

Alcohol also interacts with other neurotransmitter systems in the brain to modify their signalling. In particular, it is known to increase the release of opioid peptides that are involved with feelings of euphoria and pain relief (or analgesia). For this reason the opioid receptor-blocker (or antagonist) naltrexone is used in treating alcohol abuse. This is a good example of how one may bolster the effect of one drug, such as heroin, by ingesting alcohol as well. Such drug interactions are common and may provide the basis for polydrug use in which the user gets to learn the effects of different drugs and combines them in the manner to ensure the “best effect” while perhaps ignoring detrimental effects – such as respiratory depression being amplified – when the two are combined. This may also arise when alcohol is combined with anti-anxiety medication such as diazepam; it is believed that alcohol inhibits the breakdown enzymes and thus increases the concentration of diazepam in the blood stream with the result once again of increased depression of respiration, which may result in total arrest.

Alcohol also results in vasodilatation of the peripheral blood vessels, causing the sensation of warmth and flushed skin, and is thus frequently used in cold weather. This may be dangerous because this feeling is due to the release of body heat for a short period and the inhibition of the reflexive, cold-induced vasoconstriction of the same peripheral vessels, so that now the person ends up colder than before.

Chronic alcohol use has other effects on the peripheral system. Those of concern include cancer of the tongue, mouth, stomach and liver, as well as impotence in males and ovarian dysfunction in females. Fetal alcohol syndrome results in developmental problems in the unborn child, which are manifested at birth as physical malformations and mental retardation.

Nicotine is one of several compounds found in tobacco; it is a stimulant, as is caffeine for example. The main reason why nicotine seems to produce dependence is the fact that, on inhaling a cigarette, within seven seconds 25% of the stimulant has already reached your brain – this is about twice as fast as when administered intravenously. In effect, the link between smoking and the feel-good factor is so nearly instantaneous that the habit easily becomes reinforced and this is the reason for its highly dependence-inducing nature.

Nicotine in the brain acts on what are termed nicotine receptors, though they would normally respond to the neurotransmitter acetylcholine. In general, nicotine acts on the reward system in which these receptors are present, receptors that give rise to the same euphoric feelings as those produced by other known stimulants such as cocaine and amphetamine. Although the mechanism through which these act is not the same, the overall outcome is the same – euphoria. Nicotine also has effects elsewhere throughout the nervous system in the rest of the body and thus is said to contribute to four of the five major causes of death highlighted above, including cardiovascular diseases, lung and other cancers, stroke and chronic obstructive pulmonary diseases. In 2010 it was reported that lung cancers in smokers harbour some 50 000 mutations or changes in their genetic material, compared to non-smokers (Lee et al. 2010).

The most-used psychoactive substance, other than alcohol and tobacco, is marijuana whose active naturally occurring cannabinoid is tetrahydrocannabinol, or THC for short. THC acts on the brain by interacting with cannabinoid receptors of which there are two types, CB1 and CB2. It is CB1 that is of main interest in that stimulation of this receptor leads to increased levels of dopamine in the reward pathway. Consequently, activation of these receptors again results in euphoria as well as altered sensations and memory impairment. Spice products that contain cannabinoids and the increase in THC concentrations obtained from the plant *Cannabis sativa* seem to be of major concern at present.

The most notable stimulants are cocaine and amphetamine and both usually have a direct effect on the main neurotransmitter in the brain involved in generating feelings of euphoria. They act in turn by locking onto the dopamine transporter that is responsible for the uptake of dopamine back into the synaptic cleft after its release and interaction with its receptors on the next neuron. In doing so they elevate the levels of dopamine to such an extent that some have described the feelings of euphoria that are produced following the ingestion of cocaine as greater than anything they have experienced. Both cocaine and amphetamine may induce visual and auditory hallucinations and

paranoia, symptoms typically attributed to schizophrenia. In the laboratory, high-dose amphetamine administration has been used to model the symptoms of schizophrenia with the aim of trying to unravel what brain circuits may be responsible for that condition and what neuronal changes characterise the behaviour.

Cocaine also has effects on the peripheral nervous system and the organs that are innervated by what is known as the sympathetic nervous system. Thus, following ingestion of these stimulants, an increase in blood pressure occurs alongside an increased heart rate, heightened metabolic and respiration rates and elevated body temperature, and all these seem to be a result of either the effects of these stimulants on nor-adrenaline uptake, which is similar to dopamine, or the direct effect of these agents on the brain centres that control sympathetic outflow.

Also included in this group of stimulants are the two members of the amphetamine family, MDMA (or ecstasy) and khat. At this juncture we focus on MDMA, which has been more popular than khat and mainly used at rave parties. Ecstasy acts mainly on the serotonin system to enhance release and inhibit the uptake of the said transmitter and this in turn results again in mild euphoria and a sense of well-being as well as increased sensory perception and a willingness to interact with others. Excessive use of ecstasy is said to result in a form of neurotoxicity that results in damage to the serotonin neurons and thus a loss in their numbers as well as to some degree a form of memory impairment. On a more acute level, ecstasy also increases the heart rate and blood pressure, elevates body temperature and increases sweating and salivation and it is these peripheral effects that put the individual in danger at rave parties where they are made worse by physical activity. Thus the "chill room" allows the user to stop dancing, cool down and take in the required water to replace that lost.

Last but not least, the opiates, such as morphine, interact with the opioid system in the brain, which is largely responsible for pain relief and the sense of well-being and euphoria. This class of compounds, in which heroin is a prime example, interact with opiate receptors of which there are three subtypes, mu, kappa and delta. Direct stimulation of the mu receptor in the reward pathway of the brain by heroin is thought to be responsible for the feelings of euphoria it generates. Heroin seems to act by mimicking the effect of the endogenous opiate, enkephalin, and thus with repeated use the system shuts down the synthesis of enkephalin so that, on stopping use, the brain does not contain any significant amount of the said neurotransmitter which now results in dysphoria and heightened pain perception.

Methadone, another drug that mimics the effect of enkephalin but not so effectively, is used in heroin detoxification to reduce these major side effects but by decreasing the dose in a systematic way it gives a chance for the brain to restart the synthesis of enkephalin once again so that after three weeks the individual may be weaned off methadone altogether. A more recent medication used in the treatment of heroin addiction is buprenorphine, more frequently known as subutex. Once again this partial agonist has a maximal effect of around 65%, less than that of heroin but enough to enable the system to start functioning again in adverse circumstances.

This short résumé of the pharmacological and physiological effects of alcohol, tobacco and other drugs, all psychoactive substances, is intended as a prelude to the next section. (For more information, see Meyer and Quenzer 2005; Feldman, Meyer and Quenzer 1997.)

1.2.2. Reward system

A critical underlying mechanism that enables behaviour, especially goal-directed behaviour, is what is termed the reward system within the brain. This system, found just below the cortex, is thought to provide the mechanism that makes us likely to do things more frequently because these have resulted in rewards that make us feel good about what we have done. In simple terms, if eating, drinking and reproducing did not make us feel good, none of us would be here today. More long-term goals – for example, obtaining a higher degree or indeed obtaining positive policy outcomes – require consistent behaviour over a period of time that finally results in the rewards such as a degree or re-election. So some rewards are obtained now (instant gratification), others are obtained over an extended period of time (delayed gratification) and these alter our behaviour accordingly. Psychoactive substances seem to alter the reward pathway in a way that leads to instant gratification and not delayed gratification.

The reward system in the brain is a circuit that arises from the midbrain and terminates in an area known as the ventral striatum. A number of neurons make up this circuit, releasing a variety of chemical agents to enable communication between them, but the principal neurotransmitter that seems vital to providing some form of reward signal in this area is dopamine. It has been shown that stimulation of these nerves to release dopamine in this circuit is integral to providing the feel-good factor and that the behaviour leading to this is likely to be repeated in order to obtain this very outcome. In effect the final common pathway through which all psychoactive substances act,

even though they may not directly enhance dopamine release, is via increased release of dopamine in this reward pathway. Thus, on acute administration, or taking the substance the first time, the dopamine signal is enhanced in this pathway, with the result that the behaviour leading to this is reinforced with the likelihood that it is repeated.

Some may argue that this in itself is not a bad thing, considering the sometimes mundane nature of life, but the risks that ensue include the development of addiction and dependence in which the sole form of reward is substance use because this provides greater pleasure than anything that is normally on offer such as that afforded by relationships or the joy of watching a sunset by the sea in summer. In addition, for such a scenario to ensue, this does not happen overnight as changes in the brain occur gradually as a result of such use – but, more to the point, behaviour becomes altered as do certain cognitive abilities such as the ability to attend to stimuli and the ability to make what may be termed correct decisions in the prevailing circumstances.

The key point here is that psychoactive substances of all classes, be they alcohol, tobacco or drugs of abuse, hijack the brain-reward pathway by greatly amplifying the reward signal as provided by dopamine, which then results in the risk of further use that may lead to other consequences, such as poor decision making, that compromise behaviour. Repeated use over time leads to counteractive mechanisms in the brain coming into play, by which the impact of the reward signal is diminished and craving for the substance is increased. Consequently, other natural rewards are now less likely to activate the system and the likelihood of repeated use is further enhanced to keep the individual from feelings of dysphoria or depression rather than euphoria following first use.

The brain mechanism for this current scenario is thought to arise from the increase in dopamine signalling within the reward pathway; this comes into play by altering the firing pattern of the relevant neurons. In effect, the dopamine nerve cells operate under two conditions, tonic activity or phasic activity: the firing rate for these states is low for the former, some 2-5 times per second, whereas in the latter it may rise as high as 20 times per second. The implication of this is that the release of dopamine is low in the tonic state but high in the phasic state. All psychoactive substances have the property of shifting the bias of dopamine firing to the one known as phasic activity and thus to enhanced levels of dopamine when such substances are on board.

If this were all that occurred following the ingestion of such substances, one would expect all to revert to normal after use, but repeated use

continues to bias the system to phasic activity while the increasing propensity of the dopamine receptors to be less active is an attempt by the brain to counteract the effect of increasing levels of dopamine in the reward pathway. Thus, with prolonged use, the overall output of the system is turned down in that the increases in dopamine release are countered by the reduction in dopamine receptors. This is why it is thought that the user needs to keep using just to keep a “normal” level of functioning which otherwise would tip the other way, to dysphoria rather than euphoria, which is typical of what happens when the user stops using and more so in cases of withdrawal.

Consequently, stopping use results in a stage that is characterised by the emergence of symptoms typical of depression and also anxiety and irritability. This state is stressful to say the least and thus the brain systems that give rise to these feelings come into play as a result of the alterations in the reward pathway that have impacted on these systems (for further information see Koob and Volkow 2010).

The underlying message would appear to be that psychoactive substances have a major impact on brain chemistry with an initial effect on the reward pathway that makes them so attractive. The brain is a dynamic organ and attempts to counteract the effects of these substances and thus the consequences of those effects. Learning takes place and memories are formed, which in turn affect the overall functioning of the individual.

1.2.3. Learning and memory

As hinted above, the repeated use of psychoactive substances starts to lead to a state where the impact of the reward is diminished and the wanting or craving for the substance increases. At first this is a consequence of the reward threshold rising and thus the stimuli or cues associated with use are given greater prominence: the cues, usually the paraphernalia of use, become better linked with substance use and therefore are more noticeable to the individual now. Before people begin using a substance, these cues do not alert them or focus their attention. This increased salience of such cues is thought to be a prominent aspect of craving and a means to guide behaviour to obtain the substance, to the detriment of other natural cues.

This is akin to the feeling one gets when hungry, when one’s attention becomes alerted to visual presentations of food or just the smell of food; these cues take on more significance when one is hungry and guide one’s behaviour to obtain food to satisfy this need. Once food is consumed and the body has taken up the necessary nutrients, signals

are sent to the brain to alert it that this has happened, and the cues that had taken on extra significance when hungry lose their significance till the next hunger pangs set in. Here we need to note two things: first, that we learn through conditioning what cues are associated with hunger that then successfully guide our behaviour to satisfy that specific need; and second, psychoactive substances seem to use the very same system of learning and cueing to guide us to the behaviour that obtains these substances, to the detriment of natural rewards like food and water.

The amygdala seems to be responsible for carrying information related to the various aspects of the cues used to guide behaviour. This structure is made up of a number of nuclei and it feeds into the reward pathway, so that the cues become better associated with the behaviour taking place. One can show that, after repeated pairings, the cues themselves will initiate the specific behaviour that prior to pairing they would not have done. In addition, in the laboratory, animals will continue to work or perform in the presence of these cues even if the reward, the psychoactive substance, is withheld. This again reinforces the view that these cues have a significant impact on behaviour.

It has been argued that the mechanism responsible is sensitisation. By repeated association this strengthens the pathway linking cue-related information to reward-outcome information; thus the resulting aberrant learning and memory hold the key in guiding future behaviour.

There are several molecular mechanisms that have been suggested to account for learning and these in the main have been gleaned from work on another brain structure involved in learning and memory related to context or the spatial domain – the “where”. The hippocampus is thought to be the brain structure that provides for episodic memory or, more colloquially, the ability to recall personal experiences that depend on the “what”, “where” and “when” (see Dickerson and Eichenbaum 2010). Information about where is encoded in the hippocampus and this is also sent to the reward pathway, so now the whole picture can be put in perspective, namely taking in the substance in question in its defined context together with inputs of the particular cues (amygdala input) that accompanied the rewarded behaviour. Thus, places where the substance has been used, as with the cues mentioned above, may take on greater significance for the user and provide the same urge to use the same substance when in the same contexts or places. Thus memories of places or episodes associated with substance use may in turn bias behaviour or decision making to further use. This again may be the setting shown by the Zinberg 1984 model referred to above (see also Chapter 2).

Thus the question of why does the use of all psychoactive substances have such an impact on future behaviour may be answered to some degree by the apparent aberrant learning and memories that are stored after such use, which then have a great impact on guiding future behaviour. Moreover, the mechanism thought to give rise to such memories in the hippocampus and other parts of the brain, such as the reward pathway, is related to what is known as long-term potentiation (or LTP for short) in which neuronal connections are strengthened, making them more likely to contribute to neuronal activity in the future and thus guide behaviour.

1.2.4. Decision making

The ability to make the correct choice under the prevailing circumstances is what drives behaviour forward. Information reaches the frontal cortex, the site at which decisions are made, from the reward pathway through the thalamus, which appears to be the main gateway through which most stimuli gain access to this higher structure. It is worth noting that, from an evolutionary perspective, the cortex has evolved more than any other other brain structure.

Information from sub-cortical sites such as the striatum, amygdala and hippocampus may also flow directly into the cortex; as well as activating the reward pathway, this information may at the same time activate the cortex. Thus, coincident activation takes place of all the structures in question, which biases decision making by the frontal cortex in support of those behaviours that to one degree or another provide the best outcome in the specific context. Thus the goal of any substance user is to feel very good and now behaviours that support such an outcome are given prominence, irrespective of the negative consequences if they do exist.

In a number of studies that explicitly examined this phenomenon – studying, for example, the choice between an instant small reward and a larger one that is delayed in time – most people on any substance opt for the small instantaneous reward. In some studies this has been taken a step further, to determine whether the person will work to obtain a reward that is also linked to a negative outcome, the outcome being that they will still work for such a reward. Consequently, the use of psychoactive substances biases the decision-making process of the frontal cortex even if the outcome is also partly negative, as long as the final result is achieved – namely, obtaining the substance.

It is interesting that substance users, when making decisions, appear to behave in ways very similar to patients who have a damaged frontal

cortex for one reason or another: they make choices that bring instant reward at the risk of incurring loss of reputation, job, home and family (Rogers et al. 1999). Moreover, impulsive behaviour – which again seems to stem from a problem with the circuitry in the frontal cortex – is a major risk factor for the use of psychoactive substances and especially for substance dependence (but see below).

A conceptual framework has been formulated to understand how information reaching the cortex via other brain structures guides behaviour and thus choice. This suggests that the reward pathway is responsible for converting incoming sensory signals to some common “reward currency” that is in turn transformed by the cortex with the help of the reward system into a value presentation of the said stimuli. This value is then mapped onto the probability of available choices of behaviour. Psychoactive substances may bias this process so that stimuli related to use are given more value in reward currency than other, more natural stimuli. It is akin to money markets, where it is often perceptions of the strength of a particular currency that cause more people to invest in that currency than others with less perceived value.

Once a decision has been made to act, the required motor programmes in the brain need to be enabled in order to execute the intended actions. Here again the motor cortex communicates with a sub-cortical structure, namely the dorsal striatum, which is thought to be primarily responsible for influencing the motor cortex in selecting the appropriate actions. A current theory for addiction/dependence invokes the dorsal striatum, primarily because of its role in maintaining habits – be they good or bad. In a state of dependence, information processing in this structure is biased to favour selection of those actions that lead to obtaining the substance of interest (Everitt et al. 2008). Compulsive behaviour also involves the dorsal striatum and thus it is suggested that use in the first instance may be kicked off by a predisposition to be impulsive, as this is one of the risk factors, but then later on repeated use is supported by the formation of habit, which in turn becomes compulsive (see section 1.2.5 below).

1.2.5. Addiction/dependence

First and foremost, the epidemiological evidence to date suggests that not all people who try a psychoactive substance become addicted to it. Moreover, it has been estimated that – of those who try such a substance once – the chances that addiction/dependence will set in are 1 in 10 for marijuana and 1 in 3 for tobacco, with other substances

falling in between. Thus the tendency to become addicted/dependent should not be the only measure of the impact of these substances on bodily health, as outlined above, but the problem of addiction/dependence is still there for all to see and needs redress.

Based on our current understanding it would appear that there is some molecular switch within the system that turns occasional drug use into uncontrolled compulsive drug use with the known consequences. A protein molecule known as Delta Fos B has been identified as the molecule that may provide this switch, because quantities of this protein increase following the intake of any type of drug of abuse. More importantly it is activated following repeated use and thus the response does not adapt or habituate; hence it may be this molecule that enables the transition to long-term sensitisation of the striatal dopamine function that is said to be responsible for people craving or wanting a substance. This particular protein is synthesised from the activation of what is known as an immediate early gene, the *c-fos* gene, following drug stimulation and in turn the product of this gene, Delta Fos B, may switch on or off conventional genes that may be responsible for the long-term effects associated with chronic drug use (Nestler 2008).

Repeated use results in tolerance to the rewarding or pleasurable effects that these substances produce. To overcome the effect of tolerance, further drug use ensues in an attempt to obtain the original effect. Thus with repeated drug use the reward threshold is increased and not decreased, and on stopping use the individual goes into a state of dysphoria rather than euphoria as a result of the tolerance or down regulation of the dopamine receptors within the reward circuit. Consequently stimuli with greater impact are required to activate the reward system. To offset this condition the user would seek to obtain and take in more drugs, setting up a sequence of events that gives rise to compulsive drug use (Koob and Le Moal 2008).

Among the consequences of repeated drug use are dependence/addiction and strengthening of the circuits in the brain involved in habit formation. Thus compulsive drug use, like addiction, arises from a series of steps or conditions that alter what is known as the striatal circuitry to give rise to the aberrant behaviour observed in the clinic. However, initiation of drug use is under the control of the ventral striatum, most notably the nucleus accumbens core region that processes information related to motivation/reward. With repeated use of the drug over a long period, the maintenance of or switch to drug dependence/addiction occurs as the dorsal striatum takes over. This is primarily involved in the selection of action as pointed out above.

Impulsivity also increases the likelihood of addiction and relapse. In subjects selected for impulsivity, findings from the laboratory show that they learn to administer cocaine in the same way as the control group, but they then take on board more and more of the drug than their counterparts. It has also been shown that they have low D2 receptor availability in the ventral striatum, as do human drug addicts (Volkow et al. 2004) and also when abstinent (Volkow and Wise 2005). Thus impulsivity per se may predispose one to use drugs in the first place and then facilitate the switch between occasional use and drug dependence/addiction, and finally also render abstinent addicts more susceptible to relapse.

Thus our current understanding from science indicates that addiction/dependence only sets in with individuals who repeatedly use these substances. There may be a molecular switch that is flipped at a certain point in time and instantiates the decreased sensitivity to rewards and increased craving with the accompanying behaviour changing from impulsive to compulsive.

1.2.6. Psychiatric disorders

It has been suggested that impulse-control disorders resemble addictions; some writers have even gone as far as stating that these disorders may be considered addictions (Brewer and Potenza 2008). Impulse-control disorders are said to fall along a continuum in the impulsive–compulsive domain. They include pathological gambling and kleptomania, and are usually repetitive and pleasurable. Impulsivity per se may be a key factor in some psychiatric disorders, including impulse-control disorders and addiction/dependence. The characteristics of impulsivity include lack of premeditation and sensation-seeking, but key to its resemblance to dependence/addiction is the definition given by Moeller et al. (2001): “a predisposition to rapid unplanned reactions ... with diminished regard to negative consequences”.

From a genetic standpoint it is uncanny that family and twin studies account for up to 60% of the variance for risk of dependence/addiction (Kreek et al. 2005). In relation to specific factors in human and animal studies, it appears that the reduction in availability in dopamine D2 receptors is a possible basis for a mechanism for both impulsiveness and the development of addiction/dependence.

The presence of substance dependence is also associated with affective disorders, anxiety disorders, attention-deficit disorder and personality disorders and it is more likely to abound in this cohort than in the general population. Major depression, anxiety and personality disorders are thus found more commonly among those with substance

dependence than in the population at large (Couwenbergh et al. 2006; Ross et al. 1988; Merikangas et al. 1998).

In addition, those diagnosed with substance dependence are more at risk than the general population of developing a related addictive disorder at some point in their lifetime. Moreover, their first-degree relatives are also at greater risk than the general population of developing an addictive disorder, which includes substance dependence.

Which comes first, the psychiatric disorder or substance dependence? It has been demonstrated that disorder predates dependence by typically five to ten years (Couwenbergh et al. 2006; Shaffer and Eber 2002). It has also been reported that there are significant predictive associations between primary mental disorders, first substance use and dependence among problem drug users. However, in practice it appears that anxiety disorders – and, to a lesser extent, depression – precede and increase the risk for substance use. We may thus infer that substance dependence does not arise as result of the lifestyle that may be attributed to the syndrome but from some underlying neurobiological dysfunction.

1.2.7. Genetic predisposition

It is now understood that dependence/addiction – or the vulnerability to developing this disorder – is influenced by the type of genes we inherit from our parents. That is not to say that the social context does not have a say in the development of dependence/addiction but genetic heritability is some 50% independent of the substance in question. It may be higher for specific substances: for heroin, it is reported to be in the region of 70%.

Recent studies in this field have suggested that dependence/addiction is heterogenous from a genetic standpoint, as well as polygenic. This implies that in the first instance a set number of genes acting independently may together produce vulnerability to dependence, but that seems to provide only a small propensity to develop dependence and polygenicity appears to be the main factor. Polygenicity in this case means a number of genes acting in concert to produce the vulnerability, with no single gene responsible. In the light of these findings, it has been proposed that it may prove to be more fruitful to examine the genetic influence on a particular feature or trait that has a corresponding biological substrate and thus be able to account for the single genes responsible (see below). This has proved to be challenging except for example in the case of some particular sub-typing with respect to alcohol. Accordingly, this sub-typing of

alcohol dependence has produced a more homogenous grouping and thus reduced the overall number of characteristics that may be attributed to this disorder (Wong and Schumann 2008).

1.2.8. Psychological traits

There appear to be five personality traits. One of them is extraversion, which includes the more specific trait impulsiveness, and that seems to increase the risk for developing substance dependence. Specific traits within the extraversion grouping – impulsiveness, sensation-seeking, risk-taking, low stress tolerance and nonconformity – normally predate the use of psychoactive substances. It has been suggested that such traits are heritable and that normally genes and environment contribute equally to the development of any such trait, which is rather stable throughout life. Thus it would appear that the trait of impulsiveness, which in effect is non-pathological (which is not the case in psychiatric conditions), is a risk factor for the initiation of substance use.

Impulsiveness, it is argued, may also be divided into a number of sub-traits, such as urgency, lack of perseverance, lack of premeditation and sensation-seeking (Lynam et al. 2006). The dimension of urgency – that is, negative urgency, the tendency to give in to strong impulses specifically when accompanied by negative emotions, which may take the form of anger, anxiety or depression – was found to be the main factor in a group of substance dependants. Sensation-seeking is also related to initiation of substance use; it can be described as the need for novelty or seeking activities that provide intense stimulus, such as skydiving. Research using constructs that are able to measure this trait has shown over the years, in studies of alcohol users, that sensation-seeking is correlated with greater quantity and frequency of alcohol use. In addition, in the laboratory it has been shown that exposing the young to alcohol or cocaine enhances novelty-seeking and thus it has been argued that novelty-seeking per se may cause people to further engage in substance use.

The trait of impulsiveness, like other personality traits, is also considered to be influenced by both biological and environmental determinants. It may be that, in individuals who tend to be impulsive, it is the lack of impact from normal rewarding stimuli – a lack of impact that may be caused by a down regulation of their dopamine receptors within the reward pathway – that leads them to seek more intense stimuli to get their reward system up and running as required. It has also been proposed that it is some alteration to the frontal cortex

circuitry that enables impulsiveness, because results from people with lesions to this area show that, in choice tests where the subject may either take a small reward with no delay or a large reward following a delay, the small reward is always chosen.

1.2.9. Sociological determinants

Each of the big five personality traits is made up of what may be called sub-traits, and they all include an element of what it is to interact with our environment, especially with other people. This notion of interactivity, or more specifically the ability to co-operate with others, is at the essence of what it is to be human. The way in which the environment and the individual interact then provides the basis for the building of family units (whatever the definition of these), communities and society at large. Thus the environment or culture per se may impact on societies and the individual participating in them.

To be able to behave in this way, a scientist would argue, one must “have a theory of mind” to be able to read other people’s minds or mental states, because these mental states determine behaviour. Mental states vary in type and form from the long-term to the short-term – for instance, trustworthiness as opposed to flippancy or, in the short term, anger versus happiness. There are also desires, which can take one form or the other and are usually goal-directed, and beliefs, which govern our behaviour even though they may be false. The point is that these “mental states” – both our own and those of others – are strictly speaking not physical phenomena, though they very much depend on the neuronal workings of the brain.

To this end the brain structures that help instantiate the ability to have theory of mind include the frontal cortex, the limbic system (involved in reward processing) and the superior temporal sulcus. The limbic system provides information on emotional content, enabling us to read people’s emotions and helping us to empathise with loss or share in the glory of one’s football team winning the world cup. Without this ability to read people’s emotions, society would be in a bad state, unable to recognise such signals, just as computing in the field of Artificial Intelligence has not been able to do so far.

The underlying mechanism that enables theory of mind within this circuitry in the brain is thought to be based on what may be termed “mirror neurons” that are activated by our own ability to express emotions; but crucially these mirror neurons are also activated when other people express their emotions. Using this basic mechanism, it is thought, we can experience the same emotion as that expressed by the

other person, even though at that instant we may not know the basis for their feelings. The inference is that the mirror system is best placed to track changes in mental states, such as emotional states and intentions of others, that per se may lead to alterations in behaviour.

Because this ability to attribute mental states to self and others is seen as an important determinate of behaviour, it is hardly surprising to learn that problems in this circuitry in the brain lead to problems in interacting with others. On the extreme end of the scale, autism is a condition where theory of mind has been disabled and it has been suggested that the mirror-neuron system is to blame in part for the emergence of the symptoms of this disorder. Autism is an example of the emergence of problems as a consequence of developmental problems, whereas disorders like schizophrenia that develop later on in life are said to result in problems in applying theory of mind to form coherent relations with others and the world. The long-term use of psychoactive substances may result in symptoms comparable with those associated with schizophrenia, as sometimes noted with amphetamines and cocaine, which in turn may result in loss of the ability to attribute mental states to oneself and in some cases to others. The mechanism for such a loss is believed to arise from a dysfunctional inhibitory pathway from the cortex to the sub-cortical structures forming part of the limbic circuit, which is responsible for processing information related to emotions.

Personality traits may be one of the risk factors for starting to use a psychoactive substance, apart from the well-known phenomenon of peer pressure. Among these traits are expectancy, a well-known psychological construct that includes the belief that the benefits of use outweigh the risks, and finally the belief that one is in control of one's use. So all in all, sociological determinants are very much influenced by the underlying brain system through which choices are made, but in truth a decision to initiate substance use in the first place depends on the workings of the individual mind, as does (in a number of people) the switch to dependence.

1.3. Discussion

The foregoing overview of the impact of psychoactive substances on the brain and behaviour has attempted to show that the evidence from science has come a long way. This in turn should raise our understanding of why people use such substances in the first place and why

some users unfortunately go on to become addicted/dependent with the resultant problems.

It would appear that the crux of the issue is the finding that these substances have a major impact on the reward pathway, such that the mental states or feelings of euphoria they generate continue to attract a fair number of individuals to experiment with these substances. It is also worth noting that the majority of users seem to be in the younger age groups, starting at 16 years old, and this is a problem in itself because the frontal cortex – the part of brain mainly responsible for decision making – only fully matures at the age of 20.

It is understood that our mental states – one of them being our beliefs – in turn determine our actions or behaviour. Beliefs are synthesised in our minds by the assumption that knowledge depends on experience; thus, for example, in order to obtain happiness (a short-term mental state) the path one takes may involve the use of psychoactive substances to create this false belief. It is possible that our make-up or psychological traits may predispose some of us more than others to try such substances, and this is starting to be borne out by the findings that our genes give rise to our psychological traits, whatever they are. It needs to be emphasised that not all is clear-cut and the big five psychological factors are broad categories and thus not as good at predicting or explaining behaviour as are the sub-types or lower-level traits.

Of all the traits, impulsiveness seems to be the one that provides most risk for substance use in the first place and risk of dependence thereafter and this trait falls under the larger domain of extroversion. That impulsiveness per se may be in part understood to arise from the reward circuitry in the limbic system being down regulated by the lack or insensitivity of D2 receptors demonstrates that neuroscience is beginning to provide us with new insights into how such brain circuitries may instantiate such behaviour. Again, the issue needs to be viewed in its total context in that correcting such behaviour with medication alone is not the whole answer. Recent cognitive findings, in which memories have been altered, provide a way forward in which both medication and cognitive therapy may bear better outcomes.

One last note: the emerging discipline of social cognitive neuroscience – which merges such disparate fields of study as sociology at one end, neuroscience at the other and cognitive psychology in between – has been described by Ochsner and Lieberman as seeking to

to understand phenomena in terms of interaction between three levels of analysis: the social level, which is concerned with the motivational factors and social factors that influence behaviour

and experience; the cognitive level, which is concerned with the information processing mechanisms that give rise to social-level phenomena; and the neural level which is concerned with the brain mechanisms that instantiate the cognitive level processes.

1.4. Conclusion

Following the first attempt to understand in descriptive terms what led to the development of policies on alcohol, tobacco and other drugs, it was clear that epidemiology was the main consideration, not social cognitive neuroscience. It appears that this now needs to be redressed irrespective of whether a single policy or an integrated policy for all is the choice.

The main issue raised in sections 1.0 and 1.1 above was health and well-being. It was stated that most institutions aim to have policies that provide for the health and well-being of their citizens. In addition, the social domain was taken into account as the third pillar that public policy seeks to address. Public policy is also relevant here because it supplies the over-arching umbrella under which such items as alcohol, tobacco and drug use may shelter. The findings of the first study pointed to health as a major consideration in deciding what type of policy to have on the use of psychoactive substances. It is also clear here that measures of health, well-being and the global burden of disease – measuring, for example, lost days due to ill health or premature deaths – have been an important advance in evaluating how well policy has been implemented. The most recent findings from social cognitive neuroscience provide insights into what determines our health and well-being – in either the absence or presence of psychoactive substances – and as such should be taken on board in developing and implementing policy in this domain.

Policy-makers looking to ensure health and well-being might also want to consider what elements could constitute a healthy lifestyle and promulgate these to the whole population, but most importantly to those who are at most risk of developing practices that are unhealthy or may jeopardise health and well-being in the future. Secondary prevention may be used as a tool, for example in campaigns targeting youngsters with specific psychological traits like sensation-seeking that guide their decisions. It is also acknowledged that preventing use when young reduces problems related to use later on.

Policies related to health and well-being also need to include the latest findings from science when attempting to address those who

have become addicted/dependent with repeated use. Harm-reduction policies came into being as a result of the need to tackle emerging health problems, mainly those related to the spread of HIV. In general, national policies followed only after measures on the ground proved positive, but in future this pattern needs to be reversed because policy makers should take cognisance of current scientific evidence earlier on. Treatments in this field are advancing at a considerable pace: at the time of writing, a cocaine vaccine will be available within the year and a nicotine vaccine shortly thereafter.

Whether we opt for a policy for each substance or an integrated one for all now seems to need further consideration in the light of scientific findings and what actually happens in practice. The second part of this book attempts to understand the current state of play by an empirical analysis of practice and the reasons for it.

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2. Empirical study of integrated drug policy

2.1. Introduction

The term “integration” or “integrated” may refer to a range of domains in which parts that were separated become one.² When it is used to characterise drug policy, the term “integrated” is often used in different ways. The *EU Drugs Strategy, 2005-2012* (Council of EU 2004, p. 2) aims “to offer a high level of security for the general public and to take a balanced, integrated approach to the drugs problem”. It uses the terms “balanced” and “integrated” according to the “UN General Assembly Special Session on Drugs of 1998 which confirmed the importance of the integrated and balanced approach, in which supply reduction and demand reduction are mutually reinforcing elements in drugs policy” (ibid.). So, in the EU drugs strategy, “integrated” refers to a drugs policy that focuses on reduction of both supply and demand.

The term “integrated” in this EU document does not refer to a comprehensive view on addiction or problematic substance use that includes legal substances, illegal substances and compulsive behaviour that is not substance-related (gambling, gaming). The EU drugs strategy is entirely dedicated to illegal substances.

The *EU Strategy to Support Member States in Reducing Alcohol-related Harm* (European Commission 2006) focuses uniquely on alcohol; tobacco and illegal psychoactive substances are not mentioned once. The document addresses the health, social and economic issues of hazardous alcohol consumption and encourages member states to co-ordinate national actions on five alcohol-related themes.³ These

2. Wikipedia (en) lists various forms of integration; see <http://en.wikipedia.org/wiki/Integration> (retrieved 25 February 2010).

3. The five themes are: 1. Protect young people, children and the unborn child; 2. Reduce injuries and death from alcohol-related road accidents; 3. Prevent alcohol-related harm among adults and reduce the negative impact on the workplace; 4. Inform, educate and raise awareness on the impact of harmful and hazardous alcohol consumption, and on appropriate consumption patterns; 5. Develop and maintain a common evidence base at EU level.

themes “call for multi-stakeholder and multi-sector action” (p. 7). This phrase refers to integrating the co-ordination of local and national actions.

In the EU white paper *Together for Health: A Strategic Approach for the EU 2008-2013* (European Commission 2007) one of the fundamental principles is that health policy should be integrated into all other policies. It is called the HIAP (Health In All Policies) approach. HIAP refers to both horizontal and vertical integration. Horizontal integration means the integration of policy domains (economy, environment). Integration of political levels (EU, national, regional) could be viewed as vertical integration. In this study we have made no distinction between horizontal and vertical co-ordination.

In a paper of the research platform of the Pompidou Group, Muscat (2008) defines integrated policy as a policy on all psychoactive substances rather than a single policy for each substance. Muscat identifies Switzerland, France and Norway as countries that opt for one policy on all substances, and the UK and the Netherlands as countries with a clear single-substance policy. When discussing this paper, members of the research platform observed a lack of theoretical considerations with respect to integrated policy – other views on integrated policy could be relevant as well – and they wondered whether an “integrated policy” takes into account the interaction between policy measures. For example: public security issues that emerge as an effect of the tobacco ban in bars and restaurants, or the ban on the precursor PMK used to produce MDMA, may propel the introduction of other substances, such as mephedrone. Another related question could be: is an integrated policy (regardless of the aspects that are integrated) a better tool than single-substance policies to attain the overarching objective of all European drugs policies, namely protecting society and improving health (Muscat 2008)?⁴ These ‘new’ questions are dealt with later in this chapter.

It is obvious that the legal status of psychoactive substances may have consequences for the individual and society, but this book does not address legal issues. Here we look at integrated substance policies from a public health perspective, in line with the WHO view that public health is “a social and political concept aimed at improving health, prolonging life and improving the quality of life among whole populations through health promotion, disease prevention and other

4. Interestingly, the EU Drugs Action Plan (mentioned above) juxtaposes “security” and “health” as equally important aspects of “illicit drugs”. Apparently, at EU level, there is more to illegal drugs than just health issues.

forms of health intervention”⁵ It can be observed that, regardless of the status of a substance, governments implement policies that address social and health-related issues of substance use. However, when a substance is illegal, that implies more involvement of bodies like the Ministry of Justice.

For argument’s sake it is important to make a clear distinction between politics and policy. Politics decides which ideas the government believes in and policy is what a government does to support its ideas. This distinction helps us to understand the two basic dimensions of the term “integrated policy”. The integration of substances into a one-policy document points to the political dimension. The integration of co-ordination refers to the policy dimension.

In everyday language, talking about drugs and alcohol policy, the term “policy” refers to both politics and policy. For that matter, the policy in place reflects the politics of that country, but when we come to do policy analysis it helps to distinguish policy from politics.

2.2. Research questions

This book is part of the second phase of a pilot study on integrated policy. The first phase is theoretical⁶ in nature and attempts in part to define “integrated policy” based on literature, theory and definitions in different countries (without limitations to specific countries). The second phase has an empirical character, focusing on what integrated policy means in different countries and how it is organised. The empirical phase is limited to seven countries.⁷

1. What does “integrated policy” mean in different countries? (This implies definition-based empirical data/ideology.)
2. How is “integrated policy”, as defined in answer to question 1, organised? (This is operationalisation.)

The seven countries that participated in this pilot study were selected on the criteria of diversity (integrated/non-integrated) and their willingness to participate.

5. WHO 1998a at www.euro.who.int/observatory/Glossary/TopPage?phrase=public+health (retrieved 11 May 2010).

6. Reflection: research question 2 of phase 1 (What does “integrated policy” mean in different countries? definitions based on literature) is in fact an empirical question, not a theoretical one, because it looks for data on existing definitions.

7. Germany, Ireland, Netherlands, Norway, Portugal, Switzerland and United Kingdom.

2.3. Methods

The seven Pompidou Group representatives of the countries involved in this pilot study identified national experts on drug policy. A short open questionnaire containing the necessary research questions was sent to the national experts. The completed questionnaire formed the basis of a telephone interview with the expert. A list of specific issues that needed clarification was drafted, as well as background information for each of the seven countries.

All seven national experts completed the questionnaire. In some countries (Ireland, Portugal, the Netherlands) two experts completed the questionnaire; in Norway, Switzerland and Portugal, one questionnaire was completed jointly by two experts. In each country at least one expert was interviewed (by telephone) to provide additional information and elaborate on some of the answers. The UK expert also provided comments and a written reply.

Besides the data collected from the completed questionnaires and the telephone interviews, the overall findings are also based on the country summaries included in the Council of Europe publication (Muscat, 2008), and on information found on websites and national policy papers of the seven countries.

2.4. Results

The data obtained from the completed questionnaires and telephone interviews revealed several forms of integration in use by the participating countries.

Integration of substances and behaviour in one policy structure (Norway, Germany).

Integration of co-ordinating institutions (Portugal, the Netherlands and Switzerland; also Ireland, in progress).

Integration as a comprehensive needs-based approach, as opposed to a top-down 'one size fits all' approach (Portugal).

The countries that are known for having policies that are not integrated (the Netherlands and UK) indeed have different policy papers on each of the different substances (alcohol, tobacco and other substances). In the Netherlands the co-ordination of these single policies is done by

the Department of Health. In the UK, the Home Office co-ordinates policy on illegal drugs. With respect to alcohol, co-ordination is the shared responsibility of the Department of Health and Home Office. Tobacco policy is co-ordinated by the Health Department. In the UK (England) however, an Inter-Ministerial Group on Substance Misuse determines the priorities in tackling the harm caused by alcohol and drug misuse. Table 1 summarises the policies in the seven countries, which are explained in more detail below.

Table 1: Co-ordination of policy and rationale for non/integration of substance policies

Germany	Integration of alcohol policy into drugs policy was done to get a better grip on alcohol-related problems for which policy had been underdeveloped (policy neglect) due to a focus on illegal drugs.
Ireland	As in Germany: alcohol needs the same strong policy structure that is in place for illegal drugs. Tobacco policy remains separate.
Norway	Integration for better co-ordination and also because illegal drugs are on the political agenda. Strong health orientation.
Portugal	Separate policy papers, one co-ordinating body, moving towards integration of illegal drugs and alcohol into one policy. This is in line with the paradigm shift that increasingly considers substance use as a health concern, rather than a legal concern. Tobacco policy remains separate.
Switzerland	Separate policy papers, national co-ordination (FOPH), cantonal execution. The process of integration of substances into one policy is the governmental response to critics in civil society of the paradox of separate policies.
The Netherlands	No integration on substances, separate policy papers. Satisfaction with current approach. Co-ordination is integrated by Ministry of Health. Well established policy structures on different substances.
UK	Separate policy papers on alcohol, tobacco and drugs. Cross-cutting alcohol issues are addressed in Drugs Strategy. Co-ordination on overlapping issues on "project or programme basis". Political responsibility: for drugs policy, Home Office; for alcohol policy, Health Department + Home Office. Well established policies on drugs, alcohol and tobacco. No urge to change this approach.

2.4.1. Integration of substance policies and co-ordination

Norway and Germany are the best examples of integrated policy on psychoactive substances and compulsive behaviour, and also in respect to co-ordination. Both countries have issued politically approved action plans.⁸ In Norway, alcohol and drugs were integrated into one policy when illegal drugs became a policy issue. The Norwegian Action Plan mentions compulsive gambling and the use of harmful performance-enhancing drugs, but does not deal with tobacco smoking. In Germany, the focus of substance policy in the 1970s and 1980s was on illegal drugs and, unintentionally, policy on alcohol remained underdeveloped. The introduction of the German Action Plan in 2003 marked a turning point in national substance policy. A deliberate choice was made to focus on all types of addiction and the action plan said of its strategy that "It responds more to the concrete reality of life of those affected than to any ideological principles" (p. 7). The choice of one strategy for all reflects the notion that risky consumption patterns and the use of multiple substances demand an integrated approach to health and social consequences, rather than to substances as such. The German Action Plan does not seem to include gambling and gaming as compulsive behaviour.

2.4.2. In the process of integrating substance policies and co-ordinating them

Ireland, Portugal and Switzerland are in the process of integrating alcohol and drugs into one policy. In Ireland and Portugal, co-ordination issues form part of the rationale for integrating policies. In Ireland health experts would like to embed alcohol policy into the well-developed drug-policy structure. In both countries the alcohol industry has slowed down the whole process on the basis of the argument that alcohol use may take on negative connotations by the public if associated with drug use. In Portugal health experts from the alcohol platform and civil society have made a plea for policy on alcohol-related problems to be integrated into the national drugs co-ordination structure. In Switzerland the Federal Office for Public Health has a mandate, in concert with the most important actors, to develop a mission statement for a coherent drug policy covering all types of addiction ("Challenge Addiction", expected in June 2010). At the same time Switzerland conducts three ongoing national prevention programmes (drugs, tobacco, alcohol). These programmes were developed independently of one another.

8. Norwegian National Action Plan on Alcohol and Drugs; German Action Plan on Drug and Addiction.

2.4.3. No integration of substance policies

The Netherlands and the UK (at least England, Wales and Scotland) have separate policies for the various psychoactive substances. Both states have policies that focus on the social and health consequences of substance use, though it seems that English drugs policy puts slightly more emphasis on negative social consequences, through its robust enforcement activity. In England, delivery of the drug strategy includes a number of cross-cutting alcohol issues. It is hard to say why these countries do not have an integrated policy approach on substance use (or for that matter, a combined strategy on substance misuse). Their overarching goals are broadly the same as in other countries. Country experts from the UK and the Netherlands indicated that their approach is valued as effective.

2.4.4. Integration as a co-ordination issue

An integrated substance policy still requires co-ordination. From this point of view, one has to look at collaboration between ministries and chains of responsibility. Countries that have legal and illegal substances integrated into one policy also have an integrated co-ordination structure in place (Norway and Germany), though in these countries there is a division of policy labour. In Norway, for example, the new alcohol legislation was developed separately from legislation on other substances. Nevertheless, in the event of any political problems the minister of health has the last say in such matters. In Germany the federal drugs commissioner and the drug commissioners of the *Länder* set out national and *Land* policy. The influence of federal policy is limited by the resources and political priorities of the *Länder*.

In Portugal and Ireland a reporting structure has been set up to provide information and facilitate the co-ordination of drug policy. The efforts in these countries to integrate alcohol into a combined drugs and alcohol strategy are motivated by the need for a powerful policy structure to tackle alcohol-related problems. Switzerland is undergoing a similar process of integration of substances and co-ordination into one policy but, whatever the outcome may be, the federal government faces similar limitations as in Germany, since it shares its political power with the cantons. Likewise in the UK, England, Scotland, Northern Ireland and Wales have their own political structure, but the UK parliament is responsible for providing the overall drug strategy. In the Netherlands, policy on all substances is co-ordinated by the ministry of health, which drafts separate policy papers on separate substances. If themes involve multiple ministries, representatives from those ministries contribute to policy-making.

In all countries studied, irrespective of whether they have opted for a single policy for each substance or an integrated policy for all substances, substance-related policy is co-ordinated. Each country has formal or informal structures that ensure that, where issues involve multiple policy domains, the representatives of ministers in charge sit together on a programme or project basis; these are commonly referred to as “interministerial working groups”. In some countries (Portugal, Norway, Germany) formal legal structures are in place to co-ordinate policy and monitor ongoing activities.

2.5. Country summaries

2.5.1. Germany

2.5.1.1. Assumptions underlying an integrated approach

The Action Plan on Drugs and Addiction (2003) adopts an integrated view of the use of psychoactive substances. This is a major change compared to the National Programme on Drug Abuse Control, adopted in 1990. The assumptions underlying the action plan are best distilled from the introduction written by the minister in charge.⁹ She speaks of “new thinking” that advocates a realistic drug policy, responding more to the concrete reality of life of those affected than to any ideological principles (p. 7).

Apparently the policy has shifted from an ideological approach to a pragmatic approach. The previous national programme was mainly one-sided and geared to illicit drugs, thus overlooking the serious social and health-related effects of the harmful consumption of licit addictive substances (p. 15). Another reason to embrace an integrated approach was that “the overwhelming majority of addicts in Germany are dependent on what are known as licit addictive substances, such as alcohol, tobacco or pharmaceuticals” (p. 7). Apart from the above quoted examples and observations, the Action Plan on Drugs and Addiction is in line with the development of a European drug policy: “In particular, the drug strategy approved by the European Council in the Action Plan on Drugs 2002-2004 of the European Union is of outstanding political significance” (p. 15). The reasons mustered for the Action Plan point to a conceptual shift in which addiction bridges the gap between licit and

9. Parliamentary State Secretary at the German Federal Ministry of Health and Social Security and Drug Commissioner of the German Federal Government.

illicit substances. Health and social consequences seem to be equally important. The other argument that supports such a policy on addiction is the apparent wish to be in harmony with European policy.

2.5.1.2. Implementation and execution of policy

Although in Germany separate treatment structures for alcohol and drugs largely remained in place, inclusion of alcohol in the drug strategy broke the ideological separation between legal and illegal substances. Politicians, policy makers, health professionals and the general public are now more aware of the potential negative social and health consequences of excessive use of psychoactive substances, including alcohol use.

2.5.2. United Kingdom

2.5.2.1. Assumptions underlying the approach to psychoactive substances

The UK consists of multiple countries, and England, Scotland, Wales and Northern Ireland are legally and administratively separate to varying degrees. This contribution mainly focuses on England. Scotland, Northern Ireland and Wales have developed different policies on substance use. They will be dealt with only briefly at the end of this summary.

At first sight, the UK has separate policies on illegal drugs, alcohol and tobacco. In early 2008, the government published its second ten-year drug strategy for 2008–18 called *Drugs: protecting families and communities*. The strategy focuses mainly on illicit drugs, but is comprehensive and covers four broad fields: robust law enforcement; action to prevent harm to children, young people and families; new approaches to drug treatment and social re-integration; and public information campaigns, communications and community engagement.

The national strategy on alcohol is issued by the Department of Health. Tobacco policy is entirely based in the Department of Health and seems not to be related to public security issues. The nature of the departments that have issued the policy papers suggests that policy approaches to illicit drugs, alcohol and tobacco are different and not integrated on a policy level. However, at several points in the drug strategy, alcohol and volatile substances are explicitly mentioned and included, especially in the field of prevention targeting young people, vulnerable families and deprived communities. Prevention is not focused only on illegal drugs “but on all substances and the risk

factors that we know can lead to drug use, alcohol misuse and volatile substance abuse (gases, glues and solvents) as well as other problems later in life". Whereas in the Drug Strategy alcohol seems to play an important role, in the Alcohol Strategy illegal drugs are not given the same sort of prominence.

2.5.2.2. Implementation and execution of policy

In the UK there is no single policy for all psychoactive substances. The delivery of the Drug Strategy is the responsibility of the Home Office. The Drug Strategy includes a number of cross-cutting alcohol-related issues and actions, mainly focused on prevention and misuse. Alcohol is recognised and treated as a potentially harmful substance. Also, in the joint action plan that accompanies the Drugs Strategy, some actions are explicitly related to alcohol use, for instance the implementation of some measures of the Youth Alcohol Action Plan (2008). The Drugs Strategy Unit leads the co-ordinated and integrated delivery of the Drugs Strategy and joint action plan. Overall co-ordination of delivery of the Drugs Strategy is ensured by a working group and a strategy group that bring together key departments and the agencies involved. Overseeing the strategy group is an Inter-Ministerial Group on Substance Misuse, which reviews overall progress and determines priorities for tackling the dangers of alcohol and drug misuse. Issues of tobacco smoking are not addressed in the Drugs Strategy.

For delivery of the Alcohol Strategy, a cross-government ministerial alcohol group has been established. The ministerial group is jointly chaired by ministers from the Home Office and the Department of Health. Issues of tobacco smoking are not addressed in the Alcohol Strategy.

An example of an integrated approach to psychoactive substances on a practical level is found in the alcohol policy paper (2007). The International Centre for Drug Policy developed, in collaboration with the 32 UK medical schools, a guidebook for teaching on alcohol, drugs and tobacco in the undergraduate medical curriculum. This guidebook was commissioned and funded by the drugs policy team at the Department of Health (England) but with the explicit aim for the guide to address all substances of misuse. It was published in April 2007.

In Wales (*Working Together to Reduce Harm: Substance misuse strategy for Wales 2008-2018*) and Northern Ireland (*New Strategic Direction for Alcohol and Drugs 2006-2011*) a combined substance-misuse strategy has been put in place. Tobacco smoking is not addressed in these combined strategies. Although Scotland has produced separate policy

papers on drugs and alcohol, the Scottish Government has recognised that alcohol and drugs misuse cannot be considered in isolation.

2.5.3. Norway

2.5.3.1. Assumptions underlying an integrated approach

The Norwegian National Action Plan on Alcohol and Drugs has been implemented since 2006. As the title suggests, it deals with both alcohol and drugs. Tobacco is not part of the action plan; gambling and performance-enhancing products, such as anabolic steroids, are not excluded but not explicitly dealt with either.

The overall objective is to reduce the negative consequences of substance use for individuals and for society. The main focus is on public health, and both treatment and prevention are targeted in the action plan. The action plan will run till 2010 (by the end of 2008, 15 of 147 actions had been wholly or partly implemented). In the Norwegian context, integrated policy refers both to the inclusion of legal and illegal substances in one national action plan and to the co-ordination of implementation and execution of actions that are listed in the action plan.

In the foreword of the National Action Plan, the Norwegian minister of health and care services makes explicit that solidarity with the individual is a key principle of the Norwegian alcohol and drug policy. She says,

Substance use problems are a matter of social inequality, social trends, exclusion of social misfits, and overcoming challenges at school and in the workplace.

This view has contributed to the development of an extensive network of treatment and reintegration services for people with both alcohol and drug problems. The Norwegian expert stated that an integrated policy has been put into practice "For as long as there has been an illicit drug policy in Norway", because "We believe that this leads to better co-ordinated prevention and treatment activities."

2.5.3.2. Implementation and execution of policy

The execution of the action plan involves many ministries. The joint actions are co-ordinated by the Ministry of Health and Care Services. Four times a year, inter-ministerial meetings are held where status, follow-up, budget matters and the need for bi-lateral co-operation are discussed. A wide range of permanent and ad hoc bi-lateral and

multi-lateral forums have been set up between different ministries and other governmental organisations, to ensure co-ordination of the different actions and/or policy areas.

2.5.4. Switzerland

2.5.4.1. Assumptions underlying an integrated approach

If we examine Swiss objectives on drugs, alcohol and tobacco, the common denominator is prevention of negative health and social consequences of psychoactive substance use. Switzerland has implemented programmes for drugs, tobacco and alcohol, all developed independently of one another.

In the past few years Switzerland has faced criticisms from civil society of the inconsistency of its substance policy. Efforts to strengthen the regulations on alcohol and tobacco consumption and at the same time efforts to relax the total prohibition of cannabis have been criticised. Swiss health policy experts observed the lack of a common understanding and agreement on the assumptions underlying its differentiated substance policy.

In spring 2010, the Federal Office for Public Health (FOPH) is due to finalise a policy document (mission statement: Challenge Addiction) that should provoke a public and political debate on the key assumptions of a Swiss substance policy. The idea is to shift the focus from a legalistic perspective to that of health. No individual substances (legal or illegal) should be the key to a substance policy, but the potential negative health and social consequences. Such an approach would appear to justify an integrated health-based substance policy.

2.5.4.2. Implementation and execution of policy

The federal Swiss government has developed programmes on alcohol, tobacco and drugs, supported by co-ordination of the different sections within the FOPH. The development took place with the participation, involvement and consideration of the federal, cantonal, municipal and institutional levels; these programmes have a duration of five years. Interdepartmental working groups, led by FOPH, discuss and prepare substance policy. The drug section, for example, includes the federal social insurance organisation but also police, justice, customs and federal statistical organisations. In this – horizontal – working group, the legal and political interests of the respective ministries are taken into account. In addition to FOPH and its internal structures, various

commissions take on various topics as the need may arise. In these commissions federal, cantonal, community and civil society representatives participate.

2.5.5. Portugal

2.5.5.1. Assumptions underlying an integrated approach

In Portugal, the government body responsible for issues of drugs and drug addiction is the Instituto da Droga e da Toxicodependencia (IDT) at the Ministry of Health. The main responsibility of IDT is to promote the reduction of use of illicit substances (drugs) and to decrease the problems and addictions associated with licit and illicit substance use (alcohol and drugs). IDT is responsible for implementation of the policy on alcohol and drugs.

Alcohol has been integrated into the scope of IDT activities since 2007, but the formal co-ordination structure (National Co-ordinator, Inter-Ministerial Council and National Council) was approved only on 28 April 2010 (Decree-Law 40/2010) and the National Plan for Harmful Use of Alcohol 2010-2012 was due to be approved in the inter-ministerial council meeting in spring 2010. Although the execution of drugs and alcohol policy is situated in one government structure (IDT as the national co-ordinating body, supported by regional delegations), there are separate policy papers for alcohol and illegal drugs.

Portugal is in the process of including alcohol and drugs in one national policy. The National Plan against Drugs and Drug Addictions was issued before alcohol was incorporated under the umbrella of IDT and will be updated in 2012. It will then be possible to integrate in one policy paper the political options for an integrated approach based on substance use (harm/addiction) or on addictions in general. The co-ordination support structure, however, has been approved by the Council of Ministers. Based on positive experience of the existing Drug Fight Co-ordination model, the Alcohol Platform, created in 2008, suggests that this model should be adopted to address alcohol-related problems. The law decree that approves integrated co-ordination also decrees that representatives of the alcohol industry have a seat on the National Council.

2.5.5.2. Implementation and execution of policy

Development of a combined alcohol and drugs policy is a process that takes all interests into account. Representatives of the alcohol industry participate in developing a new integrated policy through

their membership of the Alcohol Platform and they also take up their seat on the National Council (civil society representatives). They do not actively support the inclusion of alcohol in a drug strategy. This perspective is shared by some people working in the alcohol-treatment field. In order to accommodate alcohol within a combined strategy the wording of policy objectives, documents and projects is important. Moreover, even the name of the institute (IDT) may be subject to discussion, as it is now strongly related to drugs.

In 2012, when a new strategy is supposed to be launched, it will be possible to learn from the two years' experience of having a partially integrated approach to alcohol and drugs, and this occasion will be an opportunity to introduce changes that may fit better with the goal of improving the health and well-being of different psychoactive substance users and of society.

The national experts who completed the questionnaire explain that Portuguese drug policy is integrated also because responses are developed on the basis of the needs of citizens. In almost all Portuguese municipalities a needs assessment was undertaken, based on consultation with local experts and institutions. The responses include, for example, treatment, prevention, harm reduction and dissuasion. Integration implies that a co-ordinated policy may offer interventions according to the identified needs of citizens and communities (as opposed to a paternalistic, ideological or single-sided approach). The inventory of needs took place before alcohol was included in the activities of IDT. Therefore, up to now, the interventions put in place are mainly focused on drugs-related issues, and alcohol-related interventions are not yet as clear and strong as those for illegal drugs.

2.5.6. The Netherlands

2.5.6.1. Assumptions underlying the approach to psychoactive substances

Until now problems related to drug, alcohol and tobacco use were basically viewed as health risks. The distinction made in the Opium Act of 1976 between drugs with unacceptable risks and drugs with less serious risks conforms to a perspective of health orientation. Over the years the government has drafted policy papers on various illegal substances. The distinction between legal and illegal substances is important because available policy instruments differ according to the legal status of a particular substance. Another reason for not integrating substances into one policy is that particular substances require a tailored approach rather than a generalised approach. For example, target groups, settings, health risks and public security issues related

to MDMA use require a different set of interventions than, for example, alcohol use. In this sense, Dutch drug policy could be characterised as pragmatic and problem-driven.

Although the over-arching concept in official substance policy is still the preservation of health, there is growing concern that substance use may also contribute to social risks. Notably the use of cannabis and alcohol is connected to dropping out from school and is a political concern (Brief aan TK hoofdlijnen drugsbeleid, 2009).

Separate legislation (Tobacco Law, Alcohol Law, Opium Act) has led inevitably to different policy instruments that may be used in order to prevent substance-use problems. According to the experts, this is the main reason why policies are not integrated. For instance, the very effective instrument of taxation can be used in tobacco and alcohol policy, but not in illegal drug policy. However, policy on prevention and care is highly integrated.

The observation that Dutch substance policy has a strong pragmatic approach gives rise to the assumption that an integrated approach, to date, is not considered as beneficial from a co-ordination point of view. Even if an integrated approach is formulated at the political level, says one of the Dutch experts, the delivery of interventions remains tailor-made and thus to a great extent not integrated.

2.5.6.2. Implementation and execution of policy

The Dutch approach to substance use is not integrated because the great majority of the legal policy instruments are aimed at one specific substance (alcohol, or tobacco, or drugs). Within the policy chain of any one psychoactive substance, the work of governmental stakeholders is more or less integrated. However, national experts prefer to speak of co-ordinated or concerted policy. The Ministry of Health, Welfare and Sports officially co-ordinates policy on all psychoactive substances.

On drug-policy issues, representatives of the four most involved ministries (Health, Justice, Internal Affairs, and Youth and Family) meet once every two months. They meet more often when, for example, a new drug policy paper needs to be drafted. Much as in other countries, in day-to-day practice each ministry concerned is responsible for organising its role within the overall framework. For example, money laundering related to illegal drug trafficking is a concern of the ministries of Justice and Finance. If during preparation of an intervention other policy domains are involved, consultation and adjustment can take place between or within ministries.

2.5.7. Ireland

2.5.7.1. Assumptions underlying an integrated approach

As of June 2010, Ireland has separate policies for illegal drugs and for alcohol. This situation may change at the end of 2010, when a combined national strategy on substance misuse is expected to be completed and approved. In 2006 a joint committee of the Houses of Parliament (a cross-party committee comprising members of the Seanad and the Dáil)¹⁰ recommended that alcohol should be included in “a new national substance misuse strategy”. The rationale for the recommendation was based on three considerations: 1. the characteristics of the substance (poisonous, an intoxicant, potentially able to create dependence); 2. the comparatively high levels of alcohol consumption in Ireland and related problematic social and health consequences; and 3. the absence of an integrated structure to tackle alcohol-related problems. The joint committee argued that including alcohol in a national substance-misuse strategy would provide an effective management structure for tackling alcohol-related problems.

First published in 2001, Ireland’s National Drugs Strategy includes a reporting structure in which government departments are responsible for reporting on progress in implementing the drugs strategy in their particular area of responsibility. They report to a senior officials group, which reports directly to the government. The National Drugs Strategy also includes a strategic framework of aims, objectives and key performance indicators and related actions, and identifies the government departments or state agencies with responsibility for implementing each action. One government minister is responsible for overseeing implementation of the National Drugs Strategy. On the alcohol side, two policy reports have been issued in recent years and have validity from a science perspective, but a formal structure to implement the recommendations in these two reports has not been established.

For at least a decade up until 2006 there had been regular and intense policy debates about alcohol in Ireland, but this debate “failed to produce an effective policy response to problems stemming from the consumption of alcohol.” (Joint Committee 2006, p. 26). An integrated approach to alcohol and drugs would be easier to achieve than the creation of a parallel but separate national alcohol strategy, argued the joint committee.

10. Joint Committee on Arts, Sport, Tourism, Community, Rural and Community Affairs.

Following the mid-term review of the National Drugs Strategy in 2005, a group of experts was formed in late 2006 to advise the government whether the drugs strategy should continue as a stand-alone strategy or whether it should include alcohol. Progress was slow. The group could not reach consensus about whether alcohol should be included in a national substance-misuse strategy. Public health representatives were in favour but representatives of the alcohol industry were not.

Nevertheless, on 31 March 2009, following consultation on development of a new national drugs strategy, which revealed overwhelming public support for including alcohol with illicit drugs in the one strategy, the government approved the development of a combined National Substance Misuse Strategy to cover both alcohol and drugs. The National Drugs Strategy (2009-2016), which was launched in September 2009, is termed an “interim strategy” pending development of the combined strategy. A National Substance Misuse Strategy Steering Committee was established in late 2009 and the combined strategy is expected to be drafted by the end of 2010. The alcohol industry is represented on this steering committee.

The alcohol industry in Ireland is well organised, having come together to speak through one representative body. An influential economic power, contributing to national exports and employing a large number of people, the alcohol industry has successfully lobbied government to introduce voluntary codes of practice instead of legislation in the area of alcohol advertising (2005). In this respect, the alcohol industry is regarded as a legitimate stakeholder by government. In December 2009, because of its concerns over competing (cheap) alcohol imports from Northern Ireland, the alcohol industry successfully lobbied the Department of Finance to reduce excise duties on alcohol.

In summary, in Ireland the call for an integrated approach to tackling drug- and alcohol-related problems is rooted in two perceptions: the levels of alcohol consumption in Ireland and related problematic social and health consequences are comparatively high, and the existing drug policy framework is seen as a powerful tool through which alcohol issues could be addressed without too much difficulty.

2.5.7.2. Implementation and execution of policy

Although the integrated strategy on drugs and alcohol misuse is not yet in place, on a day-to-day basis relevant government departments, including Health, Justice, Education and Finance, are involved in developing policies on alcohol, drugs and tobacco. As of today, with respect to alcohol and tobacco, no formal inter-departmental working

structure exists. However, the relevant departments meet as required on issues arising in relation to these substances. For example, the Department of Justice is responsible for alcohol licensing legislation and the Department of Health has no legislation on alcohol, but the two departments work closely together on the issues.

With regard to drugs issues, a formal reporting structure is in place, and the minister with responsibility for the National Drugs Strategy is provided with regular feedback. All departments concerned have appointed a person to report regularly to the Office of the Minister for Drugs; these individuals meet on a bimonthly basis. Development of the alcohol component of the proposed National Substance Misuse Strategy is a major agenda item at these meetings.

2.6. Conclusion

In this empirical pilot project on integrated policy we have looked into the substance-misuse policies of seven European countries. Some of these conduct a fully integrated substance policy (Norway, Germany); they have integrated both politics and policy. Some countries are moving towards an integrated substance policy (Portugal, Ireland, Switzerland); and the Netherlands and UK do not have an integrated policy on psychoactive substances.

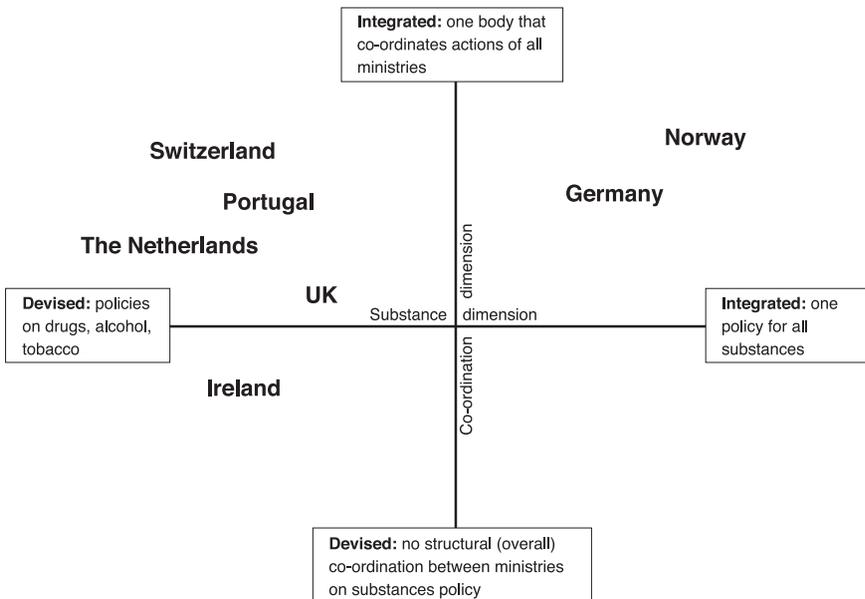
Integrated policy, however, does not necessarily refer to the integration of substances alone. It can also refer to the integration of co-ordination. In Figure 1 these two dimensions are modelled in a matrix. The seven countries are positioned in the matrix according to their current state of integration of substances and co-ordination.

The matrix shows it is possible to conduct separate policies on separate substances and at the same time have one government body co-ordinate these policies. The co-ordination dimension does not take into account the diversity in vertical co-ordination. In the UK, Switzerland and Germany the national government sets out legislation and guidelines but to a certain extent lower political structures (e.g Scotland, Wales and Northern Ireland in the UK, *bundesländer* in Germany and cantons in Switzerland) have certain decision-making powers of their own.

The countries that have made recent shifts towards integration of substances in one policy point to historical events or levers that provoked the new approach. One such lever was the insight that, due to the focus of politics and policy on illegal drugs, alcohol policy has

suffered from policy neglect. Integration of substances is a tool to integrate alcohol in the usually firm drug policy in place. It should be noted here that former Eastern European countries may have a different history in substance use and substance policy (see Muscat 2008). Illegal drugs became available on the black market in these countries later than in Western countries. Although not researched in this pilot study, it seems likely that drug policy in the former communist countries has been integrated into an existing alcohol policy.

Figure 1. Two dimensions of integration: substances and co-ordination



The countries that do not have an integrated policy (and do not intend to have one) are apparently satisfied with current ideas on substances and the way policy is co-ordinated, though the public debate on certain aspects of substance policy is ongoing, as in all countries.

2.7. Discussion

In this section we share some notions that emerged from our reflections on the data.

In order to understand the rationale behind (the shift to) integrated policy in some countries, a historical approach may be helpful. In most of the participating countries a clear distinction exists between legal

and illegal substances. International treaties (1961, 1972, 1988) regulate the freedom that nations have to develop national politics and policies regarding a range of substances. The emergence of the treaties could be understood in a historical political perspective. One could say that the years in which the last three international treaties were introduced coincided with the emergence and development of drug use in modern welfare states. Although the development of an international drug policy is not driven by health concerns alone (Musto 1973, 1999), it is a response to a societal phenomenon.

What goes for international treaties goes for national policy as well. Nations that observed the emergence of the drug phenomenon were confronted with related problems¹¹ and responded with legislation and, to a greater or lesser extent, with policy addressing prevention, treatment and harm reduction. Muscat (2008) suggests that the major influence on drug politics and policy stems from public opinion. A historical approach is helpful to understand why countries at some point have made shifts in their approach to (certain) psychoactive substances. Countries that have shifted to integration of legal and illegal substances in one policy document were driven by developments in their society to do so.

The emergence of the AIDS epidemic in the mid-1980s and 1990s forced many countries to adopt a pragmatic problem-driven approach rather than an ideological or legalistic approach. The AIDS epidemic also fuelled harm-reduction thinking in civil society. The harm-reduction approach assumes that, if abstinence is not within reach for the individual, the user should be helped to reduce the negative consequences related to drug use.

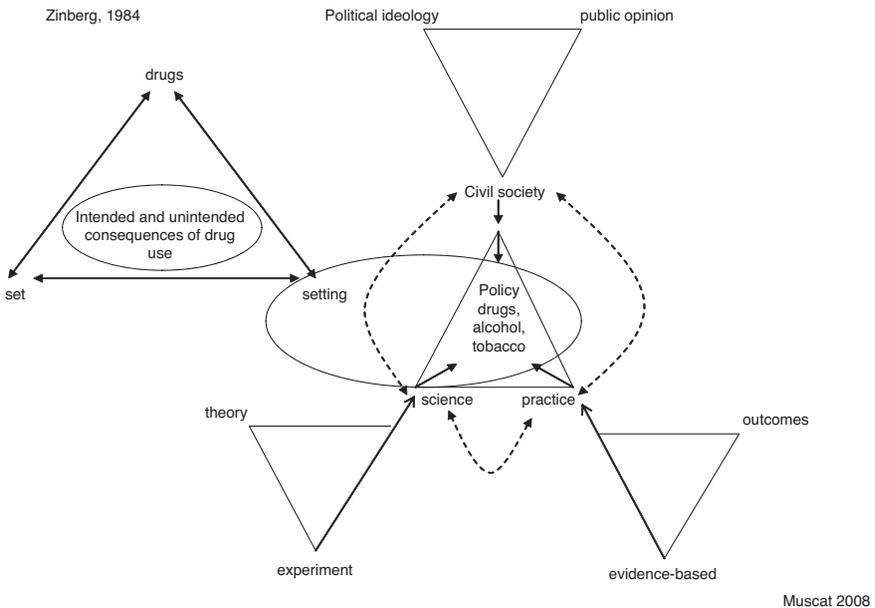
Muscat (2008) explains that substance-misuse policy is influenced by proximal factors (civil society, practice and science) and that distal factors influence the proximal factors. Figure 2 presents this model in a slightly adapted form. The dashed lines between the proximal factors indicate that they also influence each other. To take it further, both proximal and distal factors and policy are in a continuous interaction mode through popular and scientific media (not shown in the model). Figure 2 also shows Norman Zinberg's famous model of drug, set and setting (Zinberg 1984), though what Zinberg indicates as setting is to a great extent represented by drug policy. Setting has an important influence on intended and unintended consequences of psychoactive substance use at micro, medium and macro levels.

11. In some countries prohibitionist legislation was established without the experience of actual drug problems, but due to international pressure (Musto, 1973, 1987, de Kort 1995).

Muscat's model describes the influence on politics rather than policy. The shape that politics takes (policy) depends not only on ideas but also on the view and tradition of public (health) management. Beyond doubt, there is a certain logic between ideas and the execution of ideas. If the idea is that the consumption of psychoactive substances, other than alcohol or tobacco, is sinful or bad it may lead to prohibition of these substances. If the dominant idea is that legal and illegal substances can be viewed as potentially damaging to health, a health approach to psychoactive substances comes into focus. Co-ordination of health-oriented interventions requires a different policy infrastructure from a merely prohibitionist approach.

Integrating policies on psychoactive substances and compulsive behaviour serves as a general orientation for policy. Political ideas take the form of policy, which is the link between idea and action. In substance-misuse policy, actions and responsibilities are co-ordinated as a means to an end. Co-ordination of the execution of ideas (policy) is not merely telling people who should do what. Co-ordination also involves (and assumes) stimulation of agreement on the ideas and underlying assumptions (= politics).

Figure 2: Models of Zinberg and Muscat integrated into one figure



In the countries studied, several ministries shape a nation's drugs policy, with the health and justice departments as the most important players. Co-ordination of interventions implies that the different ministries are

consulted on issues that concern their policy domain. This could be realised by, for example, interdepartmental working groups. This type of co-ordination is common in most countries.

From a content (politics) point of view, the seven countries show converging ideas that emphasise the negative health and social consequences of substance misuse and compulsive behaviour. From a co-ordination point of view (policy), countries choose different approaches related to tradition and constitution of government (polity).

In the example of Germany, politicians believed for a long time that illicit drugs were the major problem in psychoactive substance use. This idea came into being as a result of public concern (moral panic?) about the high number of drug-related deaths (by overdose). This and other ideas have changed over time under the influence of science, practice and civil society, and the perception now is that alcohol and tobacco use cause a wide range of problems (see previous chapter). The National Action Plan on Drug and Addiction is based on this new perception of substance use (assumptions). However, inclusion of legal substances in the national co-ordination structure (federal drugs commissioner and drug commissioners in the *Länder*) is based not only on considerations of the content but also on co-ordination issues. An extensive drug-policy structure was already in place, and inclusion of alcohol in this structure was thought to be helpful to tackle problems related to alcohol use.

If we consider policy as a tool to co-ordinate the implementation of ideas, a policy that does not include all substances in one national document or structure is not necessarily better or worse. Ideas are just implemented in another way, each policy-responsible body emphasising its own profile (health, security) and taking into account the responsibilities of others. If the UK and the Netherlands feel that their alcohol policy is conducted effectively and efficiently, the need to integrate these policies is low. The examples of Germany and Ireland show that their will to integrate alcohol into the drug-policy structure is rooted in their dissatisfaction with a particular substance policy as it then stood. As far as we know this is not the case in the UK and the Netherlands.

To end this discussion, the concept of integrated policy (in various domains) is often used without clarifying what is actually integrated. An integrated view of health rather than a focus on single substances is one type of integration, often rooted in a growing acknowledgement that, from a health perspective, the legal distinction between alcohol, tobacco and other drugs is artificial. This could be seen as the political integration of substance policy. The policy part is closely related to

the political view, but from an analytical angle it is different. In public policy the co-ordination issue is at stake. It depends on the government's constitution and its tradition of how implementation of politics is co-ordinated.

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3. Overall conclusions

As stated in the empirical study, there is a notable difference between politics and policy. The politics of a particular political party or government are its beliefs and they determine the overall stance of the said grouping in relation to all issues in question. Policy on the other hand is the instrument through which their politics may be actualised. Thus with respect to alcohol, tobacco and other drugs, all psychoactive substances, their politics may be effected through public policy, which may be defined as the actions or inactions of government on a particular issue or issues.

In the first place, therefore, policy is based on the political agenda or politics of the government in office. This policy, it is argued in the first part of the overview (sections 1.0 and 1.1), needs to take into consideration the science that provides us with information on why some people use these substances and why some of them go on to be dependent/addicted. In turn, science also provides us with good information on the impact of use of these substances, whether they are used once only, on a few occasions and/or in regular or chronic use. To date, the main evidence used by governments has been that related to prevalence of use and statistics related to deaths as a result of use, because these bits of epidemiological information seem to stir most concern.

One may argue that science per se does not give us black-and-white answers to the questions posed and hence its evidence is not what the public seek nor what governments follow when putting policies in place. It needs to be appreciated that science in essence deals with probabilities – the notion that the theory most cited is most likely to account for the observations when put to the test. It is not that a theory is most cited because of the coverage it has received in the media, but more because it has undergone the scientific process, which involves peer review, and has now percolated to the surface and attracted public or political interest. There are instances where scientific findings come to the fore in the public arena that have not gone through the full scientific process, and this normally leads to such findings being retracted.

That science in essence deals with probability is a concept that is not ingrained in public perception; therefore problems arise when science is used to support policy and this fact is not acknowledged. The latest flu pandemic may be cited as a case in point. Governments in most parts of the world purchased vaccines in case the flu pandemic became a reality. Some now argue that this was an over-reaction, because the evidence was that the chances of a pandemic were below 50% – some would say only 10% – but the consequences of a pandemic were enormous in terms of the number of deaths and a significant number incapacitated by flu. The choice here was a matter of risk assessment and, more importantly, risk management.

The risk of the flu pandemic was below 50% so one may argue it was not worth taking action or, to take it one step further, the resources allocated should have been proportional to the risk of occurrence – if we take the low figure, then 10% of resources should have sufficed. However, most of us insure our house against fire knowing full well that the chances of fire are less than 50%, yet losing one's dwelling has enormous consequences. This leads most of us to insure our property every year while acknowledging that we are not going to get any return on such an investment, except for peace of mind, which may be the key in this instance.

Thus the link between the information provided by science and the consequences of inaction is a matter for the public to get to grips with if it wants to have discussions on such issues. Further examples of scientific findings related to health are the link between tobacco use and lung cancer or for that matter the consumption of alcohol and liver cirrhosis. Scientific findings with regard to the former state that the chances (or probability) of developing lung cancer are some eight times higher in chronic tobacco users than in those who do not smoke. Such evidence does not imply that all tobacco users will end up with lung cancer, but the chances are higher in this cohort.

The public at large and politicians need to be aware what type of evidence science is able to provide and then acknowledge how it is to be used in policy formulation. A good example of late is that related to stem-cell research involving embryos. Following much public and parliamentary debate in the UK, a policy has been put in place which appears to acknowledge some misgivings by the latter but also the need for scientific research in this domain. In contrast, the issue of genetically modified organisms would appear to be a bad example of the place of science in public policy, because the debate started too late with ecological groups and business interests already firmly entrenched in their respective positions.

The point raised here is that science needs to be better fostered among the general public and policy makers to ensure that all sides enter the debate on a more or less equal footing, with the understanding that science is all about probability, and policy in turn is all about ethics, economics and social factors, in which science is but one bit of the equation, though a part that needs to be better inculcated.

With this in mind, in the introduction to the empirical study (section 2.1) the one major common factor that seems to emerge and thus influences politics is that of health and well-being – generally meaning both physical and mental health. Institutions such as the Council of Europe and the EU prioritise it, and of course the WHO puts health first and monitors the health of nations. This per se should provide individual governments with the information required to put together health policies that take into account the use of alcohol, tobacco and other substances such as illegal drugs or the non-medical use of medications. The reason for such health policies is that the use of these substances has a major impact on health and therefore the ability to live a fully productive life, as estimated by DALY (disability-adjusted life years). Such substance use directly affects two of the three pillars of health (physical, mental and social) – and health and well-being form an essential support of these institutions.

Thus we need a scientific method that takes into account the harm done by these substances so as to better inform policy makers and the public at large. In the UK, Professor Nutt and colleagues published an article in *The Lancet* (2007, 369, 1047-1053) in which they attempted to do just that. They used three categories of harm – physical, mental and social – and divided each of these into three sub-categories: acute harm, chronic harm and intravenous harm for the physical domain; intensity of pleasure, psychological dependence and physical dependence for the mental category; and lastly intoxication, other social harms and healthcare costs for the social harms.

Using the Delphi method they considered twenty substances, including the legal substances such as tobacco and alcohol, and produced a table that ranked them from the most harmful at number one to the least harmful at number twenty. As one would have predicted, heroin came in at number one followed by cocaine; surprisingly, some would say, alcohol came in at number five, tobacco at number nine, cannabis in position eleven and khat at number twenty. The main psychoactive substances were included, but the list is not exhaustive. However, for the first time we now have a ranking list that takes into account the harm these substances cause to physical and mental health, as well as social harms, using the scientific evidence at hand. It must be stated

that this was a first attempt and possibly, with more data, one might be able to do more sophisticated analysis such as principal component analysis, which might make it possible to tease out the most important elements of the nine that contribute to the harm caused by these substances. Alternatively, using such evidence one might decide to give more weight to some of these factors. For example, it is the chronic or long-term effects of tobacco use that are the main cause of reduced life span and the life-threatening diseases that give rise to lost days as measured by DALY.

It seems that politics may now be better informed by science as regards health. Thus it may not be surprising that our empirical study suggests that, at least in the political domain, most of the countries studied have health as a central theme of policies on psychoactive substances. What appears to be different among these countries is the way in which the concept of health is enacted in policy. The issue of co-ordination seems to be the crux of the matter in opting for either an integrated or a single policy for each substance under the common theme of health. In effect this very question was raised in the introduction under the guise of the statement that structure sub-serves function, whether it be brain function or policy implementation.

On the side of politics, Chapter 2 of this book introduces two new aspects to the model generated by the Pompidou Group's first foray into this area, *From a policy on illegal drugs to a policy on psychoactive substances* (Council of Europe). One new aspect is the suggestion that the three proximal factors – civil society, science and practice – are influenced by one another, and so form the distal components that make up the proximal ones. This appears to be true and it provides a more dynamic model, highlighting the need for science to get its message across to the public as well as practitioners so that such information may be considered in policy formulation. For this to happen, it is imperative that scientists can communicate their findings more effectively, and to this end the Pompidou Group has organised summer workshops to encourage young scientists to communicate better. From the policy makers' point of view, this is being addressed by needs analysis that in turn will provide the basis for a training initiative in the Pompidou Group's next work programme – which will seek to better inform policy makers on the views from science.

The second aspect newly highlighted by this empirical study is the idea of incorporating the Zinberg model that has a say on policy and not politics. Hence, the setting – policy, whether integrated or not – has some impact on the set or individual and the substance in question. Thus, it is argued, if a policy is prohibitionist (or not) this will have an effect,

intended or not, firstly on the desire to use and secondly on what type of substance to use. The point being made here is that the decision to use or not may be determined by the fact that there are legal repercussions (if the policy is prohibitionist) and this point has been further elaborated by Babor et al. in their 2010 book *Drug Policy and the Public Good*, but it has been suggested above that taking cognisance of the scientific evidence should be the main point for decision making and therefore the influencing factor on ongoing behaviour.

On the point of policy again and the issue of co-ordination, it may be argued that the shift to an integrated policy on psychoactive substances – a shift which is gathering pace – may be a result of the focus on health and the structures in place in the relevant countries to support such a change. In those countries like the UK and the Netherlands where the focus for some time has been on health, the underlying structures have been in place to enable single policies in this domain to flourish. It will be interesting in the future to determine which of the various structures in the different countries better serves single policies for each of the substances or an integrated policy for all psychoactive substances.

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This publication builds upon the work of *From a policy on illegal drugs to a policy on psychoactive substances* (2008), which examined the ways in which drug policy is formulated and applied in a number of European countries, especially in the light of the move from single policies on alcohol, tobacco and drugs to one which incorporates all of these substances.

This volume further presents the scientific grounds for choosing between a separate policy for each substance and a single, “integrated” policy incorporating all substances. It also examines how policy is implemented in seven countries selected to cover the entire spectrum, namely those countries with separate policies for each substance and those with an integrated policy.

Substance use impinges on the quality of life of individuals and society at large, leading the authors to conclude that new scientific evidence should be given greater consideration. Moreover, it appears that policy co-ordination is a fundamental issue in determining whether policies are integrated or not. The question remains open, however, as to which structures and bodies can better serve single policies or an integrated policy for all substances.



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