

**THE BECKLEY FOUNDATION
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**MONITORING DRUG POLICY OUTCOMES:
The Measurement of Drug-related Harm**

Marcus Roberts, Dave Bewley-Taylor and Mike Trace

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The Beckley Foundation Drug Policy Programme (BFDPP) is a new initiative dedicated to providing a rigorous, independent review of the effectiveness of national and international drug policies. The aim of this programme of research and analysis is to assemble and disseminate material that supports the rational consideration of complex drug policy issues, and leads to a more effective management of the widespread use of psychoactive substances in the future.

INTRODUCTION

The Beckley Foundation Drug Policy Programme (BFDPP) has argued that the ultimate objective of drug policy should be to minimise drug-related harm - specifically crime and public nuisance, deaths, health problems, mental health problems and addiction, social costs and environmental damage. This marks a subtle but significant departure from recent drug policy orthodoxy, because it shifts ‘the evaluative emphasis from effectiveness in reducing the *use and production* of illicit drugs to effectiveness in reducing the *harm* associated with drug use and drug policy’ (Roberts M, Klein A and Trace M, 2004, p. 5).

This refocusing of the measurement of drug policy effectiveness will require changes to the mechanisms and methodologies used to assess policy outcomes, but is crucial if the complexity of policy impacts are to be understood. In the past, the monitoring of drug policy has tended to focus on prevalence statistics, such as the numbers of people who use drugs in a given time period or the hectares of land under opium or coca cultivation (see, for example, INCB 2004 and UNODC 2005). This is a natural by-product of drug strategies for which the elimination - or substantial reduction - of drug use and drug markets is the ultimate - and sometimes only - objective. However, increasing seizures of illegal drugs, or the number of users or dealers arrested, is rarely associated with a reduction in drug related harm. The shift to a harm minimisation standard therefore constitutes a fundamental shift of focus, with profound implications for the measurement of drug policy outcomes. While it is true that prevalence measures will often provide a useful proxy for drug related harm - all else being equal, higher levels of use and availability will tend to be associated with a higher incidence of harm - a number of important factors supervene on this relationship. Not all illicit drugs are equally harmful. The harms associated with drug use and drug markets can be substantially reduced through initiatives (for example, needle exchange services) that do not reduce the overall level of drug use. Crucially, the BFDPP has argued that it is also necessary to take into account the collateral costs and consequences of the policies pursued to tackle drug problems (such as the mass incarceration of drug offenders).

Moving the evaluation focus requires political bravery – it is much easier for politicians to claim progress in terms of hectares eradicated, or traffickers arrested, than to acknowledge the complex and interdependent factors associated with reducing drug related harm. However, this paper concentrates on the technical challenges that such a move presents for monitoring agencies. An effective system for monitoring the impact of drug policy within a harm minimisation framework requires a robust methodology for calculating *overall* levels of harm, and making comparisons between different time periods and geographical locations. If drug-related crime falls but drug-related health problems rise, then what is the overall trend in drug-related harm? How are overdose deaths to be weighed against drug-related street robberies or mental health problems? This requires a common standard of commensuration that can be used to *quantify* a range of *qualitatively* different harms.

The obstacles to effective monitoring of drug policy are formidable. They include a shortage of robust data, the need to develop a rational and effective system for weighting and comparing different kinds of drug-related harm, and a lack of consistent methodologies to enable comparisons to be made between different drug policy configurations - at different times and in different places.

However, there has been significant progress in developing methods for assessing the costs of drug misuse over the past twenty years. There have been some ground breaking analyses of the economic and/or social costs of drug misuse in a number of countries - notably, Australia, Austria, Belgium, Canada, France, UK and the United States. These studies have employed economic models. The problems of comparison and commensuration are addressed by placing *monetary values* on drug-related harms. More recently, pioneering work has been undertaken in the UK to develop a Drug Harm Index (DHI) to measure Government progress in ‘reduc[ing] the harm caused by illegal drugs’ (MacDonald Z *et al* 2005). This Index is amenable to calculation at regular intervals and reduces a whole range of drug related harms (including HIV/AIDs and

hepatitis infection, mental health problems, robberies and burglaries) to a single figure (for example, the figure was 113.2 in mid-2002).

If outcomes are to be *compared* between different *jurisdictions*, then this requires the development and dissemination of a consistent methodology. Internationally, there has been progress in developing common methodologies for estimating the costs of illicit drugs (as well as alcohol and tobacco). In May 1994, an international symposium was held in Canada, which concluded that it was 'possible and desirable to develop a set of guidelines regarding the estimation of the costs of substance use and abuse'. Two further international symposia - in 1995 at Montebello, Quebec and in 2000 at Banff, Alberta - discussed the epidemiological and practical issues in deriving cost estimates, the development and application of guidelines and the particular problems of estimating costs in developing economies and drug-producing countries. Following a special meeting in Washington in May 2001 a revised set of *International Guidelines for Estimating the Costs of Substance Abuse* was produced (Single E *et al* 2002). More recently, the UNODC's *World Drug Report 2005* includes a chapter on the development of an illicit drug index for the purpose of comparing the scale of drug problems in different parts of the world, and monitoring strategic outcomes (UNODC 2005).

The extent of this progress should not be exaggerated, however. A report on *Public Expenditure on Drugs in the European Union 2000-2004* comments that 'high quality information on drug expenditure is urgently needed, and yet lacking for many countries, including major EU countries such as Germany and Italy' (Postma M 2004, pp. 7-8). There has been a lack of collaboration between different governments, trans-national agencies (such as the European Union) and international institutions (notably the United Nations). What is striking about many of these studies of the costs and consequences of drug misuse that have been produced in the past fifteen years is their disparity and the difficulties of making meaningful comparisons. The International Guidelines that have been produced by Single *et al* are the first serious attempt to introduce and impose methodological consistency. There is still a long way to go.

ECONOMIC MODELS OF DRUG-RELATED HARM

A number of recent reports have provided estimates of the total economic and/or social costs of drug misuse in particular jurisdictions. For example, three major English-language studies appeared in 2002:

1. Office of National Drug Control Policy (2002), *The Economic Costs of Drug Abuse in the United States 1992 to 1998*.
2. Collins D J and Lapsley HM (2002), *Counting the cost: estimates of the social costs of drug abuse in Australia 1998 to 1999*.
3. Godfrey C, Eaton G, MacDougall C and Culyer A (2002), *The economic and social costs of class A drug use in England and Wales 2000*.

These three studies represent a range of drug-related harms in monetary terms. The US study concludes that the overall cost of illicit drug abuse in the United States in 1998 was \$143.4 billion - compared to \$102 billion in 1992 - and predicts that it will rise to \$160.7 billion in 2000 (ONDCP 2002, pp. 3-4); the Australian report concludes that the total cost of drug abuse in Australia in 1998-9 was AUD\$34,439.8 million, including tobacco and alcohol, with illicit drugs accounting for AUD\$6075.8 million - 17.6 per cent of the total (Collins and Lapsley 2002, p. ix); the UK study concludes that the bulk of the costs from Class A drug use are the result of problematic drug use. The study estimated that the 399,000 to 798,000 UK recreational users of Class A drugs cost the UK's health and criminal justice system around £6 million a year. By contrast, the economic and social costs created by around 300,000 problem drug users in 2000 were between £10.1 and £17.4 billion (Godfrey C *et al* 2002, p. vii).

KEY ISSUES FOR COST INDICATORS

What kind and scale of health-care services are necessary to deal with drug problems, and how much do these services cost?

How many people die as a result of drug use and what is the economic impact of these premature deaths?

What effects do drugs have on individual productivity?

How many crimes can be attributed to drugs, whether crimes related to trafficking, to financial need caused by use, or to their physiological effects?

How much does society have to spend to protect itself from these crimes, enforce the law, and punish offenders?

What is the impact of drugs on the social welfare system (pensions, social security, etc.) and how much does it cost?

Which are the other dimensions of drug abuse, such as driving a vehicle under the influence of alcohol or drugs?

What is the respective share of each of these factors in the total social cost? It may be important to know which particular type of illegal drug causes the highest cost.

Which form of addiction gives rise to the highest social cost in a given society (alcohol, tobacco or illegal drugs)?

From Kopp P and Fenoglio P (2002), *Calculating the social costs of illicit drugs*, Pempidou Group, Council of Europe Publishing.

More recently, in Australia the Drug Policy Modelling Program undertook an estimate of government spending divided into direct costs spent on responses to drug use and harm and indirect costs spent by governments on the consequences of drug use and harm. The direct costs amounted to AUD\$1.3 billion per annum of which 56 per cent was law enforcement. The indirect costs amounted to

AUD\$1.9 billion (Moore, T.J., 2005. See www.turningpoint.org.au) The purpose of this Beckley Briefing is to discuss methodological issues, and not to analyse the substantive conclusions of such reports. It is useful to highlight these findings, however, as they illustrate the way in which economic modelling can reduce a complex set of costs and harms to a single monetary value. Is it really possible - and, if so, desirable - to express such a qualitatively diverse range of harms - including crime, nuisance, productivity loss, overdose, HIV or hepatitis infection and mental health problems - in terms of millions of dollars or billions of pounds?

The International Guidelines for Estimating the Costs of Substance Misuse provides a summary of the potential benefits of economic cost analysis in the field of drug misuse (Single E *et al* 2002).

1. **A business case for investment.** Cost estimates help to make a business case for establishing drug policy as a public priority and for allocating resources to the drug problem. For example, figures showing the substantial long-term cost savings to Government of investment in drug treatment have helped to persuade politicians in a number of countries to increase investment (for example, on the basis of NTORS data it has been estimated in the UK that £1 spent on drug treatment saves £3 in criminal justice and social costs, with more recent studies concluding that the saving could be between £9 and £18).
2. **Targeting resources.** Cost estimates can help to guide policy and investment decisions by highlighting specific problems and policies (for example, by showing which psychoactive substances involve the greatest economic costs). For example, Godfrey *et al* show that the behaviour of a small group of problem drug users and the cost of processing them through the criminal justice system accounted for the overwhelming majority of drug-related public expenditure in England and Wales (*ibid*). French studies suggest that over half of the total cost of all drug abuse in France is a result of alcohol misuse (52.4 per cent), with illicit drugs accounting for 6.12 per cent (Kopp P and Fenoglio P 2002, pp. 104-105). In Australia, tobacco accounts for over 60 per cent of drug abuse costs (Collins and Lapsley 2002, p. ix).

By including alcohol and tobacco, the French and Australian studies draw attention to different dimensions of the broader issue of substance misuse than studies in other countries that have focused exclusively on illicit drugs (and, in the case of Godfrey *et al* on Class A substances only).

3. **Improving the evidence base.** Cost studies help to identify the limitations and lacunae of statistical systems and highlight research needs. For example, Collins and Lapsley's 2002 study identifies gaps to be addressed in future Australian studies. These include a shortage of epidemiological work on dual diagnosis of mental health and substance abuse; the costs of services provided by Non-Governmental Organisations; more detailed crime data;

costs to the public welfare sector; costs of abusive consumption of prescribed pharmaceuticals; and litter costs (Collins and Lapsley 2002, pp. 70-71).

4. **Measuring progress.** Cost studies can provide baseline measures 'to determine the efficacy of drug policies and programmes intended to reduce the damaging consequences of alcohol, tobacco and other drugs' (Single E *et al*, 2001). From the perspective of those trying to better understand the impact of drug policy, this is the most attractive benefit. There is widespread and intense debate at national and international levels on what policies and programmes are most effective, and are therefore 'evidence based'. Much of this debate remains subjective, due to the lack of objective frameworks for measuring progress.

KEY PRINCIPLES FOR COST STUDIES

These benefits can only be properly realised with the development of reasonably consistent assessment methods. 'Without a national (and preferably international) standard', the Guidelines conclude, 'individual analyses are of limited utility, because the results are not comparable and their conclusions can easily become dependent upon idiosyncratic assumptions' (*ibid*).

The EMCDDA report *Calculating the Social Costs of Illicit Drugs* sets out the general principles for conducting social cost studies as consisting of three successive steps (Kopp P and Fenoglio P 2002, p.14).

1. Identifying the various negative consequences attributable to drugs.
2. Documenting and quantifying the degree of causality between drugs and their negative consequences.
3. Assigning economic values to the negative consequences.

A prior step is to identify reliable prevalence statistics. For example, the UK study by Godfrey *et al* concludes that the cost of Class A drug use was between £10.1 and £17.4 billion. There is a seven billion pound difference between these two figures. This is because this study uses three different methods to estimate the number of problem drug users in England and Wales, the lowest estimate was 281,125 and the highest estimate 506,025 (Godfrey *et al* 2002, p. vi).

The problem of reliably estimating the numbers of people engaged in an illegal activity is familiar from work on prevalence. It will continue to be an important methodological issue within a harm minimisation framework.

Negative Consequences

The first step is to identify the harms attributable to drug use. This issue has been addressed in previous Beckley Reports and the main costs analysed in recent studies are listed in the boxes below.

The *International Guidelines for Estimating the Costs of Substance Misuse* argues that economic analysis of the costs and consequences of drug misuse should be treated as a type of cost-of-illness study (COI). The costs covered by such surveys fall into three categories:

1. **Health costs.** The costs of treating drug use and illnesses or injuries resulting from drug use.
2. **Productivity losses.** Earnings foregone by drug users as a result of illness, incarceration, etc, and premature death. This category also includes earnings foregone as a result of being the victim of drug-related crime.
3. **Other impact on society.** Including criminal justice costs, social costs and costs of car accidents.

A selection of typologies of drug related harms - 1

HEALTH CARE COSTS

Costs of providing Treatment for Addiction

Costs of providing Drug Prevention Services

Medical Consequences

- Hospital and Ambulatory Care Costs
- Special disease costs (drug-exposed infants; tuberculosis, HIV/AIDS; Hepatitis B and C)
- Crime victim health care costs
- Health insurance administration

PRODUCTIVITY LOSSES

Premature death

Drug abuse related illness

Institutionalisation/hospitalisation

Productivity losses of victims of crime

Incarceration

Crime careers

OTHER EFFECTS

Crime Costs

- Criminal justice system and other public costs (police protection, legal adjudication, state and federal corrections, local corrections, federal spending to reduce supply).
- Private costs (private legal defence, property damage for victims of crime).

Social welfare costs

Office of National Drug Control Policy (2002), *The Economic Costs of Drug Abuse in the United States 1992-1998*, Washington DC: Executive Office of the President.

COI-based approaches have been used in studies of the costs of tobacco, alcohol and illicit drugs (for example, in France) and in studies concerned only with illicit drugs (notably, in the United States). For example, the 2002 US cost study adheres rigidly to the COI method, following guidelines developed by the US Public Health Service, which has also been applied to studies of virtually all major medical problems in the US. This means that US estimates of the economic costs of drug misuse can be 'compared meaningfully to estimates for diseases, such as cancer, stroke, heart disease, diabetes, alcohol abuse and mental illness' (Office of National Drug Control Policy 2002, p.1). This helps to make a strong business case for investment.

Not all studies have employed a rigid COI methodology (for example, this has not been the case in the UK), and this approach does have its limitations. The modelling of drug abuse as a 'disease' implies a medical model that is characteristic of the US approach to drugs, with the comparators being physical illnesses (such as stroke and diabetes) and not social problems (such as homelessness or unemployment). It may also be significant that in the US report many of the social costs of drug misuse are represented as 'productivity losses', which account for 69 per cent of total cost (*ibid*, p. 3). In fact, crime-related costs account for more than half of these 'productivity losses' (as recognised and discussed, see *ibid* pp. 8-9). Furthermore, as the US study explains, the guidelines developed by the US Public Health Service exclude consideration of intangible costs, including the pain and suffering of dependent drug users and their families.

The International Guidance (Single E et al 2002) notes that the standard COI division (health care, production loss and other costs) 'is but one of a number of different ways to categorize these cost items', concluding that 'there are certainly other classification schemes for these costs, and the articulation of new or alternative formats could suggest other approaches to cost estimation (for example, they suggest that costs could be divided into deterrence, prevention and costs as a consequences of drug abuse).

Types Of Consequences: Some Important Distinctions

It is necessary to distinguish between different kinds of costs.

1. **Tangible and intangible costs.** Collins and Lapsley (2002) explain that *tangible costs* refer to the extra resources 'which would have been available if there had been no past or present drug abuse' (p. 20) - in economic terms, they represent the 'opportunity cost' of drug abuse. These costs include criminal justice costs, health care and treatment costs and loss of productivity. *Intangible costs* involve loss of welfare, but no transfer of material resources - for example, the pain and suffering of drug-related morbidity. Drug-related harms involve both tangible and intangible costs. Drug-related illness involves both tangible costs (such as health care provision and loss of productivity) and intangible costs (pain and suffering). The litter costs of discarded needles and other paraphernalia comprise both

tangible costs (for example, in litter collection) and intangible costs (loss of welfare to the community). An important next step is to start to develop better measures of the intangible impact of drug-misuse on the welfare (and future welfare) of individuals, families and communities.

2. **Avoidable and unavoidable costs.** Collins and Lapsley (2002) explain that ‘avoidable costs are those which are potentially amenable to public policy initiatives and behavioural change’ (p. 16). Unavoidable costs are:
- (i) costs which are currently borne as a result of past drug abuse; and
 - (ii) ‘those resulting from the fact that some proportion of the population will continue to abuse drugs’ (*ibid*).

There is nothing that policy makers can do to change the fact that people have already contracted HIV/AIDS or hepatitis or have been the victims of drug-related crimes. The continuation of some level of drug abuse is ‘unavoidable’ in a different sense. It is *in principle* amenable to ‘public policy initiatives and behavioural change’; but this is not a realistic scenario *in practice*.

3. **Drug abuse costs and policy costs.** The costs of drug abuse itself can be distinguished from costs that ‘result from public decisions to reduce abuse’ – i.e. the direct implementation costs or collateral damage of government policies and programmes. Policy costs – for example the cost of an education or treatment programme, or the police and prosecution costs of enforcing the law - are generally excluded from existing economic modelling of drug abuse costs, limiting the utility of such studies for comparing the cost effectiveness of different policy approaches (for example, drug prohibition and legalisation). As noted above, recent Australian research has made a distinction between (i) government spending on direct drug policy interventions and (ii) spending on the consequences of drug policy (Moore, T.J., 2005).

A further distinction can be made between cost components that are integral to drug policy and those that are extraneous. The 2002 US Study concluded that the cost of caring for HIV/AIDS patients who contracted the infection through injecting drug use had declined from \$3.7 billion to \$3.4 billion between 1992 and 1998 (significantly, these figures only compare the costs of health policies and programmes, and not the wider social costs of HIV/AIDS, including intangible costs). However, this was due to the emergence of new treatments for HIV/AIDS and not to drug policy developments as such (Office of National Drug Control Policy 2002, p. 4). A rise in health care costs could also result from a pro-active programme to identify people with blood borne illnesses and direct them into services - increasing cost in the short term, but reducing harm. The costs of treatment and drug-related crime could also be reduced in the short term by cutting expenditure on drug treatment programmes or dispensing with the right to a fair trial. Cost is not the only consideration when assessing drug policy, however. In particular, the

Beckley Foundation Drug Policy Programme has consistently argued that drug policy should be constrained by observance of universal human rights and local judicial norms and practices.

Consequently, the ‘costs’ of drug abuse will often be lower in poorer countries because less resources are available for spending on health, criminal justice and social systems. This means that expenditure is not a reliable measure of need or harm, and it poses a serious challenge to those who believe that meaningful cross-national comparisons can be made by comparing expenditures on drug and drug-related problems. Nations differ in their medical costs and criminal justice costs, but for comparisons there would need to be a common monetary metric, that is simply not there.

A selection of typologies of drug related harms – 2

Group - Bearer of Cost	Examples of costs
Users	Premature death Loss of quality of life - mental and physical health; relationships, etc Impact on educational achievement, training opportunities, etc Excess unemployment and loss of lifetime earnings
Families/carers	Impact on children of drug users Transmission of infections Intergeneration impact on drug use Financial problems Concern/worry for users Caring for drug users or drug users Dependents
Other individuals directly	Victims of drug driving; drug-affected related violence; drug related crime. Transmission of infections from drug Users
Wider community effects	Fear of crime Environmental aspects of drug markets - needles, effects of drug dealing in community, etc
Industry	Sickness absence Theft in the workplace Security expenditure to prevent drug-related crime Productivity losses Impact of illicit markets on legitimate Markets
Public sector	Health care expenditure Criminal justice expenditure Social care services Social security benefits

Godfrey et al, *The economic and social costs of Class A drug use in England and Wales 2000*, Home Office, London 2002.

Causality Between Drug Use And The Economic Consequences

A problem drug user commits a crime resulting in a number of tangible and intangible costs. There are productivity losses because a regular drug user has been unemployed for a number of years. A heavy cannabis smoker develops a mental illness or is diagnosed as suffering from throat cancer.

But to what extent, if any, are these harms, and the costs associated with them, the direct result of drug abuse?

The EMCDDA report *Calculating the Social Costs of Illicit Drugs* discusses the case of someone who commits a murder while they are intoxicated. ‘It is not clear that the crime can be attributed to consumption of alcohol or illicit drugs’, its authors observe, ‘although such consumption could have made the person aggressive and been an incentive to murder, on the other hand it is perfectly conceivable that he had decided to use one of these substances before committing his crime. In this case, we cannot automatically attribute to consumption of alcohol or illicit drugs the costs linked to the death (costs of future earnings for the victim, lost tax revenue as a result of premature death, etc) and the crime (costs incurred for arrest, trial and imprisonment of the criminal)’ (Kopp P and Fenoglio P 2002, p. 37).

A selection of typologies of drug related harms – 3

Health impacts

- New HIV cases due to intravenous drug use
- New Hepatitis B cases due to intravenous drug use
- New Hepatitis C cases due to intravenous drug use
- Drug-related deaths (Office for National Statistics)
- Drug-related mental health and behavioural problems
- Drug overdoses
- Drug-related neonatal problems (Hospital Episode Statistics)

Community harms

- Community perceptions of drug use/dealing as a problem
- Drug dealing offences

Domestic drug-related crime

- Burglary
- Theft of vehicle
- Theft from vehicle
- Bike theft
- Other theft
- Robbery

Commercial drug-related crime

- Shoplifting
- Burglary
- Theft of vehicle
- Theft from vehicle

MacDonald Z et al, *Measuring the harm from illegal drugs using the Drug Harm Index*, Online Report 24/05, Home Office, London (2005).

These problems may appear intractable, and will certainly remain controversial. But significant progress can be made. For example, Collins and Lapsley (2002) highlight the importance of ‘evidence quantifying the causal links between drug abuse and its health consequences’, which is ‘fundamental to social cost estimation’. Studies by Australian epidemiologists have helped to quantify the causal links for a wide range of health problems, which are represented as ‘aetiological fractions’ (including HIV/AIDS and hepatitis) (p. 3-4).

The issues involved in determining causality are not merely theoretical, but have profound implications for public policy. For

example, if both problem drug use and crime are caused by the experience of poverty and exclusion, investment in drug treatment initiatives alone will have a limited impact on levels of drug use and crime unless this social context is also addressed. If crime is represented simply as a cost of drug abuse, then the wider social causes of both offending and problem drug use will be obscured, resulting in sub-optimal allocations of public resources (for example, by over-estimating the impact of individualised treatment interventions and under-estimating the importance of investment to tackle the wider contexts of drug misuse - for example, urban regeneration programmes). Similarly, if the causal relationship between recreational drug misuse and mental illness is under-estimated too little resource will be allocated to the problem, but if it is over-estimated it will receive a disproportionate share of public money.

Assigning economic value

The challenge of assigning economic value varies according to the type of costs:

1. **Direct and tangible costs.** It is not methodologically problematic to ascribe monetary value to direct costs, such as drug treatment, criminal justice costs and loss of productivity, so long as reliable data is available. It is possible to accurately determine the economic cost of a particular programme of drug treatment, incarcerating an individual over a fixed period or the productivity loss where an individual is unable to work over a specific time period as a consequence of drug misuse.
2. **Indirect and tangible costs.** Monetary values can be placed on indirect costs such as, for example, incarcerating drug users who commit crimes, or treatment of mental health problems amongst drug users. But the causal relationships between these harms and drug use is controversial. What proportion of the cost - if any - should be attributed to drug use? While these problems are genuine they should not be exaggerated. It is possible to make some reasonable assumptions about many indirect costs (for example, there is a well-developed evidence base on the epidemiology and aetiology of a range of health problems).
3. **Intangible costs.** These costs are much more problematic. Collins and Lapsley (2002) found it ‘impossible to estimate the value of pain and suffering attributable to drug abuse ... with the single exception of pain and suffering related to road accidents’ (p. 59). They conclude that ‘intangible costs, which include not only morbidity and mortality but also fear, pain and suffering, do not reflect any resource use, yet are an important cost of drug abuse. They are borne by drug abusers themselves, their families and the community. While intangible costs are admittedly difficult to value, further research is required to fully account for intangible costs’ (*ibid*, p. 71). There are precedents for assigning monetary value to fear, pain and suffering - primarily in the award of damages by judges and juries.

A further issue is the ethical propriety of assigning monetary values to pain, suffering and loss of life. Kopp P and Fenoglio P (2002) acknowledge that ‘this sort of reasoning may seem disturbing, and the reader may legitimately wonder what right economists have to decide the value of a human life’ (p. 37). But if such estimates are excluded from economic analyses of drug abuse, this effectively reduces the monetary value of life to zero. One alternative is to ascribe human life an infinite value. But this is certainly not normal practice. If the value of a human life was put at zero then no traffic lights would ever be installed. Conversely if life was given an unlimited monetary value, then traffic lights would be installed at every junction (*ibid* - although presumably there would be no road traffic if this was adopted as a general principle).

One further issue should be noted. The costs of drug misuse fall on a range of different individuals. Godfrey *et al* (2002) looked at the impact of drug-related harms on six distinct groups: users, families/carers, other individuals directly affected, wider community effects, industry, and the public sector. It might be argued that where the user chooses to take drugs, harm to others should have greater weight (for example, that the costs to children should carry a special weight for public policy purposes). It is difficult to see how this sort of weighting could be built into economic models, but it might be a relevant consideration when interpreting cost studies. The harsh reality is that policy makers do currently place more value on some lives than others, and indeed nuisance to relatively affluent, socially included sections of the community may weigh more heavily with politicians than the lives of a small excluded minority. Consider, for example, the high level of public and political concern about deaths of young people in traffic accidents and the comparative silence about the similar number of fatal overdose deaths that have been recorded annually in the European Union.

Finally, good quality policy analyses will always be dependent on the quality of the available data. The International Guidelines produced by Single *et al* in 2002 conclude that ‘in an ideal world, the data required to apply the methodology for estimating the social costs of substance abuse would be available to every nation’, but they recognise that ‘in reality, few nations possess such a wealth of data’ and this ‘raises a concern about the veracity of estimates’. This is a particular problem for developing countries, many of which ‘have a strong interest ... in understanding the nature and extent of the drug problem in all of its manifestations’, but will ‘have more difficulty using the methodology because of problems with their data infrastructure’ (Single *et al* 2002).

Data limitations are not only a problem for developing countries.

1. Godfrey *et al* comment that ‘it proved difficult to find empirical data to measure and value a number of items, particularly those borne by families and carers’, concluding that ‘for illicit drugs there is clearly a lack of information at many points, from prevalence of drug use, consequences and the effectiveness

of costs of policies. The current model is therefore proposed not as part of an exact decision-making model but rather as an exploratory tool’ (pp.7-8).

2. The US study of economic costs is also ‘limited in terms of both the reliability of the estimates presented and the scope of the estimates’ (Office of National Drug Control Policy 2002, p. 1).
3. Collins and Lapsley report data limitations, including epidemiology (for example, on dual diagnosis of mental illness and substance misuse), health services, NGOs, crime, welfare, litter, intangible costs and prescribed pharmaceuticals (Collins and Lapsley 2002, pp 70-72).
4. The French study by Kopp and Fenoglio identifies a whole range of limitations, including a failure to take account of diseases for which tobacco, alcohol or drugs could be risk factors, commenting: ‘this is particularly true of illicit drugs, since ... no study of the subject has been made in France. Consequently, the health care costs attributable to illicit drugs include only the AIDS/HIV costs ... and the cost of subutex treatment. Unfortunately, we have been unable to provide estimates for all the other diseases for which illicit drugs are a risk factor’ (Kopp P and Fenoglio P 2002, p. 104).

Data are incomplete and imperfect. Limited resources will be available for generating new statistics, and drug policy specialists will be largely dependent on statistics that are already generated by governments and other agencies (for example, crime and hospital admission data).

The precise monetary values ascribed to drug-related harm in studies of the economic and social cost are the product of an inexact science, reflecting: the limitations of the available data; the contestability of assumptions about the causal role of drug use in producing certain harms; and the unavoidability of normative judgements in assigning monetary value to intangible harms. It would be unreasonable, however, to expect a ‘hard’, and strictly positivistic, science of drug policy. The BFDPP has consistently highlighted the normative, cultural and political dimensions of the drug issue, and it is unsurprising to find that these place limits on the economic modelling of the drug problem. Nonetheless, the use of economic methods in research studies and monitoring tools is a valuable policy tool, and illuminating cost estimates can be produced on the basis of sound statistical data and strong assumptions.

So far, we hope to have made a convincing case for the development of improved methodologies for, and the implementation of more studies on, the analysis of drug policy effectiveness. We now move on to briefly review the main current initiatives in this field in an attempt to assess progress, point out methodological differences and challenges, and articulate a way forward for this important work.

THE DEVELOPMENT OF THE DRUG HARM INDEX (DHI) IN THE UK

In 2005, the Home Office in London published *Measuring the Harm from Illegal Drugs using the Drug Harm Index*. The DHI was designed with the specific purpose of monitoring the UK Government's progress against the UK national drug strategy target of 'reduc[ing] the harm caused by illegal drugs, including substantially increasing the number of drug misusing offenders entering treatment through the criminal justice system'.

The DHI differs from traditional economic and social cost studies. It tracks *trends* in drug-related harm, and does not attempt to provide reliable estimates of the *overall* levels at any *particular* point in time. A baseline of 100 was set for 1998, and trends are measured relative to this baseline (109, 111, 115 and so on). The DHI is intended to work in a not dissimilar way to a retail price index, which assesses overall price trends by tracking the prices of a *representative* basket of consumer goods. MacDonald *et al* (2005) explain that it 'does not capture all the harms that illegal drugs might possibly generate, but rather a subset of harm for which robust data are available. As such, this measure is an index indicating change over time, rather than an estimate of the absolute level of harm at any one time' (p. v). Calculating the DHI is a much simpler and less time-consuming process than conducting a whole time series of economic and social cost studies.

The DHI does build on economic and social cost analysis, however - and therefore would not be easily replicable in a jurisdiction where no study had been carried out. This is because the weight ascribed to different harms (for example, health and crime consequences) for the purposes of calculating the index figure are derived from Godfrey *et al*'s estimates of their weights within the total economic and social costs of Class A drug use. These cost estimates may be modified by the DHI process, either because better data becomes available or actual costs change (for example, a new treatment options becomes available). This means that a rise or fall in the DHI may result either from a growth in the volume of harms or from a rise in the costs of particular harms or a combination of both.

The main categories of harm included in the DHI are health impacts (including hepatitis and HIV cases, drug-related deaths, overdoses and mental health and behavioural problems); community harms (drug dealing offences and perceptions of drug use and dealing); and drug-related crimes (including burglary, shoplifting, vehicle theft and robbery). Significantly, the purpose of the DHI is not to measure drug policy costs - it has nothing to say, for example, about the opportunity costs of policing and prosecuting drug use (where police are processing adolescent cannabis users through the criminal justice system they are not available to deal with burglaries or violent crimes, for example). The selection of these harms is determined by the availability of official statistics in the UK, including Hospital Episode Statistics and the British Crime Survey. A lack of data

excludes a range of harms from the index, including the impact of illicit drug use on unemployment, educational attainment, financial stability, homelessness, productivity, absenteeism and social care. It is acknowledged that 'in all these cases there is clearly an association between illegal drug use and the harm, but there does not exist a consistent time-series dataset that directly captures these harms.'

Is the DHI a reliable index of 'the harm caused by illegal drugs' or only of the particular harms for which statistics are available? It is not obviously a reasonable or well-evidenced supposition that *trends* in the incidence of the excluded harms (for example, social care services and homelessness) will mirror those for included harms (such as health impacts and crime). Furthermore, the development of the DHI is an on-going project, and it is anticipated that it will be up-dated and improved as more data and information becomes available. The DHI for data from 2004 was published in April 2006, and showed a continued reducing trend in the harms measured, with a reduction from an index of 115.8 in 2002, to 87.9 in 2004, against the base index of 100 set in 1998. The bulk of this decrease is attributed to the reduction in the UK of drug related deaths, and of property crime committed by drug addicts to finance drug purchases. Is this an accurate reflection of the impact of the UK Government's drug policy, or does it mask other, much more significant, harms?

The Home Office study cautions that 'interpreting changes in the DHI requires care, as it is a single measure that summarises much detail. Different categories of harm may evolve differently over time and no single index can fully capture this diversity'. It recommends that 'the DHI should be considered alongside a 'basket' of individual indicators in order to determine which particular types of harm are becoming dominant, or are being moderated' (MacDonald *Z et al* 2005, p. v). Time lag is a particular problem when referring to the DHI to assess Government progress against its harm reduction targets. Health costs are still being incurred now, for example, as a result of blood borne viruses transmitted ten or twenty years ago. The DHI may rise in the short term as a result of pro-active Government initiatives to identify and address hidden drug-related harms (for example, hepatitis infection). It is important that these interpretative issues are highlighted and understood; that the DHI does not provide a perverse incentive for ignoring hidden harms; and that the significance of DHI figures in assessing progress are not open to misrepresentation for party political or media purposes.

THE DEVELOPMENT OF HARM INDEXES IN AUSTRALIA

The Australian Drug Policy Modelling Program is in the early stages of developing a drug harm index, which will measure the net harm of drug use and drug policy. This project differs from the UK Index in that it is being designed to assess different drug policy options, and not, primarily, to monitor changes over time or to make cross-national comparisons. This project is posing some significant

methodological challenges, and much of the early work has been devoted to developing a rigorous and comprehensive taxonomy of drug policy responses. The next step will be to develop the harm reduction component, which will need to consider the full set of drug related harms (outcomes and effects of each policy), weighting of these harms, identification of agents who suffer these harms and any offsetting benefits. It attempts to disaggregate drug users into a finite number of types, rather than operating with a homogeneous model of drug users. After all, different types of drug use have different consequences. Having identified and delineated these types, the program will attempt to estimate costs per drug user for each category, including both direct and indirect costs. Alison Ritter, the Director of the Drug Policy Modelling Program, reports that ‘for each of these variables, there is much theoretical and conceptual work that is required, followed by detailed consideration of the potentials for quantification. This is a long term research endeavour’. (Alison Ritter, personal communication, February 2006)

Also in Australia, work continues on the Australian Federal Police (AFP) Drug Harm Index. Conceptualised as a cost-benefit analysis, this was developed to provide a single measure that would encapsulate the potential value to the Australian community of AFP seizures. Here the Index represents the dollar value of harm that would have ensued had the seized drugs reached the community. The Index includes both domestic drug seizures and international seizures destined for Australia where the AFP played a significant role (McFadden, M, et al, 2002) It has been calculated that in the five years from 1989-1999 to 2002-2003 the AFP and its partners saved the Australian community approximately AUD\$3.1 billion through its disruption of illicit drug importations (AFP Research Notes, 2004.)

The original Index was based on US research which suggested that the total price paid for illicit drugs in the USA in 1991 was roughly equivalent to the economic harm caused by those drugs. This amount was calculated in Australian dollars and converted to year 2000 values using the Consumer Price Index (CPI) to form the basis of the original Harm Index. The original Index was also limited to major drugs of importation (heroin, cocaine and amphetamines.) It was realized at that time that it would be preferable to develop estimates using recent Australian data. The new Index has been designed to overcome the limitations of the original method. It has also been expanded to include cannabis and the economic values were converted to June 2003 equivalents using CPI movements. (AFP Research Notes, 2004, McFadden, M, 2006)

The principal criticisms of the original method were the over-reliance on US data and the use of street value as a surrogate for harm. The revised methodology is based on Australian data with one exception: in some cases, due to the lack of consistent estimates in Australia, average consumption per user is based on overseas studies. The estimate of harm, including those associated with particular illicit drugs, currently relies on Collins and Lapsley (2002) and various publications by the Australian Institute of Health and Welfare and the

National Drug and Alcohol Research Centre (McFadden, M, 2006.) Research into social costs of illicit drug use by type of drug and drug user is however being undertaken by Turning Point in Melbourne (Tim Moore, Personal Communication, May, 2006.)

As noted elsewhere, the Index does have its limitations. For example, it is a broadly based estimate which assumes that the damage associated with one kilogram of a drug is equivalent to that associated with another kilogram. The majority of damage associated with illicit drug use may be restricted to a particular subset of users or a particular set of circumstances. Indeed, the harm associated with the consumption of a given amount of an illicit drug over an extended period of time is unlikely to be equivalent to the harm associated with the same amount of a substance consumed by a dependent user over a far shorter period of time. The Index must remain a high level measure of harm. (McFadden, M, 2006)

INTERNATIONAL COMPARISONS

The *International Guidance* published in 2002 concludes that ‘without a national (and preferably international) standard, individual analyses are of limited utility, because the results are not comparable, and their conclusions can easily become dependent upon idiosyncratic assumptions which the analyst has to invent’. But it also recognises that many countries lack both the research resources and the data infrastructure to undertake economic cost analyses or develop drug harm indexes (or, indeed, provide reliable prevalence figures). A further problem is that cost analysis has been undertaken in countries that are predominantly consumers of illicit drugs, and this has been reflected in methodological developments. For example, in some producer countries it is unrealistic to assume that a fall in local drug production would free resources for employment in other sectors of the economy. In reality, ‘the counterfactual scenario may involve a major adjustment to the economy (and society) because changes to the drug production sector of the local economy are sufficiently large to impact on the whole economy.’ (International Guidance 2002)

Where research and statistical resources are underdeveloped in particular countries, the major international organisations concerned with drug policy have an important role to play. For example, the international guidelines state that ‘one approach gaining popularity is the use of rapid assessment tools being developed by the WHO and other international agencies to gather data in particular topical areas’. For the foreseeable future, prevalence figures will probably be the best available proxy for drug-related harms in many parts of the world.

The UNODC Illicit Drug Index

The UNODC’s World Drug Report 2005 presents the preliminary results of work by its Policy Analysis and Research Branch to establish an international Illicit Drug Index (IDI). The aim is to establish ‘a single, standard and comparable measure of a country’s overall

drug problem'; a standard of commensuration that will 'establish benchmarks' and enable meaningful comparisons to be made between countries and regions and over time. It is noted that there is currently no way to decide 'if the drug problem is getting better or worse when, say, the number of abusers changes and the abuse shifts from one substance to another. Or when production declines but consumption increases in a given region' (UNODC 2005, p. 165).

The IDI 'combines the extent of illicit drug production, trafficking and abuse into a single measure of potential harm that moves along the market chain' (*ibid*, p. 167). The quantity of illicit drugs produced in a country determines the level of *production*. Illicit drug-*trafficking* estimates are based on (i) reported illicit drug seizures ('seizure indicator') and (ii) reported illicit drug seizure routes ('route indicator'). The drug *abuse* index is based on the annual prevalence statistics reported in the UNODC's world drug report. A 'harm/risk factor' is applied to this raw prevalence data to weight different drugs (cannabis, cocaine, heroin, etc), through a process which aggregates them into 'one single hypothetical reference drug'. The harm/risk calculations used in this process rely on four proxy indicators of the harm to individual health: treatment demand, injecting drug use, toxicity and drug-related deaths.

Initial results presented in the World Drug Report 2005 show that the IDI is highest in the major drug producing regions, particularly in the Near and Middle East and South West Asia at 52.67, nearly twice as high as in the 28.26 figure for next highest region, South America - another production and trafficking area. Among so-called consumer countries, the highest figure is for North America at 24.40. The lowest IDI rating is 2.23 for East Africa (see table for full results). The rate for West and Central Europe is 13.10, compared to 12.38 for Eastern Europe and 12.75 for South East Europe. As you can see, the results are presented as regional, rather than national, aggregates. The reasons for this are partly technical, but also neatly avoid the

potentially embarrassing results for particular governments. This may be understandable at such an early stage of the methodological development, but in future will undermine attempts to understand the relationship between policies and their impact.

The development of an international IDI is an interesting project, but as the UNODC recognises there is a risk of 'distorting reality through oversimplification' (*ibid*, p. 165). Any attempt by the UNODC to move away from judging progress simply through eradication and prevalence measures must be welcomed, but the IDI has to be seen as an initiative that is currently still in the early development stages. There are several challenges that must be overcome if this initiative is going to develop into a meaningful instrument of measurement:

1. **Data limitations.** There are well-documented weaknesses in international prevalence data. These reflect both the inherent problems in establishing the extent of an illicit activity and the variable standards of data collection in different parts of the world, in large part due to variations in the resources available for investment in research and data infrastructures. This issue has been discussed in previous BFDPP reports. The process used to calculate prevalence and, on this basis, to estimate harm, rests on some large and controversial assumptions - for example, about the relationship between seizure rates and overall levels of drug production and trafficking. For example, a higher rate of seizure at a particular time and in a specific region may be explained by a more pro-active policing strategy, and not an increase in the actual level of trafficking. It is notoriously difficult to develop accurate measures on the scale of an illegal activity.
2. **An Inadequate Typology of Harms.** Essentially the IDI is a prevalence index that is adjusted to take account of the greater harmfulness of some illicit drugs through the application of a

'harm/risk' factor based exclusively on health indicators. The UNODC states: 'Drugs inflict a large number of harms to the individual as well as to society at large. The approach used for the purposes of this model was to concentrate on the health consequences of drug abuse. Thus, the harm-factor used in this model does not include broader societal consequences, such as substance specific differences in the level of drug-related violence, corruption, acquisitive crime, organised crime, financing of terrorist groups, etc. Such a broader concept of drug related harm to society in all its manifestations could be envisaged for future development phases of this model. For the time being, most of the data necessary to establish such a

PER CAPITA VALUES				
Sub-region	Production	Trafficking	Abuse	IDI
Caribbean	2.46	7.21	2.39	12.06
Central America	0.25	4.04	3.32	7.62
Central Asia & Transcaucasian countries	3.53	6.07	4.96	14.56
East Africa	0.30	1.13	0.80	2.23
East & South-East Asia	2.40	0.60	2.09	5.09
East Europe	0.15	1.26	10.96	12.38
Near & Middle East/ South-West Asia	32.24	14.95	5.48	52.67
North Africa	4.85	1.12	1.54	7.51
North America	4.98	9.79	9.63	24.40
Oceania	3.87	5.56	9.42	18.86
South America	14.46	9.31	4.49	28.26
South Asia	0.28	0.10	2.68	3.06
Southeast Europe	1.40	9.19	2.15	12.75
Southern Africa	1.52	1.45	2.35	5.32
West & Central Europe	1.07	5.80	6.23	13.10
West & Central Africa	0.82	0.73	3.49	5.03
Mean	4.33	3.26	3.77	11.36

Source: UNODC, *World Drug Report 2005*, Volume 1, p. 172

broader concept of drug related harm, on a global scale, are not available' (*ibid*, p. 170). Nor does the IDI take account of the extent to which programmes and initiatives that supervene between drug use and markets and the level of drug-related harm - such as needle exchange and substitute prescribing - affect the relationship between prevalence and harm. The IDI is therefore not a drug harm index, nor does it deal with economic and social costs.

It is also important that care is taken when interpreting and applying IDI findings. In an interdependent world with a global market in illicit drugs, a high IDI and/or an increase in IDI over time will not necessarily be an indicator of drug policy failures within a particular country or region. For example, a country can have a high trafficking IDI because it happens to share a border with a major drug producer (see, for example, the BFDPP Briefing on Iran) and levels of production in South West Asia will partly be determined by the effectiveness of policies to control in other regions, such as North America, Oceania and Europe.

CONCLUSIONS

There has been considerable progress since the early 1990s in developing methodologies to measure drug-related harm. A number of highly influential studies have been produced, contributing to a more evidence-based approach to drug policy, and a shift in the evaluative emphasis from simple prevalence measures to a more sophisticated harm minimisation approach. It is not clear to what extent the findings of these studies are being used by governments and relevant international agencies to target their scarce drug policy resources efficiently, and maximise the impact of their investment on drug-related harm.

While there has been progress, the development of methodologies for measuring drug-related harm is in its infancy. Economic and social cost studies have been undertaken in only a handful of countries. The development of a Drug Harm Index in the UK is pioneering work, which will not necessarily be replicable elsewhere. Most countries lack the sophisticated research and data infrastructures to undertake cost studies or produce drug harm indexes. Where detailed studies have been undertaken their authors have highlighted methodological problems (for example, in placing a value on the intangible costs of drug abuse, such as pain and suffering) and the lack of data on key drug related harms in even the most advance drug policy research institutions.

If these forms of analysis are to be used to routinely inform policy decisions, policymakers must be aware of the scale and nature of the costs of different patterns of drug use to their citizens, the costs (and collateral costs) of the policies and programmes designed to reduce drug problems, and the impact and effectiveness of these policies and programmes. To illustrate this process, we can use the example of drug related property crime committed by heroin addicts to fund their drug purchases. Policymakers, if their policies are to be

evidence based, will need to know how much of this type of crime is committed by heroin addicts, and the costs of these crimes to individuals, communities and the authorities. They will then need to assess the public expenditure costs of programmes (such as diversion to addiction treatment, or arrest and imprisonment) that are designed to reduce these crimes. Once they have implemented their chosen intervention, they should measure its success in reducing crime, and compare the costs of implementation with the crime reduction benefits achieved. The same analytical process, if applied to all areas of drug policy, would go a long way to resolving some of the longstanding disputes in this field.

While the analysis of costs of drug use, and benefits of interventions, can be (and is) used to inform local decisions on particular issues, the development of cost studies and harm indexes as a framework for national and international comparison should be viewed as a useful 'exploratory tool', and not as an 'exact decision-making model'. If cost analysis and indexes are to serve this function then it is vitally important to continue to develop and disseminate methodologies and results; to improve data collection and build better evidence bases (which will require a proper investment in capacity building support for developing countries) and to agree to and comply with international standards to enable meaningful comparisons to be made across different jurisdictions. If this is to happen on anything approaching a global scale, then it will require a significant further investment of resources and it will need to be guided and supported by an appropriate international infrastructure. We therefore recommend that the UNODC, in the context of its ongoing work on the IDI, draws together an expert group to review existing work in this area, and develop methodologies for future cost analyses and harm indices. If this work is adequately designed and supported, it will lay the foundations for future policy to be informed by a much greater understanding of drug related harms, and how they can be successfully tackled.

BIBLIOGRAPHY/REFERENCES

AFP Drug Harm Index, (2004) AFP Research Notes Series, Research Note 5, March.

De Ruyver B, Pelc I and Casselman J (2004), *La politique des drogues en chiffres: etude des acteurs concernes des depenses publiques et des populations atteintes*, Service Public Federal de Programmation Politique Scientifique, Belgium.

Collins DJ and Lapsley HM (1996), *The Social Costs of Drug Abuse in Australia 1988 and 1992*, National Drug Strategy, Monograph Series No 2, Commonwealth Department of Human Services and Health 1996.

Collins DJ and Lapsley HM (2002), *Counting the Cost: estimates of the social costs of drug abuse in Australia 1998 to 1999*, National Drug Strategy, Monograph Series No 49, Commonwealth Department of Health and Ageing, Canberra.

Godfrey C, Eaton G, MacDougall C and Culyer A (2002), *The economic and social costs of class A drug use in England and Wales 2000*, Home Office Research Study 249, London: Home Office.

International Narcotics Control Board (2004), *Report 2004*, UN, Vienna, Austria.

Kopp P and Fenoglio P (2000), *Le cout social des drogues licites (alcool et tabac) et illicites en France*, OFDT.

Kopp P and Fenoglio P (2002), *Calculating the social costs of illicit drugs*, Pompidou Group, Council of Europe Publishing.

Kopp P and Fenoglio P (2003), *Public spending on drugs in the European Union during the 1990s*, EMCDDA, Lisbon.

MacDonald Z, Tinsley L, Collingwood J, Jamieson P and Pudney S (2005), *Measuring the harm from illegal drugs using the Drug Harm Index*, Home Office Online Report 24/05 at www.homeoffice.gov.uk/rds or e-mail: publications.rds@homeoffice.gsi.gov.uk

McFadden, M, Mwesigye, S and Williamson, G (2002), *Pricing Outputs: A Cses Study in Law Enforcement*, Australian Journal of Public Administration 61 (4).

McFadden, M (2006) AFP Drug Harm Index, forthcoming article, Australian Journal of Public Administration.

Moore T J (2005), Monograph No. 01: What is Australia's "drug budget"? The policy mix of illicit drug-related government spending in Australia. DPMP Monograph Series. Fitzroy: Turning Point Alcohol and Drug Centre. (www.turningpoint.org.au)

Origer A (2002), *Le cout economique direct de la politique et des interventions publiques en matiere d'usage illicite de drogues au Grand-Duche de Luxembourg*, Focal Point Grand Duchy of Luxembourg.

Office of National Drug Control Policy (2002), *The Economic Costs of Drug Abuse in the United States 1992 to 1998*, Washington DC: Executive Office of the President.

Postma M (2004), *Public expenditure on drugs in the EU 2000-2004*, EMCDDA, Lisbon.

Single E, Collins D, Easton B, Harwood H, Lapsley H, Kopp P and Wilson E (2002), *International Guidelines for estimating the economic costs of substance abuse* (a link is on the EMCDDA website, see below).

Roberts M, Klein A and Trace M (2003), *Towards a review of global policies on illegal drugs*, Beckley Report One, DrugScope, London.

Key documents can be found on the EMCDDA website at www.emcdda.eu.int/?nnodeid=1357 and the Beckley Foundation Drug Policy Programme website at www.internationaldrugpolicy.net/

