

**Number 6**

**ECONOMIC AND  
SOCIAL CONSEQUENCES  
OF DRUG ABUSE AND  
ILLICIT TRAFFICKING**

## **NOTE**

References to dollars (\$) are to United States dollars, unless otherwise stated.

This publication has not been formally edited.

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## **Introduction**

The illicit drug problem can be divided into three categories: first, those illicit drugs that are either produced or processed from natural plant products such as opium poppy: opium, morphine and heroin; secondly, synthetically produced illicit drugs, such as amphetamine; and thirdly, psychoactive pharmaceutical drugs that become illicit as a result of being diverted from licit uses or purposes. The present study is concerned primarily with the first and, to a lesser extent, the second category. The third category is not considered here, not because knowledge about it is scant, but because its economic and social impact is quite different from the other two categories.<sup>1</sup>

An earlier version of the present study was prepared for the Commission on Narcotic Drugs at its thirty-eighth session in 1995.<sup>2</sup> That report represented the culmination of a process that began in 1990, when an Intergovernmental Expert Group met at Vienna and drew up the framework of a study dealing with illicit markets and the production, distribution and consumption of illicit drugs. The Expert Group adopted a set of recommendations that were presented to the General Assembly at its forty-fifth session in 1991. In 1993, the Assembly, in its resolution 48/112, recommended that the Commission should consider including the issue of the economic and social consequences of drug abuse and illicit trafficking as an item on its agenda. At its thirty-eighth session in 1995, the Commission was presented with an earlier version (E/CN.7/1995/3) of the present report, which had been prepared by the United Nations International Drug Control Programme (UNDCP).

After the submission of the earlier version of this study to the Commission on Narcotic Drugs, it was clear that the issues it covered were of relevance to a broader cross-section of the international community. Indeed, UNDCP has during the intervening period prepared various papers on related topics, including several reports submitted to the World Summit on Social Development held at Copenhagen.<sup>3</sup> It was on the basis of continued interest in the economic and social consequences of the illicit drug problem that the present report has been revised and published under the UNDCP Technical Series.

Assessing the economic and social consequences of illicit drug abuse and trafficking, however, implies first, that some measure of the magnitude of the problem is available and secondly, that there is some conceptual clarity about the nature of the consequences of these activities. As knowledge stands, neither of those requirements is fulfilled. Estimates of the extent of illicit drug production, distribution and consumption vary enormously, and are often contingent upon the methodology and political orientation of the observer. Work on setting international comparative standards for measuring the economic and social consequences of drug abuse is only just beginning<sup>4</sup> and, given the complex nature of the problem, will evolve slowly.

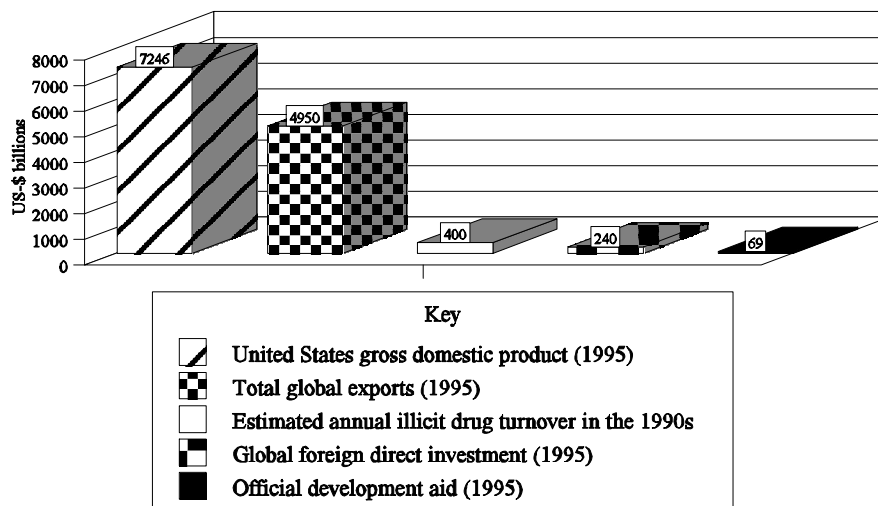
The sources of the present study are thus as varied as its subject matter. The need to expand the information base for such conceptual initiatives is clear, for there can be analytical drawbacks in relying solely on official figures. When official statistics do not fully or accurately reflect drug-

related trends, there is a case for cautious use of unofficial data as long as any and all unofficial sources are clearly recognized and documented as such from the outset. Official sources can, in some cases, be out of date or focus more on the symptoms or effects of drug abuse and trafficking rather than the underlying causes. Furthermore, in most cases, official statistics focus mainly on country-level situations and the cross-national dimension is not always discernible. The present study therefore uses unofficial data where appropriate, but clearly cites and documents their use.

## I. Extent of the illicit drug problem

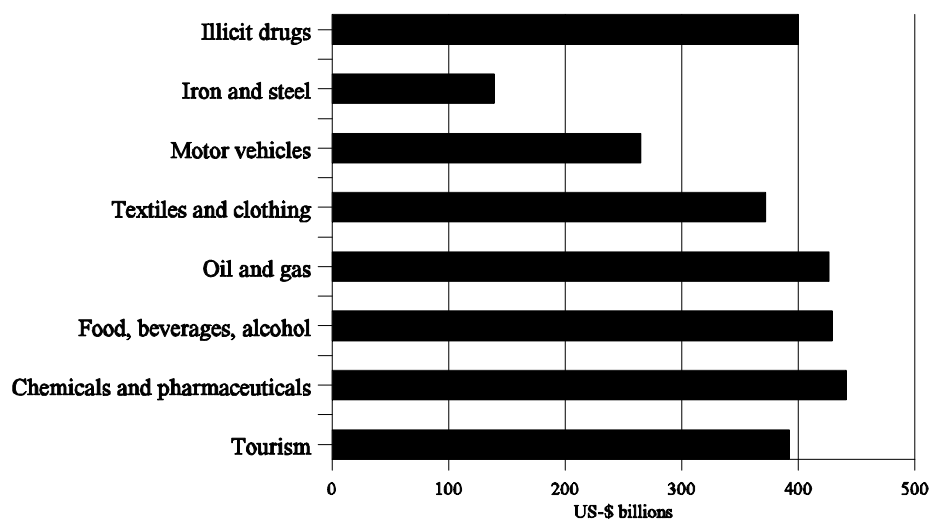
The order of magnitude of the extent of the illicit drug problem should be established in the light of at least two of the unique characteristics of illicit drugs: first, they are all addictive substances, a fact that sometimes blurs the dividing line both between use and abuse and between consumption and addiction; and secondly, though commodities that are traded or trafficked, they are distinguished by low volume but enormously high unit cost and value. One indicator of the magnitude of the problem from an economic perspective are the estimates of the turnover of the global illicit drug industry. Due to the clandestine nature of the industry, its complexity and greatly differing assumptions on its operations, estimates of the turnover of the illicit drug industry vary considerably, from about US\$ 100 billion to more than US\$ 1,000 billion a year. The most frequently found figures in the literature range from \$300 billion to \$500 billion a year and seem to be the most reasonable estimates. One UNDCP estimate for 1995 (see [Annex I](#)) reflecting global illicit drug sales to consumers, gives a figure close to \$400 billion. A similar turnover was also estimated by the International Criminal Police Organization/ Interpol.<sup>5</sup> Such a turnover of the illicit drug industry would be equivalent to approximately 8 per cent of total international trade (see [Figure I](#)). It would be larger than the international trade in iron and steel and motor vehicles (2.8 per cent and 5.3 per cent respectively) and approximately the same size as the international trade in textiles (7.5 per cent), oil and gas (8.6 per cent) and world tourism (see [Figure II](#)).<sup>6</sup> The estimate is significantly larger than the global turnover of all pharmaceutical companies (assessed at \$233 billion in 1993)<sup>7</sup> and approximately six times larger than the amount spent on official development assistance (\$69 billion in 1995).

**Figure I. World illicit drug trade**  
(Comparative international aggregates)



Sources: UNDCP, IMF, Organization for Economic Cooperation and Development.

**Figure II. Turnover of illicit drug trade compared to international trade (exports) in major commodities and services (1995)**



Sources: UNDCP, IMF, UNCTAD, World Tourism Organization.

### A. Production

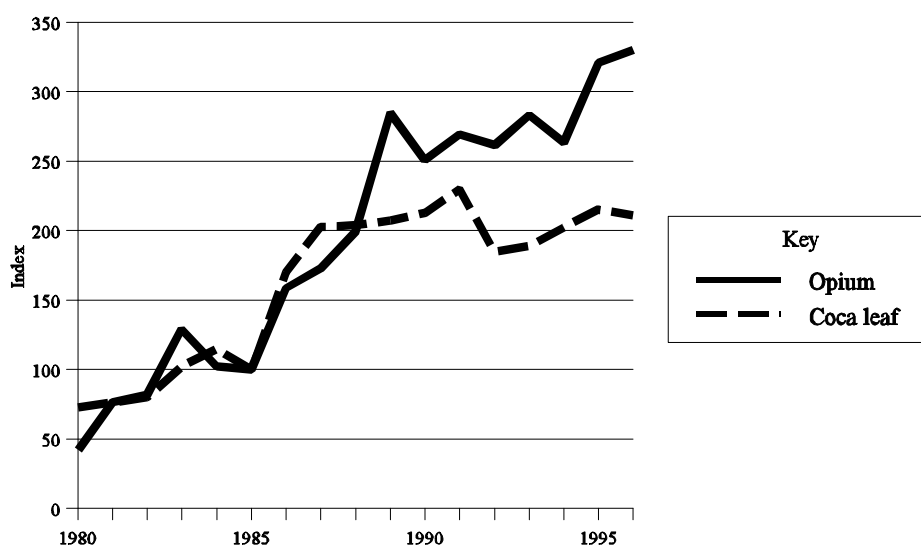
There are no universally accepted figures on illicit drug production. Different methodologies, assumptions and political interests lead to very different estimates. The principal trends and magnitudes are nevertheless clear. Illicit drug production, on the global aggregate, is expanding (see [Figure III](#)). That general assessment subsumes different trends in individual illicit crops. Thus, global coca and cannabis production, after having risen dramatically in the 1980s, appears to be stagnating or falling in the 1990s; global opium production, by contrast, is still rising. The trends from 1985 to 1996 are shown in [Annex II](#).

Illicit crop cultivation is concentrated in certain areas, but frequently shifts within and sometimes between subregions and sometimes appears in areas where it was not previously given official cognizance. Most of the world's illicit opiates come from the countries of the Golden Crescent (Afghanistan, Iran (Islamic Republic of) and Pakistan), the Golden Triangle (Lao People's Democratic Republic, Myanmar and Thailand), Lebanon and Mexico. Shifting production, however, makes countries such as Colombia or the central Asian republics of the Commonwealth of Independent States into fairly recent and potentially major producers of opiates. Coca production, by contrast, is more concentrated and three Andean countries (Bolivia, Colombia and Peru) account for more than 98 per cent of world cocaine supplies. Cannabis is produced in most parts of the world, but new areas such as the central Asian republics of the Commonwealth of Independent States, where previous production was undetermined, now show a potential to become major producers.



The overwhelming majority of illicit drugs currently consumed are still plant products, or plant products that have undergone some semi-synthetic processes. According to a study investigating consumption patterns of drug consumers in the United States of America in the early 1990s, the share of illicit drugs other than cocaine, heroin and marijuana, measured in terms of money spent (money is still the only common denominator available for such comparisons)<sup>8</sup> was 4 per cent over the 1990-1993 period.<sup>9</sup> In other words, in the early 1990s more than 95 per cent of the illicit drug market in the United States was constituted by traditional plant-based products.

**Figure III. Trends in global production of opium poppy and coca leaf**  
(Index: 1985=100)



Sources: United States Department of State, *International Narcotics Control Strategy Reports*, 1980-1996.

Synthetic drug markets are, however, developing rapidly. So far, the abundant global supply of natural, plant-based illicit drugs is likely to have acted as one deterrent on what would otherwise be an accelerated shift towards synthetic drugs. The principal synthetic drugs manufactured clandestinely are the amphetamine-type stimulants (ATS). The most widely used ATS are methamphetamine and amphetamine; a number of other amphetamine-type stimulants have recently become popular, in particular methylenedioxymethamphetamine (MDMA), known as "ecstasy", and methcathinone. Moreover, hallucinogens such as lysergic acid diethylamide (LSD) are once again growing in importance. With retail prices of synthetic drugs in developed countries rather low compared with the unit price of illicit plant-based drugs, and with the rapid spread of consumption of synthetic drugs among various sections of society, the actual importance of synthetic drugs is already much greater than the above-mentioned market share in illicit drug turnover suggests (compare consumption data in [Figure VI](#)). The share of all synthetic drugs in global seizure cases, as reported to UNDCP, rose from 6.6 per cent in 1988/89 to 16.3 per cent in 1994/95. The share of ATS increased over the same period from 4.4 per cent to 12.4 per cent of all seizure cases, suggesting that such stimulants are one of the most "dynamic" groups of illicit drugs in terms of growth within the category of psychotropic

substances. Slightly more than a third of all illicit laboratories detected over the 1991-1994 period manufactured ATS.<sup>10</sup>

## **B. Distribution and illicit trafficking**

Illicit drug trafficking is the crucial link in the chain between production and consumption. It is also far and away the most lucrative stage in the process from the cultivation and processing of the illicit drug to the point of final consumption. Along the many routes on which illicit drug traffic moves, there appears to be some spillage, partly because of a tendency of traffickers to pay middlemen in kind. Several transit countries along trafficking routes are consequently showing evidence of increasing drug abuse and consumption.

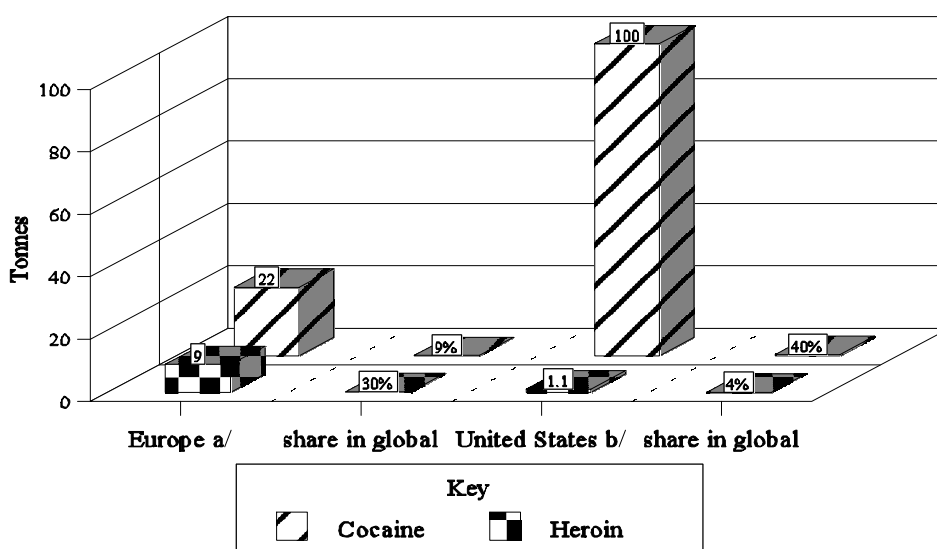
Some of the evidence for this is drawn together in a nine-country study carried out by the United Nations Research Institute for Social Development (UNRISD) and the United Nations University (UNU): in the comprehensive survey published at the outset of the project,<sup>11</sup> the country studies themselves and the overview of their findings. Several divergent patterns of illicit drug distribution are found, depending upon: the level of activity (whether traffickers are wholesalers, middlemen or retailers); the degree of organization (whether traffickers have payrolls or enforceable "personnel policies", develop specialized departments, have vertical integration, build or fight over regional or countrywide market shares); the type of drug marketed (cannabis, cocaine, heroin or designer drugs); the existence of trafficker-insurgent-terrorist alliances; and the way organized traffickers compete for market shares.<sup>12</sup> Individuals do not appear to be major players, and early analogies to a cottage industry now make little sense for the illicit drug trade. The trade has become increasingly organized, particularly at the production, wholesale and middleman levels, pronouncedly so for cocaine and heroin, less so for marijuana. It tends to be controlled by organized groups and in some cases cartels, often organized along ethnic lines to create stronger cohesiveness.<sup>13</sup>

Cocaine trafficking begins in the Andean region and spreads northward, with North America and Europe as the principal final destinations. The 100 tonnes of cocaine seized in the United States in 1995 alone would have had a street value of between \$2 billion (valued at minimum prices) and \$20 billion (valued at maximum prices). The value of cocaine seized in the United States was thus, on average, approximately \$10 billion, larger than the individual gross domestic product (GDP) of more than half the countries of the world. In 1995, 22 tonnes of cocaine were seized in 35 countries in Europe (see [Figure IV](#)).<sup>14</sup> The distribution route leads from the Andean countries through Central America, Mexico and the Caribbean region, although alternative routes through South America (Argentina, Brazil), Africa and Europe (partly eastern Europe) have also become popular. Nevertheless, from 50 to 70 per cent of total United States cocaine imports transit Mexico which, in confirmation of the spillage phenomenon noted above, is beginning to show signs of increasing cocaine consumption.<sup>15</sup>

In 1995, 9 tonnes of heroin were seized in Europe (35 countries), compared with 1.1 tonnes in the United States (see [Figure IV](#)).<sup>16</sup> The majority of heroin consumed in Europe originates in South-West Asia, which provided from 70 to 90 per cent of European heroin seized over the 1993-1995 period.<sup>17</sup> Heroin trafficked to North America, by contrast, largely originates in South-East Asia, which provides more than half of North American demand,<sup>18</sup> with the rest coming from

Colombia, Mexico and South-West Asia.<sup>19</sup> Most heroin processing takes place close to the point of origin. The route of distribution to North America involves countries and areas such as China, Hong Kong, Malaysia, Thailand and, increasingly, African countries for transshipment purposes. The heroin-smuggling route from South-West Asia to Europe goes mainly through Pakistan, the Islamic Republic of Iran and Turkey, and along the Balkan route (which accounts for 70 to 90 per cent of all heroin seizures in Europe),<sup>20</sup> although smuggling through the Central Asian Republics of the Commonwealth of Independent States is becoming popular. The opening of the borders between east and west in Europe facilitated contacts and communication that were also used by drug traffickers, increasing the number of transit routes for drugs and markets for drug consumption.<sup>21</sup>

**Figure IV. Seizures in 1995**



a/ 35 countries: including Turkey and Russia; 760 million people    b/ 260 million people.

Sources: UNDCP, ARQ Data.

As far as is known, the trafficking of clandestinely manufactured synthetic drugs, in contrast to illicit plant-based drugs, is more of an intraregional activity, with interregional trafficking generally limited to precursors for the production of such drugs.<sup>22</sup>

### C. Consumption

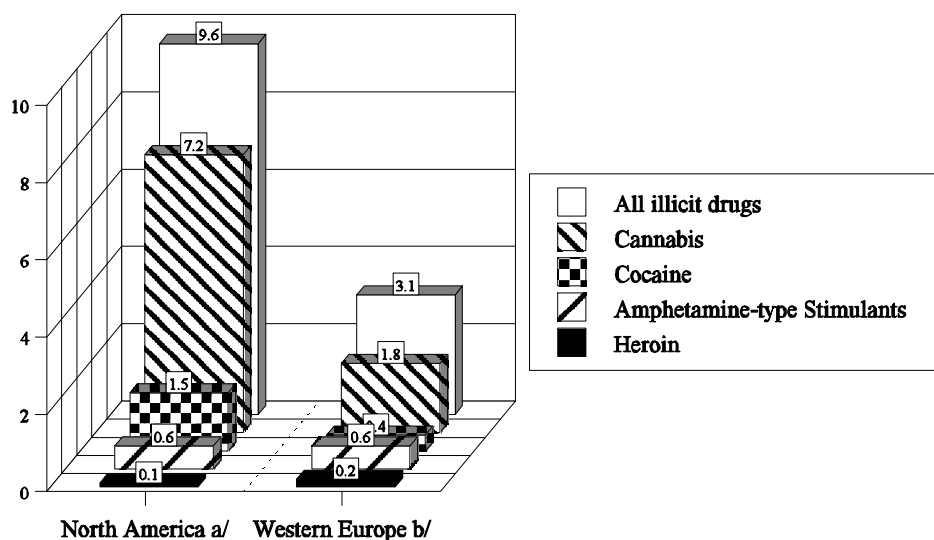
There is little reliable information available on an international basis about the extent of illicit drug consumption. Methodologically sound surveys of the incidence, prevalence and frequency of illicit drug use are primarily local studies. At the national level, they are few and far between and, in international terms, they are at an early stage of development. This is primarily due to the fact that national systems for estimating consumption are heterogeneous, and the results are therefore not always comparable.<sup>23</sup>

Some general assessment is nonetheless possible. Global illicit drug use increased strongly since the 1970s, and this upward trend, though moving at a somewhat slower pace, is likely to continue for some time. Illicit drug consumption in the United States which, in contrast to the global trend, actually declined from the high levels of the 1980s, has been increasing since 1992. Eastern Europe and the countries of the Commonwealth of Independent States are noting increased usage in the 1990s; so, also, are Africa, many parts of Asia, Latin America and western Europe. Consumption of illicit drugs looks like becoming a global phenomenon, no longer confined to the status of a demand problem in industrialized countries. The traditional distinction between supplier and consumer countries is breaking down. The developing countries that produced, but tended not to consume, illicit drugs, are showing increased domestic consumption, more often of modern rather than traditional drugs: *bazuco* in Bolivia, Colombia and Peru; heroin in Myanmar, Pakistan and Thailand; methamphetamine in Far-East and South-East Asian countries; fenetylline in several countries of the Arabian peninsula and methaqualone in several countries of southern Africa.

The largest single consumer of illicit drugs in the world, however, still seems to be the United States, with some 12.8 million current drug abusers (i.e. those who have consumed drugs at least once in the last month) out of a total population of 260 million in 1995. Drug abusers represent 6.1 percent of the population aged 12 years and over. An estimated 3.6 million people have severe drug problems and are in need of professional drug treatment services.<sup>24</sup> The number of people having consumed illicit drugs at least once in the year prior to the survey (1994) was 25.9 million or 12.4 per cent of the population aged 12 years and over. Such figures are high not only in absolute terms, but also in comparison with the prevalence rates reported in most other parts of the world. Only a few countries, for instance Australia and Brazil, report slightly higher prevalence rates, due mainly to more widespread consumption of cannabis.

In Figure V, drug abuse in North America (United States and Canada combined) is compared with drug abuse in western Europe, which, in economic terms, is the second largest market for illicit drugs. The information presented in Figure V should, however, be treated with reservation as it is based on an enormously heterogeneous and fragmented set of data, and mainly intended to establish some basic orders of magnitude. It should also be noted that differences in the level of abuse between different countries of western Europe are sometimes greater than the differences between western Europe and North America. Leaving aside the more widespread consumption of cannabis in the United States, the data in Figure V and Figure VI show very clearly that the drug problem in the United States is still largely one of cocaine abuse. Even rapid rises in heroin consumption in the United States since 1992/93 have not changed this substantially. The abuse of cocaine in the United States is still much more common than in Europe, although cocaine also seems to have emerged in western Europe as the most widely abused illicit plant-based drug after cannabis. In contrast to the situation in the United States, cocaine in Europe is less widely abused than the ATS. The abuse of ecstasy has risen dramatically in Europe in the 1990s, but this is not adequately reflected in the data presented in Figure V. Finally, heroin abuse appears to be marginally higher in Europe than in the United States.

**Figure V. Estimates of prevalence of illicit drug abuse**  
(Percentage of total population, 1992-1994)



a/ Canada, United States.

b/ Europe: Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom of Great Britain and Northern Ireland.

Sources: UNDCP country profiles. United States Department of Health and Human Services (Substance Abuse and Mental Health Services Administration), *Preliminary Estimates from the 1994 National Household Survey on Drug Abuse*, Washington, D.C., September 1995, and annual reports questionnaires.

Although some countries in East and South-East Asia (such as Japan, Republic of Korea, the Philippines and Thailand), as well as a large number of countries in Latin America, report alarming levels of ATS abuse, most illicit consumption of synthetic drugs still seems to take place in developed countries. In many developed countries in Europe, and in Australia and the United States, the prevalence of abuse of synthetic drugs (including hallucinogens, stimulants and sedatives diverted from licit trade) is already higher than that of heroin and cocaine combined. The example of the United States given in [Figure VI](#) shows that such is the case for annual prevalence. Within the general category of synthetic drugs, the abuse of one particular ATS, 'ecstasy', is growing rapidly in both developed and developing countries, and is testimony to the powerful influence of social trends on drug abuse.

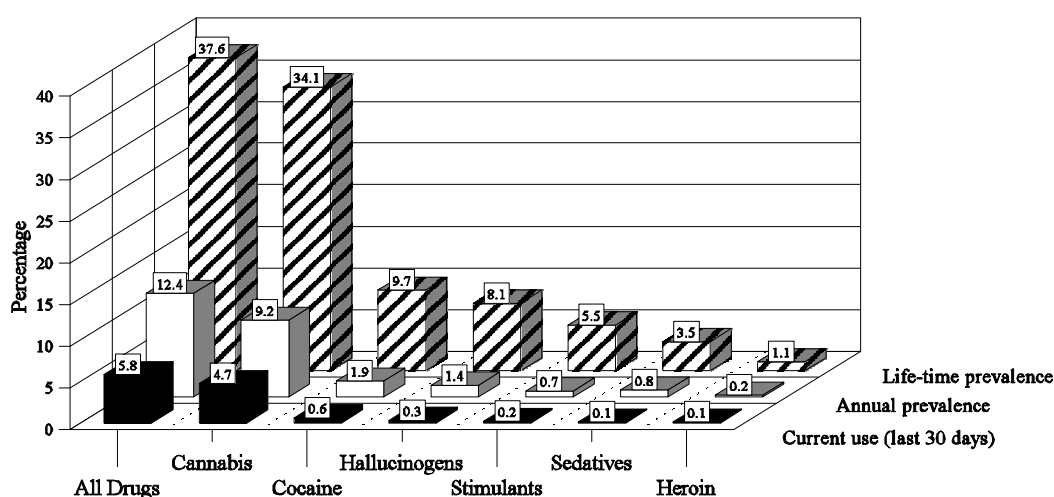
In addition to magnitudes of consumption, some general and very tentative assessments of the characteristics of abusers are possible. Illicit drug abuse is most common among men, although it is reported to be on the increase among women. In general, however, women seem to gravitate towards the abuse of legal, socially acceptable substances and prescription drugs. The results of many studies indicate that the abuse of licit (prescription) drugs is more common among women than men.<sup>25</sup>

Although illicit drug abuse is prevalent among all age groups, it is most frequent among young adults. Most abusers are in the 15-35 age group, though there is a greater concentration

within the 18-25 age group. The employed have significantly lower rates of drug abuse than unemployed persons of the same age. Married people are less likely to abuse drugs than single, separated or divorced persons. Prison populations show a high incidence of drug abuse.

In the annual reports questionnaire (ARQ)\*, Governments report that drug abuse is, in general, stronger in urban settings. Many (e.g. Chile, China, Ecuador, India, Mexico, Pakistan and Thailand) also report the emergence of a frontier abuse pattern. Rural drug abuse is associated with traditional consumption (opium in Asia, coca leaves in Latin America) and older abusers. In Asia, addiction rates correlate highly with access to opium-producing and trafficking areas; in Latin America, this is far less the case with cocaine.<sup>26</sup>

**Figure VI. Prevalence of illicit drug abuse in the United States**  
(Percentage of population > 12 years (1994))



Sources: United States Department of Health and Human Services (Substance Abuse and Mental Health Services Administration), *Preliminary Estimates from the 1994 National Household Survey on Drug Abuse*, Washington, D.C., September 1995.

Cannabis appears to be abused by people from all social classes. In developing countries, traditional abuse of opiates seems common among the very poor. By contrast, abuse among college students is related to family income.<sup>27</sup> Opium and heroin consumption in middle to high income countries in South-West and South-East Asia is often associated with lower income groups. In the least developed countries (such as Myanmar) heroin consumption seems to

\* In compliance with the international drug control conventions, UNDCP sends out an annual questionnaire (the ARQ) to all States-Members of the United Nations. Responses to the ARQ constitute UNDCP's main data-set on illicit drug production, trafficking and abuse.

correlate more strongly to better-educated abusers from a wealthy urban background (almost half the students at Rangoon University are reported to have experimented with heroin), while opium abusers are from rural low income groups. As regards cocaine in Latin America, the picture is even less clear. Cocaine appears to be abused, in some countries, by people from all social classes (Argentina, Bahamas and Venezuela), while in others it is abused primarily by those of high socio-economic status (Bolivia, Ecuador, El Salvador, Mexico, Peru and Uruguay).<sup>28</sup> In developing countries, in general, ATS appear to be consumed more frequently by the middle and upper classes, including the student population. In the industrialized countries, the situation is somewhat different. In the United States, heavy abuse of methamphetamine by injection is concentrated among the lower-class, marginalized population. At the same time, however, consumption of ATS (in form of pills or powder) is also very widespread among high-school students, and exceeds abuse of cocaine. In countries such as Sweden or the United Kingdom, high levels of heavy amphetamine abuse by injection is reported mainly from working-class or unemployed sections of the population. In many West European countries, 'ecstasy' is now becoming the most widely abused synthetic drug, cutting across all social classes.

## II. Economic consequences of drug abuse and trafficking

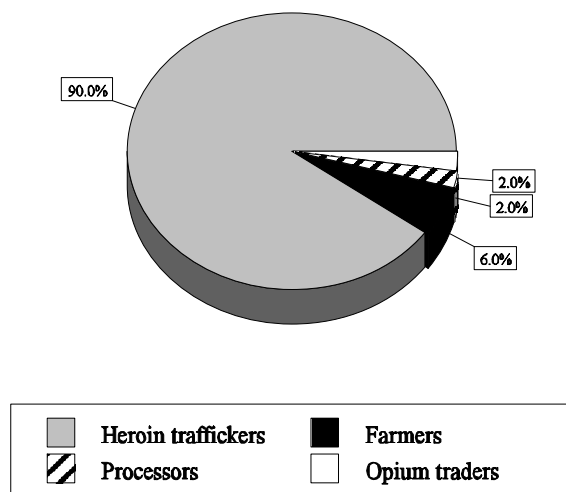
### A. Apparent "benefits" and costs of drug abuse and trafficking

#### 1. "Benefits"

While the apparent "benefits" of consumption for drug abusers tend to be transient and are quickly superseded by a considerable health and financial burden on society, there are doubtless considerable profits for suppliers and traffickers of illicit drugs. This is clearly revealed by the readiness of suppliers and traffickers to operate in the illicit markets. Producer and trafficking countries, however, tend to pay a high social and political price for short-term economic gains.

The bulk of income generated from drug sales remains in the consumer countries, i.e. most profits are made, and re-invested, in the industrialized countries. More than 90 per cent of the value added (gross profit) of cocaine and heroin is generated at the distribution stage of the illicit drug industry. Taking 1991 figures, for instance, one gram of 100 per cent pure cocaine retailed for \$4.30 in Colombia;<sup>29</sup> its final retail price in the United States was between \$59 and \$297.<sup>30</sup> The gross profit margin, or value added, was thus between 93 and 98.5 per cent of the retail value. The magnitudes for heroin are similar. In the domestic market of Pakistan, wholesalers and retailers reap about nine tenths of the retail price of heroin (see [Figure VII](#)). Even larger,

**Figure VII. Distribution of "value added" of heroin in producer country in the Golden Crescent**

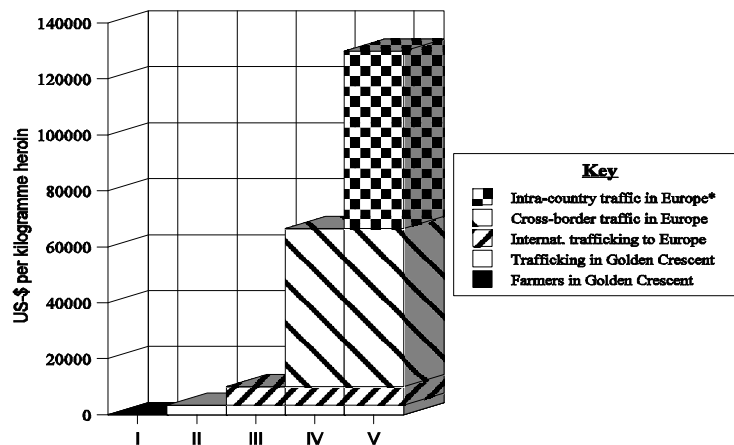


Source: UNDCP.



however, is the value added by international trafficking when the heroin leaves Pakistan. The free on board (f.o.b.) price of heroin in Pakistan was \$3.3 per gram in 1992/93; the retail price per gram in street markets (at purity levels of 40 per cent) was some \$130 in western Europe (weighted average of 17 west European countries).<sup>31</sup> The share of the profits for the farmers in the total value-added process was less than 1 per cent of the final retail prices in western Europe (see Figures VII and VIII). The value added by trafficking outside the producer country was equivalent to some 97 per cent of the retail value in western Europe. Combining the huge profit margins under the general category of "international" trafficking conceals the fact that about half the total value is added in the national distribution networks of the various consumer countries. In the United States, the value added "nationally" is even higher, for both heroin (57 per cent of retail prices) and cocaine (68 per cent of retail prices). If profits due to dilutions are included, an average of three quarters of the total value added is generated in the country of final destination.

**Figure VIII. Generation of "value added" of heroin in distribution network from Golden Crescent towards western Europe in the 1990s**



\* Data do not include trafficking profits made due to dilutions of heroin; actual profits in consumer countries are thus still higher.

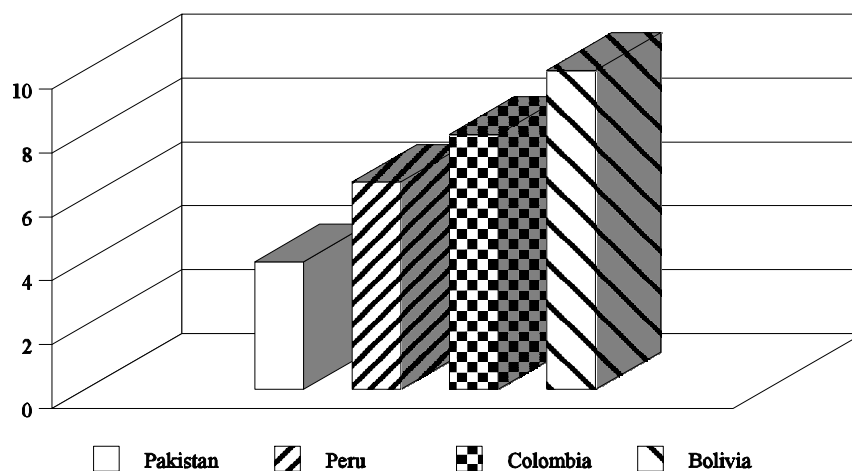
Source: UNDCP.

The small share of less than 10 per cent, in most cases less than 5 per cent, of income generated in the illicit drug industry which goes to producer countries is, however, large enough to have a significant impact on some of those economies. Paradoxically, the much larger drug income generated in the industrialized countries is of almost negligible economic importance to them.

Estimates of the "benefits" of the operations of the illicit drug industry to the economy of Bolivia, for instance, suggest that they probably amounted to a gross value added of \$0.7 billion, equivalent to 15 per cent of GDP (1989)<sup>32</sup> according to Government sources, with other estimates for the late 1980s showing even higher values.<sup>33</sup> Of this, roughly \$280 million were retained by factors of production in Bolivia. The actual contribution of the industry to the economy, therefore, according to United States sources, was an estimated 6 per cent of GDP. With coca

prices falling and the overall Bolivian economy expanding, the annual "benefits" seem, however, to have fallen back to \$120 million by 1993, equivalent to 2 per cent of GDP.<sup>34</sup> Magnitudes similar to those of Bolivia in the late 1980s would appear to apply to Afghanistan, which is one of the world's largest opium-producing countries. The estimated "benefits" of the illicit drug industry in Peru, the world's largest coca producer, although higher in absolute terms than in Bolivia, seem to be lower in relative terms, ranging from 2 to 11 per cent of GDP (1988).<sup>35</sup> With far lower coca production, but much more processing and trafficking, the "benefits" of the coca economy in Colombia at the height of the operations of the Medellín and Cali cartels in the late 1980s and early 1990s, were estimated to have ranged between 3 and 13 per cent of GDP.<sup>36</sup> In the case of Pakistan, the illicit opiate industry appears to have a lesser magnitude, accounting for a value-added equivalent of some 4 per cent of GDP (1992), as is shown in Figure IX.<sup>37</sup> For most of the countries mentioned above, the "benefits", after having risen strongly in the 1970s and 1980s, again showed a downward trend in the 1990s as some of the main drug cartels were dismantled, drug prices fell and the massive expansion of cultivation, manufacture and trafficking came to a halt.

**Figure IX. Apparent "benefits" of illicit drug industry**  
(Income generation in per cent of gross domestic product)



Sources: UNDCP and UNRISD.

Many of the apparently beneficial economic effects resulting from the production and trafficking of illicit drugs are not quite as advantageous to the countries concerned as might *prima facie* appear. A number of producer countries have started to suffer from what is generally known as "Dutch disease",<sup>38</sup> leading to stagnation or even contraction of other, non-drug-related sectors, which makes their economies even more dependent upon a single illicit commodity. Especially in those areas and countries where no vertically integrated illicit drug industry has been built or is only starting to emerge (such as in Bolivia or Peru), drug traffickers present themselves only at irregular intervals to buy the farmers' illicit drug crops, thus frequently creating boom and bust cycles in the local economies.<sup>39</sup>

## 2. Costs

Few comprehensive and internationally comparative studies have been undertaken to measure the costs of drug abuse to society.<sup>40</sup> Although figures differ from country to country, depending upon methodology and political orientation, magnitudes can be assessed only by highlighting some of them.

In Canada the costs of substance abuse (including alcohol and tobacco) were calculated at 2.7 per cent of GDP (1992), with illicit drug abuse responsible for at least US\$ 1.1 billion, equivalent to 0.2 per cent of GDP or US\$ 40 per capita. Of the economic costs of illicit drug consumption, 29 per cent were expended on law enforcement and 6 per cent on health care. Most costs, 60 per cent of the total, were due to productivity losses as a result of illness and premature death. Cost of life was calculated in these estimates using the human capital approach, i.e. discounting estimated lifetime earnings. Costs arising to society due to drug-related criminal activities are not included in this figure.<sup>41</sup>

A study for Australia estimated the costs of drug abuse (including both licit and illicit substances) to be equivalent to 4.8 per cent of GDP (1992), with costs related to illicit drug abuse amounting to \$1.2 billion, i.e. 0.4 per cent of GDP or \$70 per capita.<sup>42</sup> The overall costs of substance abuse (licit and illicit) rose by less than 13 per cent between 1988 and 1992 in real terms; the increase in costs related to illicit drug consumption amounted to 25 per cent, and was thus almost twice as large. The two studies for 1988 and 1992 were carried out by the same authors, using the same methodology, and are thus directly comparable. Some 32 per cent of the total costs of \$1.2 billion were estimated to be due to reduced productivity, 26 per cent to substance abuse-related mortality (estimate based on the demographic approach; i.e. the value of the loss of a person's life to society in terms of income), 18 per cent to costs of the justice system (courts, prisons), 13 per cent to resources used in addictive consumption, and 9 per cent to additional costs for police and customs. The costs to society of acquisitive crime to finance the drug habit are not included in this figure.

An investigation commissioned by the European Community found that the identifiable costs of drug trafficking and abuse amounted to \$3.2 billion<sup>43</sup> in the United Kingdom in 1988, equivalent to 0.4 per cent of GDP or about \$60 per capita. Of that amount, about 85 per cent was the value of stolen property, thus clearly identifying crime as the most important side-effect of drug abuse. Other major cost categories were the value of drug law enforcement and legal costs (9 per cent), prison costs (5 per cent) and government prevention, care and rehabilitation costs, including treatment of patients with drug-related human immunodeficiency virus (HIV) or acquired immune deficiency syndrome (AIDS) (2 per cent). Not included in these calculations were the costs of premature mortality, loss of earnings and reduced productivity. Based on estimates of some 130,000 to 150,000 hard-core abusers, the average annual costs to society per addict were thus approximately £13,000, or approximately \$23,100.<sup>44</sup>

One recent study in Germany estimated the costs of drug abuse, related criminal costs and prevention efforts by the Government as at least DM 13.8 billion, i.e. \$9.6 billion or approximately \$120 per capita (1995).<sup>45</sup> The above-mentioned figure is, again, equivalent to approximately 0.4 per cent of GDP. Based on these findings, the calculated costs per drug abuser (cocaine, heroin and synthetic drugs) are, on average, approximately \$30,000 per annum. Almost

half the costs were estimated to be due to lost productivity resulting from high rates of morbidity and early death. Of the remaining costs, 23 per cent were due to property damage, 13 per cent to police costs, 10 per cent to justice system costs (courts and prisons) and 5 per cent to treatment and prevention activities.<sup>46</sup>

According to another set of calculations, the economic cost of drug abuse in the United States, including emergency room visits and other medical costs, higher incidence of HIV/AIDS, increased criminal activity and productivity lost through drug abuse was estimated at \$76 billion in 1991, i.e. 1.3 per cent of GDP or \$300 per capita,<sup>47</sup> up from \$44 billion (less than 1.1 per cent of GDP) in 1985. The economic costs of drug abuse in the United States were, on average, approximately \$6,700 per year per drug abuser or \$28,100 per year per heavy drug abuser (consumers of heroin and cocaine at a frequency of once a week or more).

Another study carried out in the State of California found that alcohol and drug abusers, in the year prior to entering a treatment programme, cost the tax payer \$3.1 billion per year, that is, on average, \$22,800 per heavy drug abuser in 1991.<sup>48</sup> (The figure is slightly lower than the one of \$28,100 for heroin and cocaine, cited above because of the lower average per capita costs of alcohol abuse.) The figure of \$22,800 can be broken down into the following cost components: 35 per cent for criminal justice system costs; 26 per cent for stolen property losses; 17 per cent for health and losses in productivity of the victims of drug-related crime; 14 per cent for costs of health-care for the drug abuser and 8 per cent for welfare and disability payments. If lost earnings are included (drug abusers earned, on average, 60 per cent less than would be expected for their age and gender), the losses to society amount to \$4.4 billion, or \$32,200 per drug and alcohol abuser. Assuming that wages reflect net productivity, this means that almost half the losses to society are due to the inability of the drug addict to earn a decent income.<sup>49</sup> Although the health-care costs, at \$3,200 per person, are a rather small component of the overall costs to tax-paying citizens or to society as a whole, it is worth noting that average annual health expenditures for similar gender and age groups in the United States population average about \$1,800. This suggests that the health bill of drug abusers is almost 80 per cent higher than that of an average citizen in the same age group.

## **B. Work, employment and productivity**

### **1. Influence of drugs on employment status and productivity**

Drug abuse occurs most frequently among young people in the 15-35 age group, with a particular concentration in the 18-25 age group. It thus includes those who have entered or who are just about to enter the workforce. Given the high unemployment rates in many countries, entry into the workforce is often a major problem. Consumption of illicit drugs limits chances of entering or remaining in the workforce, while frustration caused by failure to find adequate employment favours drug consumption, thus creating a vicious circle.

There is often a strong correlation between unemployment and drug-taking habits, both in developed and developing countries. The 1992 British Crime Survey, for instance, revealed that life-time prevalence of drug abuse among the unemployed was 60 per cent higher than among the employed.<sup>50</sup> The 1993 national household survey carried out in Colombia, showed that the annual

prevalence of drug abuse among the unemployed (4.1 per cent) was almost four times higher than among the employed (1.1 per cent). For cocaine specifically, the prevalence rates were 4.1 per cent for the unemployed, and only one tenth of that (0.4 per cent) for the employed.<sup>51</sup> Similarly, the 1994 United States national household survey showed that the number of current abusers (i.e. those who had used illicit drugs at least once in the last month) among the unemployed was almost twice as high (13.9 per cent) as among people with jobs (6.7 per cent). The prevalence of cocaine abuse among the unemployed was currently five times larger (3.5 per cent) than for employed people (0.7 per cent).<sup>52</sup> An earlier study carried out in California, found that "disruptive use of all drugs was significantly correlated with ... loss of jobs during the past four years, loss of job in the past six months, increased trouble with job, increased vandalism at work, and increased seeking of ... advice ... for a work problem".<sup>53</sup> A more recent study, carried out by the International Labour Organization (ILO) and the European Community, which examined the effects of drug and alcohol abuse in the workplace in European countries, found that more than half of the interviewed employers' associations, enterprises and workers' organizations reported specific performance impairments and absences from work as a result of drug- and alcohol-related problems. In approximately two out of five cases, organizations were forced to dismiss employees for drug- and alcohol-related reasons, which clearly shows the severity of the problem.<sup>54</sup>

The links between low productivity, accidents and drug-taking behaviour are well established. Drug abusers in the workforce impose significant extra costs on the business sector, thus reducing its competitiveness. Irrespective of the current level of development, societies will find it difficult to advance if they have to rely on a workforce that is impaired by large-scale drug abuse. The effect of drugs on productivity is a function of the type and quantities of drugs consumed, as well as of the performance requirements of the jobs in question. Tasks that require higher-level judgement, constant attention, immediate memory and fine motor skills are obviously more easily disrupted by drugs than physical labour. The more developed a society, and the more skilled jobs it has, the more vulnerable it becomes to drug abuse and the higher the costs to society. Based on previous studies, estimates by the United States Department of Labor in the mid-1990s suggest that drug use in the workplace may cost American business and industry between \$75 billion and \$100 billion annually (1 per cent to 1.4 per cent of GDP) in lost time, accidents and higher health-care and workers' compensation costs.

Of the estimated 12.8 million current drug abusers in the United States (1995), about three-quarters are employed, either fully or at least part-time. This need not necessarily be a disadvantage because employment often facilitates social reintegration at a later stage. At the same time, however, drug-taking employees in the United States have been found to be absent, on average, three times more often than non-drug-taking employees; they are from three to four times more likely to be involved in an on-the-job accident, injuring themselves and co-workers; and they were found to file approximately five times more workers' compensation claims than non-drug-taking employees. All this puts a potentially heavy burden on colleagues, employers and society as a whole.<sup>55</sup>

A study carried out on the relationship between drug abuse and job performance in the United States Postal Service also confirmed that pre-employment drug-taking correlates positively with absenteeism and involuntary separation. It concluded that by introducing pre-employment

drug testing for new applicants, the Postal Service could reduce absenteeism to the general level of non drug users, and save some \$100 million over a three-year period.<sup>56</sup>

In a significant number of companies in the United States, drug testing has already become the rule. Though results of actual drug tests carried out among employees, (4 million tests were done in 1996), have shown a downward trend over the past decade, 1 in 17 employees in 1996 was still identified as having a drug problem. In 54 per cent of the cases testing positive, marijuana was identified; in 23 per cent, cocaine; and in 8.5 per cent, opiates. The remaining 14.5 per cent tested positive for various synthetic substances, particularly benzodiazepines, amphetamines and barbiturates.<sup>57</sup> Similarly, an earlier study involving 2,000 members of the workforce of Alberta, Canada, found that 1 in 16 persons had used drugs, mainly marijuana, in the 12 months prior to the survey.<sup>58</sup>

A study on drug use among workers in the United States, carried out by the Substance Abuse and Mental Health Services Administration in 1997, showed that drug abuse currently affects almost all the professions. The highest levels of abuse (annual prevalence) were found among workers in business and repair services (11.1 per cent), followed by those in the retail trade (10.8 per cent), personal services (10.3 per cent), wholesale trade (8.0 per cent), non-durable goods manufacturing (6.9 per cent) and durable goods manufacturing (6.7 per cent). Abuse levels were below average among people in transportation and communications businesses (5.7 per cent), financial, insurance and real estate services (5.4 per cent), professional services (4.2 per cent) and public administration (3.5 per cent).<sup>59</sup> This suggests that stronger and more focused workplace interventions in many of these sensitive areas have indeed brought positive results.

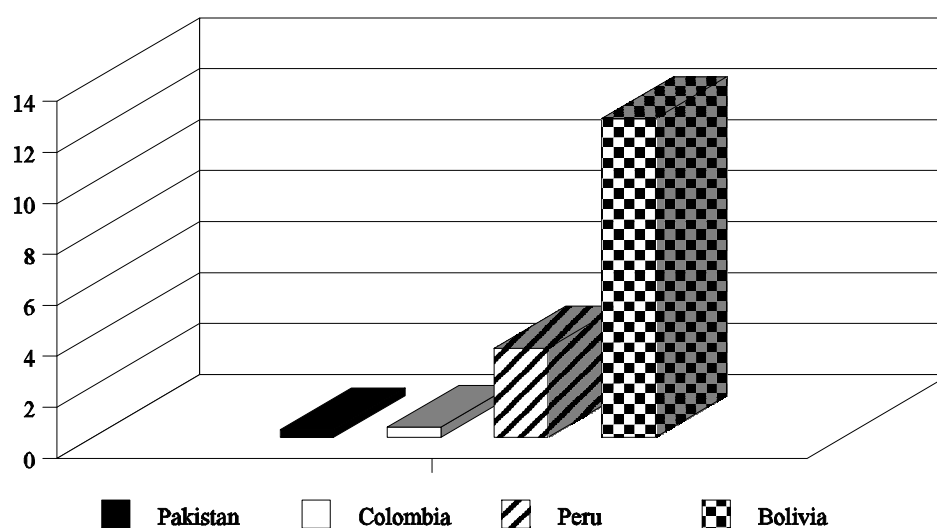
Interesting private sector initiatives, creating additional economic incentives for companies to implement workplace intervention programmes, have recently been launched in the United States by some insurance companies, as such companies are affected by the rising costs of drug abuse in the workplace. Some insurance companies have thus started to offer special schemes to assist their clients to set up drug-free workplace programmes which, in the medium term, are expected to reduce the number of accidents and thus the insurance costs.<sup>60</sup>

All these private sector initiatives may be considered positive insofar as they tend to reduce the incentives for employees to experiment with drugs in the first place. They also carry some risks, however. The fewer chances drug abusers have to work in a legitimate field, the more likely they are to move into illegal activities, including drug trafficking, and the more difficult their reintegration into society will become. Societies are faced with difficult policy dilemmas once drug abuse has become widespread. Interventions which prevent such developments in the first place are thus likely to be more successful.

## 2. Generation of employment

While drug abuse affects labour markets by reducing productivity, it also generates some employment, particularly in the drug-producing countries, although this is less than generally believed. Employment generated by opium production affects less than 1 per cent of the labour force in Pakistan.<sup>61</sup> It is only in the two major opium-producing countries, Afghanistan and Myanmar, that the percentage might be expected to be higher. Information available on coca suggests that the percentage is small in Colombia (0.4 per cent of the economically active population), rather high in Peru and particularly high in Bolivia. In Peru, between 2.4 and 4.5 per cent of the economically active population are involved in activities related to the coca industry.<sup>62</sup> In Bolivia, estimates range from 120,000<sup>63</sup> to 460,000 people, if the thousands of people involved at least once a year in harvesting, transporting and distributing the coca paste are taken into account.<sup>64</sup> One source estimates that 150,000 people (8.2 per cent of the economically active population in 1990) and another that 300,000 people (16.7 per cent of the economically active population in 1990) are directly involved in the coca industry,<sup>65</sup> of which some 85 per cent work on the cultivation of coca leaves, 13 per cent on processing them and only 2 per cent on trafficking in them (see [Figure X](#)).

**Figure X. Illicit drug industry as "employer"**  
(Percentage of economically active population)



Source: UNDCP and UNRISD.

The employment-generating effect of the drug industry has been best demonstrated in Bolivia. Computer simulation models suggest that a 10 per cent increase in coca and cocaine production in Bolivia increases GNP by 2 per cent and lowers unemployment by about 6 per cent.<sup>66</sup> Thus, the five peasant federations representing coca-producing farmers have become one of the strongest political pressure groups in the country. They advocate legalizing coca production and preventing those areas of coca production which are currently licit, from being declared illicit.<sup>67</sup> Some jobs are also created in industries supplying the coca and cocaine

producers, including industries that supply precursors. In the mid-1980s, more than half the total amount of toilet paper produced in Bolivia was used in the Chapare area as a filtering agent in coca paste and cocaine processing. Jobs were thus provided for some 2,000 people who produced, transported and sold the paper.<sup>68</sup>

Trafficking, especially on the retail side, tends to be labour-intensive. Furthermore, and somewhat paradoxically, the drug problem also generates employment in the enforcement, health-care and social service sectors. Such employment is, however, basically unproductive in that it would not be necessary if the drug problem did not exist in the first place. The costs of this type of employment have to be borne by the general public. This raises the tax burden and reduces overall competitiveness, and thus cuts down on the number of "productive" jobs in the economy.

Employment is also affected in other ways. The existence of illicit drug money, and the need to launder it, militates against rational and optimal resource allocation in a market system. Drug money is invested in areas where the origin of funds can be disguised best, often favouring precisely those sectors of an economy that are characterized by low productivity, and thus creating new, unproductive jobs or preventing such jobs from disappearing. There are, however, examples to the contrary. The "land counter-reform" in Colombia in the 1980s, where drug capitalists bought up land (as in the Middle Magdalena Valley), led to a massive concentration of ownership and the introduction of new labour-saving technologies which actually reduced the workforce and prompted people either to migrate to coca-farming areas or join guerilla groups.<sup>69</sup> This trend has recently been reversed by confiscation of traffickers' land, following the passing of a new asset forfeiture bill by the Colombian parliament in 1996.<sup>70</sup>

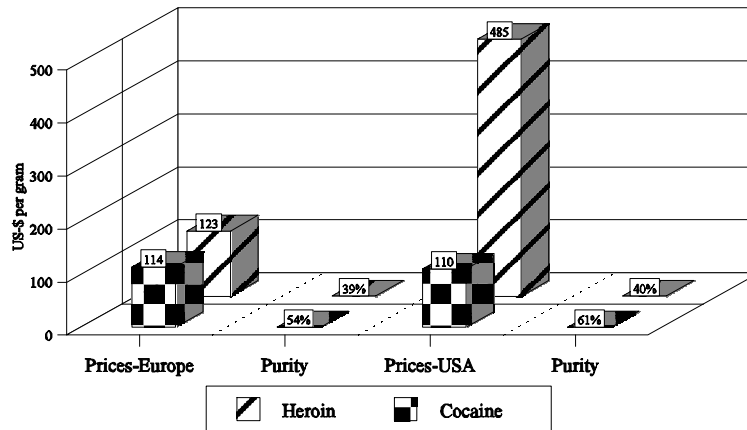
## **C. Prices and income**

### **1. Determinants**

Prices of illicit drugs, in contrast to those of other commodities, primarily reflect the perceived level of risk involved in manufacture and trafficking. Prices and profits in the illicit drug industry are not proportional to factor costs, but seem to be related proportionately to the risks and the degree of monopoly at each stage of production and marketing.<sup>71</sup> Heroin and cocaine prices throughout the 1980s and early 1990s showed a surprisingly strong correlation and behaved in tandem, which suggests that perceived risks (probably due to the degree of success or failure of law enforcement) were, indeed, the major factor determining the prices,<sup>72</sup> while changes in prices of the drugs in supplier countries have had only a minor influence on retail prices in Europe and the United States (see Figures XI, XII, XIII and XIV).



**Figure XI. Average street purities and retail prices per gram\* (at street purity) in western Europe\*\* and the United States in 1995**

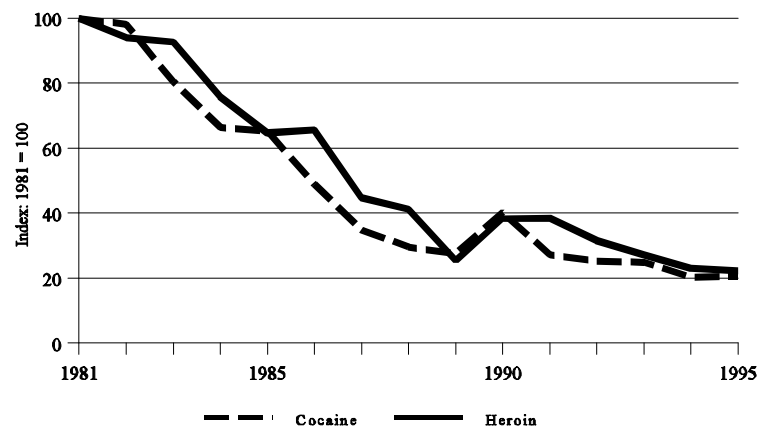


\* Mean of maximum and minimum values (prices, purities).

\*\* Europe data refer to the average figure of 17 west European countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom); National price and purity data have been weighted according to population to arrive at west European average.

Sources: ARQ; UNDCP estimates.

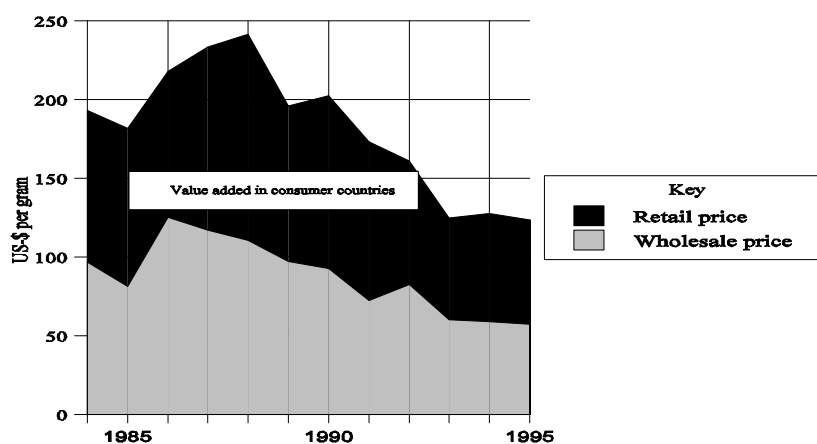
**Figure XII. Development of real (inflation-adjusted) cocaine and heroin prices\* in the United States**



\* Prices for pure substances (100 per cent purity), deflated by the United States Consumer Price Index.

Source: Abt. Associates, based on DEA's System to Retrieve Information from Drug Evidence.

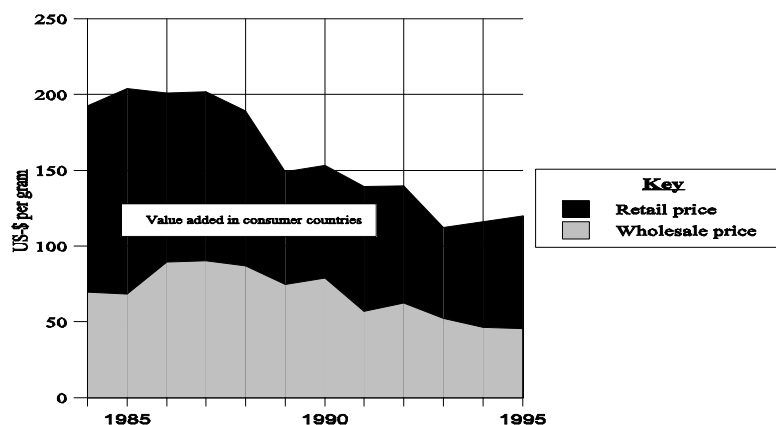
**Figure XIII. Real heroin prices in western Europe: average prices\* per gram in western Europe\*\* in constant 1995 United States dollars (inflation-adjusted)**



\* Mean of maximum and minimum prices.  
 \*\* Data refer to the average figure of 17 west European countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom); National price data have been weighted according to population to arrive at west European average.

Sources: ARQ and UNDCP estimates.

**Figure XIV. Real cocaine prices in western Europe: average prices\* per gram in western Europe\*\* in constant 1995 United States dollars (inflation-adjusted)**



\* Mean of maximum and minimum prices.  
 \*\* Data refer to the average figure of 17 west European countries (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom); National price data have been weighted according to population to arrive at west European average.

Sources: ARQ and UNDCP estimates.

Given such market structures, some authors conclude that profit margins are not directly related to input factor costs. Thus, a price increase in the early stages of the chain (due, for instance, to crop eradication) would increase final retail values only marginally, and would not lead to the cumulative price hikes that might be expected if fixed percentage mark-ups were the norm. This suggests that law enforcement efforts are most productive at the final stages of the chain, close to the consumer.<sup>73</sup> The proposition, however, is still open to debate and further research.

## 2. Price elasticity

The price elasticity of illicit drugs is a crucial issue, not merely for assessing the economic consequences of drug abuse, but also for assessing the impact of interdiction efforts, many of which are based on the assumption that higher prices will reduce consumption. Price elasticities provide information on the extent to which a change in the price of a commodity can be expected to affect demand for it. If a 10 per cent price increase, for instance, leads to a 15 per cent reduction in demand, then price elasticity will be close to -1.5.

The question, then, is whether the consumption of illicit drugs, like that of most other goods and services, decreases in response to rising prices and increases in response to falling prices, i.e. whether or not drugs are price-elastic. It used to be asserted that price elasticities may exist, but are likely to be small<sup>74</sup> as addicted persons will try, by any means possible, to obtain their drug, irrespective of the costs involved. The direct relationship between prices and demand, however, is not always clear-cut. The addition of another variable, such as a successful preventive education campaign, may reduce demand and thereby cause prices to fall, without the falling prices resulting, as might be expected, in a net increase in consumption. This, for instance, was the case with marijuana and cocaine in the United States during the second half of the 1980s and the very early 1990s.<sup>75</sup> There appear, however, to be only a few illicit drug price elasticity studies which have tried systematically to eliminate several other variables influencing drug consumption.

One frequently cited study, dating back to the early 1970s in the United States, suggested that marijuana might be strongly price-elastic, with elasticity ranging between -1.0 and -1.5.<sup>76</sup> Another study in the United States estimated elasticities for heroin to be in the range of -0.21 to -0.38.<sup>77</sup> This suggests that demand becomes progressively less elastic, or more inelastic, as the addictive nature of the substance increases.

These results are, however, in part contrast to more recent work. A study in the mid 1980s argued that, given that average expenditures on marijuana represented a small proportion of disposable income, demand for marijuana was close to inelastic at existing price levels (price elasticity of 0 to 0.5).<sup>78</sup> Only a massive increase in prices could be expected to have a significant impact upon demand levels. It was assumed, by contrast, that demand for cocaine, though less elastic in the short term, would become moderately elastic in the long term. Such a result would be in line with the Becker and Murphy model of "rational addiction" (1988), which predicts that demand for illicit drugs, while inelastic in the short term, can be expected to become more elastic in the long term.<sup>79</sup> This seems plausible because higher prices may deter potential new entrants to the market, but may not immediately affect the behaviour of persons already addicted. Heroin tends to take a large share of the total budget of regular users, some of whom have to remain

criminally active to maintain their consumption levels but cannot expand criminal activity indefinitely. Heroin price increases, therefore, might lead to almost proportional reductions in addicts' intake, suggesting a high price elasticity of close to -1 for heavy heroin users.<sup>80</sup>

An empirical study by the National Bureau of Economic Research (NBER),<sup>81</sup> based on detailed price data provided by the United States Drug Enforcement Agency (System to Retrieve Information from Drug Evidence (STRIDE) data set) and information from the United States national household surveys (1988-1991), seems to confirm the argument outlined above. The study found strong price elasticities for heroin (the most expensive of the drugs considered), medium ones for cocaine (slightly cheaper), and only small ones for marijuana (the cheapest of the three drugs). Calculated (participation) price elasticities for annual abuse, i.e. the change in the number of annual abusers as a result of price changes, amounted to -0.90 for heroin, -0.55 for cocaine, and -0.06 for marijuana. For the more dependent group of "monthly" abusers (i.e. those who have consumed drugs at least once in the preceding month), price elasticities, as theory suggested, were found to be smaller, though still significant. (Participation) price elasticities for "monthly" abuse were -0.80 for heroin, -0.36 for cocaine and -0.04 for marijuana. The study, using a sophisticated regression model, was based on some 50,000 single observations. Changes in the number of abusers due to price changes were controlled for differences in income, gender, marital status, age, ethnic origin and the date of observation, reflecting the changes in what type of drugs are currently "in".

Another study investigated the relationship between "participation" price elasticities, i.e. the change in the number of drug abusers as a result of price changes, and "use" price elasticities, i.e. the change in the volume of drugs consumed as a result of price changes. "Use" price elasticity for opium was found to be 2.5 times higher than "participation" elasticity.<sup>82</sup> Based on these findings, the authors of the NBER study argue that "use" price elasticities for heroin and cocaine could be expected to be significantly higher than the calculated "participation" price elasticities. "Use" price elasticities could be as high as -1.8 for heroin and -1.1 for cocaine (annual abuse).

All this suggests that, in contrast with the general perception, both heroin and cocaine are, at least at current price levels, price-sensitive commodities. It also demonstrates the special role of law enforcement in consumer areas which, by limiting supply, keeps price levels high so that increases in consumption are kept down.

In countries where the price of heroin on the domestic market is very low (for example, Pakistan), price elasticities, by contrast, were not found to be statistically significant.<sup>83</sup> The reason appears to be that the low prices of illicit drugs (in this case, heroin) do not represent any serious financial barrier to potential new drug recruits.

### **3. Inflation**

The illicit drug industry tends to have little effect on general price levels in either producer or consumer countries, although there are some exceptions. Reports from Afghanistan and Bolivia suggest that the cost of foodstuff has increased as a result of greater drug cultivation, with people who are unwilling or unable to integrate into the coca or opium poppy economy facing further impoverishment.<sup>84</sup>

A frequent scenario in producer countries is that drug income is either placed on deposit abroad or used for legal and illegal luxury imports, neither of which effects local price levels. If the drug industry does have an impact, it is rather on dampening inflationary pressures, as drug abusers are left with less money to spend on their daily subsistence needs. The major exception to this is real estate, which often tends to be a prime target of the beneficiaries of the drug industry, leading to rapidly rising real estate prices and crowding out other sections of the population. This seems currently to be the case in Myanmar. In Colombia, the massive wealth of the Medellín group was also invested mainly in land, thereby driving up the price of land.<sup>85</sup>

### **4. Income distribution**

The question of income correlates strongly with the patterns of production and consumption of illicit drugs. As noted above, the largest incomes in the illicit drug industry are generated from the distribution networks in the developed countries. Concrete evidence from Pakistan<sup>86</sup> and anecdotal evidence from other producer countries with some domestic consumption suggest that the impact of illicit drugs on income distribution is U-shaped, or, more precisely, in the form of a reversed J curve (i.e. drug abuse is high among upper and lower income groups but less high among the former than the latter).<sup>87</sup> In many countries, the lowest income groups show a higher-than-average consumption of drugs. Among the middle classes, illicit drug consumption tends to be below average. Though rising again among the higher-income groups, it still remains below that of the lower-income groups. The sociological explanation for this phenomenon is usually the general argument about the frustrations of poverty and the boredom of affluence.

Given the hierarchical structure of the illicit drug industry, the largest profits are concentrated among a somewhat small number of people<sup>88</sup> while drug farmers often operate under quite competitive market conditions and thus earn relatively little. At each stage of the refining or preparation process, the number of participants declines and profits increase until, at the top or wholesale level, a few sellers control most of the industry.<sup>89</sup> Patterns both of consumption and production thus tend to increase existing disparities in income.<sup>90</sup> Such disparities, perhaps more than poverty itself, are often considered to be a precondition for drug abuse, creating something of a vicious circle.

### **D. Trade and balance of payments**

The effects of the illicit drug industry on both the balance of trade and the balance of payments of a producer country, if viewed in static terms, tend to be positive. Drug exports generate much-needed foreign exchange. One source estimated the value of the coca and cocaine

exports of Bolivia to be between \$0.4 billion and \$0.6 billion in 1990.<sup>91</sup> Given that the country's total legal exports were worth \$0.92 billion in 1990,<sup>92</sup> this would mean that coca and cocaine exports were equivalent to half the size of total legal exports. More recently, however, the share of illicit drugs, as a proportion of both GDP and total exports, appears to have declined.<sup>93</sup> Illicit drug exports from Pakistan are estimated to have been around \$1.5 billion (1992), of which heroin is thought to have accounted for about \$1.3 billion.<sup>94</sup> Given the much larger economy of Pakistan, however, and the fact that its total exports in 1992 were \$7.3 billion, the overall importance of illicit drug exports, at about one fifth of total exports, was much smaller.

Under the conditions of structural adjustment prevalent during transition periods, inflows of foreign exchange from drug exports may have short-term beneficial effects on the economies concerned, mitigating some of the hardship associated with structural adjustment programmes. In Bolivia, for example, the export-oriented coca and cocaine industry managed to absorb many of the members of the large labour force who lost their jobs as a result of a structural adjustment programme that led to a closing-down of the unproductive mining sector.<sup>95</sup> Foreign exchange inflows from illicit drug exports could, however, maintain inflationary expectations and ultimately prevent nominal interest rates from falling. This may force the Government to prolong the initial and most difficult phase of structural reform and lead to some crowding-out of the legitimate business sector.<sup>96</sup>

Apart from the capital inflows that result from drug exports, outright capital inflows of drug profits, generated elsewhere, also play an important role in a number of countries. Such drug funds, however, tend to be extremely volatile, reacting quickly to changes in the political and judicial environment, and thus making governments *de facto* hostage to international drug money. Such criminal financial flows often turn out to be beyond the traditional macroeconomic control instruments of government. If illicit drug funds are available, money demand will be much less responsive to interest rate changes than usual.

When considered in dynamic terms, the long-term negative effects of the illicit drug industry seem clear. Countries with flexible exchange rates will see themselves confronted by overvalued exchange rates, often forced to run large licit trade deficits and obliged to forego the chance of developing profitable alternative export industries.<sup>97</sup> This situation gradually increases the dependence of governments on illicit drug exports still further ("Dutch disease"). In the case of Bolivia, for instance, the overvalued exchange rate resulting from the influx of dollars generated by drug trafficking prevented the local leather and textile industries from developing in the face of cheap imports from abroad.<sup>98</sup> For countries operating under some kind of fixed exchange rate arrangement, there is a problem that otherwise necessary currency realignments will be delayed. The consequence is likely to be a rising domestic inflation rate, unless this is offset by capital flight.

## **E. Finance and investment**

### **1. Funds for laundering**

The Financial Action Task Force estimated that in the late 1980s, sales of cocaine, heroin and cannabis amounted to approximately \$122 billion per year in the United States and Europe, of which some 70 per cent, or \$85 billion, was considered available for laundering and investment.<sup>99</sup>

United Nations estimates, based on cash flows from international banking and capital account statistics, suggested that up to \$300 billion per year may have been available for laundering in the late 1980s.<sup>100</sup> This estimate appears to have been rather on the high side for that time. By now, however, the estimate is likely to have become reality. If it is accepted that the annual total global turnover of the illicit drug industry may be around \$400 billion (see Annex I), with several estimates reaching \$500 billion, i.e. 8 to 10 times the value of the illicit drug market of the United States (approximately \$50 billion), it is likely that some \$300 billion per year would be available for laundering in the 1990s. Indeed, several estimates fall in the \$300 billion to \$500 billion range.<sup>101</sup>

While global illicit drug funds, though far from negligible, are still modest compared with the size of the aggregated economies of the developed countries, they are extremely large if compared with the economies of many developing countries. Even the lowest estimate of \$85 billion would make the drug money available for laundering larger than the individual GDPs of three-quarters of the 207 economies of the world.<sup>102</sup> Taking the higher estimate of \$500 billion, the amount of drug money available for laundering would be equivalent to far less than one tenth of the GDP of the United States or less than 3 per cent of the combined GDP of the member countries of the Organisation for Economic Co-operation and Development (OECD). Whatever the actual size of drug-related criminal finance, there is little doubt that it has already reached significant proportions, particularly for some of the producer/trafficking countries.

## **2. Savings**

Despite the large sums mentioned above, the impact of the illicit drug industry on domestic savings appears to be minimal in most countries. This is rather surprising in view of the traditional pattern whereby the redistribution of income from low- to high-income groups actually increases the overall savings rate. In the case of illicit drugs, the savings of the poorest sections of society tend to be spent on drug consumption. Income generated by high-income groups from the drug business is not simply deposited in domestic savings, but laundered, often outside the country concerned. It may also be spent on arms purchases and conspicuous consumption often accompanied by a notable increase in alcohol consumption and expenditure on prostitution.<sup>103</sup>

## **3. Investment**

Investment which, in a wider context, includes the building of human resources ("human capital formation"), is jeopardized by an illicit drug industry because resources that could be spent on education and health-care are wasted on drugs instead.<sup>104</sup> Even productive investment, in the traditional sense, does not appear to be particularly attractive to drug traffickers. In Colombia, for instance, the Medellín cartel concentrated its investment in real estate and the construction sector.<sup>105</sup> Once the construction boom drew to a close, the city of Medellín suffered an economic decline and high unemployment because little alternative productive investment had been made. In Bolivia, drug money was invested in entertainment, television and radio stations, and at least one soccer club,<sup>106</sup> which may have been acquired to influence people in favour of traffickers. Import businesses were also opened for money-laundering purposes. Reports from countries such as Canada and the United States, where significant parts of the receipts of illicit drug trafficking are also laundered, indicate that drug money is often found to have been invested in small, cash-

rich businesses which have no need to issue large numbers of official invoices. Companies controlled by drug capital may thus continue to operate for a prolonged period as loss-makers, undercutting market prices and distorting competition.

If the level of drug-related violence increases, as has happened in a number of developing countries where drug mafias have concentrated their activities,<sup>107</sup> legitimate enterprises will start to liquidate their investments and send their capital abroad. Dirty capital may replace clean capital but, as noted above, dirty money operates far less productively. The social ethic of many of the new drug capitalists who have "legitimized" their money has not always been conducive to sustainable economic growth. Efforts to suppress drug trafficking and related violence increase police and military budgets, crowding out government investment in infrastructure, education and health-care. The illicit drug industry has often been a catalyst for the "delegitimization" of the state. As the security situation deteriorates, the environment for investment becomes increasingly unattractive,<sup>108</sup> and as the judicial system weakens, the resolution of civil disputes becomes increasingly difficult. Uncertainty promotes an investment climate focussed on short-term profits, which compromises long-term growth. Even though the drug problem does not, itself, rank high as a risk factor for foreign investment, it has a significant impact on other risk factors rated high by investors, such as insurgency, terrorism, land disputes, social violence and corruption.

A special danger emerging in countries aiming at rapid privatization of state-owned assets, such as in eastern Europe, is that the assets of privatization become a target for criminal investment. This tends to undermine the foundations both of the state and of the new market economy. The paradox is that privatization takes place in order to increase efficiency but, if criminally financed, can turn out to be extremely inefficient from the wider, long-term economic perspective. Criminal financing often leads to a parasitic, anti-competitive approach to business.<sup>109</sup> The criminal enterprise operates in response to stimuli that may be quite different from those recognized by legitimate enterprises. In particular, such an enterprise has the ability to use intimidation as a kind of non-tariff trade barrier,<sup>110</sup> or it may use violence to eliminate competition which may lead to monopolistic behaviour in price-setting policies. The aggressor may even eliminate rivals to increase market share and profitability.<sup>111</sup> Once the ability to coerce is recognized by local competitors, even expenditure on open violence is no longer necessary. Another competitive advantage of the criminal enterprise is its ability to repress wage rises by discouraging wage-related protest. Finally, access to financial resources for enterprises with dirty equity is facilitated. Thus, once established in the business community, firms with criminal ownership have structural advantages at their disposal for expanding their market share.<sup>112</sup>

To make matters worse, such developments can ultimately improve public perceptions of criminal enterprises. In Colombia, for example, reports written in the late 1980s and early 1990s, i.e. before the dissolution of the Medellín and the Cali cartels, suggested that as much as 30 per cent of the wealth of the country was in the hands of drug traffickers. At the time, the Cali drug cartel was estimated to have stakes in over 500 legal businesses, including some pharmaceutical companies. Criminal involvement in such companies led to a crucial, yet rarely acknowledged development: namely that, among some sections of the public, opinion changed in favour of criminal investors, who were seen to bring prosperity to the communities they had infiltrated.<sup>113</sup> More recently, the Colombian Government has begun to use the assets seized from drug traffickers to fund various social welfare programmes, including an agrarian reform programme which assists communities previously involved in the cultivation of illicit crops.<sup>114</sup>



#### **4. Macroeconomic management**

If large amounts of illicit drug money are invested in an economy, macroeconomic management becomes extremely complicated. Macroeconomic management is difficult, at the best of times, but with large-scale drug funds circulating in an economy, it becomes an almost impossible task. It is particularly difficult when there is a need for economic policy changes, such as austerity measures to curb inflation and diversify the export base, that drug funds tend to counteract government actions. They do this either by preventing a predicted course of action to materialize, by prolonging the time-frame for macroeconomic stabilization or by prompting governments to take over-drastic measures, thus creating unemployment and social unrest.<sup>115</sup> The UNRISD studies have shown that money derived from drug trafficking has distorted many national fiscal and monetary policies. With so much additional capital from the drug trade competing with funds from the normal economy, drug money has introduced many more macroeconomic distortions than central banks have been able to handle. Macroeconomic impacts have been felt on foreign exchange flows, aggregate demand and inflation, and, indeed, on economic growth in general.<sup>116</sup>

### **III. Social consequences of drug abuse and trafficking**

#### **A. Family and community**

There is an extensive literature on how the rapid social, economic, and technological changes, characteristic of the present age, influence families and communities. Much of the literature is qualitative in nature. While there are doubtless many links between the findings of such literature and the problems of drug abuse, exploring these links is beyond the ambit of the present study. Many of the issues relevant to the relationship between drug abuse and families are summarized in two position papers prepared by UNDCP<sup>117</sup> and the World Health Organization (WHO).<sup>118</sup> The following discussion merely provides a few pointers for further investigation.

The disintegration of the family appears to be related, in some way, to problems of substance abuse. The country study carried out by UNRISD and the United Nations University on Mexico, for example, shows that illicit drug abuse correlates more strongly with the disintegration of the family than with poverty.<sup>119</sup> Similarly, the country study in the same series on the Lao People's Democratic Republic found that in areas where social controls exercised by the family and the community had broken down, opium and heroin consumption became prevalent among young men, women and children, and affected as much as 10 per cent of the population.<sup>120</sup> The country study on Thailand attributes increasing use of heroin and psychotropic substances to urbanization, rapid cultural change and a breakdown in family cohesion.<sup>121</sup> The relationship could also work the other way, with substance abuse straining family relationships and ultimately making families dysfunctional; transforming families from an asset of society into a burden.

Although families have a powerful influence on shaping the attitudes, values and behavioural patterns of children and thus preventing substance abuse, peer groups often prove to have an even stronger influence.<sup>122</sup> The negative influence of peers appears to increase when parents abdicate their traditional supervisory roles. Family factors thought to lead to, or intensify, drug abuse include prolonged or traumatic parental absence, harsh discipline, failure to communicate on an emotional level and parental use of drugs. Lack of household stability triggered by low and irregular income and unemployment may increase the stress on the family and its vulnerability to drug abuse. This opens a wide field for possible government action to reduce such vulnerability.

While the family itself can be the source of drug problems, it can also be a potent force for prevention and treatment. There has been increased acceptance of family therapy, where more than one member of the family is involved simultaneously in therapy sessions. As most families are supported and cared for by women, women frequently play a key role in teaching the young, ensuring that health-care is provided, and maintaining links with and mobilizing community support where necessary. The recognition and effective utilization of women as resources for drug prevention and treatment can therefore improve efforts to reduce both the supply of and demand for drugs.<sup>123</sup> Indeed, the family unit as a whole has a clear interest in preventing individual family members from falling prey to drug abuse, and thus could become a powerful ally of government and community prevention programmes.

## B. Health

The negative impact of drug abuse on health is obvious, scientifically established and documented in an extensive literature which is beyond the scope of the present report. The toxic effects and addiction risk of the major psychoactive drugs, licit as well as illicit are shown in [Table 1](#); the following discussion merely serves to emphasize a few key issues.

In the United States alone, there were 532,000 drug-related emergency room visits in 1995, up from 404,000 in 1988: an increase of more than 30 per cent. This clearly demonstrates the magnitude of drug-related health problems, both for the addicts concerned and for society, which is burdened with the health costs related to drugs abuse.<sup>124</sup>

The substances most commonly associated with drug-related deaths are heroin and other opiates, cocaine, and, to a lesser extent, barbiturates and amphetamine-type stimulants, notably methamphetamine. Depending on the dosage, substances such as benzodiazepines, hallucinogens and cannabis have a negative impact on health. These substances do not usually cause death directly but they may be associated with fatal accidents.

Though the mortality risk from consumption of illicit drugs is a matter of concern, it should be noted that the existing drug control mechanisms (prevention, education and law enforcement), although unable to prevent substance-abuse-related mortality (SARM), do seem to have prevented the actual number of SARM cases from reaching the levels currently being experienced with the abuse of licit psychoactive substances. While alcohol and tobacco account for nearly 5 million deaths per year,<sup>125</sup> estimates of the number of drug-related deaths of injecting drug users (IDUs) amount to a maximum of 200,000 cases per annum globally. Officially reported cases of SARM are significantly lower. Interpol reported about 15,000 cases in 1992; if Interpol and UNDCP data are combined and some extrapolation is carried out, the total number of SARM cases reported is still less than 25,000 globally (1995). Because of the lack of adequate reporting in a large number of countries, however, there is a bias towards under-representation in the figures provided (see [Figure XV](#)).

Given an estimated global drug-injecting population of 5.3 million in the early 1990s, the ratio of drug-related death to drug-injecting population, using the estimate of 200,000 deaths of IDUs, would be some 0.4 per cent.<sup>126</sup> With official United States estimates of the size of the illicit drug-abusing population at 12 million during 1993/94 and of the number of SARM cases at around 8,500 per year according to the Drug Abuse Warning Network (DAWN), or 13,000 per year (United States National Centre for Health Statistics), the drug-related mortality rate in the United States was 0.07 to 0.1 per cent of current drug abusers. Relating the number of deaths to hard-core abusers, i.e. those using drugs at least weekly (some 2.7 million people in 1993/94), the drug-related mortality rate was 0.3 to 0.5 per cent of hard-core abusers in the United States.

The data in [Figure XV](#) suggest that while serious health problems for drug abusers are the rule, drug-related death still seems to be the exception. The dramatic increase of SARM since the mid-1980s (see [Figures XV and XVI](#)) has, nevertheless, become a matter of public policy

**Table 1. Toxic effects and addiction risk of major illicit and licit psychoactive substances<sup>a/</sup>**

<i>Drug category</i>	<i>Acute toxicity</i>	<i>Chronic toxicity</i>	<i>Relative risk of addiction</i>
Alcohol and related drugs (benzodiazepines, barbiturates)	Psychomotor impairment, impaired thinking and judgement, reckless or violent behaviour; lowering of body temperature, respiratory depression	Hypertension, stroke, hepatitis, cirrhosis, gastritis, pancreatitis, <sup>g/</sup> organic brain damage, cognitive deficits, foetal alcohol syndrome, <sup>g/</sup> withdrawal effects: shakes, seizures, delirium tremens	3
Cocaine, amphetamines	Sympathetic overactivity: hypertension, cardiac arrhythmias, hyperthermia; acute toxic psychosis: delusions, hallucinations, paranoia, violence, anorexia	Paresthesias, stereotypy, seizures, withdrawal depression, chronic rhinitis, perforation of nasal septum	1
Caffeine	Cardiac arrhythmias, insomnia, restlessness, excitement, muscle tension, jitteriness, gastric discomfort	Hypertension, anxiety, depression, withdrawal headaches	5
Cannabis (marijuana, hashish)	Psychomotor impairment; synergism with alcohol and sedatives	Apathy and mental slowing, impaired memory and learning (brain damage?), impaired immune response <sup>b/</sup>	4
Nicotine	Nausea, tremor, tachycardia; high doses: hypertension, bradycardia, diarrhoea, muscle twitching, respiratory paralysis	Coronary, cerebral and peripheral vascular disease, gangrene, gastric acidity, peptic ulcer, withdrawal irritability, impaired attention and concentration, retarded foetal growth, spontaneous abortion <sup>b/</sup>	2
Opiates	Sedation, analgesia, emotional blunting, dream state; nausea, vomiting, spasm of ureter and bile duct; respiratory depression, coma, synergism with alcohol and sedatives; impaired thermoregulation; suppression of sex hormones	Disorders of hypothalamic and pituitary hormone secretion, constipation, withdrawal cramps, diarrhoea, vomiting, gooseflesh, lacrimation and rhinorrhoea	2
Hallucinogens (LSD, PCP)	Sympathetic overactivity; visual and auditory illusions, hallucinations, depersonalization; PCP only: muscle rigidity, hyperpyrexia, ataxia, agitation, violence, stereotypy, convulsions	Flashbacks, depression, prolonged psychotic episodes	5

Source: Avram Goldstein and Harold Kalant, "Drug policy: striking the right balance", *Science*, 28 September 1990, p. 1514.

<sup>a/</sup>Listed here are effects due to the drugs themselves. As the effects are dose-related and subject to individual variation in sensitivity, not all are expected to be seen in every user. Approximate rankings for relative risk of addiction are on a five-point scale, where 1 is most severe.

<sup>b/</sup>Bronchitis, emphysema, precancerous changes, lung cancer, pulmonary hypertension, and cardiovascular damage by carbon monoxide are consequences of smoking tobacco or marijuana, not due to the respective psychoactive drugs. Inhalation of smoke by non-smokers is also a significant hazard. With equivalent smoking, these chronic toxic effects occur sooner with marijuana than with tobacco.

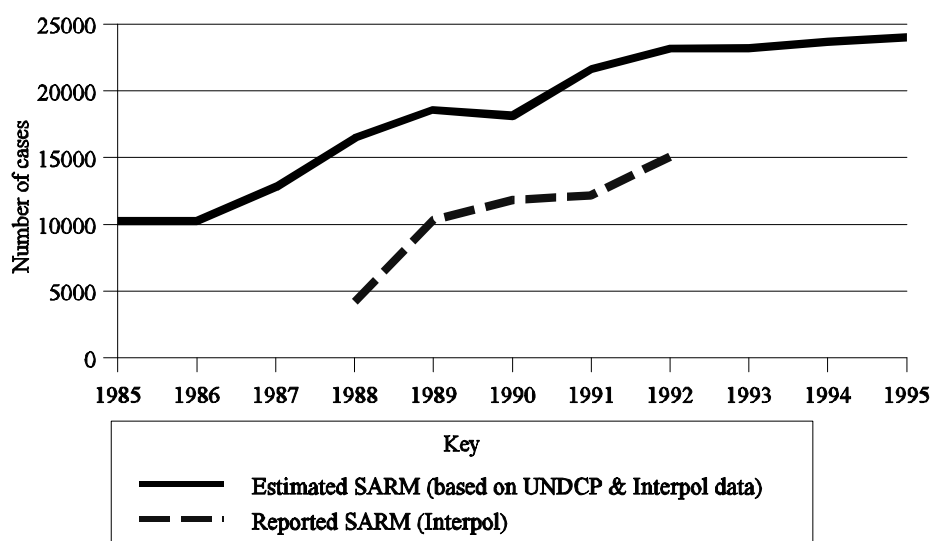
<sup>g/</sup>These effects result only from alcohol, not benzodiazepines or barbiturates.

concern. From the mid-1980s to the early 1990s (see [Annex III](#) for specific dates and magnitudes), cases of SARM increased by a factor of 6 in Germany and Spain, and a factor of approximately 5 in Austria, Belgium, Italy and Switzerland. In France and the United Kingdom, SARM cases only doubled, but, in contrast to most other European countries, they continued to grow in the 1990s. SARM cases in the Netherlands fluctuated but remained around the same level. Reports from the Russian Federation suggest that SARM increased by a factor of 4 in the early 1990s to more than 2,000 in 1992, making the Russian Federation the country with the world's second largest SARM rate after the United States. In Poland, SARM increased by about 50 per cent between 1989 and 1992. In countries and areas outside Europe, strong increases were reported from, for instance, Hong Kong, Japan and Saudi Arabia.<sup>127</sup> The only country reporting a falling SARM rate between 1989 and 1991 was the United States. Since then, however, SARM cases have again shown a clearly rising trend, reaching a level of about 8,500 (DAWN) or 13,000 (United States National Centre for Health Statistics) in 1993/94 (see [Annex III](#)). Overall SARM rates in western Europe have stabilized or fallen in the 1990s, after having grown dramatically in the 1980s (see [Figure XVI](#)). SARM cases in western Europe, both in absolute terms and in relation to the size of the population, remain below those in the United States. In 1994/95, there were about 3.3 SARM cases per 100,000 inhabitants in the United States, compared to 1.8 in western Europe.

While health problems primarily affect the drug abuser concerned and only indirectly affect society in general, by giving rise to higher health-care costs, the links between drug addiction, needle-sharing, prostitution, AIDS and other diseases are even more clearly demonstrable. This creates additional health dangers for society as a whole. Some 22 per cent of the world's HIV/AIDS population are drug injectors. This is a significantly higher proportion than the total number of drug injectors in the world population. Reports from individual countries (see [Figure XVII](#)) suggest that the share of IDUs in the HIV/AIDS population is as high as 80 per cent in Thailand, 69 per cent in Italy, 66 per cent in Myanmar, 66 per cent in Spain, 41 per cent in Poland, 40 per cent in Switzerland, 39 per cent in Brazil, 30 per cent in the United States and 25 per cent in France and India. Lower shares are reported for countries in Central America, Germany (14 per cent), the Netherlands (10 per cent), China (8 per cent), Sweden (8 per cent) and the United Kingdom (6 per cent).

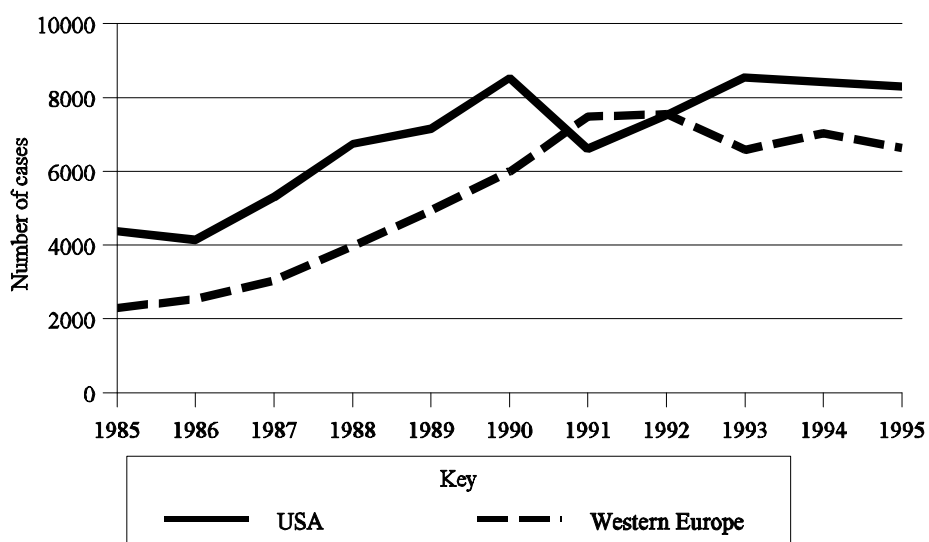
The resulting debate revolves around a variety of medical, ethical and legal questions, one of which concerns balancing policies for reduction and eradication of drug abuse with policies that aim at limiting the spread of diseases (such as HIV/AIDS) that may be associated with drug abusers.<sup>128</sup>

**Figure XV. Global development of substance-abuse-related mortality (SARM)**



Sources: UNDCP and ICPO/Interpol.

**Figure XVI. Substance-abuse-related mortality, United States<sup>b</sup> - western Europe<sup>a</sup> (1985-1995)**

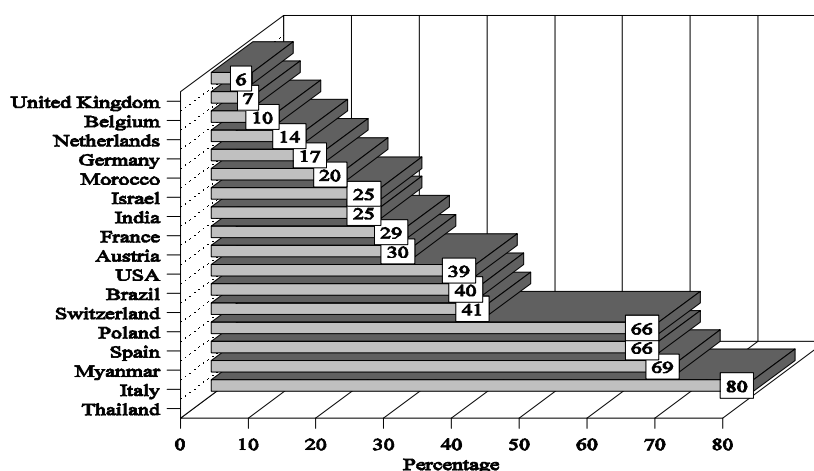


Sources: UNDCP ARQ, ICPO/Interpol, EMCDDA, Estimates

a Western Europe: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom; 382 million people.

b United States of America: 260 million people.

**Figure XVII. Proportion of injecting drug abusers in HIV/AIDS population, selected countries in the early 1990s**



Sources: UNDCP and ICPO/Interpol.

### C. Education

Though education and drug abuse often appear to be in a circular relationship, it is generally believed that education is an important point of intervention for the prevention of drug abuse.

School children who use drugs often suffer from impairment of short-term memory and other intellectual faculties, impaired tracking ability in sensory and perceptual functions, preoccupation with acquiring drugs, adverse emotional and social development and thus generally impaired classroom performance. Reduced cognitive efficiency leads to poor academic performance and a resulting decrease in self-esteem. This contributes to instability in an individual's sense of identity which, in turn, is likely to contribute to further drug consumption, thus creating a vicious circle.

At the same time, education is one of the principal means of preventing drug abuse. It should be appreciated, however, that preventive education is a process which will produce results only in the long term, in particular with the close cooperation of parents. Unfortunately, scientifically validated information on the overall effectiveness, and cost-effectiveness of various approaches, is not usually available.

## D. Environment

Environmental damage related to illicit drugs is caused in producing countries by clearing of forests, growing of crops as monocultures, processing of harvested plants into drugs and the use of environmentally dangerous chemicals without the necessary precautions being taken. Although environmental damage due to illicit drug production has, to some extent, been documented, there appears to have been little effort, to date, to compare illicit drug-related damage to that resulting from licit agriculture and industry.

The type of environmental damage found in any one country will depend on the specific role that country plays in the operations of the illicit drug industry. In the Andean countries, for example, coca farmers cut down forests on steep hillsides which are prone to erosion, instead of expanding cultivation of the rich alluvial soil on the valley floors.<sup>129</sup> It is feared that coca cultivation may have resulted in the deforestation of 700,000 hectares in the Amazon region in Peru.<sup>130</sup> An estimated 2 to 6 hectares of forest land are cleared by farmers in Chapare (Bolivia) for each hectare of coca production. This means that between 260,000 and 780,000 hectares have been cleared as a result of the boom in coca production, compared to the 250,000 hectares of forest estimated to have been lost annually in recent years to timber extraction, colonization and cattle ranching.<sup>131</sup>

In South-East Asia, most opium poppy cultivation takes place in the rain forests. The traditional slash-and-burn system used by the hill tribes has cleared enormous amounts of rain forest in recent years and much of the cleared land has come under poppy cultivation. Such forests could have been used much more productively. Slash-and-burn agriculture, in any case, damages the environment by denuding the land, destroying top-soil and silting up rivers.<sup>132</sup>

Similarly, in the tropical and high mountain forest regions of Latin America, opium poppy cultivation is beginning to emerge on fragile, isolated land, and is thus difficult to detect. Given the illegality of cultivation, growers of opium poppy, coca and cannabis do not usually put much effort into preserving the soil from erosion or caring for the land. Unlike indigenous farmers, cultivators of drug crops have fewer ties to the land and have less respect for it. Consequently, their practices are far more wasteful, depleting the soil and not giving it a chance to recover between crops. In an effort to raise productivity, illicit cultivators frequently use herbicides and insecticides in larger amounts than would normally be considered acceptable. The intense use of pesticides by coca cultivators in the Chapare area has already seriously contaminated the groundwater.<sup>133</sup>

Another type of damage to the environment from coca and opium is caused by the improper disposal of toxic wastes created during the processing of plant material into a form of consumable drug. In Bolivia, some 30,000 tonnes of toxic chemicals used in the processing of illicit drugs are flushed down the waterways each year without any proper waste water treatment being carried out. These chemicals, which range from moderately toxic to extremely destructive in environmental terms, include lime, sodium carbonate, sulphuric acid, kerosene, acetone and hydrochloric acid. Moreover, some 200,000 tonnes of discarded coca leaves are left to leach into the soil every year.<sup>134</sup> In Peru, the extensive use of chemicals to process drugs and the practice of disposing of them by the quickest means possible has been responsible for killing whole species of fish and aquatic plants in the Huallaga river.<sup>135</sup> According to United States Government studies,



cocaine processors in the Andean region each year dump into the water some 10 million litres of sulphuric acid, 16 million litres of ethyl ether, 8 million litres of acetone and from 40 to 770 million litres of kerosene (depending on how much is recycled). The chemical wastes alter water pH values, reduce oxygen, lead to acute poisoning of fish and plants and even to possible genetic mutations in some species.<sup>136</sup>

Finally, the environmental impact of herbicides used to eradicate illicit drug cultivation is also a cause of concern. What seems to be needed is a balanced assessment of the relative environmental impact of existing cultivation practices, often using damaging agrochemicals, as against a one-time chemical or biological intervention to eradicate the illicit crop in question.

### **E. Crime, corruption and dangers for civil society**

Drugs and crime are related in several ways. Illicit production, manufacture, distribution, possession and consumption (with some exceptions) of illicit drugs constitute criminal offences in most countries, in particular those countries which are signatories to the 1961, 1971 and 1988 United Nations drug control conventions. In the United States, for example, almost 60 per cent of all federal prisoners in 1994 were drug offenders, up from 45 per cent in 1988.<sup>137</sup>

Drugs increase the likelihood of many kinds of criminal activity. Drug-related crime occurs primarily in the form of trafficking-related activity, including violent conflicts among trafficking groups competing for increased market share. It also results from the need of drug consumers to finance their addiction through theft and prostitution. Long-term trends, based on data collected between 1975 and 1989 and presented to the Commission on Crime Prevention and Criminal Justice, show that drug-related crime and robbery were the fastest-growing component in crime as a whole, after kidnapping.<sup>138</sup>

Even though research in the United States seems to indicate that delinquency (in particular, involvement in crime against property) precedes substance abuse, there is no doubt that this type of criminality further increases once addiction occurs. A review of the relevant literature indicates a strong probability that drug addicts tend to be deeply involved in criminal activities, with daily users of drugs showing a significantly higher rate of criminality than non-drug users.<sup>139</sup> This has also been confirmed indirectly by the National Crime Victimization Survey of the United States, which revealed that 30 per cent of the victims of violent crime in 1992 perceived their attacker to have been under the influence of drugs or alcohol.<sup>140</sup> A study of heroin abusers attending the Liverpool Drug Dependency Unit reported that between 1985 and 1987, some 90 per cent financed part of their habit (on average £40 a day), from shoplifting or burglary.<sup>141</sup> Another study found that almost 50 per cent of the total cost of theft in 1993 in England and Wales was drug-related.<sup>142</sup> A study based on the results of the United States Drug Use Forecasting Programme, which tested nearly 3,000 persons charged of serious non-drug-related offences, found that about three-quarters of drug abusers in New York and Philadelphia and about two-thirds of those in the District of Columbia,<sup>143</sup> tested positive for cocaine.

Experts found that during periods of treatment, when narcotics use was curtailed, property crime levels were significantly reduced and that they also tended to decrease after termination of addiction.<sup>144</sup> Another United States study, based on data collected in California in the early 1990s,

showed that losses to victims and losses from theft caused by drug abusers fell by more than one half, from an average \$9,790 per drug user in the year prior to treatment to \$4,320 in the year following treatment.<sup>145</sup>

Drug-related crime and violence is high not only in consumer countries, but also in producer countries, the most striking example of this being Colombia. The Colombian Government clearly sees a link between the narcotics trade and the deaths of many of its citizens over the past two decades.<sup>146</sup> With drug cultivation and trafficking booming, the number of killings increased from 17 per 100,000 people in the 1973-1975 period (i.e., before large-scale drug cultivation started) to 63 per 100,000 in 1988, which, at the time, was the third highest murder rate in the world. Studies on the regional distribution of violence showed that of the 10 most violence-prone regions in the country, 8 were major cocaine- and marijuana-producing and trafficking areas. The correlation between poverty or inequality and violence was much weaker than that between violence and drug-producing and trafficking areas.<sup>147</sup>

While the link between drugs and crime is well-established, expert studies and opinions differ as to how far law enforcement prevents crime by limiting the number of drug abusers. Some researchers even question whether law enforcement may not, in fact, contribute to an increase in certain kinds of crime, such as violent conflicts among dealers for market share and crimes committed by abusers to finance their habit.<sup>148</sup>

The impact of illicit drug abuse and trafficking on law enforcement is both extensive and intensive. Illicit drugs have a considerable impact at each step along the chain of production, distribution and consumption, diverting time, energy and resources away from other responsibilities. The above-mentioned study on the costs of drug abuse in California showed, for instance, that a drug abuser, prior to treatment, costs the taxpayer in California an average of \$7,940 for the services of the criminal justice system, which is more than one third of the total costs relating to drug abuse.<sup>149</sup> In addition to these costs, wherever there is a well-organized, illicit drug industry, there is also the danger of police corruption.

There can be few components of law enforcement programmes which actually cost nothing. The asset forfeiture provision of the federal law for crop suppression (relating mainly to cannabis in the State of Kentucky), proved to be such a case, costing the United States Government \$13.7 million, but yielding a return of \$53 million in 1991, or almost \$4 in assets seized for every \$1 invested by the Drug Enforcement Administration.<sup>150</sup>

The usual pattern is, however, quite different. United States drug-related law enforcement expenditure (police, courts, prosecution, corrections) by the Federal Government was \$13.3 billion in 1995,<sup>151</sup> with an additional \$8.5 billion (1991) spent by state governments, i.e. a total figure equivalent to approximately 0.3 per cent of GDP. That figure was higher than the individual GDP of 150 of the 207 world economies in 1995. Even higher, in proportional terms, have been the funds invested by the Colombian Government to fight drug-trafficking. Colombia spent \$0.9 billion or 1.1 per cent of its GDP in 1995 and \$1.3 billion, equivalent to 1.6 per cent of GDP in 1996 for this purpose.<sup>152</sup> In 1996 in the Islamic Republic of Iran, another country which is strongly affected by trafficking, expenditure on fighting drug trafficking was \$0.3 billion or 0.3 per cent of GDP.<sup>153</sup> Enforcement expenditures in Europe are lower in relative terms. The United

Kingdom, for instance, spent US\$ 0.8 billion in 1993/1994, equivalent to 0.1 per cent of GDP.<sup>154</sup>

A much-discussed question concerns the links between illicit drug-trafficking organizations and terrorism or insurgent groups in terms of financing operations, gaining political support or undermining an existing government. There is evidence that a number of insurgent and terrorist organizations deal in illicit drugs for mainly pragmatic reasons. Several, particularly in the coca-growing regions of South America, use their earnings from the cocaine trade to bolster their political power and to acquire operating funds, even though they may be ideologically opposed to the drug trade itself. The Colombian Government, for instance, estimates that between one third and one half of the operations of the Fuerzas Armadas Revolucionarias de Colombia (FARC) (Colombian Revolutionary Armed Forces), the country's largest guerilla group, are financed through narcotics trafficking.<sup>155</sup> Various groups with similar agendas and considerable income from trafficking are reported elsewhere: Central America, Afghanistan, Myanmar, Sri Lanka and Thailand.<sup>156,157</sup>

Illicit drug funds, laundered or otherwise, may infiltrate the formal economy and subsequently the political system, endangering the foundation and the proper functioning of civil society and leading to social disintegration and anarchy.<sup>158</sup> In some producer/trafficking countries, drug money is reported to have infiltrated the "last crevices of society, politics, the economy, and even cultural and sports activities ... to gain public support and respect, as well as to have an ideal vehicle for money-laundering".<sup>159</sup>

The magnitude of funds under criminal control poses special threats to governments, particularly in developing countries, where the domestic security markets and capital markets are far too small to absorb such funds without quickly becoming dependent on them.<sup>160</sup> It is difficult to have a functioning democratic system when drug cartels have the means to buy protection, political support or votes at every level of government and society.<sup>161</sup> In systems where a member of the legislature or judiciary, earning only a modest income, can easily gain the equivalent of some 20 months' salary from a trafficker by making one "favourable" decision, the dangers of corruption are obvious.<sup>162</sup>

Given the already considerable influence of major drug traffickers and their ability to win popular and political support,<sup>163</sup> governments in a number of countries are forced either to submit to pressure from the traffickers or risk major political unrest. In Colombia, for instance, the decision of the Government in 1996 to go ahead with large-scale coca bush and opium poppy eradication resulted in massive demonstrations, apparently initiated by a number of drug-trafficking groups which succeeded in mobilizing more than 100,000 people. Many of the demonstrations escalated into open anti-government riots.<sup>164</sup> Similar events have also been reported from Bolivia and other countries. In other words, the drug production, trade, financing and laundering nexus has created a difficult situation in which governments may opt to remain passive in the fight against drug trafficking in order to preserve a minimum level of social peace.<sup>165</sup>

## IV. Conclusions

Quite apart from all the limitations inherent in trying to assess the extent of the illicit drug problem, the present study shows that an assessment of the economic and social consequences of the problem is no less difficult. Information about the consequences of drug abuse is inchoate and very far from conforming to even the most basic cross-national comparative standards. Yet, fragmented as the information may be, it is imperative that a start be made on converting it into policy-relevant knowledge.

While there is a need for a clear assessment of the cost-effectiveness of public policy measures and the optimal allocation of public resources in limiting illicit drug production, trafficking and abuse, it is evident that the process of synthesizing information on the economic and social consequences of drug abuse and illicit trafficking should continue, perhaps even accelerate. While research into many of the specific dimensions of the illicit drug problem has intensified in the last few years, and this trend is likely to continue, cross-national, cost-benefit analyses on the economic, social and health aspects of illicit drug production, trafficking and consumption are vitally needed. There is also commensurate, equally imperative need to assess the relative costs and benefits, also in cross-national terms, of different drug control policies.

When the initial draft of this study was presented to the Commission on Narcotic Drugs, its contents were heeded, not least because of their novelty. Since then, there has been an encouraging increase in the number of similar studies, as evidenced in the body of literature now available on this issue and in the studies published under the rubric of the UNDCP Technical Series. It is hoped that this trend will continue as, arguably, the most significant challenge posed by the illicit drug problem is its ability to adapt to the economic, social and technological changes taking place in society. It is already clear that three particular phenomena will need to be addressed in greater detail: psychoactive drugs that become illicit as a result of being diverted from licit purposes; chemicals used in the illicit manufacture of narcotic drugs and psychotropic substances; and illicitly produced synthetic drugs. While work on all three areas continues,<sup>166</sup> measures of their global importance, particularly in terms of economic costs and consequences, are still thin on the ground. Given present trends, these phenomena can only grow in magnitude. There is, therefore, all the more reason to continue to expand the process of learning and discovery that has now been launched.

While economic integration has been a growing trend for decades, the geographic scope and the speed of current economic transactions are new phenomena. In this regard, technology has been a crucial force for change. Events are proving that technology can be used in various ways, however, but not always for good. The emergence of a global crime network with a high degree of operational sophistication, the growth of the international narcotics trading routes and the increasing complexity of money laundering crimes reflect three inter-related trends affected by technology and the globalization of commerce. The illicit drug trade is now well entrenched in countries that, only a few years ago, had negligible drug-related problems. As a result, customs authorities are finding it increasingly difficult to cope simply on the basis of unilateral and unisectoral action.

It is thus well worth concluding by emphasizing the need, not only for further research into the issues raised in this study but, just as importantly, the requirement for such research to have

an influence on the global drug policy debate, which few people would consider to be over. The need to take stock of ongoing trends is restrained only by the need to plan for the future. While it is inevitable that the problems relating to illicit drugs that are currently emerging will have an impact on the research agenda in individual countries, it is crucial that research results should be channelled into the process of drug policy development, not only within these countries but at the international level, too.

## Notes

<sup>1</sup>Annual Reports of the International Narcotics Control Board; technical reports on *Precursors and Chemicals Frequently Used in the Illicit Manufacture of Narcotic Drugs and Psychotropic Substances*, supplementing the INCB Reports and issued annually since 1993; and, UNDCP, *Amphetamine-type Stimulants: A Global Review*, (UNDCP/TS.3, Vienna, 1996).

<sup>2</sup>An earlier version of this paper was prepared by the United Nations International Drug Control Programme for submission to the Commission on Narcotic Drugs. (E/CN.7/1995/3, 9 November 1994.)

<sup>3</sup>UNDCP, *Drugs and Development*, (UNDCP/TS.1, Vienna, 1996) and UNDCP, *The Social Impact of Drug Abuse* (UNDCP/TS.2, Vienna, 1996).

<sup>4</sup>The Canadian Centre on Substance Abuse initiated the first cross-national comparative project and has begun a series of symposia on the subject. The proceedings of symposia have been published: Eric Single, David Collins, Brian Easton, Henrick Harwood, Helen Lapsley and Alan Maynard, *International Guidelines for Estimating the Costs of Substance Abuse*. Canadian Centre on Substance Abuse, 1996.

<sup>5</sup>Data submitted by ICPO/Interpol to the International Narcotics Conference, organized by UNESCO in October 1994.

<sup>6</sup>*International Trade Statistics Yearbook 1994* (United Nations publication), New York 1995, Vol. II.

<sup>7</sup>IMS, *World Drug Market Manual*, London 1994.

<sup>8</sup>So far, only a few attempts have been made to define "average daily doses" for various illicit substances to derive a common unit of measurement. A common measure, once internationally accepted, would have the advantage of allowing for the exclusion of distorting price fluctuations in the analysis, and could better measure the relative importance of various drugs by taking into account their purity levels. The current practice of measuring various drugs merely in terms of quantity can be highly misleading for obvious reasons. Using the price as a common denominator entails a large number of other problems. For instance, increased supply can lead to falls in the price level, which may offset most of the quantity increases of a specific drug.

<sup>9</sup>Office of National Drug Control Policy, *What America's Users Spend on Illegal Drugs, 1988-1993*, Washington 1995.

<sup>10</sup>UNDCP, *Amphetamine-type Stimulants: A Global Review* (UNDCP/TS.3, Vienna 1996).

<sup>11</sup>LaMond Tullis, "Illegal drugs in nine countries! socioeconomic and political consequences", report prepared for UNRISD and the United Nations University, published as *Unintended Consequences; Illegal Drugs and Drug Policies in Nine Countries*, (Boulder: Lynne Rienner, 1995).

<sup>12</sup>*ibid.*, pp. 7-29.

<sup>13</sup>*ibid.*, pp. 20-29.

<sup>14</sup>Combined database of UNDCP, ICPO/Interpol and WCO.

<sup>15</sup>"Social and economic impact of drug abuse and control", position paper prepared by UNDCP for the World Summit for Social Development (1994); subsequently published as UNDCP, *The Social Impact of Drug Abuse* (UNDCP/TS.2, Vienna, 1996).

- <sup>16</sup>Combined database of UNDCP, ICPO/Interpol and WCO.
- <sup>17</sup>Interpol, *Asian Drug Scene - Changing Scenario, 1995-1996*, p. 7.
- <sup>18</sup>Interpol, *International Heroin Scene, 1995-1996*, pp. 39-40.
- <sup>19</sup>"America/Europe! international heroin scene, the transnational drug challenge, 1994", paper submitted by ICPO/Interpol to the International Heroin Conference, Washington, D.C., 17 - 19 May 1994.
- <sup>20</sup>*ibid.*
- <sup>21</sup>*The Social Impact of Drug Abuse* (UNDCP/TS.2, Vienna, 1996).
- <sup>22</sup>*Amphetamine-type Stimulants: A Global Review* (UNDCP/TS.3, Vienna, 1996), pp. 67-82.
- <sup>23</sup>"Present status of knowledge on the illicit drug industry", discussion paper prepared by UNDCP for the Subcommittee on Drug Control of the Administrative Committee on Coordination (1994).
- <sup>24</sup>Office of National Drug Control Policy, *The National Drug Control Strategy: 1996*, p. 29.
- <sup>25</sup>Health and Welfare Canada, *How Effective are Alcohol and other Drug Prevention and Treatment Programs?* (Ottawa, 1992).
- <sup>26</sup>Tullis, 1995, *op.cit.*, pp.49-59.
- <sup>27</sup>"Drug abuse, consequences and responses: Regional report on Asia and the Pacific" (1992), draft study prepared by UNDCP (1994), p. 1.
- <sup>28</sup>"Drug abuse in the Americas: a regional profile", draft study prepared by UNDCP (1994), p. 10.
- <sup>29</sup>Tullis, 1995, *op.cit.*, p. 53.
- <sup>30</sup>Office of National Drug Control Policy, *National Drug Control Strategy: Reclaiming our Communities from Drugs and Violence, 1994.*, p. 106.
- <sup>31</sup>"The illicit opiate industry of Pakistan", draft study prepared by UNDCP (1994).
- <sup>32</sup>Consejo Nacional contra el Uso Indebido y el Tráfico Ilícito de Drogas (CONALID) (National Council against Drug Abuse and Illicit Drug Traffic), *Programa Nacional de Inversión de Desarrollo Alternativo* (La Paz, 1990), quoted in World Bank, *Bolivia Agricultural Sector Review* (Washington, D.C., 1992), p. 37.
- <sup>33</sup>According to other sources, the size of the illicit drug industry in Bolivia is thought to have reached \$1.4 billion, that is almost 30 per cent of gross domestic product in 1987, and fluctuated around 20 per cent in subsequent years. See UDAPE, Bolivia, *Estrategia de Desarrollo Alternativo* (1990, quoted in Beatriz Cristina Muriel Hernández, "Aspectos reales y monetarios de la economía de la coca, una aproximación a la teoría de la enfermedad holandesa", thesis submitted at the Catholic University of Bolivia, La Paz (1994), p. 1.
- <sup>34</sup>United States Agency for International Development, *Bolivia's Coca Sub-economy in 1993: A Computer Model* (Washington, D.C., Government Printing Office, 1994), Table 1.
- <sup>35</sup>Elena Alvarez, "The political economy of coca production in Bolivia and Peru! economic importance and political implications", draft study submitted to UNDCP (1993).

<sup>36</sup>Estimates of the revenue of the Colombian illegal drug business in 1988/89 ranged from \$1.1 billion to \$5.5 billion. The Colombian GNP was 1,150 billion pesos in 1988, equivalent to some \$40 billion. With GNP figures rising and income from drug business constant to slightly falling, the importance of the drug business for the Colombian economy declined, however, in subsequent years. Tullis, 1995, *op.cit.*, p.134 and International Monetary Fund, *International Financial Statistics Yearbook*, 1996, pp. 283-287.

<sup>37</sup>"The illicit opiate industry of Pakistan", *op.cit.*

<sup>38</sup>"Dutch Disease" implies market distortion as a result of an extraordinary boom of one isolated sector and consequent stagnation in core sectors of the economy, as experienced by the Netherlands in connection with large North Sea oil and gas exports in the late 1970s. In the classic scenario, the unexpected boom of one sector of the economy (such as illicit drug production) leads to an increase in the real exchange rate, thus preventing diversification of the economy. This endangers the operations of export-oriented and import-substituting industries. For a detailed analysis using the Bolivian example, see Muriel Hernández, *op.cit.*

<sup>39</sup>Tullis, 1995, *op.cit.*, pp.70-74, 84.

<sup>40</sup>Henrick J. Harwood, "Analytical principles and issues in making cost of illness estimates for substance abuse", paper prepared for the International Symposium on the Economic and Social Costs of Substance Abuse, held at Banff, Alberta, Canada, 11 - 13 May 1994, p. 1.

<sup>41</sup>Canadian Centre on Substance Abuse (CCSA), "The Costs of Substance Abuse in Canada! Highlights" (a cost estimation study by Eric Single, Lynda Robson, Xiaodi Xie, Jürgen Rehm *et al.*), 1996; converted at US\$1 = CAN\$1.2.

<sup>42</sup>David J. Collins, Helen M. Lapsley, *The social costs of drug abuse in Australia in 1988 and 1992*, Report prepared for the Commonwealth Department of Human Services and Health, February 1996; GDP figures from IMF, *International Financial Statistics Yearbook*, 1996.

<sup>43</sup>Commission of the European Communities, *The Social and Economic Costs of Drug Abuse in the United Kingdom and the Netherlands* (London, 1990), p. 2.

<sup>44</sup>Converted at the 1988 average exchange rate of US\$1 = £Sterling 0.562.

<sup>45</sup>Converted at the 1995 average exchange rate of US\$1 = DM 1.43.

<sup>46</sup>Karl-Hans Hartwig, Inge Pies, *Rationale Drogenpolitik in der Demokratie*, (J.C.B. Mohr Verlag), Tübingen, 1996.

<sup>47</sup>C. Parsons and A. Kamenca, *Economic Impact of Drug Abuse in America* (Los Angeles, University of Southern California, 1992).

<sup>48</sup>California Health and Welfare Agency, *Evaluating Recovery Services: the California Drug and Alcohol Treatment Assessment* (Sacramento, 1994), p. 67.

<sup>49</sup>This is based on the somewhat controversial assumption that jobs necessitating higher qualifications cannot be filled because of widespread substance abuse in society. With the number of drug abusers still below 5 per cent in most countries and unemployment often over 5 per cent, there is generally no shortage of workers, but a shortage of jobs. More generally, if there is high unemployment, the productivity loss as a result of substance abuse by any individual may be insignificant, because the prematurely "retired" or deceased can be replaced by workers who otherwise would be unemployed. For a more detailed discussion, see D. J. Collins, H. M. Lapsely, "Issues and alternatives in the development of a drug abuse



estimation model", paper presented at the International Symposium on the Economic and Social Costs of Substance Abuse, held at Banff, Alberta, Canada, 11 - 13 May 1994, p. 12.

<sup>50</sup>Joy Mott, Catriona Mirrlees-Black, *Self-reported Drug Misuse in England and Wales, Findings from the 1992 British Crime Survey*, Home Office, Research and Planning Unit Paper 89, London, 1995.

<sup>51</sup>Edgar Rodríguez Ospina, Luis Fernando Duque Ramirez, Jesús Rodríguez García, *National Household Survey on Drug Abuse* (Bogotá, Santafe de Bogotá, 1993), pp.15 and 22.

<sup>52</sup>U.S. Department of Health and Human Services (Substance Abuse and Mental Health Services Administration), *Preliminary Estimates from the 1994 National Household Survey on Drug Abuse*, September 1995.

<sup>53</sup>M. D. Newcomb, *Drug Use in the Workplace: Risk Factors for Disruptive Substance Use Among Young Adults* (Dover, Massachusetts, Auburn House Publishing Company), p. 85.

<sup>54</sup>Jean Paul Smith, *Alcohol and Drugs in the Workplace: Attitudes, Policies and Programmes in the European Community* (Geneva, International Labour Organisation, 1993).

<sup>55</sup>Substance Abuse & Mental Health Services Administration (SAMHSA), *Drug Use Among U.S. Workers*, 1997.

<sup>56</sup>International Labour Organisation, *Drug and Alcohol Testing in the Workplace*, report of the Interregional Tripartite Experts Meeting, held at Oslo 10 - 14 May 1993.

<sup>57</sup>SmithKline Beecham Clinical Laboratories (Pennsylvania), "SmithKline Beecham Drug Testing Index(C)", February 1997.

<sup>58</sup>Barbara Butler, *Alcohol and Drugs and the Workplace* (Toronto, Butterworths, 1993).

<sup>59</sup>*Drug Use Among U.S. Workers*, 1997, *op.cit.*

<sup>60</sup>"Survey shows drug abuse now affects all professions", *Business Wire*, 4 February 1997.

<sup>61</sup>"The illicit opiate industry of Pakistan", *op.cit.*

<sup>62</sup>Tullis, 1995, *op.cit.*, p.157.

<sup>63</sup>Mario De Franco, Ricardo Godoy, "The economic consequences of cocaine production in Bolivia: historical, local and macroeconomic perspectives", paper prepared at the Harvard Institute for International Development (Cambridge, Massachusetts, 1990), p. 13.

<sup>64</sup>Aguiló, "Movilidad espacial y movilidad social generada por el narcotráfico", quoted in Muriel Hernández, *op.cit.*, p. 31.

<sup>65</sup>Estimates cited in Tullis, 1995, *op.cit.*, p. 158.

<sup>66</sup>De Franco and, Godoy, *op.cit.*, p. 13.

<sup>67</sup>James Painter, *Bolivia and Coca - A Study in Dependency*, in *Studies on the Impact of the Illegal Drug Trade*, (Boulder, Lynne Rienner, 1994), pp. 24-25.

<sup>68</sup>*ibid.*, p. 57.

<sup>69</sup>Tullis, 1995, *op.cit.*, p. 149.

<sup>70</sup>Republic of Colombia, *Colombia's War on Drugs: 1996 - A Year of Significant Progress*, p. 23.

<sup>71</sup>Tullis, 1995, *op.cit.*, p.142.

<sup>72</sup>Graham Farrell, Kashfia Mansur, and Melissa Tullis, "Cocaine and Heroin in Europe 1983-93", *British Journal of Criminology*, Vol. 36 No. 2 Spring 1996, pp. 255-281.

<sup>73</sup>Peter Reuter, Mark Kleiman, "Risk and prices: an economic analysis of drug enforcement", *Crime and Justice: An Annual Review of Research*, Vol. 7 (1986).

<sup>74</sup>Moore, *op.cit.*, p. 114.

<sup>75</sup> *National Drug Control Strategy: Reclaiming our Communities from Drugs and Violence, 1994 op.cit.*, pp. 100 and 106.

<sup>76</sup>Moore, *op.cit.*, p.114.

<sup>77</sup>L. Silverman and others, "Urban crime and heroin availability", Public Research Institute Report 75-1, 1975, cited in William Niskanen, "Economists and drug policy", *Carnegie-Rochester Conference Series on Public Policy*, No. 36 (1992), pp. 223-248.

<sup>78</sup>Reuter, Kleiman, *op.cit.*

<sup>79</sup>Other deduced hypotheses from the Becker-Murphy model are that the long-run price elasticity as well as the ratio of the long-run to the short-run price elasticity is higher for those with a stronger addiction. See G. Becker and K. Murphy, "A theory of rational addiction", *Journal of Political Economy*, No. 96 (1988), pp. 675-700.

<sup>80</sup>Reuter, Kleiman, *op.cit.*

<sup>81</sup>Henry Saffer, Frank Chaloupka, "The Demand for Illicit Drugs", National Bureau of Economic Research; Working Paper No. 5238, Cambridge, Massachusetts, August 1995.

<sup>82</sup>J. van Ours, "The Price Elasticity of Hard Drugs: The case of Opium in the Dutch East Indies 1923-38", *Journal of Political Economics*, 103, No. 2, 1995: cited in *ibid.*

<sup>83</sup>"The illicit opiate industry of Pakistan", *op.cit.*

<sup>84</sup>Tullis, 1995, *op.cit.*, p.162.

<sup>85</sup>Francisco Thoumi, *Political Economy & Illegal Drugs in Colombia*, in *Studies on the Impact of the Illegal Drug Trade*; (Boulder, Lynne Rienner, 1995), p.199.

<sup>86</sup>"The illicit opiate industry of Pakistan", *op.cit.*

<sup>87</sup>In Pakistan almost half (48 per cent) of all drug users were amongst the poorest quintile (20 per cent) of the population. The second income quintile accounted for 21 per cent, the third quintile for 15 per cent, the fourth quintile for 4 per cent and the richest quintile for 12 per cent of all drug users (see *ibid.*).

<sup>88</sup>Pino Arlacchi and Nando dalla Chiesa, *La Palude e la Città* (Milan, 1987) p. 152.

<sup>89</sup>Tullis, 1995, *op.cit.*, p. 142.

<sup>90</sup>Similarly, the UNRISD and United Nations University studies also concluded that "Any GNP, foreign exchange or investment increases for the national economy that derive from the illegal drug trade must be interpreted in light of their tendencies to concentrate income and wealth ..." (see Tullis, 1995, *op.cit.*, p. 142); and "The astonishing upshot ... is that far from destabilizing the old social order that legitimated a highly skewed distribution of wealth and property, the drug trade has reinforced it. The cocaine barons have become the new rich, simply replacing the old coffee oligarchy that evolved in the late nineteenth century" (see Tullis, 1995, *op.cit.*, p. 149).

<sup>91</sup>US embassy document (1991), quoted in *ibid.*, p.156.

<sup>92</sup>International Monetary Fund, *International Financial Statistics Yearbook 1993* (Washington, D.C., 1993), p. 111.

<sup>93</sup>United States Agency for International Development, *op.cit.*

<sup>94</sup>"The illicit opiate industry of Pakistan", *op.cit.*

<sup>95</sup>Painter, *op.cit.*, p. 54.

<sup>96</sup>"Economic Reform and the Implications of Criminal Finance", UNDCP discussion paper (September 1994), p. 14; subsequently published as *Drug Money in a Changing World: Economic Reform and Criminal Finance* (UNDCP/TS.4, Vienna, 1996).

<sup>97</sup>Painter, *op.cit.*, pp. 55-56.

<sup>98</sup>Tullis, 1995, *op.cit.*, p.160.

<sup>99</sup>Organisation for Economic Co-operation and Development, *Financial Action Task Force on Money Laundering* (Paris, 1990), p. 6.

<sup>100</sup>This figure was, however, qualified as "suspect" (probably too high) by the Intergovernmental Expert Group to Study the Economic and Social Consequences of Illicit Traffic in Drugs (see E/CN.7/1991/25, p. 25).

<sup>101</sup>Since the late 1980s no serious attempt seems to have been made to recalculate and update the figures on money-laundering. In some studies, the overall size of the drug industry (and thus the money available for laundering) are already assumed to be larger (see "Present status of knowledge on the illicit drug industry" *op.cit.*, pp. 26-28).

<sup>102</sup>*The Social Impact of Drug Abuse* (UNDCP/TS.2, Vienna, 1996).

<sup>103</sup>Tullis, 1995, *op.cit.*, pp. 13, 53, 139 and 149; Thoumi, *op.cit.*, p. 240.

<sup>104</sup>"The illicit opiate industry of Pakistan", *op.cit.*

<sup>105</sup>This has been mirrored in rapidly rising real estate prices as well as in the fact that, while the official constant value mortgage system declined by about 20 per cent in the late 1980s, the total licensed construction area increased by 14.6 per cent, which means that drug barons did not have to go to the banks to solicit construction loans (see Tullis, 1995, *op.cit.*, p. 145).

<sup>106</sup>Painter, *op.cit.*, p. 61.

<sup>107</sup>In Colombia, there were apparently some 2,000 *sicarios* (teenage contract killers) in the late 1980s, with the price of killing a person declining to an average of just \$13 (see Tullis, 1995, *op.cit.*, pp. 14 and

148).

<sup>108</sup>Arlacchi and dalla Chiesa, 1987, *op.cit.*, p. 158.

<sup>109</sup>*Drug Money in a Changing World: Economic Reform and Criminal Finance* (UNDCP/TS.4, Vienna, 1996)

<sup>110</sup>Pino Arlacchi, *Mafia Business: the Mafia Ethic and the Spirit of Capitalism* (London, Verso, 1986), p. 91.

<sup>111</sup>Peter Reuter, *Disorganized Crime: Illegal Markets and the Mafia* (Massachusetts, MIT Press, 1986).

<sup>112</sup>Arlacchi, 1986, *op.cit.*, pp. 205-210.

<sup>113</sup>*Drug Money in a Changing World: Economic Reform and Criminal Finance* (UNDCP/TS.4, Vienna, 1996)

<sup>114</sup>*Colombia's War on Drugs: 1996 - A Year of Significant Progress, op.cit.*, p.24.

<sup>115</sup>*Drug Money in a Changing World: Economic Reform and Criminal Finance* (UNDCP/TS.4, Vienna, 1996).

<sup>116</sup>Tullis, *op.cit.*, p.93, 143-46, 170-72.

<sup>117</sup>*The Social Impact of Drug Abuse* (UNDCP/TS.2, Vienna, 1996).

<sup>118</sup>"Preventing substance-abuse in families", position paper by the World Health Organization (1993).

<sup>119</sup>María Celia Toro, *Mexico's "War" on Drugs: Causes and Consequences*, in *Studies on the Impact of the Illegal Drug Trade* (Boulder, Lynne Rienner, 1995), p. 49.

<sup>120</sup>Daniel Henning, "Production and trafficking of opium and heroin in Laos", draft study prepared for UNRISD and the United Nations University (1993), p. 38.

<sup>121</sup>Anchalee Singhanetra-Renard, "Socio-economic and political impact of production, trade and use of narcotic drugs in Thailand", draft study prepared for UNRISD and the United Nations University (1993), p. 87.

<sup>122</sup>Denise Kandel, "Adolescent marijuana use: role of parents and peers", *Science*, No. 181 (1973), pp. 1067-1081.

<sup>123</sup>"Women and drug abuse", a position paper prepared by UNDCP (1994), p. 2.

<sup>124</sup>*The National Drug Control Strategy: 1996, op.cit.*, p.88 and Substance Abuse and Mental Health Services Administration, *Preliminary Estimates from the Drug Abuse Warning Network*, Advance Report Number 17, 1996.

<sup>125</sup>James A. Cercone, "Alcohol-related problems as an obstacle to the development of human capital: issues and policy options", World Bank technical paper No. 210 (Washington, D.C., 1994), p v.

<sup>126</sup>WHO, Programme on Substance Abuse, "Death related to drug abuse", report on a WHO Consultation held at Geneva from 22 to 25 November 1993.

<sup>127</sup>"Substance abuse related mortality: a worldwide review", study prepared by UNDCP (1994).

<sup>128</sup>Australian Institute of Criminology, *A Comparative Analysis of Illicit Drug Strategy*, study prepared for the Ministerial Council on Drug Strategy (Canberra, Australian Government Publishing Service, 1992), p. 4.

<sup>129</sup>Patrick Clawson, Rensselaer Lee, "Consequences of the illegal drug trade: the negative economic, political and social effects of cocaine on Latin America", study prepared for the Bureau of International Narcotics Matters, United States Department of State.

<sup>130</sup>M. Dourojeanni, "Environmental impact of coca cultivation and cocaine production in the Amazon region of Peru", *Bulletin on Narcotics*, Vol. XLIV, No. 2, 1992.

<sup>131</sup>Painter, *op.cit.*, pp. 66-67.

<sup>132</sup>Tullis, 1995, *op.cit.*, p.112.

<sup>133</sup>*ibid.*, p.169.

<sup>134</sup>*ibid.*, p.170.

<sup>135</sup>*The Social Impact of Drug Abuse* (UNDCP/TS.2, Vienna, 1996).

<sup>136</sup>Clawson, Lee, *op.cit.*

<sup>137</sup>United States Department of Justice (Bureau of Justice Statistics), Survey of Inmates in Federal Correctional Facilities.

<sup>138</sup>*Crime Trends and Criminal Justice Operations at the Regional and Interregional Levels: Results of the Third United Nations Survey of Crime Trends, Operations of Criminal Justice Systems and Crime Prevention Strategies* (United Nations publication, Sales No. E.94.IV.2).

<sup>139</sup>LaMond Tullis, *Handbook of Research on Illicit Drug Traffic: Socioeconomic and Political Consequences* (New York, Greenwood Press, 1991).

<sup>140</sup>United States Department of Justice, *Criminal Victimization in the U.S.*, BJS 1992.

<sup>141</sup>C.S.J. Fazey, "The evaluation of Liverpool drug dependency clinic", quoted in Richard Stevenson, *Winning the War on Drugs: To Legalize Or Not* (London, Institute of Economic Affairs, 1994), p. 30.

<sup>142</sup>"Drugs: the need for action", Labour Party document quoted in Stevenson, *ibid.*, p. 31.

<sup>143</sup>For this study almost 3,000 males in 14 prisons in the United States were urine tested in 1989. Preference for selection into the testing programme was given to persons charged with serious non-drug-related offences. The test method used detected only drugs used from two to three days prior to arrest, so that actual drug use by those arrested may have been even higher (see *Morbidity and Mortality Weekly Report*, Vol. 38, No. 45, pp. 780-783).

<sup>144</sup>M. D. Angelin and George Speckard, "Narcotics use and crime: a multisample, multimethod analysis", *Criminology*, Vol. 26, No. 2, 1988.

<sup>145</sup>*Evaluating Recovery Services: the California Drug and Alcohol Treatment Assessment*, (Sacramento, 1994) *op.cit.*, p. 67.

- <sup>146</sup>*Colombia's War on Drugs: 1996 - A Year of Significant Progress, op.cit.*, p. 5.
- <sup>147</sup>Francisco Thoumi, *Economía, Política y Narcotráfico* (Bogotá, Tercer Mundo, 1994), p. 66.
- <sup>148</sup>See Ro L. Evans and Irwin M. Berent, eds., *Drug Legalization: For and Against* (La Salle, Illinois, Open Court Publishing Company, 1993).
- <sup>149</sup>Peter Reuter, *Disorganized Crime: Illegal Markets and the Mafia* (Massachusetts, MIT Press, 1986).
- <sup>150</sup>Richard R. Clayton, *Marijuana in the "Third World", Appalachia, U.S.A.* in *Studies on the Impact of the Illegal Drug Trade*, p. 21.
- <sup>151</sup>*The National Drug Control Strategy, 1996, op.cit.*, p. 77.
- <sup>152</sup>*Colombia's War on Drugs: 1996 - A Year of Significant Progress, op.cit.*
- <sup>153</sup>Estimate by Government of Islamic Republic of Iran, cited in *Reuters*, 3 March 1997. GDP based on IMF, *International Financial Statistics*, July 1997.
- <sup>154</sup>Her Majesty's Stationary Office, *Tackling Drugs Together: A consultation document on a strategy for England 1995-1998*, (Cm 2678), London 1994, p. 36.
- <sup>155</sup>*ibid.*, p. 20.
- <sup>156</sup>Tullis, 1995, *op.cit.*, pp. 22-23, 65-85.
- <sup>157</sup>Tullis, 1991, *op.cit.*, pp. 52-54.
- <sup>158</sup>Tullis, 1995, *op.cit.*, pp. 170-172.
- <sup>159</sup>*ibid.*, p.68.
- <sup>160</sup>*Drug Money in a Changing World: Economic Reform and Criminal Finance* (UNDCP/TS.4, Vienna, 1996).
- <sup>161</sup>Bureau of International Narcotics Matters, *International Narcotics Control Strategy Report* (Washington, D.C., Department of State, 1994).
- <sup>162</sup>Tullis, 1995, *op.cit.*, p. 169.
- <sup>163</sup>Rensselaer Lee, "Why the US cannot stop South American cocaine", *Orbis*, No. 32 (1988), pp. 499-519; Arlacchi and dalla Chiesa, 1987, *op. cit.*, p. 39.
- <sup>164</sup>*Colombia's War on Drugs: 1996 - A Year of Significant Progress, op.cit.*
- <sup>165</sup>Tullis, 1995, *op.cit.*, p.101 and pp.180-182.
- <sup>166</sup>Annual Reports of the International Narcotics Control Board, *op.cit.*

**Annex I**

<b>UNDCP Estimates of Global Turnover of the Illicit Drug Industry (1995)</b>					
	Opium/ heroin	Coca/ cocaine	Marijuana (for export)	Hashish (for export)	Total
Production in tons (1995); (Global US-figures but for opium production in Afghanistan (813 tons more))	4,970	309,400	11,500	1150*	
Assumed local consumption of raw material in % of production (for assumption see below)	30	15	n/a	n/a	
- Local consumption of opium / coca leaves (in tons) (opium figure: based on global estimates of opium consumption; 1400-1600 tons; coca estimate: based on estimated share (5%) of traditional use of coca in Bolivia and Peru)	-1,491	-46,410	n/a	n/a	
Production potentially available for processing (in tons)	3,479	262,990	11,500	1,150	
- Seizures of raw material (in tons) (ARQ data); (opium: weight of opium seizures (261.7 tons) + 1/10 of weight of seizures of poppy plants and capsules (90 tons))	-271	-566	-2,689	-1,252	
Raw material actually available for processing/export (in tons)	3,208	262,424	8,811	880*	
Transformation rate (raw material:end product)	10:1	1000:3	n/a	n/a	
Potential production of end-product (in tons)	321	787	8,811	880	
- Global seizures of morphine (in tons)	-12	n/a	n/a	n/a	
End-products available (in tons)	309	787	8,811	880	
Production including weight gains due to dilutions (80% purity-wholesale; based on US market structure) (in tons)	386	984	8,811	880	
- Global seizures (ARQ data) of heroin and cocaine (most of which effected at wholesale level) (in tons)	30	250	n/a	n/a	
Substances available for sale at wholesale level (cocaine and heroin 80% purity) (in tons)	356	734	8,811	880	
Estimate of substances available, including weight gains due to dilutions at the retail level (purity: 60% cocaine; 40% heroin; based on US-market structure); (in tons)	712	979	8,811	880	
Minimum retail price (US-\$ per gram) (USA; reported in ARQ)	70	20	1.4	3.5	
Maximum retail price in (US-\$ per gram) (USA; reported in ARQ)	900	200	15	42	
Assumed "average" retail price (US-\$ per gram) (based on additional information from the USA and other major consumer countries, particularly in Europe and Oceania, using 1995 US-\$ exchange rates)	150	120	7.0	15.0	
Minimum sales (in bn US-\$) (based on US-prices)	50	20	12	3	85
Maximum sales (in bn US-\$) (based on US-prices)	641	196	132	37	1006
Unweighted average of minimum and maximum turnover (based on US-prices; in bn US-\$)	346	108	72	20	546
Likely turnover of main plant-based drugs (based on 'assumed' average retail prices) (in bn US-\$)	107	117	62	13	299
Synthetic drugs (incl. diversions) and other illicit drugs (in bn US-\$) (assumed 20% market share of total, based on synthetic drug seizure cases as a share of total seizure cases)					60
Total calculated (likely) turnover of the illicit drug industry (in bn US-\$)					359
Total estimated turnover of the illicit drug industry (in bn US-\$ rounded) \$					400
* See explanations below Sources: UNDCP, ARQ; U.S., <i>INCSR</i> ; BKA, <i>Rauschgiftkurier</i> , Australian Bureau of Criminal Intelligence.					

**Explanations:**

The Table above attempts to provide basic magnitudes about the turnover of the illicit drug industry - estimated to be \$400 billion. This figure is a broad estimate of the aggregated value of drugs purchased by consumers, and is based on information available at UNDCP. In order to avoid double reckoning, the figure does not include sales at the various steps from production to retail. If these intra-industry sales were also to be included, a turnover of more than \$500 billion per annum would be likely.

Calculations of global turnover depend on the accuracy of estimates for a large number of parameters. In the case of illicit drugs, these parameters include production, prices, purities and consumption. Global turnover is strongly influenced by the prices prevailing in the countries of consumption. The \$400 billion estimate has not been calculated on the basis of purchasing power parities; thus, given the relatively low prices in many developing countries, consumption of illicit drugs in the industrialized countries accounts for the bulk of the turnover. Consumption in developing countries, though considerable, is nonetheless negligible in terms of total turnover.

Insofar as information is available, data clearly indicate that the above-mentioned parameters vary considerably, both between regions and within countries, as well as from year to year. These variations complicate the calculation of global sales figures. The Table demonstrates the extent to which the use of maximum and minimum prices in the calculation contributes to the variations in the estimated size of the illicit drug industry, which range from some \$100 billion to more than \$1,000 billion per year. This wide range would expand even further if other maximum and minimum values of the main parameters were also used. Such spreads are useful in explaining the discrepancies between exercises that seek to calculate global turnover.

Attempts to aggregate divergent parameters to arrive at more usable results are bound to be controversial. They are, however, frequently necessary. The adjustments can be made by making a number of simplifications based on different assumptions. The assumptions made in constructing the Table are justified by the empirical evidence available at UNDCP.

### **Global sales of the heroin industry**

Calculations were based on United States production estimates, adjusted to take account of the results of UNDCP surveys on opium poppy cultivation and yields in Afghanistan. A number of countries in the Golden Triangle repeatedly reported to UNDCP large levels of domestic consumption of opium (e.g. Lao People's Democratic Republic) and heroin (e.g. Thailand). Heavy opium consumption from the Islamic Republic of Iran and heavy heroin consumption from Pakistan have also been reported. Different estimates suggest that, in the major opium producing countries, opium available for processing and export may be between 50 per cent and 90 per cent of domestic production, with higher shares in Afghanistan and smaller shares in the countries of the Golden Triangle. In these calculations, it was assumed that, on average, 70 per cent of domestic production was for export and processing into heroin. After seizures are subtracted, this amounts to 3,200 tonnes. Applying the widely used 10 to 1 transformation rate, and deducting morphine seizures, the global availability of heroin is estimated at more than 300 tonnes.

After production comes the trafficking phase. When heroin arrives at the (domestic) wholesalers it is already less pure, since traffickers dilute it. For the purposes of the Table above, an average purity of 80 per cent, based on United States data, was assumed.



Because of continued dilutions, the purity of the heroin declines further, though its weight increases, as it moves towards the retail stage. Based on United States data, an average purity of 40 per cent at the retail level was assumed.\* These quantities were then multiplied by the retail (street) prices to arrive at final sales figures. Using United States data for maximum and minimum prices, (as provided in the ARQs), the resulting global turnover of the heroin industry was calculated to be between \$50 billion and \$640 billion per annum, or, on average, about \$350 billion. These figures are not necessarily representative of the global situation. Europe, for instance, has a far larger heroin market than the United States. Taking lower, West European market prices into account, a more likely turnover for the heroin industry was calculated at between \$100 billion and \$110 billion per annum. This figure was then used for the final calculation of global turnover.

### **Global sales of the cocaine industry**

United States production estimates were used as a basis for calculations. Information from some of the coca-producing countries suggests that about 15 per cent of coca leaf production may actually be used for domestic consumption, while the rest is destined for export. Leaving aside seizures, slightly less than 300 tonnes of coca leaf is available for the manufacture of cocaine. Applying a 1,000:3 transformation rate, some 800 tonnes of pure cocaine are potentially available for consumption. Despite cocaine seizures of some 250 tonnes, dilutions to an average retail purity of 60 per cent again raise the weight to some 1,000 tonnes. Using maximum and minimum prices, this is equivalent to a turnover range of \$20 billion to \$200 billion. Though the main market for cocaine is still the United States, the European market is growing in importance. There is general agreement that cocaine prices are higher in Europe than in the United States. Thus, an average price of close to, but slightly above, the average United States price was used for the above calculations. The global turnover of the cocaine industry is therefore likely to be between \$110 billion and \$130 billion per annum.

### **Global sales of the cannabis industry**

United States sales production estimates were again used as the basis for calculating cannabis (marijuana and hashish) sales. Estimates of the clandestine cannabis industry should be treated with more caution than those of heroin and cocaine, since there seems to be a considerable under-estimation of the size of cultivation and production. In the case of hashish, the volume of seizures reported to UNDCP was larger than the entire United States' estimate global production. Clearly, some additional assumptions had to be made. The proportion of marijuana to hashish production is, according to United States estimates, approximately 10 to 1. It was assumed that, after seizures of marijuana, the 10 to 1 relationship would still stand, and a figure for hashish was calculated accordingly. This, however, was

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\* It should be noted, however, that purity levels tend to vary significantly from country to country as well as from town to town. In some European cities purity levels of around 10 per cent have been reported. In others, purity levels of significantly more than 40 per cent are the norm. Recent reports from the United States suggest very high-grade heroin from South America and South-East Asia.

still a very conservative estimate. The proportion of total marijuana seized was calculated at 23 per cent, much higher than the calculate 5 per cent taken for opium and the 1 per cent for coca leaf. This would suggest that either drug control is strongly focused towards cannabis, which is not the case, or that current estimates of cannabis cultivation are considerably lower than the true figure. Even if the turnover of the global cannabis industry were based on estimates on the low side, it would still range from \$15 billion to \$170 billion, with a probable turnover in the region of \$75 billion.

### **Global sales of the illicit synthetic drugs industry**

Estimates of the size of the clandestine synthetic drugs industry are more difficult to calculate, and more prone to error. Some attempt to identify magnitudes is still necessary. In more than 20 countries, the number of people consuming amphetamine-type stimulants, (a major sub-category of clandestine synthetic drugs), is already reported to have exceeded the number of people consuming heroin and cocaine combined. If all synthetic drugs were included, the number of countries involved would increase markedly. Most industrialized countries would show a greater consumption of synthetic drugs than of heroin and cocaine. This does not mean, however, that the turnover of synthetic drugs is higher. Most countries, including the majority of industrialized countries, report that synthetic drugs are cheaper than plant-based drugs. The average price of a gram of methamphetamine or amphetamine, for instance, has been found to be approximately 40 per cent of the price of a gram of cocaine at the global level. This suggests that the actual turnover of clandestine synthetic drugs is likely to be significantly lower than the estimated turnover of \$240 billion for heroin and cocaine.

One way to estimate the likely magnitude of the clandestine synthetic drugs business is to use international seizure statistics. According to UNDCP seizure statistics, the share of synthetic drugs in the total number of seizure cases exceeded 15% in both 1994 and 1995. Given strong domestic trafficking, as opposed to intra-regional trafficking in the case of plant based drugs, thus changing the likelihood of detection, a share of 15% for synthetics appears to be an underestimation. Applying a small, but more likely share of 20%, annual global sales of synthetic drugs would be at around \$60 billion. This figure has been used for the global estimate. It should be noted, however, that this figure probably underestimates rather than overestimates the volume of the clandestine synthetic drugs industry.

Anecdotal information on diversions of ephedrine and pseudoephedrine, the main precursors for the clandestine manufacture of methamphetamine, suggest that the annual clandestine consumption of ephedrine in North America alone amounts to 250 tonnes, which would be sufficient to produce 175 tonnes of methamphetamine. At the United States price of \$100 per gram, total sales would amount to \$17.5 billion or about \$35 billion if dilutions at the retail level are taken into account. Given the widespread abuse of methamphetamine around the globe (particularly in the Far East and South-East Asia), it appears that up to 500 tonnes of ephedrine/pseudoephedrine may have been diverted in recent years. This would have been sufficient to produce approximately 350 tonnes of methamphetamine. Again applying United States market figures, the total turnover of the global illicit methamphetamine business alone could be close to \$70 billion, slightly more than the total turnover estimate of \$60 billion

mentioned previously. Methamphetamine, though an important drug in clandestine markets, is only one of several dozen synthetic substances frequently found in these markets. The figure of \$60 billion used for the global estimate is thus likely to be a very conservative estimate of the global clandestine synthetic drug market.

### **Global estimates of the total illicit drug industry**

With estimates of \$100 billion to \$110 billion for heroin, \$110 billion to \$130 billion for cocaine, \$75 billion for cannabis and \$60 billion for synthetic drugs, the probable global figure for the total illicit drug industry would be approximately \$360 billion. Given the conservative bias in some of the estimates for individual substances, a turnover of around \$400 billion per annum is considered realistic. This figure can be compared to estimates of more than \$500 billion which are based solely on the average of minimum and maximum prices in the United States.

## Annex II

### ILLCIT DRUG PRODUCTION

#### Trends in global production of illicit drugs (1985 = 100)

Drug	Unit and index	1985	1988	1989	1990	1991	1992	1993	1994	1995	1996
Opium	Tonnes	1 298	2 590	3 698	3 257	3 492	3 389	3 675	3 417	4 165	4 285
	Index	100.0	199.5	284.9	250.9	269.0	261.1	283.1	263.3	320.9	330.1
Coca leaf	Tonnes	143 715	293 700	298 070	306 170	330 740	265 500	271 700	290 900	309 400	303 600
	Index	100.0	204.4	207.4	213.1	230.1	184.7	189.1	202.4	215.3	211.3
Marijuana	Tonnes	7 596	17 455	36 755	25 600	13 615	13 208	14 407	13 386	11 489	11 389
	Index	100.0	229.8	483.9	337.0	179.2	173.9	189.7	176.2	151.3	149.9
Hashish	Tonnes	1 265	1 285	1 490	685	1 130	585 <sup>a</sup>	1 150	n.a.	n.a.	n.a.
	Index	100.0	101.6	117.8	54.2	89.3	46.2	90.9			

Source: Bureau of International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report 1996*, (Washington, D.C., Department of State, 1996), p. 25. Base-year figures (1985) are averages of the range provided in Bureau of International Narcotics Matters, *International Narcotics Control Strategy Report 1986*, (Washington, D.C., Department of State, 1986), p. 11.

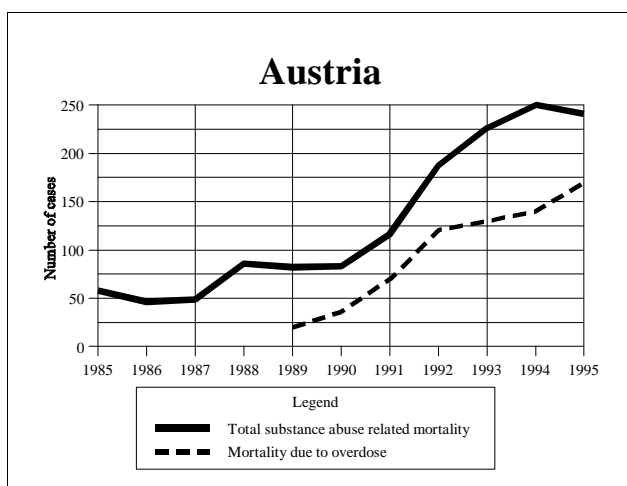
<sup>a</sup>Figure excludes data for Lebanon.

*Annex III*

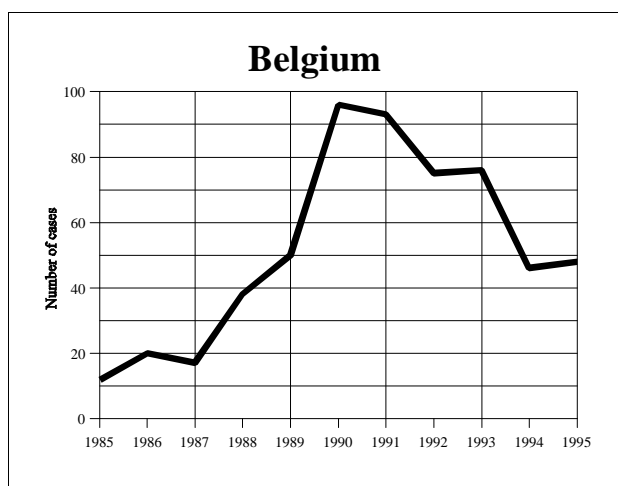
**SUBSTANCE-ABUSE-RELATED MORTALITY**

**Selected countries and areas**

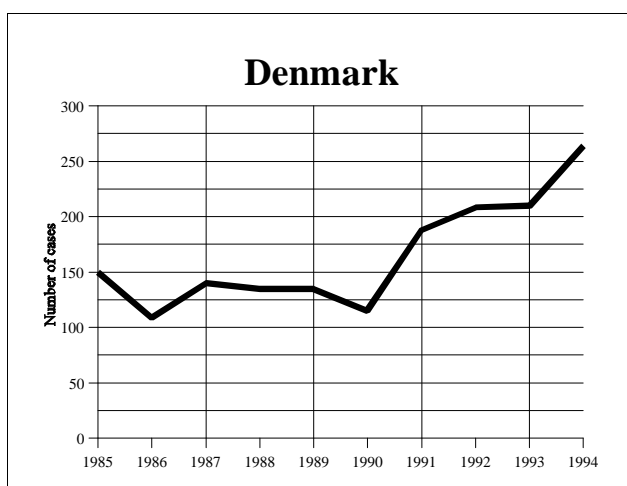
*A. Europe*



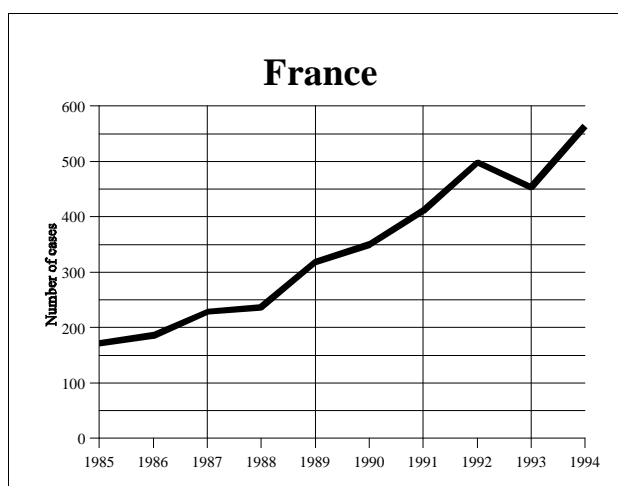
Sources: Austria, Ministry of Interior, E.M.C.D.D.A.



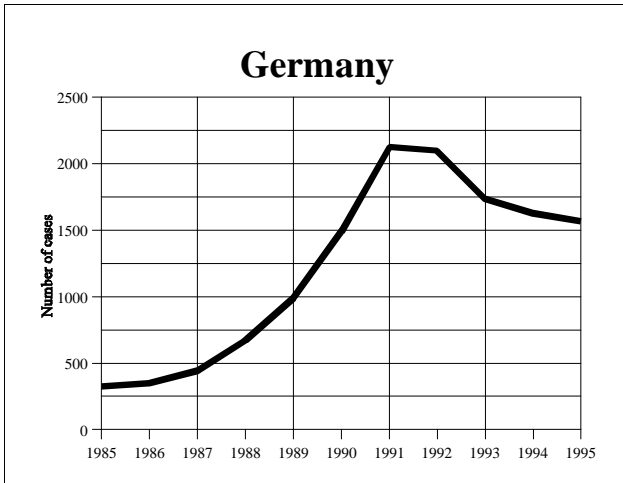
Sources: UNDCP and ICPO/Interpol.



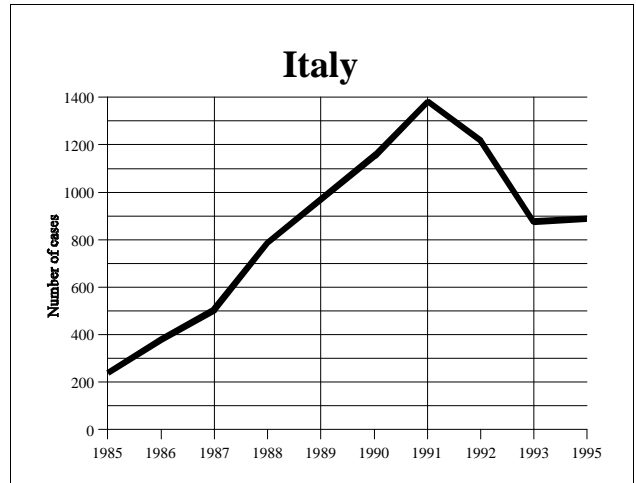
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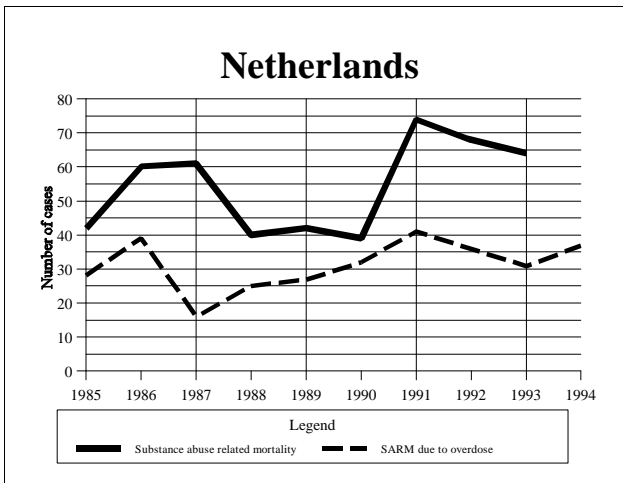
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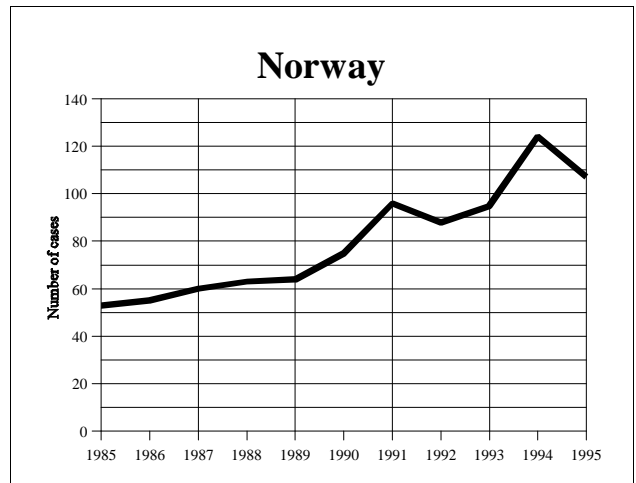
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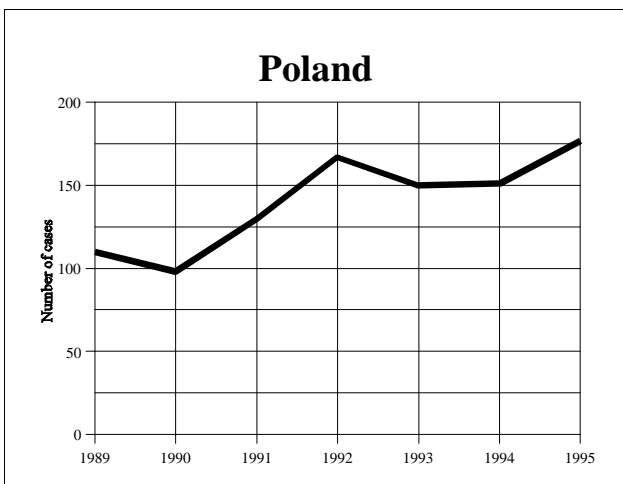
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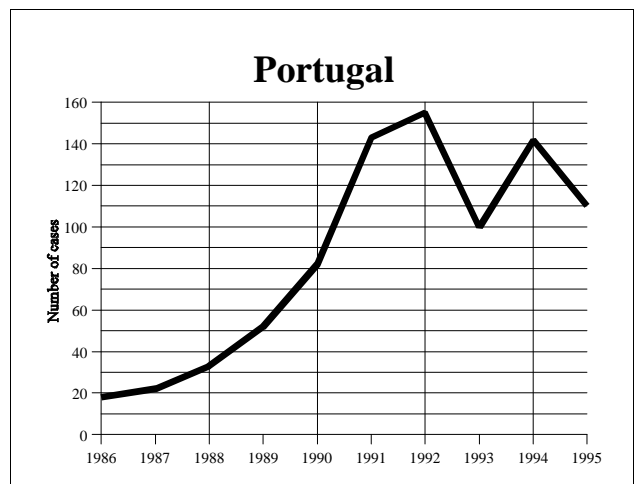
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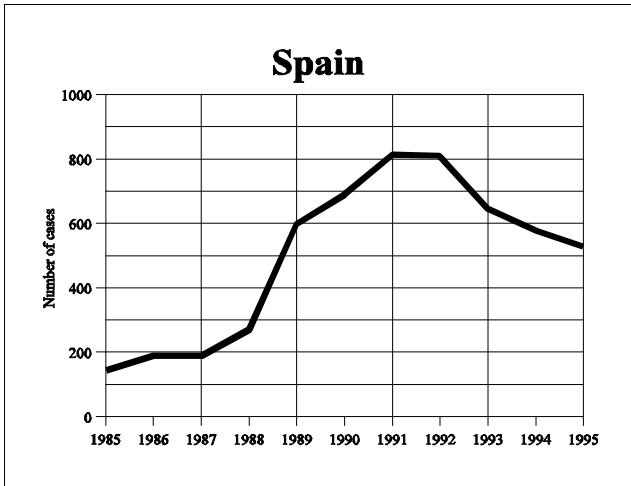
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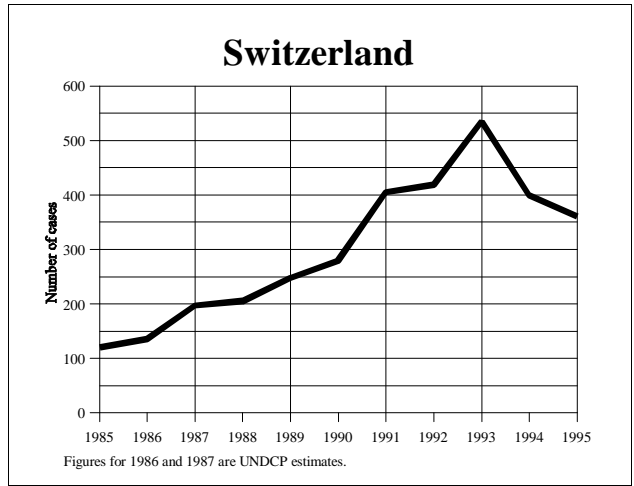
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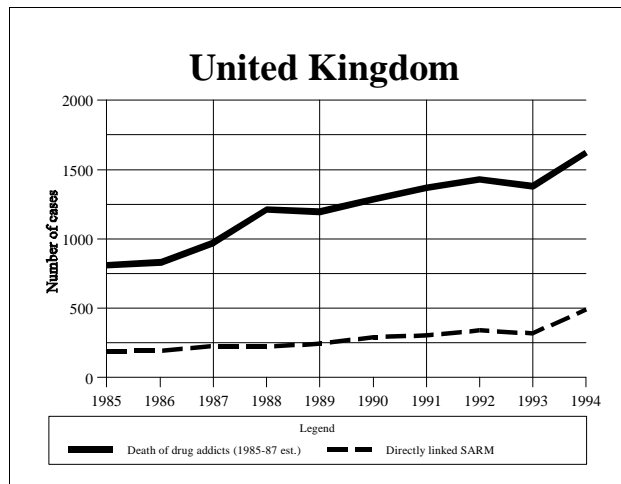
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Sources: UNDCP and ICPO/Interpol.

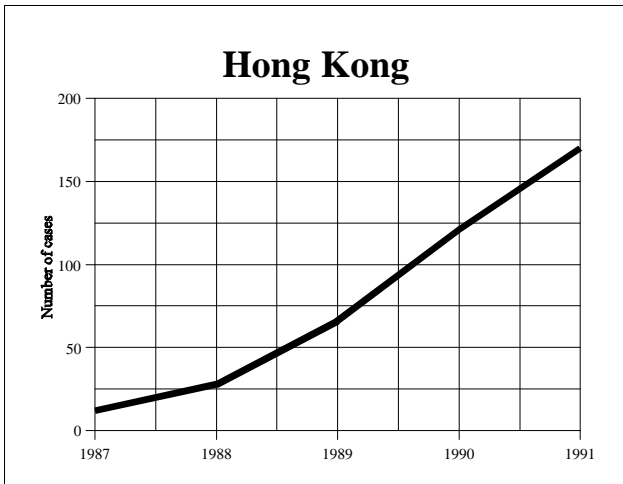


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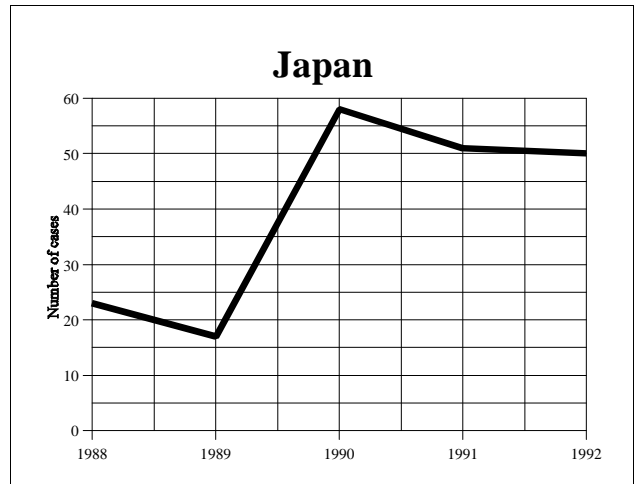


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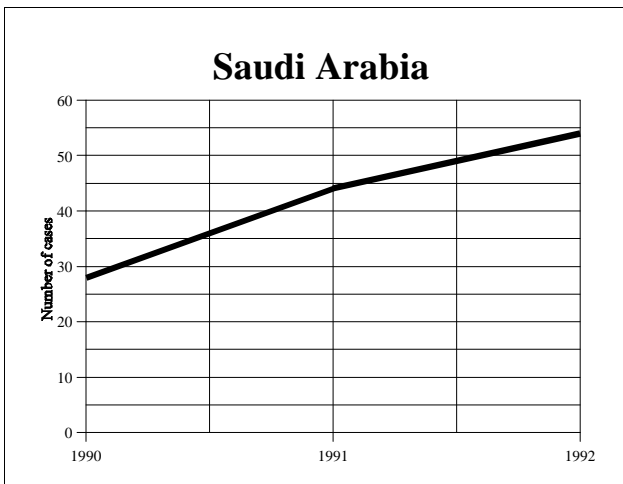
**B. Other**



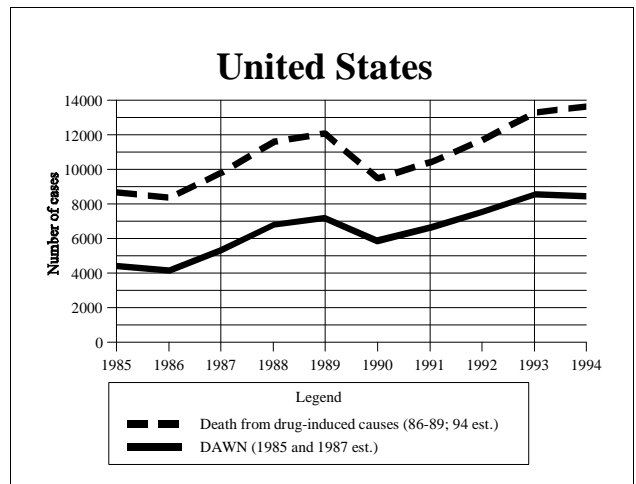
Sources: UNDCP and ICPO/Interpol.



Sources: UNDCP and ICPO/Interpol.



Sources: UNDCP and ICPO/Interpol.



Sources: DAWN; US National Centre of Health Statistics.