

# 6

## ECONOMIC ASPECTS OF ALCOHOL USE

### 6.1 Costs Associated with Alcohol Use

Alcohol imposes a high economic cost on society. However, the effort of costing depends on the extent of monetizing the economic impact of alcohol use and should include both direct and indirect costs and tangible and intangible costs. The direct costs include: medical costs – acute and long-term and lost earnings due to death, and disability. The indirect costs include loss of work, loss of school time, loss of savings, loans taken, cost to the employer/society, low self esteem, social costs of postponed events and lost productivity, vehicle and property damage and legal costs. The calculation of the monetary impact of these items depends on the availability of nationally representative data from different sources like hospitals, the transport department, the police department, legal services, repair costs, insurance costs, etc. It is difficult to put a precise monetary value on intangible costs of alcohol use like death, pain, suffering and bereavement. Similarly the monetary value of reduction in pain and suffering is difficult to estimate. Reviewing the Canadian data, Bernard et al., (1997), lists different cost categories that have been assessed to arrive at the cost of Alcohol-Tobacco-Drug abuse in Canada. The adapted list for alcohol use provides a framework for including different areas of economic expenditure (Table 25). It should be noted that such detailed information is not readily available in India and other South-East Asian countries.

**Table 25: Different cost categories related to alcohol use**

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Direct costs	
1.	Hospitalization
2.	Physician visits
3.	Crime related costs (to include public criminal justice system cost, corrections, private expenditure for legal defence, value of property destroyed in crimes due to alcohol abuse)
4.	Motor vehicle crashes (to include legal and court proceedings, insurance administration, accident investigation, vehicle damage and traffic delay)
5.	Nursing home stay

(continued...)

**Table 25: Different cost categories related to alcohol use (...continued)**

6. Property and forest fires (only include damage and cleaning of damaged goods; consequent injuries and deaths are excluded in this category)
7. Speciality institutions (to include treatment centres other than hospitals and alcohol correctional facilities)
8. Professional services other than physicians (eg: psychologists, social workers, nurses, physical and occupational therapists, pharmacists, technicians, etc.)
9. Prescription drugs for treatment
10. Medical and health services research
11. Programme administration (including alcohol-related programmes and social welfare programmes)
12. Administrative costs of private insurance to treat alcohol disorders
13. Direct costs related to AIDS due to drug abuse not included elsewhere
14. Costs of alcohol
15. Prevention programmes (screening, education programmes and mass media campaigns to inform public about the hazards of alcohol abuse)
16. Ambulance costs (including total costs of transportation)
17. Training costs for physicians and nurses
18. Fetal alcohol syndrome including extra neonatal care
19. Customs and immigration
20. Home care
21. Household help (care of house)
22. Counselling, retraining and re-education
23. Special equipment for rehabilitation (e.g. wheel chair)
24. Employee assistance programmes
25. Avoidance behaviour costs
26. Group life insurance
Indirect costs
1. Morbidity costs: income loss due to alcohol abuse
2. Alcohol-related productivity loss
3. Mortality costs: present value of life-time earnings
4. Foregone consumption
Intangible costs
1. Homelessness
2. Pain and suffering of victims and rest of the community
3. Value of lost life to the deceased (estimated by willingness to pay to avoid death)
4. Loss of consumption by prematurely deceased
5. Alcohol abuse-related pain and suffering
6. Family disruptions
7. Community disruptions

Source: Bernard et al. (1997)

## 6.2 Experiences from Western Countries

There have been substantial efforts made in developed countries to estimate the costs of alcohol use and through this the burden on society.

Country	Year	Total cost estimate
Australia	1998–1999	A\$ 7560.3 million
Canada	1992	\$7.5 billion
Finland	1990	\$3.4–5.7 billion
Ireland	N.A.	€2.4 billion
Italy	2003	€26–66 billion
Japan	1987	\$ 5.7 billion
Netherlands	N.A.	€2.6 billion
New Zealand	1990	\$16.1 billion
Scotland	2001–2002	\$1.1 billion
South Africa	N.A.	\$1.7 billion
Switzerland	1998	CHF 6480 million
United Kingdom	N.A.	£15.4 billion
United States	1998	\$184.6 billion

*Note:* Please refer to the individual country profiles to obtain the original source used.  
*Source:* WHO (2004)

The yearly projected economic cost of harmful use of alcohol in the United States for the year 1998 has been estimated to be US\$ 185 billion, including US\$ 26 billion for health care expenditure. It has been estimated that two thirds of the costs of harmful use of alcohol is related to lost productivity, either due to alcohol-related illness or premature death. The study by the National Institute of Alcohol Abuse and Alcoholism (NIAAA), USA, observed that 45% of the costs of harmful use of alcohol is borne by those who abuse alcohol and members of their households, 39% by federal, state and local government, 10% by private insurance and 6% by victims of abusers and concluded that “much of the economic burden was on the population that does not abuse alcohol and drugs” (NIAAA 1998). In Canada, the economic cost of alcohol use represents 2.7% of the gross domestic product (Canada APN). In the United Kingdom nearly one third was workplace and economy-related costs, while health care cost was about 7–8% (UK, 2003). The social cost of alcohol consumption amounts to between 1–3% of the gross domestic product in countries in the European Union and has been estimated to be between US\$ 65–195 million (at constant 1990 prices and

There have been substantial efforts made in developed countries to estimate the costs of alcohol use and indirectly, the burden on society.

exchange rates). While about 20% of the total cost and direct cost represent the amount actually spent on medical, social and judicial services, about 10% of the total cost is spent on material damage and about 70% of the total cost represents lost earnings of individuals who die prematurely or are unable to perform their productive tasks in the way they would have, had they not been consuming alcohol (Godfrey, 2004). In essence the estimated costs of alcohol-related problems varies between 1–3% of the gross domestic product of a country (WHO, 2000a).

### 6.3 Experience from India

Evidence is gradually accumulating in India through indirect methods, about the economic costs of alcohol use. For example, studies have been done with respect to costing of alcohol-attributable components in Road Traffic Injuries, suicides, work-related aspects and cancers where alcohol has been implicated as a causative agent. The different variables are being delineated and costed. Work-related alcohol problems have been estimated to cost approximately Rs 70 to 80 million (WHO, 2004a). The cost of managing alcohol-related cancer deaths has not been completely estimated. The cost resulting from tobacco-related cancer deaths has been estimated to be about Rs 308 billion (Reddy, 2004). Using the tobacco-related cost matrix and best estimate of alcohol-related cancer deaths of 6% (WHO, 2000a), the cost of alcohol-related cancers for the Indian population of alcohol-users (Ray, 2004), can be estimated to be about Rs 12.4 billion. Shekar Bonu et al., analyzing nationally representative data, find an association between the use of tobacco and alcohol and impoverishment through borrowing and distress-selling of assets due to costs of hospitalization (Bonu, 2005). The cost of managing RTIs has been estimated to be Rs 550 billion (Mohan, 2004) and within this, the cost due to alcohol can be estimated to be Rs 80 billion. The unit cost of deaths and serious injury due to road traffic crashes has been estimated in a population-based study (Aeron, 2004): urban deaths: Rs 28 863; rural deaths: Rs 6764; urban serious injury: Rs 30 275; rural serious injury: Rs 17 240. The cost of managing a patient with brain injury in a tertiary health care institution has been estimated to be about Rs 1506 per hour (Gururaj, 2004f). While these are only a few indicators, what is required is the collective impact on society due to alcohol. It should also be noted that the burden is not uniform across rural and urban areas or among the poor and not poor.

### 6.4 Costing Effort from the Bangalore Study

In this study, the socio-economic costs of alcohol use have been estimated in four representative areas as a comprehensive community-

Work-related alcohol problems have been estimated to cost approximately Rs 70 to 80 million.

based effort. Enquiries were made regarding expenditure in 8 dimensions: health care costs, costs due to injuries – both intentional and unintentional, occupation-related, financial, psychological aspects, social, legal and help seeking. The average or minimum and maximum expenses for a specified event which occurred during the last 12 months was enquired into. For purposes of calculation, the reported amount and frequency is utilized without making any changes or modifications. It should also be noted that the reported costs are generally under-reported regarding events of abuse, legal issues or expenses due to injuries. The reported costs do not include the different subsidies already in vogue in the systems (for example, patients pay nothing, or only a fraction of the total cost in a public health care institution). To make the estimates more realistic, only the costs for the alcohol-attributed event were considered for analysis.

The average expense computed from the reported expenditure was used to arrive at the average expense for the entire cohort of users and non-users (Table 27). Despite the list of probable events, it was possible to document an incurred expenditure only in certain events. Respondents often expressed their inability to recall the detailed break-up of their expenses for all events. It also needs to be noted that only costs borne by the alcohol-users or their families are given here. Under the section on health care, only the expenditure related to health problems in general and injury-related expenses have been included. Similarly, the expenses related to occupation, abuse or paying penalty includes only the money that has been spent when the event occurred either by the user or their family members. For example, 3% of the users reported that they abuse their parents and 83% said they do so under the influence of alcohol and the consequence of the abuse needed to be managed by a health care provider. However, only a small number actually took the abused parent to a health care provider. Further, payment of a penalty or fine related to an alcohol offence is a very small amount (Rs 100) and has been reported by a very small proportion of respondents. This is quite contrary to the prevalent situation. A similar situation can be noted as regards attempts at suicide.

It should be noted that, these expenses are only a fraction of the total costs of alcohol use in the community. The costs of premature death, the loss of income due to the sickness of the wage earner, costs of caring for chronic alcoholics or the dependant users either at the family level or within institutions (health care or others), the loss of resources to the family, the cost of decreased production due to absenteeism are some of the other costs that contribute significantly to the problem of alcohol use.

**Table 27: Reported expense on events with link to alcohol use amongst alcohol-users in the Bangalore Study <sup>a</sup>**

Sl No	Particulars	Frequency <sup>b</sup>	Total amount (pa, in Rs)	Average amount per person (pa, in Rs)
<b>A. Health-related</b>				
1	Physical problem	327	394 770	1 207
2	Unintentional injury	194	147 608	761
3	Intentional injury <sup>1</sup>	64	19 355	302
4	Psychological aspects	4	735	184
<b>B. Work-related <sup>2</sup></b>				
5	Loss of pay due to absence from work	395	102 485	260
6	Borrowed money at workplace	411	65 205	159
<b>C. Social aspects</b>				
7	Debts	1 195	1 820 060	1 508
8	Pawned goods / articles	383	3 710 150	9 664
9	Lost money	34	26 720	79
10	Gambling	56	205 150	3 663
11	Damage to property	31	14 700	474
<b>D. Amount spent on drinking</b>				
12	Only to purchase alcohol	3 256 <sup>3</sup>	12 487 210	3 835
13	Costs per event of drinking <sup>4</sup>	3 256 <sup>3</sup>	15 100 572	4 637
<b>E. Total out of pocket expense incurred by the alcohol-users in the study sample</b>				
	Total cost of consequence of alcohol use (A + B + C)	1 665	6 506 938	3 908
	Total cost of the drinking event (D)	32 563	15 100 572	4 638
	<b>Total of A + B + C + D<sup>5</sup></b>	<b>3 256<sup>3</sup></b>	<b>21 607 510</b>	<b>6 626<sup>5</sup></b>
<b>Notes:</b>				
a = Mean values have been considered for calculation purposes and occasional extreme costs spent by one or very few individuals have been excluded.				
b = Frequency is the number of respondents who have reported the consequence and also attributed the occurrence of the event to the use of alcohol in either self or others.				
1 = Includes attempted suicide, spousal injury, parental abuse, workplace injury, sibling abuse, friend abuse, child abuse, experienced violence (because of small numbers these have been clubbed together).				
2 = Cost categories of not being able to be on time, decreased ability to work, expenses for being under the influence of alcohol while at work did not have any representation.				
3 = The individuals with extreme costs have been excluded from computation.				
4 = Includes the money spent on refreshments, travel, etc.				
5 = The total expense has been computed by adding the individual costs and finding the mean for the entire study user population of 3256.				

In addition, as the health sector spends enormous amounts on diagnosis and management / rehabilitation of alcohol-users, the costs would be huge, though as yet unmeasured. There are limitations to such a cross-sectional approach to a costing exercise of the economic impact of alcohol consumption. It should be considered as a crude and preliminary estimate that needs to be improved. It is anticipated that future research would build on these experiences to arrive at more realistic and systematic figures.

It is evident from Table 27, that, the expenditures incurred by alcohol-users due to pawning goods and articles is a huge loss, annually (Rs 9664). The amount lost while gambling is equally large (Rs 3663). In addition to this, debts, work-related problems and health problems resulted in the alcohol-user spending and losing Rs 1508, Rs 1450 and Rs 1207 respectively. Interestingly, though the numbers are small, the amount spent per annum as a result of damage to property is Rs 474. The amount of Rs 260 which is the annual loss resulting from loss of pay due absenteeism from work is quite low and is a pointer to the prevalent lenient disciplinary systems at workplaces which accommodate alcohol abuse. Nearly half of the alcohol-users (51%) report to have had one or more consequence attributable to alcohol use and have spent, on an average, Rs 3900 per annum on these consequences. Additionally, the expenditure due to alcohol and related drinking expenses (refreshments, transportation, etc.) over a period of one year is about Rs 4600. The total amount spent by an alcohol-user on both these accounts (amount spent on buying alcohol and related activities during the event of drinking and also managing its consequences) is about Rs 6600. This is more than one third of the amount which demarcates the official poverty line (Rs 18 000 pa). It is estimated that in India Rs 290 billion is spent on drinking alcohol by alcohol-users.

Table 28 provides the estimated costs of alcohol use from the results of the Bangalore study extrapolated to the whole of India. While acknowledging the limitations of such extrapolations, it is still evident that nearly Rs 244 billion is spent every year to manage the consequences attributable to alcohol use. The total excise revenue of the central and state governments in India for the year 2003–2004 was about Rs 216 billion contributing to about 13% of the total tax revenue (Damodar, 2004). This is an increase of nearly 39 billion over the period of three years (Rs 177 billion in the year 2001, Benegal, 2003).

In addition to the revenue earned by the government, it is anecdotally reported that the media industry earns approximately Rs 900 billion, every year through advertisements (currently surrogate advertisements since

**It is estimated that the Indian Government spends nearly Rs 244 billion every year to manage the consequences of alcohol use, which is more than its total excise earning – Rs 216 billion. Clearly Indian society is losing more than it is gaining.**

Table 28: Excise revenue versus cost of consequences attributable to alcohol use	
Cost category	Total Rs
Total cost of management of consequences of alcohol use for all alcohol-users <sup>a,b</sup>	244 billion
Total excise revenue of all central and state governments for 2003–2004	216 billion
<i>Note:</i>	
a = The total numbers of alcohol-users in India is estimated to be 62.5 million as per the national estimates (Ray, 2004)	
b = The total expense has been computed by adding the individual costs and is the mean for the entire study user population of 3256	

direct advertisement is banned) (Deccan Herald, January 19, 2004). The media should introspect on the impact of their advertisements on the public health scenario and the health, social and economic effects of alcohol.

The above estimates are a fair assessment, albeit a conservative one, and a pointer towards the cost of management of consequences of alcohol use in the country. A noteworthy aspect of these estimates is that they are higher than the total revenue generated from alcohol manufacture and sale.

What needs to be noted is that this does not include the intangible costs of the psychological suffering that the family and society undergoes as a result of alcohol consumption and several other issues discussed earlier. 80–90% of the users who run away from home or stay away from home or feel guilty, report it to be due to their use of alcohol. Alcohol has been implicated in 60 health problems and various other social, economic, legal, psychological and emotional problems affecting day-to-day life of not just individuals and families, but also the whole society. The adverse event could vary from being a mild hangover or acid dyspepsia to chronic debilitating cirrhosis of the liver and several cancers. The latter category requires long-term care for diagnosis, management, palliative care, rehabilitation and in several other areas. Similarly, an individual who goes into a persistent vegetative state resulting from brain damage due to a road traffic injury consequent to a binge of alcohol drinking also requires life-long rehabilitative services. The occupation-related costs also vary depending on the skill of the individual; an acute event (major or even minor one) leading to absence from work in a high technology employment environment can result in losses which exceed several thousands of rupees. A long-term alcoholic husband can deprive the family of the much needed resources both immediately and over a period of time. The death of an earning family member due to an alcohol-related

crime can bring untold suffering to the unsuspecting family members. Suicides consequent to alcohol use by the husband or even suicidal attempts by the mother or father as a result of alcohol use by a family member can result in emotional trauma to the children in the family. The alcoholic father is not only a bad example for the children but also deprives them of emotional and social security leading to more crime and legal cost.

**Thus, if all costs are comprehensively examined and calculated for all events, the economic impact would be much higher than the conservative estimates noted above. In the final analysis, Indian society might be losing more than it is reportedly gaining.**