5.1

Health Care Costs

This section provides an overview of the concept and components of the costs entailed by tobacco consumption, followed by a review of some available estimates of the personal and social costs of tobacco consumption and tobacco-related diseases on the basis of available studies and estimates. An attempt has been made to update these estimates on the basis of secondary information.

Costs of tobacco use: Personal and social

The costs of tobacco consumption are related to personal costs such as those arising from the consumption *per se*, costs of adverse health effects and their medical care as well as the social costs of tobacco such as those related to loss in productivity and damage to the environment. Each of these costs needs to be estimated as comprehensively as possible to obtain an estimate of the total costs arising from tobacco. For example, the cost of tobacco products (unlike most other commodities of daily use) includes not only the direct outlay on them but also of those products required for using them (such as matchsticks, lighters, ashtrays, etc.).

References to the extensively documented health consequences of smoking can be found in Stoddart *et al.* (1986).[1] Smoking is a major cause of morbidity and mortality and imposes considerable costs, including both the direct costs of health care and indirect costs of lost productivity. It may cause property loss through fires, raise the cost of fire protection, and results in increased production costs of many goods and services through the need for extra ventilation and maintenance. In addition, smoking imposes intangible costs of discomfort, pain and suffering on smokers, their families and others. The list is by no means exhaustive. Among important omissions, one may mention the cost of bereavement and the resulting emotional and social distress, the cost of providing social security and benefits, the absence of which, especially in developing countries with high levels of poverty and economic disparity, causes acute human suffering, disrupts dependants' lives, and swells the ranks of the poor. The life insurance premium rates in countries with a higher prevalence of tobacco use would also be higher, which is an extra cost imposed on non-smokers by smokers.

These externalities inflict social costs on smokers as well as non-smokers (as in the case of second-hand smokers), users of health and medical services, the larger civil society, government finances and future generations on account of environmental smoke, deforestation resulting from the extensive use of wood in flu-curing of tobacco used for manufacturing and packaging cigarettes, etc. An important issue that arises from the analysis of aggregate costs of tobacco consumption concerns the redistribution effects among individuals, households and regions, depending on whether a person/family/region is a net producer or a net consumer of the tobacco products.

Of equal importance are the real costs entailed in looking after the smokers during their illness, the loss of production and lower productivity on account of avoidable tobacco-related diseases and mortality, higher overall health and welfare spending, opportunity cost of foregone consumption (as a consequence of committing one's limited purchasing power to the purchase of an acknowledged demerit good such as tobacco products). These personal costs, externalities and social costs, moreover, are not confined to the actual period over which tobacco consumption takes place.

Most effects of tobacco consumption (on both smokers and non-users) materialize with a time lag of varying lengths and, thus, the effects of

present consumption of tobacco would appear in the future. Hence, the formulation that 'the current value of the time stream of current and future external costs incurred is a result of past and present smoking'.[2]

One can visualize the difficulties involved in working out the cost of tobacco use, which has to be the sum total of private, direct costs plus social, external costs, such as the costs of fire hazard and littering, comprising various proportions of tangible and intangible costs (including the most tricky question of valuing human life and its longevity), avoidable and unavoidable costs, real, pecuniary and non-pecuniary, physical and psychic costs, etc.

The otherwise complex issue of externalities (social costs) becomes incredibly more complex requiring massive, fine-tuned, disaggregate data, if one were to take into account the really substantive redistribution issues. Among the redistributive effects of tobacco use, one may mention those from non-smokers to smokers, from tobacco-consuming areas to tobacco-producing areas, inter-generation transfers, transfers of pension benefits from smokers with short life spans to non-users of tobacco, transfer to tobacco-related illness-inflicted persons from healthy non-tobacco users, etc.

In fact, valuation of human life transcends any estimate of financial gains or costs and is a major factor for treating tobacco as a demerit good, better termed as 'bad'. Warner (1998) sums up the difficulties and dilemmas one faces while dealing with the costs of tobacco consumption in so far as they bear on the mortality aspect. Clearly, no 'economic' valuation of life and longevity is possible as it is simply invaluable and beyond numbers. The level of subjectivity involved, and cultural and value differences render any such exercise highly controversial.[3]

This recognition of tobacco as a demerit good (or bad) is the basis for treating an individual's outlay on tobacco as a cost. Globally and nationally, there is enough evidence regarding society's recognition of tobacco use as a menace and the need to go in for tobacco control.[4] It may be noted that the mainstream neo-classical theory maintains that free choice of a normal commodity by a rational consumer (disregarding the theory of so-called 'rational addiction' popularized by tobacco interests) implies that except on the last unit purchased (for which the marginal cost is presumed as an axiom to equal marginal utility), the consumer gets consumer's surplus on all intra-marginal units purchased. Similarly, producers' surplus accrues to the producers. This theory fails to distinguish between utility and disutility and assumes that everything bought by a person necessarily yields some utility, i.e. a yield of positive satisfaction.

It makes sense to discard this approach for a demerit commodity such as tobacco owing to its adverse health, ecological and productivity effects, and the universal social acceptance of the objective of tobacco control. The point is that the objective fact of personal and social disutility from tobacco, to whose addiction people are lured at a rather impessionable age by means of a multibillion disinformation campaign, far outweighs its subjective utility. Moreover, how could an addictive substance such as tobacco reflect consumers' freedom, as once hooked on to it, one has to continue its use rather slavishly? As a result, the outlay on tobacco products would have to be regarded as a personal financial cost. It can also be evaluated in terms of foregone consumption, and would be quite high for the poor and the ultrapoor.

Controversies

However, the assessment of the costs of tobacco use has become complicated and controversial on account of a lot of 'research' sponsored by the tobacco interests. This is not surprising as deliberate deception by means of *suggestio falsi* and *suppressio veri* is a long-standing practice by the tobacco majors. An exposition on 'rational addiction', a concept espoused by the tobacco industry, is provided by Lal and Scruton.[5]

As a result of the subterfuge attempted by the tobacco interests, identification and appraisal of the social costs of tobacco use have given rise to some controversies. It has been argued that the costs entailed by the sicker and shorter lives of tobacco users have to be reduced owing to the lower claims on pension and social security benefits that they are able to make. On the contrary, the contributions made to social welfare and security funds by tobacco users with a shorter life span are used for supporting the longer-living non-users of tobacco. In addition, it is maintained that nursing homes incur higher costs for treating the longer-living non-smokers notwithstanding the fact that the shorter lives of the smokers are likely to be marked by a higher incidence of diseases. Hence, it is argued by tobacco lobbyists that many costs of tobacco use such as the medical cost for treatment of tobacco-related diseases of smokers, costs incurred by secondary smokers and the displacement that smoking-related diseases cause to the treatment of non-tobacco-related diseases (pecuniary costs) have to be offset against the savings of pension benefits and increased medical expenses during the twilight years that smokers would impose should they be surviving.

These ingenious arguments appear on closer examination to be specious. Surviving non-smokers contribute to the family, economy and society, and even to pension funds for a longer period and often, coming as they do from relatively better-off sections (among whom the tobacco prevalence rate has been found to be lower), their contributions are greater. A detailed exposure of the tobacco industry tactics and behaviour is provided by the World Health Organization (WHO) (*see also* Section 6.5).[6] A more substantive argument against taking such a financialized view of human life, suffering and disability is that preserving and protecting human life is an overriding value, and no abstract arguments based on the presumed rational and free choice (which has been shown to be misconceived in any case) can underplay the huge personal and social costs entailed by tobacco consumption.[2,3,7]

Another line of defence mounted by the tobacco interests to scale down the costs entailed by tobacco consumption is to refer to the contribution made by tobacco-related economic activities to income, employment, government revenue, trade balance, etc. These so-called benefits of tobacco production and consumption are based on a misreading of the economic processes, implying that the money saved on tobacco consumption has no alternative avenues of either consumption or investment, and that these 'gains' are 'incidental' gains. Once the alternatives to tobacco are recognized, one has to factor in the economic contribution from alternative uses, which may, in course of time, well exceed those from the tobacco activities. Thus, there does not seem to exist any case for netting the gross economic costs imposed by tobacco consumption either on account of the pension saved and medical expenses or the putative economic contribution of tobacco-related activities.

It should be clear from the above that not every element of cost is amenable to quantification and valuation. However, this is not reason enough to ignore such costs in preparing the social balance sheet of tobacco use.

Direct personal cost: A macro estimate

The direct costs of tobacco consumption can be obtained quite reliably from the National Accounts Statistics (NAS) of India. It gives the annual time series of private final consumption expenditure (PFCE) at constant prices in the aggregate and for some major groups such as tobacco and tobacco products, medical care and health services, food, etc. (Table 5.1).

The direct cost of both smoking and non-smoking tobacco products excluding the cost of accessories such as matchsticks, lighters, *chillums,* ashtrays, etc. to the consumers is quite large, most often between 2% and 3% of the total PFCE, and between 4% and 6% of the amount spent on food.

Table 5.1 Private final consumption expenditure (PFCE) on tobacco and tobacco products in India: A comparative profile. Direct cost of tobacco consumption: (1993–1994 to 2000–2001) Rs in billion (at 1993–1994 prices)[8]

	1993–1994	1995–1996	1996–1997	1997–1998	1998–1999	1999–2000	2000–2001
Tobacco and its products	12.309 (2.1)	14.175 (2.2)	11.537 (1.7)	20.956 (3.0)	12.238 (1.6)	22.813 (2.9)	19.547 (2.4)
Food (50.6)	29.0841 (48.8)	31.1866 (49.5)	34.1151 (46.4)	32.8207 (48.0)	36.0866 (45.0)	35.7328 (42.8)	34.7524
Medical care and health services	19.543 (3.4)	24.232 (3.8)	26.878 (3.9)	29.813 (4.2)	33.079 (4.4)	36.712 (4.6)	40.728 (5.0)
PFCE in the domestic market	57.4772 (100)	63.8938 (100)	68.9566 (100)	70.7285 (100)	75.2440 (100)	79.3709 (100)	81.1160 (100)

Values in parentheses are percentages of the total PFCE
Source: Central Statistical Organization, 2002

A significant aspect of the personal cost of smoking and non-smoking tobacco consumption emerges by comparing the PFCE on tobacco and its products to that on medical care and health services (the latter excludes public spending on health and medical services). The data, as summarized in Tables 5.1 and 5.2 (for details *see* National Accounts Statistics of India 1951 to 1995–1996, EPW Research Foundation, Mumbai, 1997) show that from 1950–1951 to 1973–1974, the PFCE on tobacco and its products exceeded that on medical care and health services.[9]

From the subsequent period up to the present, the direction is reversed, though the difference is less than 1% point only. Interestingly, after 1986–1987, the spending on tobacco and its products became lower (between 1.5% and 2%) of the total PFCE than it was up to the mid-1960s (between 3% and 3.5%). The proximity in the shares of consumer spending claimed by tobacco products, medical care and health services indicates widespread prevalence of a 'bad' or demerit good such as tobacco. Moreover, long periods of extensive tobacco use may be considered one of the factors that have a negative impact on the health of society. It could be a factor partly responsible for the increased proportion of private spending on health and medical services in the later periods. In India, the total private spending on health and medical services is as large as 85% of the total spending under this head.[10] This factor underscores the seriousness of the increased outgo on medical services out of family budgets.

Table 5.2 Private final consumption expenditure (PFCE) on tobacco and tobacco products in India: A comparative profile. Direct cost of tobacco consumption: (1950–1951 to 1990–1991) expressed as rupees in crore (at 1980–1981 prices)[9]

	1950–1951	1960–1961	1970–1971	1980–1981	1990–1991
Food	21.597 (58.5)	31.181 (59.2)	40.374 (56.4)	53.021 (53.4)	75.175 (48.4)
Tobacco and its products	1.223 (3.3)	1.738 (3.3)	1.908 (2.7)	2.518 (2.5)	2.331 (1.5)
Medical care and health services	0.465 (1.3)	0.824 (1.6)	1.704 (2.4)	2.970 (3.0)	3.672 (2.4)
PFCE in the domestic market	36.937 (100)	52.714 (100)	71.522 (100)	99.292 (100)	15.5454 (100)

Values in parentheses are percentages of the total PFCE
Source: EPW Research Foundation. National Accounts Statistics of India, 1950–1951 to 1995–1996

It may be mentioned that the average of per capita per day direct cost of tobacco consumption for the entire population of India for the seven-year period from 1994–1995 to 2000–2001 amounted to Rs 0.40. Given the prevalence rate of tobacco of about 20% for smokers and non-smokers, the PFCE representing the direct personal cost approximates to Rs 2 only. In the Indian scenario, this is a significant cost as the per capita per day PFCE at constant (1993–1994) prices was about Rs 22 for the year 2000–2001 (NAS, 1951 to 1995–1996). This burden is especially onerous for the population below the poverty line (about 260 million). This is especially so for the rural poor, as the agricultural per capita income is around one-fifth to one-sixth of the non-agricultural incomes. The personal opportunity cost to the poor in rural India, in terms of foregone consumption of goods on account of addiction to a 'bad' such as tobacco products, can thus be seen to be substantial.

From the days of Adam Smith, tobacco products have been considered a luxury. The personal direct costs (excluding the indirect costs to smokers and users of other tobacco products on account of tobacco-related diseases and the costs arising from the tobacco-related morbidity and mortality) by themselves are very high. Moreover, the sacrifice of the opportunity cost in terms of goods and services (e.g. items of essential consumption for children such as milk and education) also translate its contribution to social costs as society and the economy tends to suffer from a sick population with a shorter life span.

In most of the literature on the subject, the neo-classical view of the rational consumer rules out the price paid for a freely chosen commodity as a cost. On the contrary, it is the basis of consumer's surplus in terms of a utility gain. Therefore, the apologetic view advanced by tobacco industry advocates is untenable.

Cost estimates

Estimates of the burden of management of tobacco-related diseases, especially the three main diseases—cancer, coronary artery disease (CAD) and chronic obstructive lung disease (COLD)—have often been made at the micro-level by means of case studies relating to a specific disease in a specific region covering various well-defined micro socioeconomic and ethnic groups. Most such studies provide linkages between morbidity and mortality and tobacco use, without in general trying to work out the cost implications of disease and death in financial terms, let alone the social costs.[11] It is therefore clear that the direct and indirect, personal as well as social costs have not been estimated in these studies. Even when some attempt has been made to work out the cost implications, the cost coverage in most such studies remains partial. This feature is understandable because of the enormous data requirements. Moreover, even the conceptual foundations for such exercises are far from being clear and usable for quantification. Then, there are serious and sizeable data gaps. In fact, few countries collect and publish such statistics on a regular basis. In any case, such data systems are quite costly as well. Hence, it is not surprising that there is little published work providing estimates of total cost (including all kinds of personal and social costs) imposed by the three major tobacco-related diseases on a country as a whole, let alone concerning all the 26 diseases attributable in varying degrees to tobacco use. At least one study by Rath and Chaudhary, completed in 1999, made an attempt to estimate the total national costs attributable to the three major tobacco-related diseases.[12]

In the study, to assess the cost of management of tobacco-related cancers, a cohort of 195 patients with cancers at various sites was enrolled at the All India Institute of Medical Sciences, New Delhi. The item-wise expenditure made by the patients and their relatives/friends was recorded, under various headings, namely, consultation, investigations, treatment with different modalities, transport for the purpose, and any additional costs incurred for lodging and boarding for a period of 3 years, or until death or recovery. Information on the actual loss of wages during the period of treatment of

the disease was also collected. The data on cost were collected for the year 1990–1991 based on the last income level, expected remaining age of the patient was estimated from the standard life tables available for different areas in India. A discount of 10% was used to convert the future cost stream to a common/current time-frame. Institutional cost was assessed from the records of the institution providing treatment and the information on services used by the patient. It can be seen that the changes in the cost of treatment on account of changes in prices in the future were not factored into the calculations for this study.[12] The cost data concerning the management of tobacco-related cancers as estimated by the study are summarized in Table 5.3.

The patients in the cohort spent an average of Rs 17,965 (including loss of income due to absenteeism), with another Rs 4009 being contributed by the institution in the form of various services. The loss due to premature deaths amounted to Rs 112,475. Thus, the total average cost due to a patient with tobacco-related cancer diagnosed in 1990–1991 was Rs 134,449. Since the cost data from the patients were collected for a period of 3 years beginning 1990–1991, it appears that the cost information relates to the year 1993–1994.

The direct cost of a case of tobacco-related cancer (to the patient and the treating institution) amounted to Rs 17,774 (Rs 13,765 was the cost of the patient or their relatives and Rs 4009 to the treating institution). This category included expenditure on consultations, investigations, treatment, travel and lodging for treatment, and extra money spent for food during the time of treatment. Average indirect cost due to tobacco-related cancers was estimated to amount to Rs 116,595 (Rs 4120 due to absenteeism on account of treatment, and Rs 112,475 owing to loss of income on account of premature death).

Table 5.3 Cost of tobacco-related cancers[12]

Expenditure category	Cost (in Rupees)
Expenditure by patients	17,965
Loss by the institution	4009
Loss due to premature death	112,475
Average cost of tobacco-related cancers (at 1990 level)	134,449
Average cost of tobacco-related cancers (at 1999 level)	Approx. 350,000

Source: Rath and Chaudhary, 1999

At the same time, an estimation of the cost of management of CAD and COLD was carried out at Chandigarh, and data on expenditure were collected in a manner similar to the study on tobacco-related cancers (both these studies were sponsored and coordinated by the Indian Council of Medical Research [ICMR]). However, the approach adopted was that of a cross-sectional study, wherein the expenditure/losses of these patients were determined for the past 1 year. The cost of health care was divided into two components, one of which was the actual cost incurred by the patient and/or his caregiver (relative or friends), while the second was the expenditure incurred by the state/employer on account of the early morbidity or premature death of the patient. Data were collected from 500 patients with CAD, 423 with COLD and 28 with both CAD and COLD. Financial losses suffered by caregivers (relatives/friends) were also assessed. Indirect losses, borne by the state/employer, on account of loss of efficiency at work due to morbidity were calculated and losses for the future estimated. Reassessment of the cost after 1 year, in 534 of these patients, did not reveal any significant differences in expenditure as compared to their expenditure during the previous 1 year.

The per capita direct losses borne by the patients and/or their caregiver were substantial (Rs 8520.30 and Rs 2257.60 per year with patients of CAD and COLD, respectively). Most of the patients studied had relatively low personal and family incomes and consequently low capacity to bear the loss of income arising from confinement due to illness. Thus, these expenses constituted a sizeable financial burden on these patients (both directly and in terms of the opportunity cost of foregone income/consumption). The annual losses indirectly borne by the state/employer

were still larger (Rs 6388.40 and Rs 9694.10 per year for patients with CAD and COLD, respectively). The average annual cost of a case of CAD including the expenditure by patients and the treating institution, the loss of wages (if entailed), and the loss of efficiency amounted to Rs 14,909 in 1992. Logistic regression analysis showed that age and education significantly influenced the expenditure by patients with CAD.[12] Similar annual cost for a patient with COLD was Rs 11,952. Variations in personal income significantly influenced the expenditure by patients with COLD.

Using the same rate of discount as used in the ICMR study, the average cost of tobacco-related cancers in 1999 was estimated to be approximately Rs 350,000. It can be seen that the changes in the cost on account of likely or actual changes in the price level, etc. seem to have been taken into account while arriving at the 1999 cost estimates. The number of cancer cases attributable to tobacco use were estimated at Rs 163,500. Thus, the cost of tobacco-related cancers for the year 1996 was estimated to be Rs 57.23 billion.[12] The current average annual cost of a case of CAD was estimated at Rs 29,000. With an estimate of 4.45 million persons developing CAD due to tobacco smoking in India, the national cost of the disease due to tobacco was put at Rs 129.05 billion. With an average annual cost of Rs 23,300 and 39.2 million estimated cases of COLD in India due to tobacco smoking in 1999, the national cost of COLD due to tobacco amounted to Rs 91.336 billion. Thus, the cost due to three major tobacco-related diseases in India in 1999 was placed at Rs 277.611 billion or say, Rs 27,760 crore.[12] These results are summarized in Table 5.4.

Table 5.4 Cost of major tobacco-related diseases in India[12]

	Cancers	Coronary artery disease (CAD)	Chronic obstructive lung disease (COLD)
Number due to tobacco			
1996	154,300	4,200,000	3,700,000
1999	1,63,500	4,450,000	3,920,000
Average cost (1999)	3,50,000	29,000	23,300
Total cost in billion (1999)	57.23	129.05	91.34

Total loss (1999) = Rs 277.611 billion or US$ 6.5 billion
The total may not be exact because of rounding off of the data.
Source: Rath and Chaudhary (1999)

It is clear that a pioneering attempt has been made in the above study to at least generate some numbers, with an apparently cautious and conservative approach, to obtain a sense of the magnitude of the massive social and economic cost of the major diseases connected with prolonged and substantial use of tobacco which, of course, becomes visible with varying time lags for different persons. Of the various elements of the cost of tobacco-related adverse health consequences identified earlier in this section, there are many which the studies under reference have not attempted to quantify. However, it is possible to update this exercise by revising the cost estimates on the basis of the current level of prices and nominal current income in order to estimate the income and production losses, assuming that the other aspects remained unchanged. Such an exercise was carried out for the year 2002–2003 and the detailed calculations are reported in Table 5.5.[12] According to these estimates, the total and indirect costs of the three major tobacco-related diseases in India seem to increase from Rs 277.60 billion in 1999 to Rs 308.33 billion in the year 2002–2003. This amounts to an increase of over 11% over a period of two years without assuming any acceleration either in the burden of the diseases or the cost of management of such diseases. It may be noted that this cost imposed by unchecked tobacco consumption (in the year 2002–2003) exceeds the total combined revenue and capital expenditure (Budget estimates) by the Centre and the States on medical and public health, water supply and sanitation which, according to the Indian Public Finance Statistics (2002–2003), amounted to Rs 290.49 billion.

With some new data regarding the burden/ incidence of disease and mortality, the estimates can be further strengthened and updated. Some

Table 5.5 Estimates of the cost of three major tobacco-related diseases for the year 2001–2002 based on projection of the 1999 estimates by Rath and Chaudhary[12]

Population in 2001–2002	1037 million
Population in 1999–2000	1001 million
Number of coronary artery disease (CAD) cases	4.45 million
Percentage of CAD cases	0.4%
Number of tobacco-related cancer cases	163,500
Percentage of tobacco-related cancer cases	0.2%
Number of chronic obstructive lung disease (COLD) cases	39.2 million
Percentage of COLD cases	3.92%
Estimated number of cases in 2001–2002 of	
CAD	4.6 million
Tobacco-related cancers	0.2 million
COLD	40.7 million
Cost structure, 1999–2000	
CAD	
Direct cost	Rs 16,559
Indirect cost	Rs 12,441
Total cost	Rs 29,000
COLD	
Direct cost	Rs 4404
Indirect cost	Rs 18,896
Total	Rs 23,300
Cancers	
Direct cost	Rs 49,980
Indirect cost	Rs 300,020
Total cost	Rs 350,000

1. Direct cost increased by 11% (based on the increase in WPI index number (base 1993–1994) in 2001–2002 over 1999–2000). (*Source:* Economic Survey, 2002–2003, Ministry of Finance, Government of India.)

2. Indirect cost increased by 19.2% (based on the increase in nominal Net National Product (NNP) index numbers with 1950–1951 base. (*Source:* Economic Survey, 2002–2003, Ministry of Finance, Government of India)

3. Using 10% discount rate, the additional direct and indirect costs for the year 2001–2002 have been reduced by 10%.

Projected cost in 2001–2002	
CAD	
Direct cost	Rs 16,559
(+) 1%	Rs 166
Indirect cost	Rs 12,441
(+) 9.2%	Rs 1144
Total cost	Rs 30,310
COLD	
Direct cost	Rs 4404
(+) 1%	Rs 440
Indirect cost	Rs 18,896
(+) 9.2%	Rs 1738

Table 5.5 (*Cont.*) Estimates of the cost of three major tobacco-related diseases for the year 2001–2002 based on projection of the 1999 estimates by Rath and Chaudhary[12]

Total cost	Rs 25,478
Cancers	
Direct cost	Rs 49,980
(+) 1%	Rs 4998
Indirect cost	Rs 300,020
(+) 9.2	Rs 27,602
Total cost	Rs 382,600
Total cost of CAD: 4.61 million × Rs 30,310 = Rs 139.7 billion	
Total cost of COLD: 40.65 million × Rs 25478 = Rs 103.57 billion	
Total cost of cancers: 0.17 million × Rs 382600 = Rs 65.04 billion	
Total cost of the three = Rs 308.33 billion	
Major tobacco-related diseases in 2001–2002 = Rs 308.33 billion	

recent studies have come out with newer estimates of mortality attributed to tobacco-rebated diseases. These may be examined in the context of tobacco-associated all-cause mortality assessed by WHO. According to this estimate, all tobacco attributable deaths for India in 1998 were estimated to be 3.83 million amounting to 5.09 million disability-adjusted life-years (DALYs). According to another WHO estimate, the mortality figure is projected to rise to 1.5 million, i.e. 13.3% of total mortality in 2020 and an increase of 319.64% over a period of 22 years. This value gives an arithmetic average increase of 50,500 additional deaths per year owing to tobacco-associated diseases.

Despite a legal requirement in India for registering births and deaths, but not for obtaining a Medical Certificate for Cause of Death (MCCD), the data from death certification provide inadequate and not too reliable coverage. According to the data published by the Registrar General of India in 1999 (for the year 1995), only 14.2% of registered deaths were obtained by MCCDs, though there was a great deal of regional variation. With such a thin basis, not much reliance can be placed on these data. However, based on the figures provided by the Sample Registration System (SRS), which is a large demographic survey, 1.56% deaths were due to chronic obstructive pulmonary disease (COPD); out of which 2.3% were attributed to tobacco. This gives a figure for mortality of 58,000 for the year 2000, which is estimated to go up to 60,000 in the year 2004. By making various adjustments, the number of deaths attributed to tobacco-related COPD were estimated to be 256,493 for the year 2000.

Owing to the paucity of a regular, comprehensive and reliable database for tobacco-related diseases, one has to make use of a number of limited-coverage data sources. The National Cancer Registry Programme (NCRP) of the ICMR has been operating since 1982, and has been extended to cover additional areas. According to this source, age-adjusted incidence rates for cancer of specific sites related to tobacco and all tobacco-related cancers per 100,000 of population have been estimated for various centres. Similar mortality incidence rates have also been arrived at. However, it is doubtful whether data from six centres can be used for arriving at any national-level estimates for a country as large and differentiated as India. However, limited exercises have been undertaken to estimate the all-India burden of tobacco-related cancers, which vary from 7 to 9 million new cancer cases in India every year.[10] According to this source, 'the proportion of tobacco-related cancers relative to all cancers at all sites (using both PBCRs and HBRCs under NCRP) averages about 46% in males and 16% in females. Therefore, it is estimated that there would be 0.21–0.28 million (0.15–0.20 in males and 00.6–00.8 million in females) new tobacco-related cancers every year in India' (*see also* Section 4.2).

It is clear that the burden of tobacco-related diseases remains inadequately investigated, recorded and estimated. This makes it very difficult to have accurate and up-to-date quantified information on the health care costs of tobacco-related diseases. However, from the limited facts available, it is also clear that the tobacco menace has assumed massive, epidemic proportions.

Since the mortality and morbidity estimates given by the ICMR study[12] appear to be in tune with those mentioned above, and are based on a comparatively sounder and broader basis, it appeared advisable to use the cost estimates arrived at by this study, and upgrade them on the basis of new price and income data, to try and obtain a broad sense of the magnitude of the total cost, i.e. both personal and social cost, of tobacco-related diseases.[12] Given the present state of monitoring of mortality and morbidity in India, it does not seem possible to do anything better than make such broad estimates (as provided above for the year 2002–2003), which at least give a sense of the magnitude of the issues involved in estimating the burden of tobacco-related diseases, and the personal and social direct and indirect costs imposed by these diseases.

5.1 HEALTH CARE COSTS

KEY MESSAGES

- The total social costs of tobacco products exceed the direct outlay on them, owing to morbidity, mortality and negative externalities associated with the consumption of tobacco products.
- The costs inflicted by tobacco consumption extend much beyond the direct users to cover secondary smokers as well as non-users, and are spread over a period much beyond the period of actual consumption of tobacco.
- The recognition of the costs of tobacco has been obfuscated and made opaque by the unethical tactics and practices by the tobacco lobbies.
- Worldwide recognition of the perils of the pandemic of tobacco have led to the recognition of tobacco as a demerit good, i.e. a public 'bad'.
- The employment, income, public revenue and foreign exchange earnings associated with tobacco production and consumption are incidental, and the replacement of tobacco consumption by other goods would surely lead to such flows of benefits from the other goods; at the most, some costs of transition are involved.
- The direct cost of tobacco consumption in India, aggregating to around 2%–3% of the total private final consumption expenditure (PFCE) in the economy over a long period of time, is more or less on par with the total private final spending on health care and medical services, while the updated total cost entailed by the major tobacco-related diseases is estimated to be about Rs 30,833 crore for the year 2001–2002.