

Economics of Tobacco in India- A Barrier in Curbing the Silent Epidemic a Comprehensive Review

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Abstract:- The tobacco use epidemic is one of the greatest hazard to the current global health. India is the third largest producer of tobacco globally and providing employment to 38 million people through its tobacco industry. Tobacco is grown in major Indian states and majority goes into bidi manufacturing and is one of the major export crop. Tobacco use is a major cause of NCDs, which account for approximately 60% of deaths in India. The aggregate direct and indirect cost of diseases accountable to tobacco use was INR 1,044,816 million in 2011 posing a huge economic burden to the people. Between men and women, men bear a disproportionately higher burden of the total cost, which is around 90% of the total economic burden due to all-cause mortality. 78% of the total costs arose due to smoked tobacco whereas 22% was due to smokeless tobacco-related diseases. The enormous economic burden and resulting losses to the nation could be prevented in wake of stronger tobacco control initiatives by the government and civil society organizations.

Keywords:- Tobacco, Silent epidemic, economics, control, burden.

I. INTRODUCTION

The tobacco use epidemic is one of the greatest hazard to the current global health. Roughly about one-third of the adult population globally use tobacco in some form and half of them will die prematurely. According to a recent estimate by the World Health Organization, 4.9 million people globally died in 2000 due to their addiction to nicotine. This death toll is found to be rising rapidly, especially in low- and middle-income countries which has most of the world's tobacco users ranging to approximately 1.2 billion. About half of the deaths due to tobacco is seen in developing countries [1].

A considerable amount of revenue comes to the Indian farmers from tobacco production. Though agronomically suitable alternatives to tobacco are available, a shift from tobacco cultivation would result in reduced income and increases the risk of food insecurity among the farmers. Tobacco manufacturing, particularly bidis, is a source of employment and income for a great number of people. Thus, any attempt made to control the tobacco use should consider its economic impact on these sectors [2].

II. TOBACCO PRODUCTION IN INDIA

Tobacco has a significant role to play in the Indian economy being an important commercial crop. India is the third largest producer of tobacco globally, next to China and Brazil [3]. During the year 2012-13, the estimated production for India is 681 million kgs of cured leaf of all types of tobacco, with area of cultivation as 0.4 million hectares (ha.). It is second to Brazil in the export of Flue Cured Virginia (FCV) tobacco. FCV tobacco is the major exportable variety and is produced in the states of Andhra Pradesh and Karnataka, accounting to 263.55 million kgs which is 38.7% of total tobacco produced, according to the Tobacco Board at Guntur (Andhra Pradesh). About 0.15 million hectares is being dedicated to the cultivation of FCV tobacco. Under non-FCV tobacco production, Bidi tobacco tops with 160 million kgs produced annually. Next to bidi tobacco are the chewing and hookah tobaccos. The main exportable varieties are FCV and burley among the many different types grown like FCV, Chewing, Bidi, Natu, Burley, Hooka, Oriental and Cigar. Besides, FCV are produced in India in different styles from colour filler to high flavor leaf, and thus cater the needs of different countries [4].

The contribution of tobacco to the national economy was significant during the year 2012-2013 by contributing to about US\$914.43 million foreign exchange. The tobacco industry, one of the labour-intensive industry, provides employment to nearly 38 million people who are involved in different processes of tobacco cultivation, curing, redrying, packaging, distribution, manufacturing, export and retailing activities. The three regions together accounted for nearly 62 percent of tobacco products exports being made [5].

Out of the total 228,025 tonnes of unmanufactured tobacco exports during the year 2012-13, about 76,100 tonnes (33.4%) was exported to Western Europe followed by 47,350 tonnes (20.8%) to South and South East Asia, and 30,710 tonnes (13.5%) to East Europe. The three regions together accounted for about 68 per cent. The top export destination for Indian unmanufactured tobacco during the year 2012-13 volume-wise was Belgium. This was followed by Russia, South Korea, UAE, USA, Indonesia, Egypt, Netherlands, South Africa, and France. Out of the total unmanufactured tobacco exports from India, FCV tobacco constituted 76 per cent by volume, and 83 per cent by value. Non FCV tobacco accounted for the balance 24 per cent by volume and 17 per cent by value. Unmanufactured tobacco exports during the year 2012-13 have increased by 12.2 per cent in quantity over the previous year [6].

Out of the Indian tobacco products exports during the year 2012-13 about 21,130 tonnes, Middle East accounted for a major share with 5,530 tonnes (26.2%), followed by South and South East Asia, and Africa about 4,160 tonnes (19.7%), and 3,415 tonnes (16.0%), respectively. Exports of tobacco products during the year 2012- 13 declined by 43 per cent in quantity terms compared to the performance in the previous year [6].

A. Tobacco growing states

Though the tobacco cultivation is spread across the country, it is concentrated in states like Andhra Pradesh, Karnataka, Gujarat, Bihar, Uttar Pradesh, Tamil Nadu, West Bengal and Maharashtra. Andhra Pradesh and Karnataka produces most of the cigarette tobacco, whereas Tamil Nadu, Andhra Pradesh, and West Bengal produces most of the bidi tobacco. Chewing tobacco is produced in Tamil Nadu, Bihar, Gujarat, Uttar Pradesh and West Bengal; and Uttar Pradesh and West Bengal produces hookah tobacco [7]. Out of the total tobacco produced in the country, 81% is used for chewing, snuff, making bidi, jarda, gutkha paste, hookah paste, etc., and only 19% to the manufacture of cigarettes.

B. Tobacco industry

The Indian tobacco industry contributes to the Indian economy in numerous ways like revenue, export, GDP growth and employment. It is mainly involved in the manufacturing of bidis, cigarettes, cigars, snuff, cheroots, hookahs and various chewable tobacco products like zarda, paan masala and gutkha. The cigarette industry is a big revenue generating industry not only in India but also abroad. The bidi industry is one of the primary cottage industries in India. According to the report of Indian Market Research Bureau (IMRB) 1996, about 37% of the tobacco produced in India goes to bidi manufacturing and this creates more employment than the cigarette industry [9].

In India the crop was introduced by a subsidiary of a leading cigarette conglomerate, namely, the British America Tobacco Company (hereafter BAT), unlike the operations of BAT in China, where they depended on a landlord, moneylender combine to spread tobacco cultivation [10].

The tobacco industry is undoubtedly one of the most profitable industries. Tobacco companies produce their deadly products locally and globally with the help of their enormous wealth and influence. Local and global policy makers and advocacy groups make efforts to combat the tobacco industry's influence, they come up with new manipulative tactics to circumvent the tobacco control efforts [11]. Therefore, the advocate companies must be aware of which tobacco companies are present in their country, how and where do they operate, the quantity and type of tobacco product sold, and their marketing strategies. All this will help to better fight for effective tobacco control policies [12].

The tobacco industry in India is divided into three powerful and distinct sectors: i) bidis (tobacco leaves hand-rolled in tendu leaves), ii) smokeless tobacco (chiefly chewing tobacco), and iii) cigarettes. Bidis being the most popular tobacco products, accounts for 48% of the market. The various aspects of tobacco industry like farming,

manufacture and distribution are spread across all the Indian states thus making tobacco control a national effort. Study of Indian tobacco industry covers a portion on each of these tobacco sectors as well as their promotion, sponsorship and corporate social responsibility efforts made to increase consumption and profiles [13].

The Indian tobacco industry is complex and powerful. In order to create and advocate strong tobacco control policies, it is vital to know where and how they operate. The tobacco industry will continue to expand and make profit unless strong regulations on tobacco control are enforced in India [6].

C. Tobacco cultivation

In relation to the all India position of area covered under tobacco of 493 thousand hectares, Andhra Pradesh tops the list of seven states, with an area of 157 thousand hectares (31.9%), production of 281 thousand tonnes (34%), and yield per hectare of 1790 kgs [14]. Irrigation coverage of cultivated area under tobacco is 23.2 per cent. Gujarat stands a close second in area and production, and with higher yield of 1899 kgs, and higher irrigated area percentage of 86.4. Karnataka stands third in area and production, but with lower yield and lower irrigation even when compared to Andhra Pradesh. Bihar, Tamil Nadu and Maharashtra are the other states prominent for tobacco cultivation. Irrigated area is 100 per cent of cultivated area in Tamil Nadu, and 93 per cent in Bihar. Andhra Pradesh and Gujarat together accounted for 62% of area and 68% of production of tobacco during the year 2010-11. In yield Uttar Pradesh stands first with 3069 kgs/hectare, compared to the all India average of 1687 kgs. A few other states are higher than Andhra Pradesh in yield. Area under tobacco cultivation is the highest in Andhra Pradesh, closely followed by Gujarat. In area of irrigated as per cent of area cultivated, Andhra Pradesh accounts for 23.2 per cent compared to Gujarat of 86.4 per cent, Uttar Pradesh and Tamil Nadu of 100 per cent, and Bihar of 93 per cent. In yield per hectare, Andhra Pradesh stands fourth, and above the all India average [15].

D. Export

During the year 2011-12, total quantity of tobacco exports was 240.40 thousand tonnes, of value in Rs.41.00 billion, and in US\$ 855 million. Unmanufactured tobacco exports in relation to total tobacco exports were 84.6% in terms of quantity, and 75.4% in terms of value. Tobacco products exports constitute the balance 15.4% in terms of quantity, and 14.6% in terms of value. Total tobacco exports during the years 2008-09 and 2009-10, recorded increase over the previous years [16].

III. ECONOMIC SIGNIFICANCE OF TOBACCO

India is the third largest producer of tobacco globally and also a very large consumer of tobacco products. Tobacco being one of the important cash crops, it makes a significant contribution to the Indian economy in terms of employment, government revenue and income of Rs.20 billion per annum [17].

The economic importance of the tobacco crop can be considered at three levels viz., Farm, tobacco growing and

processing households and at the States and the central government level.

Farm level: An estimated 850000 tobacco growers are present in the country with majority being small family farmers having less than 2 ha of land but they constitute about half of all tobacco growers. Gujarat Agricultural University conducted a field survey in tobacco growing districts of Gujarat and Karnataka and found that about a quarter of total tobacco area was owned by small scale producers. In total, almost 6 million farmers and workers depend on this sector for their livelihood. In addition, this sector is providing employment to a large number of people either directly or indirectly through many of its related industries [15].

State level: The State economies receive their contribution from tobacco sector through crop production, to the exchequer by the excise duty and also from the State's share in the net central excise duties. Andhra Pradesh, Gujarat and Karnataka concentrate the major tobacco cultivation. These tobacco growing states receive the additional excise duty on tobacco and this has increased to 18532 million rupees in 2018/2019 from 3477 million rupees in 2015/16. During the fiscal years from 2015 to 2018, the State Governments received 47.5% of the net union excise duty annually imposed on a number of commodities which also include tobacco products. It amounted to a total of 240000 million rupees annually, of which the tobacco sector shares around 9% providing an important revenue source to the States [18].

Central government revenue: The whole range of tobacco products manufactured in India are imposed with excise duty. In addition, the corporate taxes on tobacco enterprises has also been realized by the central government accounting to about 2000 million rupees per annum. The collection and administration of excise duty on raw tobacco was cumbersome and expensive and also the control was ineffective, hence the raw tobacco was exempted from excise duty from 1979/80. The steep increase in tax rates from the manufactures tobacco products more than compensated for the revenue lost from the exemption of tax on raw tobacco. Although excise duty is imposed on all manufactured tobacco products, tobacco produced from cottage industries like bidi are taxed much lower than organized sectors like cigarette. And also, the manufacturers of bidi who produce less than 2 million bidis annually are exempted from paying excise duty. Bidis that are produced without the aid of machines, other than paper rolled, pay Rs.5 per thousand pieces. Other bidi manufacturers pay Rs.15.5 per thousand pieces. Pan masala is taxed at 40% (Basic duty of 24% plus an additional 16% special duty). 50% excise duty is imposed on chewing tobacco and snuff with a brand name [12].

IV. COST BENEFIT ANALYSIS OF TOBACCO

Non-communicable diseases (NCDs) are one of the leading causes of death in the world and account for 60% of all deaths in India. Whereas, communicable diseases including maternal, nutritional and perinatal conditions still account for about 37% of all deaths, thereby making India to deal with the double burden of disease. While India spends only 1.04% of the country's gross domestic product on healthcare, the burden of communicable and NCDs pose a trouble to the country's economy. Cancer, Cardiovascular diseases, diabetes and chronic respiratory diseases contribute to more than 80% of total NCD related deaths in the country. For all these NCDs, largest preventable risk factor is tobacco consumption [19].

For the prevention and control of NCDs in the country, the Ministry of Health and Family Welfare developed "The National Action Plan and Monitoring Framework". This framework seeks to achieve a decrease in the prevalence of current tobacco use by 15% by 2020 and 30% by 2025. The Government of India's regulatory policy initiatives to restrict tobacco production, sales and consumption have been strongly fought in the past by disputes over the incoming gains from tobacco sales. However, such justifications overlook a number of economic and societal costs associated with tobacco use's increased prevalence [20]. This includes throwing millions of people into poverty as a result of the high costs of treating tobacco-related ailments. This paper outlines the health costs of tobacco use and assesses the economic burden of tobacco use in India in this setting.

Tobacco use is the leading cause of noncommunicable diseases (NCDs), which account for over 60% of fatalities in India. According to the Global Adult Tobacco Survey, about 35% of individuals in India use tobacco in some manner. India has nearly 275 million tobacco users of which 206 million use smokeless tobacco products while 111 million use smoked tobacco products. This report estimates the direct and indirect costs from all diseases caused by tobacco use for the adults in Indian the age group 35-69 years. Non-communicable diseases (NCDs) accounted for approximately 68% of deaths worldwide in 2012. Globally, about 80% of the NCD deaths are from the low- and middle-income countries (LMICs), where the burden of NCDs is rising rapidly. Evidence shows that 29% of NCD deaths in LMICs occur below the age of 60 years. Behavioural factors such as tobacco use, alcohol use, unhealthy diet and physical inactivity are some of the major causes of NCDs. Tobacco use is responsible for 9% of global mortality, second only to high blood pressure, among the risk factors. NCDs were responsible for 60% of deaths in India by 2014. The probability of dying from one of the four major NCDs between the ages of 30 and 70 years was also predicted to be 26%. According to the GATS (Global Adult Tobacco Survey India), over 35% of individuals in India use tobacco in some manner. In India, there are an estimated 275 million tobacco users, with 163.7 million of them using smokeless tobacco and 69 million using smoked tobacco. In India, it was anticipated that 930 000 deaths will occur in 2010, with 580 000 males and 90000 women in the 30-69 age range

smoking. Tobacco-related malignancies are thought to be responsible for roughly 42% of cancer deaths in males and 18% of cancer deaths in women. It has been shown that tobacco in all forms plays a causal role in a variety of NCDs, and that smokers have a 60 percent to 80 percent higher overall mortality rate than non-smokers. There is strong evidence that maternal cigarette use is hazardous to the foetus. Neonatal mortality, respiratory infection, asthma, and sudden infant death syndrome are all possible outcomes. Tobacco use has been linked to the majority of malignancies, cardiovascular diseases, pregnancy-related disorders, infertility, and a possible link to the progression of HIV/AIDS and tuberculosis in epidemiological studies. Second-hand smoke (SHS) exposure has been linked to a number of ailments in nonsmokers." SHS is one of the most common indoor pollutants in the world. SHS is predicted to be present in the homes of 40 percent of children, 35 percent of women, and 33 percent of males over the world. In 2004, SHS was estimated to have caused 603 000 deaths and 10.9 million disability adjusted life years (DALYs) worldwide, accounting for 1% of all deaths and 0.7 percent of the global disease burden. 52% of adults are exposed to SHS at home, according to the GATS India Report 2009-10 [21].

The pattern of tobacco-related morbidity and mortality provides an incomplete picture of the impact of tobacco-related diseases on society as a whole. Chronic diseases resulting from tobacco usage culminate in enormous economic and societal costs due to premature deaths, loss of wages for the family and loss of productivity for the society. At an individual level, tobacco-related diseases can lead to loss of income due to absenteeism and also to borrowing. Such households face a lack of savings, investments in children's education, and curtailment of household consumption. At the societal level, poor population health may be linked to higher health-care costs, diminished functional capacity, lost income or productivity, lower savings rates, increased poverty, and lower rates of return on capital, all of which may contribute to a drop in economic growth. Out-of-pocket spending on medical care for tobacco-related disorders has been linked to greater poverty rates in India, affecting 0.93 million people. Estimating tobacco-related health-care costs will help to highlight the magnitude of tobacco-related economic loss to the society, which is an important input for informed decision making in any country [22].

During the post-independence period, India's public health system stressed on communicable diseases and maternal and child health issues, which were pivotal during

that period. Tobacco-related diseases and NCDs received comparatively lower priority. Today, with the country undergoing a "health transition", the ability to combat infant mortality, communicable diseases and malnutrition is being put to the test; while at the same time there are emerging demands for better services and more attention to NCD prevention and control. This is so because chronic diseases resulting from tobacco use may involve enormous societal costs apart from the economic loss to the individual and family. The economic impact of tobacco-related diseases will inform decision-makers about the extent to which tobacco-related diseases or a deteriorated health status disrupt or limit economic production or consumption opportunities at the household and society levels [23]. The Ministry of Health and Family Welfare's (MoHFW) National Action Plan and Monitoring Framework for Prevention and Control of NCDs in India aims to reduce current tobacco consumption by 15% by 2020 and 30% by 2025. However, tobacco control policies are thwarted by several challenges including the benefit argument. According to this argument, the employment, revenue and foreign exchange earnings generated by the tobacco industry are large and surpass any health-care cost caused due to tobacco-related diseases. However, such arguments ignore the huge economic and social costs incurred due to tobacco-attributable diseases and premature deaths. An estimation of the economic burden due to tobacco use would be useful in countering such an argument. Moreover, an understanding of the actual costs of tobacco use is important for policy makers to make informed decisions about health service provisions. Government-sponsored health insurance schemes for the public will hugely benefit from information like the true cost of tobacco use. While cost of illness studies alone will not be sufficient evidence for resource allocation, estimating the economic losses or costs associated with a specific health condition can assist in determining the proportion of government resources that could have been used for other purposes if these preventable diseases had not occurred. Cost-of-illness studies should also be viewed with caution because they are frequently based on guesses and assumptions, and the complete data set required is frequently unavailable. Also, the cost may only be postponed — humans will still fall sick and die, but at later age — and pertinently, not during their most productive years of life. Because the goal of the study is to offer information on the economic impact of illness and mortality related to tobacco smoking in India, it is reasonable to perform such a study [24].

Diseases	Men		Women	
	Smokeless tobacco	Smoked tobacco	Smokeless tobacco	Smoked tobacco
Respiratory	1.50(1.12-2.03)	2.12(1.57-2.87)	1.04(0.82-1.31)	1.15(0.42-3.15)
Tuberculosis	1.55(1.10-2.18)	2.48(1.76-3.50)	1.40(0.99-2.00)	5.92(2.31-15.17)
CVD ^a	1.32(0.94-1.84)	1.54(1.09-2.19)	1.15(0.84-1.59)	1.46(0.35-6.01)
Cancer	1.40(0.96-2.08)	2.60(1.76-3.50)	1.57(1.16-2.13)	1.85(0.45-7.60)
All causes	1.16(1.03-1.26)	1.67(1.49-1.84)	1.30(1.18-1.43)	1.53(0.97-2.42)

Table 1: Relative risks of mortality from tobacco use for the 35 to 69 years age group

CVD- Cardio Vascular Disease

A. Economic burden of diseases at National and Sub-National level

In 2011, the total direct and indirect expenses of diseases caused by tobacco smoking was INR 1,044,816 million, with indirect death costs accounting for 84 percent of the total. Men were responsible for about 91 percent of the costs, while women were responsible for the rest. Cancers had the highest female percentage of the economic burden of disease (38%) among the four diseases linked to tobacco smoking, followed by CVD (18%), tuberculosis (17%), and respiratory diseases (17%). (1.4%). Cardiovascular diseases accounted for 36.5% share of the costs followed by respiratory disease (27.8%) and tuberculosis (22.6%). Uttar Pradesh, West Bengal, and Andhra Pradesh together accounted for 52% of the costs. Uttar Pradesh shared 34% of the tobacco attributable cancer burden among males and

West Bengal shared 25% of the tobacco attributable cancer burden among females [25].

a) Costs at national level:

In 2011, the direct and indirect costs of diseases caused by tobacco usage totaled INR 1,044,816 million. Indirect costs accounted for a significant amount of the total costs, accounting for 84 percent of the total. Indirect costs were of two types — morbidity cost and cost of premature mortality. Premature death cost a lot of money (INR 730,057 million), accounting for 70% of the overall costs. This shows that families have to bear an enormous economic burden due to loss of wages when a family member is afflicted by a disease, and furthermore, dies at an early age [25].

Diseases	Cost (in INR Million)	% distribution
1. Direct cost	168035	16.08
2. Indirect cost		
A. Morbidity cost	146725	14.04
B. Cost of premature mortality	730057	69.87
Total indirect cost	876782	83.92
Grand total (1+2)	1044816	100

Table 2: Economic burden of diseases attributable to tobacco use in India (INR million)

The cost by type of tobacco used shows that smoking-attributable cost was much higher than the cost incurred from smokeless tobacco use. The total smoking attributable cost was INR 811,174.32 million, constituting 78% of the total cost; and the cost of smokeless tobacco was INR 233,642.02 million, constituting 22% of the total cost. Smoking attributable costs were much higher than the costs incurred due to smokeless tobacco attributable diseases. It was further observed that the direct medical cost of

smokeless tobacco-attributable diseases for women was higher than for men. Around 66% of the direct medical cost was attributed to the female population in the case of diseases caused by smokeless tobacco use. In spite of higher direct medical cost of smokeless tobacco use by the female population, the total cost for men was higher in this category. This was because the cost of premature mortality for men was much higher than for women, which outweighed the direct medical cost for women.

Type of tobacco	Direct medical costs	Indirect mortality costs	Indirect morbidity costs	Total costs
Smoked Tobacco				
Men	101871.81	108290.26	571480.00	781642.07
Women	13585.55	5463.70	10483.00	29532.25
Sub total	115457.36	113753.96	581963.00	811174.32
% of total cost	68.71	77.53	79.71	77.64
Smokless Tobacco				
Men	894.84	19022.30	129659.00	166576.14
Women	34682.60	13948.29	18435.00	67065.89
Sub total	52577.43	32970.59	148094.00	233642.02
% of total cost	31.29	22.47	20.29	22.36
Grand total	168034.79	146724.55	730057.00	1044816.34

Table 3: Economic burden of diseases attributable to tobacco use by type and sex among adults aged 35-69 years in India (in INR million)

b) Cost at the sub-national level:

Thirteen states across India, covering 86% of the country's total population, were included in this study. This section presents only the direct medical cost and indirect morbidity cost without the cost of premature mortality. The cost of the four designated diseases and all- cause mortality are estimated separately. Among the states, Uttar Pradesh

accounted for highest cost due to all-cause mortality and the four specific diseases attributable to tobacco use- INR 73,354 million for all-cause mortality and INR 19,912 million for the four diseases. Assam had the least cost due to all causes, whereas Odisha had the least cost for the four specific diseases. Uttar Pradesh, West Bengal and Andhra Pradesh together accounted for 49% of the costs due to four specific

diseases and 52% due to all-cause mortality. It was also observed that the share of costs due to men was more than that of women for all-cause mortality as well as for the four diseases. Uttar Pradesh, West Bengal and Andhra Pradesh together accounted for more than half of the total costs from tobacco attributable diseases [25].

V. CONCLUSION

Overall, indirect cost constituted 84% of the total cost, indicating substantial productive losses to the nation. Between men and women, men bear a disproportionately higher burden of the total cost, which is around 90% of the total economic burden due to all-cause mortality. This is mainly due to the higher indirect cost for the male population over that for the female population. This not only shows lower participation of women in the workforce but also indicates lower annual average earnings by them compared with their male counterparts. However, there were major differences when costs due to smoking and smokeless tobacco use were compared. Though the cost due to smoked tobacco was substantially higher than that due to smokeless tobacco use, in the case of smoking, direct medical cost among men was more than that for women while in the case of smokeless tobacco, direct medical cost was higher for women. Further, disease-wise analysis of cost showed that men incurred higher direct medical as well as indirect morbidity costs for all the four diseases due to both smoked and smokeless tobacco use, the exception of cancer for which women were found to incur a higher cost due to smokeless tobacco use. Overall, women incurred higher direct and indirect costs of smokeless tobacco-attributable cancer at the national level. Further, at the all-India level, the total cost was highest for CVDs followed by respiratory diseases and tuberculosis.

Higher prevalence of tobacco use among the poor also means, a higher share of economic costs due to tobacco borne by them pushing the poor into further poverty. Across the 13 study states, 52 % of the costs were borne by three states, namely Uttar Pradesh, West Bengal and Andhra Pradesh due to all-cause mortality and 49% due to the four diseases together. The cost of the four diseases was the highest in Uttar Pradesh. The disease-wise direct medical costs due to smoking and smokeless tobacco showed variations across states. For smoking-related diseases, Uttar Pradesh incurred the highest medical cost for cancer, TB and respiratory diseases, while in the smokeless category West Bengal incurred the highest cost for cancer and Maharashtra for CVD. Akin to the smokeless tobacco use prevalence pattern, where the percentage of women smokeless users are higher, the direct cost of cancer caused due to smokeless tobacco was higher for women. Particularly in West Bengal, it was the women who incurred almost all the direct medical cost of cancer caused due to smokeless tobacco. As for the indirect cost, Uttar Pradesh incurred highest cost for smoking related cancer, TB and respiratory diseases, similar to direct cost. However, in the smokeless category, no one state had the highest cost for all three diseases. Maharashtra had the highest cost for CVD, Uttar Pradesh for cancer and Bihar for TB.

78% of the total costs arose due to smoked tobacco whereas 22% was due to smokeless tobacco-related diseases. Studies in India suggest that the poor are more likely to use tobacco. It further indicates that the disease burden is disproportionately higher among the poor than the rich, implying that the economic cost would also be higher among the poor, leading to further impoverishment.

The enormous economic burden and resulting losses to the nation could be prevented in wake of stronger tobacco control initiatives by the government and civil society organizations. With a very low public expenditure on health care and the country needing more resources to tackle the double burden of diseases (communicable diseases and NCDs), it makes economic sense to invest in tobacco control efforts to reduce the burden of NCDs in India.

Comprehensive tobacco control policies and programmes: The National Tobacco Control Programme and similar schemes by various government departments including but not limited to health, agriculture, education, consumer affairs, social justice and empowerment, sports and youth affairs, women and child development, legal, urban and rural development and planning, etc. should reflect the various dimensions of the burden of tobacco use while designing their respective strategies and action plans. This will help in reducing tobacco consumption at the national and sub-national levels. It is only through inter-departmental coordination and multi-sectoral action that the burden of tobacco use can be mitigated.

Tobacco taxation policy: Revenue earned from tobacco products is just a small fraction of the total cost and therefore the government needs to take steps to increase revenue from tobacco products. This is possible by increasing taxes on all forms of tobacco products to the tune of 70-80% of the retail price of such products. Such increase in tax should be undertaken annually on inflation-adjusted rates. Uniform and substantial increases in taxes of all tobacco products is the most effective tool for reducing tobacco use.

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