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Opinion article

Environmental, ecological and economic impact of tobacco

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1 Introduction

Tobacco is neither human friendly nor environment friendly. In fact it is the chief avoidable cause of premature death and illness in humans and destruction of environment. According to WHO estimation, over 10 million people die of tobacco related diseases every year all over the world. The impact of human tragedy on family in particular and environment in general is unimaginable. The ecological and economic impact is unfathomable and mind boggling. It is high time the public and politician woke up to this problem burning society like wild fire. Ecology is the scientific study of interactions of organisms with one another and with the physical and chemical environment (plants, animals and microbes) in conjunction with the nonliving components of their environment (things like air, water and mineral soil), interacting as a system. Tobacco is detrimental to both ecology and environment.

2 Ecological and environmental impact

Tobacco products harm the environment in ways that go beyond air pollution and cigarette litter. The process of growing tobacco, manufacturing tobacco products and delivering them to retailers causes severe and irreversible damage to the environment. "From start to finish, the tobacco life cycle is an overwhelmingly polluting and damaging process," states a 2017 World Health Organization report, ‘Tobacco and its environmental impact: an overview’ says that ‘It is not just about the lives of smokers and those around them, or even those involved in tobacco production. What is now at stake is the fate of an entire planet. This is a very serious thing every sane person should think seriously. The report highlights many harmful effects tobacco has on the environment-including deforestation, water contamination and climate change - in five main stages.

2.1 Growing and curing

Tobacco growing and curing (the drying of the tobacco leaf) are both direct causes of deforestation, because forests are cleared for tobacco plantations and wood is burned to cure tobacco. The curing 1 kg of tobacco for cigarette needs 5.6 kg of air dried wood curing of 1 tons of tobacco means 118 trees sacrificed!76.2% cigarette tobacco is cured by cutting indigenous fruit and neem trees making the birds homeless and the planet loses the best producer of O2. Apart from this**7000** billion tons of papers are used every year for wrapping cigarettes. The wood is used to make paper. Plus disposal of tobacco related waste pollute the land and water. Tobacco needs thrice the amount of fertilizers as compared to food crops. The methane produced by fertilizers is the cause of global warming. It takes 20-40 years to grow a tree before it is scarified within 20 minutes for curing tobacco! One hectare of tobacco grown needs 2 .18 hectares of forest wood! The tobacco causes twice the amount of land erosion as compared to food crops Deforestation is a cause of climate change, soil erosion, reduced soil fertility and disrupted water cycles. A previous investigation into the production, promotion and use of tobacco in developing countries estimated that for every 300 cigarettes produced (about 1.5 cartons), one tree is used just to cure the tobacco leaf.

3 Problems are plenty

The smoke generated from burning tobacco, called secondhand smoke or environmental tobacco smoke, contains more than 7,000 toxic chemicals that pollute both indoor and outdoor environments and can be toxic even after the tobacco product is put out. Third hand smoke, which can affect air quality and become more toxic over time, is the residue from secondhand smoke that gathers in dust and on objects and surfaces in indoor environments. These objects can end up in landfills and waste, becoming a further pollution risk to the environment. Curing of 1 kg of tobacco for cigarette needs 5.6 to 8 kgs of air dried wood. Curing of 1 tons of tobacco needs 118 trees sacrificed. What is more distressing is 76.2% cigarette tobacco is cured by cutting indigenous fruit and neem trees. Just imagine, it takes 20-40 years to grow a tree before it is sacrificed within 20 minutes for curing tobacco! Not only the ecologist but every sane person must be disturbed to know that one hectare of tobacco grown needs 2.18 hectares of forest wood. Tobacco industry uses 7000 tons of paper to wrap the cigarette. The wood is necessary to produce paper. The tobacco causes twice the amount of land erosion as compared to food crop. The tobacco needs thrice the amount of fertilizers as compared to food crops. Almost 40% of land used for tobacco cultivation is irrigated land where one can reap 3-4 food crops instead. The cost of irrigation is about Rs. 36,000 per hectare. More than irrigation the large amount of even subsoil water is drained by tobacco. The

consequences of depletion of forest and the trees are terrifying especially when everywhere there is scarcity of rains. Though it is called as a "cash crop" in fact it is a 'crash or crush crop' as it crashes the health of human being and has crushing impact on environment, ecology and economy.

3.1 Coastal land and water pollution

Cigarette butts, plastic filters and other remnants of smoked cigarettes can pollute soil, beaches and waterways. Studies have also shown that cigarette waste is harmful to wildlife too. A study of the effects of roadside waste on soil found that patterns of hydrocarbon levels in the soil were similar to those of littered cigarette butts. This indicates that the chemicals in the soil had seeped out of cigarette butts. Some hydrocarbons are carcinogenic. Cigarette butts cause pollution by being carried, as runoff, to drains and from there to rivers, beaches and oceans. Preliminary studies show that organic compounds (such as nicotine, pesticide residues and metal) seep from cigarette butts into aquatic ecosystems, becoming acutely toxic to fish and microorganisms. In one laboratory study, the chemicals that leached from a single cigarette butt (soaked for 24 hours in a liter of water) released enough toxins to kill 50 percent of the saltwater and freshwater fish exposed to it for 96 hours!. Another laboratory study found that cigarette butts can be a point source for heavy metal contamination in water, which may harm local organisms.

3.2 Growing and manufacturing tobacco products

Research has found that tobacco cultivation contributes significantly to deforestation and degradation of the environment, particularly in the developing world. In 2015, alone 1,312,796 pounds of toxic chemicals were reported disposed of, or otherwise released, from tobacco facilities. Some of the chemicals released are monitored by the Environmental Protection Agency's Toxic Release Inventory database because they are considered hazardous to a person's health and to the environment. The top chemicals released were nicotine, salts, ammonia, sulfuric acid and nitrate compounds.

3.3 Litter

Since the 1980s, cigarette butts have consistently comprised 30 to 40 percent of all items collected in annual international coastal and urban cleanups. When counting roadway litter on a per-item basis, cigarettes and cigarette butts comprise nearly 38 percent of all collected litter, making them the most prominently littered item on U.S. roadways. In addition to roadway litter, cigarette butts are also the most commonly littered item collected at five of six non-roadway sites: retail areas, storm drains, loading docks, construction sites and recreational areas. Data from the Ocean Conservancy shows that 1,030,640

cigarette butts were removed from U.S. beaches and inland waterways as part of the annual International Coastal Cleanup (ICC) in 2016. This represents about 24 percent of the total debris of items collected and, by far, the most prevalent item found. In addition to cigarettes and cigarette filters, 12,089 cigarette lighters, 58,672 cigar tips and 33,865 tobacco packages or wrappers were removed from U.S. waterways during the ICC in 2015. Although 86 percent of smokers consider cigarette butts to be litter, three-quarters of smokers report disposing of them on the ground or out of a car window. Studies estimate that smokers litter as many as 65 percent of their cigarette butts. Cigarette filters are made from cellulose acetate, a plastic which, though technically biodegradable, only degrades under severe biological circumstances, such as when filters collect in sewage. In practice, cigarette butts tossed on streets and beaches do not biodegrade. Even under optimal conditions, it can take at least nine months for a cigarette butt to degrade. The sun may break cigarette butts down, but only into smaller pieces of waste which dilute into water and/or soil. Growing concerns over the impact of tobacco waste on the environment, as well as the substantial costs of cleanup, have prompted states, municipalities and institutions to enact a variety of policy actions. For example, 312 municipalities have prohibited smoking on their beaches, while 1,497 prohibited smoking in parks as of July 2017.

3.4 Economic impact

The tobacco industry which is made to appear as a good source of revenue by the successive governments is in fact responsible for more financial burden. While tobacco industry contributes 5% of the Indian total budget revenue, the cost of treating just three diseases, like cancer, heart attack and chronic obstructive lung disease was estimated to be Rs.27,761 crores in 1999.Today it is much more. 25% of health expenditure in USA is on tobacco related diseases and it stands at staggering 6.5 billion dollars/year. The financial burden on government in treating tobacco related diseases in India is not known. A smoker smoking 20 cigarettes a day spends Rs. 10,950/year. That means for 30 years of smoking he spends Rs.3, 28, 5000 which otherwise could have been used to build a house or educate the children and get them married. The actual amount of losses in property due to fire tragedies caused by the smoker carelessly throwing the cigarette or beedie is incalculable. Economic impact of disease and death due to tobacco is un imaginable.

3.5 Human tragedy

Tobacco industry is responsible for 8,00,000 deaths as against 60,000 deaths due to 4 wheeler industry annually, in india Tobacco a prime killer in prime of life, kills more than 8,00,000 people every year in India, where as death toll due to road accidents is around 60,000 per year.Whle the media promptly

projects the various accidents all over, the people dying every day goes unnoticed and not reported. Hence the people do not realize the death and suffering. National sample survey of WHO(1993-94)showed that tobacco had resulted in 42 lakh heart disease,37 lakh chronic obstructive lung disease(COPD) and 1,54,000.of cancers. In fact 25% of all fatal heart attacks are due to tobacco consumption. Over 20,000 people undergo amputation (cutting limbs) annually. More than the medical expenditure, for treatment & cost of artificial limb, it is the crippled man with no job being burden on the hapless family is unbearable. About 50% of cancers in man and 25% of all cancers in women are directly due to tobacco. It is estimated that 60% of all the lung diseases like bronchitis, emphysema are due to smoking. The paralysis (stroke) is 3 times more common in smokers than in non-smokers. The paralyzed man is like a living dead or a vegetable neither useful to his family nor the society. The human tragedy and the consequences in the family of the dead or paralyzed or crippled with amputation are incalculable.

3.6 Heart & tobacco

The heart is the most wonderful pump in the world. It starts beating in the mother's womb when the foetus is just 6 weeks old and continues to work without rest till our dying day. Every minute it pumps about 2-5 litres of blood into the blood vessels (tubes carrying blood to the nook and corner of the body) which when stretched in line extends upto 60,000 miles. Every day the heart pumps 2500-5000 gallons of blood. The fuel required to pump 5000 gallons of liquid is equal to the fuel required by Queen Elizabeth's ship to sail from London to New York and back. Like any other muscle the heart depends on a constant supply of oxygen to sustain activity. So its fitness in turn depends on or is linked with the lungs. Such a powerful heart can be diseased by tobacco. Not only the heart but even the blood vessels carrying blood develop multiple blocks leading to gangrene of limbs, stroke and heart attack.

3.7 The harmful effects of Tobacco

Tobacco contains over 4000 chemicals; about 40 of them are cancerous. But most dangerous substances are three: (i) NICOTINE – a highly addictive toxic substance, which diffuses very quickly into the blood stream providing a quick fix to the smoker. One cigarette contains 1 mg of Nicotine and when taken as injection intravenously is fatal. But when a person is smoking he hardly takes 15% of Nicotine in that cigarette but still each cigarette reduces the life span of the smoker by 10 minutes. Nicotine causes spasm (or narrowing) of the coronary arteries (blood vessels supplying blood to the heart). It also increases the heart rate and causes blocks in the coronaries leading to heart attack and death. (ii) Carbon Monoxide (CO) - is the 2nd most dangerous substance in tobacco which damages both heart and lungs. When CO is

absorbed into the blood stream it binds to Hemoglobin, reduces oxygen, causes heart and arterial disease. (iii) TAR - is solid irritant that coats the lungs, blocks the airways causes emphysema and lung cancer.

3.8 Smoking and Cardiovascular disease (CVD)

In the western developed countries death rate has come down by > 28% by public awareness and bringing down the rate of smoking. It is well known that Nicotine and Carbon monoxide are the main culprits. Death rate for all CVD for smokers is 2-3 times that of non-smoker and 35-40% of the deaths occur before the age of retirement (Royal college of Physicians, 1983), that means the person dies in the prime of life before fulfilling his domestic duties. Smoking is associated with both aspects of atherosclerosis (a) promotes development of lesions thus creating sites susceptible to blockage. (b) promotes the occurrence of triggering events that lead to blockage (US, Department of health and Human Services 1989).

Recently, evidence shows linking of passive smoking to CVD. One may ask what is passive smoking? Smoking has (a) Main stream - that is inhaled and exhaled by smoker. (b) Side stream – smoke from the burning tip of the cigarette. 85% of tobacco smoke in the room is from side stream and this smoke contains higher potion of toxic gases. Passive smoking is breathing other people's tobacco smoke from side stream and is a cause of health hazard in innocent non smokers (US dept. of Health & Human Services,1986).

KEY POINTS:

- Tobacco is neither human friendly nor environment friendly. So it is neither humanity nor sanity to smoke.
- Smoking can kill you by many ways – by heart attack or stroke or cancer or gangrene.
- Smoking not only kills the smoker but also the people around him.
- Smoking destroys the family, society, ecology, economy of the country.
- Stop the hands that make the cigarette and also the hands that light the cigarette.
- Smoker can be described as fool at one end and fire at the other end who kills himself and destroys the entire environment

4 CONCLUSION

The best way to protect the environment from the effects of tobacco is to SAY NO TO TOBACCO by encouraging smokers to quit and to promote prevention through tobacco control policies, high-impact marketing campaigns and quit-smoking services. Supports efforts to expand tobacco control policies, runs the most successful youth tobacco prevention campaign in the country and help thousands of people with quit-smoking tools. So that we save the environment of this beautiful planet for our children.

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