

Air Pollution

Good health is essential for human welfare and progress. Our good health and well being depend on the quality of environment which essentially mean availability of clean air, water, food, civic amenities and living space of which the most important is the quality of air we breathe. But for air and the energy we get from the sun there will not be any life on earth. When such is the importance of air for our survival does it not devolve on us to preserve its quality and purity? But unfortunately it has not happened over the years, causing serious concern. Apart from Volcanic eruptions, natural forest fire, dust storms, etc the major cause of air pollution is the way we live. Air pollution can be attributed mainly to three areas, viz., indoor pollution, Industrial pollution and Vehicular (both surface and air transport) pollution.

Indoor Pollution

A look at what is happening in our villages and rural areas reveal serious short falls in our approach to their welfare. Heat energy is a pre-requisite for cooking which is available to all of us, the middle and upper classes in the form of liquid petroleum gas (LPG) in our homes. But for the poor villagers they have no other means other than Kerosine, fire wood, twigs, crop residues, cow dung and dry leaves for cooking. Confined to small dingy houses with very little ventilation, the poor rural

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house-wife breathes smoke emanating from the kitchen for many hours, resulting in poor health which over a period of time result in her premature death. It was reported in the fortnightly "DOWN TO EARTH" that the number of house wives dying because of indoor air pollution run in millions. Smokeless chulah was the byword of successive governments but so far it has not resulted in large scale adoption in villages because of imperfect design, lack of extension awareness, etc. **Is it not time for the well to do urban citizens, Government, the Corporates and the NGOs to tackle this universal problems encountered in our villages so that the health and welfare of the women folk are preserved?** After more than sixty years of independence a solution is not in sight. Proper evaluation of the various designs of chulahs are to be made and the ones which are effective and convenient should be taken up for large scale production and distribution. Khadi & Village Industries Corporation had introduced many smokeless chulahs in villages but it is not known whether they are effective or whether they are being used regularly. Proof of the efficacy is the continued use of chulah in many houses for years.

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Industrial Pollution

Thermal power plants, chemical and metallurgical industries, textiles and Pharmaceutical Units, Paper, Fertilizers and Pesticide manufacturers contribute towards industrial pollution. Eliminating of polluting bodies and letting out clean air and water to public outlets is their prime responsibility. This is possible only if plant and equipment are designed for such performance. It is found that once a plant goes into operation it is very difficult to ensure the quality of exhaust air and effluents being let out. The design of the chimney, elimination of suspended impurities, treatment of effluents, etc should be incorporated in the process itself to prevent pollution. Unfortunately most of the industrial set ups in the country are such as to circumvent pollution norms and control standards.

In this connection, it would be worthwhile to look into the construction of modern integrated steel plants designed to tackle pollutions at the stage of occurrence itself. Effective utilization of coke oven and blast furnace gases for heating operation elsewhere ensures that the harmful gases are utilized to the full. Similarly dirt particles are eliminated with properly designed cyclones, electro static precipitators, etc. for their safe collection and disposal. Size and height of the chimney are so designed as to ensure that minimum of polluting gases are let out and that too away from the Township where large number of industrial workers are housed. Such practices should be the norm in all the industries. Unfortunately, most of the industries do not take preventive actions and install safe working conditions in India leading to serious health hazards and danger to the health and welfare of those employed in such jobs.

Bhopal Gas Tragedy

The worst tragedy happened in Bhopal on the fateful night of 2nd December 1984 resulting in the death of about 30,000 and more than six lakh people affected by the poisonous fumes of the Methyl Isocyanate(M.I.C.). Union Carbide India Limited (UCIL) a multi-national set up a factory in Bhopal in 1969 to manufacture pesticides SEVIN for the eradication of pests which attach agricultural crops. Methyl Isocyanate (M.I.C.) is lethal chemical required for the production of SEVIN was imported from U.S.A. till the year 1973 but later to cut the costs UCIL started to manufacture MIC in plant their premises. Due to insufficient supervision, faulty instruments and technical lapses on the fateful night of 2nd December 1984, two tones of MIC escaped from tank No. 610. The wind was blowing in the direction of nearby slums. The toxic cloud itself caused between 16,000 to 30,000 deaths. More than 6 lakh people were affected by the lethal chemical. This is one of the greatest industrial tragedies to have occurred since the beginning of the Industrial Revolution and continue to haunt the people after more than twenty five years of the accident. The tragedy could have been minimized had the State and Central Government taken action to treat the affected people immediately after the accident before trying to establish the cause of the accident and the reasons contributing the same. Because of the delayed action more and more people became disabled and even now there is no satisfactory settlement. The site of the plant also has not been cleared of the dangerous chemical which can cause continuous hazard to the nearby people as they can leak into soil and pollute the water bodies. As the country has major plans to put up and operate nuclear

plants for power generation, it is essential that the Government of India discuss and work out suitable solutions for radio active leakage and other hazards related to nuclear production units before the final agreement is signed with the contracting firms to safeguard the interests of the people and nation at large.

Vehicular Pollution

Urban pollution is mainly attributed to the pollution caused by the ever increasing motor transport vehicles be - the trucks, buses, SUV's, automobiles, auto rickshaws or two wheelers. Most of the major cities especially the metropolises have the largest number of individually owned vehicles and they keep on increasing day by day resulting in major transport bottlenecks and emitting injurious exhaust fumes into the atmosphere. Harmful vehicle pollutants are suspended particulate matter (S.P.M.) which collect in the middle of respiratory tract affecting lungs. Nitrogen oxides in higher concentration contract the nasal air passage and create difficulties in breathing.

Sulphure Dioxide. A sharp smelling gas emitted by diesel firms cause diseases like asthma, bronchitis and tuberculosis. Carbon monoxide, even in smaller quantities make us feel drowsy and slow down air reflexes and can cause death.

Hydro carbon released from un-burnt petrol and diesel, irritate the eye and the throat.

Ozone - a colourless gas with pungent smell makes eye itch, burn and water.

Data collected at regular intervals of in heavy traffic junctions of Cities and metropolises indicate as to how much we are exceeding the targets of accepted levels of pollution especially in S.P.M. levels.

It would be worthwhile to take the case of an Capital DELHI. Due to pressure from various agencies and environmentalists diesel as a fuel to run the buses in Delhi was discontinued during last decade. Similarly with the commissioning of Metro rail, mass rapid transport system become a reality and this resulted in reducing the level of pollution. But these advantages were off-set by the additional number of individual transport being added day by day by the affluent individuals. It is reported that the number of vehicles being added every day is more than 1,000. With such large number of vehicles, many of them diesel powered, the pollution levels are on ascending graph and transport bottlenecks are endemic. There is no place to park the vehicles.

It is essential that the State and Central Government lay down a policy or chalk out measures which will reduce the number of individually owned vehicles plying on the roads and replace them with mass rapid transit systems. In Cities like Singapore and New York public transport is so effective that individual transports are not preferred and thus their limited use do not create any problems. Such measures need be taken up, the earlier the better for our Cities and Metropolises.

In a City like Bangalore because of the dismal public transport system and the location of Information Technology Units in all parts of the City, individual vehicles keep on increasing and now the transport bottlenecks are happening from morning to night. B.M.T.C. has introduced many citizen friendly buses and Metro rail is making its way for an early solution to the endemic transport problem. The only solution is to have dedicated bus lanes which take commuters from point to point with quick turn over. Both

the authorities and commuters should decide to prevent the number of small vehicles plying on the roads and instead do travel by the mass rapid transport system to have the full benefits of the Metro and the emerging ease of traffic bottleneck. It might also be worthwhile to examine whether most of the Information Technology Units could be located at specific concentrated locations so that the transport requirements could be planned more systematically and introduced. In any case considerable planning is required to ensure that all type of commuters get their share of comfort and benefit as the present planning and execution of widening roads only take the interest of the vehicle users and not the pedestrians. Reduction of the number of vehicles plying on the road is of vital importance to cut down traffic bottlenecks and from environment and ethical considerations.

Ethical Considerations

From the preceding paragraphs it is clear that development efforts taken up and completed do not take into account the welfare of the large population of have-nots. Otherwise we should have found out and established solutions for indoor pollution affecting most of the rural house-wives, the industrial workers employed by unscrupulous industrial manufacturers and the City Corporations who plan and introduce transport systems for the residents of the Cities.

In countries like U.S.A. where distances from residences to work places are high use of automobiles can be justified. For this they have provided major highways and wide roads. But for a poor country like India where movement of large section of employees are involved for transporting over short distances to work place, mass transport system is the only solution. The planning, development and

execution of the schemes should mainly concentrate on this aspect and not encourage the use of individually owned automobiles. Steps should be taken to discourage the production and utilization of cars and two wheelers for the transport needs of the Cities and metropolises. All roads should have proper pavements, designed for pedestrian use with clear marked crossings, underpasses, escalators, etc.

Much more can be done by the Indian Railways for carrying more number of passengers so that over a period of time people should prefer rail to road for their movement. Cost of transport through surface rail is much cheaper than by road. There was a news item recently in one of the papers that in Kerala because of dwellings and establishment width of highway need be limited to 35 meters instead of 45 to 60 meters. While the merits and demerits of the scheme can be discussed and finalized after due consideration it is not known why no one is taking up the case of increasing the number of trains between Trivandrum the Capital to Kaseregod the Northern extreme point in Kerala State. The track must have been already doubled for the linking to the Konkan railway and therefore where traffic consideration prevail, railways could introduce Push Pull Trains over dense areas so that the intensity of road traffic between towns could be reduced. The widening roads of Kerala and the reckless driving of buses and lorries create a heavy toll of accidents and better rail connectivity might be an answer in the long run.

The development activities need be chanelized to meet the needs of the majority rather than the affluent only and also with an eye to reduce air pollution and preservation of the natural assets of the land.