Globus An International Journal of Management & IT
A Refereed Research Journal
Vol 9 / No 1 / Jul-Dec 2017 ISSN: 0975-721X

POLICY MEASURES FOR REDUCING THE HEALTH IMPACT FROM AIR POLLUTION IN THE NATIONAL CONTEXT

*Chander Pal Singh
**Dr. Pramod Gupta

Abstract

One of the main outcomes of the United Nations Conference on Sustainable Development (Rio+20) was the agreement by Member States to launch a process to develop a set of Sustainable Development Goals (SDGs). The goal "Ensure healthy lives and promote well-being for all at all ages" aims at securing a healthy life for all. Measures to achieve this goal involve substantially reducing the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination. This paper discusses the health impacts arising from ambient and household air pollution globally and at the national level (India) and recommends policy measures to reduce the health impact from air pollution in the national context.

Keywords: Health, air pollution.

Introduction

Health for human kind is a paramount aspect whose consideration must involve top priority practices. One of the most efficient ways to advocate for health environment is by maintaining clean air. This is supposed to be considered as the foremost consideration for advocating for a clean environment. The major reason for this aspect is ensuring that the surrounding is able to advocate for contributions to accommodate the logical integrations of wellbeing of humans [1]. However, there have been various drawbacks in this position because of the practices of the humans towards the environment. Gaseous emissions to the environment have been on the rise, hence, giving a difficult intrigue towards the regulation of environmental cleanliness. Sustainability is a matter of ultimate concern and must be advocated with all logical articulations of Particulate Matter commonly abbreviated as PM. Such Compositions have not been quite friendly to the environment and have rather advocated for the concise composition of various factors that are meant to predetermine the logistics of environmental Concerns [2].

One other dehumanizing practice towards unsafe environment is the Enter pathogenic emissions with a composition of many types of atmospheric microorganisms and other particles which pollute the air. These particles and microorganisms are regarded as pollutants, and are among the most unsafe aspects for the environment today [3]. They are, therefore, the primary polluting substances of the air, which makes it unclean for human inhalation or generally the surrounding. When the primary pollutants are allowed into the air, they can undergo chemical reactions because they can combine with other chemical or microorganism components. The reaction for this combination is regarded as chemical and can have products which are also unsafe for the environment. Such produced components are regarded as Secondary pollutants. The composition of the secondary and the primary pollutants in the air will, therefore, give rise to the building up of a common ambient that is practically a resonance of articulating the natural resources of Ambient Air Pollution. This is aspect is often abbreviated as AAP. It is one of the global threats that are featured to be among the top listed harmful aspects to the environment. This is, therefore, a

* *Research Scholar, Sunrise University, Alwar, Rajasthan*
** *Supervisor, Sunrise University, Alwar, Rajasthan*

global concern against the incalculable focus towards the human concerns of pollution which are damaging the health of humans on a very fast rate. The contributions of the primary and secondary pollutants at the same rate are depicted on a high notch towards this vice.

The Sustainability Development implementers in the United Nations General assembly, called the Open Working Group have been considered the most pertinent carriers of the aspect of sustainability [4]. For future good, sustainability is pertinent. There are aspects considered as the pillars of sustainability, which are defined in terms of social accolades, economy, and the environments that support the service. They are all supposed to work with the same prospect in order to achieve optimal concentration towards sustainability for the future good. The social, economic, and environmental focus on the proposal of the Sustainability Development goals has achieved a lot of practice in the long run that accumulates the ancient need for work place practices. The UN are the foreseers of the projects that are meant to ensure that the visionary implementation of the year 2030 of the SDGs is meant articulate the practice and accord any aspect that businesses perform towards the future good [5].

There was a conference at the United Nations Offices, which called for delegates to focus on how best the world could recover after the 2009 financial crisis for both developed and developing countries. This projected the need to implement the 17 Sustainability Development Goals (SDGs) after the Failure of the Millennium Development Goals (MDGs) in 2008 – 2009 [6]. There were sanctions that were meant to critically develop the aspect of conclusive practice and the leverage the set of avocations that were meant to maintain the aspect of sustainability and preserve the future. The concept of green practices was supposed to be enhanced by the 17 projective goals and the objective influencers of the logistics by the 169 targets. There are various aims that were supposed to be achieved from the articulated practice.

Aims of the Sustainability Development Goals for their Targets

- Ending traces of Hunger and Poverty among the target contexts
- Improvement of Education and Health provision services for the target contexts
- Cities could become more sustainable and better for future focus
- Ensuring that there are advocated aspects towards combating climate changes
- Ensuring that there is optimal protection for the forests and the oceans

One of the most crucial aspect or measure for this context is the third aim, which is articulated to health and education. This goal is a broad goal which can be divided into sub-goals and given the magnitude of high accordance of targets to reduce deaths, illness, pollution and other related aspects from unclean environment. The most casual aspect implementers of the recommendations are the businesses, or areas that have been defined with any sort of work places. The conclusive positions of these articulations are based on logistical practice and encouraged through the inceptions of environmental, economic and social prospects enhancement. These aspects against pollution were projected to be fully implemented by the year 2030. There is quite a lot of importance to report any form of pollution towards the environment. This is among the first steps of advocating for sustainability. Some of the depicted factors are consistently monitored and regulation aspects from the responsible bodies. Pollution has been a top priority for various environmental focus based on the regulations that have been advocated from the effects of pollution. This is because they are first hand effect impartations towards the health of humans. Various aspects are co-dependent on the articulations of the effects that are directly accorded to humans who are exposed to areas of pollution [7]. There has been consistent deterioration of the quality of air in most cities globally.

The focus on the Indian setting has attracted more focus because of the high growth rates of the populations. One of the contributing factors towards the deterioration is industrialization which is also a background effect for the population of urban areas. This has led to giving birth to bodies that are meant to instigate and develop the aspect of growth from various angles. This inception of growth of the bodies includes the Integrated Air Quality Management abbreviated as AQM. This is an invention that is meant to manage ad evaluate, and monitor the challenge of carrying out the developing countries because of reduced information regarding sources of pollutants. The need for ambient monitoring of air is to ensure that the logical dependencies of the public domain to understand the logical process of air pollution are eminent. The public domain is rightfully advocated for ensuring that information is available to the public domain [8].

In urban areas, air pollution is highly related to processes of burning fossil fuels. They are mainly used in the transport sector and other industrial

sectors that are pertinent to using heavy machinery. Power generation is also a process that can emit pollutants through combustion of fossil fuels. All these are based on the need to improve the economic aspect of the urban areas. They are articulated towards enhancing the subject of focus towards the inculcation of other aspects of business related activities. This means that there is a side effect of economic development in urban areas which is focused on the pollution of air. Some of the other practices that are pertinent to the pollution of air include the Household Air pollution which is abbreviated as HAP. This is where there is provision of pollutants to the environment through the household practices. One other practice can be regarded as Indoor Air Pollution, abbreviated as IAP [9]. In this case, a series of concerns are directed to the indoor practices which are pertinent to the destruction of air quality. Some of the practices include traditional biomass production which does not concretely follow the requirements of curbing gaseous emissions and control aspects. Space heating and the use of kerosene, which is commonly understood to be undergoing incomplete combustion, May also, be one of the most adoptions of air pollution.

There is a statistical projection of 70% of the residents in urban areas in India where the focus on fuel usage is achieved through traditional means. This includes the use of crop residue, firewood, cow dung, lignite and coal. However, the people do not also understand the best way to achieve the prospect of green energy. From the set, 32 % of the population has been advocated for the use of Kerosene as the main lighting fuel. More than 40 billion people globally, projected to be about 3 % of the global population uses traditional biomass for purpose of household energy production. This is mainly achieved through the purposes of cooking and other core practices. 500 Million People globally use kerosene for purposes of lighting, and are mainly advocated in the rural areas a partly in urban areas [10]. This is in accordance to the World Health Organization attributes information regarding the aspect of sustainability. In India, it is only 11.4 % of the population who are using the liquid petroleum gas for cooking [11].

Summary

The main focus of this chapter is to discuss the relative approaches that are entitled to the endured impacts of the rising rates of pollution of the environment. The recommendation of the policy measures is achieved by the impact of air pollution. The targets of sustainability are chaired and annulled on how best the responsibility of humans can help secure the environment for future generation. It focuses on having a global articulation towards the air pollution patterns and the recommendations projected by the SDGs towards the reduction of pollution as a national conquest in the same context.

Parameters Of Air Quality

When complex substances are mixed up in the air, and consisting of physical and chemical properties, they are advocated for a projective air pollution. These components have various and adverse effects on the life of all living things and the human life as well [12]. The WHO has considered its enumerations of rules as a part of the specific contentions that are meant to advance the need to logical integrations to the monitoring scale as a part of their practice. The quantification of various aspects that are meant to endure logical instigations of close qualification to air pollution and the quantification of pollutants. There are various factors that are mainly put into consideration in these projections. Various factors are quite imminent and define the logical sanctions of air pollution relations. One of the factors that are used to project these effects and the composition of air is the particulate matter. They are the measured particles that are possibly meant to ensure the whole aspect is considerably paramount composition of air. PM is measured with the use of existing aerodynamic diameter of the lower than 10 μm (PM10) and lesser than 2.5 μm (PM2.5). Some components that are pertinent to this aspect are the nitrogen dioxide, ozone, and sulfur dioxide. The general state of air quality can also be monitored using this prospect based on the quality of air. However, when the substances are lower than the threshold does not directly imply that this does not affect human being or living organism's bur it should be considered as a reducible minimum [23].
From the figures 1 and 2, the concentrations shown by the annual means of PM10 and PM2.5 are in different regions. This indicates different perceptions of air pollution and pollutants composition in various degree of engagement of the representation of data prospects that are actuated by the belongings of respective time differences. This is also dependent on different data a collection station that is actualized by the aspects of concreteness of the high and low differences of the two mean representations. Every region has its own prospect from the two illustrations. The guidelines from the WHO is a set of values that are adopted by the PM of 20 μg/m3 for PM10, 10 μg/m3 for PM2.5, 40 μg/m3 for NO2 and 20 μg/m3 for SO2. The respective orange inception is meant to define the limits that are set by the WHO; this actuates the HDI value representation that is set for the reports of the country in the year 2012.

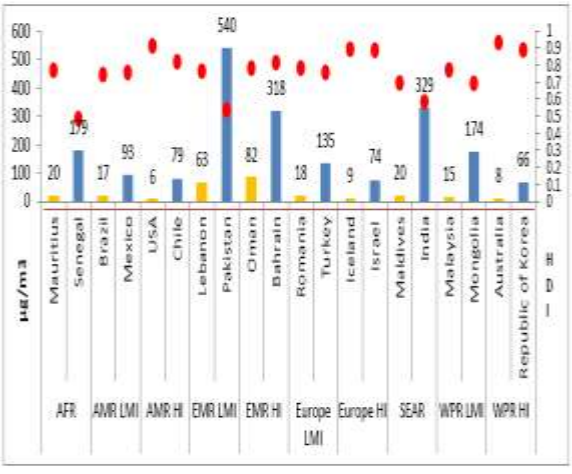

Figure 1: Annual mean concentration of PM10 (ug/m3) in regions of the world (Source: Ambient Air Pollution Database, WHO, 2014)

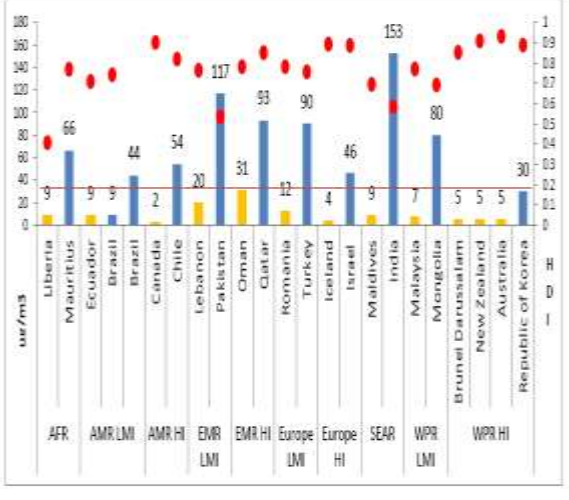

Figure 2: Annual mean concentration of PM2.5 (ug/m3) in regions of the world (Source: Ambient Air Pollution Database, WHO, 2014)

As observed in Figure 1 above, the peak level recorded for PM 10 is sin EMR LMI and the value recorded originates from Peshawar located in Pakistan. The lowest level recorded is from Illawarra in Australia. This level can be identified in the figure as WPR HI. In Figure 2, SEAR is the highest level recorded for PM2.5 and it is from Delhi India. The lowest level recorded in this figure (AMR HI) is from Powel in Canada. In general, those countries with bigger income clusters have lesser PM10 and PM2.5 when compared with those of low income earners with the exception Chile which has a concentration of PM2.5. The peak value of PM2.5 AMR HI value in Chile is much higher than the one of Brazil (AMR LMI) [13].

The EMR and SEAR are performing poorly in aspects of PM10 and PM2.5 amidst other regions in the world. Interestingly, one should be aware that those countries with high PM10 and PM2.5 values have low HDI values. Some of the countries as well with low PM10 and PM2.5 have consequently higher HDI values. This observation gives a great hint on the reason for understanding these countries and their developmental phase. It does not however show that there is no connection between PM10 and PM2.5.

Pollution has been identified as the 5th biggest cause of death in India and has thus been seen as a national disaster [14]. Through a network of 544 operating sufficient air quality stations that cover about 224 air quality stations that cover 26 states in 5 union territories with a total of 224 towns and cities, the Central Pollution Control Board of India does the implementation of the National Air Quality Monitoring Program.

According to the National Air Quality Monitoring Program, there are three main pollutants with which need monitoring at all times in all locations. These include Nitrogen dioxide (NO2), Sulphur dioxide (SO2), and PM10 which is a particulate matter of less an aerodynamic diameter of equal or less 10 µm. The levels permitted in the environment for SO2, PM10 and NO2 are 40, 60 and 50 µg/m3. Particulate matter with an aerodynamic diameter equal or less than 2.5 µm, PM25, Carbon monoxide (CO), Ammonia (NH3), Arsenic (As), Lead (Pb), Ozone (O3), Nickel (Ni),Benzene (C6H6), Benzo (a) and pyrene {B(a)P} are the other parameters of interest under monitoring in some locations and under NAMP. According to CPCB, violation of PM10 standards has been experienced in more than 80 percent of Indian cities with just 31 with the standard measure of 60 µg/m3 for PM10 in all the 204 with recorded data. Ulhasnagar and Dombivali (52) are the only cities in India with limits permitted of 50 µg/m3 for Sulphur Dioxide. 9 cities have a very high measure of NO2, exceeding 60 µg/m3 [15].

Impacts of Air Pollution on Respiratory Health

According to the WHO, 4.3 million and 3.7 million deaths were facilitated by household and ambient air pollution respectively. This led to approximately 7 million deaths associated with pollution in 2012 [24]. Leading causes of pre-mature and adult deaths can be seen in Figure 3. At the fore front of the leading causes of death is Ischemic heart disease. Chronic Obstructive

Pulmonary Disease (COPD), lung cancer and infections of the lower respiratory tract form the 5 leading causes of worldwide deaths.

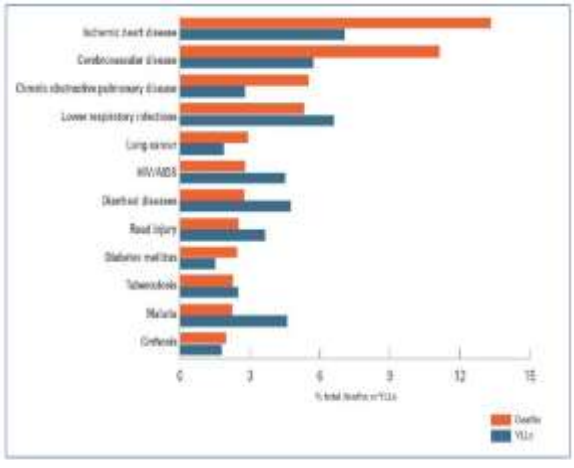

Figure 3: Leading causes of global deaths and premature deaths (Source: Global Burden of Disease, 2010)

Figure 4 shows the number of deaths associated with HAP (Household Air Pollution) and AAP (Ambient Air Pollution) in major world regions in 2012. Basically, five of the main respiratory diseases are the leading causes of deaths. This was as per a study conducted in 2010 by the Global Burden of Disease (GBD). 36% are associated with Ischemic Heart Disease (IHD), 33% due to stroke, 17 % due to COPD, 8% due to Acute Lower Respiratory Disease and 6% due to cancer of the lungs. According to GBD, the effect also applies to gender and age group differentiations. Men of an age of more than 25 amounted to 49% of the 7 million deaths experienced in 2012. 42 % were women of more than 25 years and children of less than 5 years formed 9% of the total deaths. High deaths were recorded in the West Pacific region of low and middle-income earners with South East Asia and Africa next in line.

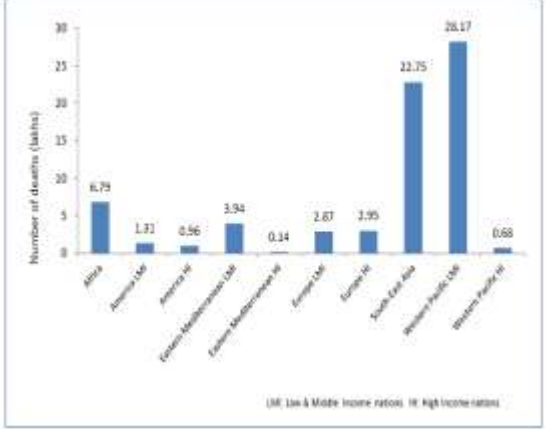

Figure 4: Total global deaths attributable to household and ambient air pollution in 2012 (region-wise) (Source: WHO, 2014)

A representation of data in an interval of 5 years between 1990 and 2010 is found in Table 1. This is data representing the percentage of deaths in the world due to pollution as put in three main categories of diseases. From the data, the rates of death for the leading respiratory diseases have been on a continued decrease over years in context. It can also be attributed with the yearly improvements in between these years on the quality, availability and accessibility of health services and medicine. These services have been provided continually in the vulnerable geographical ends. Enough data can be availed to prove that deaths attributed to air pollution have greatly decreased over years because of global air quality improvements if such actually exists.

Years	Chronic obstructive pulmonary disease	Lower respiratory infections	Pneumoconiosis	Other chronic respiratory diseases	Total
1990	6.7	7.3	0.4	0.6	15
1995	6.3	6.7	0.3	0.6	13.9
2000	5.7	6.1	0.3	0.5	12.6
2005	5.4	5.5	0.2	0.5	11.6
2010	5.5	5.3	0.2	0.6	11.6

Table 1: Percentage of total global deaths due to causes that are attributed to air pollution (Source: WHO, 2015)

In the years between 1990 and 2013, there was an increase of the global rate of life expectancy. This was a projection from 65.3 to 71.5 between the years, where 1990 was the lowest and 2013 was the highest. There was also a direct proportion of death between these specific years, where it was projected between 47.5 to 54.9 million. From this aspect, there is a relation of the fact that age-bar was pushed to age from the implementation of the specific health projections [16]. The generations could increase and become more bracketed to a lower age than before. The implementations were meant to ensure a healthy life for humans and also depict a concrete articulation for the five-year range. From the specific data implementations, there were various obvious aspects that were majorly meant to reaffirm the aspect of tranquility

position of curbing infection of the generations. However, there was a projected increment or outcome of the respiratory infections amongst the young people. This also depicted that there was an objective focus on how the aspect of household air pollution was set to an ambient description. This was projected to be the aspect that was affecting the children at advocated glances of growth from the prime years of growth. They were the most susceptible intrigues of projection that were depicted on the layouts of the lower infection requirements.

The high rate of deaths among the young children, especially those who are under the age of five has been obligated to be mainly caused by the lower respiratory infections [17]. This illustration can be depicted in figure 5 which explains meaning and significance of the decline in the number of global deaths of the young people especially the ages of 1 to 4 months. The last decade projected the highest numbers where the number of children who died in less than 27 days has had minimal difference since then. The WHO advocates the specific purposes of the positions that must be instigated in order to have affluence towards curbing this vice in the modern urban and rural community.

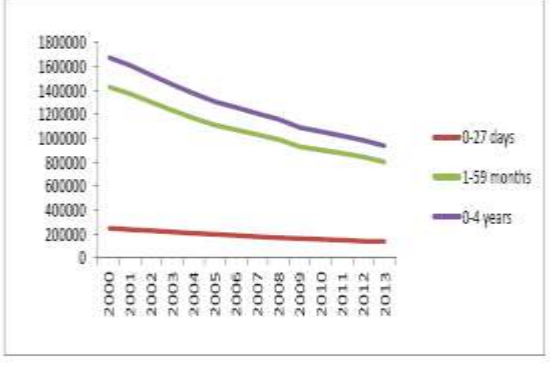

Figure 5: Number of global deaths in children due to acute lower respiratory infections (Source: WHO, 2015)

Table 2 shows a detailed snapshot of the total global numbers of; years of life lost from mortality (YLL), years of health life lost due to disability (YLD) and disability-adjusted life years (DALY) for men (M) and women (F) of all age-groups, for the major communicable and non-communicable diseases that are believed to be attributed to air pollution. From the table, it can be seen that in the year 2000, respiratory infections and lower respiratory infections has the highest YLL value amongst both men and women including all age groups, has the highest YLL value amongst women in 2012 too but Ischemic heart disease accounts for the highest YLL value for men in 2012.

	2000						2012					
	YLL		YLD		DALY		YLL		YLD		DALY	
	M	F	M	F	M	F	M	F	M	F	M	F
Communicable diseases												
Respiratory infections	110.65	95.97	4.33	4.02	69.63	70.34	79.03	65.91	4.80	4.43	89.83	70.34
Lower respiratory infections	110.50	95.86	1.10	1.06	79.90	66.89	78.76	65.69	1.22	1.20	79.97	66.86
Upper respiratory infections	0.22	0.20	0.88	0.79	1.02	1.01	0.17	0.14	0.09	0.08	1.06	1.01
Non-communicable diseases												
Ischaemic heart disease	60.79	54.24	3.02	3.36	69.50	67.14	99.62	62.87	4.96	4.17	98.56	67.12
Respiratory diseases	53.38	39.23	21.13	20.61	76.75	60.38	50.94	35.96	26.19	25.02	76.72	60.37
COPD	36.47	30.45	12.79	11.79	52.19	40.19	36.14	25.49	16.05	14.70	52.18	40.18
Asthma	6.91	4.90	5.92	6.40	13.40	11.80	6.63	4.44	6.77	7.36	13.40	11.80
Other respiratory diseases	7.99	5.88	2.52	2.34	11.14	8.39	7.78	5.43	3.36	2.97	11.14	8.39

Table 2: Total number of YLL, YLD and DALY (in millions for 2000 and 2012 for men and women of all age groups for the diseases attributable to air pollution (Source: WHO, 2015)

Indian Cities are highly populated and have an approximate high rate of outdoor pollution articulations. This has been the determined cause of death of almost 670,000 deaths globally [4]. There are current standards of PM which have been determined by the CPCB which are higher than those set by WHO [18]. A periodic review of epidemiological evidence informs policy makers about current health risks associated with air pollution and sets the agenda towards finding a balance between reducing health impacts and the costs of implementing further air pollution controls [19].

More dense cities like Mumbai and Ahmedabad have been determined to have more avocations to have more levels of pollution which is projected at 10 mg/ m3 increase in PM10. However, the mortality rate is quite high in Shimla which a very clean city as compared to most of them in the region. The percentage increase in mortality associated with a 10 mg/m3 increase in PM10 is highest for Shimla (1.36%) and the least for Ahmedabad (0.16%). Bangalore and Mumbai showed similar results with a 0.22% and 0.20% mortality increase respectively at a 95% Confidence Interval.

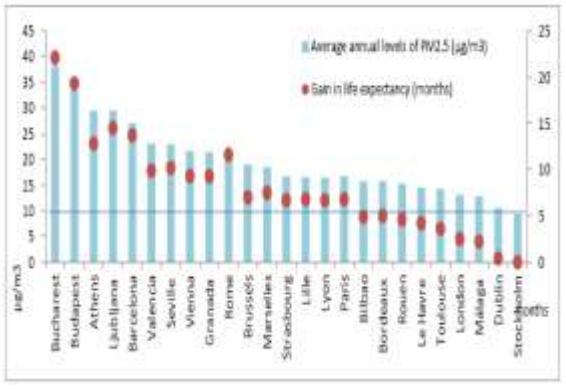

Figure 6: Predicted average gain in life expectancy with reduction in average annual levels of PM2.5 10µg/m3 in 25 European cities
(Source: WHO, 2013)

The Aspect of AAP has been regarded as the fifth among the most prominent causes of Indian rates of mortality [4]. There was an increase of about 12% in the mortality rate an increase of about 3 % between the years of 2005 and 2010.

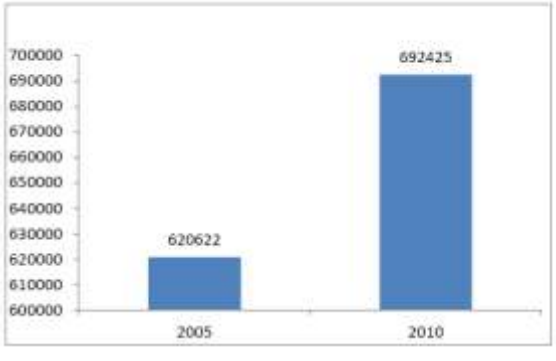

Figure 7: Total deaths from ambient PM and ozone pollution in India
(Source: OECD, 2014)

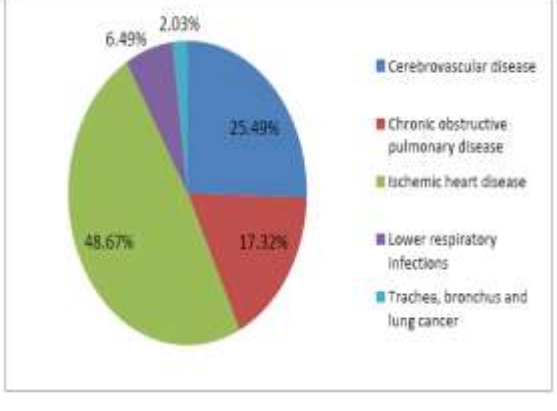

Figure 8: Percentage distribution of deaths from ambient PM pollution in India
(Source: Lim et al, 2012)

According to various researches regarding India's position on Indoor and Outdoor air pollution, it has been outlined as a complete aspect towards his projection of environmental risks. This is also projected to have direct influence on the aggravation of chronic diseases among the resident's in particular residential areas. This means that the aspect of human practice is pertinent to the logic of high levels of infections of various anomalies and life focuses. There are acute and chronic diseases that may be advocate from these practices based on the measure of child level data that is advocated from the National Family. This aspect is derived from the health survey in India in the years between 2005 and 2006 [2].

From the same studies, the conclusive projection of increased ambient air pollution has signified the increase in child morbidity. In the six states in India [5]. These cities are regarded as a part of the Indian populated urban areas which include Delhi, Chennai, Indore, Kolkata, Hyderabad, and Nagpur. The studies in these areas have projected the possibility of ambient air pollution being the most common cause of the coughs among young children. There are also other factors like the type of cooking oil that is used, which has determined the rate of morbidity because of their substantial components. This implies that the health practice has among the strongest accolades towards the aspect of children morbidity and the related child related infections.

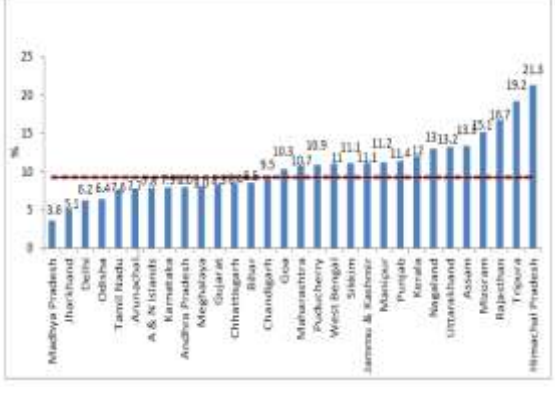

Figure 9: State-wise percentage of medically certified deaths due to diseases of the respiratory systems in 2011
Note: The red line in the graph depict the all India value of 9.71 %
(Source: CBHI, 2013)

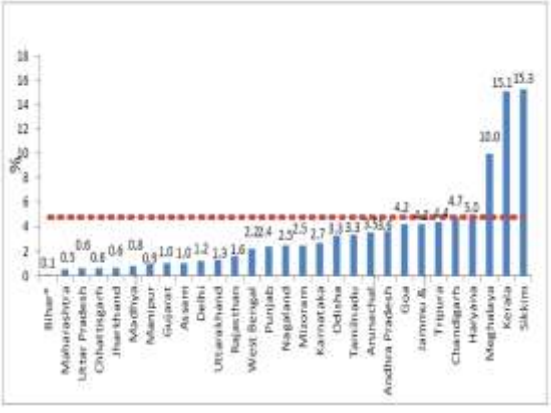

Figure 10: State-wise total cases of ARI infection deaths due to diseases of the respiratory systems in 2011.
Note: The red line in the graph depict the all India value of 4.77 %
(Source: CBHI, 2013)

The Metropolitan cities in India are still regarded as the highest pollutants in the region. This is mainly because of the vehicular levels in the area and the projected focus on the poor roads that they are advocated to use. There are varying pollution levels because of the dynasty of traffic as well as time of the day. This is because most of the articulations are related to the virtue of occupation and time of economic engagement of the residents. There is also a prospect that some people are more prone to the incurred effects than others because of their economic positions. For example, there is high proximity of facing effects based on the essence of high emissions in industrial areas. The major focuses on the decelerations and acceleration from vehicles are dependent on the people who are close to them. This may involve workers in filling stations, traffic police, and drivers in the profession of daily traffic, tollbooth workers, and vehicle idling personnel [12]. In a recently conducted study on air quality monitoring (PM2.5, CO, NOX, SO2 and EC/OC) at highway toll plazas, municipality toll plazas and control sites which were 23 in number, it was found that there was a high level of air pollution at almost all locations with PM2.5 values exceeding the national permissible limit (60 µg/m3) except at a few control sites.

How Air Pollution Affects the Economy

The major causes of air pollution can lead to aspects of morbidity and mortality. This is a direct effect on the economic standards of standardization with the obligation to allow the logical attributes of eliminating the rising costs of transitions between air pollution and effect on health prospects. Economically this is not a good sign for any state or group. There are costs that are incurred in these positions which are pertinent to the effective indications of the economic burden. These aspects are whole determined to have influential prospect on the aspect of air quality. There are predetermined costs of mortality, which is valuable to any economic projections in any state or area. They can depict ancient positions that are meant to delay the position of articulate natural aspects that calculate the rates of mortality and morbidity. There is need to have a prominent value of statistical life denoted as VSL [20]. This is a considered measure that is derived from the valuation of individual regarding their willingness and ability for their intent for payments that are meant to reduce any vulnerability towards their death. India is described with a very high growth rate, it terms of the registration of the VSL. From the information by WHO, it has about 60 % of the increments of registrations of the VSL medical accord in various institutions.

Conclusion and Recommendations

Urban and indoor air is of great importance and quick measures should be adopted to improve its quality. India has adopted various measures so as to improve the quality of air in the country as well as to minimize the burden of diseases that they experience. Vehicular pollution is one of the forms of pollution of air in India. As a result the country came up with vehicular emission rules that were set in 1986 as a measure to curb vehicular pollution. The CPCB set the standards for both vehicles that use diesel and petrol. In 1987 and 1989 the principles were revised. In addition the ministry of petroleum and natural gas embraced the Auto Fuel Policy that proposed the introduction of fuels and vehicles that are cleaner. The policy was adopted in 2002 till 2010. In October 2010, BS III norms were enacted in the whole of India. Heavy duty trucks are listed in cities where BS-IV standards have been established even though they are still recorded on the BS–III norms all over the country. The country then brought up the use of compressed natural gas in many cities.

In 2013 the Auto Fuel Vision Committee was introduced so as to establish way forward for improvement of fuel value and vehicular discharge standards till 2025. The committee advocated for the commencement of BS-IV and BS-V all over the country between 2017 and 2020 correspondingly. India is behind the US and European nations due to the plan that is recommended by the Auto Fuel Vision 2025 The BS-VI discharge standards are believed to be in existence by 2024. The Indian government should initiate and put into practice BS-V fuels instead of what the Auto Fuel Vision (AFV 2025) advocates for.

The Indian government has adopted various strategies that would aid in the access of clean energy like the Rajiv Gandhi Grameen Vidyutikaran Yojana, the Remote Village Electrification Programmed together with the Village Energy Security Programmed so as to manage the indoor air contamination. The scheme referred to as National Biogas and Manure Management Programmed is responsible the planting of biogas plants in a majority of states and union territories in India. 82, 7003 family kind biogas plants have been planted up to March 2014. This estimation is from a research according to the MNRE which had placed a mark of 1.06 lakh biogas plants (TEDDY 2015).

The supply and delivery of cooking fuels vary geographically in all parts of India. Factors such as affordability, tolerability and poor alertness levels about alternative food preparation fuels and up to date technologies are the most important obstacle. The government has come up with various schemes but they are not a success because it makes the decisions alone without the community involvement and participation. Every community can embrace cleaner fuels if only they are made aware of the policies. Household air contamination affects peoples health and more research should be done and the community to be made aware of the dangers of air pollution. The gap of not measuring the impact of air pollution should be taken into consideration for monitoring. The gaps hinder research when it comes to understanding of trends in contaminant absorption levels and spread of diseases.

Reducing the burden of air pollution could easily offset the financial cost of reserves in more go-getting programmes to reduce pollution (OECD 2014). Advances should be made in instrumentation in order to take up uninterrupted information systems for monitoring large concentrations and contamination from high–emitting industries or transport sectors. In China, about USD 1.4trillion is the approximate estimate of the economic cost that is brought about by the health effects of indoor air pollution. When the economic cost of china is combined with that of India, it exceeds the total of OECD. For polluters to conform to set of laws that have been put in place to curb air pollution increased monitoring should be done which will in turn boost pressure towards the polluters.

References

1. Greenstone M. Nilekani, J. Pande, R. Ryan, N. and Sudarshan, A. (2015). Lower Pollution, Longer Lives: Life Expectancy Gains if India Reduced Particulate Matter Pollution. Economic and Political Weekly, l (8).
2. Ghosh, A. and Mukherjee, A. (2010). Air Pollution and Child Health in Urban India. Indian Statistical Institute: New Delhi. India
3. Kumar, R. Goel, N. Gupta, N. Singh, N. Nagar, S. and Mittal, J. (2013). Indoor Air Pollution and Respiratory Illness in Children from Rural India: A Pilot Study. Vallabhbhai Patel Chest Institute. University of Delhi: New Delhi, India
4. Lim, S. S. Vos, T. Flaxman, A. D. Danaei, G. Shibuya, K. and Adair- Rohani, H. (2010). A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 19902010: a systematic analysis for the Global Burden of Disease Study.
5. Ministry of Health and Family Welfare, Government of India (2012). National action plan and monitoring framework for prevention and control of NCDs. New Delhi, India: GOI.
6. Ministry of Statistics and Programme Implementation, Government of India (2012). Energy sources of Indian households for cooking and lighting, NSS 66th round, July 2009 June 2010. New Delhi: National Sample Survey Office; 2012. Report No.: 542.
7. Dholakia H. Bhadra, B. and Garg, A. (2014). Short term association between ambient air pollution and mortality and modification by temperature in five Indian cities. Indian Institute of Management: Ahmedabad, India
8. CPCB (2014). National Ambient Air Quality Status & Trends. Central Pollution Control Board. Ministry of Environment & Forests. Government of India : New Delhi
9. TERI (The Energy and Resources Institute) (2009). GREEN India 2047 Renewed: Looking Back to Change Track. New Delhi: TERI
10. Census of India (2011). Census Info India 2011: Houses, Household Amenities and Assets (Version 2). Retrieved from
    a. http://www.devinfolive.info/censusinfodashboard/website/index.php/pages/kitchen_fuelused/total/Households/IND.
11. OECD (2014). The Cost of Air Pollution: Health Impacts of Road Transport, OECD Publishing. Retrieved from http://dx.doi.org/10.1787/9789264210448-en
12. Sehgal, M. Rizwan, S. and Krishnan, A. (2014). Disease burden due to biomass cooking-fuel-related household air pollution among women in India. Global Health Action. Retrieved from
    a. <http://www.globalhealthaction.net/index.php/gha/article/view/25326>.

13. Sehgal, M. Suresh, R. Sharma, V. P. and Gautam, G. (2014). Assessment of outdoor workers' exposure to air pollution in Delhi (India). International Journal of Environmental Studies, DOI: 10.1080/00207233.2014.965937
14. Lakshmi, P. V. Virdi, N. K. Sharma, A. Tripathy, J. P. Smith, K. R. Bates, M. N. and Kumar, R. (2013). Household air pollution and stillbirths in India: analysis of DLHS-II National Survey. Environmental Research, 121, 17–22
15. TERI (2014). Advancement of Fuel Quality and Vehicle Emission Norms to improve Urban Air Quality in India: Policy Brief. The Energy and Resources Institute.
16. TERI (2015). TERI Energy and Environment Data Directory and Yearbook 2014/15. The Energy and Resources Institute. New Delhi.
17. Hertz-Picciotto, I. Baker, R. J. Yap, P. S. Dostál, M. Joad, J. P. Lipsett, M. (2007). Early childhood lower respiratory illness and air pollution. Environ Health Perspect, 115, 1510-18.
18. ICAMP (2014). India-California Air Pollution Mitigation Program: Options to reduce road transport pollution in India. A joint initiative by The Energy and Resources Institute (TERI) India, University of California at San Diego (UCSD), and the California Air Resources Board (CARB)
19. IHME (2013). The Global Burden of Disease: Generating Evidence, Guiding Policy. Seattle, WA: Institute for Health Metrics and Evaluation.
20. OECD (2015). Gross domestic product (GDP) (indicator). Doi: 10.1787/dc2f7aec-en
21. WHO (2006). Air Quality Guidelines Global Update. Copenhagen: WHO Regional Office for Europe.
22. Lepeule, J. (2012). Chronic exposure to fine particles and mortality: an extended follow-up of the Harvard Six Cities Study from 1974 to 2009. Environmental Health Perspectives, 120, 965–970.
23. WHO (2013). Health Effects of Particulate Matter: Policy implications for countries in Eastern Europe, Caucasus and Central Asia. Copenhagen: World Health Organisation Regional Office for Europe.
24. WHO (2014). Burden of disease from the joint effects of Household and Ambient Air Pollution for 2012. Geneva: World Health Organisation.
25. WHO (2015). Global Health Observatory Data Repository. Geneva, Switzerland.