

# STUDY OF POLLUTION IMPACT IN ENVIRONMENTAL DUE TO CONSTRUCTION

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## ABSTRACT

Worldwide about to fifty percent of the population depend on construction industries. The construction industry is backbone of country to enhance the economy because it is a big industry and supports all the sector directly or indirectly which are liable to enhance the economic condition of the country .the construction industry has a negative impact with regard to pollution at construction site. The pollution at construction site is a big challenge for all countries like INDIA, PAKISTAN, CHINA, CANADA, TURKEY, BANGLADESH etc. different type of serious diseases increases the number of patient due to increases of construction pollution in these countries. Various type of pollution as air, noise, water, land fill pollution are happened due to construction industry which adversely affect the human life and health as well as environmental and ecosystem is also adversely effected by the construction industries. The proper maintenance correct methodology for production of construction material in construction industries along with proper safety measures followed by proper monitoring & checking of the site activities will definitely decreases the number of patient suffering from these various critical diseases. In the world most of the cities are top polluted cities having major construction activities. Those cities of maximum construction activities without any safety measure and proper checking & monitoring of construction activities are most polluted countries in the world. These cities are having negative impact on environmental and human health suffering with various diseases. So red alert should be noticed to be such cities to opt the correct procedure followed by proper checking & monitoring along with all measures are to be followed on construction site will definitely reduce the number of patient suffering with such various type of critical diseases.

## **INTRODUCTION**

Construction sector is a large sector in which approximately all peoples are connected directly or indirectly. It is the maximum resource consuming industry as about to 45-50% energy, 50% water 60% material used in buildings & other projects and 80% agriculture land and different timber products. It is clear that construction sector is a large group of construction industry in which about to 30% population are being employed directly or indirectly which are being adversely affected with various serious diseases due to adverse impact of these industries. So it is the prime duty of builders/developers/industrialist to produce & use the building material/construction material followed by all safety measures and correct procedure of construction methodology to optimize the pollution being created by such construction industries. The most negative impact of construction activities is environmental impact in the world. Recently, most of the developing countries recognize the negative impact of construction activities and required to frame out the law for controlling the pollution and to follow the correct procedure of construction activities so that negative Impact should be minimize and pollution level is to be controlled. The all human beings, animals, environment and natural eco system is being affected by construction pollution. So it is the prime duty of world and mainly the developing countries where pollution level is high in to red alert level required to focus to follow all safety measures and correct procedure of construction /production of construction material along with continues proper checking and monitoring of construction activities.

## **LITERATURE REVIEW**

In this content many of the authors have studying and analyzed the negative impact of construction site activities. On the environmental and human beings on the base of enquiries & inspection/site visit method. They mainly emphasize the ranking of negative impact of construction site activities. The study based on the activities and behavior of construction worker involves with construction activities and nearby resident. The study reached to the different point of view and finally involve the group of human beings who are directly or indirectly being affected by such adverse effect of pollution due to construction activities. The study based on queries with

- (i) Site worker (65%)
- (ii) Nearby resident (75%) and
- (iii) People in nearby and its neighborhood and college & school students (35%).

They find with this study that the people who are nearby the construction activities faces various problems for noise, dust and odors also impact on the ecosystem adversely. The blasting site and transportation for site clearance has critical impact on human being health.

In this context the study to find out the quantitative impact of construction activities on environment is based on “integrated life cycle environmental impact assessment” which is construction phase survey where impact factors are of different elements/activities. The study is based on environmental effect in three categories

- (i) Ecosystem impact
- (ii) Natural resource impact and
- (iii) The health of human being.

The study comes to the result that construction activities have a have a serious impact on ecosystem which is about 65%. The impact on natural resource is 8% where as 27% impact is on human health. Finally the study comes to the point that pit support construction is the major adverse affecting impact factor about to 59.4% of the total environmental impact. The excavation is the second impact factor on environment which is about 18.3% and the third impact factor is site cleaning which is about to 12.3% with reference to this some studies are based on four categories.

- (i) Transportation of construction materials has a big negative impact on environment in comparison to other activities.
- (ii) Noise generation due to heavy machine activities in construction activities/process which seriously affect the people nearby the construction activities.
- (iii) Dust generation during construction process and other construction during disposal/ transportation of construction material which adversely affect the human health causes the different critical diseases like respiratory diseases, silicosis, and lung cancer in people residing in this area.

- (iv) Generation of Green House Gases and toxicities which has adverse impact on human being.

### **3. DETAIL STUDY OF CONSTRUCTION POLLUTION**

The human being health and the environment is being seriously affected by the pollution created by construction industries in world. The construction pollution impact on human being increases the chances of various type of diseases. Mainly two type of impacts are as below:-

- (i) **Impact on human health**

Various type of human diseases are mainly caused by the construction and site activities. The critical diseases due to pollution created by construction industries activities and site activities are high blood pressure(HBP).cardiac vascular diseases, pneumonia, respiratory diseases followed by hypertension , coughing, asthma, brain stroke and type-2 diabetes and sometime premature death also due to contaminated by construction pollutants. If we asses the global pollution the result will come that construction of building/projects and construction activities like production of construction material and construction site activities contribute to affect the air qualities in cities is about 23%, emission of Green Gases is responsible to change the climate is 50% ozone level is adversely affected due to construction activities pollutant is about 50%. The main pollutant of construction activities are particulate matter (PM10 and PM2.5), oxides of nitrogen and oxides of sulphar and compounds of volatile organic. Air pollution is mainly responsible for pollution and diseases related to it in South East Asia. Among 13 cities out of 20 in India are adversely affected due to pollution and Delhi comes on first in the list top most polluted cities in world as per study report 2014 of WHO Delhi. Particulate matter is the most adverse affecting pollutant in all over the world. The human being health is directly affected by particulate matter which causes different diseases and increases the burden. The people suffering from these diseases like allergy, high blood pressure, asthma, sleeplessness eyes irritation, respiratory diseases are common in most of the being. Some of the most common and wrong practice as illegal dumping of social waste,

point & oil leave on the construction site are the main source to contaminate the water which adversely affect the drinking water. The causes of sleeplessness, eye irritation, high blood pressure stress problems are due to noise pollution on construction site. Noise pollution is directly and adversely affects the person who are suffering from the problem of heart stroke due to construction site activities and uses of haphazard maintained old transportation vehicles and other machines used on site. Water pollution is due to construction contaminated water is not properly managed and disposed. So to avoid the water pollution it is prime duty of construction agency/management to have a proper disposal management of polluted water of construction industries activities. This is the major source of construction pollution. These worst fuel and other pollutant mix with rain water during raining season and hence the wash water mix in river and polluted the water. The neighborhood resident are facing heavy noise pollution due to use of haphazard maintained old vehicle and ,machines used in construction activities and site activities which adversely affect the human being health and causes different very serious diseases.

**(ii) IMPACT ON ENVIRONMENT**

The impact of construction activities on environment is recently recognized. If we compare the construction impact on environment of developing countries and developed countries the impact in developing countries be definitely high.

The environment can be damaged by construction activities and it can damage the natural greeneries, water bodies, forests, gardens, parking areas and so on. The construction pollution also damage soil compactivity. Construction pollution could damage the dams. The construction activities like production of cement, concrete, aggregate, steel needs fuel which destroy the renewable sources of energy. During the construction activity different type of Green House Gases are emitted which mix with different type of other pollutant/effluent mix with environment which can adversely affect the life of marine and also affect the atmospheric pollution. Construction activities using heavy diesel vehicles, paints and different type of solvent leave on construction site and wrong practice of dumping waste material and disposals easily mix with rain

water during raining season which damage the aquatic animal an increase eco toxicity of water. The mining of sand and stones without proper management and methodological technic damage the sand dunes which have direct impact on environment. Due to higher consumption of material, the construction sites are generating near about 40 to 60% waste salvage. About to 80% construction waste is reusable and to be recycle on construction site and Portland cement is the highest waste of material on construction site.

#### **4. RECOMMENDATION AS PER STUDIES**

1. The transportation vehicles and unmanaged construction activities in the process of urbanization and industrialization increases noise pollution and due to which it is a big problem. With the proper management and correct eco logical methodology/ technique, the noise pollution can be reduced/ optimized. On construction site noise can be reduced/ manage with maintaining and monitoring in four stages.(i) assessment (ii) eliminate the route cause (iii) control and (iv) review the technique & tools. It is also requires the use some other necessary arrangements to reduce the noise from the source to minimize the sound impact on neighbors neighborhood.

2. The dust generated by construction activities is the root cause of PM10 and PM 2.5 particles in various countries in world. As per WHO guidelines, particle matter (PM 2.5 & PM 10) level is very high which causes various disease in workers and dear families as well as nearby residents. Sprinkler exhaust system of ventilation for wet dust uses individual protective devices are common technique to reduce dust pollution impact from construction industries. To reduce the pollution impact a nearby residents area be minimize up to optimal level with help of using advanced construction methodology or technological technique. The waste material generated by construction activities and demolition is very serious problems in developing countries. As per the survey report and evaluating results Brazil, Australia, and the United States generates at around 20 to 30 % of total waste generation dumping in land fill throughout the world is high.

3. Soil and water pollution is due to waste material in rainy season as well as the drainage of construction industries. Mismanagement of waste material on construction site is international problem causing soil pollution and water pollution. Construction activities generate 80% waste material which can be reasonably recycle and clean with the best proper methodology and technological technique to reduce the pollution up to minimum/ optimum level.

4. In the rainy season construction waste material like fine concrete, paints, lubricant/diesel from old & haphazard maintained vehicle, fuel, solvent and different type of pesticides etc mixed with rainy water and polluted the water heavily and unsystematic & improper dumping of waste material on river side is also the main root cause to increase the water pollution. The process to produced cement uses different type of chemicals which mix with water resources is liable to reduce the Biological Oxygen Demand (BOD) of water and adversely affect the aquatic life & immunity of human beings. construction activities uses water for example curing bricks causes increase floods pollutant which have adverse effect on fertility of land in vicinity of construction industry. To reduce such adverse effect of pollution, it is advisable to reuses the waste on site properly with advanced methodological technique and reuses the polluted water followed by water treatment trough settling method and recycle the settled waste material on construction site.

Though construction industries are the backbone of development of country but on the other hand it has an adverse effect on environment & ecosystem as well as human being life also. In this view, the Government has framed out several policies to control the construction activities and pollution created by these industries. Generally it has been observed that there is lackness in regulation of these policies due to least interest of Government bodies to regulate these related these policies to control the construction site activities. There are several factors responsible for not compliance of these rules & regulations such as improper monitoring & checking, miscommunication in between Government body and factory owner, and unawareness of regulation concern among the factory owners and nearby human being who are directly in exposure of various pollution created by these industries. With the help of regulation of

policies framed out by the Government of India and uses of proper methodology & advanced technological technique for construction activities may definitely reduce the level of pollution caused by construction activities.

## **CONCLUSION**

Though construction industrial are the back bone of development of country but on the other hand it has big adverse impact on environment, ecosystem, degradation of Biological Oxygen Demand (BOD) in water, fertility of land in vicinity of construction activities, air pollution and noise pollution which directly has the adverse effect on human being health suffering from various critical diseases. So it is the prime duty of construction industries owners to follow the rules & regulation framed out by the government in the context and contribute their cooperation to reduce the pollution up to optimum level and serve the community. Advanced technological technique and proper methodology to be used with advanced technological machines and mechanism to reduce the pollutant created by construction industries and it's site activities. The gap in between policies framed out by the Government in this context and regulation of policies should be avoided. Particle matter PM10 and PM 2.5 to be minimized to minimize the air pollution in summer/ dry season with the help of sprinkling water method to settle down the particular matter pollution. Polluted water to treatment to be recycle followed by the water treatment by settling method and reuse in construction activities. Industries owners should be properly aware about the policies framed out by the Government in this context and they should also be aware about their duty and responsibility to serve the community with the help of minimizing the pollution caused by their construction industries and site activities by using advance technological developed machine and technique/mechanism. To reduce environmental pollution impact, it is necessary to use sustainable construction technique by using the new advance developed technological machines and mechanism.

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