

Review on Environmental Pollution and Roles of Institution; The Missing Link

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ABSTRACT

This review was discussed about the environmental pollution and role of institution. The studies tried to address the issue of environmental pollution and role of institution. The finding of the review realized that environmental pollution is its own negative impact on health, socially, environmentally and economically both developed and developing countries would be seen in this term paper. Therefore, government, non-government and private institutions more contribute for reduction of environmental pollution. Different journals, books published and unpublished reports from different countries were reviewed in detail before starting to organize the term paper. Finally, the term paper has been organized by incorporating the ideas obtained from the different reviewed literatures by considering the given instructions.

Keywords: Pollution; Role of Institution

Introduction

Before understanding what environmental pollution is it necessary to know what pollution is: it is the presence of a substance in the environment that because of its chemical composition or quantity prevents the functioning of natural processes and produces undesirable environmental and health effects [4]. Therefore, Environment Pollution is the addition of contaminants into the natural environment that causes detrimental effects to nature, natural resources and mankind [4]. Globally, 91% of the world population is exposed to unhealthy levels of pollution. For each country, this indicator shows the portion of the country's population living in places where the mean annual concentrations of PM_{2.5} are greater than 10 micrograms per cubic meter [3].

Rank	Country	2020 AVG	2019 AVG	2018 AVG	Population
1	Bangladesh	77.10	83.30	97.10	164,689,383
2	Pakistan	59.00	65.80	74.30	220,892,331
3	India	51.90	58.10	72.50	1,380,004,385

Table 1: World most polluted countries in 2020

Most developing countries, especially those in sub-Saharan Africa, depend majorly on natural resources for revenue and foreign exchange. These economies are driven by funds generated from exploitation of natural resources such as coal, oil and gas, agricultural and forest resources, gold, copper, etc. The livelihood of the masses also depends on these resources. However, the exploitation and processing of some of these resources result in environmental pollution and degradation. Around 50% of people, almost all in developing countries, rely on coal and biomass in the form of wood, dung and crop residues for domestic energy. These materials are typically burnt in simple stoves with very incomplete combustion. Consequently, women and young children are exposed to high levels of indoor air pollution every day. [1]

An estimated 95% of the population of Ethiopia uses traditional biomass fuels, such as wood, dung, charcoal, or crop residues, to meet household energy needs. As a result of the harmful smoke emitted from the combustion of biomass fuels, indoor air pollution is responsible for more than 50,000 deaths annually and causes nearly 5% of the burden of disease in Ethiopia.

Generally, Pollution may muddy landscapes, poison soils and waterways, or kill plants and animals. Humans are also regularly harmed by pollution. Long-term exposure to air pollution, for example, can lead to chronic respiratory disease, lung cancer and other diseases. Therefore, It is very important to understand the causes and effects of pollution in order to search for solutions and try to decrease the problems that are faced by the pollutions. In this case; the environment is our concern and we must keep it clean and free from contaminants for a better living. Environment is limited and it will always be the part that created this whole world or

Ecosystem. [5] This review tries to identify the cause and effect of environmental pollution and role of institution on environmental pollution point of view.

Objective

General objective

The general objective of this review is to identify the environmental pollution and role of institution

Specific objectives

- To identify the cause and effect of environmental pollution
- To investigate role of institution on environmental pollution
- To identify the missing link between environmental pollution and institution

Literature Review

Any substance which causes harmful effects or uneasiness in the organisms, then that particular substance may be called as the pollutant. Environment Pollution is the addition of contaminants into the natural environment that causes detrimental effects to nature, natural resources and mankind.(Jain, 2019) There are two causes of pollution (1) Persistent pollutants: Those pollutants which remain consistent in the environment for a long period of time without any change in its original forms. Whereas (2) Non-persistent pollutants: These pollutants are the opposite of persistent pollutant and break down in the simple form. If this process of breaking down is done by living organisms, then such pollutants are referred to as biodegradable pollutants. The source of pollution usually comes from toxic substances that contained some chemical which have the potential to cause environmental damage. It may also cause destructive health to the living organism such as human, animals, insects, aquatic life's and plants, even death and extinction of certain habitats.

Land	→	Fertilizers and pests	→	Industrial waste	→	Solid and liquid waste
Water	→	River/lakes	→	Ground water	→	wetland
air	→	Transport/vehicle	→	Fuel wood	→	duest

Key source or cause of environmental pollution in Ethiopia

Effect of enviromental pollution

The assessment of the impacts of environmental pollution has been carried out by first of all making a typology of impacts and a review of studies that cover them. This was done at the national level by estimating the Growth Domestic Product (GDP) lost. [6]. Some of the effect of pollution is: - (1) acid rain (2) biodiversity loss (3) global warming (4) ozone depletion (5) public health problem (6) decrease living quality and economic effect. Economic effect of pollution decreased labor productivity, self-pollution e.g. pesticides polluting drinking water. Industrial waste pumped into water sources and inadequate waste disposal system [6]. the national level by estimating the Growth Domestic Product (GDP) lost.

Solution to prevent pollution

(1) Switch car to alternative means of transport (2) avoiding plastic packaging (3) avoid the use of disposal plastic cubs (4) avoid waste production (5) reduce the use of detergent (6) save electricity or use alternative energy source like solar energy (7) restore natural habits and education (8) use public transport

Status of environmental pollution

Agricultural

The agriculture has remained and will continue to be the core sector of the economy. It contributes more than 60 % of the GDP, more than 80% of export and employs the lion's share of the population (ECA, 2015). According to the CRGE (2011) the sector contributes huge amount of greenhouse gas emissions. To address this problem, the government has embarked on different approaches such as enhancing and intensifying animal mix diversification

Industry Pollution

Industrialization has a direct relationship with the increment of pollution. Ethiopia has for long pursued an overarching development strategy entitled Agricultural Led to Industrialization (ADLI), ADLI, which aspires to make a transfer from agrarian economy to industrialization. In this regard, the state has placed its potential to establish different manufacturing and processing industries

throughout the country, particularly around Addis Ababa, the capital city of Ethiopia. In 2001, according to Ethiopia's Central Statistics Agency, CSA, report, there were more than 105, 8326 manufacturing industries operating in Addis Ababa (cited in Tegegn, 2012). These industrialization processes in some instances, however, resulted in polluting the environment; mainly water bodies.

Urbanization and pollution

Urbanization is on the rise in Ethiopia. So is its related pollution. Addis Ababa is one of the emerging cities in Africa. Its population has been increasing from time to time, mainly due to immigration. The same is true to other big cities in the country; such as Adama, Bahir Dar, Mekele, Hawassa, and Dire Dawa. On the contrary, the waste management system is either very old or does not properly function.

Water pollution

Water pollution has become a serious environmental pollution throughout the country. "No water in nature is absolutely clean" (Tegegn, 2012:1). The droplets of rain interact with solid dissolved salts and aerosols in the air before it reaches the ground and joins the surface water (Ibid.). Both anthropogenic and natural factors are responsible for the pollution of water. In the rural areas water pollution is related to non-point sources of pollution from agriculture and livestock sectors. Animals cause of faecal and parasitic larvae that are usually carried away to nearby rivers constitute the main sources of water pollution.

Air pollution

General sources of air pollution in Ethiopia are transportation, fuel wood, charcoals, industrial emissions, dust from arid areas of the country (for instance from Afar and Somali regions), construction dust, mining and extraction (Abate, n.d).

Strategies and polities for prevention of environmental pollution

In order, to address environmental problems, in 1994, Ethiopia adopted a three stage-approach: first, Constitutional Measure, second Policy Measures and third, Legislative Measure. Of national importance are the Environmental Policy, Industrial Pollution Law and the Waste Management Law. The national and regional frameworks established in Ethiopia include the Environmental Protection Agency (EPA) that has now been reorganized and scaled up to the Ministry of Environment and Forest, and establishment of Environmental Protection Organs including directorates in key ministries of Water, Irrigation and Energy, Agriculture, Transport and Housing. The institutional frameworks are charged with abilities to contain environmental crisis and promote sustainable development.

To achieve these strategic objectives, effective and efficient implementation must be supported by the federal agencies, Regional Governments, NGOs and the private sector in collaboration with the Environmental Protection Authority (EPA) now being housed at the Ministry of Environment and Forestry of Ethiopia. Strengthening and building capacity of the implementing agencies and providing financial, technical and technological resources are important to the success of Environmental Policy in Ethiopia.

Instituting and reinforcing sanctions and administrative fines and penalties to impose environmental cost with reasonable impact on society should be promoted, but, it will be costly. However, the dilemma of the laws attributes to limitation in correcting or restoring the damage inflicted upon the physical environment. It is therefore, important to minimize, prevent and avoid environmental damage through effective and efficient national and regional policies, strategies and legal frameworks.

Role of institution on government perspective: The government will apply pollution controls in a variety of ways because the situation is too complex for just one approach to work. In order to cover different pollutants, kinds of pollution sources, economic conditions and technological features, the government will need its full arsenal of social motivators for environmental improvement. Following are the principal approaches that may be used.

Tax incentive for pollution control equipment: Tax incentives for pollution control equipment such as faster depreciation or tax

credits.

Subsidies for pollution control equipment: Matching grants or subsidies for installation and operation of pollution control equipment.

Incentives for environmental improvement: The government may offer various types of incentives work toward standards that may eventually be required. The major advantage of incentives is that they encourage voluntary improvement without the stigma of governmental force

Role of institution on Non-government organization perspective: is a social services organization working towards a better society. NGOs create awareness among the public on current environmental issues and solutions. ... They help villages' administrative officials in preparation, application and execution of projects on environmental protection.

Role of institution on Private sector perspective: is a job creator, source of technological innovation, and fundamental for capital and tax income, which are the main solution drivers for the economy, society and environment [10]

MISSING LINK: As we mentioned earlier many institution has its own role for environmental pollution prevention. However, there is a gap between the institution and environmental pollution due week commitment for applied the rule of control measurement of environmental pollution. Therefore, each rule should be practically applied all stakeholder's and concern bodies regarding to pollution

Main causes of environmental pollution

Population growth: More people require more resources, which mean that as the population increases, the Earth's resources deplete more rapidly. The result of this depletion is deforestation and loss of biodiversity as humans strip the Earth of resources to accommodate rising population numbers. Population growth also results in increased greenhouse gases, mostly from CO₂ emissions.

Nature of Modern Technology: technology can harm the environment: Pollution - Air, water, heat and noise pollution can all be caused by producing and using technology. ... Waste - Manufacturing technology creates large amounts of waste, and used computers and electronics get thrown out when they break or become outdated.

Deforestation Forests: The extinction of the forest cover affects the biodiversity which in turn threaten people's lives. Shrinking of the forests cause wide-reaching problems like soil erosion, fewer crops, flooding, water cycle disruption, greenhouse gas emissions, changes in the climatic conditions, and loss of biodiversity.

Agricultural Development: While negative impacts are serious, and can include pollution and degradation of soil, water, and air, agriculture can also positively impact the environment, for instance by trapping greenhouse gases within crops and soils, or mitigating flood risks through the adoption of certain farming practices.

Industrial Development: Industrialization has led to environmental degradation in terms of industrial pollution. ... Dust, smoke, fumes and toxic gas emissions occur as a result of highly-polluting industries such as thermal power plants, coal mines, cement, sponge iron, steel & ferroalloys, petroleum and chemicals

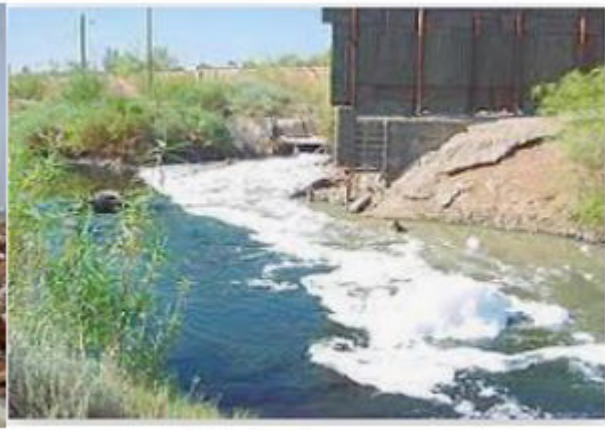
Urbanization Exodus: When cities grow, it requires more land and resources to support the growth. This leads to change in land use causing environmental problems such as air and water pollution, loss of open space and biodiversity, heat island effects, and so on

Unplanned Urbanization: unplanned urbanization creates environmental degradation. Survey data reveals that inadequate solid

waste disposal services, lack of adequate public water supply, traffic congestion, water logging, air pollution, noise pollution, hill cutting are the main problems in the city area.



Pollution due to industry



Pollution due to water

Basic Law for Environmental Pollution Control in government institution scenario

Regulation of emissions of polluting substances

Modifying a production process to produce less waste. Using non-toxic or less toxic chemicals as cleaners, degreasers and other maintenance chemicals. Implementing water and energy conservation practices. Reusing materials such as drums and pallets rather than disposing of them as waste:

Regulation of the manufacturing sector

Reducing toxic emissions from industrial sources; reducing emissions from vehicles and engines through new stringent emission standards and cleaner burning gasoline; and addressing indoor air pollution through voluntary programs. See further details below about reductions from: Industrial sources:

Land use regulations

Good spatial land use planning can reduce exposure to air pollution, as well as providing other benefits of well-being to the wider community. It also emphasizes the importance of applying good design and best-practice measures to all developments, to both reduce pollutant emissions and human exposure.

Pollution prevention program

The Federal Act declares that pollution should be prevented or reduced at the source wherever feasible, while pollution that cannot be prevented should be recycled in an environmentally safe manner:

Pollution prevention facilities and systems

An effective EMS helps to identify the causes of environmental problems and then eliminate them. It can save money by reducing waste, increasing efficiency and reducing costs associated with environmental compliance and liability. Not only does it focus on what environmental problems happen but also on why they happen.

Subsidy schemes for businesses to reduce pollution levels

Forms of financial government support for activities believed to be environmentally friendly. Rather than charging a polluter for emissions, a subsidy rewards a polluter for reducing emission [9].

Compensation for pollution victims

The compensation related health and welfare program necessity to promote the welfare of these victims be implemented in order

to help those whose health has been damaged by designed illness to recover, maintain and promote their health and well-being [8].

Dispute resolution mechanisms

Include refuse disposal systems such as sanitary landfills, emission control systems for automobiles, sedimentation tanks in sewerage systems, the electrostatic precipitation of impurities from industrial gas, or the practice of recycling.

Method of Investigating

To do this review similar journal related to the title were downloaded and reviewed and finally by collecting important points from the literature the review was compiling.

No	Titles of the reviewed journal	Year of publication	Journal name
1	Environmental pollution and its effect on life and its remedies	April, 2011	Journal of arts, science and commerce
2			
3	The importance of institution to economic development	Sep ,2012	E- international relation
4	Environmental pollution and waste management	Nov,2015	Balkan journal of health science
5	Source and consequence of environmental pollution and institutions role, in Pakistan	2006	Journal of applied science
6	Environmental pollution causes and consequences	August, 2017	Journal of social science and humanities
7	On the environmental pollution problem	Oct ,2010	Journal of environmental engineering and landscape management
8	Role of HDI in environmental conservation and sustainable development	2014	Journal of environment and earth science
9	Assessment of the Environment Pollution and its impact on Economic Cooperation and Integration	Feb, 2016	National environmental pollution report
10	Environmental pollution and its control	Sep,2018	Parana journal of science and education
11	Environmental pollution and its impact on human health	Nov,2016	International journal of current research
12	Global environmental pollution problems	March,2018	Environmental analysis & ecology analysis
13	Disclosure strategies for pollution control		Environmental and resource economics

Table1: List of reviewed journals

Conclusion

Pollution is considered as major problem with a growing concern as industries and urban areas grow. Many rivers around Addis Ababa are polluted with urban and industrial wastes. There is also high level of air pollution in urban areas. The landfills are not well developed and properly managed. Pollution has become health threat, for people and livestock. [1]

The causes for environmental problems are many. The multiplicity of causes makes it difficult to clearly delineate the causes and consequences of environmental degradation in terms of simple one to one relationship. The causes and effects are often interwoven in complex webs of social, technological, environmental and political factors

The effects of environmental pollution, manifested by the emergence of serious health problems and ecological disturbance, recognized internationally at the Stockholm Conference, have led to a broad “environmental movement” in both developed and developing countries. This action included the active participation of both the public and private sectors. The main feature of this

environmental movement was that it generated a new perspective for the evolution of attitudes and knowledge in this field. As part of a world-class evolutionary process, marked by the Rio and Johannesburg Conference, several key issues for structuring and orienting environmental management tools have been recognized [2].

Therefore, it is best that we sit together in a round table discussing the circumstances that we could react towards the environmental pollution effect on the national development in order to have the balance in built and natural environment. The effectiveness of environmental education, as a preventive strategy in environmental management, hinges upon careful planning, effective coordination and willingness and commitment among all environment - related agencies and organizations, both in and outside the Government. The Government creating a pollution-free environment and promoting sustainable resource development Focus will be given to conservation, environment and ecological balance within the context of sustainable development.

Know a day prevention of environmental pollution is not the issue of developing countries it is also the concern of worldwide. Due to that the government, NGO and foreign donors gives attention to control this global concern and promulgation of law on environmental pollution control is a good opportunities to prevent environmental pollution.

Recommendation

The following recommendations are made to accelerate to prevent environmental pollution. Providing information on environmental and pollutions issues to the rural and urban population through Expo and Information Department by:

Showing slides and videos or even posters about the proper way of disposing solid and liquid waste including the effects of pollutions

Setting up campaign and cleanliness gathering

Disturbing brochures or pamphlets and also through the mass media which can assists the government to enforce its policies and actions to be taken against individuals or parties that contributing towards the environmental pollution and ignore the notices given by the authorities

Spot checking and regular visits to the dwelling area or any other particular commercial and industrial area by the authorities

Held some courses on safety, health and self-responsibility on cleanliness to the top management level in order to be an example to their employees

Encourage the public to use less detergent for washing or cleaning purposes and avoid throwing cooking oil directly into the drainage system which kills the aquatic life

Send in notices on government policies, regulations and Acts regarding environmental issues to all individuals in order to implement it without further questions

Use non pollutant technology like solar energy, tourism

Therefore, the government and any stakeholders take more emphasis on this global issue to prevent environmental pollution.

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