FINAL APPROVAL SHEET

It is certified that we have read the dissertation submitted by Sahrish Aman titled **"Industrial Waste Management and Environmental Laws in Pakistan"** as a partial fulfillment for the award of degree of LLM (Corporate Law). We have evaluated the dissertation and found it up to the requirement in its scope and quality for the award of degree.

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Dedicated to my Loving Parents and Siblings

DECLARATION

I, Sahrish Aman, hereby declare that this dissertation entitled **"Industrial Waste Management and Environmental Laws in Pakistan"** is original and my own work. It has never been used before for any examination or degree in any other institution. Moreover, all sources have been used in this dissertation are completely acknowledged with references.

The work was done under supervision of Dr. Samia Maqbool Niazi (Assistant Professor) at International Islamic University, Islamabad.

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LIST OF ABBREVATIONS

Ag	Silver
Ca	Calcium
CBD	Convention on Biological Diversity
Cl	Chlorine
CITES	Convention on International Trade in Endangered Species of World
CONAMA	National Environmental Council
CPC	Civil Procedure Code
DG	Directorate General
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EPA	Environment Protection Act
F	ferrous (Iron)
GSP	Geological Survey of Pakistan
IBAMA	Brazilian Environment and Renewable Resources Institutions
IEE	Initial Environment Examination

K	Potassium
MEAs	Multilateral Environment Agreement
MMA	Ministry of Environment
NCS	National Conservation Strategy
NEQs	National Environment Quality Standards
NESPAK	National Engineering Services Pakistan (Pvt) Limited
NGOs	Non-Governmental Organizations
PAH	Polycyclic Aromatic Hydrocarbons
PARC	Pakistan Agricultural Research Council
PCB	Polychlorinated Biphenyls
PCC	Punjab coal Company
PEA	Pakistan Environment Agency
PEPA	Pakistan Environment Protection Act
PEPC	Pakistan Environment Protection Council
PEPO	Pakistan Environment Protection Ordinance
PMDC	Pakistan Medical and Dental College
SACEP	South Asia Cooperative Environmental Programme

SEPA	Scotland Environment Protection Agency
SISNAMA	National Environment System
SPM	Suspended Particle Matter
UNCCD	United Nations Convention to Combat Desertification
UNEP	United Nation Environment Programme
UNICEF	United Nation's Children's Emergency Fund
UNFCCC	United Nations Framework Convention on Climate Change
UNO	United Nations Organization
USA	United States of America
UV	Ultra Violet
WAPDA	Water and Power Development Authority
WHO	World Health Organization

ABSTRACT

The title of this study is "Industrial Waste Management and Environmental Laws in Pakistan". The objective of this study is to examine the existing Environmental Laws in Pakistan and to highlight the major reasons for non-implementation of the concerned Laws. The waste coming out of the industries is causing adverse effects on Environment and needs to be dealt properly. This study provides a researched overview of how the situation is alarming in Pakistan and how it can be controlled effectively. In the first part of the research, understanding the problem and the types of pollutions caused by industrial activities, with their drastic effects on Environment is described. On the other part of the research, a brief introduction of the existing Environmental Laws on the concerned issue and comparison with legislations of Brazil, United Kingdom and United States of America is mentioned. Finally, keeping in view the whole scenario the hurdles in proper implementation of concerned Environmental Laws and recommendations are given to tackle the problem in Pakistan.

CHAPTER 1

INTRODUCTION: THE NATURE AND SIGNIFICANCE OF THE PROBLEM

1.1 Brief Introduction

Human beings are dependent on Ecosystem such as air, water, food for their survival and provision of materials for development and construction. While the importance of ecosystems cannot be under estimated, a wide range of human and natural processes have altered the way they function, eroding their capacity to deliver these vital ecosystem services for human well-being.[1] Industry has become an essential part of modern society, and waste production is an inevitable outcome of the developmental activities. A material becomes waste when it is discarded without expecting to be used in future. These wastes may pose a potential hazard to the human health or the environment (soil, air, water) when improperly treated, stored, transported or disposed of or managed. There is a need of proper disposal of this industrial waste through proper legislation in the country. Like other countries, Pakistan is also getting affected of this hazardous waste coming out of different industries especially the nearby residents and stakeholders. The problem persists and continues to grow due to improper legislation and its implementation. Pakistan has made certain significant legislation in this regard but failed to enforce it properly hence the problem is still there.

[1] http://www.siwi.org/Resources/Water Front Articles/2010/The Effects of Industrial Pollution on Ecosystems and Human Well-Being.pdf (Last visited on 11 September, 2014).

The waste that is coming out of the industries if goes unchecked then it will lead to a disaster. This becomes a cause of serious environmental and health problems especially for the surrounding areas. This is the reason due to which this act becomes a serious crime. The environmental issues involve environmental pollution of all types (Air, Water, Soil etc.). But this is the dilemma of our country that in spite of the presence of significant laws that deal with these issues the problem is growing with the passage of time. The reason behind it is the lack of proper enforcement of those laws.

In the 1973 Constitution, Environmental pollution and ecology was mentioned at entry no. 24 of the Concurrent Legislative List in the Fourth Schedule hence empowering both Parliament and the Provincial Assemblies to make laws with respect to matters relating thereto. As a result of exercising these powers that the Pakistan Environmental Protection Act (PEPA) was enacted by Parliament in 1997[2]. This act superseded and repealed the Pakistan Environmental Protection Ordinance that was promulgated in 1983. Absence of effective Environmental policies and poor enforcement of these laws allowed many industries to bypass laws made by pollution control board which resulted in pollution on large sale and effected lives of many people. The rapid and unplanned growth of industries in the localities has polluted the environment and effecting health of common people of that area. There are a number of reported cases, regarding the concerned issue, not only worldwide but also in Pakistan.

[2] Zahid Hamid, "Constitution and environmental laws: recent developments". http://ceej.pk/cms/ (Last visited on 11 September, 2014)

The question arises that why the problem still persists in spite of having related laws in Pakistan? One of the possible answer to this can be that the corporations do not adopt the proper disposal strategies to manage the waste, because there is no effective implementation of those related laws in the country. One of the main reason given by the corporations in this regard is the high cost in adopting those disposal strategies so they do not care about the environment or health loss and dispose their waste easily out, without paying much.

Another reason of existence of this issue might be the absence of proper penalties for all those organizations, industries or corporations in the concerned laws. [3]

1.2 Environment Defined

Environment is defined as that outer physical or biological system in which man and organism live as a whole, albeit a complicated one with many interacting components. The usually identified main components of the environment are soil, water and air. These components of the Environment keep on interacting with each other to maintain a mutual balance called 'ecological balance.' [4]

Environment is a French word which means "Surroundings". In its wider sense, environment is a combination of the various physical and biological elements that affect the life of an

[3] Vrijheid, Martine. 2000. *"Health Effects of Residence near Hazardous Waste Landfill Sites: A Review of Epidemiologic Literature"*. The National Institute of Environmental Health Sciences (NIEHS): Stable URL. http://www.jstor.org/stable/3454635 (Last visited on 10 September, 2014).

[4] R.K Khitoliya, Environment protection and the Law, (New Delhi: A.P.H Publishing Corporation, 2005), pg.20.

organism. The entire environment is based on the mother Earth, living beings, Flora and Fauna in this environment.[5]

According to Environment Protection Act, 1997, section (x), "Environment" means:

(a) Air, water and land;

(b) All layers of the atmosphere;

(c) All organic and inorganic matter and living organisms;

(d) The ecosystem and ecological relationships;

(e) Buildings, structures, roads, facilities and works;

(f) All social and economic conditions affecting community life. [6]

a) Natural Environment:

Ecologically, the environment is the sum of all external conditions and influences affecting the life and development of organism. Various ecological principles and concepts have been developed in regard to the environment. This is the whole system of interaction between particular organism and its physical and biotic environment is the niche of that organism.[7]

[5] Ibid.
[6] Pakistan Environment Protection Act, 1997 (X)
[7] McGraw Hill, "McGraw Hill Encyclopedia of Environmental sciences"(San Francisco:1977), pg.266

b) Man-made Environment:

The man-made Environment includes all the buildings and materials that has been erected and furnished by men.

1.3 Environmental Pollution

Environmental pollution has existed for centuries but only started to be significant following the industrial revolution in the 19th century. Pollution occurs when the natural environment cannot destroy an element without creating harm or damage to itself. The elements involved are not produced by nature, and the destroying process can vary from a few days to thousands of years. In other words, pollution takes place when nature does not know how to decompose an element that has been brought to it in an unnatural way.[8]

Environmental pollution is;

"The contamination of the physical and biological components of the earth/atmosphere system to such an extent that normal environmental processes are adversely affected".[9]

1.4 Waste Defined

Waste means;

> "Any substance or object which has been, is being or is intended to be, discarded or disposed of, and includes liquid waste, solid waste, waste gases, suspended waste,

[8] http://www.conserve-energy-future.com/causes-and-effects-of-environmental-pollution.php (Last visited on 15 October,2015)
[9] http://www.tropical-rainforest-animals.com/Environmental-Pollution.html (Last visited on 15 October, 2015)

industrial waste, agricultural waste, nuclear waste, municipal waste, hospital waste and Polyethylene bags and residues from the incineration of all types of wastes."[10]

a) Hazardous waste:

"Hazardous waste" means waste which is or which contains a hazardous substance or which may be prescribed as hazardous waste, and includes hospital waste and nuclear waste.[11]

b) Industrial Waste:

Industrial Waste means resulting from industrial activities.[12]

Industrial activity means any operation or process for manufacturing, making, formulating, synthesizing, altering, repairing, ornamenting, finishing, packing or otherwise treating any article or substance with a view to its use, sale, transport, delivery or disposal, or for mining, for oil and gas exploration and development, or for pumping water or sewage, or for generating, transforming or transmitting power or for any other industrial or commercial purpose.[13]

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[10] Pakistan environment Protection Act, 1997, Article 2 (xiv)
[11] Pakistan Environmental Protection Act, 1997 (xix)
[12] Ibid. Article 2 (xx)
[13] Fahim Ahmed Sidiqque, "The scope of environmental laws in Pakistan", (Karachi: Asia Law House, 1st Edition, 2000), Pg.86.

c) Nuclear Waste:

Nuclear waste mean waste from any nuclear reactor or nuclear plant or other nuclear energy system, whether or not such waste is radioactive.[14]

d) Organic Waste:

The organic components of these waste consists mainly of materials such as food waste, paper, cardboard, textile,leather and yard waste.

e) In Organic Waste:

Inorganic waste components consist of items such as glass, bottles, tin cans, aluminum, other metals, batteries, oils and paints.[15]

The UK Environment Agency classifies waste as either controlled waste or non-controlled waste. Controlled waste includes waste generated from households (municipal solid waste), commercial and industrial organizations and from construction and demolition. Non-controlled waste includes waste generated from agriculture, mines and quarries and from dredging operations. Agricultural waste comprises mainly slurry and farmyard manure with significant quantities of straw, silage effluent, and vegetable and cereal residues. Most of this is spread on land. Certain types of waste are defined as hazardous because of the inherent characteristics (e.g. toxic, explosive). The three largest waste streams in this category are oils

[14] Ibid Article 2 (xxxi)
[15] Iqbal H. Khan, Naveed Ahsan "Text book of Solid Waste Management ".(New Delhi: 11- Darya Gum Publishers), pg.65.

and oily wastes, construction and demolition waste and asbestos, and wastes from organic chemical processes.[16]

When in industry uses water in its processes one may, with surety, expect the water to become contaminated in the process. It is then, the contaminated water that must receive treatment or else impose a pollution load on the receiving body of water. [17]

1.5 Environmental Diseases Caused by Environmental Hazards

Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.[18]

Environmental diseases are the illness caused by exposure to disease-causing agents in the environment. The term environmental disease is confined to non-infectious diseases and to diseases caused largely by exposure beyond the immediate control of the individual; the latter restriction eliminates diseases related to personal habits such as smoking or to the use or abuse of medications or drugs such as alcohol.[19]

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[16] Lesley Rushton, "Impact of environmental Pollution on health: Balancing risk" British Medical Bulletin http://bmb.oxfordjournals.org/content/68/1/183.full.pdf+html (Last visited on 19 April, 2015)

[17] Symons, George E. 1945. "Industrial Waste Disposal" Sewage Works Journal 17 (3). Water Environment Federation: 558–72. http://www.jstor.org/stable/25030044. (Last visited on 19 April, 2015)

[18] Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, and 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. Available on: http://www.who.int/about/definition/en/print.html (Last visited on 15 October, 2015).

[19] Fahim Ahmed Siddiqui, *"The scope of Environmental laws in Pakistan"*, (Karachi: Asia Law House, 1st Edition, 2000), pg.26.

Chemicals if released untreated can lead to disease or death. Some studies have detected excesses of cancer in residents exposed to hazardous waste.

1.6 Treatment through the Process of Bioremediation:

There are many methods to deal with environmental pollutants, one of them is the process of Bioremediation. Bioremediation is natural control of environmental pollution. It is a natural process in which microorganisms, such as bacteria, voluntarily work to remove pollution from soil, water, or gases. In the past when huge quantity of pollutants were not produced due to lack of industrial activities, bioremediation was suffice to control environmental pollution. But nowadays about 5-10 percent of all pollution treatment are done by bioremediation.

Microorganisms decompose organic compounds by using enzymes, some of which can biodegrade (break down) pollutants. This natural process can be exploited for the treatment of industrial, agricultural, or municipal wastes, and proper planning shall increase existing percentage of pollution treatment with the help of bioremediation.

Bioremediation is generally used to treat dispersed, dilute solutions containing one or more pollutants such as oil or gasoline. It is one of the many techniques for dealing with hazardous wastes.[20]

[20] Fahim Ahmed Sidiqque, *"The scope of environmental laws in Pakistan"*, (Karachi: Asia Law House, 1st Edition, 2000), Pg.7.

1.7 Environmental Threats Faced by Pakistan

Government of Pakistan is eager to attract capital, and teeming number of conferences are held during recent years in which the industrialists from all over the world are invited. In those conferences amongst other attractions, it was also highlighted that the laws are favorable for investors and the investors shall enjoy all sorts of guaranties and even government is willing to do constitutional amendments in this respect. No doubt it is needed to accept that industrialization is necessary but it is also needed not to accept that adulation of industrialization should be allowed at the cost of environmental destruction. Another phenomenon, which is to be noted, is that industrialization is still limited to urban districts of Pakistan. Nowadays, in the metropolitan areas of Pakistan people are living in crowded, dirty and polluted conditions, and such conditions of pollution are constantly increasing. If all this is allowed to happen, the man will eventually faces his extinction. Therefore, for ultimate survival of the world population, it is high time that the precious environment is protected from detonation and conserved by inter alia, legislative activities. This fact has not yet been adequately realized by the legislatures. It is also annoying that the courts of law have done lesser for the development of environmental laws in Pakistan.it is really a hard task in absence of any specific environmental law. [21]

[21] Ibid, pg.72-73

CHAPTER 2

EFFECTS OF INDUSTRIAL WASTE ON ENVIRONMENT

2.1 Meaning of Pollution

Pollution means the contamination of air, land or water by the discharge or emission or effluents or wastes or air pollutants or noise or other matter which either directly or indirectly or in combination with other discharges or substances alters unfavorably the chemical, physical, biological, radiational, thermal or radiological or aesthetic properties of the air, land or water or which may, or is likely to make the air, land or water unclean, noxious or impure or injurious, disagreeable or detrimental to the health, safety, welfare or property of persons or harmful to biodiversity."[22]

The waste coming out of corporations are affecting environment badly and causing pollution, which ultimately effects human health badly, including Air, Water, soil and noise pollution respectively.

[22]Pakistan Environment Protection Act, 1997 (xxxiii)

2.1.1 Related Case Law: Shehla Zia vs. WAPDA

This case was initiated in the Supreme Court as a human rights case by a group of concerned citizens. It is the most celebrated case in which Mr. Justice Saleem Akhter has expanded the ambit of Article 9 of the constitution of Pakistan to include the right to health services and quality life. In this case the Supreme Court upheld the view that world 'life' in Article 9 does not simply mean animal life or vegetative existence. It stated that life includes all such amenities and facilities, which a person born in a free society is, entitle to enjoy in dignity and with honour.

The judgement given in this case was in favour of the citizens, became a landmark decision in the field of environmental law and set the precedent for succeeding cases brought to the Supreme Court on environmental grounds.

The case laid down two important principles: that the right to life, enshrined in the constitution, includes the right to an unpolluted environment, and where there are threats of serious or irreversible damage, lack of scientific research certainty shall not be used as a pretext for delaying cost-effective measures to prevent environmental degradation.

This case was a full bench judgement, heard on 12th February 1994. The bench comprised the then Chief Justice Mr. Justice Nasim Hasan Shah, Mr. Justice Saleem Akhtar and Mr. Justice Manzoor Hussain Sial. Supreme Court on receipt of letter from four residents of street No. 35, F-6/, Islamabad, declared that Article 184(3) of Constitution could be invoked

in the circumstances of the case and notice were issued. Article 184 of the constitution (3), 9 and 14 of constitution of Pakistan (1973) have been discussed in this case.

Supreme Court, on receipt of letter from citizens in that respect found that the letter raised two questions namely whether any Government agency had a right to endanger the life of citizens by its actions without the latter's consent and whether zoning laws vest rights in citizens which could not be withdrawn or altered without citizen's consent.

Citizens under Article 9 of the Constitution of Pakistan were entitled to protection of law from being exposed to hazards of electro-magnetic field or any other such hazards which may be due to installation and construction of any grid station, any factory, power station or such like installations. The word "life" as used in the said article has very broad and significant scope.

The judges of Supreme Court of Pakistan after a thorough analysis came to the following conclusion:

> "The word 'life' in the constitution has not been used in limited manner. A wide meaning should be given to enable a man not only to sustain life but also to enjoy it. Under our constitution, Article 14 provides that the dignity of man and subject to law the privacy of home shall be inviolable; the fundamental right to preserve and protect the dignity of man under Article 14 is un parallel and could be found only in few constitutions of the world. The constitution guarantees dignity of man and also right to 'life' under Article 9 and if both are read together, question will arise whether a person can be said to have dignity of man if his right to life is below bare necessity line without proper food, clothing, shelter, education, health care, atmosphere and unpolluted atmosphere." [21]

[21] Shehla Zia vs. WAPDA (PLD 1994 SC 693)

The Supreme Court held that the hazard to life by electromagnetic field effect cannot be ignored while importance of grid station cannot be lost sight of, and before passing any final order the Supreme Court appointed NESPAK as commissioner to examine and study the scheme, planning, device and technique employed by WAPDA and to report whether there is any likelihood any hazard or adverse effect on the health of the residents of the locality.

2.2 Air Pollution

Air is one of the five essentials (air, water, food, heat and light) for human beings. Man breaths nearly 22000 times a day and inhales approximately 15 kg of air per day. Even though the air is abundantly available over the surface of the Earth, but it contains a lot of impurities. Various types of contaminants are entering into the atmosphere of the earth by natural and man-made activities, which are taking place on the earth.[22]

Air pollution can be defined as the presence of the contaminants in the outdoor atmosphere in a sufficient quantity and duration to cause them to be injurious to human health and welfare and plant and animal life and to interfere with the enjoyment of life and property.[23]

[22] R.K.Khitoliya, "*Environment Protection and the Law*", (New Delhi: A.P.H Publishing Corporation, 2005), Pg. 187.
[23] Ibid

Air pollutant means any substance that causes pollution of air and includes soot, smoke, dust particles, odor, light, electro-magnetic, radiation, heat, fumes, combustion exhaust, exhaust gases, noxious gases, hazardous substances and radioactive substances.[24]

2.2.1 Types of Air Pollutants

In order to understand the causes of Air pollution, several divisions can be made. Primarily air pollutants can be caused by primary sources or secondary sources. The pollutants that are a direct result of the process can be called primary pollutants. A classic example of a primary pollutant would be the sulfur-dioxide emitted from factories

Secondary pollutants are the ones that are caused by the inter mingling and reactions of primary pollutants. Smog created by the interactions of several primary pollutants is known to be as secondary pollutant.[25]

2.2.2 Causes of Air Pollution

a) Burning of Fossil Fuels: Sulfur dioxide emitted from the combustion of fossil fuels like coal, petroleum and other factory combustibles is one the major cause of air pollution. Pollution emitting from vehicles including trucks, jeeps, cars, trains, airplanes cause immense amount of pollution. We rely on them to fulfill our daily basic needs of transportation. But, there overuse is killing our environment as dangerous gases are polluting the environment. Carbon Mono oxide caused by improper or incomplete combustion and generally emitted from

[24] Pakistan environment protection Act, 1997 (iii)
[25] http://www.conserve-energy-future.com/causes-effects-solntions-of-air-pollution.php (Last visited on October 15,2015)

vehicles is another major pollutant along with Nitrogen Oxides, which is produced from both natural and man-made processes.

b) Agricultural activities: Use of insecticides, pesticides and fertilizers in agricultural activities has grown quite a lot. Ammonia is a very common by product from agriculture related activities and is one of the most hazardous gases in the atmosphere. They release harmful chemicals into the air and can also cause air pollution.

c) Exhaust from factories and industries: Manufacturing industries release large amount of carbon monoxide, hydrocarbons, organic compounds, and chemicals into the air thereby depleting the quality of air. Manufacturing industries can be found at every corner of the earth and there is no area that has not been affected by it. Petroleum refineries also release hydrocarbons and various other chemicals that pollute the air and also cause land pollution.

d) Mining operations: Mining is a process wherein minerals below the earth are extracted using large equipment. During the process dust and chemicals are released in the air causing massive air pollution. This is one of the reason which is responsible for the deteriorating health conditions of workers and nearby residents.

e) Indoor air pollution: Household cleaning products, painting supplies emit toxic chemicals in the air and cause air pollution. Suspended particulate matter popular by its acronym SPM, is another cause of pollution. Referring to the particles afloat in the air, SPM is usually caused by dust, combustion etc.[26]

[26] Ibid

2.2.3 Effects of Air Pollution

Air pollution effects both health and environment badly. Some major effects are as follow:

a) Respiratory and heart problems: The effects of Air pollution are dangerous and can result into several respiratory and heart problems including cancer. Many deaths are known to have occurred due to direct and indirect effects of air pollution. Children in such polluted areas are said to commonly suffer from pneumonia and asthma.

b) Global warming: Global warming is another disastrous effect of air pollution nowadays. Due to increase in the temperature of environment globally, the sea levels have increased from normal due to melting of ice from colder regions and icebergs. It has also resulted into displacement and loss of habitat of living beings and wild life, the preservation of latter will be on alarming level if no considerable steps are taken in this regard.

c) Acid Rain: During the combustion process like burning of fossil fuels some harmful gases like nitrogen oxides and sulfur oxides are released into the atmosphere. The water drops of rain combines with these air pollutants and become acidic in nature and falls on the ground in the form of aid rain. This Acid rain can cause great damage to human, crops and animals.

d) Eutrophication: Eutrophication is a situation where high amount of nitrogen present in some pollutants on sea surface turns itself into algae and drastically affect fish, plants and animal species. The green colored algae on lakes and ponds is due to presence of this chemical only.

e) Effect on Wildlife: Animals, just like human beings, are also facing devastating effects of air pollution. The toxic pollutants present in the atmosphere and deposited on water surfaces force wildlife to change their habitat and to move from place to another.

f) Depletion of Ozone layer: Ozone layer in earth's atmosphere protects humans from harmful Ultraviolet rays (UV). This layer is depleting with the passage of time due to presence of air pollutants like chlorofluorocarbons and hydro chlorofluorocarbons in the atmosphere. These UV rays also effects the crops badly. The depletion of ozone layer can let harmful rays to enter the earth and can cause eye and skin related problems.[27]

2.2.4 Related Case Laws

There are not as such well reported cases regarding air pollution in Pakistan.

2.2.4.1 Bhopal Disaster Case

The Bhopal disaster[28] that took place on 4 December 1984, is undoubtedly the worst industrial accident in history. A highly toxic chemical namely methyl isocynate escaped from the Union Carbide India Limited plane in Bhopal. Thousands died a terrible death. Many were crippled for life. The survivors of this disaster are still struggling for lives, dignity, compensatory relief and rehabilitation. More than 200,000 people were injured by the toxic gas.[29] The accident probably began as the result of a runaway reaction of the MIC with water. One of the reasons

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[27] Ibid (Site help: http://www.mass.gov/eea/agencies/massdep/service/massdep-site-help.html Last visited 15 October,2015)

[28] Union Carbide Corporation Vs Union of India, AIR 1990 Supreme Court, 273.

[29] See Ward More house and M.Arun Subramanian, "The Bhopal Victims : A Report for Citizens Commission on Bhopal (1986 Council on International and Public Affairs).

attributed to this happening was that it was being handled by an untrained worker. Several employees of the UCIL stated before the Permanent People's Tribunal on Industrial and Environmental Hazards and Human Rights that factors like design inadequacies, operation practices, poor quality of training of workers, lack of information and illegal plant modifications were responsible factors for the disaster.

The most immediate legal issue after the disaster was the right to recover the claims for the victims. Since this accident involved Indian citizens and a subsidiary unit of an USA based multinational giant, it was not easy for the affected people to file claim suits. On 20 February 1985, the President of India promulgated the Bhopal Gas Leak Disaster Ordinance, in order to give the government exclusive rights to represent the gas victims. This Ordinance was replaced by the Bhopal Gas Leak Disaster Act, on 29 March 1985.

The Bhopal Gas Leak disaster affected a large number of people. Since complex technical and legal issues were involved, it was not easy for every victim to file a separate claim. Thus the Central Government was to take the role of *parens patriae*.[30] This was done through the instrumentality of the Bhopal Act. The Bhopal Act aimed to ensure that claims arising out of or connected with the Bhopal Gas Leak Disaster were dealt with speedily, effectively, equitably and to the best advantage of the claimants and for matters incidental thereto. Under the authorization given by the Bhopal Gas Disaster (Processing of Claims) Act, 1985, the Union of India, filed a complaint before the US District Court for three billion US

[30] *parens patriae* is the important power and authority of a legislature to provide protection to the person and property of persons non *sui juris*, such as minor, insane and incompetent persons.

dollars as compensation for victims.[31] The legal aftermath of the Bhopal disaster has demonstrated how difficult it is to establish liability in a toxic mass disaster especially when a multinational corporation is involved. Then it was mediated almost 907 million US dollars settlements to compensate nearly 8000 people died.

2.2.4.2 *Abdul Qayyum vs. Environmental Protection Agency*

The petitioner, in this case filed a writ petition against the Environmental Protection Agency (EPA) because of noise and other emissions from the industrial units in their residential area. The petitioners have approached the EPA several times to control the pollution by utilizing their power under PEPA but EPA failed to do so.[32]

The Court while disposing of the petition held that the provisions of the PEPA do show that the same are comprehensive and the agencies and authorities created under the Act have also given the powers to lay down the necessary standards as also to enforce the same by invoking penal provisions in accordance with law. While the EPA in its comments has claimed that it has recommended shifting of industries, it is failing to prosecute the offender in the event of its reaching the conclusion that the discharges and emissions are not lawful or more than prescribed. Therefore, the court issued a mandamus direction to the EPA to deal with the matter in accordance with the provisions of the PEPA.[33]

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[31] Filed on April 8, 1985. The Union of India against Union Carbide Corporation, in the United States District Court (Southern District of New York).
[32] 1999 PLR 640
[33] http://www.pljlawsite.com/2011art15.htm (Last visited on October 15, 2015)

2.3 Water Pollution

According to a press release by UNO Secretary General in 2002 on World Water day; "An estimated 1.1 billion people lack access to safe drinking water, 2.5 billion people have no access to proper sanitation, and more than 5 million people die each year from water-related diseases — 10 times the number killed in wars, on average, each year. All too often, water is treated as an infinite free good. Yet even where supplies are sufficient or plentiful, they are increasingly at risk from pollution and rising demand. By 2025, two thirds of the world's population is likely to live in countries with moderate or severe water shortages".[34]

Water is an essential element for life. Fresh water comprises 3% of the total water on earth. Only a small percentage (0.01%) of this fresh water is available for human use.[35] Unfortunately even this small proportion of fresh water is under immense stress due to rapid population growth, urbanization and unsustainable consumption of water in industry and agriculture. According to a UNO report, the world population is increasing exponentially while the availability of fresh water is declining. Many countries in Africa, Middle East and South Asia will have serious threats of water shortage in the next two decades. In developing countries the problem is further aggravated due to the lack of proper management, unavailability of professionals and financial constraint.[36]

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[34] Azizullah Azizullaha, Muhammad Nasir Khan Khattakb, Peter Richter, Water pollution in Pakistan and its impact on public health — A review, Available on http://www.sciencedirect.com/science/article/pii/S0160412010002060 (Last visited on 15 October,2015)

[35] D. Hinrichsen, H. Tacio ,The coming freshwater crisis is already here, The linkages between population and water, Woodrow Wilson International Center for Scholars, Washington, DC (2002) Retrieved from http://www.wilsoncenter.org/topics/pubs/popwawa2.pdf (Last visited on 15 October, 2015)

[36] PCRWR,National Water Quality Monitoring Programme. Water Quality Report 2003–2004

Pakistan, like other developing countries of the world is suffering from this menace of water pollution and water shortage. This can lead to water scarcity in the near future.[37]

2.3.1 Major Water pollutants

Many substances are regarded as active water pollutants and are classified into different groups. Organic compounds like oil and pesticides are also considered potential threats to water quality. All these substances, if they exceed a threshold value, are deleterious and cause severe health problems in humans and other organisms in the ecosystem. Bacteriological contamination, toxic metals like arsenic, iron, cadmium, nickel, pesticides and in some areas nitrates and fluorides are posing major threats to water quality in Pakistan.

2.3.2 Sources of water pollution

Water pollution is most often due to human activities. The major ones are indiscriminate disposal of industrial, municipal and domestic wastes in water channels, rivers, streams and lakes, etc.[38] An estimated 2 million tons of sewage and other effluents are discharged into the world's waters every day. In developing countries the situation is worse where over 90% of raw sewage and 70% of untreated industrial wastes are dumped into surface water sources.[39] According to a survey, In Pakistan out of 6634 registered industries 1228 are considered to be

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Pakistan Council for Research in Water Resources (PCRWR, Islamabad, Pakistan (2005) available at http://www.pcrwr.gov.pk/wq_phase3_report/TOC.htm (Last visited on 15 October, 2015).

[37] Ibid

[38] M.A. Kahlown, A. Majeed, "*Water-resources situation in Pakistan: challenges and future strategies*", Water resources in the south: present scenario and future prospects, Commission on Science and Technology for Sustainable Development in the South (COMSATS, Islamabad, Pakistan (2003), pg. 21–39

[39] Retrieved from www.worldwaterday2010.info (Last visited on 15 October,2015)

highly polluting. Due to the high load of organic and toxic materials in their waste effluents, industries became a major source of water pollution in Pakistan.[40] The major industries contributing to water pollution are textile, pharmaceuticals, ceramics, petrochemicals, food industries, steel, oil mills, sugar industries, fertilizer factories, and leather tanning. These industries produce several hundred thousands of wastewater containing huge quantities of hazardous.[41] Most of the industries in Pakistan are located in or around major cities. They dispose their waste effluent directly into the nearby drains, rivers, streams, ponds, ditches and open or agricultural land. Even in the capital city of Islamabad there is no proper management of effluents in its two industrial estates, and wastes are directly drained into the Sawan River.[42] It has been estimated that only 1% of wastewater of industries in Pakistan is treated before being discharged.[43] As a result, wastewaters with potentially toxic substances are poured into water bodies without taking into account the environmental hazards caused by these wastes. These waste pollutants do not remain confined to surface water but their percolation to the soil results in contamination of groundwater aquifers.

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[40] Nasrullah, R. Naz, H. Bibi, M. qbal, M.I. Durrani. "*Pollution load in industrial effluent and ground water of Gadoon Amazai Induatrial Estate (GAIE) Swabi, NWFP*" (2006), pg 18–24

[41] K. Ali, M.A. Javid, M. Javid, "*Pollution and industrial waste*", 6th National Congress Soil Sci., Lahore, Pakistan (1996)

[42] Z. Mian, T. Ahmed, A. Rashid, "*Accumulation of heavy metals in water of river Sawan due to effluents in industrial area*", Proc of Int Sym on agro-environmental issues and future strategies: towards 21st century UA Faisalabad, Pakistan (1998)

[43] MOE-PAK, State of the Environment Report 2005 (Draft), Ministry of Environment, Government of Pakistan, Islamabad, Pakistan (2005)

2.3.3 Water pollution and human health

Water contamination is one of the main causes of health problems in human beings. About 2.3 billion peoples are suffering from water-related diseases worldwide.[44] In Pakistan contamination of drinking water with industrial wastes and municipal sewage coupled with lack of water disinfection practices and quality monitoring at treatment plants is the main cause of the prevalence of waterborne diseases.[45] According to a UNICEF report 20–40% of patients in hospitals of Pakistan are suffering from water-linked diseases. These diseases include hepatitis, cholera, dysentery, cryptosporidiosis, giardiasis, and typhoid which account for one third of all deaths in the country.[46]

2.3.4 Related Case Laws in Pakistan

2.3.4.1 *Rana Ishaque vs. D.G*

The Lahore High Court in Writ Petition No. 671 of 1995, Rana Ishaque vs. D.G, EPA and others, restrained 121 industrial units of the Punjab, excluding those that had already installed treatment plants from discharging effluents into drains and canals on petition stating that these were being drained without treatments. Consequently, most of industries started to install treatment plants to avoid any threatened litigation in the future.[47]

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[44] UNESCO, "*Water for people water for life*", The United Nations World Water Development Report (2003) United Nations Educational, Scientific and Cultural Organization (UNESCO).

[45] Hashmi, S. Farooq, S. Qaiser, "*Chlorination and water quality monitoring within a public drinking water supply in Rawalpindi Cantt (Westridge and Tench) area*", (2009), pg. 393–403

[46] Pakistan Strategic Country Environmental Assessment, Main report., Report no 36946-PK, Volume I, World Bank (2006), pg. 1–66

[47] http://www.pljlawsite.com/2009art11.htm (Last visited on October 16, 2015)

2.3.4.2 *General Secretary, West Pakistan Salt Mines Labor Union Khewera, Jehlum vs. The Director, Industries and Mineral Development, Punjab, Lahore.*[48]

In 1994, the petitioner sought enforcement of the right of the residents to have clean and unpolluted water against coal mining activity in the upstream area. It was alleged that in case the mines were allowed to continue their activities, which extended in the water catchment's area, the watercourse, reservoir and the pipelines would get contaminated. The Supreme Court, replying on the earlier Shelia Zia case, issued a number of directions to the concerned parties and departments. The honorable court made a commission comprising of five members and directed to shift Punjab Coal Company (P.P.C) within four months at a safe distance from the stream and small reservoir in such a manner that they are not polluted by mine debris, carbonized material and water spilled out from the mines.

The Commission had power of inspection, recording evidence, examining witnesses including the powers as provided by Order XXVI Civil Procedure Code 1908. The court directed PMDC to install a second pipeline connecting the top level reservoir.

The full commission visited the site and finalized its report and recommendations to the Supreme Court to strengthen the measures already directed by Supreme Court.[49]

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[48] 1994 SCMR 2061

[49] ibid

2.3.4.3 International water case:

Water pollution is a serious problem even internationally. One of the international famous case is:

The Minamata Disaster

A Corporation named, "The Chisso Corporation" located in Kumamoto, Japan dumped an estimated 27 tons of mercury compounds into the Minamata Bay, from the years 1932 through 1968. Kumamoto is a small town located in central japan in which mostly fisherman and farmers live. They were given a temptation of livelihood through this Corporation in the area in 1907.the villagers however received minimal jobs through the corporation. After the dumping of mercury compounds into the bay, thousands of people who used to feed on fish from the bay, started developing symptoms of methyl mercury poisoning. This disease was caused by the negligent dumping of the corporation.

The corporation continued to dump waste into the bay by 1925. And started paying the effected villagers compensations in exchange of polluting their fishing environment. In 1932, the Chisso Corporation started producing chemicals products like plastic, drugs and perfumes, using a chemical called acetaldehyde.

Chisso had a monopoly on the mercury based compound which enabled the company to expand. In 1950, a disease was noticed in the region. The mercury poisoning started effecting human's limbs, speech, vision, and mental capacity. Animals were affected as well. A river flows into other areas in Japan from the bay, causing the disease to be spread to these

areas as well. The corporation began to make deals with the victims which absolved the corporation of any further liability. In 1973, Japan's Kumamoto District Court found the corporation guilty of negligence. The high court of Japan ruled against sea pollution and in favor of clean water preservation.[50]

2.3.5 Environmental Issues of the Marine and Coastal Areas of Pakistan

Pakistan is located at the gateway of Persian Gulf. It is lose to Iran, India, Oman and the land-locked central Asian countries. Pakistan is thus providing a great opportunity to benefit from its geo-strategic position. However the increasing level in the coastal regions and degradation of marine resources of the country are emerging as important environmental threats need immediate actions. There are rich living and non-living resources in the coastal zone of Pakistan. The living resources include mangrove forests along Sindh and Balochistan coast with Indus Delta harboring 6th largest mangrove forest of the world. Karachi is the biggest trade and economic entre in Pakistan. Karachi port contributes almost 20 percent of Pakistan's GDP.

There are a number of environmental issues in the coastal zone of Pakistan which have a direct bearing on public health in coastal areas. The poor sanitation, poor drinking water supply and disposal of untreated sewage and domestic waste and untreated disposal of industrial effluents causing contamination, pollution and public health risks. The coastal development activities involving manmade alterations of the coastal environment have also

[50] Ibid.

accelerated the impact of pollution, leading to deterioration of coastal-environment quality, depletion of coastal resources, public health risks and bio-diversity. The pollution problems have arisen mainly due to the indiscriminate discharge of effluents from industrial and agricultural sources into the coastal environment. Karachi has almost 8000 small and large industrial units. These include Sindh industrial Trading estate (SITE) in North,Landhi industrial estate (LITA) in the East, Karongi industrial are (KIA) in the South and the Hub trading estate (HITE) between Karahi and Gadhani in the west. The port induces polluting industries to set up shop nearby in order to expedite exportation.

Major source of oil pollution along Pakistan coast are oil refineries and shipping traffic, mechanized fishing fleet and oil terminals at Karachi Harbor, Port Qasim and occasional oil spills. An estimated 90,000 tons per year of oil discharges are pumped out within port limits and there exists no oil ship waste reception or treatment facility within the port.

2.3.5.1 Tasman Spirit Oil spill Case

The Tasman Spirit Oil Spill (TSOS) off Karachi is a major pollution event. The oil tanker Tasman Spirit grounded in the channel of the port of Karachi on 27 July 2003 at 1.35 pm. The vessel was carrying a cargo of 67,535 tons of Iranian Light crude oil for delivery to the Pakistan Refinery Limited (PRL) in Karachi when the grounding occurred. Significant quantities of oil were spilled when the Tasman Spirit broke during the evening of 13 the August. By 18 August approximately 27,000 tons of cargo had been lost. On 22 August a further structural collapse occurred leading to a loss of about 100 to 200 tons. On 29 August and as well as on the 4 September further releases of oil were reported.

The coastal environment in which the Tasman Spirit spill occurred is a rich and diverse tropical marine/estuarine ecosystem. It includes extensive mangrove forests habitat for green and Olive Ridley sea turtles, dolphins, porpoises, and beaked whales, and several species of lizards and sea snakes. Extensive contamination of the beach was obvious. It also resulted into air was polluted immediately after the major spill on the August 13 and 18 due the evaporated component of the crude oil. According to the chemical properties of the crude oil, approximately 11000 tons of volatile organic compounds would have entered the air after the spillage.

2.4 Land Pollution

The land has been turned into a nightmare due to continuous polluted activities. The damages that have been caused to it are hard to calculate. Land pollution has become one of the serious problems on earth that needs to be tackled soon.

"Land pollution, in simple words, means degradation or destruction of earth's surface and soil, directly or indirectly as a result of human activities." It refers to any activity that lessens the quality and productivity of the land as an ideal place for agricultural, forestation and construction purposes. In other words, the degradation of land that could be used constructively is land pollution.[51]

[51] http://www.conserve-energy-future.com/causes-effects-solutions-of-land-pollution.php (Last visited on 30 October,2015)

Soil or land pollution, is contamination of the soil that prevents natural growth and balance in the land whether it is used for cultivation, habitation, or a wildlife preserve.[52]Some soil pollutants are: hydrocarbons, solvents and heavy metals.[53]

2.4.1 Causes of Land Pollution

The sources of land pollution includes:

a) Soil erosion and Deforestation: Deforestation in order to create dry lands is one of the major reason of soil or land pollution. Once the land is converted into barren, cannot be made fertile again. Another source of soil erosion is Land conversion i.e. altering or modifying the original properties of a land to make it useful for some other specific purpose. This leads to constant waste of land.

b) Agricultural activities: With the rapid growth of human population on earth, the demand of food has increased considerably. The farmers often use toxic fertilizers and pesticides to protect their crops from fungi, algae and bacteria. However, with the excess and over usage of such harmful chemicals result into contamination of soil and food, hence causing land pollution.

c) Mining activities: During the process of extraction and mining activities land spaces are created beneath the surface normally called land caving.

[52] http://greenliving.lovetoknow.com/Types_of_Pollution (Last visited on 30 October, 2015)
[53] http://www.tropical-rainforest-animals.com/Environmental-Pollution.html (Last visited 30 October,2015)

d) Overcrowded landfills: Tons of household garbage is produced every year that requires to manage using waste management techniques. This waste comprises of aluminum, plastic, cloth, paper and wood etc. These waste products are sent to local recycling units and the items that aren't recycles through the processes become a part of landfills that causes land pollution.

e) Industrialization: Due to rapid development and struggle for better living the demands of food, shelter has increased leading to increase in production. This resulted in creation of more waste that needs to be disposed of. To fulfill the needs of population more industries were established which led to deforestation. The production of modern fertilizers and chemicals in industries caused toxic and harmful pollution.

f) Construction activities: Large amount of construction activities are taking place due to rapid urbanization which resulted in large waste products like wood, metal, bricks, plastic etc., causing pollution.

g) Nuclear waste: The nuclear plants produce large amount of energy through the process of fusion and fission. The residual radioactive material in these processes contains large amount of toxic chemicals that are harmful for human health. They are dumped into the soil to prevent any casualty hence causing land pollution.

h) Sewage treatment: A large amount of solid waste is left over after the sewage treatment. This left over is sent to landfill sites which results in polluting the environment.[54]

2.4.2 Effects of Land Pollution

a) Soil pollution: Soil pollution occurs when the upper layer of the soil is damaged due to over use of chemicals and fertilizers or pesticides. This causes loss of fertile land for agricultural purposes and fodder patches for grazing etc.

b) Change in climate patterns: Land pollution is very harmful and can disturb the whole ecosystem. It directly or indirectly effects the climate pattern.

c) Environmental Impact: When deforestation occurs it leads to loss of tree cover on earth. This can disturb rain cycle. A disturbed rain cycle can cause a lot of drastic imbalances in the environment like Global Warming, greenhouse effect, floods and irregular rainfalls.

d) Effect on human health: The contamination of soil with toxic chemicals and pesticides can lead to various health problems including skin cancer and other respiratory ailments. These toxics reach human bodies through food grown on polluted soil.

e) Cause Air pollution: Land pollution can also cause air pollution directly or indirectly. The landfills across the city keep on growing due to increase in waste products and later burned which causes air pollution.

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[54] http://www.conserve-energy-future.com/causes-effects-solutions-of-land-pollution.php (Last Visited 30 October,2015)

f) Effect on wildlife: The wildlife, like humans also gets effected by land pollution. They face a serious threat regarding loss of habitat and natural environment. The continuous polluted activities of humans are forcing the animal kingdom to move for a better place for living and some die during this struggle. Several species reach to the level of extinction due to absence of proper habitat.[55]

Other issues that happens include rise in temperature, acid rains and unseasonal weather conditions. The discharge of toxic and harmful waste substances on lands without taking specific protective measures leads to a serious threat to ecology. These chemicals are consumed by plants and animals.[56]

2.4.3 Related Case law in Pakistan

Pakistan has suffered from land pollution badly and there are a number of reported cases regarding the issue. A lot of such issues go unchecked and without any serious action.

2.4.3.1 Human Rights Case (Environmental Pollution in Balochistan)

This case was decided in 1994 by Supreme Court of Pakistan.[57] In this case of Human Rights, the honorable Court moved Suo moto under Article 184 (3) to prevent the illegal and negligent dumping of industrial and nuclear wastes in Pakistan. Justice Saleem Akhtar took notice of an article entitled "N- Waste to be dumped in Balochistan" published in Dawn on 3 July 1992. The article expressed concern that certain businessmen were attempting to purchase land in

[55] Ibid
[56] Ibid
[57] PLD 1994 SC 102

coastal areas of Balochistan and convert it into a dumping ground for waste material. This, if it was true, would be a health hazard to people living along the coast. The Supreme Court ordered that no allottee of a land shall engage in any illegal dumping of industrial or nuclear waste on the allotted land or in the sea or by destroying it by any device. The Court further directed all the Government Agencies to include a condition in all the allotment letters of lands that the allotted land shall not be used for dumping any industrial or nuclear waste.

2.5 Hazardous Substances Associated with Waste Management

Different waste management strategies have been and is being carried out which results in the emission of types and amounts of substances. Whenever a waste management option is carried out it either produces a small amount of substances associated with the process or large quantity of different substances. In addition to substances, a few gases also emit from landfills contain normally, methane and Carbon dioxide with other gases like Hydrogen sulphide and mercury vapours (at low concentration), and a mixture of Volatile organic compounds (VOCs) of only 0.5% in amount. A study by WHO assessment expert group suggested that landfill sites investigations should also consider metals, polychlorinated biphenyls (PCB), polycyclic aromatic hydrocarbons (PAH),chlorinated hydrocarbons, pesticides, dioxins, asbestos, pharmaceuticals and pathogens. Waste incineration also produces a large number of pollutants from the combustion of sewage sludge, chemical, clinical and municipal waste, which can be grouped as particles and gases, metals, and organic compounds. Ten pollutants considered to have the greatest potential impact on human health based on environmental persisteuce, bioaccumulation and amount emitted and/or on inherent toxicity were cadmium, mercury,

arsenic, chromium, nickel or dioxins. Microbial pathogens are a potential source of hazard, particularly in composting and sewage treatment but also in landfill. Dust and the production of particulate matter are produced in landfill, incineration and composting processes and by road traffic involved in all waste management options.[58]

Less easily quantifiable hazards, which might nevertheless impact on the population near a waste disposal site include odours, litter, noise, heavy traffic, flies and birds.

2.6 Impact of Some Improper Waste Management Practices on Health

There are a lot of studies and literature available on adverse effects of waste management options like landfill and incineration, on human healthy life. However there is no significant adverse effect of the method of recycling. The health of general population particularly of those living near a waste disposal site and occupational health problems of the workers involved in waste management activities is needed to be discussed.

According to different studies available, substances like cadmium, nickel, chromium, dioxins and PAHs are considered to be carcinogenic in nature if exposed to them to high levels. In addition to causing cancer, many of these substances produce toxic effects on the central nervous system, kidneys, liver, lungs, heart, skin, reproduction, etc. The presence of pollutants like SO2 and PM10 in air cause effects on morbidity and mortality particularly in elders group.

[58] Ibid

Chemicals like dioxins and Organochlorides can accumulate in fat-rich tissues and effects reproduction or endocrine- disrupting endpoints. No doubt, the diversity of material under the heading of waste is a potential source of hazards through waste management.

Many of the studies are hampered by a lack of good exposure information and use surrogate indirect measures perhaps leading to exposure misclassification. The levels of most of the potential substances would also be expected to be extremely low, even if all sources of exposure were taken into account. Lack of specificity can also occur in defining health outcomes, particularly if these are self-reported. Many outcomes, such as cancers, would not be expected to occur until several years after exposure, requiring analysis for latency which is lacking in many studies. Migration in to and out of relevant areas is also often ignored. [59] So, there is a dire need to adopt proper waste disposal strategies that are harmless and effective in application.

2.7 Effects of Unavailability of Proper Waste Disposal Methods

The absence of proper waste disposal methods and options can result in various environmental and health hazards on a large scale which can be summarized as follow:

a) Health Hazards

The health hazards include:

- Skin and eye infections are common.
- Dust in the air at dumpsites can cause breathing problems in children and adults.

[59] Ibid.

- Flies breed on uncovered piles of rotting garbage and spread diseases like diarrhea, dysentery, typhoid, hepatitis, and cholera.
- Mosquitoes transmit many types of diseases like malaria and yellow fever.
- Dogs, cats and rats living around refuse carry a variety of diseases including plague and flea born fever.
- Intestinal, parasitic and skin diseases are found in workers engaged in collecting waste.

b) Ground Water Pollution

One of the most serious issue is ground water contamination because of the process called leaching. The water filters through the material and the chemicals in the material gets dissolved in the water causing contamination. The resulting mixture is known as leachate. It contains iron, mercury, zinc and other metals from discarded waste. This contaminated water can has a serious impact on all living beings including humans.

c) Air Pollution

When the waste brought for waste disposal method is burnt, some heavy metals like lead and toxic gases and smoke comes out and spreads over residential areas. The wind also carries harmful substances and gases in it through these options. Putrefaction of waste in sunlight during daytime results in bad smells and reduced visibility.[60]

[60] http://epd.punjab.gov.pk/solid_waste (Last visited 30 October,2015)

CHAPTER 3

ENVIRONMENTAL LEGISLATION IN PAKISTAN

3.1 Environment and the Constitution of Pakistan

The Constitution of Islamic Republic of Pakistan 1973 has defined the Executive and Legislative powers of the Federal and Provincial Governments. It has given full powers to both the federal and Provincial Governments to make laws covering environment issues. The Constitution includes the matter of environment in its concurrent list, which comprises those subjects for which both levels of federal and provincial governments have legislative powers. It includes "Environmental protection and Ecology" (item 24).

It is the primary responsibility of Federal Government to cover matters in the concurrent list. In case of conflict, the constitution give precedence to federal laws over provincial ones. The relevant article in the constitution dealing with the protection of environment is Artile 9.[61]

3.2 Pakistan Environmental Protection Act, 1997

Pakistan environmental protection Act, 1997 is the basic environmental law of Pakistan. The apex body established under the Pakistan Environmental Protection Act, 1997 is the Pakistan Environmental Protection Council. It is headed by the Prime Minister (Chief Executive) of

[61] Dr. Sohaib Qadar and Athar Rafique Dogar, "Pakistan's Environmental Laws and their Compliance", (Lahore: Lahore Law times Publications, 2002), pg. 87.

Pakistan. The functions of the Pakistan Environmental Protection Council include enforcement of the Pakistan Environmental Protection Act, 1997, to establish national environmental policies and to ensure their implementation, approve National Environmental Quality standards, give directions to conserve bio-diversity and renewable and non-renewable resources, consider the annual national environment report, and give directions to any person to stop any contravention of the Pakistan Environmental Protection Act, 1997.

The Pakistan Environmental Protection Agency exists under the Pakistan Environmental Protection Council. It is headed by a Director General. The Director General may establish such advisory committees as he may deem fit to assist him. The functions are given in detail in section 6 of the Pakistan Environmental Protection Act, 1997; and powers are stipulated in section 7 of the Pakistan Environmental Protection Act, 1997.

Pakistan Environmental Protection Agency's functions, apart from those of the Pakistan Environmental Protection Council, include administration and implementation of the Pakistan Environmental Protection Act, 1997, establish standards for discharge or emission of the ambient air, water and soil, coordinate environmental policies and programs, nationally and internationally, designate laboratories for conducting tests and analysis for the Pakistan Environmental Protection Act, 1997, identify the needs for legislation in the environmental field, recommend environmental courses and topics for incorporation in educational syllabi and lay down safeguards for the prevention of accidents that may cause

pollution. Pakistan Environmental protection agency may undertake inquiries or investigations. [62]

The Pakistan Environmental Protection Act was enacted on 6th December 1997, repealing the Pakistan Environmental Protection Ordinance, 1983. The PEPA' 1997 provides the framework for implementation of NCS, establishment of Provincial Sustainable development Funds, Protection and conservation of species, conservation of renewable resources, establishment of Environmental Tribunals and appointment of Environmental Magistrates, Initial Environmental Examination (IEE), and Environmental Impact Assessment (EIA).[63]

3.3 Salient Features of Pakistan Environment Protection Act, 1997

i) Establishment of Pakistan Environmental Protection Council

The apex body was first constituted in 1984 under section 3 of the Pakistan Environmental Protection Ordinance (PEPO), 1983, with President of Pakistan as its Chairman. In 1994, an amendment was made in the Ordinance to provide for the Prime Minister or his nominee to be the head of the Council. The Council was reconstituted after enactment of the new law i.e. Pakistan Environmental Protection Act, 1997. It is headed by the Prime Minister (Chief

[62] Dr. Sohaib Qadar and Athar Rafique Dogar, *"Pakistan's Environmental Laws and their Compliance"*, (Lahore: Lahore Law times Publications, 2002), pg. 41.
[63] www.environment.gov.pk act-rules Brief-PEPA-Act1997.pdf (Last visited on 11 November,2015)

Executive) of Pakistan. The council is represented by trade and industry, leading NGOs, educational intuitions, expert's journalists and concerned ministries.

ii) Establishment of Pakistan Environmental Protection Agency under section 5 of PEPA

In 1993, the Pakistan Environmental Protection Agency (Pak-EPA) was established under Section 6 (d) of the Pakistan Environmental Protection Ordinance, 1983. The Agency started with meager staff and resources. However, number of action were taken which included notification of NEQS in 1993 for municipal and liquid industrial effluents and industrial gaseous emissions, motor vehicle exhaust, and noise. The functions and responsibilities of the Agency enhanced and it was strengthened technically and logistically to meet the environmental challenges. Pak-EPA also provides technical support to the Ministry of Environment. Salient feature of various Sections of PEPA 1997.

iii) Functions of Pak-EPA under Section 6 (2)

The Federal Agency may a) Undertake inquiries of investigation into environmental issues, either of its own accord or upon complaint of any person or organization.

iv) Powers of Federal Agency under Section 7

The Federal Agency may summon & enforce the attendance of any person and require him to supply any information or document need for the conduct of any inquiry or investigation into any environmental issue or enter and inspect and under the authority of a search warrant

issued by the environmental magistrate, search at any reasonable time, any land, building, premises, vehicle, vessel, or other place where or in which, there are reasonable ground to believe that an offence under this act has been or being committed.

v) Provincial Environmental Protection Agencies

In all four provinces, Environmental Protection Agencies were created under the provision of Pakistan Environmental Protection Act, 1997. Federal Government has delegated its powers to the provincial governments and they have further delegated powers to the provincial Environmental Protection Agencies.

vi) Initial Environmental Examination and Environmental Impact Assessment under Section 12

Environmental Assessment (EA) is a process to examine the environmental risks and benefits associated with the developmental projects. IEE and EIA process has begun in the country in an organized manner. Section 12 explains that no proponent of a project shall commence construction or operation unless he has filed with the Federal Agency an Initial Environmental Examination or, where the projects is likely to cause an adverse environmental effect, an Environmental Impact assessment, and has obtain from Federal Agency Approval. An IEE/EIA Regulations, 2000 has been notified under this section.

xi) Penalties of Environmental Magistrate

The Environmental Magistrate has been authorized to award compensation for losses or damage under Section 17(5).

- Endorse a copy of the order of conviction to concerned trade or industrial association;
- Sentence him to imprisonment for a term which may extend up to two years;
- Order the closure of the factory;
- Order confiscation of the factory, machinery and equipment, vehicle, material or substance, record or document, or other object used or involved in contravention of the provision of the Act.

xii) Delegation of Powers to Provincial Governments under section 26

Ministry of Environment, Local Government and Rural Development had delegated functions and powers of it and the Federal Environmental Protection Agency under section 26 of the Act to the Provincial governments. The Provincial Governments have further delegated these powers and functions to Environmental Protection Agencies and also planning to sub-delegate selected powers to the local government.

xiii) Other Penalties

According to Section 17 of Pakistan Environment Protection Act,1997, whoever fails to comply by the provisions of section 11 (prohibition of certain discharge or emission), section 12 (initial environmental examination and environmental impact assessment), section 13 (prohibition of import of hazardous substances) or section 16 (Environmental protection order) shall be punishable with fine up to **one million rupees** and in case of continuance of

such violation with an additional fine up to **one hundred thousand rupees** for every day for such contravention.[64]

According to section 18 of the Act:

> "Where any contravention of this Act has been committed by a body corporate, and it is proved that such offence has been committed with the consent or connivance of, or is attributed to any negligence on the part of, any director, partner, manager, secretary or other officer of the body corporate, such director, partner, manager, secretary or other officer of the body corporate, shall be deemed guilty of such contravention along with the body corporate and shall be punished accordingly."

Provided that in the case of a company as denied under the Companies Ordinance, 1984 (XLVII of 1984), only the Chief Executive as defined in the said Ordinance shall be liable under this section.[65]

3.4 Activities Regulated by PEPA

PEPA focuses on two primary areas: Pollution and the preparation of environmental impact assessments for projects. Pollution is controlled through following provisions:

a) Discharge or emission in excess of NEQs. The primary anti-pollutant measure is contained in section 11. This prohibits the discharge or emission of any effluent waste, ir

[64] Pakistan Environmental Protection Act, 1997, Section 17
[65] Pakistan Environment Protection Act, 1997 Section 18

pollutant or noise in an amount exceeding the National Environmental Quality Standards or ambient standards for air, water or land.

b) Prohibition on import of hazardous waste. This is a blanket prohibition (section 13) on the importation of hazardous waste into Pakistan, its territorial waters, the exclusive economic zone or Pakistan's historic waters.

c) Handling of hazardous waste. Section 14 prohibits the generation, collection, transportation, treatment, disposal, storage or handling of hazardous waste except under a license issued by EPA or in accordance with the provisions of any domestic law or relevant international convention.[66]

3.5 Judicial Sanctions under PEPA

Under PEPA Act, enforcement through courts is available where the pollution charge (under section 11) or the administrative penalty (under section 17 (7)) have not been paid.

PEPA also contains a controversial provision that is likely to receive a lot of attention once it is enforced: where an offence is committed by a corporate body or a government agency (organization) then if it is proved to have taken place with the consent, connivance or is attributable to the negligence of persons within the organization then such persons are also deemed guilty of the offence and shall also be punished (section 18 and 19).

[66] Nelma Akhund, Zainab Qureshi, "*You can make a difference-a lawyer's reference to environmental public interest cases in Pakistan*" (IUCN- The World Conservation Union, Pakistan), 1988 pg.6-7

A person convicted by Environmental Magistrate may appeal to the Court of Sessions. In these cases, the role of the public is excluded. However, any person aggrieved by any final order of the Environmental Tribunal may appeal to the High Court. How widely the expression "aggrieved" will be interpreted in an open question at this stage. [67]

3.6 Environmental protection provisions under The Pakistan Penal Code (PPC), 1860:

The polluter of environment can be punished under Pakistan Penal code, 1860 (PPC) for the following three types of pollution;

- Water Pollution;
- Pollution of Atmosphere;
- General Pollution

The provisions of PPC regarding punishments for committing water pollution and pollution of atmosphere are as follows;[68]

Sec.277

> "Fouling water of public spring or reservoir: whoever, voluntarily corrupts of fouls the water of any public spring or reservoir, so as to render it less fit for purposes for which it is ordinarily used, shall be punished with imprisonment of either description for a term which may extend to three months, or with fine which may extend to five hundred rupees, or with both. Making atmosphere noxious to health: whoever, voluntarily

[67] Nelma Akhund, Zainab Qureshi, *"You can make a difference-a lawyer's reference to environmental public interest cases in Pakistan"* (IUCN- The World Conservation Union, Pakistan), 1988 pg.9-10
[68] Dr. Sohaib Qadar and Athar Rafique Dogar, *"Pakistan's Environmental Laws and their Compliance"*,(Lahore Law times Publications) pg. 82-83

vitiates the atmosphere in any place so as to make it noxious to health of persons in general dwelling or carrying on business in the neighborhood or passing along a public way, shall be punished with fine which may extend to five hundred rupees."

General pollution:

If a person does any act or omits to do any act which causes any common injury, danger or annoyance to the public or to the people in general who dwell or occupy property in the vicinity or which must have occasion to use public nuisance. Such an offence is liable to punishment under the Pakistan Penal Code (PPC). General pollution is discussed in PPC in chapter XIV under sections 278 to 280. The code stipulates the matter of environment pollution in terms of spread of infection (Virus Pollution), Adulteration of Food, Drink and Drugs, Negligent handling of poisons, Combustibles and Explosives act endangering human life or personal safety of other, mischief, etc.

Section 269 P.P.C

Section 269 of Pakistan Penal Code, 1860 deals with negligence acts likely to spread infection of disease dangerous to health and life. Diseases communicated through environment or atmosphere without actual contact are infectious diseases as opposed to contagious diseases communicable by contact. This section of Penal Code deals with infectious diseases such as, small pox, plague, cholera, etc.

Public Nuisance

The term public nuisance has been defined in section 268 of Pakistan Penal Code as follows:

> "A person is guilty of a public nuisance who does an act or is guilty of an illegal omission which causes any common injury, danger or annoyance to the public or to the people in general who dwell or occupy property in the vicinity, or which mush have occasion to use any public right."

The carrying out of business of hides and skins in a residential area without having obtained the necessary license in violation of proviso to Art 10 of the Constitution of Pakistan bring great discomfort to the residence is a case of nuisance and Magistrate has power to remove such trade.[69]

3.7 Environmental Provisions under the Criminal Procedure Code (Cr.PC), 1898

Chapter X of the Code of Criminal Procedure 1898 deals with public nuisance matters. The very first section of this chapter (section 133) deals with conditional orders of removal of nuisance. However, section 134 to 143 empower the law enforcing agencies with sufficient powers to combat public nuisance matters.[70]

According to section 133;

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[69] 1999 PCR.LJ 31

[70] Dr. Sohaib Qadar and Athar Rafique Dogar, *"Pakistan's Environmental Laws and their Compliance"*,(Lahore Law times Publications) pg. 83-84

1. Whenever a district magistrate of a sub divisional magistrate or a magistrate of the first class considers on receiving a police report or other information and on taking on such evidence (if any) as he thinks fit, that any lawful obstruction or nuisance should be removed from any way, river or channel which is or may be lawfully used by public or from any public place, or that the conduct of any trade or occupation, or the keeping of any goods are merchandise is injurious to the health or physical comfort of the community, and that in consequence such trade or occupation should be prohibited or regulated or such goods or merchandise should be removed or the keeping thereof regulated, or that construction of any building or the disposal of any substance as likely to occasion conflagration or explosion should be prevented or stopped, or that any building, tent or structure, or any tree is in such a condition that is likely to fall and thereby cause injury to person living or carrying on business in the neighborhood or passing by, and that in consequence the removal, repair or support of such building, tent or structure, or the removal or support of such tree, is necessary or that any tent, well or excavation adjacent to any such way or public place should be fenced in such manner as to prevent danger arising to the public, or that any such dangerous animal should be destroyed confined or otherwise dispose off, such magistrate may make a conditional order requiring the person causing such obstruction or nuisance, or carrying on such trade or occupation, or keeping any such goods or merchandise, or owing, possessing or controlling such building, tent, structure, substance, tank, well or excavation, or owning or possessing such animal or tree, within a time to be fixed in order or, remove such obstruction or nuisance or to desist from carrying on, or to remove or regulate the keeping thereof in such manner as may be directed; or to prevent or stop the erection of, or to remove, repair or support, such building, tent, or structure; or to remove or support such a tree; or to alter the disposal of such a substance; or to fence such tank, well or excavation, as the case may be; or to destroy, confine or dispose of such dangerous animal in the manner provided in the such order; or, if he objects so to do, to appear before himself or some other [executive magistrate], at a time and place to be fixed by the order, and move to have the order set aside or modified in the manner hereinafter provided.

2. No order duly made by a magistrate under this section shall be called in question in any civil court.

3.8 Suo Moto Jurisdiction: When the Court Begins its Own Case

The Supreme Court can, in certain cases, assume jurisdiction over a matter of its own accord without being moved by a party. This is done by directly taking judicial notice of cognizance of a matter where the conscience of the court has been so struck by a particular issue that justice demands that the matter be brought for adjudication before the courts of law. The Supreme Court can assume Sou Moto jurisdiction even on the basis of being altered to an issue by the press.

This power of the Supreme Court to assume Suo Moto jurisdiction is contained in the wording of Article 184 (3) which doesn't require a party to move the court in order for it to exercise its powers to make orders in an appropriate case. It enables the Supreme Court to initiate proceedings for the enforcement of fundamental rights.

3.8.1 Related Case Laws: Balochistan Human Rights Case

Justice Saleem Akhtar took notice of an article entitled *"N- Waste to be dumped in Balochistan"* published in Dawn on 3 July 1992. The article expressed concern that certain businessmen were attempting to purchase land in coastal areas of Balochistan and convert it into a dumping ground for waste material. This, if it was true, would be a health hazard to people living along the coast and would be in contravention of Article 9 of the Constitution

which provides that no person shall be deprived of life or liberty save in accordance with law.[71] An order was passed that all allotments of land along the coastal area should be looked into and no such allotment should be made for the purpose of disposing of industrial and nuclear waste "as this would be a clandestine act in the grab of a legal and proper business activity."[72]

Additionally, in *Human Rights Case No. 35-K/1992* (unreported), the same judge took cognizance of a matter under Article 184 (3) of the Constitution after reading a report dated 18 December 1992 published in The Friday Times. The report concerned the importation of plastic scrap which was being used as wrapping material for food and medicines for children. The learned judge ordered that expert opinion should be obtained on how such use of plastic scrap would affect the health of people and the environment.[73]

3.9 The Factories Act, 1934

After iudustrial revolution, a new area of safety engineering and public health has emerged in the name of industrial safety. It deals with the protection of workers' health, through safety control of the work environment to reduce or eliminate hazards. The rapid industrialization has caused a worldwide problem of industrial waste disposal. There are three types of industrial waste; namely solid waste, semi solid waste and liquid waste, which

[71] Nelma Akhund, Zainab Qureshi, "*You can make a difference-a lawyer's reference to environmental public interest cases in Pakistan*" (IUCN- The World Conservation Union, Pakistan), 1988 pg 26
[72] Human Rights Case (Environmental Pollution in Balochistan), PLD 1994 Supreme Court 102, p.104
[73] Nelma Akhund, Zainab Qureshi, "*You can make a difference-a lawyer's reference to environmental public interest cases in Pakistan*" (IUCN- The World Conservation Union, Pakistan), 1988 pg.26

require special arrangements for disposal just because they may contain hazardous substances. In this respect law says that in every factory effective arrangements shall be made for the disposal of wastes and effluents due to manufacturing process carried on therein,[74] and provincial Government may make rules prescribing the arrangements for such disposal.[75]

A little negligence and carelessness in and by a factory can cause a great damage to the workers, surrounding population and adjacent atmosphere. The Factory Act, 1934 provides some measures to prevent and control such a situation, which are greatly attached to the safety and security to the workers, with considerable environmental approach. The section 16 of the Factories Act, 1934, provides some safety measures regarding the suspended dust particles and fumes available in the factory vicinity due to nature of the work.[76]

Another important aspect of Factories Act, is its total ban on such internal combustion engine, which is fixed at a certain place in a factory without proper arrangements for exhaust. Internal combustion engines are actually the popular engines used in automobile. It obtains mechanical energy from the burning of chemical energy of fuel in an integral combustion chamber.

[74] Section 14 (1) Factories Act, 1934
[75] Section 14(2), ibid.
[76] Section 16 (1) , Factories Act, 1934

3.10 Environmental Laws relating to Pollutions in Pakistan

There are certain environmental Laws in Pakistan regarding the concerned issues. They are mentioned as follows:

a) Environmental Laws related to Air Pollution:

Following laws cover air pollution control:

- The Pakistan Penal Code, 1860 (see section 278)
- The West Pakistan Prohibition of Smoking in cinema houses Ordinance, 1960
- The Punjab local Government Ordinance, 1979 (see section 512 sub section "L" and section 93 sub-section 1 and 2);
- The Factories Act, 1934 (see section 16, 33-K & 33-L);
- Pakistan Environmental Protection Council (procedure) rules, 1993; and
- The Pakistan Environmental Protection Act, 1997[77]

a) Environmental Laws related to Water Pollution:

Laws dealing with water pollution are;

- The West Pakistan Water and Power Development Act, 1958 amended in 1958, 1964 and 1967;
- The West Pakistan Land and water Development Board (Authority for Payment from Board Fund) Rules, 1966;

[77] Dr. Sohaib Qadar and Athar Rafique Dogar, *"Pakistan's Environmental Laws and their Compliance"*,(Lahore Law times Publications) pg. 93

- The Greater Lahore Water Supply Sewerage and drainage, Ordinance 1967
- The Pakistan Penal Code, 1860 (see section 277);
- The Punjab Local Government Ordinance, 1979 (see section 59 and 61);
- The Balochistan Ground Water rights Administration Ordinance, 1978;
- The N.W.F.P Fisheries Rules, 1976;
- Pakistan Environmental Protection council (procedure) Rules, 1993;
- The Pakistan Environmental Protection Act, 1997.[78]

b) Environmental Laws related to Land Improvement and Protection:

Pakistan's laws related to land improvement and protection include following enactments:

- The land improvements Loans Act, 1983;
- The Punjab Development of Damage Areas Act, 1952;
- The Punjab Soil Reclamation Act, 1952;
- The West Pakistan Agricultural pests Ordinance, 1959;
- The West Pakistan Agricultural pests Rules, 1960;
- The Islamabad (preservation of Landscape) Ordinance 1966;
- The NWFP salinity control & reclamation of Land Act, 1988;
- The Pakistan Plant Quarantine Act, 1976.[79]

[78] Ibid pg.93-94
[79] Ibid pg.92

c) Environmental Laws related to Public Health:

Following laws cover public health matters:

- The Pakistan Penal Code, 1860 (see sections 278, 284, 285 and 286);
- The Pakistan Criminal Code, 1898 (see section 133);
- The Public Health (Emergency Provisions) Ordinance 1944;
- The West Pakistan Epidemic Diseases Act, 1958;
- The West Pakistan Factories canteen Rules, 1959 (see rules 6 and 7);
- The Punjab local Government Ordinance, 1979 (see section 51, 52 and 53);
- The Punjab Environmental Protection Act, 1997.[80]

d) Environmental laws related to Hazardous substance and wastes:

Following laws deal with solid and effluent management;

- The Explosive Act, 1884;
- The Factories Act, 1934 (Sections 33-L, 33-QQ and 66)
- Pakistan Environmental Protection Council (Procedure) Rules, 1993
- The Pakistan Environmental Protection Act, 1997.[81]

[80] Ibid pg.96
[81] Ibid pg.95

e) Environmental Laws related to Solid and Effluent Management:

Following laws cover solid and effluent management:

- The Factories Act, 1934 (Section 14)
- The Punjab local Government Ordinance, 1979 (Section 51,54,60,61 and 67);
- Pakistan Environmental Protection Council (Procedure) rules, 1993;
- The Pakistan Environmental Protection Act, 1997.[82]

3.11 Environmental institutions in Pakistan

The important national institutions in Pakistan, which play or can play significant role in safeguarding the environment, can be broadly classified into two categories, (a) the governmental institutions, and (b) the non-governmental institutions. Presently, both government and non-governmental sectors are addressing environmental issues. Internationally, Pakistan is a member of a number of international organizations that have been established to safeguard regional and global environment such as United Nation Environmental Programs (UNEP), South Asia Cooperative Environmental Program (SACEP).[83]

Governmental Institutions Natural resources are managed at different levels of government in accordance with their placement in the federal and provincial jurisdiction in

[82] Ibid pg.95-96
[83] Thaddeus C. Trzyna, *"World Directory of Environmental Organizations: A Handbook of National and International Organizations and Programs"* .(California: Institute of Public Affairs, 2001), pp.37-40.

Pakistan. The provinces have delegated some responsibilities to local bodies and other provincial agencies. Each department and agency patrols its sector boundaries.

a) Governmental Institutions at Federal Level

In 1983, Pakistan Environment Protection Council (PEPC) and Pakistan Environment Agency (PEA) were established, while Provincial Protection Agencies (PPA) were planned in 1984 and established in 1987. Since then many institutional policy and regulatory developments have taken place at the federal and provincial levels. It also includes creation of the Ministry of Environment. The PEPC was created with responsibility for control of pollution and preservation of the living environment. PEPC consists of the President as Chairman but in 1994 an amendment was made in the ordinance to provide for the Prime Minister or his nominee to be the head of the council. The council was reconstituted after enactment of Pakistan Environment Act 1997. PEPC is an apex statutory body. The Chief Executive is the chairperson of the council and the Federal Minister for Environment, local government and rural development as its vice chairperson and governors of all the provinces are its members besides others. The council is represented by trade and industry, leading NGOs, educational institutions, experts, journalist and concerned ministries.[84]

Government announced National Environmental Quality Standard (NEQS) in August 1993 to be applicable to all new industrial units to adopt more environmental friendly inputs

[84] Government of Pakistan, *"Environment Policy and Legal Framework,"* Online available from www.environment.gov.pk/.. /Environment%20Policy%20and%20Legal%20Framework.pdf ; (Accessed on 12 November 2009).

and machinery in the industrial processing.[85] NEQS is aimed to specify upper and lower permissible limits for industrial effluent and emissions. It is also applicable to municipal discharge from the sewerage. NEQS has been provided the legal cover through Pakistan Environmental Protection Act, 1997 to control over industrial pollution in the country.

b) Governmental Institutions at Provincial level

Different government agencies and departments have been established to deal with various areas of environmental pollution. These agencies have the power to form expert advisory body, issue permits and license allowing companies or factories to pollute in a limited mandated manner.[86] The provincial institutions are concerned primarily with resource augmentation and conservation. The major natural resource management and protection responsibilities for forests, agriculture and water lie at the provincial level, even though these authorities are often overwhelmed by federal projects. The examples of these organizations are Water and Power Development Authority (WAPDA) of Pakistan, Geological Survey of Pakistan (GSP), Pakistan Forest Institute (PFI), Soil Conservation Department, Irrigation Department, Wildlife Department, Industry and Mineral Departments, Pakistan Agricultural Research Council (PARC) and Provincial Forestry and Livestock Departments etc. Many of these institutions carry out surveys, monitoring and research work of great relevance to environmental protection.

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[85] Government of Pakistan, Eighth Five Year Plan 1993-98 (Islamabad: Planning Commission, 1994), p.121.
[86] Razzaque, *Public Interest Environmental Litigation in India, Pakistan and Bangladesh*, p.109.

Provincial Environmental Protection Agencies (EPAs) have also been established in all four provinces, which focus on industrial and urban pollution problems. EPA Punjab established in 1987 is very effective and has a large administrative and professional staff. EPA Sindh established in 1989, NWFP in 1992, and Baluchistan in 1995, AJK in 2005, and NA in 2007 can also mobilize the local resources, improve the local economy and promote sustained development. In urban areas, environmental responsibilities rest with the provincial Public Health Engineering Departments, with industrial pollution control being the responsibility of the provincial EPAs. Municipal governments have responsibility for solid waste disposal and for sewage handling and treatment.

c) Non-Governmental Institutions

Governmental functionaries play important role in environmental management, but for permanent gains emphasis must shift from the government functionaries to people's institutions and local communities motivating and organizing them to promote self-sustained growth without causing undue harm to the environment. The program of environmental safeguard is so vast in scope that it needs utilization of every available effort whether it is by a government functionary, local body, Non-Governmental Organizations (NGOs), or an ordinary citizen. NGOs have primarily been formed by citizens and independent activists who are motivated by their anxiety over environmental threats to the human species and other living being. Some experiences in Pakistan reveal that NGOs can be quite effective in slum up-gradation schemes within urban areas. In Pakistan the term NGOs became well known only in 1990s but existed in Pakistan since independence in 1947. Pakistan has

thousands of small non-profit, NGOs. So, there is a wide range of NGOs working on different subjects in different parts of Pakistan, and they have an extremely important role to play in creating community organizations.

In general NGOs are poorly developed and relatively ineffective in developing countries. Nevertheless, they have the ability to undertake many of the functions of government more effectively and efficiently such as in welfare field. However, environmental NGOs are not well developed in Pakistan, and environmental advocacy is in their infancy. None of the national groups have yet established a strong advocacy capacity, although their membership comprises competent professionals. Still grassroots NGOs with a focus on environment and conservation are active in various cities, small towns, and villages. Environmental NGOs have two main functions: transmitting information to their members and acquaintances about the state of the earth and the threats to its health, and transmitting to the government the sense of popular concern about the quality of the environment and the health of the resource base. Environmental NGOs have also been a major source of innovative thinking about how resources should be managed and the environment protected. Thus they serve both as distant early warning systems and as a source of alternate development approaches that should be encouraged and facilitated. The NGOs are playing a vital part all over the world and a great deal has been done by such organizations in Pakistan, but still a lot has to be done in the environmental field.

3.12 Global law of Environment and Pakistan

Pakistan is a member of some well-known international organizations responsible for environment protection, like United Nation Environmental Programmes (UNEP), South Asia Cooperative Environmental Programme (SACEP). Pakistan is also a signatory to a number of Multilateral Environmental Agreements (MEAs). As far as some others conventions and conference meetings are concerned Pakistan has been a part of United Nations Convention on Biological Diversity (CBD), Convention on International Trade in Endangered Species of wild flora and fauna (CITES), United Nations Convention to Combat Desertification (UNCCD), United Nations Framework Convention on Climate Change (UNFCCC), Basel Convention on the Control of Trans-boundary Movement of Hazardous Wastes and their disposal, Rotterdam Convention on the Prior Informed Consent for Certain Hazardous Chemicals and Pesticides in International Trade, the Stockholm Convention on Persistent Organic Pollutants (POPs) and the Montreal Protocol on Substances that deplete the ozone layer. In Pakistan different government agencies and departments are working to encounter various areas of environmental pollution. These agencies have been empowered to form an expert advisory body, issue permits and license allowing companies or factories to pollute in a limited mandated manner. Apart from Pakistani own laws and policies, Pakistan is liable to abide by the international rules and regulations concerning the environmental pollution, environment conservation and protection. Pakistan is a member of a number of international organizations which have been established to safeguard regional and global environment such as United Nation Environmental Programs (UNEP), South Asia Cooperative

Environmental Program (SACEP). Pakistan has a dramatic and rapid increase in the awareness regarding environmental problems since the United Nations Conference on the Human Environment held in 1972 in Stockholm, Sweden. Environment is degrading rapidly due to the growth of urbanization on agricultural land, water pollution of streams and ruin of fisheries by industrial effluents and the encouragement of narrow agriculture consultants to use chemical pesticides extensively.[87]

3.12.1 Civil Liability Convention

The 1992 Civil Liability Convention (CLC) governs the liability of ship-owners for oil pollution damage.Under this Convention, the registered shipowner has strict liability for pollution damage caused by the escape or discharge of persistent oil from his ship. This means that he is liable even in the absence of fault on his part. He is exempt from liability only if he proves that:

i. the damage resulted from an act of war, hostilities, civil war, insurrection or a natural phenomenon of an exceptional, inevitable and irresistible character, or
ii. the damage was wholly caused by an act or omission done with the intent to cause damage by a third party, or
iii. the damage was wholly caused by the negligence or other wrongful act of any Government or other authority responsible for the maintenance of lights or other navigational aids, in the exercise of that function.

[87] Muhammad TayyabSohail, Huang Delin, Muhammad AfnanTalib, Xie Xiaoqing and Malik Muhammad Akhtar, An Analysis of Environmental Law in Pakistan-policy and Conditions of Implementation,(Research Journal of Applied Sciences, Engineering and Technology, Maxwell Scientific Organization, 2014).

iii. the damage was wholly caused by the negligence or other wrongful act of any Government or other authority responsible for the maintenance of lights or other navigational aids, in the exercise of that function.

The Civil Liability Convention was adopted to ensure that adequate compensation is available to persons who suffer oil pollution damage resulting from maritime casualties involving oil-carrying ships. The Convention places the liability for such damage on the owner of the ship from which the polluting oil escaped or was discharged.

3.12.2 The 1992 Fund Convention

The 1992 Fund Convention, which is supplementary to the 1992 CLC, establishes a regime for compensating victims when compensation under the 1992 CLC is not available or is inadequate. The International Oil Pollution Compensation Fund, 1992 (1992 Fund) was set up under the 1992 Fund Convention.

The 1992 Fund pays compensation when:

- The damage exceeds the limit of the ship owner's liability under the 1992 CLC, or
- The ship-owner is exempt from liability under the 1992 CLC, or
- The ship-owner is financially incapable of meeting his obligations in full under the 192 CLC and the insurance is insufficient to pay valid compensation claims.

Pakistan has signed the convention but has not paid the fund.

CHAPTER 4

COMPARATIVE ANALYSIS OF ENVIRONMENTAL LEGISLATION OF BRAZIL, ENGLAND AND UNITED STATES OF AMERICA

4.1 Introduction

Although, the Environmental Legislation is common and now being adopted all over the world presently but it is comparatively a new phenomenon in the legislative work of different states of the world. The majority specific environmental laws are promulgated in 70s just because it was the decade in which the environmentalists and green politicians got success in catching the attention of the legislators towards the matter of Environment. It can be said that environmental legislation is lesser or greater is being done in every corner of the world. A comprehensive view of environmental legislation in some countries is given below:

4.2 Environmental legislation in Brazil

4.2.1 Introduction

The history of Environmental Law in Brazil is similar to other countries, especially the countries of Latin American. In the beginning it had statutes protecting the water and the

forests, but only with economic objectives. For example, since 1940 its Criminal Code has been punishing, in its article 271, the polluter of the potable water can be sent to prison for 5 years. However, after the historic Congress of Stockholm, in 1972, Brazil edited important laws protecting the environment.

Then, on August 31, 1981, it had the Law n. 6,938, with an environmental national policy. In 1985, another important law was enacted. It was Law n. 4,347, of 24 July, that defined a special and quick procedure to solve the cases concerning the environment. It is the so-called Public Civil Action Law and its model was the North-American law of Class Action. In 1988, on October 5, Brazil edited a new Constitution. The new Magna Carta has a lot of articles protecting the environment, including the integrated participation of the Union, States and Counties (Brazil is a federal State), establishing criminal sanction to the juridical persons and demanding environmental impact statements in special situations. Finally, in 1988, on February 12, it had the Law 9.605, with criminal repression. This statute was really revolutionary, because it brought many innovations. For example, the substitution of the imprisonment for the restoration of the damage. [88]

4.2.2 Special Situation in Brazil

The situation of the environmental protection in Brazil, although similar to other countries, has important particularities. First of all, it is a country with 8,511,996 km2, with various ecosystems. Besides this geographical aspect, Brazil has different economic and populacional

[88] Vladimir Passos de Freitas, "*Brazil: Environmental Management*" can be assessed at www.unep.org/delc/portals/119/publications/speeches/BRAZIL.pdf (Last visited on January 11, 2016).

regions. Obviously these factors generate several manners of seeing the protection of the environment.

However, in spite of these differences, Brazil has a uniform legal system. Only the Federal Government can make criminal and civil laws. The States cannot do it. They edict only administrative laws in environmental questions. By the way, the federal laws are very good and this is a factor of effectiveness. For example, the law of Public Civil Action, allowing the Prosecutors to bring suits, extended this right also to the Federal Union, to the States, to the Counties and to the environmental organizations. This is very important, because in many countries only the citizens have legitimacy to bring suits and we know that a person alone can't make many things. In short, in spite of its problems, Brazil has good laws and effectiveness in the environmental protection.[89]

4.2.3 The Environment and the Brazilian Constitution

Brazil's 1988 Constitution was the first in which the environment was included as a separate concept, being specifically referred to as "the environment."Under prior constitutions, the legal basis for laws related to the environment was found in constitutional provisions regarding the protection of health and regulations governing production and consumption. A constitutional amendment dating from 1969 used the term "ecological," but only with regard to the proper use of land for the purpose of receiving government financial incentives. Perhaps

[89] Ibid.

the most important article of our Constitution regarding the environment is the main paragraph of Article 225, which states:

> All have the right to an environment that is ecologically in equilibrium and that is available for shared use by the people, essential to a healthy quality of life, which imposes on both the government and society as a whole the duty of protecting it and preserving it for both the present and future generations.

Aside from Article 225, there are other constitutional provisions that deal with the environment. First, Article 23 establishes the concurrent jurisdiction of the federal government, the states, the federal district, and local governments to:

- Protect documents, works and other assets of historical, artistic and/or cultural value, monuments, noteworthy natural landscapes and/or archeological sites;
- Protect the environment and combat pollution in any of its forms;
- Preserve the forests, fauna and flora;
- Register, monitor and oversee the granting of rights (i.e. concessions) to conduct research, exploration or extraction of water or mineral resources in their territories.

Article 24, in turn, provides the legal authority to legislate on the environment, establishing the concurrent jurisdiction of the federal government, the states, the federal district, and local governments. It is worth emphasizing that, although Article 23 refers to law enforcement, Article 24 establishes the power to adopt laws, decrees, resolutions, ministerial directives, etc.[90]

[90] Constitution of Brazil, available at http://www.planalto.gov.br/ccivil_03/Constituicao/Constitui%C3%A7ao.htm. (Last visited on November 12, 2015)

4.2.4 Brazilian Environmental Public Policies

Brazil still suffer with the lack of a National Policy on Waste Management to set principles, instruments, and directives to the sector. Some States have its own State Policy, implemented specifically to deal with regional characteristics.

But at the beginning of 2007 the Federal Government approved the National Policy on Basic Sanitation, which include some rules about waste management, considered one of the four basic sanitation services, together with water, sewage and drainage services. This legislation gives some directions to the Public Administration on how to deal and carry on waste management services under its responsibility.

4.2.5 Main Environmental Regulations

Brazilian environmental legislation is extensive and includes laws and regulations focusing on specific topics. The main statutes and regulations include the following:

- article 225 of the Brazilian Federal Constitution;
- Brazilian Environmental Policy;
- Environmental Crimes Act;
- Administrative Environmental Misdemeanors Law;
- Mining Code;
- Forest Code;
- Conservation Unit System;
- Brazilian Climate Change Policy;
- Brazilian Solid Waste Management Policy;

- Water Code;
- Brazilian Water Resources Policy; and
- Representative Action Law.[91]

4.2.6 Integrated Pollution Prevention and Control

Law No.6938/81 established the Brazilian Environmental Policy and created the National Environment System (SISNAMA), comprising:

- National Environment Council (CONAMA) as the advisory and deliberative environment agency;
- Ministry of the Environment (MMA), as the central environment authority;
- Brazilian Environment and Renewable Resources Institute (IBAMA), as the federal supervisory and enforcement authority;
- Regional bodies, such as statewide environment agencies; and
- Local bodies, such as local environment agencies[92]

4.2.7 Liability for Damage to the Environment

Under Brazilian law, there are three different and independent forms of environmental liability: civil, administrative and criminal.

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[91] Carlos de Miguel, "*Environment-in 21 jurisdictions worldwide*",2014 "Reproduced with permission from Law Business Research Ltd. This article was first published in Getting the Deal through – Environment 2014, (published in November 2013; contributing editor: Carlos de Miguel Perales, Uría Menéndez) www.GettingTheDealThrough.com. (Last visited on December 25,2015)

[92] Ibid.

4.2.7.1 Civil Liability

Civil liability results from action or omission on the part of the offender causing any type of environmental damage. In this area the applicable standard is strict liability. The applicable penalty is remedying or compensating the damage caused to the environment and additionally any resulting damage sustained by third parties.

4.2.8 Case Law in Brazil

. In the State of Santa Catarina, south of Brazil, a dairy products industry was caught discharging industrial effluents into a river that crosses the area. In the same place, one of the owners bred around 300 pigs and used to throw the pigs manure into the river. Taken by surprise by the Environmental Police, the owners were charged, together with the juridical person, with crime of pollution. The 1st instance judge rejected the charge against the juridical person. The Prosecutor appealed and the State Court reformed the decision determining that the accusation should be received and the juridical person and the partners should be sued. This decision is important for two reasons:

i) It accepts the penal liability of the juridical person;

ii) It doesn`t admit the pollution in the river, even knowing that pig culture is extremely important for the economy of the west region of Santa Catarina.[93]

[93] Court of Justice of Santa Catarina State. Criminal Appeal 00.020969-6, 1sr Criminal Chamber.

4.3 Environmental Legislation in England

The first glimpses of environmental laws were no doubt seen in the English legal system. At the time when the commons were so cautious about economic development and colonial rule, they had legislated some of the laws regarding pollution control. The earliest known attempt in the direction of environment in Great Britain, is an ordinance of 1273, which prohibited the use of coal within the municipal limits of city of London, considering this act prejudiced to public health.[94] It is the oldest law of the world specifically dealing with the matter of environment, and after that there remained a complete darkness for centuries regarding the environmental legislation. There are traces of environmental legislation in England during 19th Century, especially in the second half of the century, like smoke Abetment Acts of 1853 and 1856[95], which got an overwhelming support in the House of Common to control smoke required the industries that fall reducing the discharge of noxious and offensive gases to the minimum possible level. The Alkali Act, 1863, had provisions for establishment of the 'Alkali' inspectorate to co-operate with the industries to find out solution for emission problems.

However, very hasty and effective legislative activities can be observed in 20th century. A very comprehensive and effective legislation in England was passed regarding the matters of water pollution in 1923 by enacting 'The Salmon and Fresh Waters Fisheries Act'. After the very remarkable enactment is ' The Public Health Act, 1936', which provided a special statutory procedure for dealing with certain public nuisance including dust effluvia caused by any trade,

[94] Arther C. Stem, *Air Pollution*, pg. 54
[95] Fifth report of Royal Commission of Environmental Pollution, 1976, para 43 , pg.12

business or any manufacturing process. The Act also contains many provisions dealing with smoke nuisance. After Public Health Act more environmentally friendly enactment were followed like the Public health (Drainage of Trade Premises) Act, 1937, The River (Prevention of Pollution) Act, 1960, The River (Prevention of Pollution) Act, 1961, The Water Resources Act, 1963 and The Rivers (Prevention of Pollution) (Scotland) Act, 1965.

The increasing interest of masses regarding air Pollution in England urged the legislature to pass Clear Air Act, 1956. The Clean Air Act, 1956, attempts to control emission of smoke, grit and dust by adopting prescribed measures to prevent their production. This Act is remarkable in a way that it empowered the local authorities to take action against smoke nuisance. The Clean Air Act has gone through two sets of amendments in 1964, and then in 1968.

The most recent and a very comprehensive legislation regarding the environmental pollution and its control, is the Control of Pollution Act, 1974, is that it has guided the legislatures world-wide for enactment of such kind of legislation. Although the environmentalists of the United Kingdom are unable to enter directly in the political system of England but they performed a great job by working as a pressure groups and they have successfully achieved their targets by compelling the legislature to legislate according to their will and desire.[96]

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[96] Fahim Ahmed Siddiqui, *The Scope of Environmental Laws in Pakistan*, (Karachi: Asia Law House, 1st Edition, 2000)

4.3.1 Important Environmental Statutes Enacted in England

There are a few Environmental Legislations that are applicable and prevail in England. They are mentioned as follow: [97]

4.3.1.1 Air Pollution

- Lighting and watching Act, 1833
- The Alkali, etc. Works Regulation Act, 1906
- The health and safety at works, etc. Act, 1914
- The Public Health Act, 1936
- The Public Health (Recurring Nuisances) Act, 1969
- The Public Health (Scotland) Act, 1978
- The Clean Air Act, 1956
- The Clean Air Act, 1968
- The Radioactive substances Act, 1960
- The Control of Pollution Act, 1974
- The Road Traffic Act, 1972
- The Road Traffic Act, 1974

4.3.1.2 Fresh water Pollution

- The Public Health Act, 1936
- The Public Health Acts, 1961 (Part V)
- The Water Act, 1945
- The Water Act, 1948
- The Water (Scotland) Act, 1946

[97] ibid

- The Water (Scotland) Act, 1967
- The Public Health (Drainage of Trade Premises) Act, 1937
- The Salmon and Freshwater Fishers Protection (Scotland) Act, 1951
- The Rivers (Prevention of Pollution) (Scotland) Act, 1965
- The Water Resources Act, 1963
- The Sewerage (Scotland) Act, 1968
- The Water Act, 1973
- The Local Government (Scotland) Act, 1973
- The Control of Pollution Act, 1974

4.3.1.3 Waste Management

- The Public Health Act, 1936
- The Burth Police (Scotland) Act, 1892
- The Burth Police (Scotland) Act, 1903
- The refuse disposal (Amenity) Act, 1978
- The Litter Act, 1958
- The Dangerous Litter Act, 1971
- The Local Government Development and Finance (Scotland) Act, 1964
- The Water Act, 1973
- The Control of Pollution Act, 1974
- The Health and Safety at Work, etc. Act, 1974
- The Dumping at Sea Act, 1974

4.3.1.4 Radioactivity

- The Radioactivity substances Act 1948
- The Radioactive substances Act, 1960
- The Atomic Energy Authority Act, 1954

- The Atomic Energy Authority Act, 1971
- The Nuclear Installations (Licensing Insurance) Act, 1959
- The Nuclear Installations Act, 1965
- The Nuclear Installation Act, 1969
- The Radiological Production Act, 1970
- The Health and Safety of Works etc. Act, 1974

4.3.2 Related Case law in England

4.3.2.1 *The Trafigura Case, 2009*

Trafigura is one of the world's leading oil trading companies. After details emerged in parliamentary debate showing that Dutch multinational firm Trafigura had been involved in a toxic waste dump in Cote d'Ivoire (West American country) that had resulted in several deaths, the company wasted no time in preventing documents from the Netherlands Forensic Institute from becoming public.

The "super-injunction" preventing the publication of information brought far more attention to the company than the initial news report, leading to a massive amount of online activity. In 2012, a report from Amnesty International claimed that deaths were Trafigura's responsibility, the company later paid a fine to the Netherlands.[98]

In the UK there are common law rights (civil rights) to protect the passage of water across land unfettered in either quality of quantity. Criminal laws dating back to the 16th

[98] http://www.triplepundit.com/podium/10-high-profile-environmental-cases/ (Last Visited on 17 January 2016)

century exercised some control over water pollution but it was not until the Rivers (Prevention of pollution) Acts 1951 - 1961 were enacted that any systematic control over water pollution was established. These laws were strengthened and extended in the Control of Pollution Act 1984 which has since been updated and modified by a series of further acts. It is a criminal offence to either pollute a lake, river, groundwater or the sea or to discharge any liquid into such water bodies without proper authority. In England and Wales such permission can only be issued by the Environment Agency and in Scotland by SEPA.

4.4 Environmental Legislation in the U.S.A[99]

The United States of America is the first federation of the world and in a federation conflicts between federal and state jurisdiction usually hinder the legislative process, and this conflict posed a great problem for the development of environmental laws at the early stage. The Federal Government considered the protection of health and public welfare as the responsibility from their shoulders by giving excuse that it is either the matter of Federal Government or regional and local authorities. However, in America, pollution legislation had previously been left in the hands of states and local authorities. In such a situation, crystal clear laws to control environmental pollution could not be developed. But, the fact is that on the whole, the United States had to develop a system of legal control of environmental pollution with good number of laws for environmental protection just because it has taken a great part in the promotion of environmental pollution.

[99] Fahim Ahmed Siddiqui, *The Scope of Environmental Laws in Pakistan*, (Karachi: Asia Law House, 1st Edition, 2000), pg.85.

Nonetheless, the foundation stone for the growth of environmental laws was laid down by the federal Government when in 1899, the River and Harbour Appropriation Act was passed, but still the major environmental laws of the USA are still the product of either state legislation or local authorities' rules. In 1947, California State passed the first state law specifically directed to control air pollution.[100] After California a number of statutes were passed from time to time to control the air pollution in different states, and Pollution Control Agencies were formed in different states. The Federal Government also took steps and extended financial help to the newly established state Pollution Controlling Agencies.[101]

The slow and steady improvement in the already existing environmental laws at the Federal level continued and new environmentally friendly laws was also made. The Rivers and Harbour Act, 1889 had some provisions regarding water pollution as it declared unlawful and discharge of oil or oil mixture by an oil tanker into the prohibitory zone of teriitorial waters of USA. In the year 1912, the Public Health Service Act was passed which requires an organization to conduct research concerning the health aspects of water pollution. In 1924, the Congress passed the Oil pollution Control Act, prohibited the dumping of oil in navigable water.

The Water Pollution (Amendment) Act, 1972, established effluent limits for individual sources of pollution. In this respect the very recent legislation is The Clean Water Act, 1977,

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[100] David V. Lynn , *Air Pollution, Threats and Response*, published in 1976, pg.247

[101] Fahim Ahmed Siddiqui, *The Scope of Environmental Laws in Pakistan*, (Karachi: Asia Law House, 1st Edition, 2000), pg 86

which defines and provides the effective control for toxic, conventional and non-conventional pollutants and sets new standards of clean water.

The solid waste management is also an important aspect of environmental betterment. The solid waste Disposal Act, 1965, opened new channels of financial assistance from Federal Government to states for Solid Waste management planning. Another very important legislation at the federal level is the National Environmental Policy Act, 1969. The basic of this legislation is to develop a comprehensive and systematic approach for management of the environment as a whole. The Act declares a national environmental policy and a council on environmental quality, and both are established under this act.[102]

4.4.1 Important Environmental Statutes Enacted in the United States of America

4.4.1.1 Air Pollution

- The Air Pollution Control Act, 1955
- The Clean Air Act, 1963
- The Air Quality Act, 1967
- The Clean Air (Amendments) Acts, 1970
- The Clean Air (Amendments) Act, 1977[103]

[102] Ibid pg.88
[103] Ibid pg.88

4.4.1.2 Waste Management

- The Solid Waste Disposal Act, 1955
- The Resource Conservation and Recovery Act, 1976[104]

4.4.2 Related Case Law in USA

A U.S steel Corporation, in 2008 was ordered to pay $4.45 million to settle a lawsuit against it over air pollution caused by an Ecorse plant. Almost 7,000 residents were effected by smoke and metallic particle emissions from this U.S Steel Great Lakes Works Plant. In this case it was disclosed that excessive levels of manganese was found from the emissions of the plant. The test reports by the Michigan Department have approved this presence of pollutants.

The effected residents decided to receive $300 each, under a settlement, for accumulative $2.1 million by the steel company. [105]

Another case in this regard is;

4.4.2.1 *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council, Inc. (2013)*

This case was decided by United States Supreme Court. In this case the Natural Resources Defense Council and Santa Monica Bay keeper challenged the Los Angeles Country Flood Control District for violating the terms of its National Pollutant Discharge Elimination System

[104] Ibid pg.89

[105] https://pklawyers.wordpress.com/2008/12/29/legal-cases-covering-air-pollution-and-its-after-affects/ (Last visited on 17 January, 2016)

(NPDES) permit, as shown in water quality measurements from monitoring stations within the Los Angeles and San Gabriel Rivers. The US Supreme Court, in this case reversed the Ninth Circuit's ruling.[106]

[106] https://www.law.cornell.edu/supct/cert/11-460 (Last visited on January 17, 2016)

CHAPTER 5

HURDLES IN THE WAY OF DEVELOPMENT OF ENVIRONMENTAL LAWS IN PAKISTAN

5.1 Introduction

Environmental institutions are important for the management of human and nature resources. Unfortunately, Pakistan has weak institutions for the management of community resources and common problems. Environment is a common property according to the institutional point of view and the community institutions are managing this property[107].In our policies and projects we focus on the individual and public sector management of environment, admitting private and state property but ignoring common property. Such an approach has been known for several decades as 'the tragedy of the commons'.[108]There are many structural deficiencies of the current system of country, like corruption and poor work ethic, which need extensive national attitudinal reforms and modifications. Environment is degrading rapidly due to the expansion of urban settlements on to the best agricultural land, pollution of streams and destruction of fisheries by industrial effluents, and the encouragement of narrow agriculture specialists to use chemical pesticides extensively.[109] The list could go on and on with passage

[107] Ranjit Kumar, and Barbara Winifred Murk, On Common Grounds: Managing Human-Planet Relationship (New York: John Wiley, 1992), p.23.
[108] Michael L. McKinney and Robert M. Schoch, Environmental Science, Systems and Solutions (London: Johnes and Bartlett Publishers International, 1998) p.16.
[109] Mary K. Theodore and Lewis, Theodore, Major Environmental Issues Facing the 21st Century (New Jersey: Prentice Hall, 1996), p.12.

of time. Thus, we urgently need to develop institutions and enforce laws to overcome the environmental problems.

5.1.1 Brief History of Environmental Law and Ordinance

Pakistan is a developing country which faces many problems such as corruption, inflation, terrorism, sectarian violence and political instability. All these factors make it impossible or difficult to implement the law and its formulation.

Until the late 1950's there were no environmental laws enacted in Pakistan. The Environment Ministry was established in 1975 as a follow up of "Stockholm Declaration" of 1972 in Sweden. In Pakistan, the reaction of Stockholm Declaration forced the government to establish "Environment and Urban Affairs Division" (EUAD) in 1974 within the Ministry of Housing and Works. EUAD has responsibility for national environmental policy formulation and for administration of national environmental impact assessment procedures, which it mainly undertook through limited review of federal projects and is reported to Ministry of Environment.

Pakistan faces many crises in last few decades which has slowed down the process of environmental legislation. There are some many factors which are also responsible for the act. Environmental law of Pakistan is formulated by specialists but unfortunately the law is not much applicable or implemented. Although it covers every aspects such as air pollution, water pollution, soil pollution, hazardous waste import, natural resource management, fine claims and NEQS.

5.2 Hurdles in the Way of Development

There are a few factors that cause hindrance in the development of Environmental Laws in Pakistan.

5.2.1 Lack of Interest

The issue of environmental pollution specifically by the industrial activities is still unresolved because of the negligence and lack of interest in the issue by our legislators and Government. They do not pay heed to this growing problem. There is still a need to build a proper infrastructure to deal with the problem. Schemes are mostly on papers and where they are in operation the work is slow.

5.2.2 Defective Planning

There is seldom a public work that is done with planning. If there had been any systematic check and effective planning, things might not took an ugly turn. There is no proper check on industrial construction and their activities. Industries have been located near or in some cases within the populated areas, causing epidemics to the population nearby.

5.2.3 Nonprofessional Attitude of Environmentalists

Sadly, the professionals do not attend their responsibilities required by the situation. They are lacking innovation and motivation in most of the cases.

5.2.4 Lack of Proper Punishments in Legislations

One of the major factor of this problem is the absence of suitable punishments to the offenders in case of violation. The industries do not bother to perform environment friendly waste management strategies because they are not afraid of any punishment.

5.2.5 Lack of Comprehensive Set of Environmental Laws

Pakistan is fairly well supplied with incidental environmental legislation. In existing legislation the specific environmental enactments are few and insufficient. Environmental laws mentioned previously clearly indicate the weakness. There should be specific set of laws regarding the environmental pollution and management. For example, a set of laws related to land improvement and protection, a set for air pollution, for water pollution, noise pollution, solid and effluent management, agriculture pesticides and other aspects related to environment.

5.2.6 Lack of Standard

Pakistan's environmental legislation suffers from lack of quantified limits and standards, which makes these laws ineffective and difficult to enforce. Most of the laws do not mention quantitative standards for emissions, which require sophisticated tools for determining emissions and effluent levels. By not specifying any standards, the rule leaves enforcement to the whims of the enforcing authority. This acts as an impediment to both regular enforcement and voluntary public compliance.

5.2.7 Lack of Adequate Formal Enforcement Procedures and Non availability of the Tools of Implementation

The environmental laws call for action by government, businessmen, NGO's, local communities and individuals. Laws are useful only when we act upon them. Therefore enforcement procedure and tools of implementation become important. It is necessary to set priorities and then to start implementation. There is shortage of skills in Pakistan to implement the environmental laws because of the deficit of trained personnel like technical staff to assess and monitor emission controls, trained extension staff with government and NGO's, a cadre of environmental social scientists including economists, primary scientific research staff and well trained administrative professionals who combine organizational efficiency with technical knowledge of environmental issues. If Pakistan establishes its priorities and specifies the quality, quantity, and timing of needed technical assistance, then the environmental laws could be implemented. But the financial resources are important to establish priorities. Unfortunately, the financial resources for environmental improvement are severely limited in our country. These constraints have led to substantial shortfalls in both essential technical knowledge and equipment relating to enforcing regulations concerning the sustainable use of natural resources and protection of the environment.

5.2.8 Lack of Awareness

Awareness of environmental laws and their importance is lacking amongst the regulators, enforcing agencies, and even the judiciary. For example, the Pakistan Penal Code, the most

often used and quoted legislative document for enforcement agencies, has a number of environmental clauses, yet most enforcement personnel are unaware of these or at least of their environmental dimensions. So, environmental education is very important because the low literacy level significantly limits the speed at which improvement in environmental awareness and activity can be achieved. This lack of awareness has slowed the development of environmental pressure groups, which has proved to be the catalyst for better legislation and enforcement.

5.2.9 Lack of Respect for the Law

In our country the respect for the law has been absent for several decades, perhaps this is the result of successive martial laws, which has suspended the most sacred document "the constitution" of the country, in favour of one person. Laws at every level have been suspended by personal whims of authoritarian administrators. The highly stratified society that has emerged over the years has given rise to a feeling that getting away with breaking the law is itself a status symbol. In a setup that abuses the sanctity of the state, no legislative initiative can ever bear fruit. In our society the disrespect for the law has become a way of life.

5.2.10 Lack of Economic Incentives

Regulations are generally inflexible and more costly where many people are involved. Cost of enforcement is increased further because people often try to evade the laws. Thus enforcement entails cost of monitoring plus cost of catching law breakers, prosecuting them, and sometimes, keeping them in jail. In recent years, however, rising cost of regulations,

changing economic conditions, increasing emphasis on input reduction, and many other factors have led to increasing interest in economic incentives as a way of sustaining the environment. Government regulation restricts depletion and pollution only by passing laws, but economic incentives are also important to sustain the environment. Incentives are less expensive than regulation because they save on enforcement cost and are more flexible: producers and consumers decide how to pay for the change to meet the goal, each chooses the least costly way. These incentives basically are of two types: government incentives includes subsidies and many other ways that local, state, and national government can reward or discourage behaviors. By rewarding individuals monetarily, economic incentives help meet many goals effectively. The second basic economic incentive is privatization, in which environmental resources become the property of individuals. By transferring resources from the commons to individuals or companies that have a vested interest in them, the basic cause of the "tragedy of the commons" is removed. Despite some success with privatization, it is often less useful than government incentives in solving environmental problems.

CHAPTER 6
CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Pakistan is our homeland. The name of our country itself indicates that the founders of our nation have some great ideas for this ideological state. Pakistan means the land of Paks, or spiritually pure persons. It means that by the grace of Allah, we have a name for our homeland, which itself reflects the ideas of environmental protection.

Due to rapid industrialization, Pakistan is suffering from this menace of environmental pol `llution effecting humans and other living organisms. It has caused serious health problem too. This problem needs to be dealt with proper management, effective administrative setup and proper legislation. Pakistan has certain concerned environmental laws regarding the issue but in spite of this fact, the problem is still there and is increasing day by day. One of the major reason behind it is that it needs a lot of improvements and monitoring.

Industrial waste is a mixture of solid, semi solid, liquid and gaseous states. All these effluents needs to be handled with proper and effective management. There must be proper corporate waste management strategies that should be strictly followed. One of the major reason that why the companies do not bother to adopt such disposal strategies is, they cost much and aren't monitored strictly by the concerned authorities. Moreover, the fine being

charged under Environmental Protection Act, 1997 is not so much that these multinational companies can't afford.

The solution of environmental pollution solicitis serious, concentrate and multi-directive efforts so that mankind can enjoy a better and healthier atmosphere. Proper environmental health now needs a comprehensive system of modern life in which the public health engineers, the sociologists, the economists, the public health qualified doctors, the epidemiologists and the health inspectors and environmental lawyers all work in harmony and only in the interest of and for protection of life on our planet. A purely medical or engineering or legal or any other approach by itself is no longer sufficient, a combined multi-disciplinary programme of action is needed to achieve and maintain a healthy environment.

Case Laws and suggestions have been given to improve the situation steps have been envisaged to address the complexity of the problem. First meaningful step would be the awareness of high authorities coupled with awareness of the concerned corporations regarding their responsibilities to the gravity of situation that is intensifying with each passing day.

6.2 Polluter Pays Principle

The polluter pays principle is an environmental policy principle which requires that the costs of pollution be borne by those who cause it. Most of the time, the polluter pays principle takes the form of a tax collected by government and levied per unit of pollution emitted into the air or water. As a policy instrument for the control of pollution, a tax on emissions will theoretically reduce pollution, because firms or individuals will reduce emissions in order to

avoid paying the tax. The polluter pays principle has received support from most countries of the Organisation for Economic Co-operation and Development (OECD) and from the European Community (EC). In international environmental law, it is mentioned in Principle 16 of the 1992 Rio Declaration on Environment and Development.[110]

The polluter-pays principle has been widely implemented in OECD countries and credited for bring about a significant reduction in pollutant discharge. However, it has had only limited implementation in developing countries. The consequences of not implementing it in developing countries, to the extent they are documented, are limited to estimating the economic damages of environmental degradation. Yet there are several other but seldom documented negative consequences of the failure to implement the polluter-pays principle. These consequences are documented in the case of Pakistan. They include limited construction of effluent treatment plants, heavy dependence on the government and international donors for funding the only two operational common effluent treatment plants, significant operational issues at the two common effluent treatment plants, missed opportunities to build cost-effective common effluent treatment plants and minimal environmental improvements from isolated investments in individual effluent treatment plants in addition to the already documented significant level of environmental degradation due to uncontrolled pollutant discharge.

[110] Pigou , A.C. *The Economics of Welfare*,(London: Macmillan, 1920)

6.3 Recommendations

For this purpose, some recommendations are proposed as follow:

6.3.1 Inadequacy in Constitution

The first and the most important thing is that inadequacy of Constitution of Pakistan regarding environmental issue that needs to be removed. There isn't any specific provision for environmental protection in the constitution. Although, the constitution has fully empowered the Federal and Provincial legislative to make laws for the protection of environment, and in the case *Shehla Zia vs. WAPDA*[111], the Supreme Court has extended the scope of Art. 9 of the constitution to cover some aspects of environmental pollution. But, a separate article is needed to be incorporated in the constitution of the country.

6.3.2 Toxic Substances Control Act

For the protection of Environment from toxic substances especially from the corporate industries is needed to be introduced.

6.3.3 Environment Protection Courts

For the protection of environment and speedy disposal of environmental cases, special courts should be created. Such courts may be called "Environment Protection Courts". Presently, there are already two environmental courts working in the country but it's not sufficient. It is

[111] PLD 1994 SC 693

necessary that the judges appointed in these courts must be free to devise their own procedure subject to basic rules of fair play. Such courts are required to be established at the lowest level and throughout the country.

6.3.4 Public Interest Litigation

The Public interest litigation is a growing idea for the protection of environment nowadays. The superior courts of England and USA have silently and gradually adopted this sort of litigation. If the similar situation may arise here in Pakistan then it will be a great assistance in protection of environment. It is therefore needed that the course of public interest litigation with broadened rules of 'locus standi' for initiating or intervening in civil or criminal proceedings be adopted for the protection of environment.

6.3.5 Establishment of Office of Environment Ombudsman

It is strongly recommended that an office of "Environment Ombudsman" should be created at federal as well as provincial level for the protection of environment. Any person or voluntary agency may request him to investigate any matter causing environmental harm, he is duty bound to take notice of such request. He must have full investigating powers and access to files. He must advise and administer industries, get assistance from any governmental department or organization and people's organizations. A separate staff must also be provided to them.

6.3.6 Inadequacy of the Common Law Remedies

The court's tendency to balance hardships and deny injunctions and lack of 'locus standi' to sue is a factor which make the nuisance law inadequate to control widespread pollution. It is humbly suggested then that in case of environmental pollution everyone should be allowed to become a party in any sort of proceedings.

6.3.7 Amendment Criminal Procedure Code

The scope of section 133 Cr.PC has to be enhanced and amended so that in case of environmental pollution resulting in public nuisance, an individual, association of persons, factory or industry etc. even is allowed to initiate the action against the offender. It is also required to make the law so flexible that even a person who has no direct interest in the matter, but is a serious environmental issue, may become a party.

6.3.8 Amendment in Pakistan Penal Code

There are certain sections in PPC that provides penalties in case of any environmental damage, to the offender. But it is suggested that the existing penalties should be at least thrice, as to the present day's penalties.

6.3.9 Pollution Control Programme

The federal and provincial Environment protection Agencies should be given ample powers for the protection of environment. It should be their duty to conduct a survey relating pollution from the large and medium industries and such pollution should be checked at source.

6.3.10 Environmental Impact Assessment and Monitoring

A policy for environmental impact assessment and monitoring has to be adopted for the protection of our natural environment. No development and industrial work should be allowed to start work until and unless a complete and comprehensive environmental impact assessment should be done. This scheme should be adopted on private and public sectors, both. And the importance of environmental impact as suggested in *Shehla Zia vs. WAPDA*[112], should be adopted.

6.3.11 Establishment of Industrial Units

No more licenses should be issued to new industrial units within the limits of large metropolitan cities like Karachi, Faisalabad, Lahore and Multan. The Government and Financial institutions would be advised to deny support to new industries in these areas. Financial incentives are required to be given to industry for installing pollution abetment equipment. It is also necessary that standard conditions are incorporated in the 'Industrial Licenses' for the protection of environment. It is also required that a condition should be incorporated that no industrial waste should be thrown out of the industrial unit without proper treatment and without eclipsing the harmfulness from such waste. It should also be required to incorporate in the condition of the industrial license that adequate steps should be taken to prevent air, water and land pollution from such industries.

[112] PLD 1994 SC 693

6.3.12 Recycling of Waste

The waste can be used and recycled for some beneficial purposes like power generation, as being done in China, Argentine and Brazil.

6.3.13 Harsher Punishments

One more recommendation in this regard is that there is a dire need to introduce harsher and strict penalties or punishments in the environmental laws of the country. The present punishments are not sufficient to stop this abuse. The fine penalty is not much that a multinational company owning industries can't pay. So the fine or other penalties should be such harsher and severe that it can stop these industries to cause pollution around.

6.3.14 Strict liability

The principle of strict liability is that it needs no further proof of negligence or carelessness and liability is imposed on the wrongdoer. It is recommended to impose strict liability on all wrongdoers in case of environment cases in our country.

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