

MAINTAINANCE OF ENVIRONMENTAL ISSUES IN INTERNATIONAL RIVERS

ABSTRACT

Many issues are caused in any ways within international rivers. International rivers have many legal issues. The environmental issues are pollution, building of dam or water-storage, dumping of waste, a true line in a navigable river and so on. These impacts are not the same. Every State has the sovereign right to utilize its natural resources in accordance with its environmental policies. States have the sovereign rights to exploit their natural resources pursuant to their environmental policies and their duty to protect and preserve the environmental problems. State has the obligation to protect and preserve the environment. It is the responsibility of the State and every citizen to preserve its natural resources in the interests of present and future generations. The maintenance systems are not alike. Especially, it is based on geographical, meteorology, society, history, politics, and economics of each region. Legal measures for environmental problems in international rivers are regulatory standard, Conventions, report and rule. The concerning States should conclude treaties to cooperate. So, States are trying to have a universal treaty that will regulate all the international rivers allowed the world like the UN Charter.

Introduction

Today it is great importance to industrial development and trade. Every State has the sovereign right to utilize its natural resources in accordance with its environmental policies. Environmental Law is a relatively new but rapidly growing and expanding field of law which aims at protecting the nature, natural resources and the total content within which they exist from major deterioration that could impair their utilization by the present and future generations.

Its development originated from the awareness that our plant is endangered by population explosion, over-exploitation of natural resources, loss of biological diversity, ozen depletion, climate changes, acid rain, deforestation, desertification, air and water pollution, disposal of hazardous waste, international debt, and poverty and so on.

International water law has to take into account, among other factors, the geography, meteorology, society, history, politics, and economics of each region. At first, particular water pollution problems were addressed when harmful activities originated in neighboring countries, applying general precedents and norms of transfrontier pollution.

Environmental Law is an essential tool for the governance and management of substantial development. It provides the foundation for governmental policies and actions for the conservation of the environmental and for ensuring that the use of natural resources is both equitable and sustainable.

Apart from international, multilateral and regional environmental agreements, environmental national legislation is also an important factor. There are frame work laws and sectoral laws which dealt with environmental protection and conservation. Environmental Impact Assessment is a very important and effective tool for sustainable development of every Country.

The development of international environmental law led to the adoption of global rules and principles to govern the conduct of States in respect to the conservation and harmonious utilization of natural resources shared by two or more States. Legal control of international rivers is important mechanisms. The environmental issues do not cause damage to the environment of other States and to monitor the implementation of obligations accepted by the contracting parties.

So, States need to co-operate on monitoring. The special measure can be taken to minimize the environmental harm. Customary international law imposes the fundamental obligations of the all area of States environment and protection. Somewhere, issues solved according to the agreement between them.

It is the responsibility of the State and every citizen to preserve its natural resources in the interests of present and future generations. These impacts are not the same. The maintenance systems are not alike. Legal measures of environmental problems in international rivers are regulatory standards, conventions, reports and rules. The concerning States should conclude treaties to cooperate.

1. Definitions of the Environment

Environment means physical factors of the surroundings of human beings, including the land, soil, water, atmosphere, climate sound, odors, tastes, the biological factors of animals and plants of every description and historical, cultural, social and aesthetic factors. The term 'environment' means different things to different people. Some consider it to be basic elements of the earth, such as the air, land and water. Environment includes natural environmental and man-made environmental. Natural are air, land, water soil etc and man-made environmental are cultural artifacts, monuments historical and archeological sites, natural heritage-etc.

The dictionary meaning, the world; "environment" means "surrounding circumstances or influences". The term "environment" can describe a limited area or the entire plant, even including a part of the space which surrounds it. The term "biosphere" includes a very narrow stratum encircling the globe. It comprises the earth and several thousand meters above and under the surface of the earth and oceans. In technical term, environment includes natural resources,

such air, land water, forest biological species etc., and man-made environment as well. Cultural artifacts, monuments and historical and archaeological sites and other features of national heritages are some of the man-made environment. However as the field of environmental law is rapidly growing, the definition of “environment” is also widening as well. Nowadays, some matters. i.e., international debt and poverty are taken into account as part of the environment. Those matters are not the natural resources or man-made environment. Therefore, it is not so easy to define or delimit the meaning of environment.

International and national legal instruments include many different definitions of the environments. A legal text adopted by the Council of the European Economic Community on 27 June 1967 environment as water, air and land their inter-relationship as well as relationship between them and any living organism. Other definitions are based on the idea expressed by the preamble of the United Nations Declarations on the Human Environment, adopted in Stockholm in June 1972, that state, Man is both creature and moulder of his environment, which gives him physical substances and affords him the opportunity for intellectual, normal social and spiritual growth.

Environmental protection to human rights norms, stating that man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. Other Principles can be grouped into themes.¹

Environment defines in light of its aim of integrated pollution control. The environment consists of all, or any, of the following media, namely the air, water and land and the medium of air includes the air within buildings and the air within other natural or man-made structures above or below ground.²

Environment includes:

- natural resources both abiotic and biotic such, as air, water soil, fauna and flora and the interaction between the same factors.
- property which forms part of the cultural heritage, and

¹ Principle 1 of the Declaration on the Human Environment in Stockholm Conference, 1972.

² Section 1 of the British Environmental Protection Act 1990.

- the characteristic aspect of the landscape.³

Therefore, Environmental law is one of the major tools for effecting environment management is impossible to cover all their vast areas of environment by single legislation. Currently, there has been enactment of new national law and ratification of international and agreements in various areas of the environmental matters.

2. Causes of Environmental Impact of Issues in International Rivers

International Rivers are situated in two or more States. It flows through many States. Each State owns that part of the river which runs through its territory. All riparian States have the right of freedom of navigation on international waterway. The environmental issues or problems caused direct and indirect harm to the environmental quality of the entire earth. Impact is defined any effect caused by a proposed activity on the environment. However, the environmental impacts of dams have been debated. Their effects can be damaging to the environment.

There are thousands of polluting accidents which occur every day and may have irreversible environmental consequences. Many problems are arisen out of river. Environmental issues in river include pollution from sewage, industrial and solid waste disposal, dumping and disposal of hazardous waste, discharging of industrial and human wastes, building of dam or water-storage and water quality management and so on. The matters of environmental problems mostly based on pollution.

2.1 Building of Dam or Water-storage

The problem of building of dam or water-storage was caused between the needs of development and the necessity to protect the environment. It is alike of the law of development and the law of environment. The damming of a river will have dramatic consequences on the nature of the environment both upstream and downstream of the dam. A dam of downstream may be substantially altered from the character of the river entering an impoundment above a dam.

Dams are substantial barriers which built across rivers and streams to confine and utilize the flow of water for human purposes such as irrigation and generation of hydroelectricity. This confinement of water creates lakes or reservoirs. The magnitudes of these effects are usually

³ Article 2 of the Convention on Civil Liability for Damage Resulting from Activities Dangerous to the Environment, 1993.

directly related to the size of the dam. So, the environmental impacts of dams have been debated. Dams are performed important functions but their effects can be damaging to the environment.

Therefore, development and impact can be seen accompaniment in everywhere. The building of dam is important in flood and agriculture. But, the ecosystem and ecological are impact of changes by the building of dam.

2.1.1 Ecosystem Impact of Building of Dam

The problems of ecological processes of river environments are caused by building of dam. It had been long acknowledged for providing electricity without the pollution of other methods, for flood protection, and for making water available for agriculture and human needs. However, the river's ecosystem caused impacts by the building of dam.

*The Danube Dam case (Hungary v. Slovakia)*⁴ had caused in Europe, the decision of the International Court of Justice on 25 September 1997 prescribes a joint operation of the Gabčíkovo system to serve both economic and environmental interests. A new solution required recognition of new environmental standards. It shows that sustainable development has gained international approval. In international public duty on States to act in the public interest is to ensure that its citizens are not harmed by actions having effects on the environment.⁵

In addition to the direct impact of the building of the dam, major hydrological changes pose a major threat to the hectares of floodplain forests. In addition, ground and drinking water reserves of the region are reducing in both quantity and quality by the river diversions, the impoundment in the reservoir and canal, and the consequent loss of groundwater recharge.

In future, neither a continuation of present mitigation measures, nor the building of new weirs in the old riverbed, can stop or reverse this degradation. Anyhow, the concept of sustainable development is a principle accepted by not only the developing countries, but also the worldwide. The protection of the environment is a vital part of human rights doctrine such as right to health and right to life itself.

Another major problem caused of the St Lawrence River between in Canadian and United States territory. *The Gut Dam case*⁶ had caused damage for claims such damages. It decided that States are liable for pure environmental damage, since all the claims related to

⁴ ICJ Rep 1997, p.7-76.

⁵ Martin Dixon & Robert Mc Corquodale, Cases and Materials on International Law, 3rd edition, p.493.

⁶ 8ILM 1969, p.118.

property damage resulting from changes to the environment. States are subject to limitations on their use of international waters. By the result of the construction of the Gut Dam, the damage caused to United States property. So, Canada is liable for damage.

One of the Environmental Impact Assessment for a large dam is *The Mekong River Dam*. It is a large-scale hydropower projects. Riparian countries in the basin are eager to utilize some of this potential. The benefits and economic gains from these projects are substantial. With the promise of economic gains from hydropower and other development projects in the Mekong River comes the potential for severe environmental and social impacts.⁷

Potential impacts can include collapse of fisheries as upstream access to millions of fish is blocked and fish migration routes are destroyed, inundation of ecologically valuable forest habitat, and displacement of human settlements. Governments of Mekong River Basin riparian countries are faced with the challenge of managing this development to protect fisheries and minimize environmental and social damage.

Environmental impacts of hydropower projects are abundant and varied. Although only obvious potential impacts are considered, it is important to keep in mind that for every major impact associated with the project, there could be several indirect impacts. Generally, the problems of ecological impact processes of river are caused directly and indirectly of impact in society. The environment can impair all the human rights. All peoples have the right to initiate development projects and enjoy their benefits. There is a duty to ensure that those projects do not significantly damage the environment.

2.1.2 Social Impacts of Building of Dams

The problems of the social impacts are caused by building of dam. Building of dam is to control of river such as flooding, water supply, producing of hydro-electric power, and reliable navigation. But, it can damage the social impacts.

One of the social impacts of large dams is *the Aswan Dam* in Egypt. It is located in Egypt on the River Nile near the town of Aswan. This is a multi-purpose dam and built for four main reasons. They are controls of flooding, water supply, hydro-electric power, and reliable navigation. The Nubian civilization is one of the oldest and greatest civilizations in Africa. The Aswan High Dam was designed to control the Nile River. The huge dam controls flooding and stores water for times of drought. It is equipped to provide hydroelectric power. These benefits

⁷ EIA Procedures and Decision Making, 2001, p.1.

however do not come without a price tag.⁸ These people lost their homeland. The water table is rising in the Nile valley, causing major erosion of the foundations of the ancient temples and monuments. Therefore social impact was caused by building of dam.

The Ilisu Dam Project (Turkey) threaded downstream nations. Syria and Iraq also depend on the Tigris River for water, the Ilisu dam threatens these downstream nations as well. There has been no agreed upon resettlement plan and minimal consultation with those who will be affected by the dam.⁹ So, the dam will force up to 80,000 mostly Kurdish people from their homes and up to 15,000 more will lose their farmlands and livelihoods. They protected archaeological and cultural site.

Impacts due to the dam and reservoir; a reservoir upstream of the dam will flood riverbed, floodplain and upland habitat. The reservoir of *the Nam Theun* will inundate a wide variety of terrestrial and river habitat types, including considerable tropical forest habitat. These habitats which support diverse ecosystems found in Laos will be replaced by a reservoir that provides habitat for a much narrower range of species. The downstream morphology of downstream riverbeds and riverbanks, are also affected by changes in water levels and sediment loading rates. These sediment particles will settle to the bottom of the reservoir, so that the water released from the dam will be much clearer.¹⁰

Therefore the river downstream of the dam will become narrower and deeper, reducing habitat quality within the river and the surrounding riparian areas. All rivers carry some sediment as they flow through their watershed. When the river is held behind a dam in the reservoir for a long period, most of the sediment will be trapped in the reservoir. Therefore many environmental problems became into the rivers.

2.2 Erosion and Emission Issues

The importance causes of the environmental impact issues in international rivers are erosion and emission. These problems affect available water supply and water quality for basin countries regardless of international boundaries. The freedom to utilize the international rivers has been limited. Riparian States must respect the principle announced in *Trail Smelter Arbitration*, which forbids causing damage to the territory or inhabitant of another State.

⁸ [http://www. water Aswan Case.doc](http://www.water.AswanCase.doc).

⁹ http://2439_casestudy_isiludamproject.pdf.

¹⁰ <http://www.internationalriversnetwork.terra.htm>.

*Trail Smelter Arbitration (US v Canada)*¹¹, it has decided between the United States and Canada. It affirmed that no State has the right to use its territory or permit to be used to cause serious damage by emissions to the territory of another State or to the property or person. The environmental impact of the sulphur dioxide released by smelters caused some of the main species affected such as the Douglas firs, yellow pines, larch, cedar, and harvests included alfalfa, wheat and oats. Besides, American farmers suffered damage due to emissions of sulphur dioxide by the plant. The effects of these harmful amounts of sulphur being released were noticed in the State of Washington. Sulphur dioxide emissions from the Trail Smelter had damaged the Columbia river valley. So, the International Joint Commission by the United States decided that the Trail Smelter should limit its sulphur dioxide emissions and Canadian government should pay the United States government \$ 350,000 as a compensation for damage.

Another impact problem is bound to arise between the riparian States sharing transboundary resources. These problems will destroy to influence the river's ecosystem. Nile basin faces environmental problems, such as soil erosion, deforestation, and sedimentation, social and political problems. These problems pose serious threats to water resources and the basin's environment. The problem facing Egypt, Ethiopia and the Sudan are a familiar one. There is not enough Nile water available to complete all of their irrigation. There is a real necessity to develop a new basin wide management strategy for the future and to renegotiate new agreements that include all Nile basin nations.¹²

There is some erosion of farmland down-river. Erosion of coastline barriers will eventually cause loss of the brackish water lake fishery that is currently the largest source of fish for Egypt, and the subsidence of the Nile Delta will lead to inundation of the northern portion of the delta with seawater, in areas which are now used for rice crops. The Nile delta silt has lost much of its fertility. The red-brick construction industry is also severely affected. There is significant erosion of coastlines all along the eastern Mediterranean.¹³

The environmental impact problems in international rivers caused of destroyed the river's ecosystem, altered from the character of the river, some of the main species affected and so on.

¹¹ 1931-1941, 3 U.N.R.I.A.A. (United Nations Reports of International Arbitral Awards), 1905.

¹² <http://www.ausr.org/watercrisis.nileriver>.

¹³ http://www.Aswan_Dam\Aswan_High_Damww.htm.

2.3 Relocation and Diversion Issues

Relocation and diversion are the main cause of the environmental impact issues in international rivers. Protection and restoration of river environments is essential for sustainable, diverse, and productive stream fisheries. The biggest problems are population growth, insufficient agricultural production, and evaporative losses. The dam related relocation affects society in three ways: an economic disaster, human trauma, and social catastrophe.

Aswan Dam is a multi- purpose dam. It was designed to control the Nile River. Damming the Nile river caused a number of environmental issues. It flooded much of lower Nubia and over 90,000 people were displaced. Lake Nasser flooded valuable archaeological sites such as the fort at Buhen. These people lost their homeland because creation of the reservoir, Lake Nasser which necessitated the relocation of approximately one million Egyptian peasants and Sudanese Nubians. In addition, they were dispersed to the “less fertile government lands in Upper Egypt and Eastern Sudan”. Not only this is a travesty to the people losing their homes, but it is also a great loss to historians and archaeologists worldwide, as the Nubian civilization is one of the oldest and greatest civilizations in Africa.¹⁴

One of the diversion problems is the water sharing conflict in Ganges river. It is shared by China, Nepal, Bangladesh and India. The conflict over the Ganges water between Bangladesh and India had caused since 1951. The diversion of water from the Ganges was occurred by the construction of *the Farakka barrage*. The barrage started operation in 1975. Two treaties agreed between Bangladesh and India for sharing waters of the Ganges river; they are *in 1996, Treaty for Sharing Ganges Water* and *1977 the Agreement for Water Sharing and Management*. The two countries signed two treaties to solve the long - standing Farakka water conflict between them.

*Lac Lanoux Arbitration*¹⁵ is one of the diversion problems. The arbitral decision alluded to the problem of transfrontier pollution between France and Spain. The Tribunal held that French is entitled to exercise her rights nevertheless she cannot ignore Spanish interests. So, Spanish is entitled to demand that her rights be respected and that her interests be taken into consideration.¹⁶

¹⁴ [http:// Aswan Dam Case Study htm](http://Aswan Dam Case Study htm).

¹⁵ 1957, 12 U.N.R.I.A.A.285 at 303. 24 ILR (International Law Reports) 101, 1957.

¹⁶ Ibid,p.278.

Therefore, the rule provides that “States may utilize the hydraulic power of international watercourses only on condition of a prior agreement between the interested States cannot be established as a custom, even less as a general principle of law”. The award considered whether riparian States have any obligation to notify and consult with others who may be potentially affected prior to engaging in activities, which may harm a shared river resource.

2.4 Pollution Issues in International Rivers

Pollution means any physical, chemical or biological alteration in the composition or quality of water which results directly or indirectly from human action and affects the legitimate uses of such water, there by injury.¹⁷ Pollution means making dirty or impure in anywhere and anyway. There is not a single definition of pollution.

Many issues are caused by anyways in international rivers. Water pollution problems were addressed harmful activities originated in neighboring Countries such as industrial, chemical, transfrontier pollution and so on. It applies general precedents and norms.

2.4.1 Transfrontier Pollution

The pollution may affect the environment hundreds of miles away from the source of international rivers this is called transboundary pollution. Tranboundary environmental management is strengthening. Sometimes the pollution may impact the environment hundreds of miles away from the source, such as nuclear waste. Pollutants can affect man with direct and indirect effects. Dumping of wastes into river is very serious problems. Because of it is suffered from injury of human society or community. The problem of waste is relatively new, having appeared with the industrial age and the explosion and the increase concentration of human population. These address the use of freshwater and its contamination by pollution.

In the case of *Gateshead Metropolitan Borough Council v Secretary of State for the Environment*¹⁸, there are considerable differences of opinion about the desirability of incineration as a means of waste disposal .There is concern about the polluting effects of incineration, particularly in relation to the emissions into air.

The disposal of wastes into rivers or lakes is prohibited or regulated by many bilateral and multilateral treaties. Such prohibition or regulation is either intended to protect the environmental quality of sea and ocean by limiting the transportation of waste pollutants by

¹⁷ Article I of Athens resolution of The Pollution of Rivers and Lakes and International Law 1979, (Fifteenth commission)

¹⁸ 1993, 67 P&CR 179.

rivers and estuaries into the sea and ocean and other land-based sources of pollution¹⁹. Direct effects are acute effects from exposure to a toxic pollutant reaching man through air, water or food and genetic effects that are manifested in future generations. Indirect effects include damage to plants and animals, the human habitat (air pollutants that destroy forests and corrode buildings) and water pollutants that destroy the recreational value of inland water; alteration of the global climate.²⁰

Another impact problem is oil spill into river. Environmentalists have noticed that for oil spill raised the alarm from oil shipping route. Oil spill have been fed in the river .This spill will destroy to impact the river's ecosystem.

The custom of international law does not prevent the dumping of wastes in an international waterway. However, during the last decade international law has evolved to recognize the principle that the upstream country's rights to utilize the water are restricted by the requirement that it take into account the equitable uses of downstream States.

Agenda 21 identifies the overall objective in relation to hazardous waste as being “to prevent to the extent possible, and minimize, the generation of hazardous waste, as well as to manage those wastes in such a way that they do not cause harm to health and the environment”.²¹

Article 207 of the United Nations Convention on the Law of the Sea provided to prevent, reduce and control pollution of the marine environment from land-based sources, including rivers, estuaries, pipe-lines and outfall structures. States must take into account internationally agreed rules, standards and recommended practices and procedures; characteristic regional features; the economic capacity of developing countries and there need for economic development; and the need “to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substance, especially those which are persistent, into the marine environment”.

Therefore, dumping of wastes problem is one of the pollution problems in international rivers. A major environmental impacts concern is the environmental issue of the dam's reservoir becoming a cesspool of contaminants and waste. International environmental law is more

¹⁹ Philippe Sands, *Principles of International Environmental Law*, Vol I, Manchester and New York, 1995, p.499-500.

²⁰ <http://www.diversitas.org.htm>.

²¹ *Agenda 21*, Chapter 20, para 20.6.

developed in limiting or prohibiting certain methods of disposal of particular waste types, although no single instrument comprehensively and globally regulates waste disposal.

2.4.2 Industrial Pollution

The main pollution of rivers is caused by toxic industrial wastes dumped by industrial plant and factories, particularly in the chemical industries such as congestion, noise and squalor, and wasteful consumption pattern and wasteful use of resources in industries.

Industrial and agricultural activities and population growth are increasing the development for water, requiring new management technique. Industries have contributed significant amounts of oil, aluminum, lead, and other industrial wastes such as sulfur dioxide, hydrogen sulfide, and benzene to the flow of the rivers. The characteristics of industrial waste waters can differ considerably both within and among industries. The impact of industrial discharges depends not only on their collective characteristics, such as biochemical oxygen demand and the amount of suspended solids, but also on their content of specific inorganic and organic substances.

Article X (1) of the Helsinki Rules provides that “States are obliged to prevent new forms of water pollution or any increase in the degree of existing pollution which would cause ‘substantial injures’ in the territory of other basin States, and to take all reasonable measures to abate existing pollution.” *Article 207 of the United Nations Convention on the Law of the Sea* provided that States must take into account and the need “to minimize, to the fullest extent possible, the release of toxic, harmful or noxious substance, especially those which are persistent, into the marine environment”.

These problems are caused by direct and indirect impact of ecological and social. Water temperature, turbidity, dissolved gases and concentrations of heavy metals will change the impoundment. Downstream water quality will be affected by the construction of the dam or reservoir. If upstream countries build dams or reservoirs to remove more water for their own purposes, downstream countries are going to face with reduced water availability. The problems can be solved bilateral co-operative and multilateral co-operative system. Therefore, State should take all reasonable measure in order to reduce actual pollution of all kinds.

3. Maintenance of Environmental Impact of Issues

State has the responsibility to protect and preserve the environment at the present and future generations. Legal measures include control, management, maintenance, protection and

preservation. Legal control of international rivers is important mechanisms. Sound management is important to maintain the environment and ecological diversity in the international rivers areas. The special measure can be taken to minimize the environmental harm. Customary international law imposes the fundamental obligations of the all area of States environment and protection. The international environmental law led to adoption of global rules and principals to govern of States in respect to the conservation and harm.

3.1 Maintenance, Management and Control of the Impact of Building of Dam

The problems of ecological processes of river environments are caused by building of dam. The direct impacts of the building of the dam are major hydrological changes in each country. Dam had long been acknowledged for providing electricity without the pollution of other methods, for flood protection, and for making water available for agriculture and human needs.

The environmental impact problems in international rivers caused of destroyed the river's ecosystem, altered from the character of the river, some of the main species affected and so on. The dam related relocation affects society in three ways: an economic disaster, human trauma, and social catastrophe. Protection and restoration of river environments is essential for sustainable, diverse, and productive stream fisheries.

The dams have caused the changes in the ecological processes of river environments. Not only the environmental effects but also the solution was a violation of international law because it altered the line of the natural border between the two countries. Therefore, environmental monitoring is essential to resolve the impact problems in the international rivers.

The building of dam caused impacts the river's ecosystem. *The Construction and Operation of the System to support the construction of the Gabčíkovo Water Project* (The 1977 Treaty) stipulated that "State borders would be respected according to the present navigation line of the old Danube river bed." *Convention on Cooperation for the Protection on Sustainable Use of the Danube River in 1994* objectives are to ensure sustainable and equitable water management of the Danube river, including conservation, improvement and the rational use of surface waters and ground water in the catchments area; to control the hazards originating from accidents; and to contribute to reduce the pollution loads of the Black Sea from sources in the catchments area.

The plan was to divert the Danube river into a new river bed or canal. The Danube river into two diversionary canals had affected the environmental serious consequences. The diversion of the Danube river onto Slovak territory will change the international boundary between the two countries. It will affect Hungarian trade flows because duties may be charged by Slovakia to cross their territory on the new Danube river and the environmental impact of diverting the river is immense.²² *Article 3 of the Convention on Cooperation for the Protection and Sustainable Use of the Danube River in 1994* provides that applies to the catchments area of the Danube river, and the operation of the hydro technical construe measures to prevent environment impact or protect the ecosystems and the precautionary prevention of accidents.

The United Nations Convention on the Law of Non-Navigational Uses of International Watercourses in 1997 contains 37 articles dealing with the obligations of riparian States to share the common resource, to consult with each other, to protect the environment and to resolve disputes.²³ *The Helsinki Rules* formulated "equitable utilization" to express the rule of restricted sovereignty as applied to fresh waters. In generally, States do not cause "substantial damage" to the environment or to the natural condition of the waters beyond the limits of the nation's jurisdiction. Internationally, the basic principles governed the management of shared water resources. The International Law Association remained on the rule of equitable utilization as the only significant rule in the customary international law of water resources.

The Mekong River Commission set a new mandate for the organization "to cooperate in all fields of sustainable development, utilization, management and conservation of the water and related resources of the Mekong River Basin". All the countries of the Mekong River Basin recognized that need to work together to equitably manage the development of the river and its riparian ecosystems. Mekong river basin riparian countries are faced with the challenge of managing the development to protect fisheries and minimize environmental and social damage.

The national Flood Control in the Mississippi River Act 1936 states that "...flood control is a proper activity of the Federal Government" and that "...the Federal Government should improve or participate in improvements...for flood control purposes if the benefits to

²² [http:// www.american.edu / ted / ice /danube.htm](http://www.american.edu/ted/ice/danube.htm), p.5.

²³ International Law Association. 2004 (ILA 2004). *The Berlin Rules on Water Resources, in Report of the Seventy-First Conference (Berlin)*. International Law Association, London, UK.

whomsoever they accrue are in excess of the estimated costs...".²⁴ The Mississippi river and tributaries project is the largest flood control project in the world.

Convention on the Law of the Non-Navigational Uses of International Watercourses in 1996 to the UN General Assembly adopted that States should use watercourses in an equitable and reasonable manner, and defines a procedure to follow when planned schemes may have adverse impacts on other riparian States.²⁵ The principle of management of the Rhine River is *the International Commission for the Protection of the Rhine (ICPR)*. It set flood prevention, environmentally and other measures aimed at the protection of this marine area.²⁶

The dams caused severe deterioration to the water flow in the Ganges. *The Central Pollution Control Board (CPCB)*, which is India's national body for monitoring environmental pollution, undertook a comprehensive scientific survey in 1981-82 in order to classify river waters according to their designated best uses.

Above the mentions of international rivers, many issues are caused in any ways by building of dam within international rivers. But, these impacts are not the same. The building of dam caused impacts the river's ecosystem. Therefore, environmental monitoring is essential to resolve the impact problems in the international rivers.

3.2 Legal Control of Transfrontier Pollution and Industrial Pollution

The pollution may affect the environment hundreds of miles away from the source of international rivers this is called transboundary pollution. Transboundary environmental management is strengthening. Water pollution has been expressed since the beginning of the industrial age.

The heavy industries are the primary polluters of the Danube. The *Danube River Protection Convention (DRPC)* have agreed to co-operate on fundamental water management issues by taking "all appropriate legal, administrative and technical measures to at least maintain and where possible improve the current water quality and environmental conditions of the Danube river and of the waters in its catchments area, and to prevent and reduce as far as possible adverse impacts and changes occurring or likely to be caused."²⁷

²⁴ http://www.dnr.state.wi.us/org/water/wm/watersummary/305b_2006/mississippi.htm

²⁵ Ashok. Swain, *International Laws and Disputes in the Nile River Basin*, Bergen, Norway Nile Basin Research Programme Journal, 2007, p- 4-9.

²⁶ <http://www.TheWaterPage-Rhine-Main.htm>

²⁷ http://en.wikipedia.org/wiki/International_Commission_for_the_Protection_of_the_Danube_River

The 1966 *Helsinki Rules on the Use of Waters of International Rivers* urges to use transboundary waters in an ecologically sound and rational manner and asks to respect the aims of resource conservation and environmental protection.²⁸ *Helsinki Convention on the Protection and Use of Transboundary Water-courses and International Lakes*, was applying it to a concrete project of cooperation.

Danube River basin caused accidental pollution and organic pollution. Pollution from ships and boats is a significant problem. The most serious organic pollution problems occur in tributaries. Organic pollution has been increasing in the river basin. Accidental pollution in the Danube river basin can cause widespread damage to the environment, and endanger the health of local people and the State of local economics downstream. Industrial pollution is especially high on the Danube. *The Convention on Co-operation for the Protection and Sustainable Use of the River Danube* aims to ensure that surface waters and groundwater within the Danube River Basin are managed and used sustainable and equitable.²⁹

Mississippi River pollution emerged impacts to water quality began to accrue from an increasing human population, persistent use of agricultural chemicals, and an expanding industrial river complex.³⁰ *The Upper Mississippi River Basin Protection Act* will help the most ecologically and economically important waters in the nation. So, every field should cooperate to monitoring system between riparian States.

The 1976 Convention for the Protection of the River Rhine Against Chemical Pollution requires parties to eliminate pollution of the surface waters of the Rhine river basin by dangerous substances appearing and reduce pollution by dangerous substances listed.³¹ The Rhine River is the most polluted rivers in Europe. Therefore, the Commission of the European Community set up international programs for monitoring the ecosystem of the Rhine and assesses the effectiveness of the measures adopted and decided.

Above the mentions of international rivers, many issues are caused in any ways by pollution within international rivers. But these impacts are not the same. Many causes of pollution including sewage and fertilizers contain nutrients such as nitrates and phosphates. Pollution is also caused when silt and other suspended solids, such as soil, wash off plowed

²⁸ Article 2 and Article 2 (b) of the *Helsinki Rules on the Use of Waters of International Rivers* in 1966.

²⁹ <http://www.Danube/TheConvention.htm>

³⁰ <http://www.missriver-waterquality.pdf>

³¹ Philippe Sands, op cit, volume I, 1995, p.355.

fields, construction and logging sites, urban areas, and eroded river banks when it rains. Control on navigability, due to diversions and changes in flow should be notice exercised.

Conclusion

The pollution of the river was caused by chemicals, transboundary impact and manufacture of emission along the banks of the rivers. It can be directly attributed to industrial discharges into the river. The changes of the navigational route will severely affect export and import trade. The river and its tributaries should be provided the maintenance of existing waterways and the development of future waterway infrastructure.

A strong environmental monitoring and protection capacity has also been developed such as to protect natural resources, aquatic life and conditions, the ecological balance of the basin from pollution or other harmful effects resulting from any development plans and uses of water and related resources. It has a serious impact on all living creatures.

Industrial pollution can affect the use of water for drinking, household needs, recreation, fishing, transportation and commerce. The task of maintaining a navigation channel is the responsibility of State. Equitable and effective water allocation and environmental protection depend on institutionalized regional cooperation. Unilateral management and control of each country's individual territory cannot benefit the region as a whole.

The riparian States should to maintain the environment and ecological diversity in the international rivers areas. The concerning States should conclude treaties to cooperate. In particular water pollution problems were addressed when harmful activities originated in neighboring countries, applying general precedents and norms of transfrontier pollution. Rules and principles govern the conduct of States in respect to the conservation and harmonious utilization of natural resources shared by two or more States.

Everywhere advantage and disadvantage accompany as like a coin. Everywhere, development and impact can be seen accompaniment. For example the building of dam is important in flood and agriculture. But, the ecosystem and ecological are impact of changes by the building of dam. The environmental impact in international rivers caused of destroyed the river's ecosystem, altered from the character of the river, some of the main species affected and many changes of river in the ecological processes. The people lost their homes and failure to historians and archaeologists worldwide.

These problems are caused by direct and indirect impact of ecological and social. Water temperature, turbidity, dissolved gases and concentrations of heavy metals will change the impoundment. Downstream water quality will be affected by the construction of the dam or reservoir. If upstream countries build dams or reservoirs to remove more water for their own purposes, downstream countries are going to face with reduced water availability. The problems can be solved bilateral co-operative and multilateral co-operative system.

Therefore, no single Convention has been developed in the fields of environment. The position of customary international law remains the same but States are still interested to have Convention to regulate these rivers. They are trying to have a universal treaty which regulates all the international rivers allowed the world like the UN Charter.

In Myanmar, the concerning of International River is Mekong River. Myanmar is the member of the Greater Mekong Sub-region (GMS). All the GMS countries have protected area systems. Myanmar has been participating in all GMS projects and National Commission for Environmental Affairs (NCEA). In Myanmar, the current environmental laws are often sectoral laws. Now, The State Peace and Development Council enacted The Conservation of Water Resources and River Law (The State Peace and Development Council Law No.8/2006). The aims of this law are to conserve and protect the water resources and river system for beneficial utilization by the public, to contribute the development of State economy through improving water resources and river system and to protect environmental impact.

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THE MAINTAINANCE OF ENVIRONMENTAL ISSUES IN INTERNATIONAL RIVERS

Table of Contents

Abstract		
Abbreviations		
Introduction		
1	Definition of Environment	1
2	Causes of Environmental Impact of Issues In International Rivers	17
2.1	Building of Dam or Water-storage	21
2.1.1	Ecosystem Impact of Building of Dam	22
2.1.2	Social Impacts of Building of Dam	25
2.2	Erosion and Emission	28
2.3	Relocation and Diversion	31
2.4	Pollution Issues in International Rivers	33
2.4.1	Transfrontier Pollution	
2.4.2	Industrial Pollution	
3	Maintenance of Environmental Impact of Issues	
3.1	Maintenance, Management and Control of the Impact of Building of Dam	43
3.2	Legal Control of Transfrontier Pollution and Industrial Pollution	48
Conclusion		
Appendix		