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Environmental Policies and Ethical Issues in Aquatic Biodiversity Conservation in Bangladesh

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Environmental Policies and Ethical Issues in Aquatic Biodiversity Conservation in Bangladesh

PhD Dissertation

MD. SHAHIDULLAH



**Institute of Bangladesh Studies
University of Rajshahi, Bangladesh**

June 2016

Environmental Policies and Ethical Issues in Aquatic Biodiversity Conservation in Bangladesh

A dissertation submitted to the Institute of Bangladesh Studies in
partial fulfillment of the requirements for the degree of Doctor of
Philosophy in Political Science

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June 2016

Certificate

This is to certify that the dissertation entitled “Environmental Policies and Ethical Issues in Aquatic Biodiversity Conservation in Bangladesh” is an original work accomplished by MD. SHAHIDULLAH, Ph.D. Fellow in Political Science of the session 2010-2011 at the Institute of Bangladesh Studies University of Rajshahi, Bangladesh. The findings and views expressed in the dissertation are originated from both primary and secondary data and entirely his contribution. He has prepared this dissertation under my supervision and guidance. As far as I know the dissertation has not been submitted anywhere else for any purposes e.g. any degree, diploma or publication. I have gone through the dissertation thoroughly and found it satisfactory for submission. The dissertation is therefore, recommended and forwarded to the University of Rajshahi through Institute of Bangladesh Studies for necessary formalities leading to its acceptance in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Political Science.

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Declaration

I hereby declare that the dissertation entitled “Environmental Policies and Ethical Issues in Aquatic Biodiversity Conservation in Bangladesh” has been prepared by me. It is an original work carried out by me taking advice and suggestions from my honorable supervisor. I myself take all the responsibilities for all comments, statements and opinions articulated in the dissertation. The dissertation or any part of it has not been submitted partially or fully to any academic institution or university in pursuing any degree or diploma.

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PhD Fellow in Political Science

Session: 2010-2011

Institute of Bangladesh Studies

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Rajshahi

Md. Shahidullah

June 2016

Abstract

The goal of the research is to examine the present state of environment and Environmental laws and policies and it's implementing procedure and practices regarding aquatic biodiversity conservation and its sustainable development for future generation. The research objectives are intended to examine the Environmental laws and policies, present legal practices in implementing development projects, adverse impacts of fishery development projects and ethical issues regarding implementing process etc.

Environmental politics is a sensitive issue in the present world which deals with environmental policy at all levels in a society. It means that environmental politics, like all political activities, is the work of people with different agenda, constituencies and patterns of development, concerning environment, translating or reinterpreting global doctrines and approaches into local or national development in environmental contexts. The flows of ideas, experiences and policies surely help to take initiatives to the flows of resources and energy and ecosystems, as different actors seek out particular niches in the diverse landscapes of science and technology and of economics, culture and politics.

Environmental politics is one of the most important factors for degrading and depleting environment and aquatic biodiversity. For this reasons Bangladesh has already lost many wetlands and waterbodies that are the safe shelter for fresh water fishes. Besides human occupies wetland for shelter and agriculture and ruin it in many ways for their present needs.

So it was necessary to investigate existing laws and policies to find out the deficiencies and inappropriateness which are creating conflicting issues among the laws and policies and that is called environmental politics occurred in different level in among different ministries and government agencies. In addition, a thorough investigation was also needed to see why and how these aspects are working to manipulate the formulating and implementing process of the laws and policies regarding environment. There are also needs to find out the violation of code of conduct or manuals for formulating and implementing the laws and policies, development projects and its implementation which causes degradation of environment especially of fresh water fishery in Bangladesh.

Mainly qualitative data has been used for the research work. Required data come from primary and secondary sources are used for this research. Data from secondary sources have been collected through deskwork and content analysis and in-depth interview from environmental experts.

Environment is a comprehensive idea. It consists of various components. The ministry of environment and forest are responsible to manage, develop and conserve of all environmental components. On the other hand, different ministry and departments have been established to protect different component of environment that none can destroy whole or a part of environmental components. Each ministry makes law and policy from their own view to protect their related components. For this reason, there is no integration and cooperation amongst their laws and policies. It is called policy conflict. To resolve these conflicting issues concern authority formulated the Environment Policy in 1992 and to achieve this policy authority also developed Environmental Action Plan in 1992 to resolve the implements. It is divided into 17 sectors. Main aims of each sector are to protect surrounding environment. But, it is found in the analysis of activities of each sector that there is no integration and coordination among the plans as well as with other relevant laws and policies. Not only that it conflicts with the Environmental Conservation Act 1995, Environmental rules 1997, Protection and Conservation of Fish Act 1950, Protection and Conservation of Fish rules 1985 and National Fisheries Policy 1998. As a result it could not play vital role to protect aquatic biodiversity. Over all it is said that it would not be possible to protect aquatic biodiversity especially fresh water fish and fish species through this Policy and Action Plan.

However, the department of fisheries is trying to develop and conserve indigenous fish species, fish habitat and aquatic environment by implementing some projects countrywide. Main aim of these fishery projects is to increase production of fish and income of fisher community. It is assumed that after completion of such projects aquatic environment would be developed in the whole country and ensures sustainable development in fisheries that is the expectation of Fishery department. But it is observed that, these projects were not suitable for sustaining of fish especially indigenous fish species. Because, most of these projects are suitable for fast growing alien fish species and it degrades aquatic environment and ecosystems. So, it is created conflicts among the Protection and Conservation of Fish Act, 1950, National Fisheries Policy, 1998, and Environmental Conservation Act 1995.

There is no code of conduct to implement the laws and policies related to environment in Bangladesh. In recent years Bangladesh's environment has undergone serious deterioration. In many respect the situation has reached in alarming situation which made Bangladesh particularly in vulnerable to environment damage. However, environmental degrade is not inevitable. The experience of several developing countries has shown that it is possible to achieve economic growth without destroying the environment. There are many encouraging signs. Several civic and voluntary organizations have emerged and are working to protect environment as their goal. There have been specific environmental issue based movements too. These initiatives and movements have already produced some positive results. It is now necessary to build on these successes enlist new forces and build up a strong social movement for protecting Bangladesh's environment. So, environmental issues need to be dealt with the participation of all concerned with the government and citizens at the relevant levels. Unfortunately, it is almost absent in Bangladesh. However, the environmental experts and civil societies of Bangladesh most often are pressing the government to adopt sustainable policy, law and remove policy conflicts or called environmental politics (inter ministry and inter departmenta conflicts or politics), which causes serious degradation of the environment in Bangladesh. The Government of Bangladesh has taken some policies to protect environment but most of which are not favorable to environmental development, rather cause deterioration of the environment.

It is observed that environment has degraded in our country in every sector. Various causes are liable for environmental degradation. There is no any natural cause that degrades environment. All causes are created by human being. Because human beings destroy river, pond, khal, beel, lake, forest, landscape etc., which has adverse impact on environment especially aquatic biodiversity. There are insufficient policy options to resolve the existing conflicts among the laws and policies. So Government should initiate measures to resolve these conflicts among the laws and policies and have to make suitable law for sustainable environment. In that case Government should take advice from environmental specialists and make appropriate law and policy for environment especially aquatic environment. And also Government and non-government organization can play strong role to protect aquatic biodiversity.

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Chapter-1

Introduction

1.1 Prelude

From the early 1960s, there has been a renewed concern about the environmental degradation and biodiversity depletion. In present days, environmental issues and concerns have become the part of our everyday life and cannot be ignored in any ways. Environmental resources are the main sources of our livelihood and development activities. Thus developed countries in the world are very much conscious about developing and conserving the environment and its resources to ensure their development appropriately and in a sustainable manner. Therefore, different countries of the world such as USA, Brazil, Western European countries, Japan and China in Asia including Bangladesh and some other countries enacted different laws and policies to develop and protect the environment. Not only that they are also implementing those laws and policies to secure sustainable environment in national life but also preparing long and short term plans and programs towards sustainable environment development.¹

Bangladesh is basically a riverine country in the tropical zone having highly fertile delta soil. Its economy is mainly based on agriculture. Its rich environment and biodiversity have made it a wealthy agricultural environment that provides maximum food and fiber for the population. However, excessive pressure on environmental resources is created to meet up the demand of increasing population. As a result different adverse externalities have been created on environment especially on resource and biodiversity. It is one of the most densely populated countries of the world having 1099 persons in km². On the other hand, natural calamities like floods, cyclones, riverbank erosion, terrestrial originated tornadoes etc. are regular features affecting the population and habitats in the rural Bangladesh. Population growth contributes to the depletion of natural resources and degrades environmental quality, which induces poverty and reduces human welfare. In Bangladesh, both rapid population growth and degraded environment create serious threats to the economic development. This leads to other serious problems such as poverty, malnutrition, illiteracy etc. On the other hand, the environment is extremely

¹Andrew Jamison, The making of Green Knowledge: *Environmental Politics and cultural Transformation* (New York: Cambridge University Press, 2001), p. 30.

vulnerable and it regularly damages and degrades due to population increase, outstripping the carrying capacity of the local resources etc. There are other causes of environmental degradation such as unwise and over exploitation of environmental resources, inappropriate management, lack of policy and legal framework etc. Thus, environmental degradation and depletion of natural resources are often observed in Bangladesh due to poverty, over-population and lack of awareness on the subject. It is manifesting the deforestation, destruction of wetlands, depletion of soil nutrients, etc. Natural calamities like floods, cyclones and tidal-bores also result in severe socio-economic and environmental damages.

However, Government of Bangladesh has taken several measures to protect and develop environment and environmental resources to meet up present as well as future needs for development. In recent years, the Government has taken some important steps towards development and conservation of the environment in Bangladesh. Environmentally sound use of natural resources, pollution control, and adoption of National Environment Policy and formulation of National Conservation Strategy, the National Environment Management Action Plan are some of the highlighted measures undertaken by the Government to integrate environment with development in a policy framework.

To take prompt legal action against environmental pollution, the Government has recently set up Environment courts. The Environment Conservation Rules 1997 has also been passed by the Parliament. The Department of Environment is taking measures to carry out surveys on identification and control of polluting industries, river pollution and automobile emission. Moreover, it is observed that there are many development projects and programs taken by the government and other development agencies to conserve and develop the environment.

Laws that regulate the environment in Bangladesh can be grouped into three categories which are not mutually exclusive. Some laws involve two or all of the three categories. There are already about 185 laws under which environmental litigation can be instituted and the provisions of these laws are quite extensive. But people do not get proper information about the existence of such laws and there are not enough individual lawyers or organizations available to fight for environmental litigation. Despite the existence of such laws and policies there is hardly seen its proper enforcement to develop and conserve the environment. Many of these laws are required updating to take

care of the newer environmental concerns. Moreover, the law-implementing agencies have not empowered sufficiently to take measures against any environmental offences; all powers vest with the court and the police. Inconsistency among various component of the regulatory systems, policies, legislations, institutional set up and values of the community also affects enforcement.²

1.2 Problem Statement

Environmental politics is a sensitive issue in the present world which deals with environmental policy at all levels in a society.³ It means that environmental politics, like all political activities, is the work of people with different agendas, constituencies and patterns of development, concerning environment, translating or reinterpreting global doctrines and approaches into local or national development in environmental contexts. The flows of ideas, experiences and policies surely help to take initiatives to the flows of resources and energy and ecosystems, as different actors seek out particular niches in the diverse landscapes of science and technology and of economics, culture and politics.⁴

On the other hand, environmental politics is carried out in distinct communities, each of them focused on a particular aspect of environmental concerns. The multiple frames also define environmental politics. There are several intellectual frameworks that also define to environmental politics. To understand the causes that influence environmental politics, there are four key theoretical approaches such as 1) Changes in structure of political opportunity, 2) Movement activities, 3) Development and promulgation of new cultural belief systems and 4) Condition of the natural environment, including major environmental disasters.⁵

Changes in political opportunities may have both a direct effect on policy and an indirect effect through facilitating and channeling the environmental movement. Obviously the movement to influence is not simply a one-way matter public policy that affecting Government action. There is a complex relationship of cause and effect between Government policy and wider public

² Mahfuz Ullah, *Environmental Politics in Bangladesh* (Dhaka: Centre for Sustainable Development, 2002), p. 33.

³ ADB, *Asian Environment Outlook 2001*(Manila: Asian Development Bank, 2000), p. 82.

⁴Andrew Jamison, *The making of Green Knowledge: Environmental Politics and cultural Transformation*, (New York: Cambridge University Press, 2001), pp. 38-39.

⁵ Robert J. Brulle, *The Handbook of Politics: State and Civil Society in Global Perspective*, (New York: Springer Publishers, 2010) p. 1.

opinion. As a result the change in political opportunities changes the environmental policy. The ruling party at the time of policymaking not only exercises political power to influence environmental policy but also all organizations and institutions run their activities in favour of Government⁶.

The second component environmental politics focuses on the activities of the environmental movement. The impact of environmental movement is depended on the levels of funding for foundation, organizational governance characteristics, and activities of the movement. First, funding for foundation heavily influences the environmental movement. Foundations have provided critical startup funding and currently around a quarter of annual budget of the major environmental organizations shows that foundation grants are the second largest source of income for the major environmental movement organizations. It shows that most foundation funding goes to the moderate organizations that use the traditional discourses of conservation, preservation and mainstream liberal environmentalism. Although the total pool of environmental funding has grown rapidly almost five fold per decade since the 1970s, it has been concentrated on a relatively small number of large environmental movement organizations involved in political advocacy work. The impact of this funding has been to channel the environmental movement into more moderate discourses and conventional forms of action. While there are notable cases of foundations attempting to directly control movement activities, the general pattern is a more indirect process of creating incentives for specific discourses, styles of organization and tactics, thereby drawing the movement into the institutional system. The final area focuses on the activities of environment movement organizations. Social movement organizations employ a wide range of tactics in pursuit of their aims, ranging from institutional tactics such as educational campaigns, lobbying and litigation to expressive and direct actions such as strikes, protests or other confrontational activities. Most researches on social movement have focused on protest as reported in leading newspapers. While environmental protest may have a significant effect on the enactment of environmental policy, it is a small component of environmental movement activity.⁷

To examine the specific conflicts regarding environment it is necessary to consider the cultural dynamics of the rise and fall of environmental issues. The cultural approaches to environmental politics emphasize to the creation

⁶ Ibid. p. 9.

⁷ Ibid. p. 10.

and dissemination of new worldviews, the development and structuring of social movements based on these alternative worldviews and the competition of these movements to worldviews with dominant for cultural hegemony. Specifically, a number of scholars have highlighted the need to examine the “cultural context in which movements grow, flourish, and wither”. The creation and advocacy of alternative discursive frames involves two distinct social groups. The first consists of a self-aware, mutually interacting “critical community.” Arguing that social movements initially form around the ideas generated by critical intellectuals distinguishes between “critical communities,” small groups of critical thinkers whose experiences, reading and interaction with each other help them to develop a set of cultural values that is out of step with the larger society and social movements, which emerge in response to the worldviews developed by these critical communities. The key process is the creation of a new alternative worldview displaying “sensitivity to some problem, an analysis of the sources of the problem, and a prescription for what should be done about the problem”. This alternative worldview and its dissemination by a movement is a critical condition for the collective perception of a social problem.⁸

For the most part, environmental politics are driven by large long-term trends in economic development, demographic changes, and the slow degradation of natural systems. The response to the deterioration of the natural environment tends to be incremental and piecemeal. A traditional explanation that has been advanced for environmental policy shifts is the classic grievance or strain. Several studies show that grievances and strains affect mobilization and conventional wisdom suggests that these may influence public opinions and public policies. In these sense, the environmental movement is very similar to other social movements. However, one unique characteristic of environmental politics is the policy impact of dramatic incidents. Unlike most social movements, environmental conditions can create large-scale incidents that have the power to shift environmental politics. There are number of significant environmental incidents that led to rapid changes in environmental policy. For example, environmental disasters and their impact on the policy process centre on the concept of focusing events. These events as large disasters that change the salience of issues and sometimes replace indicator based analyses with much more emotionally charged examples of policy failure and the need for reforming and focusing events to draw increased attention to a problem. However, increased attention is a necessary but not sufficient

⁸ Ibid. p. 11.

condition for event related policy change. Rather, the increased attention creates a window of opportunities in which political actors can mobilize for new policy directions. Together, these four areas exercise critical and unique influence on the dynamics of environmental policy.⁹

However, in the proposed research these four aspects of environmental laws and policies in Bangladesh were addressed especially these four aspects of conflicts regarding aquatic biodiversity especially fresh water fishery. Aquatic biodiversity can be defined as the variety of life and the ecosystems that make up the freshwater, tidal, and marine regions of the world and their interactions. Aquatic biodiversity encompasses freshwater ecosystems, including lakes, ponds, rivers, wetlands etc. Aquatic ecosystems also provide a home to many species including phytoplankton, zooplankton, aquatic plants, insects, fish, mammals, birds and others. They organized at many levels, from the smallest building blocks of life to complete ecosystems, encompassing communities, species and genetic levels. In summary aquatic biodiversity includes all unique species and habitats and the interaction between them.¹⁰ Nevertheless to say that only fresh water fishery were considered to observe the environmental politics in this research.

Aquatic biodiversity has enormous economic and aesthetic value and is largely responsible for maintaining and supporting overall environmental health. Human beings have long depended on aquatic resources for food, medicine, and materials as well as for recreational and commercial purposes such as fishing and tourism. Aquatic organisms also rely upon the great diversity of aquatic habitats and resources of food, material and breeding grounding. Many factors including over exploitation of these resources, introduction of exotic species, pollution from urban, industrial and agricultural areas as well as habitat loss and alteration through damming and water diversion contribute to the declining levels of aquatic biodiversity. As a result, valuable aquatic resources are becoming increasingly susceptible to both natural and artificial environmental changes.¹¹

Bangladesh has the third largest aquatic fish biodiversity in Asia about 800 species in fresh, brackish, and marine waters. This biodiversity and ecosystem has been attributed to the world's largest flooded wetland and three main river systems that flow from the Himalayas into the Bay of Bengal. But at

⁹ Ibid. pp. 11-12.

¹⁰ www.epa.gov/bioiweb1/aquatic.

¹¹ Ibid.

present aquatic fish biodiversity has degraded day by day in Bangladesh due to various causes including people's alteration of wetland and ruin the habitat.¹²

Aquatic biodiversity has been degraded day by day due to variety of reasons: 1) over exploitation and indiscriminate killing of juvenile fishes due to unregulated fishing pressure and total removal from water that completely dry up in the dry season, 2) Reduction, alteration and degradation of natural habitats due to human development activities and aquatic pollution, 3) siltation in river bed and basins and floodplains affected aquatic habitats, degradation of feeding grounds and migration paths leading to loss of biodiversity, 4) loss and destruction of breeding and nursery grounds due to flood control, water management, road and river embankments, hampering natural recruitment, 5) the lack of alternative livelihoods for fishermen leads to injudicious fishing and over-exploitation, 6) environment pollution from different sources, 7) natural disaster, 8) depletion of aquatic ecosystem due to industrial and domestic wastes and pesticides is seriously affecting fish habitats and overall aquatic ecosystems, 9) high growth rate of population, 10) huge pesticides use in agriculture sector and so on.¹³ These are happening due to insufficient and inadequate laws and policies and inappropriate implementation. The depletion of aquatic fish biodiversity is one of the important factor among various factors in which some are natural and some are for human intervention.

Environmental politics is one of the most important factors for degrading and depleting environment and biodiversity. For this reason Bangladesh has already lost many wetlands that are the safe shelter for fishes. Besides human occupies wetland for shelter and agriculture and ruin it in many ways for their present needs.

So it is necessary to investigate existing laws and policies to find out the different stages of environmental politics occurred in different level. In addition, a thorough investigation is also needed to see why and how these aspects working to manipulate the formulating and implementing process of the laws and policies regarding environment. There is also needs to find out the violation of code of conduct or manuals for formulating and implementing the laws and policies, development projects and its implementation which causes degradation of environment especially of fresh water fisheries in Bangladesh. Significances of environmental politics of aquatic especially freshwater fish biodiversity

¹² M.G. Hussain, *Aquatic Ecosystem Health and Management* (Bangladesh Fisheries Research Institute, Mymensingh, 2010), p. 85.

¹³ Ibid. p. 88.

depletion which must be investigated in the context of present state, poses some questions which are:

- 1) What are the conflicts creating among the different departments and agencies through implementing laws and policies to conserve and develop aquatic biodiversity?
- 2) What is the action plan regarding aquatic biodiversity and what are the issues originating from this action plans?
- 3) What are the problems creating from project development and implementation procedure for aquatic biodiversity conservation in different departments/agencies of government?
- 4) What are role of different civil societies regarding this issue?
- 5) Is there any relation between code of conduct and implementing policies regarding aquatic biodiversity?

1.3 Objectives of the Study

1.3.1 General Objectives

On the basis of above discussion, the general objective of the research is to explore the conflicting issues in policies and inter-departmental activities regarding aquatic biodiversity which results the depletion of aquatic biodiversity in Bangladesh.

1.3.2 Specific Objectives

- 1) To examine the environmental policies especially regarding aquatic biodiversity conservation and development to find out the policy conflicts regarding environmental development and conservation;
- 2) To assess the national biodiversity action plan 1992 for identifying the issues about variance to conserving aquatic biodiversity;
- 3) To evaluate some projects including implementation procedures concerning aquatic biodiversity development and conservation for observing inter and intra conflicts;
- 4) To assess the views of experts regarding the environmental issues specially aquatic biodiversity in Bangladesh;
- 5) To review the code of conduct about formulating laws and policies, action plan and development projects regarding
- 6) To make some suggestions for sustainable aquatic biodiversity conservation;

1.4 Literature Review

Review of literature offers relevant information regarding the topic. To acquire knowledge about environmental politics and aquatic biodiversity, I reviewed some literature as far as I found relevant to my research topic. While reviewing the pertinent literature, I have gone through the related chapters of books, articles, website based reports, research reports, newspapers. According to my research title and objectives, there were no sufficient literatures those focus on the aquatic biodiversity development and conservation. However, after reviewing literature it is observed that some environmental related research works have been conducted in our country but less emphasis has been laid on environmental politics and ethical issues regarding aquatic biodiversity. A few studies have been done elsewhere in the world that is not relevant and similar to my research work because environmental settings and its resources of those countries are far different from Bangladesh.

However, some relevant research works were found on environmental policies and ethical issues those were reviewed for understanding the existing state of knowledge.

Ahmad, Q.K. and S.M. Hasanuzzaman. 1998. "Agricultural growth and environment" in Faruquee (ed.) (1998).

Ahmad, Q.K. and S.M Hasanuzzaman (1998) studied about the impact of agriculture growth on environment. It is assumed that there are some environmental externalities creating from agriculture production processes due to use of chemical fertilizer, pesticides and irrigation, however they did not focus on impact of irrigation using ground water on surrounding environment. This study also stated that surface water and soil pollution, fresh water fish depletion, decreasing of soil fertility is occurring due to excessive use of chemical fertilizers and pesticides.

Hossain, M. 1998. Nature and Impact of the Green Revolution in Bangladesh. Research Report No.67. IFPR/BIDS.

Hossain, M. (1988) conducted a research work to identify the nature and impact of green revolution in Bangladesh where he found that the main goal of the green revolution was to enhance the agriculture production only. As a result there are some environmental impact creating from the activities of green revolution such as decreasing soil fertility, polluting soil and water, increasing scarcity of surface and ground water, degrading wetland and fresh water fish. However, the author showed that agriculture production is increased many

times but on the other hand, there several environmental issues created as the by-product of green revolution. However, Mr. Hossain revealed that green revolution did not start taking into consideration the other natural and environmental factors associated with agriculture production processes because it is thought that agriculture is the largest environmental activities in the world. He also suggested for considering the environmental factors in agriculture development activities.

Hossain, M. 1999. "Management of water Resource for Agricultural Development; A Review of Bangladesh Experiences". Bangladesh Unnayan Shamikhaya, BIDS.

Hossain, M. (1999) tried to examine the state of water use in agriculture development and found that water use scenarios in agriculture development for increasing production is not environment friendly and such inappropriate and unsustainable use of surface and groundwater creates various environmental externalities such as wetland degradation, fresh water fish depletion, scarcity of surface water, siltation of wetland due to construction of dam and drainage for irrigation, wetland biodiversity degradation and ecological depletion etc. Mr. Hossain found that maximum irrigation used only for rice production which is not sustainable because rice consumes huge volume of water whereas other cereal crops such as wheat, pulse etc; consumes less amount of water than rice. On the other hand, there is no sufficient enough control over water use in agriculture because farmers are permitted to install shallow or deep tube well for irrigation as their personal choice, as a result misuse and mismanagement of water use for irrigation is taking place everywhere. So, he suggested for introducing a sustainable and controlled irrigation for agriculture production because water is a limiting renewable resource and an important basic environmental commodity for the human survival and agricultural activities on earth. The quantity of water resource on earth is limited. Its availability per person is reducing day by day due to increasing global population, demand for food, and need of infrastructure and recurring damage to environment. Water has become a critical and scarce resource during dry season for irrigation in agriculture, domestic and other uses which is serious threat to sustainable agricultural development especially aquatic environment and biodiversity in Bangladesh.

Huq, S., A.A Rahman and G.R Conway, 1990. Environmental Aspects of Agricultural Development in Bangladesh. Dhaka: UOL, 1990.

Huq, S., A.A Rahmen and G.R. Conway (1990) observed the agriculture production processes in Bangladesh to assess whether the production systems

maintain sustainability or not. Agriculture development particularly to increase cereal production has been one of the most important planning objectives for Bangladesh. New technologies and inputs have been incorporated, land use and cropping patterns are changing and therefore environmental issues are becoming increasingly more important. The interaction between agriculture and environment needed to be looked into in a country where the economy and people's lives are creating significant impact on the future planning of Bangladesh. In this research experts from different disciplines address these issues and they tried to reveal an updated state of knowledge on all agricultural and environmental aspects and issues.

Pagiola, S. 1995. Environmental and Natural Resource Degradation in Intensive Agriculture in Bangladesh. Environmental Economic Series No.15, ESD, South Asia Country Department 1, the World Bank.

Pagiola, S. (1995) conducted this research and found that Bangladeshi agriculture has undergone a substantial intensification. Continued and accelerated agricultural growth will require intensification to continue. There has been rising concern that intensive agriculture may not be sustainable and that it may be damaging to the environment and other productive sectors. Raising average yields and production in Bangladesh have tended to mask evidence of declining productivity. Although data are weak, numerous sources of evidence pointed to declining productivity. Analysis of official data on yield trends at the district level shows that despite rising input levels, yields have been declining or stagnant on about two-thirds of the area planted to modern varieties in the boro season in the last decade, and stagnant throughout the country in the aman season. Yield declines are strongly associated with the length of time that intensive production practices have been employed in each district. The results of long-term trials by the Bangladesh Rice Research Institute (BRRI) also indicate that intensive rice cultivation can result in declining yields, even under good management and with full recommended dose of all nutrients being applied. Farmers' perceptions also support this conclusion: farmers often claim that yields have been declining and that higher fertilizer applications are necessary to maintain yields. Stagnant or declining yields in the context of rising inputs indicate that land degradation is reducing productivity; if increases in input use had not counteracted the effects of degradation, yields might have fallen even further. This evidence is consistent with patterns of yield change in other Green Revolution countries many of which have also experienced a slowdown in the rate of growth of production and yield as found from the research of the International Rice Research Institute. There is considerable debate over the exact

causes of declining productivity. In Bangladesh, the most likely cause is nutrient imbalances. High-yielding modern varieties are far more demanding of soil nutrients than much lower yielding local varieties had been, a problem worsened by the increasing prevalence of multiple cropping. Chemical fertilizer use has increased, but not sufficiently to compensate for the higher rates of off take, and has been offset by decreasing organic content of the soils as a result of reductions in applications of farmyard manure, which is in increasing demand for use as fuel, and increased protection against flooding, which has reduced the deposition of organic matter content from flood waters. In general, applications of nitrogen are adequate but those of other nutrients often are not. Changes in soil's physical and chemical properties, such as changing quality and quantity of organic matter and formation of a plow pan, also play a role in declining yields for these reasons aquatic biodiversity is also depleting alarmingly in surrounding wetlands.

Shiva, V. 1991. *The violence of the Green Revolution: Third World agriculture, ecology and politics*. Malaysia: Third World Network, 1991.

Shiva, V. (1991) raised so many crucial questions about the realignment of social groups that deserves careful analysis. He set in the context of a sophisticated critique of the privileged epistemological position achieved by modern science, whereby it both aspires to provide technological solution for social and political problems while at the same time disclaiming responsibility for the new problems which it creates in its wake, the author looks to the future in an analysis of the new project to apply the latest Green Revolution technology to India as well as other south asian countries like Bangladesh and warns of the further environmental and social damage which will ensure the further degradation of agro-biodiversity and ecology by which farmers will suffer. Shiva draws renewed attention to the impact on Indian as well as other third world countries like Bangladesh agriculture of the Green Revolution and its transformation into the biotechnological revolution and raises important questions for contemporary analysis of ecological distress and economic restricting.

Thus shiva treats the Green Revolution as an example of scientific hubris, an attempt to use science to overcome the natural limitations of agriculture, primarily for a political purpose.

Hussain, M. G. (2010) 'Freshwater fishes of Bangladesh: Fisheries, biodiversity and habitat', *Aquatic Ecosystem Health & Management*, 13: 1, 85 — 93, Bangladesh.

Hussain, M.G. (2010) carried out this research work to identify the importance of aquatic biodiversity in Bangladesh. In this regard he found that fresh water fisheries play an important role in nutrition, income, employment, and export earnings in Bangladesh. Fishes contribute to 63% of animal protein intake, about 5% of gross domestic product and 5% of export earnings; approximately 1.4 million people are directly engaged in fishing, 11 million in part-time fishing, and another 3 million in aquaculture activities. The fisheries are highly diversified and comprised of inland open water capture fisheries, inland closed water culture fisheries and marine fisheries, which contribute respectively 35%, 44%, and 21% to total fish production of 2.1 million tonnes. The major environmental factors having negative impacts on fisheries development are mainly: human impacts on riverine morphology, disruption of ecology, intensive agriculture, and modern development activities. Fish conservation acts and regulations exist, but enforcement is not easy due to prevailing socio-economic and socio-political situations.

Few regulatory mechanisms presently exist for protecting aquatic environments. Production from inland open water capture fisheries is declining due to over-exploitation and habitat degradation. However, aquaculture production, which mostly follows traditional practices, has been steadily increasing. Fisheries research has made significant contributions to the large growth of aquaculture through generating a number of economically viable, socially acceptable and environmentally compatible technologies being used by different categories of farmers, large and small. Presently, formulation and implementation of strategies and policies for conservation and sustainable management of degraded aquatic habitats have been immensely effective along with the generation and wider application/dissemination of suitable aquaculture and management technologies, which are expected to ensure the conservation of aquatic genetic resources. This paper reviews all these subjects and emphasizes future needs for development and implementation of policies/regulations at the national level, before it becomes too late to conserve valuable aquatic biodiversity and their habitats. But there is no specific instruction in this research to protect aquatic biodiversity.

Islam, Nazrul. (1999) "Protecting Bangladesh's Environment: The Role of the Civil Society", December 1999.

Islam, Nazrul. (1999) showed in his research work that Bangladesh is experiencing serious environmental degradation. In many respects, the

situation has reached crisis proportions. Several factors make Bangladesh particularly vulnerable to environmental damage. Yet, environmental degradation is not an inevitable price that Bangladesh has to pay for economic growth. There are examples showing that the goals of environmental protection and economic growth can be complementary. Bangladesh is making some efforts to confront environmental problems. However, these efforts are not proving adequate for the challenge. The underlying cause of the inadequacy is absence of a strong, broad-based social movement for environmental protection in Bangladesh. The common people of Bangladesh because of their link with the traditional mode of life are inherently environment friendly. However, they are also burdened with the daily struggle for survival. The intelligentsia and members of the civil society will have to play a leading role in building up the necessary social movement. The non-resident Bangladeshis (NRB) and members of the international environment movement can join the resident Bangladeshi's (RB) in this effort. There are some encouraging signs. It is now necessary to build on them. Existing pro-environment forces need to coalesce, enlist new forces, and thus build up a strong, broad-based, social movement for protection of Bangladesh's environment. In this research work the author does not find out what's the main cause of environmental degradation and aquatic biodiversity depletion.

Salahuddin, M. Aminuzzaman, 2010. Environment Policy of Bangladesh: A Case Study of an Ambitious Policy with Implementation Snag, 5-9, July 2010.

Salahuddin M. Aminuzzaman (2010) examined the policies and laws regarding the environment of Bangladesh. He shows at present the implementation of the Environment Policy is handicapped by some institutional limitations and thus appears to be less effective in responding to the demand side of the service and interventions. If such institutional issues are not rightly addressed, the Policy and the Act therefore, as one observer noted that it served the "rhetoric purposes only for the central politicians and bureaucratic leadership". The National Environmental Policy does not clarify the measures needed for integrated efforts for environmental protection. It also fails to address the need for policy guideline concerning issues like bio-safety, intellectual property right, watershed management, and trans-boundary movement of hazards and environmental problems. However with some modifications the National Environment Policy of Bangladesh can still be considered as a good foundation to bring about necessary changes to address and mitigate the major challenges of environment and to further improvement. Therefore, a broad based consensus among various stakeholders to implement

the Environment Policy with necessary modifications will be crucial- with highest political will, as a pre requisite.

However, above review of literature might help the present research work to make references and understanding the features of environmental policy in Bangladesh. The present research focuses mainly on environmental policy and ethical issues which might be create impact on aquatic biodiversity and tries to evaluate whether it is sustainable or not and thus it will endeavor to make some suggestion for further research. In this regards books and article reviewed above may help the research work for better realization about different aspects of environment which will leads to a quality and reliable research work.

1.5 Verifiable Indicators

Selected indicators were verified to achieve the objectives of the research. Lists of objective wise verifiable indicators for the proposed research are given below.

1. Conflicting issues in laws and policies for fresh water fisheries development, habitat conservation, breeding place conservation, fish sanctuary development, execution procedures, punishment of violation, definition of the both open and closed water bodies, and its conservation, legal provisions whether those provide privilege to any society and groups or not.
2. Plans and programs regarding aquatic biodiversity conservation and development projects, appropriateness of project activities, and compliance with Environmental Action Plan 1992, Environment Conservation 1995, and other laws and policies regarding aquatice biodiversity.
3. Implementing procedures of development projects, suitability of implemented projects; level of success, threats to aquatic biodiversity.
4. Code of conduct/manuals regarding law, rules and policy making and implementing, developing action plan for development projects, implementing procedures and sustainability of projects.

1.6 Research Approach and Type

The research approach is qualitative and type of research is cross sectional descriptive since the proposed research used mainly qualitative data in the form of narrative, elucidated and descriptive. Some quantitative data were also used which are very insignificant and did not play any major role in this research.

1.7 Data used and its sources

Qualitative data were used for proposed research work. Quantitative data were also used but it is not dominant for the proposed of the research.

1.8 Primary Data Sources

Primary data source were the fresh water aquatic resource especially fresh water fisheries related laws, policies and law/policy making processes and manuals or code of conduct. Relavant laws_such as The Canals Act 1864, The Irrigation Act 1876, The Private Fisheries Protection Act 1889, The Agricultural and Sanitary Improvement Act 1920, The Highways Act 1925, The Tanks Improvement Act 1939, The Protection and Conservation of Fish Act 1950,The Embankment and Drainage Act 1952, The Bangladesh Inland Water Transport Authority Ordinance 1958, The Government Fisheries Protection Ordinance 1959, The Agricultural Development Corporation Ordinance 1961,The Agricultural Pesticides Ordinance 1971,Bangladesh Fisheries Development Corporation Act 1973, The Penal Code 1860, Fisheries Research Institute 1984, The Protection and Conservation of Fish Rules 1985, Environment Policy 1992, Environmental Action Plan 1992, Environmental Conservation Act 1995, Environment Conservation Rules 1997, Water Supply and Sewerage Authority Act 1996, Jalmahal Management Policy 2009, Bangladesh Water Act 2013, and selected Fishery Development Projects, its implementation procedures and evaluation reports of the projects, opinion of the experts regarding this issue and so on.

1.9 Secondary Data Sources

Secondary data includes various research works on environmental politics, laws, policies, and research on conservation strategies, relevant research articles and books, newspapers, dissertations, website, development project evaluation reports etc.

1.10 Data Collection

1.10.1 Secondary Data Collection

Data from secondary sources were collected through desk work and content analysis from various research works on environmental politics, laws, policies, and research on conservation strategies, relevant research articles and books, newspapers, dissertations, website, development project evaluation reports etc.

1.10.2 Primary Data Collection Techniques

1.10.2.1 Content and Document Analysis

Document analysis was used to collect data from relevant laws, rules, policies, Environmental Action Plan, different programs and projects as primary source as stated above for proposed research.

1.10.2.2 Key-informant Interview (KII)

People who have good knowledge and experience on the topic under research were selected as the key-informant for the proposed research. Some scholars, environmental activist, and professionals were considered as the key-informants for this study. Those who have expertise and sufficient knowledge in this field and could provide fundamental information and suggestions. A semi-structured interview schedule was used to collect data from the key-informants.

1.11 Data Analysis and Presentation of Findings

Qualitative data were analyzed through inductive reasoning process to interpret, formulating structure for drawing the meaning, and inference rationally. Results and findings were presented in narrative and descriptive form.

1.12 Justification of the Study

In the review of literature, it clearly suggests that there is research gap in the field of this research. To the best of our knowledge, no significant research work is carried out about Environmental Politics and Ethical Issues in Aquatic Biodiversity Conservation in Bangladesh. So present research might be fulfill existing knowledge gap and would be helpful for the policy makers in preparing appropriate environmental policies for Bangladesh as well as academicians and other future research personnel on this field of research. Therefore, there is need to conduct the present research and it is expected that existing study will be beneficial for the people of Bangladesh.

1.13 Scope and Limitation of Research

The research work is a new field of study. The findings of this research can help the policy makers, academicians, knowledge seekers, and researchers to get some new knowledge in this field. On the other hand, there were some limitations in terms of time constraint, financial supports and unavailability of some data; officials were reluctant to provide some data and information etc.

1.14 Conclusion

Environmental politics and ethical issues in aquatic biodiversity conservation are very popular and current issues in the world. Especially the developing countries like Bangladesh are in the marginal point in environmental security. This present research intended to go through a proper and in depth study on the field. The work has done by using proper methodology. It is tried to conduct the research to achieve the research objectives and for a successful completion.

Chapter-2

Examining the Environmental Laws and Policies Regarding Aquatic Biodiversity Conservation

Aims of this chapter are to examine the Environmental laws and policies to find out the appropriateness of these laws and policies in respect of present requirements of sustainable Environmental development emphasizing on Aquatic Biodiversity Conservation in Bangladesh. Laws and policies included are: The Canals Act 1864, The Irrigation Act 1876, The Private Fisheries Protection Act 1889, The Agricultural and Sanitary Improvement Act 1920, The Tanks Improvement Act 1939, The Protection and Conservation of Fish Act 1950, The Embankment and Drainage Act 1952, The Government Fisheries (Protection) Ordinance 1959, The Agricultural Development Corporation Ordinance 1961, The Agricultural Pesticides Ordinance 1971, The Bangladesh Fisheries Development Corporation Act 1973, The Fisheries Research Institute Ordinance 1984, The Protection and Conservation of Fish Rules 1985, Fisheries in Environmental Policy 1992, Environmental Conservation Act 1995, Jalmahal Management Policy 2009, Bangladesh Water Act 2013.

2.1 Introduction

Environmental issues are one of the main problems of the world's development activities. It has begun to emerge onto the global agenda in the 1960s and in early 1970s. The major problems are being a threat to the survival of human beings and other flora and fauna.¹⁴ Environmental hazards are increasing gradually in different ways and in various forms. The world communities are very much concerned about it. The world leaders, different organizations and national and international bodies/agencies are trying to cope with the environmental problems¹⁵ such as water, air and soil pollution, deforestation, biodiversity and ecology degradation, ozone layer depletion and so on. Most of the states of the world are very much concerned about the short-term and long-term impacts on environment and its resources creating due to various causes. In this regard the state party and other international organizations have enacted laws and formulated policies, action plan and programs etc.; for the

¹⁴ Peter Dauvergne, *Handbook of Global Environmental Politics* (Massachusetts: Edward Elgar Publishing, 2005), pp. 11-12.

¹⁵ A.K.M. Kafiluddin, *Population Research, Environmental Conservation and Economic Development*, (Dhaka: Pof. Shamim Ahmed; 2001), p. 67.

conservation and development of the environment and to cope with the present hazards situations of environment.¹⁶

Accordingly environmental degradation and depletion of natural resources are often observed in Bangladesh due to poverty, over-population, and lack of awareness on the subject. It is manifested through deforestation, destruction and alteration of wetlands, depletion of soil nutrients, unwise use of resources, unplanned infrastructure development etc. Natural calamities like floods, cyclones and tidal-bores are also resulting in severe socio-economic and environmental damage. In addition, being a member of world community, Bangladesh is affected by global environmental problems; and a victim of local and regional problems. Bangladesh faces many environmental problems both naturally occurring and those caused by human interventions. The major environmental problems in Bangladesh can be traced due to over-population and poverty. Consequently, deforestation, biodiversity degradation, ecological imbalance, deteriorating water quality, land degradation, salinity intrusion, wetland degradation through unplanned urbanization, pollutions by discharge of untreated sewage and industrial wastes, indiscriminate use of chemical fertilizers and pesticides are occurring in everyday.

In recent years like other countries, the Government of Bangladesh has taken some important steps such as Adoption of National Environment Policy, formulation of National Conservation Strategy, the National Environment Action Plan for protection of the environment, sustainable use of natural resources and pollution control to integrate environment with development within a policy framework.

To take prompt legal action against environmental pollution, the government has recently set up Environment courts. The Environment Conservation Rules 1997 has also been passed by the Parliament. The Department of Environment is taking measures to carry out surveys on identification and control of pollutant industries, automobiles, river pollutants etc.

History of environmental laws and policies are not so long. Some countries where revolutionary development of industry has taken place in the eighteen century, and thus they introduced some measures to protect the environmental pollution and degradation through industrial wastes.¹⁷

¹⁶ T.I. Khan, *Environmental Policies for Sustainable Development* (India: Pointer Publishers, 2001), p. 65.

¹⁷ P. Leela Krishnan, *Environmental Law in India* (New Delhi: The Butterworth Groups of Companies, 1999), p. 05.

Government of Bangladesh has not been realized environmental laws and policies earlier though some of environment related laws existed from the British period. After the independence in 1971, Bangladesh has gradually realized the environmental problems due to population growth, unplanned infrastructure development, unwise resource utilization etc., and its importance. It is observed that Bangladesh has been taking some integrated environmental laws, policies and action plan to protect the environment from the degradation in different sectors of the environment and its resources. It gets priorities in the decade of 1990.¹⁸

In this chapter, laws and policies related to environment, agricultural production, fresh water fish and other aquatic resources, biodiversity etc., have discussed emphasizing aquatic biodiversity conservation and development for find out the policy conflicts among the laws, policies and inter departments during implementation of development works.

2.2 Laws and Policies of Environmental Activities

2.2.1 The Canals Act, 1864 (Bengal Act V of 1864)

An Act amended and consolidated the law relating to the collection of tolls and canals and other lines of navigation, and for the construction and improvement of lines of navigation in Bangladesh.

1. The following words shall have the several meanings hereby assigned to them, unless where a contrary intention shall appear from the contexts, that is to say:- the word “ vessel “ shall include any ship, barge, boat, raft, timber, bamboos or floating materials propelled in any manner: the words “ line of navigation “ shall mean any navigable channel subject to the provisions of this Act: the word “ channel” shall include any river, canal, khal, nala or waterway, whether natural or artificial.
2. It shall be lawful for the Government, from time to time, by notification to that effect published in the Official Gazette, to declare that the provisions of this Act shall apply to any navigable channel specified in such notification; and from and after such publication the provisions of this Act shall apply to, and be in force as regards, such navigable channel.
3. It shall be lawful for the Government from time to time, to authorize any person to make and open any navigable channel, or to clear and deepen any navigable channel, and to stop any watercourse, or make any tracking

¹⁸ Ibid.

path, or do any other act necessary for the making or improvement of any such channel; and any navigable channel made under this section shall be rendered subject to the provisions of this Act in the manner prescribed in the last preceding section.

The Government may take possession, as for a public purpose, of any land that may be necessary for the execution of any of the above-mentioned works, under the provisions of any Act in force for the taking possession of land for public purposes.¹⁹

This act was passed about more than hundred years ago when the environmental problems did not take into consideration as it is in present situation. Purpose of this act is to develop inland navigation and run the waterways. But there are no options to consider degradation of wetland, impacts of watercourse divert or close, aquatic environment and aquatic biodiversity during execution of the law.

According to the century old Canal Act, authorized authority can clear and deepen watercourses, remove the obstructions and even authority can stop or close the watercourse if necessary for constructing dams or embankment in the river, khal, nala, or waterways whether naturally water accumulate. However, there is no provision in this Act that how it will face the problems after constructing dams or embankment and for stop watercourse which will create water logging in the upper part and water scarcity in lower part. As a result, it hinders the natural fish migration and degrades the aquatic biodiversity. Also it does not have any clause to protect water pollution in various ways that results degradation of aquatic biodiversity. So such outdated, insufficient and inappropriate law must be revised and amend as needs in present day.

The Canals Act 1864 and Environment Policy and Environmental Action Plan 1992 and Environmental Conservation Act 1995

Though there are guidelines in environmental conservation Act and conservation policy that any other laws and policies regulating environment should comply with the Environment Policy, 1992, Environmental Action Plan, 1992 and Environmental Conservation Act, 1995 but what measures should be taken in case of violation conducted by concerned agencies or any other government agencies. For example, according to Environment Policy, 1992, Environmental Action Plan, 1992 and Environmental Conservation Act, 1995, it

¹⁹ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 259.

is prohibited to stop any watercourse but the Canal Act 1864 permits to close or stop any watercourse for improving navigation. For these reasons, conflicts arise between implementing authority and concerned department and ministry who is responsible to protect and conserve environment and should take initiative to amend this century old canal act.

2.2.2 The Irrigation Act, 1876 (Bengal Act III of 1876)

An Act to provide for irrigation in Bangladesh.

3. In this Act, unless there be something repugnant in the subject or context,

(1) "canal" includes-

(a): all canals, channels and reservoirs hitherto constructed, maintained or controlled by Government for the supply or storage of water, or which may hereafter be so constructed, maintained or controlled;

(b): all works, embankments, structures, supply, and escape channels connected with such canals, channels or reservoirs;

(c): all village- channels as defined in clause (2) of this section;

(d): all drainage- works as defined in clause (3) of this section;

(e): any part of a river, stream, lake, natural collection of water or natural drainage-channel to which the Government has applied the provisions of part II of this Act, or of which the water has been applied or used before the passing of this Act for the purpose of any existing canal;

(f): all lands on the banks of any canal as defined in articles (a), (b), (c), (d) and (e) of this clause, which have been acquired by Government;

(2) "village- channel" means any channel by which water is led from a canal directly into the fields to be irrigated, and includes all subsidiary works connected with any such channel, except the sluice or outlet through which water is supplied from a canal to such channel;

(3) "drainage work" means any work in connection with a system of irrigation which has been or may hereafter be made or improved by the Government for the purpose of the drainage of the country, whether under the provisions of part IV of this Act or otherwise, and includes escape-channels from a canal, dams, weirs, embankments, sluices, groins and other works connected therewith, but does not include works for the removal of sewage from towns;

(4) "flood-embankment" means any embankment constructed or maintained by the Government in connection with any system of irrigation-works for the protection of lands from inundation, or which may be declared by the Government to be maintained in connection with any such system; and includes all groins, spurs, dams and other protective works connected with such embankments;

(5) Nothing contained in the Embankment and Drainage Act, 1952 shall apply to any canal or flood embankment as defined in this Act.

(6) Whenever it appears expedient to the Government that the water of any river or stream flowing in a natural channel, or of any lake or other natural collection of still water, should be applied or used by the Government for the purpose of any existing or projected canal, the Government may, by notification in the Official Gazette, declare that the said water will be so applied or used after a day to be named in the said notification, not being earlier than three months from the date thereof.

(7) At any time after the day so named, any canal-officer acting under the orders of the Government in this behalf may enter on any land and remove any obstructions, and may close any channels, and do any other thing necessary for such application or use of the said water.

(8) As soon as is practicable after the issue of such notification, the Collector shall cause public notice to be given at convenient places stating that the Government intends to apply or use the said water as aforesaid, and that claims for compensation in respect of the matters mentioned in section 11 may be made before him. A copy of section 11, 12, and 13 shall be annexed to every such notice.

(9) When any claim for compensation is made before the Collector in accordance with the last preceding section, the Collector shall issue a notice requiring all persons interested in the matter in respect of which compensation is claimed to appear personally or by agent before him at a time and place there in mentioned (such time not being earlier than fifteen days after the date of publication of the notice), and to state the nature of their respective interests in the property affected, and the amount and particulars of their claims to compensation for such interests.

(11) No compensation shall be awarded for any damage caused by-

(a): stoppage or diminution of percolation or floods;

(b): deterioration of climate or soil;

(c): stoppage of navigation, or of the means of rafting timber or watering cattle.

But compensation may be awarded in respect of any of the following matters:-

(d): stoppage or diminution of supply of water through any natural channel to any defined artificial channel, whether above or underground, in use at the date of the issue of the notification under section 6;

(e): stoppage or diminution of supply of water to any work erected for purpose of profit on any channel, whether natural or artificial, in use at the date of the said notification;

(f): stoppage or diminution of supply of water through any natural channel which has been used for purpose of irrigation within the five years next before the date of the said notification;

(g): damage done in respect of any right to a water-course or the use of any water to which any person is entitled under the limitation Act, 1908 Part IV;

(h): any other substantial damage, not falling under any of the above clauses (a), (b) or (c), and caused by the exercise of the powers conferred by this Act, which is capable of being ascertained and estimated at the time of awarding such compensation.

In determining the amount of compensation under this section, regard shall be had to the diminution in the market value, at the time of awarding compensation of the property in respect of which compensation is claimed; and, where such market value is not ascertainable, the amount shall be reckoned at twelve times the amount of the diminution of the annual net profits of such property, caused by the exercise of the powers conferred by this Act.

(12) If any supply of drinking-water is substantially deteriorated or diminished by any works undertaken in accordance with a declaration made by the Government under section 6, the canal-officer shall be bound to provide within convenient distance an adequate supply of good drinking-water in lieu of that so deteriorated or diminished, and no person shall be entitled to claim any further compensation in respect of the said deterioration or diminution.

(19) Any person on whom notice may be served under the same last preceding section, and any person interested in any property in respect of which such, notice has been issued, may, within six weeks of the service of such notice, apply to the Court stating his objection to the amount of compensation as fixed by the Collector under the last preceding section, and the amount which he claims as compensation.

(35) In case of any accident being apprehended or happening to a canal or flood-embankment, any canal-officer, or any person acting under his general or special orders in this behalf, may enter upon any lands adjacent to such canal or flood-embankment, and may execute all works which may be necessary for the purpose of preventing such accident, or repairing any damage done.

(37) In every case of entry upon any land or building under section 7, section 33, section 34 or section 35, the canal-officer or person making the entry shall ascertain and record the nature of any crop, tree, building or other property to which damage has been done, and the extent of the damage done to any such property, and shall tender compensation to the proprietors or occupiers for all damage done to the same by the entry or by any works executed.

(40) Whenever it appears to the Government that injury to the public health or public convenience, or to any canal, or to any land for which irrigation from a canal is available, has arisen or may arise from the obstruction of any river, stream or natural drainage-course, the Government may, by notification published in the official Gazette prohibit, within limits to be defined in such notification, the formation of any such obstruction, or may, within such limits, order the removal or other modification of such obstruction.

There upon so much of the said river, stream or natural drainage-channel as is comprised within such limits shall be held to be a drainage-work as defined in section 3.

(43) Whenever it appears to the Government that any drainage works are necessary for the public health, or for the improvement or proper cultivation or irrigation of any lands or districts to which the provisions of the Embankment and drainage Act 1952, do not, apply, or that protection from floods or other accumulation of water, or from erosion by a river, is required for any lands, the Government may cause a scheme for such works to be drawn up and carried into execution.

(49) Any person may, with the permission of a canal-officer, construct a new village-channel if he has obtained the consent of the owners and occupiers of the land required therefore.

(59) Every owner of a village-channel shall be bound-

(a): to construct and maintain all works necessary for the passage across such village-channel of canals, village-channels, drainage-channels and public roads existing at the time of its construction, and of the drainage intercepted by it, and for affording proper communications across it for the convenience of the occupants of neighboring lands;

(b): to maintain such village-channel in a fit state of repair for the conveyance of water;

(c): to allow the use of it to others on such terms as may be declared equitable by the canal-officer as hereinafter prescribed.

(66) Any person not an owner of a village-channel, desiring to have a supply of water through such village-channel, may make a private arrangement with the owners for the conveyance of water, or may apply to the canal-officer for authority to use such village-channel

(67) On receipt of such application the canal-officer shall serve notice on the owners to show cause why such permission should not be granted, and, if no objection be raised, or if any objections be raised and found invalid, shall authorize the conveyance of such supply on such conditions as may appear to him equitable.

(93). Whoever, voluntarily and without proper authority, does any of the acts following, that is to say:- (2) interferes with, increase or diminishes the supply of water in, or the flow of water from, through, over or under any canal or drainage-work, or by any means raise or lowers the level of the water in any canal or drainage work;

(3): being responsible for the maintenance of a village channel, or using a village channel, neglects to take proper precautions for the prevention of waste of the water thereof, or interferes with the authorized distribution of the water there from, or uses such water in as unauthorized manner;

(4): corrupts or fouls the water of any canal so as to render it less fit for the purposes for which it is ordinarily used;

(5): destroys, defaces or moves any level-mark or water-gauge fixed by the authority of a public servant;

(6): destroys or removes any apparatus or part of any apparatus, for controlling or regulating the flow of water in any canal or drainage-work;

(7): passes, or causes animals or vehicles to pass, or across any of the works, banks or channels of a canal contrary to rules made under this Act after he has been desired to desist there from;

(8): without the permission of the canal-officer causes, or knowingly and willfully permits, any cattle to graze upon any flood-embankments, or tethers, or cause or knowingly and willfully permits any cattle to be tethered upon any such embankments, or roots up any grass or other vegetation growing on any such embankments, or removes, cuts or in any way injures or causes to be removed, cut or otherwise injured, any trees, bushes, grass or hedge intended for the protection of such embankment;

(9): shall in case the offense shall not amount to mischief within the meaning of the Penal Code, and on conviction before a magistrate, be liable to a fine not exceeding fifty taka or to imprisonment for a term not exceeding one month, or to both.

(94) Whoever, without the authority of the officer:-

(1): pierces or cuts through, or attempts to pierce or cut through or otherwise to damage, destroy or endanger the stability of, any flood-embankment;

(2): opens, shuts or obstructs, or attempts to open, shut or obstruct, any sluice in any such embankment;

(3): makes any dam or other obstruction for the purpose of diverting or opposing the current of a river on the banks where of are flood-embankments, or refuses or neglects to remove any such dam or obstruction when so required by the canal-officer, shall, in case the offense shall not amount to mischief within the meaning of the Penal Code, and on conviction before a Magistrate, be liable to a fine not exceeding two hundred taka, or to imprisonment for a term not exceeding six months.²⁰

The irrigation Act passed in 1876 and till it is in enforcement in Bangladesh which is inherited from the British ruler. Such outdated law has some negative aspect in present situation of Bangladesh. These are decisively discussed here in respect of present situation of environment in Bangladesh.

²⁰ Ibid. p. 260.

Section 4 of this Act permits the government to build or maintain any embankment for irrigation works and protection of land erosion from flood. However, there is no clause or option to take necessary measures if it creates any adverse impact on surrounding environment and ecosystem, especially if it creates wetland degradation, depletion of fresh water fish and fish habitats.

Section 6 and 7 of this act says that the canal officer has power to close any water channel for the diverting water to irrigate in crop field, but there is no options to consider any adverse impact on surrounding environment may create due to close of any flowing watercourse, because stoppage or close of any natural watercourse would degrade the surrounding natural resources that means wetland and aquatic resources and environment of that area specially fish and fish habitats. As we know any embankment or obstacle might create impediments of migration and growth of fish and it's breeding as well.

Section 11 of this act empowers the government or concerned government agencies who are not obliged to deliver any compensation for any damage caused by irrigation development works such as decrease of floods water, deterioration of local climate, degradation of biodiversity and ecosystem, decrease of soil fertility, cost of closed of navigation way etc. due to construction of dams and close of natural water flow. However, decrease of flood water results degradation of natural environment, depletion of the biodiversity and ecosystem especially fish and fish habitats. Any climate change in that local area also makes adverse impact on environment and natural resource, decrease of soil fertility might create aridity of land etc. In this section there is no provision either for compensation or for repairing of these environmental damages, also there is no any provision that how the government will face the environmental problems creating from irrigation activities.

Section 49 of this act says that with the permission of canal-officer, any person may construct a new village-channel if he has obtained the consent of the owners and occupiers of the land required as per rules. But there is no precautionary provision for pre and post assessment of environmental impact of such village settlement, it may cause land erosion and damages irrigation systems which will lead to water misuse.

The Irrigation Act 1876 and Environment policy and Action Plan 1992

There is no clause to address pollution creating from pesticides and chemical fertilizer that hinders the fish breeding in fish habitats. Moreover, section 3.5 of the Environment Policy, 1992 says concern executive departments/agencies

who engage in development projects must ensure the sustainability; environmentally sound and scientific use and management of surface water resources which is contradictory with the Irrigation Act, 1876. On the other hand, there is no principle in the Environment Policy, 1992 that what will be the criteria of sustainability. In addition they should ensure all steps taken for flood control, including construction of embankments, dredging of rivers, digging of canals etc.; which are environmentally sound at the local, regional, and national levels and ensure that irrigation net-work does not create any adverse impact on environment. However, section 5.6 of Environmental Action Plan, 1992 says implementing procedure should maintain in such a way that development projects on irrigation, roads and highways, embankments etc.; do not impede drainage and sewerage or obstruct the flow and velocity of natural watercourse. Special projects will be taken to mitigate such problems including other environmental issues. However, Environment Policy and Environmental Action Plan 1992 and Environment Conservation Act 1995 do not provide any guidelines that how the implementing agencies will take the necessary measures for environmental degradation and to what extent. There is no provision of compensation for environmental degradation and punishment in case of violation of these laws. In addition, there are no standard guidelines about monitoring, evaluation, environmental impact assessment and for monitoring authority.²¹

On the other hand, it is observed that according to irrigation act only surface water must be used for irrigation activities. But Environment Policy and Environmental Action Plan explain surface water and ground water will be equally used ensuring sound environment. However, it would be said that there are some contradictory issues in irrigation act, so irrigation act is conflicted with Environment Policy, 1992 and Environmental Action Plan, 1992 those are injurious for wetlands, aquatic biodiversity, fresh fish and fish habitats.

2.2.3 The Private Fisheries Protection Act, 1889 (Bengal Act II of 1889)

An Act for protection of the right of fishing in private waters.

2. In this Act-

“fish” includes shell-fish and turtles;

“fixed engine” means any net, cage, trap or other contrivance for taking fish fixed in the soil or made stationary in any other way;

²¹ *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh

“private waters” means waters-

(a): which are the exclusive property of any person; or

(b): in which any person has an exclusive right of fishery, and in which fish are not confined but have means of ingress or egress.

3. Any person who-

(a): fishes in any private waters, not having a right to fish there in,

(b): erects, places, maintains or uses any fixed engine in private waters, or puts, or knowingly permits to be put, there in any matter for the permission of the person or destroying fish without the permission of the person to whom the right of fishery there in belongs;

Shall be guilty of an offence, and shall be punished for a first offence with a fine not exceeding fifty taka and for a subsequent offence with imprisonment which may be simple or rigorous, for a term not exceeding one month or with a fine not exceeding two hundred take, or both;

Provided that nothing herein contained shall apply to acts done by any person in the exercise of a bona fide claim of right, or shall prevent any person from angling with a rod and line or with a line only in any portion of a navigable river.

4. (1): Any fixed engine erected, placed, maintained, or used in contravention of the last preceding section, and any fish taken by means of such engine, or otherwise in contravention of this Act, shall be forfeited.

(2): And such fixed engine may be removed or taken possession of by the magistrate of the district, or such person as he empowers in this behalf.

5. Whoever enters upon land in the possession of another or upon private waters, with intent to commit any of the offence specified in section 3, shall be punished with a fine not exceeding fifty taka.²²

This Act was passed in 1889. It has mentioned that it is the first law enacted by the British ruler among the fisheries laws existing in Bangladesh. It provides for the protection of private rights on fishing. This act has defined as the private fisheries and private waters.

²² Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 337.

The private fisheries protection Act is significant because the British government enacted this act for ensuring the people's rights on fishing. This Act is on top of one hundred and twenty years ago, yet it is in enforcement in Bangladesh.

Section 3(a) and (b) of this act says that if any person uses any fixed engine in private owned waters and destroy fish, he will be responsible for that and will be punished. Accordingly the aquatic resources such as fish, fish habitats, aquatic ecosystem and biodiversity might be affected especially degradation of fishery environment may degrade if any one fishes indiscriminately. However, absence of necessary provisions in this act to conserve the aquatic resources shows the insufficiencies of the law. As a result sustainable use of fish resources and protection of fishery environment is difficult through this Act. Moreover, it seems to be conflicted with Protection and Conservation of Fish (Amendment) Act 2002, where the use of fixed engine for catching fish in any fishery areas is totally prohibited.

The Private Fisheries Act, 1889 and Protection and Conservation of Fish (Amendment) Act 2000, Environment Policy, and Environmental Action plan 1992

It is observed that there are contradictions between the Private Fisheries Act and the Protection and Conservation of Fish (Amendment) Act 2002.²³ On the other hand it is also observed that the private fisheries Act, 1889 does not comply with the Environment Policy, 1992 because, this policy does not permits the fishing or recreational right on private owned waterbodies. Similarly Environmental Action Plan, 1992 does not also permit the personal right or enjoyments in private owned waterbodies. So, the Act is not compatible with Environment Policy, 1992 and Environmental Action Plan, 1992 and there are contradictions among them where indispensable problems will be arised in implementing the law.²⁴ On the other hand effectiveness and implementation of this act is rarely found in practice. The government should take necessary amendments for the proper application for the betterment of the water resource and fishery management in Bangladesh.

²³ *The protection and conservation of fish (Amendment) Act 2002*, Ministry of Fishery and Livestock, Government of the Peoples Republic of Bangladesh.

²⁴ *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

2.2.4 The Agricultural and Sanitary Improvement Act, 1920 (Bengal Act No. VI of 1920)

An Act to consolidate and amend the law relating to the construction of drainage and other works for the improvement of the agricultural and sanitary conditions of certain areas in Bangladesh

(11): “tenant” means a person, whether resident or non-resident in the local area, who holds land or premises for any purposes whatsoever under another person, and is, or but for a special contract would be, liable to pay rent for that land or premises to that person, and includes any rent-free holder or temporary occupant of land or premises.

3. Whenever an application is received by the Collector from a local authority or local authorities, or any person, recommending the undertaking of any work for the improvement, or for the prevention of the deterioration, of the agricultural or sanitary condition of any area, or if the Collector is himself of opinion that the undertaking of any such work is necessary, he shall cause such inquiries as he may deem necessary to be made and shall thereafter consult the local authority or local authorities concerned;

4. (1) On completion of the necessary inquiries and after consultation, when necessary, with the local authority or local authorities, the Collector shall-

(a) if he considers that the proposed work should not be done, pass an order to that effect; or

(b) if he considers that the work proposed or modified should be done, take action as hereinafter provided.

(2) An appeal shall lie to the Commissioner against every order by the Collector under clause (a) of sub-section (1) within thirty days of such order; and the decision of the Commissioner thereon shall be final.

6. As soon as possible after the receipt of the scheme, the Collector shall publish a notice in the prescribed manner calling for objections or suggestions thereon by any local authorities, or person interested, within such time as may be prescribed.

8. (1) The Collector may-

(a): reject the scheme

(b): subject to such rules as may be prescribed in this behalf, accept it with such modifications as he may deem necessary, and shall determine, in the

prescribed manner, the method in which, and the conditions subject to which, the cost of the work shall be financed and distributed.

(2) An appeal shall lie to the Commissioner against every order by the Collector under sub-section (1) within thirty days of such order, and the decision of the commissioner thereon shall be final.

10. (1) On the expiry of the period fixed by the notice published under section 6, the committee shall proceed in the prescribed manner to consider any objections or suggestions in regard to the scheme received by the Collector, and may either accept the scheme with such modifications as it may deem necessary, or reject it.

(2) Whenever a scheme has been accepted by the committee, it shall frame proposals, in the prescribed manner, regarding the method in which, and the conditions subject to which, the cost of the work shall be financed and distributed.

23. Whenever any land, other than land taken or acquired for the purpose of this Act, or any right of fishery, right of drainage, right of the use of water, or other right of property, is injuriously affected by any act done, or any work executed under this Act, the person in whom such property, or right is vested may prefer a claim by petition to the Collector, for compensation.

Provided that the refusal to execute any work for which application is made, and the refusal of permission to execute any work for the execution of which the permission of the Collector or any other authority is required under this Act, shall not be deemed acts on account of which a claim for compensation can be preferred under this section.

24. (1): No claim under section 23 shall be entertained which is made later than three years after the completion of the work by which such right is injuriously affected.

25. When any such claim is made, proceedings shall be taken with a view to determine the amount of compensation, if any, which should be made and the person to whom the same should be payable.

26. In any such case which is referred by the Collector to the Court for the purpose of determining whether any, and, if so, what amount of compensation should be awarded, the Court shall take into consideration-

First- the market value of the property or right injuriously affected at the time when the act was done or the work executed;

Secondly- the damage sustained by the claimant by reason of such act or work injuriously affecting the property or right;

Thirdly- the consequent diminution of the market value of the property or right injuriously affected when the act was done or the work executed;

Fourthly- whether any person has derived, or will derive, benefit from the act or work in respect of which the compensation is claimed or from any work connected therewith, in which case they shall set off the estimated value of such benefit, if any, against the compensation which would otherwise be decreed to such person; Provided that the Court shall not take into consideration-

First- the degree of urgency which has led to the act or work being done or executed;

Secondly- any damage sustained by the claimant, which, if caused by a private person, would not in any suit instituted against such person justify a decree for damages.

28. All outlets and water-channels, natural or artificial, included in a scheme under this Act, whether reconstructed, cleared, altered, enlarged, excavated or cut under this Act, or not, and the construction and maintenance of embankments and dams and works therein, or connected therewith, shall be subject to the law for the time being in force regulating the construction and maintenance of public embankments rivers, channels and outlets.

29. All lands which are taken, or acquired permanently under this Act for the purpose of a scheme, and any work constructed under this Act, and all water-channels, embankments and dams included within the scheme, whether reconstructed, cleared, altered, enlarged, excavated or cut under this Act, or not, shall be vested in the Collector on behalf of the Government, or subject to such conditions as may be prescribed, in such local authority, or person as the Government, may be general or special order, direct:

Provided that when the total cost of any work has been paid by any local authority, or person, the said lands and works, including any water-channels, embankments and dams, shall, subject to such conditions as may be prescribed, vest in such local authority, or person.

30. The local authority or person in whom the lands or works, water-channel, embankments, and dams are vested shall be responsible for their maintenance, subject to such rules as may be prescribed;

Provided that if the collector is satisfied that such maintenance is being neglected or that it is desirable, in the public interest, that such maintenance should be undertaken by the Government, he shall report, through the Commissioner, to the Government who may direct that the duty of maintenance be undertaken by the Government.

32. (1): Any person, who without lawful authority, creates or causes to be erected any weir or other obstruction in any outlet or water-channel or cultivates the bed of a water channel, so as to obstruct natural drainage, shall upon conviction before a Magistrate, be liable to a penalty not exceeding two hundred taka for every such offence.

(2) It shall be in the discretion of such Magistrate to direct any such offender to remove or pay for the entire cost of the removal of any such obstruction.

33. The Commissioner, the Collector, and a committee appointed under section 9 shall have all such powers as are conferred on a Civil Court by the Code of Civil procedure, 1908 for the purpose of compelling the attendance of witness and the production of evidence and for the purpose of examining witness in any inquiry or appeal as the case may be which they may be empowered to make or entertain under this Act.

34. No proceeding under this Act shall be defeated or invalidated by reason of any defect or omission in the publication or service of any notification, notice or order, unless material inquiry is done to any person by such defect or omission.²⁵

This Act was passed in 1920 in order to consolidate and amend the law relating to the construction of drainage and other works for the improvement of the agriculture and sanitary conditions of certain areas in Bangladesh providing irrigations and sanitary facilities to the people.

Section 28 of this Act introduces some rules through which the authority will make arrangements for construction and maintenance of the embankments and dams for irrigation but there are no options to mitigate the adverse impact may create from such construction activities during implementation.

²⁵ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 268.

According to section 29 and 30, the authority can acquire the land under a scheme and construct water channels; embankments and dams for irrigation and these are vested in the local authority. However, there are no guidelines to protect the environment and natural resources particularly aquatic ecosystems and biodiversity may degrade due to those constructions and maintenance activities. On the other hand, soil fertility may degrade and creates obstacle of inundation in rainy season due to such construction. In that case, the authority does not have any provision to take mitigation measures. As a result fish habitat and aquatic environment will degrade. Moreover, according to sub-section 3a(ii) of section 3 of the Protection and Conservation of Fish Act, 1950 the construction whether temporary or permanent of weirs, dams, bunds, embankments and other structures is totally prohibited for conserving fresh water fish which is conflicted with this Act. So, it is observed that there are contradictory issues between the Agricultural and Sanitary Improvement Act, 1920 and the Protection and Conservation of Fish Act, 1950.

The Agricultural and Sanitary Improvement Act 1920 and Protection and Conservation of Fish Act 1950, Environment Policy and Environmental Action plan 1992

It is noticeable that Agricultural and Sanitary Improvement act 1920 does not comply with Environment Policy 1992 and Environmental Action Plan 1992.²⁶ In this regard, it is said that Agricultural and Sanitary Improvement Act, 1920 is outdated and in some cases it is creating conflicts with the Protection and Conservation of Fish Act, 1950 Environment Policy, 1992 and Environmental Action Plan, 1992.²⁷ Because, according to environmental policy and action plan, environmental impact assessment must be conduct before construction of any drainage either for irrigation or swerage, construction of any dams and embankments, and also Fish Act 1950 does not permits any constructions in wetlands that may cause the degradation of fish and fish habitats. So there must be initiatives to amend this laws in respect of present needs and requirements.

2.2.5 The Tanks Improvement Act, 1939 (Bengal Act No. XV of 1939)

An Act provide for the improvement of tanks in Bangladesh for purposes of irrigation.

2. In this act, unless there is anything repugnant in the subject or context-

²⁶ *The Environment Policy, 1992 and Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

²⁷ *The Protection & Conservation of Fish Act, 1950*, Ministry of Fishery & Livestock, Government of the Peoples Republic of Bangladesh.

(1a) “ agricultural land” includes land used for the growing of vegetable and the like and also waste land which is capable of cultivation but does not include a fruit garden, an orchard or any homestead land;

(2) Collector” includes a Thana Nirbahi Officer and any officer appointed by the government to exercise all or any of the functions of a Collector under this Act;

(7) “tank” means a reservoir or place which has been used as a reservoir, for the storage of water whether formed by excavation, for the storage of water whether formed by excavation or by the construction of one or more embankments or place where water naturally accumulates, and includes any part of a tank and the banks thereof except such portions of the banks as are homestead, garden or orchard lands.

3. If the Collector is of opinion that any tank has fallen into disrepair or disuse, he may serve a notice in the prescribed form and manner on the person having control over the tank requiring him to carry out within a period specified in the notice such improvements of the tank as the Collector considers necessary for the proper utilisation of the tank for purposes of irrigation.

4. (1) If the improvements referred to in section 3 are not carried out to the satisfaction of the Collector within the period specified in the notice issued under that section or within such further period as the Collector may on application made to him in this behalf, think fit to allow, the Collector may by a notice to the person having control over the tank and otherwise published in the prescribed form and manner, declare the tank to be a derelict irrigation work.

5. After the notice declaring a tank to be a derelict irrigation work has been confirmed under section 4 the Collector, if he thinks fit, may at any time-

(a): take possession of the tank and carry out the improvements, specified in the notice under section 3, or

(b): authorize under section 6 a local authority, co-operative society or any other person interested to take such action.

6. (1) Any local authority or co-operative society or any other person who, in the opinion of the Collector, has an interest in a derelict tank, may, if authorized by the Collector buy an order in writing in this behalf, take possession of such tank and carry out the improvements specified in the notice under section 3.

(2) In making any order under sub-section (1) the collector shall, except for sufficient reason to be record in writing, give preference to the sole owner or

any co-sharer owner of the tank who has submitted an application stating that he is willing to carry out the said improvements or he may make an order in favour of more than one such co-sharer owner jointly.

6A. (1) If any authorized person considers it necessary for the purpose of carrying out the improvements in a derelict tank to take possession of any land adjoining such tank, he may-

(a): if he is Collector, take possession of such land by order in writing; and

(b): if he is not the Collector, apply in the prescribed manner to the Collector to be empowered to take possession of such land and the Collector may, if he is satisfied after considering the application that such land is required for carrying out the improvements, empower the authorized person by order in writing to take possession of such land;

7. (1) If any authorized person-

(a): falls to carry out the improvements to the satisfaction of the Collector within such time as may be specified in the order under section 6, or

(b): falls, in the opinion of the Collector, to proceed with the improvements with due diligence or to maintain the tank in proper condition or

(c): with or without the permission of the Collector gives up possession of the tank or abandons the work of improvement or

(d): is, in the opinion of the Collector, guilty of any serious negligence or misconduct in relation to the tank or to person having any right or interest in the tank or in the use of water thereof or

(e): falls to comply with any order passed under section 26 or section 27, the Collector may cancel the order made under section 6 as well as any order made under clause (b) of sub-section (1) of section 6A and there upon all rights and powers of the said authorized person in respect of the tank and in respect of any land of which possession is taken as a result of an order made under clause (b) of sub-section (1) of section 6A shall cease and determine, and the Collector shall take possession of the tank and such land.

(2) After taking possession of the tank and such land under sub-section (1) the Collector shall either appoint another authorized person to carry out the improvements or carry them out himself.

9A. An authorized person shall be entitled to remain in possession of any land adjoining a derelict tank of which possession is taken under section 6A as long as such person remains in possession of such derelict tank under section 8.

13. Where, at the time of the taking of possession of a derelict tank by an authorized person, any person has a right, on payment of any rent or charge, to catch fish in the tank or to take fruits from trees on, or other produce from the banks of the tank the authorized person shall at such times and in such manner as may be prescribed, pay to the said person such compensation as the Collector, after such inquiry as he thinks fit, may determine. Such compensation shall not be less than the amount of the rent or charge which the said person continues to be liable to pay to the owner or any tenant of the tank and shall be deemed to be a full and complete satisfaction for all loss suffered by such person as a result of the interference with the exercise of his right.

14. (1) Where the bed or any part of the bed of a tank has been leased out to cultivators for agricultural purposes the authorized person shall pay compensation to such cultivators, and thereon such lease shall be terminated. The amount of compensation payable to each cultivator shall be such amount as the Collector, after such inquiry as the thinks fit, deems fair and equitable but not less than salami paid by such cultivator for the lease.

14 A. (1) Where the owner of a derelict tank is not the owner of any land adjoining such tank of which possession is taken under section 6A, or retaken under sub-section (3) of section 9B, the authorized person shall, at such times and in such manner as may be prescribed, pay to the person in possession of such land at the time of taking or retaking possession thereof such compensation as the Collector, after such inquiry as he thinks fit, may determine. Such compensation shall not be less than the amount of the rent which the person so dispossessed is liable to pay in respect of the land and shall be deemed to be a full and complete satisfaction for all loss suffered by such person as a result of the interference with his possession.

(2) Where the owner of a derelict tank is also the owner of any land adjoining such tank of which possession is taken under section 6A, or retaken under sub-section (3) of section 9B, the authorized person shall-

(a) in the case where such land is in the actual possession of the owner thereof , pay at such times and in such manner as may be prescribed to such owner such rent as the Collector, after such inquiry as he thinks fit, may determine;

Provided that where the authorized person is the owner of such land in actual possession thereof, no such payment of the rent determined by the Collector under this clause shall be necessary; but the amount of such rent shall be included in and form part of the costs incurred or likely to be incurred by the authorized person in carrying out the required improvements in the tank; and

15. (1): During the period of possession no person shall without the permission of the authorized officer use or occupy the tank or use the water thereof except for drinking or other domestic purposes or catch fish in the tank or take fruits from the trees on, or other procedure from the banks of the tank, except such portion of the banks as are homestead, garden or orchard lands.

(2): No person shall without the permission of the authorized person use or occupy such land or take fruits from trees on, or other procedure from such land.

16. During the period of possession all rights to use the water of the tank for irrigation purposes shall vest in the authorized person and no person shall use the water of the tank for such purposes except with the permission of the authorized person.

16 A. (1) When the possession of any tank has been taken under section 5 or section 6 the Collector shall determine in the prescribed manner the maximum area of land to the limits of which irrigation from the said tank may practicably be extended (hereinafter referred to as the maximum irrigation area) and the Collector shall publish a notice in the prescribed form and manner defining the limits of the maximum irrigation area so determined.

18. (1): During the period of possession the authorized person may, subject to the provisions of this Act and the previous permission of the Collector, lease to any person for a period not extending beyond the period of possession any part of the banks of the tank or any right to take fruit from trees on, or other produce from, such banks or any right to rear and catch fish in the tank.

(2): During the period any land of which possession is taken under section 6A or retaken under sub-section (3) of section 9B remains in the possession of an authorized person, such authorized any may, subject to the provisions of this Act and the previous permission of the Collector, lease to any person for a period not extending beyond the said period of possession any part of the said land or any right to take fruits from trees on, other produce from such land.

(4): All sums realized by the authorized person under any lease granted under this section shall be applied to the recovery of all costs incurred or likely to be incurred by the authorized person in carrying out the required improvements in the tank and by the Collector in carrying out the purposes of this Act in respect of the tank together with interest of such costs at the rate of fifteen per centum per annum.

19A. Notwithstanding anything contained in the Bengal Tenancy Act, 1885 no person shall acquire any occupancy right in any part of the banks of or in any land adjoining, a tank leased out to such person under section 18 and no person who held any part of the banks of any tank under a lease under section 18 at any time since the commencement of this Act shall be deemed to have acquired any occupancy right therein.

20. Every authorized person who takes possession of a derelict tank under the provision of this Act shall maintain the same improper condition, and if, in the opinion of the Collector, he fails to do so the provisions of sections 5 and 6 shall be applicable as if the maintenance of the tank in proper condition were an improvement specified in the notice under section 3 or the collector may, if he thinks fit, arrange for the maintenance thereof from the authorized person.

26. Any person aggrieved by any action (or decision) of an authorized person, other than the Collector, may appeal to the Collector who after giving such authorized person an opportunity to be heard in the matter, shall pass such order thereon as he thinks fit.

35. Whoever contravenes any of the provisions of section 15, or sub-section (1) of section 16 shall be punished with fine which may extend to five hundred taka.²⁸

There are many small or big tanks in rural areas of Bangladesh. Most of them are private ownership. These tanks are approximately remained fallow because of the different problematic situations like ownership, local politics, and peoples' reluctant to use it etc. However, the Government of Bangladesh enacted this law to addressing these problems and also ensuring the rural economy of Bangladesh. This Act was passed in 1939 in order to provide facilitation for the improvement of tanks in Bangladesh for purposes of irrigation.

The Tanks Improvement Act is significant in respect of agricultural development and environment. Thus the fallow tanks have taken into consideration for the purpose of agriculture and irrigation. But at present it has some drawback in the aspect of Bangladesh that is discussed here.

²⁸ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 269.

According to sub-section 7, of section 2 of this Act, the government will conserve and develop the fallow wetlands as the water tank for purposes of irrigation. Intention of the government is to enhance agriculture production through providing irrigation by using water of those water tanks. But it does not mention any provision about the adverse impact on surrounding environment may create from this activity and does not take into consideration about the development and conservation of aquatic biodiversity of those tanks. Section 16 cites that no person shall use the water of the tank for any other purposes except irrigation without the permission of the authorized person means aquatic biodiversity specially fisheries does not take into consideration as the resources. At present, there are also many such water tanks in Bangladesh which may use as water resevoir as well as for natural fish conservation shelter, so this law should amend considering the conservation of natural ecosystems and aquatic biodiversity of that area.

The Tanks Improvement Act 1939 and Environment policy and Environmental Action Plan 1992

The Tank Improvement Act 1939 does not comply with Environment Policy, 1992, Environmental action Plan, 1992 and Fish Protection and Conservation 1950., Surrounding wetlands and waterbodies would pollute due to use of pesticides and chemical fertilizers that uses in irrigated crop field for enhance agriculture production. This polluted toxic water also goes in nearest waterbodies or wetland which is the fish habitats and fish breeding place but there is no provision to protect this pollution creating from irrigated water. However, it is said that this act is enacted during the British period. No amendment has yet been made by the government. So, this Act does not comply with the Private Fishery Act 1889, Environment Policy 1992 and Environmental Action Plan 1992. Moreover, the Tanks Improvement Act 1939 is enacted with aim of increasing agriculture production without considering the other aqautic resources. So it is not useful for aquatic biodiversity especially fresh water fish; contrarily it is indirectly degrading fresh water fish. Therefore, government should take immediate necessary step to amendment this Act and take necessary steps to permit rural people to cultivate fish in those tanks and use limited water for irrigation to develop agriculture.²⁹

²⁹ *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

2.2.6 The Protection and Conservation of Fish Act, 1950 (East Bengal Act No. XVIII of 1950)

An Act to provide for the protection and conservation of fish in Bangladesh.

Definitions

2. In this Act, unless there is anything repugnant in the subject or context-

(1) "Current Jal" means fishing net made of monofilament synthetic nylon fibre of different mesh sizes.

(2) "fish" includes all cartilaginous, bony, fishes, prawn, shrimp, amphibians, tortoises, turtles, crustacean animals, molluscs, echinoderms and frogs at all stages in their life history;

(3) "fishery" means any water body, natural or artificial, open or closed, flowing or stagnant (such as river, haor, baor, beel, floodplain, canal etc.) where activities for growing fish, or for conservation, development, demonstration, breeding, exploitation or disposal of fish or of living organisms related to such activities are undertaken, but does not include an artificial aquarium of fish used as a decorative article, pond or tank;

(4) "Fishery Officer" means any person whom, the Government or any officer empowered by the Government in this behalf, may appoint to carry out all or any of the purposes of this Act or to do anything required by this Act or by any rule made there under to be such officer: provided that, no police officer shall be so empowered;

(5) "Fishing net" means the nets which are specially meant for catching different species of fishes from water bodies and it is one type of fishing gear made of different types of yarns including synthetic yarns of different mesh sizes other than Current Jal. The common tanning materials of net are fruit of gab (*Diospyrous embryopteris*) bark of Goran (*Ceriops roxburghiana*) and Coal-tar;

(6) "fixed engine" means any net, cage, trap or other contrivance for catching fish, fixed in the earth or made stationary in any other way;

Power to make rules

3. (1) The Government may make rules for the purposes hereinafter in this section mentioned.

(2) The Government may, by notification, apply such rules or any of them to any water or waters.

(3) Such rules may-

(a) prohibit or regulate all or any of the following matters, that is to say,

(i): the erection and use of fixed engines;

(ii): the construction, temporary, or permanent, of weirs, dams, bunds, embankments and other structures;

(iii): the use or method of operation of any kind of fishing net and the size of the mesh of any fishing net;

(iv): the manufacture, import, marketing, carrying, transporting or possessing of such fishing nets, traps, gears, and other contrivances as may be specified in the rules;

(b): prohibit the destruction of or any attempt to destroy, fishes by explosives, gun, bow, and arrow in inland water or within coastal territorial waters;

(c): prohibit the destruction of, or attempt to destroy, fishes by the poisoning of water or the depletion of fisheries by pollution, by trade effluent or otherwise;

(d): prescribe the seasons during which the killing or catching of fishes of any prescribed species shall be prohibited;

(e): prescribe a minimum size below which no fish of any prescribe species shall be killed or sold'

(f): prohibit all fishing in all waters or in any specified waters for a specified period;

(g): prohibit the destruction of or any attempt to destroy fishes by drying or dewatering of any fishery;

Provided that the Government may for the purpose of pisciculture, collection of data and scientific investigation for bio-logical study on fish permit the catching of fishes in any closed season or in any prohibit water or below the prescribed minimum size and disposal thereof subject to the condition of license issued for the purpose.

(4) In making any rule under this section, the Government may provide for-

(a): the seizure, removal and forfeiture of any fixed engine (fishing net, Current Jal) or any other contrivance erected or used for fishing in contravention of the rules;

(b): the forfeiture of any fishes taken by means of any such fixed engine (fishing net, Current Jal) or any other contrivance; and

(c): the procedure for disposal of forfeited fixed engine, fishing net, (Current Jal or other contrivance or forfeited fish)

(5) The power to make rules is subject to the condition of previous publication; and the date to be specified under clause.

(6) All such rules shall be published in the official Gazette and shall, unless some later date is appointed, come into force on the date of such publication.

Power to prohibit sale of fish

4. The Government may, by notification, prohibit for a specified period the catching, carrying, transporting, offering or exposing or possession for sale or barter of fishes below the prescribe size of any prescribed species throughout Bangladesh or any part thereof.

Prohibition about Current Jal

4. (1) No person shall manufacture, fabricate, import, market, store, carry, transport, own, possess or use Current Jal.

(2) Whoever has in his possession Current Jal, shall within 45 days of coming into force of this provision, surrender such current Jal to the nearest police station, office of the fishery Officer or office of the Upazila Nirbahi officer and during that period an existing possession of Current Jal by any person shall not be deemed to be an offence.

Penalties

5. (1) The breach of any rule made under section 3 or of any prohibition notified under section 4, shall be punishable with rigorous imprisonment for a term which shall not be less than one year and may extend to two years, or with fine which may extend to five thousand taka, or with both.

(2) The breach of any prohibition, described in section 4(1), in connection with-

(a) manufacture, fabrication, import, marketing or storing of Current Jal by any person shall be punishable with rigorous imprisonment for a term which shall not be less than three years and may extend to five years, and shall also be liable to fine which may extend to ten thousand taka; and

(b) carrying, transporting, owning, possession or use of Current Jal by any person shall be punishable with rigorous imprisonment for a term which shall not be less than one year and may extend to three years, or with fine which may extend to five thousand taka or with both.

Power to confiscate

5A. When any person is convicted of an offence punishable under this Act or the rules made under this Act, the Court, before which he is convicted, shall direct that, any article or thing used or intended to be used in the commission of such offence, be confiscated.

Arrest without warrant for offence under the Act

6.(1) Any person, specially empowered by the Government in this behalf, may arrest without warrant any person committing a breach of any rule under section 3 or any prohibition notified (under section 4 and 4A respectively)

(a) if the name and address of the person are unknown to him, and

(b) if the person declines to give his name and address or if there is reason to doubt the accuracy of the name and address, if given.

(2) A person arrested under this section may be detained until his name and address have been correctly ascertained: provided that no person so arrested shall be detained longer than may be necessary for bringing him before a Magistrate or to the nearest police-station according to the provisions of the Code of Criminal Procedure, 1898.

(3) Notwithstanding anything contained in the Code of Criminal Procedure, 1898, it will be lawful for the officer-in-charge of a police-station to detain a person produced before him under the preceding sub-section till he is produced before the Magistrate.

(4) All fishery officers empowered by the Government shall have the same powers of search, seizure and investigation in respect of an offence under this Act as a police officer of the rank of Sub-Inspector; and any police officer, shall be destroyed after the lapse of 30 days, if in the meantime no one claims the same or otherwise initiates any other proceeding regarding his lawful claim there to.

Cognizance, trial etc., of offence

7. Notwithstanding anything contained in the Code of Criminal Procedure, 1898 (Act v of 1898)

(a) an offence under this Act shall be a cognizable offence within the meaning of that code;

(b) no court shall take cognizance of such offence except on the complaint or a report of a fishery officer or of a police officer not below the rank of Sub-Inspector;

(c) no Court other than of a Metropolitan Magistrate or Magistrate of the first class shall try an offence under this Act; and

(d) A Court trying an offence, except an offence under clause (a) of sub-section (2) of section(5) under this Act may try the offence summarily in accordance with the procedure laid down in the said Code for summary trial.

Officers to be deemed public servants

8. All persons empowered to perform any functions under this Act shall be deemed to be public servants within the meaning of section 21 of the penal Code.

Indemnity

9. No suit, prosecution or other legal proceeding shall lie against any person empowered to perform any function under this Act for anything which is in good faith done or intended to be done under this Act.³⁰

The Government has made the date of enforcement of this Act form 29 June 1950 through the Gazette notification for aiming the protection and conservation of fish and fish species.³¹

Sub-section 3.a(2) of section 3 of this act states that prohibit or regulate all the construction, temporary or permanent, of weirs, dams, bunds, embankments and other structures.

Sub-section a(1) of section 4 of this act prohibits manufacture, fabricate, import, market, store, carry, transport, own, possess or use current net (Jal). Also sub-section a(2) states that whoever has current Jal in his possession, shall within 45 days of coming into force of this provision, surrender such current Jal to the nearest police station, office of the fishery officer or office of the Upazila Nirbahi Officer, and during that period an existing possession of current Jal by any person shall not be deemed to be an offence.

Section 9, no suit, prosecution or other legal proceeding shall lie against any person empowered to perform any function under this act for anything which is in good faith done or intended to be done under this act.

This Act is very significant for the conservation and development of fresh water fisheries and fish species in Bangladesh. Historically, it has treated as the core fisheries law in Bangladesh because it deals with all kinds of fish

³⁰ *The protection and conservation of fish Act, 1950*, Ministry of fisheries and livestock, Government of the Peoples Republic of Bangladesh.

³¹ A.R. Masud, *Law on fish*, (Dhaka: Khandakar Mohammad Ali, 1992), p. 2.

exploitations, cultivation and conservation. Though this act is a landmark in the history of fish but there are some drawbacks in the aspect of wetlands environment in present Bangladesh.

Sub-section a(2) of section 3 of this Act states that the authority prohibits or regulates construction of dams and embankments. In some case it will permit to construct dams, bunds, embankments and other structures within its regulation but there are no provisions to meet up the impacts on aquatic environment create from such constructions. For such construction aquatic resources will be degraded in course of time specially the aquatic ecosystems and biodiversities.

Sub-section a(1) of section 4 of this Act states that no person shall possess or use current Jal, but trade ministry does not have any options to regulate the import of materials for manufacturing current Jal because material used to produce current Jal uses for other purposes, therefore can import that material showing other purposes.

According to section 9 of this Act, any person empowered to perform any function under this Act for anything, which is in good faith done; no legal procedure can take against him. It is conflicting to the protection and conservation of fish and fish species. Because, this good faith can create opportunity to some dishonest officer or concern authority to perform illegal and destructive works that can deplete or destroy or degrade our indigenous fish and fish species as the impacts of his work assigned.

However, there is no provision to take measures from the siltation of fish habitats. Under this Act, it is also unfortunate that there are no provisions for conservation and development of aquatic plants, which is very important for fish habitats to develop and conserve fish and fish species, aquatic biodiversity and maintaining aquatic ecosystems. At present, different kinds of high yield varieties of fish species are culturing in different open waterbodies through the fertilizations of fish and it is becoming very popular in Bangladesh. It is affecting our indigenous fish that would cause the extinction of some indigenous fish species; unfortunately some of local species has already been in critically endangered. But there is no provision for protecting indigenous fish species in this Act.

The Protection and conservation of Fish Act 1950 and Environment Policy and Environmental Action Plan 1992

Environment Policy, 1992 has said to ensure appropriate environment for fisheries, prevent activities, which diminish the wetlands, maintaining aquatic ecosystem and biodiversity but there is no guideline how the Protection and Conservation of Fish Act, 1950 will do such work complying with Environmental Conservation Act, 1995, and Environmental Conservation Policy 1992 and Environment Action Plan 1992. Moreover, if the authority concerning with Protection and Conservation of Fish Act, 1950 does not comply with the Environmental Policy, 1992 Environmental Action Plan, 1992 and Environmental Conservation Act, 1995 then what will be the punishment measures and what will be the compensation of damages or losses and who will be responsible for degrading the fisheries. There is also no provision about overseeing authority and assessment system of losses or damages in this Act as well as in Environment Policy, 1992 Environmental Action Plan, 1992 and Environmental Conservation Act, 1995.³²

Therefore, it is said that there are some contradictory and conflicting issues among the Protection and Conservation of Fish Act, 1950, Environment Policy, 1992 and Environmental Action Plan, 1992, Environmental Conservation Act, 1995 resulting the degradation of wetlands and aquatic biodiversity especially fresh water fish and fish species. In some cases it is conflicted each other and in some cases self-contradictory.

2.2.7 The Protection and Conservation of Fish Rules, 1985

1. **Short title-** These rules may be called “The Protection and Conservation of Fish Rules, 1985”

2. **Definitions:** (1) In these rules, unless there is anything repugnant in the subject or context-

(a) “form” means the form annexed to these rules; and

(b) “Schedule” means a schedule annexed to these rules;

(2) The words or expression used in these rules but have not been defined shall have the same meaning as assigned to them in the Act under which these rules are made.

³² *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

3. Erection of fixed engines prohibited-(1) No person shall erect or use fixed engines in the rivers, canals, khals, and beels.

(2) Any fixed engine erected or used in contravention of sub-rule (1) and any fish caught by means of such engine may be seized, removal and forfeited.

4. Construction of bunds, etc., prohibited for certain purpose- No person shall construct bunds, dams and embankments or any other structure, whether temporary or permanent in, on, across the river, canals, khals or beels for any purpose other than irrigation, flood control or drainage.

5. Destruction of fish by explosives, etc., prohibited- No person shall destroy or make any attempt to destroy any fish by explosives, gun, bow, and arrow in inland waters or within coastal territorial waters.

6. Destruction of fish by poisoning prohibited- No person shall destroy or make any attempt to destroy any fish by poisoning of water or the depletion of fisheries by pollution, by trade effluents or otherwise in inland waters.

7. Catching and destruction of certain fish during certain period prohibited- No person shall, during the period from 1st day of April to 31st day of August each year, catch or cause to be caught or destroy fry of Shol, Gazar and Taki moving in clusters or the parent fish while guarding them in the rivers, canals, khals, beels or any other sheet of water which ordinarily has direct communication with any river, canal, khal or beel;

Provided that the prohibition shall not extend to the catching or destruction of the fry and the parent fish of the species named above for the purpose of carp culture.

8. Catching of carp fishes prohibited in certain waters-(1) No person shall catch or cause to be caught carp fishes, that is Rui, Catla, Mrigal, Kalbaus and ghania of any size in the waters of the rivers, khals, etc. species in the first schedule during the period mentioned in the said schedule unless he has a licence there fore issued by a competent officer in this behalf;

Provided that no licence for catching of the above named carp fish shall be allowed for purpose other than pisciculture.

(2) A licence issued under sub-rule (1) shall be issued in the form shown and shall be subject to the conditions as are specified on the face of the licence.

(3) There shall be collected a licence fee of Tk-100/- for each licence issued under this rule.

9. Sale of fish prohibited- No person shall catch, carry, transport, offer, expose or possess fish of the species and size mentioned in column 2 and 3 of the second schedule at any time during the period mentioned in column 4 thereof.

Provided that the prohibition shall not apply to the catching, carrying, sale, transport or possession of any fish for the purposes of, or in connection with, pisciculture.

10. Disposal of forfeited fish- Any fish forfeited for a breach of any of these rules shall be disposed of by auction and the auction money there of shall be deposited in such Head of account of the Government as it may direct.

11. Prohibition on catching, carrying, transporting, offering, exposing, or possessing of frogs- Notwithstanding anything contained in these rules, the Government may, by notification in the official Gazette, prohibit the catching, carrying, transporting, offering, exposing or possessing of any frog dead or alive during such period in such area and with such exceptions as may be specified there in.³³

The Fish Rules was passed in 1985 for the execution of the Protection and Conservation of Fish Act, 1950.

Section 4 stated that no person shall construct bunds, weirs, dams and embankments or any other structure whether temporary or permanent, in, on across or over the rivers, canals, khals, or beels for any purpose other than irrigation, flood control or drainage.

Sub-section 8(1) stated that no person shall catch or cause to be caught carp fishes, that is Rui, katla, Mrigal, kalbaus and Ghania of any size in the waters of the rivers, haors, beels, khals, etc., specified in the First Schedule during the period mentioned in the said Schedule unless he has a license thereof issued by a competent officer in this behalf.

Fish Rules is most significant for the conservation and development of the fisheries resources in Bangladesh. This rule comprises of some important provisions for developing and conserving the fish and fish species in the country. Under the Rules, the sustainable exploitations of the fish resources can be ensured.

Section 4 stated that to construct bridge, embankments etc.; on any water bodies for the irrigation, flood control or drainage only. Whatever the

³³ *The Protection and Conservation of Fish Rules, 1985*, The Bangladesh Gazette, Extraordinary, October 17, 1985.

purpose may be, any dam or cross-dam always obstructs the natural flow of the water and it could affect the fish and fish species and it may also cause to damage natural habitats, breeding and aquatic ecosystems. The relevant amendment is necessary in respect of environmental considerations.

Sub-section 1 of section 8, no person shall catch or cause to be caught carp fishes that are Rui, Katla, Mrigal, Kalbus, and Ghanai of any size in the waters of the rivers, haors, beels, khals, and tanks. Moreover, if anybody catches fish violating the rules, there is no provision to punish that person rather authority shall provide the license by a competent officer to legalize this catching. It means license holders can catch fish in any fishery at any time ignoring restrictions imposed on them. It would be the cause to degrade fish, fish habitats and fish species.

2.2.8 The Protection and Conservation of Fish Rules 1985 and the Protection and Conservation of Fish Act 1950, Environment Policy and Environmental Action Plan, 1992

The Protection and Conservation of Fish Rules, 1985, was passed in order to conservation and development of the fish resources in Bangladesh. But under section 4 of this rules the authority can construct bridge, embankment in any water bodies for the irrigation purposes without the assessment of environment impact. And also following section 8, the license holders catch fish in any fishery. Moreover, the Protection and Conservation of fish Act 1950, section 3.a(ii) prohibits the construction, temporary or permanent of dams, bunds, embankments and other structures and sub-section (f) of section 3 prohibits all fishing in all waters or in any specified waters for a specified period for preserving fish and fish species. So, fish rules 1985 has some conflicting with the Fish Act, 1950.³⁴

In Environment Policy 1992 and Environmental Action Plan 1992 there are comprehensible principles and guidelines to ensure the sound environment in constructing dams, bunds, embankment etc. and fishing in wetlands and waterboies. But, there is no clause to address regarding catch, sale, and size of fish for a certain period.³⁵

So, Environment Policy 1992 and Environmental Action Plan 1992 does not play vital role to protection fish species from degradation.³⁶

³⁴ *The protection and conservation of fish Act, 1950*, Ministry of fisheries and livestock Government of the Peoples Republic of Bangladesh.

³⁵ *The Environment Policy, 1992, and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

³⁶ Mohiuddin Farooque, *Regulatory Regime on Inland Fisheries in Bangladesh: Issues and Remedies*, (Dhaka: Bangladesh Environmental Lawyers Association, 1997). p. 152.

2.2.9 The Embankment and Drainage Act, 1952 (Act I of 1952)

An Act to consolidate the laws relating to embankment and drainage and to make better provision for the construction, maintenance, management, removal and control of embankments and water-courses for the better drainage of lands and for their protection from floods, erosion or other damage by water.

3. In this Act, unless there is anything repugnant in the subject or context-

(ii): "Embankment" includes every bank, dam, wall and dyke made or used for excluding water from or for retaining water upon any land; every sluice, spur, groyne, training wall, berm or other work annexed to or portion of any such embankment; every bank, dam, dyke, wall, groyne or spur made or executed for the protection of any such embankment or of any land from erosion or over flow by or of rivers, tides, waves, or water; and also all buildings intended for purposes of inspection and supervision or dividing a field or any public or private road;

(iv): "Land" includes interests in land and benefits arising out of land, and things attached to the earth or permanently fastened to anything attached to the earth;

(v): "owner", used in relation to a land, means a person who has a right, title or interest in that land, and is either in actual possession of it or has an immediate right to actual possession thereof, and includes his trustee, heirs, assigns, transferees and legal representatives, but does not include person who, under the system generally known as adhi, barge, or bhag, cultivates such land;

Provided that where any person is, under the terms of any contract between him and the Government, liable to do any act or execute any work specified in part II of this Act, for the benefit of any area, such person shall be deemed to be the owner in relation to any land in such area and shall be deemed to be in possession of such land;

(vii): "Public embankment" means an embankment vested in or maintained by the Government;

(ix): "Water-course" includes a line of drainage, weir, culvert pipe or other channel, whether natural or artificial, for the passage of water.

4. (1): Every embankment, water-course and embanked tow-path maintained by the Government or the Authority, and all land, earth, pathways, gates, berms and hedges belonging to or forming part of, or standing on, any such

embankment or water-course shall vest in the Government or the Authority, as the case may be.

(2): The embankments mentioned in Schedule A to this Act and every embankment and water course which may be restored to or included in such Schedule under section 37 or section 38 of this Act, and every embanked tow path as aforesaid, shall be held on behalf of the Government or the Authority; and all other public embankments and water courses shall, subject to the provision of section 65, be held by the Government or the Authority on behalf of the persons interested in the lands to be protected or benefited by such embankments or water courses, and all moneys received on account of such lands shall be credited to the cost of the construction and maintenance of such embankments and water courses respectively.

7. Subject to the provisions of Part III, whenever it shall appear to the Engineer that any of the following acts should be done or works (including any work of repair) executed, that is to say:

(2) that any embankment which connects public embankments or forms by junction with them part of a line of embankments or is necessary for the protection of the neighbouring areas should be repair;

(3) that any embankment, or any obstruction of any kind, which endangers the stability of a public embankment or the safety of any town or village, or which is likely to cause loss of property by interfering with any water course or with the general drainage or the flood drainage of any tract of land, should be removed or altered;

(5) that any sluice or water course should be made, or that any water course should be altered for the improvement of the public health, or for the protection of any village or cultivable land;

(6) that any road which interferes with the drainage of any tract of land should be altered, or that any water course under or through such road should be constructed;

He shall prepare or cause to be prepared estimates of the cost of such works, including such proportion of the establishment charges as may be chargeable to the works in accordance with the prescribed policies or as may be specially directed by the Government or the Authority, together with such plans and specifications of the same as may be required. He shall also prepare or cause to be prepared from the survey map of the district, a map showing the

boundaries of the lands likely to be benefited or affected by the said acts and works, and he shall issue a general notice of his intention to execute or cause to be executed such works.

8. Such general notice shall be in the prescribed form stating, as far as possible, the prescribed particulars of all lands which are likely to be affected by the proposed work and to be chargeable in respect of the expenses of executing the same and shall be published in the prescribed manner. A copy of the said estimates, specifications and plans together with a copy of the maps aforesaid, shall be deposited in the office of the Engineer and shall be open to the inspection of any person interested who shall be allowed to take copies thereof and to file objections, if any, against the execution of the proposed work, within thirty days from the date of the publication of such notice.

11. Any person aggrieved by a decision of the Engineer under section 10 may, within thirty days from the date of its announcement, prefer an appeal to the Project Director of the Authority to whom the Engineer is subordinate. After the expiry of the said period, the Project Director of the Authority shall proceed to consider the report and the appeal, if any, and after making such further inquiry, as he may deem necessary, may record an order confirming, modifying or reversing the Engineer's decision and shall, as soon as possible, forward the report submitted by the Engineer, together with his remarks or order on appeal, if any, for the consideration of the Government or the Authority.

Alteration of road, etc., interfering with drainage

14. (1) Whenever an order shall have been passed in cases falling under clause (6) of section 7 directing that any road owned by a local authority, which interferes with the drainage of any tract of land, be altered, or that any water-course be constructed under or through such road, the Engineer may require such authority to make such alteration or construct such water course, and in the events of its failing to comply with such requisition in such manner and within such time as the Engineer may prescribe, the Engineer may cause the road to be altered or the water course to be constructed by the officers of the Government or the Authority.

15. (1) (a) If any person desires that a bridge, culvert, siphon or sluice be made in any public embankment for the purpose of drainage, or

(b) if, within any area which has been included in a notification under section 6, any person desires that any new embankment be erected, that any existing embankment be lengthened, enlarged, repaired or removed, or that the line of

any embankment be altered, or that any new water-course be made, or that any water course be obstructed or diverted, he may make an application in writing to the Engineer.

(2) The application shall contain such particulars of the lands likely to be benefited or affected by the work as may enable the engineer to judge of the advantage which may be derived from the project.

(3) If it should appear to the Engineer that the work applied for is one which may be executed with advantage, the procedure mentioned in the 7th and following sections of this Act shall be followed in respect of the proposed work.

16. Whenever the Engineer shall be of opinion that the removal of any trees, houses, huts or other buildings, situated between a public embankment and the river, is necessary, or that land is required for widening an existing embanked tow path, or for construction of a new embanked tow-path, he shall make a report to that effect to the Deputy Commissioner of the District concerned, accompanied by a detailed statement of the trees, houses, huts or other buildings to be removed or of the land required. The Deputy Commissioner shall submit such report to the Government or the Authority through the Commissioner of the Division in order that proceedings may be taken for obtaining possession of such trees, houses, huts and buildings or land in accordance with the provisions of the Land Acquisition Act, 1894, or other law for the time being in force for the acquisition of land for public purposes.

18. The Engineer may make any repairs in, and may do all acts necessary and proper for the maintenance of, any public embankment, public water course or any other work executed or taken charge of under the provisions of this Act or of any previous similar Act.

19. (1) Whenever any person desires that a temporary road-way should be made over, or that temporary water course should be made through, any public embankment, or that a temporary dam should be constructed in any embanked river or public water course, he shall apply to the Engineer or to any person appointed in that behalf by the Engineers.

20. Sluices constructed in any public embankment shall be opened or shut only by or with the general or special permission of the Engineer or of the officer in the immediate charge of the embankment, under such orders, either general or special, as he may receive from the Engineer.

21. (1) It shall be lawful for the Engineer, or any person whom he may authorise in writing in that behalf, in order to carry out any of the purposes of this Act, to enter upon and survey, and take levels of any land; to dig or bore into the sub soil; to do all other acts necessary to ascertain whether the land is adapted to the purpose projected by such Engineer; to set out the boundaries of the land proposed to be taken and the intended line of the work proposed to be made thereon; to mark such levels, boundaries and line, by placing marks and cutting trenches; and, where otherwise the survey cannot be completed or the levels taken, to cut down and clear away any part of any standing crop, fence or jungle:

Provided that the Engineer or such person shall not enter into any building or upon any enclosed courtyard or garden attached to a dwelling house without previously giving the occupier thereof at least seven days' notice in writing of his intention to do so, except with the written consent of such occupier.

(2) The Engineer or other person so authorised shall, at the time of such entry, tender payment for all necessary damage to be done as aforesaid, and in case of dispute as to the sufficiency of the amount so tendered, he shall at once refer the dispute to the Deputy Commissioner whose decision thereon shall be final.

23. When any such land is rendered permanently unfit for cultivation by any such act as aforesaid, the Government shall, upon application for that purpose made by the owner thereof, acquire such lands under the provisions of the Land Acquisition Act, 1894, or other law for the time being in force for the acquisition of land for public purposes.

24. Whenever the Engineer shall be of opinion that any delay in the execution of any act or work specified in section 7 would be attended with grave danger to life or property, he may forthwith execute or cause to be executed such act or work:

Provided that he shall without delay prepare or cause to be prepared the estimates, specifications and plans of such act or work together with a copy of the map as provided in section 7, and shall cause general notice to be given that the act or work mentioned therein has already been commenced; and thereupon such proceedings and inquiries shall be had as in and by Part II of this Act are directed.

25. Whenever it may have been determined in the final order to be passed on any such enquiry that anything done by the Engineer under the last preceding section was unnecessary, any person who shall have sustained damage by the execution of such works shall receive compensation from the Government or the Authority to be assessed according to the provisions contained in Part IV of this Act; and, on receipt of any application to that effect by the Engineer from any person so affected, the land or the embankments or drainage shall, so far as any alteration thereof shall appear to have been unnecessary, be, at the expense of the Government or the Authority, restored as nearly as possible to the state in which they were when the Engineer commenced to act under the provisions of this Part.

28. Subject to the provisions of section 5, whenever any land other than land required or taken by the Engineer, or any right of fishery, right of drainage, right to the use of water or other right of property, shall have been injuriously affected by any act done or any work executed under the due exercise of the powers or provisions of this Act, the person in whom such property or right is vested may prefer a claim by petition to the Deputy Commissioner for compensation:

Provided that the refusal to execute any work for which application is made shall not be deemed to be an act on account of which a claim for compensation can be preferred under this section.

30. When any such claim is made, proceedings shall be taken for determining the amount of compensation, if any, which should be made and the person to whom the same should be payable, as far as possible, in accordance with the provisions of the Land Acquisition Act, 1894, or other law for the time being in force for the acquisition of land for public purposes.

31. In every such case which is referred to the judge and assessors or to arbitrators for the purpose of determining whether any, and if so, what amount of compensation should be awarded the judge and assessors or the arbitrators-

(i) shall take into consideration-

(a) the market value of the property or right injuriously affected at the time when the act was done or the work executed,

(b) the damage sustained by the claimant by reason of such act or work injuriously affecting the property or right,

(c) the consequent diminution of the market value of the property or right injuriously affected when the act was done or the work executed, and

(d) whether any person has derived, or will derive, benefit from the act or work in respect of which the compensation is claimed or from any work connected therewith, in which case they shall set off the estimated value of such benefit, if any, against the compensation which would otherwise be decreed to such person; but

(ii) shall not take into consideration-

(a) the degree of urgency which has led to the act or work being done or executed, and

(b) any damage sustained by the claimant, which if caused by a private person, would not in any suit instituted against such person justify a decree for damages.

56. (1) Any person,-

(a) who, without the previous permission of the Engineer, erects, or causes or wilfully permits to be erected, any new embankment, or adds to any existing embankment, or obstructs or diverts, or causes or wilfully permits to be obstructed or diverted, any water course, if such act interferes or is likely to interfere with, counteract or impede any public embankment or any public water-course;

(b) who, within the limits of the tract included in any prohibitory notification under section 6, without the previous permission of the Engineer, erects, or causes or wilfully permits to be erected, any new embankment, or adds to any existing embankment, or obstructs or diverts, or causes or wilfully permits to be obstructed or diverted any water course; and

(c) who abets any such act as is mentioned in clauses (a) and (b), shall be liable, on conviction, to fine which may extend to five hundred rupees or, in default of payment, to imprisonment of either description for a period not exceeding six months.

(2) This section shall not render unlawful the repair of a breach or cut in an embankment so as to restore the embankment to the same dimensions as it had immediately before such breach occurred or cut was made; provided that-

(i) such cut was not made under the orders of the Engineers;

(ii) such repair is made within one year after such breach occurred or cut was made; if, however, the repair cannot be completed within this period, the sanction of the Engineer shall be obtained to the completion thereof;

(iii) such breach or cut forms a gap or, if unrepaired may form a gap between two portions of an existing embankment which were continuous before the breach occurred or cut was made;

(iv) the part of the embankment, in which the breach occurred or cut was made, was not erected or added to in contravention of this section or of any law for the time being in force.

57. Whoever, without due authority in this behalf, cuts through or attempts to cut through any public embankment, or destroys or attempts to destroy any such embankment, or opens or shuts or obstructs any sluice in any such embankment or any public water course, shall be liable to imprisonment of either description for a term which may extend to one month or to fine which may extend to two hundred rupees.

Penalty for diverting rivers or grazing cattle on embankments

58. Whoever, without the permission of the officer in immediate charge of the embankments, makes any dam or other obstruction for the purpose of diverting or opposing the current of a river or water course wherein or whereon there are public embankments; or,

When required by the Engineer, refuses or neglects to remove any such dam or obstruction so made by him; or, without the permission of the Engineer or of the officer in immediate charge of the embankment previously obtained, cuts or otherwise alters the banks of any embanked river or water course or removes the earth from any public embankment or drives stakes into it, or, by any other wilful act, destroys or diminishes the efficiency of such embankment, or causes or knowingly and wilfully permits any cattle to graze upon any such embankment, or tethers or causes or wilfully permits any cattle to be tethered upon any such embankment or root up any grass or other vegetation growing on any such embankment, shall be liable to imprisonment of either description for a term which may extend to six months or to fine which may extend to two hundred Taka.³⁷

The Embankment and Drainage Act, 1952, was enacted for the purposes of construct, maintain, manage and control of embankments and watercourses for the better drainage of water from lands and for their protection from floods, land erosion or other damages cause by water. However, adverse environmental impacts create from such constructions are not taken into consideration such as;

³⁷ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 310.

There is no environmental impact assessment option before and after the construction of embankments, dams, water channels; restoring and diverting watercourse etc. As a result it is very difficult to know the degree of environmental damages and accordingly there is no option for mitigation measures about environmental damages. Thus it is the violation of Environmental Conservation Act, 1995 where before and after of the implementation of any construction work, an environmental impact assessment is mandatory and accordingly there must be taken necessary mitigation measures as required. Also there is a provision in this act regarding post-monitoring of a flood control project for specific period of time to measure only how and in what extent flood control projects are working to protect from floods but there is no monitoring system to observe the degradation of other resources such as wetlands and aquatic resources especially fresh water fisheries and fish species. It is argued that due to construction of flood control projects, generally the fisheries resource is degraded and created the adverse impact on the aquatic ecosystems, fish habitats and the aquatic productivity.

The Embankment and Drainage Act 1952 and the protection and Conservation of Fish Act 1950, Environment policy & Environmental Action Plan 1992

However, this act is not formulated for irrigation purposes but it is very much associated with flood control and natural water drainage activities. There is option of irrigation for agriculture creating canals and irrigatable watercourse to enhance agricultural production using only surface water not groundwater. In this act, it is needed to incorporate the irrigation activities like build up water reservoir, irrigation canals, irrigation drainage systems, ground extraction, etc. However, there must be maintained the other environmental laws and policies during the construction of such embankments and drainage, but this act does not have any such provision or no such prerequisite options so that environmental degradation can be minimized and conserved surrounding environment. In some cases this act creates conflict with other laws such as the Protection and Conservation of Fish Act, 1950 which prohibits or regulates the construction, temporary or permanent, of weirs, dams, embankments and other structures for development and conservation of fish, fish species and fish habitats, whereas this Embankment and Drainage Act, 1952 does not bear any responsibility in this regard. Thus this Act is creating some inter departmental conflicting issues as well as some contradictories among laws and agencies which must be resolved.³⁸ On the other hand, the Environmental

³⁸ *The protection and conservation of fish Act, 1950*, Ministry of fisheries and livestock, Government of the Peoples Republic of Bangladesh.

Policy, 1992 and the Environmental Action Plan, 1992 has sufficient policy options and outlines in this regard which should be complied by development agencies within their legal frameworks.³⁹

Therefore, it is said that the Embankment and Drainage Act, 1952 should be amended by the Government through inclusion for development and conservation of aquatic biodiversity especially fresh water fish, fish species and fish habitat as needs in present days.

2.2.10 The Government Fisheries (Protection) Ordinance, 1959 (Ordinance No. XXIV of 1959)

2. In this Ordinance, unless there is anything repugnant in the subject or Context-

(a): "Khas managed fishery" means a fishery declared by the Government under section 3 to be a Khas managed fishery;

3. The Government may by notification in the Official Gazette, declare any fishery belonging to, or under the management and control of, the Government to be a khas managed fishery;

4.(1) On the declaration of a fishery to be a Khas managed fishery under section 3, no person shall fish in such a fishery without a valid licence for fishing issued by such authority as may be prescribed.

(2) It shall be competent for the Government or any authority authorized by the Government to fix different rates of licence fees for fishing in a Khas managed fishery with different varieties of fishing contrivances or by using different methods of fishing and to lay down the terms and conditions of any licence.

5. Every person fishing in any manner or carrying any fishing contrivance in a khas managed fishery shall carry with him a valid licence for fishing in such manner or with such contrivance and produce the same when required by such person or class of persons as may be prescribed.

6. No person shall fish or attempt to fish in any fishery, other than khas managed fishery, belonging to or under the management and control of, the Government or enter into any such fishery for the purpose of fishing or causing fishing to be done, without the authority of the Government or of any licence of the Government.

³⁹ *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

9. (1) Contravention of any provision of this Ordinance or any rules made there under shall, on conviction by a Court of competent jurisdiction, be punishable with imprisonment which may extend to 2 years or with fine which may extend to TK. 5,000 or with both and any fish or fishing contrivance including any boat may be forfeited to the Government.⁴⁰

This ordinance was passed in order to prevent the unauthorized fishing in government control and management fishery. The government may, by notification in the official gazette, declare any fishery belonging to or under the management and control of the government to be a khas managed fishery. In this ordinance no person shall catch fish in these fisheries without valid license for fishing.

This ordinance is the most important in the aspect of conservation and development of fisheries in Bangladesh, because it is the first time license is introduced for fishing by this ordinance. Moreover, there are some limitations of this ordinance because there is no specific rule for fishing in government khas fisheries. Sub-section 1 & 2 of section 4 of this ordinance says that permission is necessary for catching fish in a khas managed fishery using different methods or gears. It means all gears and methods such as fishing nets, traps, conventional gears and other contrivances⁴¹ shall be used for catching fish in khas fisheries but it does not have any options to regulate indiscriminate use of gears and methods that may degrade or destroy the fish and fish species.

Section 5 under this ordinance stated that every person carrying any fishing contrivance and produce any means of fishing must carry the license and should provide it to concern authority where it required. According to section 6, any person shall fish or attempt to fish in any fishery areas other than khas managed fishery with valid license. However, licensing could be the cause of indiscriminate fishing which might be the caused of degradation of some indigenous fish species and fish habitats. Because, there are no provisions that how and what gears and methods shall be used by the license holders and who will be the license holders for fishing. For the purposes of developing of fishes in khas land, what kinds of development actions will be entertained are not mentioned in the ordinance. As a result, fish and fish species will face endangering situation. Since khas wetlands, could be the prospective fish habitats and breeding center which ultimately leads to the increase of fish production.

⁴⁰ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh*(Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 336

⁴¹ Fishing nets, traps, gears and other contrivances, the protection and conservation of fish Act, 1950, section 3 sub-section 3 & 4.

The Government Fisheries (Protection) Ordinance, 1959 and the Protection and Conservation of Fish Act 1950, Environment policy & Environmental Action plan 1992

According to Government Fisheries (Protection) Ordinance, 1959, anybody using different method or contrivance, or producing various contrivances, can catch fish in khas managed fisheries showing the valid license. Not only that the license holders can catch fish in any time and any size of fish without considering breeding seasons and juvenile fish which is prohibited the Protect and Conservation of Fish Act 1950 as well as by Environment Conservation Act 1995 and Environmental Policy 1992. Though in some cases, sub-section (iii) and (iv) of section 3 of the Protection and Conservation of Fish Act, 1950 prohibits to use fishing nets (current jal), traps, some specific gears and contrivance and prescribe specific gears and methods and catch minimum size of fish. But there is no specific definition of that issues so that concern authority may prohibit those activities. So, here this ordinance is seems to be conflicted with the Protection and Conservation of Fish Act, 1950.⁴² On the otherhand, provisions mentioned in Environment Policy, 1992 and Environmental Action Plan, 1992 in this regard is sufficient enough.⁴³ So it is said that the Government Fisheries (Protection) ordinance, 1959 is not appropriate for protection and conservation of fish and fish species in khas managed fishery.

2.2.11 The Agricultural Development Corporation Ordinance, 1961 (E, P. Ordinance No. XXXVII of 1961)

An Ordinance to establish an Agricultural Development Corporation for the purpose of increasing agricultural production in Bangladesh.

3. (1) As soon as may be after the commencement of this Ordinance, the Government shall establish a corporation to be called the Bangladesh Agricultural Development Corporation.

13. (1) The Corporation shall-

(a) make suitable arrangements throughout Bangladesh, on a commercial basis, for the procurement, transport, storage and distribution to agriculturists of essential supplies such as seed, fertilizers, plant protection equipment, pesticides and agricultural machinery and implements;

⁴² *The protection and conservation of fish Act, 1950*, Ministry of fisheries and livestock, Government of the Peoples Republic of Bangladesh.

⁴³ *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh

(b) Promote the setting up of co-operative societies with a view to handing over to them its supply functions in accordance with a phased program;

(d) if so directed by the Government, take over and manage, on such terms and conditions as may be specified by the government, such seed multiplication and livestock breeding farms and fruits nurseries as are owned or managed by the Government; and

(e) assist, encourage and promote the manufacturer of improved agricultural machinery and implements, but shall not itself undertake any such manufacture;

Provided that it shall, if so directed by the government takeover, on such terms and conditions as may be specified by the Government, any concern owned or managed by the Government and engaged in such manufacture.

(2) In addition to the functions enumerated in sub-section (1), the Corporation may-

(b) assist, encourage, and promote the establishment of industries for the processing of agricultural produce, the formulating or manufacturing of insecticides, pesticides, fungicides or biologicals or the manufacturing of cattle and poultry feed;

(c) organize the supply, maintenance and operation of lift-pumps and tubewells and set up light workshops for running repairs;

(d) encourage the expansion and improvement of industries for the manufacture of diesel engines used in agriculture, the setting up of cold storage plants, the renewal and establishment of ginneries, oil expellers, jute presses and rice huskers;

(g) carry out or cause to be carried out surveys of the problems and potentials of any area proposed to be declared a project area under section 23, and incur expenditure on such surveys, on the training of personnel, and on studies, experiments and technical research;

14. In a Project Area, the Corporation-

(a) shall organize the dissemination of technical knowledge among agriculturists with a view to ensuring intensive and co-ordinated use of improved seeds, fertilizers, plant protection materials, better cultivation techniques and credit, including supervised credit;

(b) shall deal with all matters pertaining to land reclamation, range management, dairy industry, organization of agriculture in new areas, harnessing of hill streams, conservation of catchments, exploitation of potential areas, planned agriculture through suitable crop rotation and mixed farming, marketing and processing of agricultural product and organization of co-operative and block farming;

(e) shall perform all functions, which were, immediately before the issue of notification under section 23 were being performed in such area by the Departments dealing with agriculture, animal husbandry, livestock, co-operative societies, fisheries, forests and consolidation of holdings;

(f) may undertake distribution of water for irrigation;

(g) may undertake and salinity measure;

(h) may assist, encourage and promote the use of agricultural machinery; and

(i) may organize, or enter into contracts for, such research as may be necessary for carrying out its functions, including research in land and water utilization.

16. The Corporation may-

(f) direct, in respect of any area-

(i) the leveling, terracing and embankment of fields;

(ii) the afforestation of such area or part thereof;

(iii) the construction of earthworks in fields or ravines;

(iv) the provision of drains for storm water, construction of surface field drains and subsurface drains;

(v) the training of streams, and

(iv) the execution of such other works as are necessary in the opinion of the corporation to protect the land from the erosive action of wind or water, or for the development of such area or for the exploitation of its water resources;

(g) direct that any work, which has been required to be done by any person under the preceding clause, and which remains undone, shall, after due notice to such person and consideration of any objection raised by him, be executed by the Corporation, and specify the portion in which the risk and expenses of such work shall be borne by such person, or by any other person who is held by the Corporation, upon due enquiry after reasonable notice to him, to be responsible for the execution of such work in whole or in part;

(h) regulate, restrict or prohibit by general or special order in respect of any area-

(i) the clearing or breaking up of land for cultivation;

(ii) the quarrying of non-mineral stone and the burning of lime or charcoal;

(iii) the admission, herding, parking and retention of cattle;

(iv) the felling, girdling, lopping, tapping or burning of any tree or timber; and

(v) the kindling, keeping or carrying of any fire;

(vi) direct the growing of a particular kind or type of crops or trees in a particular area and specify the rotation of crops to be followed;

(j) undertake the breaking of land, planting of trees, constriction of water-course and do all necessary acts to bring land vested in the Corporation under cultivation.

20. (1) The Chairman, or any other person authorized by him in writing, may enter upon and survey any land, undertake investigations, erect pillars for the determination of areas and intended lines of works, make borings and excavations for the discovery of water, construct channels and for securing the flow of water, and do all other acts which may be necessary in order to carry out all or any of the objects of this Ordinance;

Provided that when the affected land does not vest in the Corporation, the powers conferred by this sub-section shall be exercised in such manner as to cause the least interference with and the least damage to the rights of the owner thereof.

29. In schemes or projects involving acquisition and development of land or terracing or leveling of land or soil conservation, the Corporation may provide for all or any of the following matters, that is to say-

(e) the layout and construction of market places, villages and settlements the demolition of existing buildings and the erection or re-erection of buildings by the Corporation in default of the owners;

(f) the provision of facilities for communication, including the layout and alteration of roads, streets, foot-paths, bridle paths, aerodromes and waterways;

(g) the provision of open spaces, national parks, nature reserves, forests and forests parks;

(h) the breaking up, cultivation, afforestation or plantation of lands, and the raising, lowering or reclamation of any land for the production of food grains, fruits, vegetables, fuel, fodder and similar other things, and the provision of means of irrigation and irrigation channels by the Corporation, or the owners, or by the Corporation in default of the owners;

(i) the draining, water-supply and lighting of streets and sanitation of villages and settlement, and market places;

(j) the provision of a system of drains or sewers for the improvement of oil-drained and insanitary localities;

(k) the provision of fisheries, poultry farms, livestock farms, dairy farms, sheep farms, bee farms and similar other farms;

(l) the installation, management, maintenance and encouragement of public utility undertakings, rural trades and crafts, industries, and works connected with agriculture;

(m) the doing of all facts intended to promote the well-being and prosperity of the project area; and

30. (2) The Corporation shall-

(a) cause the said notice to be published weekly for three consecutive weeks in the official Gazette and in a local newspaper with a statement of the period which shall not be less than thirty days, within which objections shall be received.

56. Where under this Ordinance or a notice issued there under, the public or any person is required to do or to refrain from doing anything

a person who fails to comply with such requisition shall, if such failure is not an offence punishable under this section of this Ordinance, be liable to a fine

63. If any person, without lawful authority-

(a) removes any fence or any timber used for propping or supporting any building, wall or other thing or extinguishes any light set up at any place where the surface of a street or other ground has been opened or broken up by the Corporation for the purpose of carrying out any work; or

(b) infringes any order given, removes any bar, chain or post fixed, by the Corporation for the purpose of closing any street to traffic, he shall be punishable with fine which may extend to fifty taka.

66. If any person, without the written permission of the Corporation-

(a) clears or breaks up for cultivation or cultivates any land which is hold by or in the possession of the Corporation and is not included in any tenancy or allocated residential enclosures or which has been set apart for the common purposes of a town or a village community or section of the same or for a road, canal or watercourse, or

(b) erects any building on any such land, or

(c) fells or otherwise destroys standing trees on such land, or

(d) otherwise encroaches on any such land, or

(e) makes an excavation or constructs water channel on any such land, he shall be punished or convicted by a Magistrate with a fine not exceeding two hundred taka.⁴⁴

Explanation- The felling of trees planted by an owner on any village road or watercourse traversing his holding is not an offence under this section.

Under this ordinance, 'Bangladesh Agricultural Development Corporation' was established for increasing agricultural production in Bangladesh.

Under section 13(1) The Corporation shall make suitable arrangements throughout Bangladesh, on a commercial basis, for the procurement, transport, storage and distribution to agriculturists of essential supplies such as seed, fertilizers, plant protection equipment, pesticides and agricultural machinery and implements.

Under section 16, (3), the corporation may direct, in respect of any area the construction of earthworks in fields or ravines.

The Agricultural Development Corporation Ordinance is a landmark in the agriculture extension and development in Bangladesh. However, this ordinance has some inappropriateness regarding environment and biodiversity, which is discussed here.

⁴⁴ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 297.

Sub-section (1) of section 13 of this Ordinance states that the corporation can transport, procure, storage, and distribute essential supplies such as seed, fertilizers, pesticides and agricultural machineries to agriculturists and farmers for development of agriculture sector. Under section 16, the corporation will construct embankment, channel, drainage, dam etc. in any area for the purposes of providing irrigation to enhance agricultural production.

However, in this ordinance there is no provision for environmental impact assessment during construction of embankment, channel, drainage, dam etc. and environmental consequence creates due to constructions and use of different type of chemical fertilizers and pesticides. As we know that construction of embankments, dam etc. creates obstacle to natural water flow, consequently it makes barrier of natural fish migration, fish breeding, and wetland degradation. In addition, chemical fertilizers and pesticides pollute wetlands and waterbodies which cause depletion of fish breeding, fish species, and habitats degradation. Therefore, it could say that Agricultural Development Corporation Ordinance is only appropriate for agriculture development, on the hand; it is creating adverse environmental externalities especially on fresh water fisheries and fish biodiversity.

The Agricultural Development Corporation Ordinance 1961 and the Protection and Conservation of Fish Act 1950, Environment Policy and Environmental Action Plan 1992

According to the Agricultural Development Corporation Ordinance 1961, the authority will supply, storage fertilizers, pesticides, and other agriculture machinery and also construct embankment, dam, water channel, drainage etc. in any place for the purposes of agriculture development. But section 3a, (iii) of the Protection and Conservation of Fish Act, 1950 prohibits or regulates all the construction, temporary or permanent of embankment, dam, water channel aiming at the development and conservation of fish and fish species.⁴⁵ So there needs a policy option to mitigate this conflicting issues.

Environment Policy, 1992 and Environmental Action Plan, 1992 provides principles to ensure the sustainable development in agriculture sector maintaining sound environment including aquatic resources. But it seems Agricultural Development Corporation does not comply with Protection and

⁴⁵ *The protection and conservation of fish Act, 1950*, Ministry of fisheries and livestock, Government of the Peoples Republic of Bangladesh.

Conservation of Fish Act, 1950, Environment Policy, 1992 and Environmental Action Plan, 1992 regarding wetland conservation, aquatic resources especially aquatic ecosystem, and biodiversity.⁴⁶

So, it is said that Agricultural Development Corporation Ordinance, 1961 in some extent creates conflict with the Protection and Conservation of fish Act, 1950 Environment Policy, 1992 and Environmental Action Plan, 1992. These conflicting issues should be resolved for sustainable environmental development and conservation.

2.2.12 The Agricultural Pesticides Ordinance, 1971 (Ordinance No. II of 1971 and amended in 1980 and 1984)

An ordinance to regulate the import, manufacture, formulation, sale, distribution, and use of pesticides.

3. Definition- In this Ordinance, unless there is anything repugnant in the subject or context, the expression-

(a) “adulterated” when used with reference to a pesticide, means any pesticide the strength or purity of which falls below the professed standard or quality which is expressed on its label or under which it is sold or a pesticide any valuable ingredient of which has been wholly or partially extracted;

(b) “advertise” means to make known by publication or distribution of any advertisement, circular or other notice;

(c) “brand” means the trade name applied by an importer, manufacturee, formulator or vendor to the goods imported, manufactured or sold by him;

(e) “formulation” means the process by which a pesticide is converted, by mixing with other substances, into a form in which it is ready to be used;

(f) “fungi” means all rusts, smuts, mildews, moulds, yeasts, and similar forms of plant life prescribed in this behalf and includes bacteria affecting plant life;

(h) “guarantee” means the statement indicating the strength, effectiveness and other qualities of a brand of a pesticide which an importer, manufacture, formulator, vendor or person holding stock for sale of a brand of a pesticide is required to submit under the rules at the time of applying for the registration of the brand;

⁴⁶ *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

(k) "insect" means any of the small invertebrate animals commonly known as insects and includes such forms of animal life as may be prescribed;

(n) "pesticide" means any substance or mixing of substance used or represented a means for preventing, destroying repelling, mitigating or controlling, directly or indirectly, any insect, fungus, bacterial organism, nematodes, virous, weed, rodent or other plant or animal pest but does not include a substance which is a 'drug' within the meaning of the Drugs Act, 1940.

4. Pesticides to be registered- No person shall import, manufacture, formulae, repack, sell, offer for sale, hold in stock for sale or in any manner advertise any brand of pesticide which has not been registered in the manner hereinafter provided.

5. Application for registration of pesticide- (1) Any person intending to import, manufacture, formulate, repack, sell, offer for sale, hold in stock for sale or advertise any brand of a pesticide may apply to the Government for the registration of the brand under such name as he may indicate in the application.

(4) Upon the receipt of an application under sub-section (1), the Government may register a brand of a pesticide by the name indicated in the application, if it is satisfied that-

(a) the brand is not such as would tend to deceive or mislead the purchaser with respect to the guarantee relating to the pesticide or its ingredients or the method of its preparation; or

(b) the guarantee relating to the pesticide or its ingredients is not the same as that of another registered brand or is not so similar there to as to be likely to deceive; or

(c) it is effective for the purpose for which it is sold or represented to be effective; or

(d) it is not generally detrimental or injurious to vegetation, except weeds or to human or animal health, even when applied according to directions.

7. Cancellation of registration- If at any time after the registration of the brand of a pesticide, the Government is of opinion that the registration has been secured in violation of any of the provisions of this Ordinance or the rules or that the pesticide is ineffective against pests or hazardous to vegetation, other

than weeds or to human or animal life, the Government may, after giving to the person on whose application it had been registered an opportunity of being heard, cancel the registration.

8A. Requirement of licence- (1) Any person may, after obtaining a licence granted by the licensing authority import, manufacture, formulate, repack, sell offer for sale, hold in stock for sale, involve in pest control operation on commercial basis or advertise in any manner any brand of registered pesticide.

(2) Any person intending to import, manufacture, formulate, repack, sell, offer for sale, hold in stock for sale, involve in pest control operation on commercial basis or advertise any brand of registered pesticide may apply for a licence to the licensing authority.

9. Importation may be prohibited- If any pesticide imported into Bangladesh is found to be adulterated or incorrectly or misleading tagged, labeled or named, or if its sale in any way contravenes any of the provisions of this Ordinance, the Government may by notification in the official Gazette, prohibit the further import of the pesticide into Bangladesh.

10. Labelling of packages- No person shall sell or offer or expose for sale, advertise or hold in stock for sale any pesticide unless each package containing the pesticide, and every tag or label durable attached there to, is branded or marked in printed characters in such form and in such manner as may be prescribed.

14. Government Analyst- The Government may, by notification in the official Gazette, appoint as many persons as it deems fit to be Government Analysts for pesticides and, where it appoints more than one person to be Government Analysts, shall specify in the notification the local limits within which each one of them shall perform the functions of Government Analyst.

15. Inspectors- The Government may, by notification in the official Gazette appoint from amongst the officers of the Government employed for work relating to plant protection such number as it deems fit to be Inspectors within such local limits as may be specified in the notification.

16. Powers of Inspectors- An Inspector may, within the local limits for which he is appointed, enter upon any premises where pesticide are kept or stored, whether in containers or in bulk, by or on behalf of the owner, including premises belonging to a bailee, such a railway, a shipping company or any

other carrier, and may take samples there from for examination. No compensation shall be payable for a reasonable quantity taken as a sample.

17. Procedure of Inspectors- (1) Where an Inspector takes a sample of a pesticide for the purpose of test or analysis under section 16 , he shall intimate such purpose in writing in the prescribed form to the person from whose possession he takes it and in the presence of such person (unless he willfully absents himself), shall divide the sample into three portions and effectively seal and suitable mark the same and permit such person to add his own seal and mark to all or any of the portions so sealed and marked;

Provided that, where the pesticide is made up in containers of small volume, instead of dividing a sample as aforesaid, the Inspector may, and if the pesticide be such that it is likely to deteriorate or be otherwise damaged by exposure shall, take three of the said containers after suitable marking the same and, where necessary, sealing them.

(2) The Inspector shall restore one portion of a sample so divided or one container , as the case may be, to the person from whom he takes it, and shall retain the remainder and dispose of the same as follows;

(i): he shall forth with send one portion or container to the Government Analyst for test or analysis; and

(ii): he shall send the second portion or container to the Government.

18. Report of Government Analyst- (1) The Government Analyst to whom a sample of any pesticide has been forwarded by an Inspector under sub-section (20 of section 17 shall deliver to the Inspector, in triplicate in the prescribed form, a signed report of the result of the test or analysis conducted by him.

(6) A certificate of analysis prepared by the pesticide Laboratory shall be conclusive evidence of the facts stated there in.

20. Purchaser of pesticide may have it tested or analyses- (1) Any person who has purchased a pesticide may apply to a Government analyst to conduct a test or analysis of the pesticide.

(3) The Government analyst to whom an application is made. shall conduct the test or analysis and issue to the application a report signed by him of the test or analysis.

21. Offences and penalties- Any person who-

(a) sells, offers or exposes for sale, holds in stock for sale or advertises a registered brand of a pesticide which is of the nature, substance or quality which it is represented to be by the brand or mark on the package containing it or as the case may be on the tag or label attached there to; or

(b) falsely represents a pesticide in an advertisement ; or

(c) contravenes any of the provisions of this ordinance or the rules for the contravention of which no other penalty is provided in this Ordinance,

Shall be punishable, for the first offence, with fine which may extend to one thousand Taka and for every subsequent offence with fine which shall not be less than two thousand Taka or more than three thousand Taka and in default of payment of any such fine with imprisonment for a term which extend to one year.

22. Manufacturer's warranty to dealers- Whoever gives false warranty to a dealer or purchaser in respect of a pesticide, that it complies in all respect with the provisions of this Ordinance shall, unless he proved that when he gave the warranty he had good reason to believe the same to be true, be punishable with fine which may extend to one thousand taka.

23. Unlawful use of registration number, lowering of pesticidal value or hindering the Inspector from performing his duty- Any person who-

(a) Unlawfully uses any registration number assigned or as if it had been assigned under this ordinance, or

(b) willfully alters the composition of a pesticide by mixing any other substance there with after the said pesticide has been placed on the market by the manufacture, importer or vendor, or

(c) willfully obstructs, hinders, resists, or in any way opposes any inspector in performing his duties under this Ordinance,

Shall be punishable with fine which shall not be less than two thousand and five hundred taka or more than five thousand taka or with imprisonment for a term which shall not be less than one year or more than two year.

25. Power of Court to order forfeiture- If any person is convicted of an offence punishable under this ordinance committed by him in respect of any pesticide, article or thing, the Court convicting him may further direct that the pesticide, article or thing shall be forfeited to the Government.

29. Power to make rules- (1) The Government may, in consultation with the pesticide technical Advisory Committee and after previous publication in the official Gazette, make rules for carrying the provisions of this ordinance into effect.

(2) In particular and without prejudice to the generality of the foregoing power, such rules may provide all or any of the following matters, namely:-

(j) the pesticides that are generally detrimental or injurious to vegetation, domestic animals or public health even when used according to directions;

(k) the pesticides that are to be labeled "Poison" and their antidotes;

(l) the requirements for the safe storage of pesticides;

(m) the quantities of different brands of pesticides which a person may hold in stock at any one time and the premises in which, and the conditions subject to which, he may hold them in stock;

(n) the precautions for the protection of workers against risk of poisoning by pesticides arising from their working-

(i) in connection with the use of such pesticides; or

(ii) on land on which such pesticides are being or have been used;

(o) the restrictions or conditions as to the purposes for which, the circumstances in which, or the methods or means by which, a pesticide may be used;

(p) the restrictions or conditions involving a general prevention or limitation of the use of any pesticide;

(q) the provision, and keeping available and in good order of facilities for washing and cleaning and of other things needed for protecting persons, clothing, equipment and appliance from contamination with pesticides or for removing sources of contamination there from contamination with pesticides or for removing sources of contamination there from;

(r) the observance of precautions against poisoning by pesticides including the use of things provided in pursuance of the of the rules and abstention from eating, drinking and smoking in circumstances involving risk or poisoning by pesticides;

(s) intervals between, or limitations of, periods of exposure to risk of poisoning by pesticides;

(t) the observance of special precautions in the case of persons who, by reason of their state of health, age, or other circumstances, are subject to particular risk of poisoning by pesticides or of injury there from, or imposing, in case of person so subject, prohibitions or restrictions on employment of workers;

(u) the measures for detecting and investigating cases in which poisoning by pesticides has occurred

(v) the provisions of effective facilities for prevention of poisoning by pesticides and first aid treatment and

(w) the provision of instruction and training in the use of things provided in pursuance of the rules and in the observance of precautions against poisoning by pesticides.⁴⁷

The Agriculture Pesticides Ordinance was passed in 1971 and had amended in 1980 and 1984 in order to regulate the import, manufacture, formulation, sale, distribution and use of pesticides.

Main purpose of this ordinance is to control, manufacture, import, distribution, marketing and use of chemical fertilizers and pesticides utilize in agriculture production processes for developing agriculture sector and enhancing agriculture production in the country. This is the first ordinance to control, manufacture, distribution, marketing and use of pesticides in Bangladesh. The government tries through this ordinance to ensure public health and safety by regulating and controlling productions and indiscriminate use of pesticides with some limitations.

According to the section 3(h) of this ordinance, purpose of this ordinance is to use pesticides in agriculture sectors for development of agriculture and its production. However, this ordinance does not take into consideration about adverse impacts of pesticides use on surrounding environment especially wetlands, waterbodies and aquatic biodiversity and ecology because pesticides pollute water of the surrounding wetlands and waterbodies those are the safe habitats of fish and other aquatic animals and plants. Wetland and water pollution from pesticides use in crop fields especially in rice fields creates adverse effects on fresh water fish breeding which is resulting declining of fresh water fish production and sooner or later it will destroy fish species and fish habitats. However, this ordinance does have also sufficient provisions to

⁴⁷ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 287.

regulate pesticides import, production and use in crop fields and does not comply with other relevant laws and policies where use of any pesticides is either restricted or prohibited which substantially creates adverse impacts on other biodiversity and ecology.

The Agriculture Pesticides Ordinance, 1971 and the Protection and Conservation of Fish Act 1950, Environment Policy & Environmental Action plan 1992

It is observed that the government enacted Agriculture Pesticides Ordinance, 1971 and amended it in 1980 and in 1984 for the purpose of agriculture development and increasing agriculture production through the use of pesticides in agriculture for controlling insects and pests. But environment pollution through the use of pesticides in agriculture field is not considered because pollution from pesticides creates impediments of fish breeding and killing of fish fingerlings. Moreover, sub-section (c) of section 3 of the Protection and Conservation of Fish Act 1950 prohibits the destruction of or any attempt to destroy of fishes or fish fingerlings by the poisoning of waters or the depletion of fisheries by pollution from trade effluents or otherwise.⁴⁸

On the other hand, section 3 of Environmental Policy 1992 stated that the application of agro chemicals, artificial materials and inputs which adversely affected the fertility as well as organic properties of the soil, water and also causes adverse impacts on man and animals are to be regulated in a sustainable manner. Safety of agricultural workers in applying those inputs is to be ensured. This section permits to use pesticides in agriculture field in such a ways that does create any adverse effects on environment and biodiversity.

Section 1 of Environmental Action Plan, 1992 cites that the use of chemical insecticides and pesticides has to be regulated and also use of biodegradable chemicals may be allowed under controlled conditions. This section permits to use biodegradable pesticides in agriculture field so that it does not affect the environment, biodiversity and ecology. So it seems the Agriculture Pesticides Ordinance, 1971 does not comply with Environment Policy, 1992, Environmental Action Plan, 1992 and Protection and Conservation of Fish Act, 1950, and among them there are some conflicting issues with each other which should be mitigated in a sustainable manner.⁴⁹

⁴⁸ *The protection and conservation of fish Act, 1950*, Ministry of fisheries and livestock Government of the Peoples Republic of Bangladesh.

⁴⁹ *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

2.2.13 The Bangladesh Fisheries Development Corporation Act, 1973 (Act No. XXII of 1973)

An Act to provide for the establishment of the Bangladesh Fisheries Development Corporation.

2. Definitions- In this Act, unless there is anything repugnant in the subject or context-

(d) “fish” means any species of fish or aquatic plants and animals including whales, seals, porpoises, dolphins, turtles, shellfish, oysters, crustaceans, frogs, ascidians and spawns and eggs of such animals or plants grown either in salt water or fresh water;

(e) “fishing boat” means a vessel of whatever size and in whatever way propelled, which is for the time being employed in fishing;

(f) “fishing industry” means capturing, preservation, distribution and marketing of fish, and includes processing, manufacturing and disposal of fish and fish by-products, construction of fishing crafts, fishing nets and factories for fishing nets and gears and establishment and operation of refrigeration units, fish markets, fish ports and fish landing terminals and any matter incidental or ancillary there to;

3. Establishment of the Corporation-(1) On the commencement of this Act, there shall be established a Corporation to be called the Bangladesh Fisheries Development Corporation for carrying out the purposes of this Act.

6. Function of the Corporation-(1) The Corporation shall take such measures as it thinks fit for development of fisheries and fishing industries in Bangladesh.

(2) In particular and without prejudice to the generality of the foregoing provision, the Corporation shall, in order to carry out the purposes of this Act, have power to-

(a) take measures for the development of fisheries and fishing industry;

(b) establish fishing industry;

(c) establish units for capture of fish and promote a better organization for exploitation of fish wealth;

(d) acquire, hold or dispose of fishing boats, fish carriers, road and river transports and all equipment and accessories necessary in connection with the development of fishing industry;

(e) establish units for preservation, processing, distribution and marketing of fish products;

- (g) encourage establishment of fishermen's co-operative societies;
 - (h) undertake survey and investigations of the fish resources;
 - (i) establish institutes or make arrangements for the training and research in the methods of catching, processing, transport, preservation and marketing of fish;
 - (k) acquire, hold and dispose of such other properties as are required for carrying out all or any of the above –mentioned purposes.
- (3) The Corporation may formulate scheme or schemes for carrying out all or any of the functions specified in this section.

7. Management- (1) The general direction and administration of the Corporation and its affairs shall vest in a Board which shall have full authority to exercise all powers and do all acts and things which may be exercised and done by the Corporation.

(2) The Board, in discharging its functions, shall act of commercial consideration and shall be subject to the superintendence and control of the Government and shall also be guided by such general or specific instructions as may from time to time, be given to it by the Government.⁵⁰

This Act was passed in 1973 for the established of Bangladesh Fisheries Development Corporation and later on it was amended in 1984 for purposes of regulating fish capturing, preservation, distribution, and marketing of fish including processing, manufacturing and disposal of fish and fish by-products; construction of fishing crafts, fishing nets and factories for fishing nets and gears and establishment and operation of refrigeration units, fish markets, fish ports and fish landing terminals and any matter incidental or ancillary there to.

The Fisheries Development Corporation Act, 1973 is a landmark for fishery extension in Bangladesh providng necessary legal provisions for the purpose of developing fishery resource and fishery industry in Bangladesh. However, there are some lacking in this law such as: this emphasizes only on to regulate fish capturing, preservation, distribution, and marketing of fish including processing, manufacturing and disposal of fish and fish by-products etc., but not on the development and conservation of fishery resources; fish biodiversity and ecology, fish habitats, and other aquatic ecosystems and biodiversity. According to Protection and Conservation of Fish Act, 1950, Environment Policy and Environmental Action Plan 1992, fishery resources

⁵⁰ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 356.

should be harvest in a sustainable manner so that fish biodiversity and ecology does not degrade. Therefore, it could be said that the Fisheries Development Corporation Act, 1973 has some conflicting issues with Protection and Conservation of Fish Act, 1950, Environment Policy and Environmental Action Plan 1992.

The Bangladesh Fisheries Development Corporation Act, 1973 and the Protection and Conservation of Fish Act 1950, Environment Policy and Environmental Action Plan 1992

According to sub-section (f) of section 2 under the Fisheries Development Corporation Act 1973, there is no specification and restriction to construct of fishing crafts, fishing nets and factories for fishing nets. It could be the cause of fishery resource degradation and in some case it would be the cause of extinction of fish and fish species. Because the Protection and Conservation of Fish Act, 1950 (Amendment rules 1988) prohibits the use of 4.5 cm length of fishing net, some other specified gears and methods that creates indiscriminate fishing opportunity and creates impediment of fish migration which is very important for fish breeding methods.⁵¹

Also there are sufficient provisions in Environment Policy 1992, Environmental Action Plan 1992 and Environmental Conservation Act 1995 to regulate fishing crafts, fishing nets, gears and methods for protection and conservation of fish and fish species in Bangladesh.⁵² Fisheries Development Corporation Act 1973 should comply with these through resolving the conflicting issues existing.

In addition, Fisheries Development Corporation Act, 1973 is in some extent creating contradictory issues and raising some policy conflicts with some other relevant laws and policies such as Protection and Conservation of Fish Act, 1950 and rules 1988.

2.2.14 The Fisheries Research Institute Ordinance, 1984

(Ordinance No. XLV of 1984)

An Ordinance to provide for the establishment of a Fisheries Research Institute.

3. Establishment of the Institute- (1) there shall be an Institute to be called the Fisheries Research Institute for carrying out the purposes of this Ordinance.

⁵¹ *The protection and conservation of fish Act, 1950 & (Amendment) Rules, 1988*, Ministry of fisheries and livestock Government of the Peoples Republic of Bangladesh.

⁵² *The Environment Policy, 1992 and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

6. Functions of the Institute- The functions of the institute shall be-

- (a) to carry out and co-ordinate fisheries research in Bangladesh;
- (b) to assist in development of more efficient and economic methods for fish production, management, processing and marketing; and
- (c) to do such other acts or things as may be considered necessary for carrying out the purposes of this Ordinance.⁵³

The Fisheries Research Institute Ordinance was passed in 1984, to provide guidelines for the establishment of Fisheries Research Institute.

In this ordinance under section 6, the functions of the institute shall be-

- 1. to carry out and co-ordinate fisheries research in Bangladesh;
- 2. to assist in development of more efficient and economic methods for fish production, management, processing and marketing;
- 3. to do such other acts or things as may be considered necessary for carrying out the purposes of this ordinance.

The fish research institute ordinance is passed to carry out and co-ordinate fisheries research in Bangladesh for the purposes of developing fish and fish species and to conduct adaptive research on fish resources and to make fish farming as a viable and sustainable occupation in the socio-economic context of Bangladesh. Certainly this institute has contributed widely in fisheries development in the country although there are some limitations.

Section 6 stated that the institute shall carry out research on fisheries for developing efficient and economic fish species and methods of fish culture, which may cause fish biodiversity and ecosystem degradation. Economically profitable fish species and methods would be harmful to less profitable indigenous fish species because farmers would encourage to culture only profitable one which may result small and less profitable indigenous fish degradation and gradually once it might extinct from the earth.

Section 17 stated about the provision of indemnity that no legal proceedings should lie against the Board members, chairman, director and any officer or employee of these institutes, whatever they do for. This provision may create anarchy in those research institutions, cause ill health research program that could result damages of fishery resources, fish species, fish habitats and

⁵³ Mohiuddin Farooque and S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 358.

fish stock. Because, researcher or any Board member may intend to conduct research on only commercially profitable fish species and consequently it would cause aquatic biodiversity and ecological degradation. In one hand, through this provision, they can lease out any fish habitat, which is very important for indigenous fish breeding, on their good faith. On the other hand, this provision may make some members and employees dishonest. If so, they can lease out any canal, flood plain wetlands, or any fish habitats that will be great damage of aquatic biodiversity and ecology.

The Fisheries Research Institute Ordinance 1984 and Environment Policy and Environmental Action Plan 1992

The Fisheries Research Institute carries out research only on economically profitable fish species and developing economically profitable cultivation methods and implements it in field level. But it does not take any initiative for protection and conservation of our indigenous fish and other aquatic flora and fauna. It is a great threat to the indigenous fish biodiversity and ecology. Environment Policy, 1992 and Environmental Action Plan, 1992 has some guidelines regarding conservation of fish species but it emphasize of much production in sustainable manner, so it encourage to introduce alien fast growing fish species for more production to meeting up the increasing demand that is contradictory with conservation of indigenous fish species.⁵⁴

So, it is said that the Fisheries Research Institute Ordinance, 1984 Environment Policy, 1992 and Environmental Action Plan, 1992 must be amendment in this regard for preserving aquatic biodiversity in a sustainable ways.

2.2.15 Environment Policy, 1992

Environment policy is a collection of decisions that governs the general aims and objectives of the governing body. It is also a political commitment and it depends upon the existing government bodies. The National Environment Policy has made some sectorial environment policies such as fisheries, agriculture, animal husbandry, forestry etc. Environment includes water, air, soil and physical properties and the inter relationship shall exists among human beings, other living creatures, plants and micro-organism. But the natural resources are unregulated and misuse and the peaceful co-existence of these components should maintain but due to unwise and indiscriminate use of resources creates threat to present resources conservation and development.

⁵⁴ *The Environment Policy, 1992, and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

To deal with derogatory and unwanted situations, the under given legal mechanisms are framed containing a few important provisions in respect of environment.⁵⁵ About 40 years passed since independence though nothing concrete was done yet to formulate a comprehensive fisheries policy.⁵⁶ It is mentionable here that the Environment Policy 1992 has few provisions regarding the conservation of fish and fishery, which are not sufficient enough to meet up the present needs.⁵⁷ It is short-term and temporary policy, which cannot contribute to the development of fishery and in achieving the conservational goal.⁵⁸ These instruments are made with a view to conservation and development of the fisheries environment in Bangladesh such as:

1. Ensure appropriate environment for the conservation and development of fisheries.
2. Prevent activities, which diminish the wetlands or natural habitats of fish and encourage rehabilitative measures in this area.
3. Ensure that development activities in fisheries do not create adverse impact on the mangrove forests and other ecosystems.
4. Evaluate existing projects on water resources development, flood control and irrigation to determine their adverse impact on fisheries and adopt measures for alternate fish culture upon improvement of environmental conditions.⁵⁹

The fisheries policies suggest us to ensure suitable environment for fisheries development. At first, the term environment may be elaborated in this context. The environment of fisheries include all water bodies such as haor, baor, beel, ponds, rivers, khal, nala, channel etc., and it will make suitable to fish and fish species for habitation without any intervention. It will be scientifically proved for the smooth habitation for fisheries resources and the surroundings environment will also be favorable for the fisheries species. But what we see in our environment particularly in the fisheries.

We see that most of our water bodies are at present damaged with due to over population, lack of civic senses, unconsciousness of the people, immorality, uncultured activities, devoid of common sense etc., for which the

⁶⁰ Ibid.

⁵⁶ Ibid.

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Mohiuddin Frooque, S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996). p. 734.

natural resources such as fish and fish species, natural habitats are decreasing day by day. As a result, the present situation creates inconformity with the fisheries policies. Another policy directs to prevent activities, which diminish wetland, but it is notable that the harmful activities for wetland are not banned. Consequently, the wetland becomes diminished day by day. This type of relaxation of laws or policies at present Bangladesh is not suitable for the development and conservation of the wetlands, because, the people of our country are almost 80% illiterate and they don't know the value of wetland conservation. So, laws or policy of wetland should be strictly formulated where there should be of no relaxation. In this regard, the rehabilitative measures are to be encouraged but there are no guidelines for these purposes, which should have to insert to the environment Policy 1992.

The policy indicates to evaluate existing projects on water resources development, which is landmark for the conservation of fisheries environment. Because, it saves the fisheries species from all the hazardous activities such as improper embankments on rivers, channel etc., which discourses the water for which it affects fish breeding. But it is pointed out that there are no modern techniques used for environment conservation, and does not follow environmental impact assessment procedures before made any dam and embankment, which should have to insert in the policy. In this regard, the Bangladesh Environment Conservation Act 1995 directs to apply the Environment Impact Assessment that is known as EIA before undertaking any bridge, embankment etc. In fine, it is mentioned that a few advancement measures are made in fisheries but it is not adequate in the context of Bangladesh. The policy states that the wetland is to be prevented for reduction and activities of the Water Development Board, Flood control measures, irrigation that don't affect the fisheries resources. These provisions along with the laws are not sufficient and its implementation is not properly done.

Dr. Mohiuddin Farooque pointed out that the Environment Policy in 1992 has few provisions regarding the conservation of fish and fish species which are not sufficient enough to meet the needs. The authorities generally formulate policy on short term and temporary basis, which cannot contribute to the development of fisheries and in achieving the conservation goal. The Government should make aware in this regard. Moreover, it is remarkable that the outside structures such as formulated policies, accepted planning, enacted laws, structural administrative formations etc., evidently excellent but its internal ingredients statements such as commitments, planning, enacted laws etc. of the outside of the administrative structures are very nasty.

For the implementation of the policy, it requires strong institutional infrastructures with manpower, logistic supports but it is observed that this kind of institutions have been suffering much for want of earlier stated facilities for which the policies are not properly implemented. The national fisheries policy has been adopted to make the aquaculture and fisheries management activities environment friendly and sustainable. The policy has been formulated aiming at the primary objective of increasing fish production through optimum utilization of the available resources. Employment generation and poverty alleviation resources have also been given importance in fisheries policy.⁶⁰

2.2.16 Environmental Conservation Act, 1995

(Act No.1. of 1995)

An act to provide for conservation of the environment, improvement of environmental standards and control and mitigation of environmental pollution. Where as it is necessary and expedient to provide for conservation of the environment, improvement of the environmental standards and control and mitigation of environmental pollution. It is hereby enacted as follows:

1. Short title and commencement-(1) This Act may be called the Bangladesh Environmental Conservation Act, 1995.

(2) It shall come into force on such date as the Government may, by notification in the official Gazette, specify and it shall be brought into force in different areas on different dates.

2. Definitions- In this Act, unless there is anything contrary in the subject or context.

“Conservation of environment” means improvement of the qualitative and quantitative characteristics of different components of environment as well as prevention of degradation of those components;

“Department” means the department of Environment established under section 3 of this Act;

“Director General” means Director General of the department;

“Ecosystem” means the inter-dependent and balanced complex association of all components of the environment which can support and influence the conservation and growth of all living organisms;

⁶⁰ Mohiuddin Farooque, *Regulatory Regime on Inland Fisheries in Bangladesh: Issues and Remedies*, (Dhaka: Bangladesh Environmental Lawyers Association, 1997), p. 155.

“Environment” means the inter-relationship existing between water, air, soil and physical property and their relationship with human beings, other animals, plants and micro-organisms;

“Environment pollutant” means any solid, liquid or gaseous substance which causes harmful effect to the environment and also includes heat, sound and radiation;

“Hazardous substance” means a substance, the chemical or biochemical properties of which are such that its manufacture, storage, discharge or unregulated transportation can be harmful to the environment;

“Occupier” in relation to any factory or premises, means a person who has control over the affairs of the factory or the premises and in relation to a product, means the person on possession of the product;

“Person” means a person or group of persons, and includes any company, association or corporation, whether incorporated or not;

“Pollution” means the contamination or alteration of the physical, chemical or biological properties of air, water or soil, including change in their temperature, taste, odor, density or any other characteristics or such other activity which, by way of discharging any liquid, gaseous, solid, radioactive or other substances into air, water or soil or any components of the environment destroys or causes injury or harm to public health or to domestic, commercial, industrial, agricultural, recreational, or other useful activity or which by such discharge destroys or causes injury or harm to air, water, soil, livestock, wild animal, bird, fish, plant or other forms of life;

“Rule” means rule made under this Act;

“Use” in relation to any material, means manufacturing, processing, treatment, package, storage, transportation, collection, destruction, conversion, offering for sale, transfer or similar activity relating to such material;

“Waste” means any solid, liquid, gaseous, radioactive, substance, the discharge, disposal and dumping of which may cause harmful change to the environment;

2A. Overriding effect of the Act- Notwithstanding anything contained to the contrary in any other law for the time being in force, the provisions of this Act, rules and directing issued under this Act shall have effect.

3. Department of Environment- (1) The Government shall, for carrying out the purposes of this Act, establish a Department to be called the Department of Environment and headed by a Director General.

(2) The Director General shall be appointed by the Government and the terms and conditions of his service shall also be determined by the Government.

(3) For proper performance of the functions of the Department, necessary officers and employees shall be appointed in the manner and on the terms and conditions prescribed by rules.

4. Power and functions of the Director General- (1) Subject to the provisions of this Act, the Director General may take such measures as he considers necessary and expedient for the conservation of the environment, and improvement of environmental standards, and for the control and mitigation of environmental pollution and he may issue necessary directions in writing to any person for the discharge of his duties under this Act.

(2) In particular and without prejudice to the generally of the foregoing power, such measures may include all or any of the following;

(a) co-ordination with the activities of any authority or agency having relevance to the objectives of this Act;

(b) prevention of probable accidents which may cause environmental degradation and pollution, undertaking safety measures and determination of remedial measures for such accidents and issuance of directions relating there to;

(c) giving advice or as the case may be, issuing directions to the concerned person regarding the environmentally sound use, storage, transportation, import and export of a hazardous substance or its components;

(d) conducting inquiries and undertaking research on conservation, improvement and pollution of the environment and rendering assistance to any other authority or organization regarding those matters;

(e) searching any place, examining any equipment, manufacturing or other processes, ingredients or substance for the purpose of improvement of the environment, and control and mitigation of pollution; and issuance of direction or order to the appropriate authority or person for the prevention, control and mitigation of environmental pollution;

(f) collection and publication of information about environmental pollution;

(g) advising the Government to avoid such manufacturing processes, commodities and substances as are likely to cause environmental pollution;

(h) carrying out programs for observation of the quality of drinking water and preparation of reports thereon, and rendering advice or as the case may be issuing direction to the concerned persons to follow standards for drinking water.

(3) A direction issued under this section may include matters relating to closure prohibition or regulation of any industry, undertaking or processes and the concerned person shall be bound to comply with such direction;

Provided that- (a) the Director General shall, before issuing a direction of closure or prohibition of an industry, undertaking or process, send to the owner or occupier thereof a written notice so that he gets reasonable opportunity to make that industry, undertaking or process environmentally sound; and

(b) where the Director General considers it appropriate, he may also specify in the notice that actions under sub-section (2) of section 4A may be taken if, pursuant to the notice, measures are not taken to make the relevant activities environmentally sound;

Provided further that, if the Director General considers that, due to a particular environmental pollution, the public life is likely to be in danger and that urgent action is necessary, he may immediately issue necessary directions.

(4) A time limit may be specified by the Director General for carrying out a directions issued under this section.

4A. Assistance from law enforcing agencies and other authorises-(1) The Director General or a person authorized by him may, for the purpose of exercising any power or performing any function under this Act, request any law enforcing agency, or any other Government or statutory authority to render necessary assistance, and upon such request that agency or authority shall render the assistance.

(2) Where the Director General issues a direction for closure, prohibition or regulation of an industry, undertaking or process under section 4(3) and the owner or occupier thereof does not comply with the direction, the Director General may direct the provider of electricity, gas, telephone or water or all such services or any other service provided to the industry, undertaking or processes to disconnect the service.

(3) Where a direction is issued under sub-section (2), the concerned person or institution shall be bound to take necessary action as specified in the direction.

5. Declaration of ecologically critical area-(1) If the Government is satisfied that an area is in an environmentally critical situation or is threatened to be in such situation, the Government may, by notification in the official Gazette, declare such area as an ecological area.

(2) The Government shall, in the notification published under sub-section (1) or in a separate notification, specify the activities or processes that cannot be initiated in an ecologically critical area.

6. Restrictions regarding vehicles emitting smoke injurious to environment- (1) A vehicle emitting smoke or gas injurious to health or environment shall not be operated nor shall such vehicles be switched on except for the purpose of test-operation for stopping the emission of such smoke or gas.

(2) For the purposes of sub-section (1), the Director General or any person authorized by him may test any vehicle at any place or may stop a vehicle in motion for testing and instantly test it or detain it for necessary period of or may, if any vehicle violates that sub-section, seize it and other related document or may give necessary direction for testing the vehicle.

(3) A report of the test under sub-section (2) shall be admissible as evidence in the proceedings of a court.

(4) For the violation of sub-section (1) or a direction given under sub-section (2) the driver or as the case may be, the owner or both shall be liable.

6A. Restrictions on manufacture, sale etc. of articles injurious to environment- If, on the advice of the Director General or otherwise, the Government is satisfied that all kinds or any kind of polythene shopping bag or any other article made of polythene or polypropylene or any other article is injurious to the environment, the Government may, by notification in the official Gazette, issue a direction imposing absolute ban on the manufacture, import, marketing, sale, demonstration for sale, stock, distribution, commercial carriage or commercial use, or allow the operation or management of such activities under conditions specified in the notification, and every person shall be bound to comply with such direction;

Provided that such direction shall not be applicable to the following cases-

(a) if the article specified in the notification is exported or used for export;

(b) if the direction mentions that it is not applicable to any particular kind of polythene shopping bag.

Explanation- In this section “polythene shopping bag” means a bag, thonga or other container which is made of polythene or poly propylene or any compound or mixture thereof and is used for purchasing, selling, keeping or carrying another article.

7. Remedial measures for injury to ecosystem- (1) If it appears to the Director General that any act or omission of a person is causing or has caused, directly or indirectly, injury to the ecosystem or to a person or group of persons, the Director General may determine the compensation and direct the firstly mentioned person to pay it and in an appropriate case also direct him to take corrective measures, or may direct the person to take both the measures; and that person shall be bound to comply with the direction.

(2) If a person, to whom a direction under sub-section (1) has been issued, fails to comply with the direction, the Director General may file a suit for compensation in the competent court or file a criminal case for failure to comply with the direction or file both kinds of cases.

(3) For the purposes of determination of compensation or corrective measures under sub-section (1), the Director General may engage any specialist and other persons.

(4) The Government may direct the Director General to take any action under this section and to submit a report thereon.

8. Information to the Director General regarding environmental degradation or pollution- (1) Any person affected or likely to be affected as a result of pollution or degradation of the environment may, in the manner prescribed by rules, apply to the Director General for remedy of the damage or apprehended damage.

(2) The Director General may hold a public hearing and take other measures for disposing of an application made under this section.

9. Discharge of (excessive) environmental pollutant etc. (1) Where, due to an accident or other unforeseen incident, the discharge of any environmental pollutant occurs or is likely to occur in excess of the limit prescribed by the rules, the person responsible and the person in charge of their place of occurrence shall take measures to control or mitigate the environmental pollution.

(2) The persons referred to in sub-section (1) shall immediately inform the Director General of the occurrence or the likelihood of such occurrence as mentioned in that sub-section.

(3) On receipt of information under this section with respect to the accident or other incident the Director General shall take necessary remedial measures to control or mitigate the environmental pollution, and the said person shall be bound to render assistance and co-operation as required by the Director General.

(4) The expenses incurred with respect to remedial measures to control and mitigate the environmental pollution under this section shall be payable to the Director General and may be realized from the persons referred to in sub-section (1) as public demand.

10. Power of entry etc.-(1) Subject to the provisions of this section, any person generally or specially authorized in this behalf by the Director General shall have the right to enter any building or other place at all reasonable times, with such assistance as he considers necessary for the following purposes, namely-

(a) to perform his duties under this Act or rules;

(b) to inspect any activity carried out at such place or building under this Act or rules or a notice, order or direction issued there under;

(c) to test or verify any equipment, industrial plant, record, register, document or any other significant material;

(d) to conduct a search of a building or place if such person has reason to believe that an offence has been committed in that building or place in contravention of this Act or rule or any notice, order or direction issued thereunder;

(e) to seize any equipment, industrial plant, record, register, document or other material that may be used as evidence of the commission of any offence punishable under this Act or rules.

(2) The persons operating any industry, activity or process or the person handling any hazardous substance shall be bound to render all assistance to the said authorized person in discharging his duties under this Act.

(3) The provisions of the code of criminal procedure, 1898 (Act V of 1898) shall be followed in conducting any search and seizure under this section.

11. Power to collect samples etc. (1) A person authorized in this behalf by the Director General may, in the manner prescribed by rules, collect from any factory, premises or other place any sample of air, water, soil or other substance for analysis.

(2) Subject to the provisions of sub-section (3) or (4) as the case may be the report of a sample collector or the report of a laboratory or both the reports shall, in relation to a sample collected under this section, be admissible as evidence in the concerned proceedings.

(3) Subject to the provisions of sub-section (4) the person collecting the sample under sub-section (1) shall- (a) serve, in the manner prescribed by rules, a notice to the occupier of the place or his agent specifying his intention to collect any sample;

(b) collect samples in presence of that occupier or his agent;

(c) place the sample in a container and seal the container after recording signature of himself and of the occupier or his agent on the container;

(d) prepare a report on the collection of the sample and record signatures of himself and of the occupier or his agent;

(e) without delay send the container to the laboratory specified by the director General.

(4) Where, after issuing a notice under clause (a) of sub-section (3) the sample collector collects the sample under sub-section (1) but the occupier or his agent remains absent at the time of collecting sample or being present refuses to put signature on the container of the sample and report, then the collector shall, in the presence of two witness, secure the container by putting his own signature and seal the sample, and without delay send the samples to the laboratory specified by the Director General for analysis and shall state the fact of willful absence of the occupier or his agent or as the case may be of his refusal.

12. Environmental Clearance Certificate- No industrial unit or project shall be established or undertaken without obtaining, in the manner prescribed by rules, an environmental clearance certificate from the Director General.

13. Formulation of environmental guidelines- The government may, by notification in the official Gazette from time to time, formulate and publish environmental guidelines relating to the control and mitigation of environmental pollution, conservation and improvement of the environment.

14. Appeal (1) Any person aggrieved by a notice, order or direction issued under this Act or rules may, within 30 days of from the date of issuance of the notice, order or direction, appeal to the Appellate Authority constituted by the Government and the decision of such authority on the appeal shall be final and shall not be called in question in any court;

Provided that the (appellate) authority may, if it is satisfied that for some unavoidable reason the aggrieved person could not file the appeal within that time, extend the period for filing the appeal by a period not exceeding thirty days.

(2) The Appellate authority constituted under sub-section (1) may consist of one or more members;

Provided that where the Appellate authority consists of more than one member, the Government shall appoint one of the members to be the Chairman of the authority.

(3) An appeal filed under this section shall be disposed of within 3 months from the date of its filing.

15. Penalties- (1) for violation of a provision or for non-compliance of a direction or for the activities specified in the following table, the penalty mentioned against them may be imposed;

TABLE

Sl. No.	Description of offence	Penalty that may be imposed
1	Non-compliance of a direction issued under sub-section(2) or (3) of section (4)	Imprisonment not exceeding 10 years or fine not exceeding 10 lac taka or both.
2	Violation of sub-section (2) by continuing activities or processes or by initiating activities or processes, prohibited under sub-section (1) of section 5 in an area declared as an ecologically critical area	Imprisonment not exceeding 10 years or fine not exceeding 10 lac taka or both.
3	Violation of sub-section (1) of section 6	In case of first offence a fine not exceeding taka 5 thousand ; in case of second offence, a fine not exceeding taka 10 thousand; in case of each subsequent offence, an imprisonment not exceeding 1 year or a fine not exceeding taka 10 thousand or both.

4	If, in violation of a direction issued under sub-section (1) of section 6A, any article specified in the direction is- (a) manufactured, imposed, marketed; (b) sold, exhibited for sale, stocked, distributed, commercially transported or commercially used	(a) Imprisonment not exceeding 10 years or fine not exceeding 10 lac taka or both. (b) Imprisonment not exceeding 6 months or fine not exceeding 10 thousand taka or both.
5	Non-compliance of a direction issued under sub-section (1) of section 7	Imprisonment not exceeding 10 years or fine not exceeding 10 lac taka or both.
6	Violation of sub-section (1) or (2) or failure to take remedial measures in accordance with sub-section (3) of section 9	Imprisonment not exceeding 10 years or fine not exceeding 10 lac taka or both, provided that where a lower penalty is fixed by rules for violation of section 9)1) that penalty shall be applicable.
7	Failure to render, without reasonable excuse, assistance or co-operation to the Director General or a person authorized by him as required by sub-section (2) of section 10	Imprisonment not exceeding 3 years or fine not exceeding 3 lac taka or both.
8	Violation of section 12	Imprisonment not exceeding 3 years or fine not exceeding 3 lac taka or both.
	Violation of any other provision of this Act or a direction issued under the rules or obstructing the Director General or a person authorized by him in discharging his duties or intentionally delaying the discharge of such duty.	Imprisonment not exceeding 3 years or fine not exceeding 3 lac taka or both.

(2) Subject to the other provisions of this section, certain offences and penalties for such offences may be specified in the rules, but the penalty so specified shall not exceed imprisonment for 2 years or a fine of taka 10 thousand or both.

15A. Confiscation of materials and equipments involved in offence- Where a person is found guilty and sentenced under section 15, all equipments or parts thereof, transport, substance or any other thing used in the commission of the offence may be confiscated under order of the court.

15A. Claim for compensation- Where a person or a group of person or the public suffers loss due to violation of a provision of this act or the rules made there under or a direction issued under section 7, the Director General may file a suit for compensation on behalf of that person, group or the public.

16. Offences committed by companies- (1) Where a company violates any provision of this Act or fails to perform in duties in accordance with a notice issued under this Act or the rules or fails to comply with an order or direction, then the owner, director, manager, secretary, or any other officer or agent of the company, shall be deemed to have violated such provision or have failed to perform the duties in accordance with the notice or failed to comply with the order or direction, unless he proves that the violation of or failure was beyond his knowledge or that he exercised due diligence to prevent such violation or failure.

Explanation- For the purposes of this section-(a) “company” means any statutory public authority, registered company, partnership firm, and association or organization,

(b) direction in relation to a commercial establishment, also includes any partner or member of the board of directors.

(2) Where a company mentioned in sub-section (1) is a body corporate, such company, apart from any person charged and convicted under that sub-section, may also be charged and convicted under that sub-section in the same proceedings, but the penalty of fine only may be imposed on such company in a criminal proceedings.

17. Cognizance of offence and claim for compensation- No court shall take cognizance of an offence or receive any suit for compensation under this Act except on the written report of an Inspector of the Department or any other person authorized by the Director General.

Provided that if the competent court is satisfied that a person presented a written request to the said Inspector or authorized person to accept a complaint about an offence or a claim for compensation and no action was taken within 60 days after such request, and that the complain or claim deserves to be taken into cognizance for the purpose of trial, then the court may, after giving the Inspector or the authorized person or the Director General a reasonable opportunity of being heard, directly receive the complaint or claim for compensation without such written report, or may, if it considers appropriate, direct the said Inspector or the authorized person to investigate the offence or claim.

18. Action taken in good faith- No civil or criminal case or other legal proceeding may be instituted against the Government, Director General or any other person of the Department for any action which caused or is likely to cause injury to any person, if such action is taken in good faith under this Act or rules.

19. Delegation of Power-(1) The Government may delegate to the Director General or any other officer any of its powers under this Act or rules.

(2) The Director General may delegate to any other officer of the Department any of this powers under this Act or rules.

20. Power to make rules-(1) The Government may, by notification in the official Gazette, make rules for carrying out the purposes of this Act.

(2) In particular and without prejudice to the generality of the foregoing power, such rules may provide for all or any of the following matters:

(a) determination of the standards of air, water, sound, soil and other components of the environment in relation to different areas for different purposes;

Provided that the Government may, by notification in the official Gazette, for a specified period suspend the application of such standard, generally or individually, in respect of industries or projects existing at the time of commencement of this Act;

(b) regulation of the establishment of industries and other development activities for conservation of environment;

(c) determination of safe procedures for the use, storage and transportation of hazardous substances;

(d) determination of safety and remedial measures for prevention of accidents which may cause pollution of the environment;

(e) determination of the standards for effluent and discharger;

(f) procedures for assessment of the environmental impact of various projects and activities and procedures for their review and approval;

(g) procedures for protection of the environment and ecosystem;

(h) determination of fees for obtaining environmental clearance certificate and other services.

21. Repeal and saving-(1) The environment pollution control ordinance, 1977 (Act XIII of 1977) is hereby repealed.

(2) Notwithstanding such repeal, anything done or any action taken under the repealed ordinance shall be deemed to have been done under the provisions of this Act.

(3) The department of Environment existing before the commencement of this Act shall be deemed to have been established under section 3, and the Director General and other officers and employees of that Department shall be deemed to have been appointed under this Act.⁶¹

The Bangladesh Environmental Conservation Act, 1995 is a remarkable in our environment development and conservation in Bangladesh. Because it is an integrated environmental law covering all sectors such as fisheries, agriculture, forestry, livestock, land use and development, pollution, biodiversity conservation and ecosystem development etc.

Sub-section 5 of section 6 stated that there is no wetland filling up or could not change its size in any way.

In that case, unavoidable national interest could be relaxed about wetland laws and policies under the certificate of environment department. Section 18 says no prosecution or other legal proceedings shall against the government, Director General, or any employee of this department for anything done or intend against environment to be done in good faith.

Sub-section 5 of section 6 stated that any wetland filling up or changes its size in any way for the National Interest under the certificate of environment department. It is a great threat to the environment especially aquatic biodiversity. Because, if anybody fill up wetland for the National Interest that it will directly affect the fish habitat. In that case the employee of Department of Environment gives environmental certificate dishonestly.

Section 18 says that no legal proceedings shall lie against the Government, Director General, or employee of this Department, whatever they do for. This provision may create anarchy in this department resulting encourage to do malpractice, which could result damages of fish and fish species, fish habitats and fish stock. Because, the Director General or employee may intend to conduct to give environmental certificate that might cause degradation of fish species, biodiversity and ecology. In one hand, through this provision, they can give permission to fill up any fish habitat, which is very important for indigenous fish breeding, on their good faith. On the other hand, this provision may make some employees dishonest.

⁶¹ Mohiuddin Frooque, S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), p. 720.

The Bangladesh Environmental Conservation Act 1995 and Environment Policy and Environmental Action Plan 1992

Sub-section 5 of section 6 of Environmental Conservation Act, 1995 permits to fill up wetland or change its size for national interest but Government Jalmaal Management Policy 2009 strictly prohibits any kind of filling or change in size of any wetland that very conflicting policy issues regarding wetland.⁶²

Moreover, in Environment Policy, 1992 sub-section 2 of section 3.8 prevents activities, which diminish the wetlands or natural habitats of fish and encourage rehabilitative measures in this area. And Environmental Action Plan, 1992 section, 8 sub-sections 1 instructs to take necessary steps to rehabilitate wetlands such as haors, baors, and beels and declare them as protected areas for fishery. Wetland areas will not be encroached upon.⁶³

It is said that Environmental Conservation Act, 1995 and Jalmaal Management Policy, 2009 to permit filling up wetland which causes to degrade fish habitat. On other hand Environment Policy, 1992 and Environmental Action Plan, 1992 do not permit damage any wetland. In that case, Environmental Conservation Act, 1995 and Jalmaal Management Policy, 2009 is conflicting with Environment Policy, 1992 and Environmental Action Plan, 1992.

2.2.17 Jalmaal Management Policy, 2009

জলমহাল ব্যবস্থাপনা নীতি- ২০০৯

ইং ভূঃমঃ/শা-৭/বিবিধ(জল)/০২/২০০৯-১৯১ দেশের খাস জলাশয় ও জলমহালসমূহ প্রকৃত মৎস্যজীবীদেও অনুকূলে বন্দোবস্ত প্রদানে অধাধিকার দেয়া এবং রাজস্ব আয়ের পাশাপাশি মৎস্য সম্পদ সংরক্ষণ ও উৎপাদন বৃদ্ধিসহ জীববৈচিত্র সংরক্ষণ করার লক্ষ্যে সরকার জনস্বার্থে সরকারি জলমহাল ব্যবস্থাপনা নীতি ২০০৯ প্রণয়ন করেছেন।

২. প্রকৃত মৎস্যজীবী, মৎস্যজীবীদেও সংগঠন, জলমহাল এর সংজ্ঞাঃ

(ক) যিনি প্রাকৃতিক উৎস হতে মাছ শিকার এবং বিক্রয় করেই প্রধানতঃ জীবিকা নির্বাহ করেন তিনি প্রকৃত মৎস্যজীবী বলে গণ্য হবেন।

(খ) প্রকৃত মৎস্যজীবীদেও সংগঠন স্থানীয় পর্যায়ে সমবায় অধিদপ্তর বা সমাজসেবা অধিদপ্তরে নিবন্ধিত হলে স্থানীয় জলমহাল ব্যবস্থাপনা বা ইজারায় অংশগ্রহণ করতে পারবেন। তবে কোন সমিতিতে যদি এমন কোন সদস্য থাকেন যিনি প্রকৃত মৎস্যজীবী নহেন, তবে সে সমিতি কোন সরকারি জলমহাল বন্দোবস্ত পাওয়ার যোগ্য হবে না। কোন ব্যক্তি বা কোন অনিবন্ধিত সমিতি সরকারি জলমহাল ব্যবস্থাপনায় আবেদন করতে পারবেন না।

⁶² *Jalmaal management policy, 2009*, Ministry of land, Peoples Republic of Bangladesh.

⁶³ *The Environment Policy, 1992, and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

(গ) জলমহাল এমন জলাশয়কে বুঝাবে যেখানে বছরের একটি সময় বা সারা বছর জলমগ্ন থাকে এবং যা হাওর, বাওর, বিল, ঝিল, পুকুর, ডোবা, হ্রদ, ধীঘি, খাল, নদী, সাগর, ইত্যাদি নামে পরিচিত। এমন জলমহাল বদ্ধ বা উন্মুক্ত হতে পারে। বদ্ধ জলমহালের নির্দিষ্ট চতুঃসীমা থাকবে এবং উন্মুক্ত জলমহালের ক্ষেত্রে কোন নির্দিষ্ট চতুঃসীমা থাকবে না।

৩. সমঝোতা স্মারকের মাধ্যমে বিভিন্ন মন্ত্রণালয়ে হস্তান্তরিত জলমহালঃ

(ক) সমঝোতা স্মারকের ভিত্তিতে যে সকল জলমহাল মৎস্য ও পশুসম্পদ মন্ত্রণালয়, স্থানীয় সরকার, পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়, পরিবেশ ও বন মন্ত্রণালয়সহ অন্যান্য মন্ত্রণালয়ে ন্যস্ত করা হয়েছে এবং পরবর্তীতে ন্যস্ত করা হবে সে সকল জলমহালের ব্যবস্থাপনা সমঝোতা স্মারকের আলোকে এবং প্রকল্প পরিকল্পনা অনুযায়ী সংশ্লিষ্ট মন্ত্রণালয় প্রকল্প ব্যবস্থাপনা করবেন। তবে কোন সমঝোতা স্মারকের মেয়াদ শেষ হলে এবং নবায়ন করা না হলে তা ভূমি মন্ত্রণালয়ের কাছে ন্যস্ত হবে এবং ভূমি মন্ত্রণালয় বিধি মোতাবেক উক্ত জলমহাল ব্যবস্থাপনা করবেন। ন্যস্তকৃত এ সকল জলমহালের বার্ষিক ইজারামূল্য/রাজস্ব/আয় প্রতি বছর সংশ্লিষ্ট প্রকল্প পরিচালক/ সংশ্লিষ্ট কর্মকর্তা ৩০ চৈত্রের মদ্যে সরকারের জলমহাল ও পুকুর ইজারা ১/৪৬৩১/০০০০/১২৬১ কোডে জমা প্রদান করবেন। প্রকল্প পরিচালক/ সংশ্লিষ্ট কর্মকর্তা জমাকৃত অর্থেও বিবরণ সংশ্লিষ্ট মন্ত্রণালয় এবং ভূমি মন্ত্রণালয়ে ৩০ বৈশাখের মধ্যে প্রেরণ করবেন এবং সংশ্লিষ্ট জেলা প্রশাসক ও উপঝোলা নির্বাহী অফিসারের নিকট অনুলিপি দিবেন।

(খ) বিভিন্ন মন্ত্রণালয়ে হস্তান্তরিত জলমহাল ব্যবস্থাপনার ক্ষেত্রে যাতে প্রকৃত মৎস্যজীবী বা মৎস্যজীবীদেও সংগঠন অংশগ্রহণ করতে পারেন সেদিকে সংশ্লিষ্ট মন্ত্রণালয়/বিভাগ/অধিদপ্তর/দপ্তরসমূহ প্রয়োজনীয় ব্যবস্থা নিবেন।

(গ) বিভিন্ন প্রকল্পের আওতায় সংশ্লিষ্ট মন্ত্রণালয়/প্রকল্পে ন্যস্তকৃত জলমহালগুলি প্রকল্প প্রশ্রবনা অনুসারে যথাযথভাবে উন্নয়ন কার্যক্রম গৃহীত হচ্ছে কিনা এবং সংশ্লিষ্ট মৎস্যজীবীদের দারিদ্র বিমোচন, আর্থ-সামাজিক উন্নয়ন ও মৎস্য সম্পদ বৃদ্ধিতে জলমহালগুলির ব্যবস্থাপনা সরেজমিনে পরিদর্শন ও মূল্যায়ন করে সংশ্লিষ্ট জেলা জলমহাল ব্যবস্থাপনা কমিটি প্রতি বছর ৩০ চৈত্রের মধ্যে একটি মূল্যায়ন প্রতিবেদন ভূমি মন্ত্রণালয়ে প্রেরণ করবেন। জেলা কমিটির মূল্যায়নের ভিত্তিতে পরপর দু'বছর যুক্তিসংগত কারণ ব্যতীত কোন প্রকল্পভুক্ত জলমহাল কাঙ্ক্ষিত লক্ষ্যমাত্রা অর্জনে ব্যর্থ হলে উক্ত প্রকল্পভুক্ত সংশ্লিষ্ট জলমহাল ভূমি মন্ত্রণালয়ে প্রত্যাৰ্পিত হবে এবং ভূমি মন্ত্রণালয় বিধি মোতাবেক উক্ত জলমহাল ব্যবস্থাপনা করবেন।

(ঘ) প্রকল্পভুক্ত কোন জলমহাল বর্ণিত প্রকল্প প্রশ্রব অনুযায়ী উন্নয়ন কার্যক্রমসহ মৎস্যজীবীদেও দারিদ্র বিমোচন ও আর্থ-সামাজিক উন্নয়ন এবং মৎস্য সম্পদ বৃদ্ধিতে যদি কাঙ্ক্ষিত সুফল দিতে না পাও, তবে জেলা জলমহাল ব্যবস্থাপনা কমিটি কারণ ব্যাখ্যা কও উক্ত জলমহালের ইজারা বাতিলের জন্য বিভাগীয় কমিশনের মাধ্যমে ভূমি মন্ত্রণালয়ে প্রশ্রব প্রেরণ করতে পারবেন এবং ভূমি মন্ত্রণালয় কর্তৃক তা অনুমোদনের পর ভূমি মন্ত্রণালয় বিধি মোতাবেক উক্ত জলমহাল ব্যবস্থাপনা করবেন।

(ঙ) প্রকল্পভুক্ত কিংবা প্রকল্প বর্হিভূত কোন জলমহাল প্রাকৃতিক কারণে ভরাঠ হয়ে সংকুচিত হলে কিংবা মৎস্য ধারণ ক্ষমতা হ্রাস পেতে থাকলে জেলা জলমহাল ব্যবস্থাপনা কমিটি প্রয়োজনীয় খননের ব্যবস্থা গ্রহণের জন্য সুপারিশ পেরণ করতে পারবেন।

৪. ২০ একর পর্যন্ত বদ্ধ সরকারি জলমহাল ব্যবস্থাপনাঃ

যুব সমাজের আত্ম-কর্মসংস্থান সৃষ্টির লক্ষ্যে ২০ একর পর্যন্ত সকল বদ্ধ সরকারি জলাশয়সমূহ যুব সম্প্রদায়ের মধ্যে ইজারা প্রদানের জন্য ইতোপূর্বে যুব ও ক্রীড়া মন্ত্রণালয়ে ন্যস্ত করা হয়েছিল, তা আর অব্যাহত থাকবে না। ২০ একর পর্যন্ত সকল বদ্ধ সরকারি জলমহালসমূহ ইজারার মেয়াদ শেষ হলে অন্যান্য জলমহালের মত ইজারা বন্দোবস্ত প্রদান করা হবে, তবে এক্ষেত্রে যুব মৎস্যজীবীদেও ১১৮-৩৫ বৎসর পর্যন্ত) নিবন্ধিত সমিতি অধাধিকার পাবে।

৫. জেলা জলমহাল ব্যবস্থাপনা কমিটি কর্তৃক ২০ একরের উর্দে বন্ধ সরকারি জলমহাল ব্যবস্থাপনাঃ

'জাল যার জরা তার' এই নীতির আলোকে প্রকৃত মৎস্যজীবীদেও অনুকূলে জলমহাল ব্যবস্থাপনা প্রদানের লক্ষ্যে নিম্নোক্ত পদ্ধতি অনুসরণীয় হবেঃ

(১) নির্দিষ্ট জলমহালের নিকটবর্তী বা তীরবর্তী প্রকৃত মৎস্যজীবীদের সমিতি যা সমবায় অধিদপ্তরে নিবন্ধিত, সে সমিতি বা সমিতিসমূহ নির্দিষ্ট বা তীরবর্তী জলমহাল ব্যবস্থাপনার জন্য আবেদন করতে পারবেন, কোন ব্যক্তি বা অনিবন্ধিত সংগঠন আবেদন করতে পারবেন না।

শর্ত থাকে যে, উক্ত সমিতিতে প্রকৃত মৎস্যজীবী ব্যতীত অন্য কোন সদস্য থাকলে বা কার্যনির্বাহী কমিটিতে যদি এমন কোন সদস্য থাকেন যিনি প্রকৃত মৎস্যজীবী নহেন, তাহলে উক্ত সমিতি আবেদনের যোগ্য হবেন না।

আরো শর্ত থাকে যে, প্রকৃত মৎস্যজীবীদেও সমিতি যারা সমাজসেবা অধিদপ্তরে নিবন্ধিত, যেখানে প্রকৃত মৎস্যজীবী ছাড়া অন্য কোন সদস্য নেই, তারাও আবেদনে অংশ গ্রহণের জন্য উপযুক্ত বিবেচিত হবেন।

আরো শর্ত থাকে যে, আবেদনকারী সমবায় সমিতি বা অন্য কোন সমিতি, বর্তমানে কার্যকর আছে তার প্রমাণস্বরূপ জেলা বা উপজেলা সমবায় কর্মকর্তা/সমাজসেবা কর্মকর্তা কর্তৃক প্রত্যয়ন পত্র দাখিল করবেন ও বিগত দুই বছরের অডিট রিপোর্ট দাখিল করবেন। তবে নতুন নিবন্ধনকৃত মৎস্যজীবীদেও সমবায় সমিতির ক্ষেত্রে এ ধরনের প্রমাণের দরকার হবে না।

(২) নির্দিষ্ট ফরমে (পরিশিষ্ট-ক) আবেদনপত্র দাখিলের সময় প্রকৃত মৎস্যজীবী সমবায় সমিতি/সমিতি তাতেও সদস্যদেও নামের তালিকা (ঠিকানা সহ) এবং নির্বাহী সদস্যদেও নামের তালিকা (ঠিকানা সহ) সংযুক্ত করবেন এবং একইসাথে তার অনুলিপি উপজেলা জলমহাল ব্যবস্থাপনা কমিটির নিকট দাখিল করবেন।

(৩) উপজেলা জলমহাল ব্যবস্থাপনা কমিটি স্থানীয়ভাবে অনুসন্ধানের মাধ্যমে বা পরবর্তীতে জরিপ কার্যক্রম সম্পন্ন হয়ে থাকলে জরিপের মাধ্যমে উপজেলাধীন জলমহাল সমূহের পার্শ্ববর্তী এলাকায়/খামে/খীণ্ডে বসবাসকারী এই নীতিতে প্রদত্ত সংজ্ঞা অনুযায়ী আবেদনকারী সমিতির সদস্যদের তালিকা যাচাই করবেন। যদি যাচাই করে দেখা যায় যে, সমিতির দেয়া তালিকায় সকলে প্রকৃত মৎস্যজীবী তাহলে উপজেলা ব্যবস্থাপনা কমিটির পক্ষে উপজেলা মৎস্য কর্মকর্তা জেলা জলমহাল ব্যবস্থাপনা কমিটির বিবেচনার জন্য প্রত্যয়ন পত্র দিবেন বা প্রকৃত মৎস্যজীবী না হলে তা চিহ্নিত করে দিবেন।

(৪)(ক) ২০ একরের উর্দে সরকারি জলমহালসমূহ ভূমি মন্ত্রণালয়ের পক্ষে জেলা জলমহাল ব্যবস্থাপনা কমিটি আলাপ আলোচনা তথা সমজোতার ভিত্তিতে ০৩ বছর মেয়াদে স্থানীয়ভাবে নিবন্ধিত প্রকৃত মৎস্যজীবী সংগঠন/ সমিতিকে বন্দোবস্ত প্রদান করবেন।

(খ) জেলাপ্রশাসক প্রতি বছর মাঘ মাসে বন্দোবস্ত যোগ্য জলমহালগুলোর তালিকা (তফসিলসহ) তৈরি কওে সর্বসাধারণের অবগতির জন্য সংশ্লিষ্ট অফিসের নোটিশ বোর্ডে টাঙ্গিয়ে দিবেন। প্রতিটি জলমহালের বিগত ৩ বছরের ইজারা মূল্যেও গড় নির্ধারণ করে এর উপর ৫% বর্ধিত হারে ইজারা মূল্য ধার্য করে সরকারি ইজারা মূল্য নির্ধারিত হবে এবং এর কম মূল্যে কোন সরকারি জলমহাল ইজারা দেয়া যাবে না। যদি গত ৩ বছরের ইজারা মূল্য না পাওয়া যায় তবে নিয়ম মোতাবেক জেলা প্রশাসক উক্ত জলমহালের/জলমহালসমূহের সরকারি মূল্য নির্ধারণ করবেন।

(গ) জেলা প্রশাসক নিবন্ধিত প্রকৃত মৎস্যজীবী সমিতির নিকট জলমহাল এন্ডাবস্ত দেয়ার লক্ষ্যে আবেদন আহবান করে বিজ্ঞপ্তি একটি দৈনিক পত্রিকায়, জেলা প্রশাসনের ওয়েবসাইটে ও নোটিশ বোর্ড প্রকাশ করবেন। আবেদন আহবানের ১০ কার্যদিবসের মধ্যে জেলা প্রশাসকের কার্যালয়ের নির্দিষ্ট ফরমে(পরিশিষ্ট ক) আবেদন পত্র জমা প্রদান করতে হবে। প্রকাশিত বিজ্ঞপ্তিতে সংশ্লিষ্ট জলমহালের নিকটবর্তী/তীরবর্তী নিবন্ধিত মৎস্যজীবী সংগঠন/সমিতিগুলো প্রয়োজনীয় যোগ্যতা সাপেক্ষে অগ্রাধিকার পাবে বলে উল্লেখ থাকবে।

(ঘ) এই নীতিতে উল্লিখিত সংজ্ঞা ও যোগ্যতা অনুযায়ী অগ্রহী নিবন্ধিত প্রকৃত মৎস্যজীবী সমবায় সমিতি বা সমিতিতে জেলা/উপজেলা জলমহাল ব্যবস্থাপনা কমিটির সদস্য সচিবের সীল সম্বলিত স্বাক্ষরসহ নির্দিষ্ট ফরমে (পরিশিষ্ট-ক) আবেদন করতে হবে। আবেদন পত্রের সাথে সংগঠন/সমিতির নির্বাচিত কমিটি, গঠনতন্ত্রের কপি, ব্যাংক একাউন্টের লেনদেন সংক্রান্ত প্রত্যয়নপত্রসহ প্রয়োজনীয় তথ্য ও সত্যায়িতছবি সংযোজন করতে হবে। এছাড়া সংশ্লিষ্ট মৎস্যজীবী সংগঠন/সমিতি ৩ বছর মেয়াদী লীজ পাওয়ার লক্ষে সংশ্লিষ্ট জলমহাল এর মৎস্য চাষ/উৎপাদন/সুষ্ঠ ব্যবস্থাপনার পরিকল্পনা/বুপরেখা সংযুক্ত করতে হবে। আবেদন অসম্পূর্ণ থাকলে তা বাথিল যোগ্য হবে।

(ঙ) আবেদনকারী কোন মৎস্যজীবী সংগঠন/সমিতিতে যদি এমন কোন সদস্য থাকেন যিনি প্রকৃত মৎস্যজীবী নহেন তাহলে উক্ত জলমহাল বন্দোবস্তের অযোগ্য বিবেচিত হবে। এছাড়া আবেদনকারী মৎস্যজীবী সংগঠন/সমিতি যেগুলো বর্তমানে কার্যকর আছে তার প্রমাণস্বরূপ জেলা/উপজেলা সমবায়/সমাজসেবা কর্মকর্তা(যেখানে যা প্রযোজ্য) কর্তৃক প্রত্যয়ন পত্র আবেদন পত্রের সাথে দাখিল করবেন এবং সাথে বিগত ০৩ বছরের অডিট রিপোর্ট দাখিল করতে হবে। তবে নতুন সংগঠনের/সমিতির জন্য অডিট রিপোর্টের প্রয়োজন হবে না।

(চ) স্থানীয় প্রকৃত মৎস্যজীবী সংগঠনগুলোর মধ্যে যে সংগঠন/সমিতি সংশ্লিষ্ট জলমহালের নিকটবর্তী/তীরবর্তী, সে সকল প্রকৃত মৎস্যজীবী সংগঠনকে সংশ্লিষ্ট জলমহাল বন্দোবস্ত প্রদান করতে হবে। যদি সংশ্লিষ্ট জলমহালের নিকটবর্তী প্রকৃত মৎস্যজীবী সংগঠন পাওয়া না যায় তাহলে সেক্ষেত্রে অন্যান্য পার্শ্ববর্তী উপজেলা/জেলা মৎস্যজীবী সংগঠন/সমিতিতে জলমহাল বন্দোবস্ত প্রদানের বিষয় বিবেচনা করা যাবে।

(ছ) মৎস্যজীবী সংগঠন/সমিতিতে যাচাই বাছাই এর ক্ষেত্রে সংগঠন/সমিতি এর কোন জঙ্গি সম্পৃক্ততা থাকলে এবং পূর্বেও কোন জলমহালের ইজারা মূল্য রিশোধে খেলাপী হয়ে থাকলে অথবা জলমহাল সংক্রান্ত কোন সার্টিফিকেট মামলা কিংবা অন্য কোন আদালতে কোন মামলা থাকলে সংশ্লিষ্ট সংগঠন/সমিতিতে উক্ত জলমহাল বন্দোবস্ত প্রদান করা যাবে না।

(জ) জেলা প্রশাসক কর্তৃক বিজ্ঞপ্তিতে অস্বীকৃত সংশ্লিষ্ট জলমহালের ইজারা মূল্যের ২০% ব্যাংক ড্রাফট/পে-অর্ডার জামানত হিসাবে আবেদনকারী তাঁর আবেদনের সাথে দাখিল করবেন। লীজপ্রাপ্ত সমিতির শেষ বছরের লীজমানির সাথে উক্ত টাকা সমন্বয় করা হবে। লীজপ্রাপ্ত হয়নি এমন সমিতির ব্যাংক ড্রাফট/পে-অর্ডার ফেরৎ প্রদান করা হবে।

(ঝ) জমাকৃত আবেদনপত্র জেলা প্রশাসক যাচাই বাছাই করবেন এবং জেলা জলমহাল ব্যবস্থাপনা কমিটির সভায় উপস্থাপন করবেন। জেলা কমিটি উক্ত আবেদনপত্রগুলোর বিষয়ে যাবতীয় দিক পর্যালোচনা করে যোগ্য মৎস্যজীবীসংগঠন/সমিতির তালিকা অনুমোদন করবেন। জলমহাল ব্যবস্থাপনা নীতি, ২০০৯ এর যাবতীয় শর্ত বিবেচনা করে আলাপ আলোচনার ভিত্তিতে সংশ্লিষ্ট জলমহালের জন্য যদি একটি মাত্র উপযুক্ত মৎস্যজীবী সংগঠন/সমিতি পাওয়া যায় তাহলে সে সংগঠন/সমিতির নামে বন্দোবস্ত প্রদানের সিদ্ধান্ত গ্রহণ করবেন। তবে একাধিক সংগঠন/সমিতি যদি একই পদ্ধতিতে উপযুক্ত বিবেচিত হয় তাহলে জেলা জলমহাল ব্যবস্থাপনা কমিটি আলাপ আরোচনার মাধ্যমে একটি প্রকৃত নিবন্ধিত মৎস্যজীবী সংগঠন/সমিতিতে সংশ্লিষ্ট জলমহাল বন্দোবস্ত প্রদান করতে পারবেন।

(ঞ) সময়মত লীজমানি পরিশোধ না করা, তথ্য গোপন করা কিংবা অন্য কোন অনিয়মের কারণে কোন জলমহালের লীজ বাতিল করা হলে ঝেলা জলমহাল ব্যবস্থাপনা কমিটি উক্ত জলমহাল পনরায় যতানিয়মে লীজ প্রদানের ব্যবস্থা গ্রহণ করবেন।

(ট) কোন কারণে কোন জলমহাল বন্দোবস্ত প্রদান করা না গেলে জেলা প্রশাসক খাস কালেকশনের মাধ্যমে উক্ত জলমহাল ব্যবস্থাপনা করবেন।

(ঠ) বন্দোবস্ত গ্রহীতা সংশ্লিষ্ট জলমহালের বছর ভিত্তিক উন্নয়ন কার্যক্রম সম্বলিত তথ্য জেলা প্রশাসকের অবগতির জন্য পেশ করবেন। তাছাড়া জেলা/উপজেলা জলমহাল ব্যবস্থাপনা কমিটি/জেলা প্রশাসক/উপজেলা নির্বাহী অফিসার সময়ে সময়ে জলমহালগুলোরব্যবস্থাপনা সরেজমিনে পরিদর্শন করবেন এবং কোন অনিয়ম পরিলক্ষিত হলে আইন/বিধিগত ব্যবস্থা গ্রহণ করবেন।

(ড) জেলা প্রশাসক/উপজেলা নির্বাহী অফিসারের কার্যালয় থেকে জলমহাল বন্দোবস্ত প্রদানের জন্য আবেদন ফরম (পরিশিষ্ট-ক) যার মূল্য হবে ৫০০/- (পাঁচশত- টাকা যা অফেরতযোগ্য হবে এবং এই অর্থ সরকারি নির্দিষ্ট কোডে (জলমহাল ও পুকুর ইজারা ১/৪৬৩১/০০০০/১২৬১) জমা করতে হবে।

(ঢ) লীজ গ্রহীতা কোন মৎস্যজীবী সংগঠন/সমিতি তাদেও নামে লীজকৃত জলমহাল কোন অবস্থাতেই সাবলীজ অথবা অন্য কোন ব্যক্তি/গোষ্ঠীকে হস্তান্তর করতে পারবে না এবং অন্য কোন উপায়ে তা ব্যবহার করতে পারবে না। যদি তা করে থাকে, তাহলে জেলা প্রশাসক উক্ত লীজ বাতিল করে দিবেন এবং জমাকৃত লীজমানি সরকারের অনুকূলে বাজেয়াপ্ত করবেন। উক্ত লীজ গ্রহীতা মৎস্যজীবী সংগঠন/সমিতি পরবর্তী বছর জলমহাল বন্দোবস্ত সংক্রান্ত কোন আবেদন করতে পারবেন না।

(ঢে) কোন মৎস্যজীবী সমবায় সমিতি/সংগঠন/সমিতি দটির অধিক জলমহাল ইজারা/বন্দোবস্ত পাবে না।

(ডে) ভূমি মন্ত্রণালয়ের ব্যবস্থায়ীন ২০ (বিশ) একরের উর্দে বন্ধ জলমহাল ইজারা/ বন্দোবস্ত প্রদানের জন্য নিম্নরূপ জেলা জলমহাল ব্যবস্থাপনা কমিটি থাকবেঃ

(ক)	জেলা প্রশাসক	: সভাপতি
(খ)	পুলিশ সুপার	: সদস্য
(গ)	অতিরিক্ত জেলা প্রশাসক	: সদস্য
(ঘ)	জেলা মৎস্য কর্মকর্তা	: সদস্য
(ঙ)	জেলা সমবায় কর্মকর্তা	: সদস্য
(চ)	উপ-পরিচালক, কৃষি সম্প্রসারণ অধিদপ্তর	: সদস্য
(ছ)	নির্বাহী প্রকৌশলী, পানি উন্নয়ন বোর্ড	: সদস্য
(জ)	উপ-পরিচালক সমাজসেবা অধিদপ্তর	: সদস্য
(ঝ)	বিভাগীয় বন সংরক্ষক/সহকারী বন সংরক্ষক	: সদস্য
(ঞ)	সংশ্লিষ্ট উপজেলা নির্বাহী অফিসার	: সদস্য
(ট)	জেলা মহিলা বিষয়ক কর্মকর্তা	: সদস্য
(ঠ)	অনুমোদিত মৎস্যজীবী সংগঠনের দুইজন প্রতিনিধি	: সদস্য
(ড)	কৃষি সংগঠনের একজন প্রতিনিধি	: সদস্য
(ঢ)	নারী সংগঠনের একজন প্রতিনিধি	: সদস্য
(ণ)	রেভিনিউ ডেপুটি কালেক্টর	: সদস্য সচিব

সভাপতিসহ ন্যূনতম পাঁচ সদস্য নিয়ে জেলা জলমহাল ব্যবস্থাপনা কমিটির কোরাম গঠিত হবে। এই সভায় সরকারি কর্মকর্তাদেও ক্ষেত্রে কোন প্রতিনিধি বিবেচিত হবে না। আন্ডজেলা জলমহালের ক্ষেত্রে সংশ্লিষ্ট বিভাগীয় কমিশনারের নির্দেশে তাঁর অধীনস্থ যে কোন অতিরিক্ত বিভাগীয় কমিশনার জেলা প্রশাসকের ষ্ঠলে কমিটির সভাপতি হবেন এবং সংশ্লিষ্ট জেলা সমূহের জেলা প্রশাসকগণ জলমহাল ব্যবস্থাপনা কমিটির সদস্য থাকবেন। আন্ডজেলা জলমহালের ক্ষেত্রে উক্ত জলমহালের অবস্থানে যে জেরায় অধিক হবে সে বোরার উপে উল্লিখিত সকলকে সদস্য এবং রেভিনিউ ডেপুটি কালেক্টরকে সদস্য সচিব কেও বিভাগীয় কমিশনার আন্ডজেলা জলমহাল ব্যবস্থাপনা কমিটি গঠন করবেন। জেলা জলমহাল ব্যবস্থা কমিটি মাঝে মাঝে সভা কেও প্রকৃত মৎস্যজীবীদেও অনুকূলে সকল জলমহাল ইজারা দেয়া রয়েছে তা পরিবীক্ষণ করবেন ও প্রয়োজনীয় সহায়তা দিবেন।

(৭) সংশ্লিষ্ট নির্বচনী এলাকার মাননীয় সঙসদ সদস্যগণ জেলা জলমহাল ব্যবস্থাপনা কমিটির উপদেষ্টা থাকবেন।

(৮) প্রতি বছর ইজারায়োগ্য জলমহালের তালিকা তৈরি কেও জেলা প্রশাসকগণ প্রতি বছরের ১ মাঘ হতে জলমহাল ইজারা প্রদানের লক্ষ্যে আবেদন আহবান করবেন।

(৯) ইজারা বিজ্ঞপ্তিতে নতুন জলমহালের অন্ডর্ভুক্তি, কোন জলমহাল বিলুপ্তি এবং কোন জলমহালের আয়তন হ্রাস/বৃদ্ধি ও তফসীল পরিবর্তনের ক্ষেত্রে বিজ্ঞপ্তি প্রদানের পূর্বে জেলা প্রশাসকগণ বিভাগীয় কমিশনারের অনুমতি গ্রহণ করবেন।

(১০) জেলা জলমহাল ব্যবস্থাপনা কমিটির সিদ্ধান্তের প্রেক্ষিতে ১০,০০,০০০/- (দশ লক্ষ) টাকা মূল্যমানের জলমহালসমূহের বন্দোবস্তের প্রসব জেলা প্রমাসক অনুমোদন করবেন। জেলা জলমহাল ব্যবস্থাপনা কমিটির সিদ্ধান্তের বিরুদ্ধে কোন সমবায় সমিতি/ সমিতি সংস্কর হলে ও জামানতের অর্থ ফেরত না নিয়ে থাকলে উক্ত সিদ্ধান্তের ৭ (সাত) কর্মদিবসের মধ্যে সংশ্লিষ্ট বিভাগীয় কমিশনারের নিকট আপিল দায়ের করতে পারবেন এবং বিবাগীয় কমিশনার ৭ (সাত) কর্মদিবসের মধ্যে আপিল নিষ্পত্তি করতে পারবেন। বিভাগীয় কমিশনারের সিদ্ধান্তের বিরুদ্ধে সর্বশেষ ধাপ হিসাবে সিদ্ধান্তেও ৭(সাত) কর্মদিবসের মধ্যে ভূমি আপিল বোর্ডেও নিকট আপিল দায়ের করা যাবে এবং ভূমি আপিল বোর্ড ১৫ (পনের) কর্মদিবসের মধ্যে চূড়ান্তভাবে আপিল নিষ্পত্তি করবেন।

জেলা জলমহাল ব্যবস্থাপনা কমিটির সিদ্ধান্তেও প্রেক্ষিতে ১০,০০,০০০/- (দশ লক্ষ) টাকার উর্দে মূল্যমানের জলমহালসমূহ বন্দোবস্তের প্রসব অনুমোদনের জন্য জেলা প্রশাসক ৫(পাঁচ) কর্মদিবসের মধ্যে বিভাগীয় কমিশনারের নিকট প্রেরণ করবেন। বিভাগীয় কমিশনার ১০ (দশ) কর্মদিবসের মধ্যে প্রসবটি অনুমোদনের বিষয়ে সিদ্ধান্ত দিয়ে জেলা প্রমাসকের নিকট ফেরৎ পাঠাবেন। আন্তঃজেলা জলমহাল বন্দোবস্তের প্রসব বিভাগীয় কমিশনার অনুমোদন করবেন। বিভাগীয় কমিশনারের সিদ্ধান্তেও বিরুদ্ধে আবেদনে অংশগ্রহণকারী সংস্কর সমিতি যদি জামানত না নিয়ে থাকে তবে ১৫ (পনের) কর্মদিবসের মধ্যে সর্বশেষ ধাপ হিসাবে ভূমি আপিল বোর্ডে আপিল দায়ের করতে পারবেন। ভূমি আপিল বোর্ড ৩০ (ত্রিশ) কর্মদিবসের মধ্যে চূড়ান্তভাবে আপিল নিষ্পত্তি করবেন।

(১১) জেলা জলমহাল ব্যবস্থাপনা কমিটি/বিভাগীয় কমিশনারের সিদ্ধান্তেও প্রেক্ষিতে বন্দোবস্ত/ইজারাপ্রাপ্ত প্রকৃত মৎস্যজীবী সংগঠন/সমিতি প্রথম বছরের সাকুল্য ইজারামূল্য সিদ্ধান্ত প্রদানের ১৫ (পনের) কর্মদিবসের মধ্যে জলমহাল ও পুকুর ইজারা ১/৪৬৩১/০০০০/১২৬১নং কোডে জমা প্রদান করতে হবে। সম্পূর্ণ টাকা পরিশোধের পর ইজারা চুক্তি সম্পাদন পূর্বক জেলা প্রশাসক অনতিবিলম্বে জলমহালের দখল ইজারা গ্রহীতাকে বুঝিয়ে দিবেন। জামানতের অর্থ শেষ বছরের ইজারা মূল্যেও সাথে সমন্বয় করা হবে। ২য় বছরের সম্পূর্ণ ইজারামূল্য ১ম বছরের ১৫ চৈত্রের মধ্যে পরিশোধ করতে হবে। পরবর্তী বছর সমূহের ইজারামূল্য একইভাবে পূর্ববর্তী বছরের ১৫ চৈত্রের মধ্যে পরিশোধ করতে হবে। নির্ধারিত তারিখের মধ্যে যুক্তিসংগত কারণ ব্যতীত সমুদয় ইজারামূল্য পরিশোধ করতে ব্যর্থ হলে জেলা প্রশাসক ইজারা বাতিল করবেন এবং জামানতের অর্থ সরকারের অনুকূলে বাজেয়াপ্ত হবে। ইজারার অর্থ আংশিক বা কিস্মিতে পরিশোধ করা যাবে না।

৬. উপজেলা জলমহাল ব্যবস্থাপনা কমিটি কর্তৃক ২০ একর পর্যন্ত বদ্ধ জলমহাল ব্যবস্থাপনাঃ (১) উপজেলা পর্যায়ে জলমহাল ব্যবস্থাপনা, তদারকি ও পরিবীক্ষণের জন্য উপজেলা জলমহাল ব্যবস্থাপনা কমিটির গঠন হবে নিম্নরূপঃ

(ক)	উপজেলা নির্বাহী অফিসার	আহবায়ক
(খ)	উপজেলা সমবায় কর্মকর্তা	সদস্য
(গ)	উপজেলা মৎস্য কর্মকর্তা	সদস্য
(ঘ)	উপজেলা কৃষি কর্মকর্তা	সদস্য
(ঙ)	উপজেলা সমাজসেবা কর্মকর্তা	সদস্য
(চ)	ভারপ্রাপ্ত কর্মকর্তা সংশ্লিষ্ট থানা	সদস্য
(ছ)	উপজেলা যুব উন্নয়ন কর্মকর্তা	সদস্য
(জ)	উপজেলা মহিলা বিষয়ক কর্মকর্তা	সদস্য
(ঝ)	সংশ্লিষ্ট ইউনিয়ন পরিষদ চেয়ারম্যান	সদস্য
(ঞ)	অনুমোদিত মৎস্যজীবী সংগঠনের দুইজন প্রতিনিধি	সদস্য
(ট)	স্থানীয় একজন বিশিষ্ট ব্যক্তি	সদস্য
(ঠ)	উপজেলা পর্যায়ে কৃষি সংগঠনের একজন প্রতিনিধি	সদস্য
(ড)	উপজেলা পর্যায়ে নারী সংগঠনের একজন প্রতিনিধি	সদস্য
(ঢ)	সহকারী কমিশনার (ভূমি)	সদস্য

যে উপজেলায় সহকারী কমিশনার (ভূমি) নেই, সে উপজেলায় উপজেলা সমবায় কর্মকর্তা সদস্য-সচিব হিসাবে দায়িত্ব পালন করবেন। আহ্বায়কসহ ন্যূনতম ৫(পাঁচ) জন সদস্য নিয়ে উপজেলা জলমহাল ব্যবস্থাপনা কমিটির কোরাম গঠিত হবে।

(২) উপজেলা জলমহাল ব্যবস্থাপনা কমিটিতে এক নম্বর উপদেষ্টা হিসাবে থাকবেন সংশ্লিষ্ট এলাকার মাননীয় সংসদ সদস্য/সদস্যগণ এবং দুই নম্বর উপদেষ্টা হিসাবে থাকবেন সংশ্লিষ্ট এলাকার উপজেলা পরিসদ চেয়ারম্যান।

(৩) উপজেলা জলমহাল ব্যবস্থাপনা কমিটির কার্যাবলীঃ

(ক) ২০ একর পর্যন্ত বদ্ধ সরকারি জলমহালের ব্যবস্থাপনা উপজেলা জলমহাল ব্যবস্থাপনা কমিটি কর্তৃক সম্পাদিত হবে। এই নীতি অনুসারে ৫নং ক্রমিকের (১),(২),(৩),(৪) ও (১১) এ বর্ণিত জেলামহাল ব্যবস্থাপনা কমিটি যে পদ্ধতিতে প্রকৃত মৎস্যজীবী সংগঠন/সমিতি সরকারি বদ্ধ জলমহাল ইজারা বন্দোবস্ত করবেন, সেই একই পদ্ধতি, উপজেলা জলমহাল ব্যবস্থাপনা কমিটি অনুসরণ করে জলমহাল ইজারা/ব্যবস্থাপনা দিবেন।

(খ) উপজেলা জলমহাল ব্যবস্থাপনা কমিটি ২০ একর পর্যন্ত জলমহালসমূহ প্রতি ৩ (তিন) বছরের জন্য ইজারা প্রদান করবেন। কোন জলমহাল একাধিক উপজেলা সংশ্লিষ্ট হলে, বেশির ভাগ জলমহাল যে উপজেলায় অবস্থিত সে উপজেলায় কমিটি হবে এবং বাকি অংশবিশেষ যে উপজেলাও উপজেলাসমূহে অবস্থিত হবে সে সকল উপজেলা/উপজেলাসমূহের সহকারী কমিশনার (ভূমি) সদস্য হিসাবে সংযুক্ত হবে।

(গ) সংশ্লিষ্ট উপজেলার অর্গত মৎস্যজীবী সমবায় সমিতি সমিতিগুলির কার্যক্রম বিধি মোতাবেক চলছে কি না তা পরীক্ষা-নিরীক্ষা ও পর্যালোচনা করা;

(ঘ) যে সকল সমবায় সমিতি/সমিতি/ইজারা গ্রহীতা জলমহাল ব্যবস্থাপনার আওতায় জলমহাল ইজারা গ্রহণ করেছে, সেগুলি ইজারার শর্ত মোতাবেক কার্যক্রম গ্রহণ করেছে কিনা তা পরিদর্শন ও শূল্যায়ন করা;

(ঙ) জেলা জলমহাল ব্যবস্থাপনা কমিটি কর্তৃক চাহিত তথ্য/মতামত/সুপারিশ পেরণ করা/প্রত্যয়ন পত্র প্রদান করা;

(চ) জরিপপর্বক প্রকৃত মৎস্যজীবীদের তালিকা তৈরির ব্যবস্থা করা (ছবি সহ)

(ছ) উপজেলার ভৌগলিক সীমায় অবস্থিত সকল জলমহাল এর ব্যবস্থাপনা যথাযথভাবে পরিচালিত হচ্ছে কিনা তা পরিদর্শন ও মূল্যায়ন করে মতামত ও সুপারিশসহ একটি বিস্তারিত প্রতিবেদন (ভূমি মন্ত্রণালয়ের নির্দিষ্ট ছকে) প্রতি বছর ১৫ চৈত্রের মধ্যে জেলা প্রশাসকের নিকট প্রেরণ করবেন।

(৪) কোন মৎস্যজীবী সমবায় সমিতি/সমিতি/প্রতিষ্ঠান দুটির অধিক জলমহাল ইজারা/বন্দোবস্ত পাবেন না।

(৫) উপজেলা জলমহাল ব্যবস্থাপনা কমিটির সিদ্ধান্তের বিরুদ্ধে কোন সমবায় সমিতি/সমিতি সংক্ষুব্ধ হলে ও জামানতের অর্থ ফেরত না নিয়ে থাকলে উক্ত সিদ্ধান্তের বিরুদ্ধে ৭(সাত) কর্ম দিবসের মধ্যে সংশ্লিষ্ট জেলা প্রশাসকের নিকট আপিল দায়ের করতে পারবেন এবং জেলা প্রশাসক ৫(পাঁচ) কর্ম দিবসের মধ্যে আপিল নিষ্পত্তি করবেন। জেলা প্রশাসকের সিদ্ধান্তের বিরুদ্ধে সর্বশেষ ধাপ হিসাবে ৭ (সাত) কর্ম দিবসের মধ্যে সংশ্লিষ্ট বিভাগীয় কমিশনারের নিকট আপিল দায়ের করা যাবে এবং বিভাগীয় কমিশনার ১৫ (পনের) কর্ম দিবসের মধ্যে চূড়ান্তভাবে আপিল নিষ্পত্তি করবেন।

(৬) ইজারা বিজ্ঞপ্তিতে নতুন জলমহালের অন্ভুক্তি, কোন জলমহালের বিলুপ্তি এবং কোন জলমহালের আয়তন হ্রাস/বৃদ্ধি ও তফসিল পরিবর্তনের ক্ষেত্রে বিজ্ঞপ্তি প্রদানের পূর্বে উপজেলা নির্বাহী অফিসারগণ জেলা প্রশাসকের অনমতি গ্রহণ করবেন।

(৭) প্রতি বছর ইজারায়োগ্য জলমহালের তারিকা তৈরি কবে উপজেলা নির্বাহী অফিসারগণ প্রতি বছর ১ মাঘ হতে জলমহাল ইজারা প্রদানের লক্ষ্যে আবেদন আহ্বান করবেন।

৭. উন্নয়ন প্রকল্পের আওতায় ২০ একরের উর্দে বদ্ধ জলমহাল ব্যবস্থাপনাঃ

(১) মৎস্য সম্পদ উন্নয়ন, প্রকৃত মৎস্যজীবীদের দারিদ্র বিমোচন ও আর্থ সামাজিক উন্নয়নের লক্ষ্যে উন্নয়ন প্রকল্পের আওতায় ২০ একরের উর্দে সীমিত সংখ্যক বদ্ধ জলমহাল ৬(ছয়) বছরের জন্য ভূমি মন্ত্রণালয়ের অনুমোদন সাপেক্ষে নিবন্ধিত ও প্রকৃত মৎস্যজীবী সমবায় সমিতিতে ইজারা দেয়া যাবে। আর্থসমিতির আবেদনপত্রের সাথে নিম্নবর্ণিত কাগজপত্র সংযুক্ত করতে হবেঃ-

(ক) উন্নয়ন প্রকল্পের বিস্তারিত বিবরণ (প্রকল্প ছকে);

(খ) প্রকৃত মৎস্যজীবী সমবায় সমিতির রেজিস্ট্রেশনের সত্যায়িত কপি;

(গ) নিবন্ধিত প্রকৃত মৎস্যজীবীসমবায় সমিতির সকল সদস্যের নাম ঠিকানা ও ছবি;

(ঘ) আবেদনকারী সমিতির প্রত্যেক সদস্য প্রকৃত মৎস্যজীবী এই মর্মে উপজেলা জলমহাল ব্যবস্থাপনা কমিটির পক্ষ থেকে প্রত্যয়ন পত্র;

(ঙ) প্রকৃত মৎস্যজীবী মাছ চাষ, শিকার ও বিপননের সাথে জড়িত আছেন ও থাকবেন এবং জলমহাল ইজারা পেলে, নিজেরাই তা পরিচালনা করবেন এমন অংশীকারনামা;

(চ) সভাপতি, সম্পাদক ও উক্ত সমিতির নিকট সরকারি কোন বকেয়া রাজস্ব পাওনা আছে কিনা এবং তাতেও বিরুদ্ধে কোন সার্টিফিকেট মামলা আছে কিনা জেলা প্রশাসন কর্তৃক প্রত্যয়ন পত্র।

(২) উন্নয়ন প্রকল্পের আওতায় কোন জলমহাল ইজারা পাওয়ার জন্য কোন মৎস্যজীবী সমবায় সমিতি ভূমি মন্ত্রণালয়ের নির্ধারিত সময়সীমার ভিতর আবেদন করলে তৎপ্রেক্ষিতে সংশ্লিষ্ট জেলা প্রশাসক এর নিকট প্রতিবেদন চাওয়া হবে। জেলা প্রশাসক, জেলা জলমহাল ব্যবস্থাপনা কমিটি/উপজেলা জলমহাল ব্যবস্থাপনা কমিটির সহায়তায় উল্লিখিত ৭(১) ক্রমিকের তথ্যাবলীসহ উক্ত সমিতির যোগ্যতা ও কার্যক্রম যাচাই বাছাই কও মতামতসহ একটি সুনির্দিষ্ট প্রতিবেদন দুই মাসের মধ্যে ভূমি মন্ত্রণালয়ে প্রেরণ করবেন।

(৩) প্রতি বছর ৩০ ফাল্গুন এর মধ্যে এ ধরনের উন্নয়ন প্রকল্পের জন্য ভূমি মন্ত্রণালয়ে আবেদন করা যাবে। এরপও কোন আবেদন গ্রহণ করা হবে না। তবে এই নীতি ২০০৯ জারির বছরে, সময়ের সীমাবদ্ধতার কারণে ১৫ শ্রাবণ ১৪১৬ পর্যন্ত আবেদন করা যাবে।

(৪) আবেদনকারী সমিতিসমূহ তাতেও আবেদনের সাথে তাতেও প্রদত্ত ইজারা মূল্যের ২০% জামানতস্বরূপ ব্যাংক ড্রাফট, পে-অর্ডার সংযুক্ত কও দিবেন। উক্ত টাকা ইজারা প্রাপ্ত সমিতির শেষ বছরের ইজারামূল্যের সাথে সমন্বয় করা হবে।

(৫) জেলা জলমহাল ব্যবস্থাপনা কমিটি যদি কোন প্রকৃত মৎস্যজীবী সমবায় সমিতির অনুকূলে কোন জলমহাল উন্নয়ন প্রকল্পের আওতায় ইজারা প্রদানের জন্য এই নীতিতে উল্লিখিত ৭(১), ৭(২), ৭(৩) ও ৭(৪) ক্রমিকের আলোকে জামানত ও সুপারিশসহ প্রতিবেদন মন্ত্রণালয়ে প্রেরণ করেন সেক্ষেত্রে ভূমি মন্ত্রণালয় ৪ (চার) মাসের মধ্যে সিদ্ধান্ত গ্রহণ কও সংশ্লিষ্ট জেলা প্রশাসককে অবহিত করবেন এবং এ সময়ের জন্য উক্ত জলমহালটির ইজারা কার্যক্রম স্থগিত থাকবে। মন্ত্রণালয়ে এজন্য একটি কমিটি থাকবে এবং আবেদন গ্রহণ বা বাতিল বা ইজারা প্রদান সংক্রান্ত এই কমিটির যে কোন সিদ্ধান্ত চূড়ান্ত বলে বিবেচিত হবে। কমিটির গঠন হবে নিম্নরূপঃ

(ক)	মাননীয় ভূমিমন্ত্রী	সভাপতি
(খ)	সচিব, ভূমি মন্ত্রণালয়	সদস্য
(গ)	যুগ্ম সচিব(প্রশাসন) ভূমি মন্ত্রণালয়	সদস্য
(ঘ)	যুগ্ম সচিব(উন্নয়ন) ভূমি মন্ত্রণালয়	সদস্য
(ঙ)	উপ সচিব (প্রশাসন) ভূমি মন্ত্রণালয়	সদস্য-সচিব

কমিটি প্রয়োজনে যে কোন সভায় কোন কর্মকর্তাকে আমন্ত্রণ জানাতে পারবেন।

৬. উন্নয়ন প্রকল্পের আওতায় কোন জলমহাল ইজারার ক্ষেত্রে পূর্ববর্তী বছরের ইজারা মূল্য বা বিগত ৩ বছরের ইজারা মূল্যের মধ্যে যেটি বেশি হয় তার মূল্যেও উপর কমপক্ষে ২৫% বর্ধিত হাওে ইজারা মূল্য নির্ধারণ করতে হবে এবং ১ম বছরের নির্ধারিত ইজারা মূল্যই পরবর্তী ২য়, ৩য় ও ৪র্থ বছর আদায় করতে হবে। ৫ম ও ৬ষ্ঠ বছরে এ ইজারা মূল্য আরো ২৫% বৃদ্ধি পাবে এবং সে অনুযায়ী তা আদায় হবে।

(৭) উন্নয়ন প্রকল্পের আওতায় কোন জলমহাল কোন প্রকৃত মৎস্যজীবী সমবায় সমিতির অনুকূলে নির্ধারিত মূল্যে নির্দিষ্ট সময়ের জন্য ভূমি মন্ত্রণালয় ইজারা/বন্দোবস্বেও প্রসাব অনুমোদন করলে, প্রসাব অনুমোদনের ১৫ কর্মদিবসের মধ্যে ইজারা/বন্দোবস্বে গ্রহীতা প্রথম বছরের সাকুল্য ইজারা মূল্য সংশ্লিষ্ট জেলায় (বালমহাল ও পুকুর ইজারা- ১/৪৬৩১/০০০০/১২৬১ নং কোডে) জমা প্রদান করবেন। প্রথম বছরের সম্পূর্ণ টাকা পরিশোধের পর ইজারা চুক্তি সম্পাদন পূর্বক জেলা প্রশাসক অনতিবিলম্বে জলমহালটির দখল বন্দোবস্বে গ্রহীতাকে বুঝিয়ে দিবেন। দ্বিতীয় বছরের সম্পূর্ণ ইজারামূল্য ১ম বছরের ১৫ চৈত্রের মধ্যে পরিশোধ করতে হবে। পরবর্তী বছরগুলির ইজারামূল্য একইভাবে পূর্ববর্তী বছরের ১৫ চৈত্রের মধ্যে পরিশোধ করতে হবে। জামানতের অর্থ শেষ বছরের ইজারামূল্যেও সাথে সমন্বয় হবে। নির্ধারিত তারিখের মধ্যে যুক্তিসংগত কারণ ব্যতীত সমুদয় ইজারামূল্য পরিশোধে ব্যর্থ হলে ইজারা/বন্দোবস্বে জেলা প্রশাসক বাতিল করবেন এবং জামানতের অর্থ সরকারের অনুকূলে বাজেয়াপ্ত হবে। ইজারার অর্থ কোন অবস্থাতেই আংশিক বা কিস্তিতে পরিশোধ করা যাবে না।

(৮) উন্নয়ন প্রকল্পের আওতায় ইজারাকৃত জলমহালগুলি প্রকল্প প্রসাবনা অনুসারে যথাযথভাবে উন্নয়ন কার্যক্রম গৃহীত হচ্ছে কিনা এবং সংশ্লিষ্ট মৎস্যজীবীদেও দারিদ্র বিমোচন ও আর্থ-সামাজিক উন্নয়নে অবদান রাখছে কিনা জলমহালটির ব্যবস্থাপনা সরেজমিনে পরিদর্শন ও মূল্যায়ন কওে সংশ্লিষ্ট জেলা জলমহাল ব্যবস্থাপনা কমিটি প্রতি বছর ৩০ চৈত্রের মধ্যে একটি মূল্যায়ন প্রতিবেদন ভূমি মন্ত্রণালয়ে প্রেরণ করবেন। প্রতিবেদন মূল্যায়ন করে ভূমি মন্ত্রণালয় জনস্বার্থে প্রয়োজনীয় সিদ্ধান্ত গ্রহণ করবেন।

(৯) কোনক্রমেই কোন প্রকৃত মৎস্যজীবী সমবায় সমিতিকে ০১ (এক) টির অধিক জলমহাল উন্নয়ন প্রকল্পে ইজারা/বন্দোবস্বে দেয়া যাবে না।

(১০) উন্নয়ন প্রকল্পের অস্বর্ভুক্ত জলমহালের ইজারা গ্রহীতা কোন অবস্থাতেই 'মা' মাছ শিকার করতে পারবেন না, এর ব্যত্যয় ঘটলে পুরো ইজারা বাতিল করা যাবে।

৮. আবেদন ফরম বিক্রির অর্থ, জলমহালের ইজারামূল্য ও খাস কালেকশনের অর্থসহ জলমহাল সংক্রান্ত সকল আয়ের অর্থ জলমহাল ও পুকুর ইজারা ১/৪৬৩১/০০০০/১২৬১ নং কোডে জমা রাখতে হবে। জেলা প্রশাসক ৩০ বৈশাখের মধ্যে উক্ত খাতে জমাকৃত অর্থেও বিবরণ ভূমি মন্ত্রণালয় ও বিভাগীয় কমিশনার এর নিকট প্রেরণ করবেন।

৯. ইজারাকৃত জলমহালগুলি কোনক্রমেই সাবলীজ দেয়া যাবে না, যদি সাবলীজ দেয়া হয়, তাহলে উক্ত জলমহাল এর ইজারা জেলা প্রশাসক/উপজেলা নির্বাহী অফিসার বাতিল করবেন এবং জামানতসহ জমাকৃত ইজারামূল্য সরকারের অনুকূলে বাজেয়াপ্ত হবে। ঐ ইজারা গ্রহীতা সমিতি পরবর্তী ৩ (তিন) বছর কোন জলমহালের ইজারার জন্য বা উন্নয়ন প্রকল্পের জন্য আবেদন করতে পারবেন না।

১০. জেলা জলমহাল ব্যবস্থাপনা কমিটি ও উপজেলা জলমহাল ব্যবস্থাপনা কমিটি কর্তৃক ইজারাকৃত জলমহালসমূহ তদারকি বা পরিবীক্ষণের জন্য একটি পরিবীক্ষণ ছক ভূমি মন্ত্রণালয় প্রস্তুত করবেন। সে ছক অনুযায়ী সংশ্লিষ্ট কমিটি কার্যক্রম গ্রহণ করবেন এবং ভূমি মন্ত্রণালয় ও বিভাগীয় কমিশনারকে অবহিত করবেন।

১১. জলমহাল ইজারার মেয়াদ ১ বৈশাখ থেকে শুরু হবে এবং বছরের যে কোন সময়ে জলমহালের ইজারা গ্রহণ করলেও ইজারার মেয়াদ ১ বৈশাখ থেকে কার্যকর হবে এবং একই বছরের ৩০ চৈত্র তারিখে তা শেষ হবে। এই সময়ের মধ্যে কোন কারণে খাস কালেকশন করা হয় তবে তা সরকারি খাতে জমা হবে, ইজারাপ্রাপ্ত সমিতি/সংগঠন পাবে না।

১২. প্রকৃত মৎস্যজীবীদের সংগঠন যাতে জলমহাল ইজারা নিতে পাওে ও নির্বিঘ্নে মাছ চাষ ও বিপন্ন করতে পারে সে জন্য স্থানীয় প্রশাসন ও আইন প্রয়োগকারী সংস্থা প্রয়োজনীয় সহায়তা দিবেন এবং স্থানীয় বাণিজ্যিক ব্যাংক/ব্যাংসমূহ সহজ শর্তে ঋণ প্রদান করবেন।

১৩. ইজারা প্রদত্ত জলমহালগুলো ইজারা চুক্তির কোন শর্ত লংঘিত হচ্ছে কিনা সেজন্য বিদ্যমান মৎস্য আইনের আওতায় জেলা প্রশাসনের মাধ্যমে ড্রাম্যাগাণ আদালত গঠন কওে জলমহাল ইজারা চুক্তি ভঙ্গের কারণে ইজারাদারের বিরুদ্ধে প্রয়োজনীয় ব্যবস্থা গ্রহণ করা যাবে।

১৪. এই নীতি জারির পর যুব ও ক্রীড়া মন্ত্রণালয়ে ন্যস্কৃত ২০ একর পর্যন্ত খাস বদ্ধ জলমহাল/জলাশয় ব্যবস্থাপনা আর থাকবে না, তবে যুব সমাজের আত্ম-কর্মসংস্থান সৃষ্টির লক্ষ্যে ২০ (বিশ) একর পর্যন্ত খাস বদ্ধ জলমহাল/জলাশয় যুব জেলে সম্প্রদায়ের নিবন্ধিত সমিতি/সমিতিসমূহ অধাধিকার পাবে। আরো শর্ত থাকে যে, ইতোমধ্যে ২০ একর পর্যন্ত যে সকল খাস বদ্ধ জলমহাল যুব সম্প্রদায়ের মধ্যে টেন্ডারের মাধ্যমে ইজারা প্রদান করা হয়েছে, তা টেন্ডারের সময় পর্যন্ত পূর্বেও নিয়মে অব্যাহত থাকবে, তবে কোন সময় বৃদ্ধি করা যাবে না এবং উক্ত সময় অতিবাহিত হবার পর বর্তমান নীতি অনুযায়ী কার্যক্রম গ্রহণ করতে হবে।

১৫. নিম্নবর্ণিত ২০(বিশ) একর পর্যন্ত খাস বদ্ধ জলাশয়সমূহ এই নীতির আওতায় ইজারা বা বন্দোবন্দ প্রদান করা যাবে না ঃ

(ক) গুচ্ছ গ্রাম/আদর্শ গ্রাম/আশ্রয়ণ প্রকল্প/অনুরূপ প্রকল্পের এলাকাভুক্ত জলাশয়সমূহ;

(খ) অর্পিত এবং পরিত্যক্ত জলাশয়সমূহ;

(গ) ইউনিয়ন ভূমি অফিস, সহকারী কমিশনার (ভূমি), উপজেলা নির্বাহী অফিসার, জেলা প্রশাসক এবং বিভাগীয় কমিশনার এর অফিস সংলগ্ন সরকারি খাস জলাশয়সমূহ;

(ঘ) সর্বসাধারণের ব্যবহার্য বা ধর্মীয় প্রতিষ্ঠান, গোরস্থান, পাবলিক ইজমেন্টের জন্য ব্যবহৃত জলাশয়সমূহ;

(ঙ) সিটি কর্পোরেশন/পৌরসভা/জেলা পরিষদেও প্রশাসনিক সীমারেখার মধ্যে অবস্থিত তাতেও নিজস্ব জলাশয়সমূহ;

১৬. কোন যুক্তিসংগত কারণে কোন জলমহাল (২০ একরের উর্দে বা ২০ একর পর্যন্ত) নির্ধারিত সময়ে ইজারা বন্দোবন্দ প্রদান করা না গেলে উক্ত জলমহাল বন্দোবন্দ না হওয়া পর্যন্ত জেলা প্রশাসক খস কালেকশনের মাধ্যমে রাজস্ব আদায় করবেন। প্রয়োজনে ব্যাপক প্রচারের মাধ্যমে শীলগালা অবস্থায় মূল্য উল্লেখ কওে আবেদন আহবান কওে নির্দিষ্ট বছরের অবশিষ্ট সময়ের জন্য বন্দোবন্দ বা কাস আদায়ের ব্যবস্থা করা যাবে। সংশ্লিষ্ট জেলার জেলা প্রশাসক, খাস কালেকশনের জন্য একটি নির্দিষ্ট হার নির্ধারণ করে দিবেন এবং নিম্নোক্ত কমিটির মাধ্যমে খাস কালেকশনের মাধ্যমে রাজস্ব আদায় করবেনঃ

(ক)	সহকারী কমিশনার(ভূমি)	আহবায়ক
(খ)	উপজেলা মৎস্য কর্মকর্তা	সদস্য
(গ)	ইউনিয়ন পরিষদ চেয়ারম্যান	সদস্য
(ঘ)	উপসহকারী কৃষি কর্মকর্তা	সদস্য
(ঙ)	সংশ্লিষ্ট ইউনিয়ন ভূমি সহকারী কর্মকর্তা	সদস্য-সচিব

উল্লেখ্য খাস কালেকশনের সময় মা মাছ নিধন করা যাবে না।

১৭. দেশের সকল জলমহালের সুষ্ঠু ব্যবস্থাপনার লক্ষ্যে জলমহালগুলির তফসিল নির্ধারণ, মৌজা মাপে তা চিহ্নিতকরণ এবং এতৎসংক্রান্ত সকল তথ্য সম্বলিত একটি ডাটাবেজ তৈরি কওে জেলা প্রশাসকের কার্যালয়, ভূমি মন্ত্রণালয় এবং সংশ্লিষ্ট দপ্তরসমূহে সংরক্ষণ করতে হবে। ডাটাবেজ তৈরি ও এর ব্যবস্থাপনার জন্য একটি কমন প্ল্যাটফরমে ব্যবহার্য সফটওয়্যার প্রণয়ন করতে হবে। ভূমি মন্ত্রণালয় জলমহালগুলোর সমন্বিত ব্যবস্থাপনা নিশ্চিত করণের লক্ষ্যে উক্তরূপ ডাটাবেজ তৈরি ও সফটওয়্যার প্রণয়নের ব্যবস্থা গ্রহণ করবেন। এজন্য ভূমি মন্ত্রণালয় উন্নয়ন প্রকল্প গ্রহণ করতে পারবে।

১৮.(ক) ইজারা/বন্দোবস্ত বাতিলকৃত জলমহাল/জলাশয় জেলা জলমহাল ব্যবস্থাপনা কমিটি/সংশ্লিষ্ট কমিটি (প্রযোজ্য ক্ষেত্রে) বিধি মোতাবেক পনঃইজারার ব্যবস্থা করবেন।

(খ) হওয়ার সাথে সাথে সংশ্লিষ্ট জলমহালের উপর ইজারা গ্রহীতার সকল অধিকার বিলুপ্ত হবে। ইজারা ইজারা মেয়াদ শেষ মেয়াদ শেষে কোন জলমহালের উপর ইজারা গ্রহীতার কোন প্রকার দাবী/অধিকার/স্বত্ত্ব থাকবে না এবং উক্ত জলমহালের সকল সকল অধিকার, স্বত্ত্ব ও দখল স্বয়ংক্রিয়ভাবে জেলা প্রশাসক/উপজেলা নির্বাহী অফিসার তথা সরকারের নিকট ন্যস্ত হবে।

(গ) ইজারার মেয়াদ শেষ হলে মাছ সংগ্রহের জন্য অতিরিক্ত কোন সময় মনজুর করা যাবে না।

১৯. সকল বদ্ধ ও উন্মুক্ত জলমহালে মৎস্য সম্পদ পরিচর্যামূলক ক্ষেত্র ভিত্তিক গবেষণা ও তথ্য সংগ্রহের উদ্দেশ্যে মৎস্যজীববিজ্ঞানীদের অবাধ বিচরণ, তথ্য সংগ্রহে নিজ খরচায় নমুনা মৎস্য আহরণ, পরিবেশগত তথ্য সংগ্রহ ইত্যাদি কর্মকাণ্ড পরিচালনার জন্য মৎস্য ও পশুসম্পদ মন্ত্রণালয়ের অধিকার থাকবে, তবে এজন্য সংশ্লিষ্ট জেলা প্রশাসককে অবহিত করতে হবে।

২০. জেলা প্রশাসনের তত্ত্বাবধানে এবং মৎস্য আধিদপ্তর ও সংশ্লিষ্ট সরকারি প্রতিষ্ঠানের কারিগরী সহায়তায় জলমহালের ভৌত ও জৈবিক দিকসমূহের বর্ষশেষ অবস্থা এবং পানির গ্রহণগত মান সম্পর্কে জরিপ পরিচালনা করা যাবে যা নির্দিষ্ট সময় অন্তর অন্তর হাল নাগাদ করা হবে।

২১. বন্দোবস্ত/ইজারাকৃত জলমহালের কোথাও প্রবাহমান প্রাকৃতিক পানি আটকে রাখা যাবে না।

২২. যে সকল জলমহালসমূহ থেকে (নদী, হাওর, খাল, তিয়াদি) জমিতে সেচ পদানের সুযোগ রয়েছে সেখান থেকে সেচ মৌসুমে সেচ প্রদান বিঘ্নিত করা যাবে না। যে সকল বদ্ধ জলমহাল বন্দোবস্ত/ইজারা দেয়া হবে, সেখান থেকে মৎস্য চাষের ক্ষতি না কওে পরিমিত পর্যায়ে সেচ কাক্রমপরিচালনার সুযোগ থাকবে। এ ভ্যাপাওে ২০ একরের উর্দেও সরকারি জলমহালের ক্ষেত্রে জেলা জলমহাল ব্যবস্থাপনা কমিটি এবং ২০ একর পয্ন্ত সরকারি জলমহালের ক্ষেত্রে উপজেলা জলমহাল ব্যবস্থাপনা কমিটি প্রয়োজনীয় সিদ্ধান্ত গ্রহণ করবেন।

২৩. সরকারি জলমহালের পাড়ে সামাজিক বনায়নের মাধ্যমে বনজ সম্পদ বৃদ্ধিরজন্য বন্দোবস্ত গ্রহীতা সমিতি চুক্তিবদ্ধ থাকবেন (ইজারা চুক্তিতে তার উল্লেখ থাকবে)।

২৪. সরকারি জলমহাল ইজারা/বন্দোবস্ত গ্রহীতা নিবন্ধিত কোন মৎস্যজীবী সমিতি/এনজিওর সাথে কোন জাগ্রবাদের সম্পৃক্ততা পাওয়া গেলে সংশ্লিষ্ট নিবন্ধন কর্তৃপক্ষই তার দায় দায়িত্ব বহন করবেন এবং এরূপ ক্ষেত্রে কোন সরকারি জলমহাল উক্ত সমিতিকে ইজারা/বন্দোবস্ত প্রদান করা হয়ে থাকলে তা বাতিল কওে নতুনভাবে ইজারা/বন্দোবস্ত প্রদানের ব্যবস্থা করা যাবে।

২৫. মাছের অভয়াশ্রম সৃষ্টি এবং মাছ চাষ ও উৎপাদনের ক্ষেত্রে নব উদ্ভাবিত প্রযুক্তি প্রয়োগের জন্য ভূমি মন্ত্রণালয় কিছু যথ্যক জলমহালকে সংরক্ষিত জলমহাল হিসাবে চিহ্নিত কও তাতেও সুরক্ষণের ব্যবস্থা করবেন।

২৬. বর্ষা মৌসুমে যখন ইজারাকৃত জলাশয়, সংলগ্ন প্লাবনভূমির সাথে প্লাবিত হয়ে একক জলাশয় রূপ নেয়, তখন ইজারাদারদেও মৎস্য আহরণ অধিকার কেবল ইজারাকৃত জলাশয়ের সীমানার ভিতর সীমাবদ্ধ থাকবে।

২৭. বদ্ধ বা উন্মুক্ত, কোন জলাশয়েই রান্ধুসে মাছ চাষ করা যাবে না।

২৮. পাবলিক প্রাইভেট পার্টনারশীপ এর মাধ্যমে ভূমি মন্ত্রণালয় পরীক্ষামূলকভাবে সারাদেশে স্বল্পসংক্ষক জলমহাল এর ব্যবস্থাপনা করবেন যাতে প্রকৃত মৎস্যজীবীদেও জীবনমান উন্নত করা যায়। এইরূপ পরীক্ষাধীন জলমহালের জন্য বিগত তিন বছরের ইজারার গড় মূল্যের উপর ১০% বৃদ্ধি করে ইজারা মূল্য নির্ধারণ করা যেতে পারে।

২৯. উন্মুক্ত জলাশয়সমূহের নির্দিষ্ট স্থানে অভয়াশ্রম করা এবং নির্দিষ্ট সময়ে মৎস্য সম্পদ রক্ষার স্বার্থে মৎস্য আরণ বন্ধ রাখার বিষয়ে জেলা প্রমাসনের সহযোগিতায় মৎস্য ও পশু সম্পদ মন্ত্রণালয় বা মৎস্য অধিদপ্তর প্রয়োজনীয় উদ্যোগ নিতে পারবেন। এই উদ্যোগের অংশ হিসাবে মাতৃ জলমহাল বা অভয়াশ্রম এর জন্য উপযোগী স্থান নির্বাচন করা যাবে যাতে ভূমি মন্ত্রণালয় এর সম্মতি থাকবে। এরূপ স্থান ইজারা প্রদান করা যাবে না। নির্দিষ্ট সময়ে, যেমন-মাছের পোনা ছাড়ার সময় মৎস্য শিকার বন্ধ রেখে প্রকৃত মৎস্যজীবীদেও বিকল্প জীবিকার উদ্যোগ নিতে হবে। উন্মুক্ত জলাশয়ে যাতে অবাধে মৎস্য শিকার না করা হয় এবং মা মাছ নিধন না করা হয় সে জন্য জেলা জলমহাল ব্যবস্থাপনা কমিটি/উপজেলা জলমহাল ব্যবস্থাপনা কমিটি প্রয়োজনীয় উদ্যোগ নিবেন এবং জেলা প্রশাসকের অথবা উপজেলা নির্বাহী অফিসারের লাইসেন্স নিয়ে প্রকৃত মৎস্যজীবীগণই শুধু মাছ শিকার করতে পারবেন। প্রকৃত মৎস্যজীবীগণ নির্ধারিত হাওে একটি টোকেন ফি দিয়ে লাইসেন্স সংগ্রহ করবেন। প্রকৃত মৎস্য জীবীর আয় ব্যয় সংগতি রেখে জেলা প্রশাসকগণ এই হার নির্ধারণ/পুনর্নির্ধারণ করবেন।

৩০. জলমহালসমূহের তীরে বা তীরবর্তী সরকারি ভূমিতে পরিবেশ বান্ধব করচবাগের সৃষ্টি করতে হবে যা মাছের নিরাপদ আশ্রয়ভূমি হিসাবে গণ্য হবে। ইজারাকৃত জলমহাল-এ কেহ অীতথি পাখিসহ কোন পাখি শিকার করতে পারবেন না। এই কাজে স্থানীয় প্রশাসন, স্থানীয় বন অধিদপ্তর ও মৎস্যজীবী সমবায় সমিতি/সমিতি/নিবন্ধিত এনজিও/জলমহাল এর ইজারাদার প্রয়োজনীয় উদ্যোগ গ্রহণ করবেন।

৩১. সরকারি জলমহাল ইজারা গ্রহণকারী সমিতি/ব্যক্তি সরকারি নিয়ম অনুযায়ী প্রযোজ্য ক্ষেত্রে আয়কর বা ভ্যাট প্রদান করবেন।

৩২. সরকারি জলমহাল ব্যবস্থাপনা নীতিমালা-২০০৫ এর আলোকে ইজারাধীন যে সব জলমহাল এর ইজারার মেয়াদ এখনও শেষ হয়নি সে সব জলমহালের ইজারা অব্যাহত রাখা যাবে কিনা তা জেলা/উপজেলা জলমহাল ব্যবস্থাপনা কমিটি যাচাই কও দেখবেন। জলমহালগুলো প্রকৃত মৎস্যজীবী সংগঠন/সমিতি ভোগ দখল করছে কিনা, লীজের শর্ত ঠিকমতত প্রতিপালন হচ্ছে কিনা এসব দিক বিবেচনা কও লীজের শর্ত ভঙ্গ করা হলেবা কোন অনিয়ম হয়ে থাকলে উক্ত জেলা/উপজেলা কমিটি লীজ বাতিল করবেন এবং সরকারি জলমহাল ব্যবস্থাপনা নীতি, ২০০৯ এর আলোকে উক্ত জলমহাল বন্দোবস্ত ব্যবস্থা গ্রহণ করবেন।

৩৩. সরকারি জলমহালের সুষ্ঠু ব্যবস্থাপনা ও বন্দোবস্ত প্রদানের ক্ষেত্রে নীতি নির্ধারণী সিদ্ধান্ত গ্রহণের লক্ষ্যে জাতীয় পর্যায়ে নিম্নোক্ত জাতীয় জলমহাল ব্যবস্থা কমিটি থাকবে।

মোননীয় ভূমি মন্ত্রী	সভাপতি
মাননীয় সমাজকল্যাণ মন্ত্রী	সদস্য
মাননীয় মৎস্য ও পশু সম্পদ মন্ত্রী	সদস্য
মাননীয় যুব ও ক্রীড়া মন্ত্রী	সদস্য
মাননীয় পরিবেশ ও বন মন্ত্রী	সদস্য
সচিব, কৃষি মন্ত্রণালয়	সদস্য
সচিব, পরিবেশ ও বন মন্ত্রণালয়	সদস্য
সচিব, মৎস্য ও পশু সম্পদ মন্ত্রণালয়	সদস্য
সচিব, যুব ও ক্রীড়া মন্ত্রণালয়	সদস্য
সচিব, মহিলা ও শিশু বিষয়ক মন্ত্রণালয়	সদস্য
সচিব, স্থানীয় সরকার বিভাগ	সদস্য
সচিব, ভূমি মন্ত্রণালয়	সদস্য

এমিটি প্রয়োজনে সদস্য কো-অপ্ট করতে পারবেন।

৩৪. জলমহাল ব্যবস্থাপনা সংক্রান্ত এই নীতির পরিপন্থী বা ইতোপূর্বে জারিকৃত সকল আদেশ/ নির্দেশ/পরিপত্র/ নীতিমালা এতদ্বারা বাতিল করা হলো।

৩৫. এই নীতিতে যাই বলা থাকুক না কেন, ভূমি মন্ত্রণালয় জনস্বার্থে, সরকারি জলমহালের যে কোন বন্দোবস্ত/হিজারা বাতিলবা সংশোধনসহ যে কোন ব্যবস্থা গ্রহণ এবং এই নীতির পরিবর্তন, পরিমার্জনবা সংশোধনের যে কোন সিদ্ধান্ত গ্রহণের অধিকার সংরক্ষণ করে।^{৬৪}

The Government makes Jalmahal Management Policy, 2009 for the public interest in order to settlement khas water reservoir, wetlands settlement in genuine fisherman and collection of tax to contiguous fish resource conservation, increase production and conservation of biodiversity.

Main purpose of the Government Jalmahal Management Policy, 2009 is to conserve, increase production of fish resources and biodiversity. But it has some limitations. Because there is no provision to address the problems creating from the cultivation of high yield variety of alien fish species. It would be the cause of degrade fresh water fish and fish species.

Section, 4(h) stated that concerned authority has power to lease the khas wetlands for fish cultivation among the fishermen. But there is no guideline what kind of fish will cultivate there. Sub-section 9 of section 5 restricts to diminish any wetland and change its size. And also section 22 permits to unlimited use of wetlands water use for irrigation.

⁶⁴ *Jalmahal management policy, 2009*, Ministry of land, Government of the Peoples Republic of Bangladesh.

Jalmahal Management Policy, 2009 and Environment Policy and Environment Action Plan 1992

Although, it is said that the Government Jalmahal Management policy, 2009 was passed in order to conservation of fish resources and biodiversity but in reality it has some provision which cause degradation of fish and fish habitats due to diminish of wetland, change size of wetland, and it's water use for irrigation etc. Moreover, Environment Policy 1992 and Environmental Action Plan 1992 prevents activities which diminish the wetlands/natural habitats of fish such as haore, baors, beels and declare them as protected areas for fish and fish species and it will not be encroached upon which contradict each other.⁶⁵

It is observed that the Government should amend Jalmahal Management Policy, 2009 for the most effective to fish and fish species.

2.2.18 Bangladesh Water Act, 2013

বাংলাদেশ পানি আইন, ২০১৩

২০১৩ সনের ১৪ নং আইন

পানি সম্পদের সমন্বিত উন্নয়ন, ব্যবস্থাপনা, আহরণ, বিতরণ, ব্যবহার, সুরক্ষা ও সংরক্ষণের লক্ষ্যে বিধান প্রণয়নের উদ্দেশ্যে প্রণীত আইন।

যেহেতু, পানি সম্পদের সমন্বিত উন্নয়ন, ব্যবস্থাপনা, আহরণ, বিতরণ, ব্যবহার, সুরক্ষা ও সংরক্ষণ সম্পর্কিত বিধান করা সমীচীন ও প্রয়োজনীয়;

সেহেতু, এতদ্বারা নিম্নরূপ আইন করা হইল:

প্রথম অধ্যায় সাধারণ

১। সংক্ষিপ্ত শিরোনাম, প্রবর্তন ও প্রয়োগ।—

- (১) এই আইন বাংলাদেশ পানি আইন, ২০১৩ নামে অভিহিত হইবে।
- (২) সরকার, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, যে তারিখ নির্ধারণ করিবে সেই তারিখে এই আইন কার্যকর হইবে এবং এই আইনের বিভিন্ন ধারার জন্য ভিন্ন ভিন্ন তারিখ নির্ধারণ করা যাইবে।
- (৩) সরকার, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, যে এলাকা নির্ধারণ করিবে সেই এলাকায় এই আইন প্রযোজ্য হইবে এবং এই আইনের বিভিন্ন ধারার জন্য ভিন্ন ভিন্ন এলাকা নির্ধারণ করা যাইবে।

২। সংজ্ঞা।—বিষয় বা প্রসংগের পরিপন্থী কোন কিছু না থাকিলে, এই আইনে—

- (১) "উপযুক্ত কর্তৃপক্ষ" অর্থ পানি আহরণকারী, পানি বিতরণকারী, পানি সরবরাহকারী, পানি সেবা প্রদানকারী বা পানি সম্পদের সুরক্ষা ও সংরক্ষণের দায়িত্বে নিয়োজিত কোন সংস্থা বা কর্তৃপক্ষ যাহা কোন আইন বা আইনের ক্ষমতা সম্পন্ন কোন দলিলের অধীন প্রতিষ্ঠিত বা গঠিত;

⁶⁵ *The Environment Policy, 1992, and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

- (২) “খাল” অর্থ পানির অন্তঃপ্রবাহ বা বহিঃপ্রবাহের কোন পথ;
- (৩) “ছাড়পত্র” অর্থ ধারা ১৬ এর অধীন নির্বাহী কমিটি কর্তৃক ইস্যুকৃত কোন ছাড়পত্র;
- (৪) “জলস্রোত” অর্থ জলাধার হইতে প্রবাহিত কোন পানি;
- (৫) “জলাধার” অর্থ প্রাকৃতিক সৃষ্ট বা কৃত্রিমভাবে খননকৃত কোন নদ-নদী, খাল, বিল, হাওর, বাওড়, দীঘি, পুকুর, হ্রদ, বর্ণা বা অনুরূপ কোন ধারক;
- (৬) “জলাভূমি” অর্থ এমন কোন ভূমি যেখানে পানির উপরিতল ভূমিতলের সমান বা কাছাকাছি থাকে বা যাহা সময়ে সময়ে, স্বল্প গভীরতায় নিমজ্জিত থাকে এবং যেখানে সাধারণত ভিজা মাটিতে জন্মায় এবং টিকিয়া থাকে এমন উদ্ভিদাদি জন্মায়;
- (৭) “জাতীয় পানি নীতি” অর্থ সরকার কর্তৃক, সময় সময় প্রণীত জাতীয় পানি নীতি;
- (৮) “জাতীয় পানি সম্পদ পরিকল্পনা” অর্থ ধারা ১৫ এর অধীন পরিষদ কর্তৃক অনুমোদিত জাতীয় পানি সম্পদ পরিকল্পনা;
- (৯) “নির্বাহী কমিটি ” অর্থ ধারা ৯ এর অধীন গঠিত কমিটি;
- (১০) “নিয়ন্ত্রণ” অর্থে নিষিদ্ধকরণ এবং শর্তারোপও অন্মর্ভুক্ত হইবে;
- (১১) “পরিদর্শক” অর্থ ধারা ১৪ এর অধীন পরিদর্শক হিসাবে ক্ষমতাপ্রাপ্ত কোন কর্মকতা বা কর্মচারী;
- (১২) “পরিষদ” অর্থ ধারা ৪ এর অধীন গঠিত জাতীয় পানি সম্পদ পরিষদ;
- (১৩) “পানি” অর্থ ধারা ৩ এর উপধারা (১) এ উল্লিখিত কোন পানি;
- (১৪) “পানি সম্পদ” অর্থ ভূপরিষ্ক পানি, ভূগর্ভস্থ পানি ও বৃষ্টির পানি তথা বায়ুমন্ডলের পানি; এবং নদীর মোহনা, পানিধারক স্তর, পল্লাবন ভূমি, জলাভূমি, জলাধার ফোরশোর, উপকূল বা অনুরূপ কোন আধার বা স্থানের পানিও উহার অন্মর্ভুক্ত হইবে;
- (১৫) “পানি সম্পদ উন্নয়ন প্রকল্প” অর্থ পানি সম্পদ উন্নয়নের জন্য গৃহীত কোন কার্যক্রম, কর্মসূচী বা উদ্যোগ, যেমন সেচ, বন্যা নিয়ন্ত্রণ ব্যবস্থাপনার ও পানি নিষ্কাশনের জন্য নির্মিত যে কোন ধরণের হাইড্রোলিক অবকাঠামো নির্মাণ, নদীর তীর সংরক্ষণ, ড্রেজিং বা অনুরূপ কোন কার্যক্রম, কর্মসূচী বা উদ্যোগ;
- (১৬) “পানি সম্পদ পরিকল্পনা সংস্থা” অর্থ পানি সম্পদ পরিকল্পনা আইন ১৯৯২ (১৯৯২ সনের ১২ নং আইন) এর অধীন প্রতিষ্ঠিত পানি সম্পদ পরিকল্পনা সংস্থা;
- (১৭) “পানি সংকটাপন্ন এলাকা” অর্থ ধারা ১৭ এর অধীন ঘোষিত কোন এলাকা;
- (১৮) “পানি ধারক স্তর (Aquifer)” অর্থ ভূগর্ভস্থ শিলা অথবা মৃত্তিকা স্তরের এমন কোন স্তর যাহা পানি ধারণ এবং পরিবহণ করিতে পারে এবং যাহা হইতে পানি উত্তোলন করা যায়;
- (১৯) “প্রতিপালন আদেশ” অর্থ ধারা ১২ এর অধীন ইস্যুকৃত কোন আদেশ;
- (২০) “ফোরশোর” অর্থ বৎসরের যেকোন সময় ভরা কাটাল জোয়ার (Ordinary spring tide) এর সময় নদীর সর্বনিম্ন পানির স্তর (low water mark) হইতে সর্বোচ্চ পানি স্তর (high water mark) এর মধ্যবর্তী অংশ; এবং The Port Act, 1908 অনুযায়ী ঘোষিত নদী বন্দর ও সমুদ্র বন্দর এলাকায় সর্বোচ্চ পানি স্তর হইতে নদীর তীর ৫০(পঞ্চাশ) মিটার এবং অন্যান্য এলাকায় ইহা সর্বোচ্চ পানি স্তর হইতে ১০(দশ) মিটার পর্যন্ত বিস্তৃত এলাকা;

- (২১) “ফৌজদারী কার্যবিধি” অর্থ Code of Criminal Procedure. 1898 (Act V of 1898);
- (২২) “বাঁওড়” অর্থ খুরাকৃতির এমন কোন হ্রদ যাহার জলস্রোত সময়ের বিবর্তনে ধীরে ধীরে স্থিমিত হইয়া পড়িয়াছে;
- (২৩) “বাঁধ” অর্থ মাটি বা অনুরূপ উপাদান দ্বারা নির্মিত ড্যাম, ওয়াল (wall), ডাইক, বেড়ী বাঁধ, বা অনুরূপ কোন বাঁধ;
- (২৪) “বিল” অর্থ প্রাকৃতিক নীচু জায়গা বা বৃত্তাকার এলাকাকে বুঝাইবে যাহা বৃষ্টিপাত বা নদীর পানির দ্বারা প্লাবিত হয় এবং যাহা সমগ্র বৎসর পানিতে নিমিজ্জত থাকে বা বৎসরের আংশিক সময় আংশিক বা পূর্ণ শুষ্ক থাকে;
- (২৫) “ব্যক্তি” অর্থ কোন ব্যক্তি বা কোন প্রতিষ্ঠান, কম্পানী, সমিতি. অংশীদারি কারবার, ফার্ম বা সংবিধিবদ্ধ বা অন্য কোন সংস্থাও উহার অস্থভুক্ত হইবে;
- (২৬) “ভূগর্ভস্থ পানি” অর্থ ভূপৃষ্ঠের নীচের কোন পানি যাহা কোন জলাধারের মধ্য দিয়া প্রবাহিত হয় বা ভূপৃষ্ঠের উপর প্রাকৃতিক বা কৃত্রিম উপায়ে উত্তোলন করা যায়;
- (২৭) “ভূপরিষ্ক পানি” অর্থ ভূমির উপরিভাগের জলাধারের কোন পানি;
- (২৮) “ভূমি” অর্থ State Acquisition and Tenancy Act, 1950 (E.B. Act No. XXVIII of 1950) এর section 2(16) এ সজ্জায়িত কোন land;
- (২৯) “মহাপরিচালক” অর্থ পানি সম্পদ পরিকল্পনা সংস্থার মহাপরিচালক;
- (৩০) “মোহনা” অর্থ এমন কোন জলস্রোত যাহা স্থায়ীভাবে অথবা পযায়ক্রমে সমুদ্রমুখী যেখানে সমুদ্রের জলরাশি যাহার বিস্তৃতি পরিমাপযোগ্য, ভূমি হইতে প্রবাহিত পানির সহিত মিশ্রিত হয়;
- (৩১) “সরকার” অর্থ এই আইনের উদ্দেশ্য পূরণকল্পে পানি সম্পদ মন্ত্রণালয়;
- (৩২) “সংরক্ষণ” অর্থে পানি সম্পদের উপযোগীতা বৃদ্ধি, অপচয় ও ক্ষয় হ্রাসকরণ, পরিরক্ষণ ও সুরক্ষাও অস্থভুক্ত হইবে;
- (৩৩) “সুরক্ষা” অর্থ পানি সম্পদ সংরক্ষণের জন্য বিধি-নিষেধ বা শর্তারোপ;
- (৩৪) “সুরক্ষা আদেশ” অর্থ ধারা ২৭ এর অধীন ইস্যুকৃত কোন আদেশ; এবং
- (৩৫) “হাওড়” অর্থ দুইটি ভিন্ন নদীর মধ্যস্থলে প্রাকৃতিকভাবে সৃষ্ট কড়াই আকৃতির বহদাকার কোন নিম্নভূমি।

৩। পানির অধিকার ও উহার ব্যবহার।—

(১) আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, রাষ্ট্রের

সীমানাভুক্ত

নিম্নবর্ণিত পানির সকল অধিকার জনগণের পক্ষে রাষ্ট্রের উপর অর্পিত থাকিবে, যথা:—

- (ক) ভূপরিষ্ক পানি;
- (খ) ভূগর্ভস্থ পানি;
- (গ) সামুদ্রিক পানি;
- (ঘ) বৃষ্টির পানি; এবং
- (ঙ) বায়ুমণ্ডলের পানি।

(২) এই আইনের বিধানাবলি সাপেক্ষে, সুপেয় পানি এবং পরিচ্ছন্নতা ও পয়ঃনিষ্কাশনের জন্য ব্যবহার্য পানির অধিকার সর্বাধিকার হিসাবে বিবেচিত হইবে।

উপধারা-(১) এ যাহা কিছুই থাকুক না কেন, ব্যক্তি মালিকানাধীন ভূমির ভূপরিষ্ক পানির সকল অধিকার উক্ত ভূমির মালিকের থাকিবে এবং তিনি এই আইনের বিধানাবলি সাপেক্ষে উহা ব্যবহার করিতে পারিবেন: তবে শর্ত থাকে যে, উক্ত পানির অপচয় ও অপব্যবহার রোধকল্পে এবং উহার সুরক্ষা ও সংরক্ষণের প্রয়োজনে নির্বাহী কমিটি বৈষম্যহীনভাবে যেকোন ভূমির মালিকের প্রতি সুরক্ষা আদেশ ইস্যু করিতে পারিবে।

(৩) এই আইন কার্যকর হইবার অব্যবহিত পূর্বে বলবৎ কোন আইন, বিধি, প্রবিধি, আইনের ক্ষমতা সম্পন্ন কোন প্রথা বা রীতি, চুক্তি, লাইসেন্স বা পারমিটের অধীন পানি ব্যবহারের ক্ষেত্রে উপ-ধারা (১) এর কোন কিছুই কোন ব্যক্তিকে বারিত করিবে না এবং এই আইন দ্বারা সীমিত, বারিত, নিয়ন্ত্রিত বা বাতিল করা না হইলে পানির উক্তরূপ ব্যবহার চলমান ও অব্যাহত থাকিবে:

তবে শর্ত থাকে যে, পানির উক্তরূপ ব্যবহারের অধিকার উপযুক্ত কর্তৃপক্ষের অনুমতি ব্যতীত হস্তান্তর যোগ্য হইবে না।

(৪) উপ-ধারা (৩) এর অধীন পানি ব্যবহারের সুবিধার্থে প্রত্যেক ব্যক্তির ব্যক্তি মালিকানাধীন বা রাষ্ট্রীয় ভূমিতে বর্তমানে থাকিবে (easement):

তবে শর্ত থাকে যে, জলাধারের তীরবর্তী ভূমি মালিকের উহার তলদেশ এবং ফোরশোরের উপর কোন প্রকার অধিকার থাকিবে না।

দ্বিতীয় অধ্যায়

জাতীয় পানি সম্পদ পরিষদ এবং উহার কার্যাবলী ও ক্ষমতা

৪। জাতীয় পানি সম্পদ পরিষদ।—

(১) এই আইনের উদ্দেশ্যপূরণকল্পে, জাতীয় পানি সম্পদ পরিষদ নামে একটি পরিষদ থাকিবে এবং এই আইন কার্যকর হইবার পর সরকার, যথাশীঘ্র সম্ভব, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, নিম্নবর্ণিত সদস্য সমন্বয়ে উক্ত পরিষদ গঠন করিবে, যথা:—

- (ক) প্রধানমন্ত্রী যিনি উহার চেয়ারপার্সনও হইবেন;
- (খ) অর্থ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (গ) কৃষি মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ঘ) পরিকল্পনা মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ঙ) স্থানীয় সরকার, পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (চ) আইন, বিচার ও সংসদ বিষয়ক মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ছ) ভূমি মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (জ) পানি সম্পদ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ঝ) পররাষ্ট্র মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ঞ) মৎস্য ও প্রাণি সম্পদ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;

- (ট) নৌ পরিবহণ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ঠ) পরিবেশ ও বন মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ড) পানি সম্পদ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত প্রতি মন্ত্রী (যদি থাকে);
- (ঢ) জাতীয় সংসদের পানি সম্পদ মন্ত্রণালয় সম্পর্কিত স্থায়ী কমিটির সভাপতি;
- (ণ) মন্ত্রী পরিষদ সচিব;
- (ত) প্রধানমন্ত্রী কার্যালয়ের মুখ্য সচিব;
- (থ) প্রধানমন্ত্রী কর্তৃক মনোনীত প্রশাসনিক বিভাগসমূহ হইতে একজন করিয়া সংসদ সদস্য;
- (দ) ভূমি মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ধ) অর্থনৈতিক সম্পর্ক বিভাগের সিনিয়র সচিব বা সচিব;
- (ন) মৎস্য ও প্রাণি সম্পদ মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (প) কৃষি মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ফ) পরিবেশ ও বন মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ব) স্থানীয় সরকার মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ভ) পররাষ্ট্র মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ম) লেজিসলেটিভ ও সংসদ বিষয়ক বিভাগের সিনিয়র সচিব বা সচিব;
- (য) পরিকল্পনা কমিশনের কৃষি, পানি সম্পদ ও পল্লী প্রতিষ্ঠান বিভাগের সদস্য;
- (র) বাংলাদেশ পানি উন্নয়ন বোর্ডের মহাপরিচালক;
- (ল) পানি সম্পদ পরিকল্পনা পরিষদের মহাপরিচালক;
- (শ) যৌথ নদী কমিশনের সদস্য;
- (ষ) ইনস্টিটিউট অব ইঞ্জিনিয়ার্স বাংলাদেশ এর প্রেসিডেন্ট;
- (স) ইনস্টিটিউট অব ডিপেন্ডামা ইঞ্জিনিয়ার্স বাংলাদেশ এর প্রেসিডেন্ট;
- (হ) প্রধানমন্ত্রী কর্তৃক মনোনীত ৩ (তিন) জন পানি বিশেষজ্ঞ;
- (ড়) প্রধানমন্ত্রী কর্তৃক মনোনীত বেসরকারি সেচ্ছাসেবী সংস্থার (এনজিও) ১(এক) জন প্রতিনিধি; এবং
- (ঢে) পানি সম্পদ মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব, যিনি উহার সদস্য-সচিবও হইবেন।
- (২) পরিষদের মনোনীত সদস্যগণের মেয়াদ হইবে ২ (দুই) বৎসর, তবে মনোনীত কোন সদস্য, মেয়াদ শেষ হইবার পূর্বে যে কোন সময়, প্রধানমন্ত্রীর উদ্দেশ্যে স্মারকযুক্ত পত্রযোগে স্বীয় পদত্যাগ করিতে পারিবেন এবং তদকর্তৃক পদত্যাগপত্র গৃহীত হইবার তারিখ হইতে সংশ্লিষ্ট পদটি শূন্য হইয়াছে বলিয়া গণ্য হইবে।
- (৩) সরকার, প্রয়োজনে, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, পরিষদের সদস্য সংখ্যা হ্রাস বা বৃদ্ধি করিতে পারিবে।
- ৫। পরিষদের কার্যাবলী।—এই আইনের উদ্দেশ্য পূরণকল্পে এবং উহার বিধানাবলী সাপেক্ষে, পরিষদ হইবে সর্বোচ্চ নীতি নির্ধারণী কর্তৃপক্ষ এবং তদুদ্দেশ্যে পরিষদের কার্যাবলী হইবে নিম্নরূপ, যথা:—

(ক) পানি সম্পদের সমন্বিত উন্নয়ন, সুষ্ঠু ব্যবহার, নিরাপদ আহরণ, সুখম বন্টন, সুরক্ষা ও সংরক্ষণ বিষয়ে নীতি নির্ধারণ ও দিক-নির্দেশনা প্রদান;

(খ) পানি সম্পদের সমন্বিত উন্নয়ন নিশ্চিতকল্পে জাতীয় পানি সম্পদ পরিকল্পনা সংক্রান্ত দিক-নির্দেশনা প্রদান;

(গ) জাতীয় পানি সম্পদ পরিকল্পনা অনুমোদন ও উহার বাস্তবায়ন নিশ্চিতকরণ; এবং

(ঘ) পরিষদ কর্তৃক নির্দিষ্টকৃত অন্য যেকোন কার্যাবলী সম্পাদন করা।

৬। পরিষদের সভা।—

(১) উপ-ধারা (২) এর বিধান সাপেক্ষে, পরিষদ উহার সভার কার্যপদ্ধতি নির্ধারণ করিতে পারিবে।

(২) পরিষদের সভা চেয়ারপারসন কর্তৃক নির্দিষ্টকৃত স্থান ও সময়ে পরিষদের সদস্য-সচিব কর্তৃক আহূত হইবে।

(৩) পরিষদের সভায় সভাপতিত্ব করিবেন উহার চেয়ারপারসন, বা তাহার অনুপস্থিতে জ্যেষ্ঠ সদস্য।

(৪) পরিষদের কোন সদস্যপদ শূন্য থাকিবার অথবা পরিষদ গঠনে কোন ত্রুটি থাকিবার কারণে পরিষদের কোন কার্য বা কার্যধারা অবৈধ হইবে না বা তৎসম্পর্কে কোন প্রশ্ন উত্থাপন করা যিবে না।

৭। আন্তর্জাতিক ও আঞ্চলিক সহযোগিতা আদান-প্রদান।—

(১) এই আইন ও আপাততঃ বলবৎ অন্যান্য আইনের বিধানাবলি সাপেক্ষে, পরিষদ, উপ-ধারা (২) এ উল্লিখিত সহযোগিতা কার্যকর করিবার লক্ষ্যে, যেকোন বিদেশী রাষ্ট্র, সরকার বা আন্তর্জাতিক বা আঞ্চলিক সংস্থার সহিত প্রয়োজনীয় সমঝোতা স্মারক, চুক্তি, কনভেনশন, ট্রিটি বা অনুরূপ কোন ইন্সট্রুমেন্ট (instrument) সম্পাদন করিতে সরকারকে পরামর্শ প্রদান করিতে পারিবে।

(২) সরকার, পরিষদের পরামর্শক্রমে, নিম্নবর্ণিত বিষয়ে যেকোন বিদেশী রাষ্ট্র, সরকার বা আন্তর্জাতিক ও আঞ্চলিক সংস্থার সহযোগিতা আদান-প্রদান করিতে পারিবে, যথা:—

(ক) অভিন্ন পানি সম্পদ সম্পর্কিত বিভিন্ন তথ্য-উপাত্ত বিনিময় ও বিশ্লেষণ;

(খ) আন্তর্জাতিক নদীর উপর যৌথ জরিপ, সমীক্ষা ও গবেষণা এবং উহার রাসায়নিক এবং জৈব দূষণ প্রতিরোধে যৌথ কার্যক্রম;

(গ) আন্তর্জাতিক নদীসমূহের পানি সম্পদের উন্নয়ন, আহরণ ও বন্টন কার্যক্রম; এবং

(ঘ) পানি সম্পদ সংশ্লিষ্ট শিক্ষা ও প্রশিক্ষণ কার্যক্রম।

৮। জাতীয় পানি নীতি প্রণয়নের ক্ষমতা।—

(১) সরকার, উপ-ধারা (২) এর বিধানাবলি সাপেক্ষে, সময়, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, পানি সম্পদ সংক্রান্ত জাতীয় পানি নীতি প্রণয়ন করিতে পারিবে।

(২) উপ-ধারা (১) এর অধীন জাতীয় পানি নীতি প্রণয়নের ক্ষেত্রে সরকার পানি সম্পদের সহিত সংশ্লিষ্ট জনগোষ্ঠী ও সংগঠনের মতামত গ্রহণের জন্য বিধি দ্বারা নির্ধারিত পদ্ধতিতে গণশুনানির আয়োজন করিবে এবং শুনানিতে প্রাপ্ত মতামত বিবেচনায় আনিয়া জাতীয় পানি নীতি চূড়ান্ত করিতে হইবে।

(৩) সরকার জাতীয় পানি নীতিতে উপযুক্ত কর্তৃপক্ষ কর্তৃক পানির মূল্য নির্ধারণের নীতিমালা অস্ত্রভুক্তির ক্ষেত্রে সরকার নিম্নবর্ণিত বিষয়সহ প্রাসঙ্গিক অন্যান্য বিষয় বিবেচনা করিবে, যথা:—

(ক) পানি ব্যবহারের উদ্দেশ্য বা ক্ষেত্রে;

- (খ) পানি সেবা ভোগীর সামর্থ্য;
- (গ) পানি আহরণ ও সরবরাহের প্রকৃত খরচ;
- (ঘ) সেবাতোগী বা উহার শ্রেণী বিশেষের আর্থিক ক্ষমতা ও অনগ্রসরতা;
- (ঙ) পানির চাহিদা ও সরবরাহ;
- (চ) সরকার কর্তৃক বিবেচিত অন্য কোন প্রাসঙ্গিক বিষয়।
- (৪) উপ-ধারা (১) এর অধীন জাতীয় পানি নীতি প্রণীত না হওয়া পর্যন্ত এই আইন কার্যকর হইবার অব্যবহিত পূর্বে সরকার কর্তৃক প্রণীত জাতীয় পানি নীতি, এই আইনের বিধানাবলির সহিত সামঞ্জস্যপূর্ণ হওয়া সাপেক্ষে, বলবৎ থাকিবে।

তৃতীয় অধ্যায়

নির্বাহী কমিটি এবং এর দায়িত্ব কর্তব্য ও ক্ষমতা

৯। নির্বাহী কমিটি।—পরিষদেও কার্যক্রম সুষ্ঠুভাবে পরিচালনার জন্য উহার একটি নির্বাহী কমিটি থাকিবে এবং নির্বাহী নিম্নবর্ণিত সদস্যগণের সমন্বয়ে গঠিত হইবে, যথা:—

- (ক) পানি সম্পদ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (খ) স্থানীয় সরকার, পল্লী উন্নয়ন ও সমবায় মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (গ) কৃষি মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ঘ) পরিবেশ ও বন মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ঙ) মৎস্য ও প্রাণি সম্পদ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (চ) ভূমি মন্ত্রণালয়ের দায়িত্বে নিয়োজিত মন্ত্রী;
- (ছ) পানি সম্পদ মন্ত্রণালয়ের দায়িত্বে নিয়োজিত প্রতি মন্ত্রী (যদি থাকে);
- (জ) পরিকল্পনা কমিশনের কৃষি, পানি সম্পদ ও পল্লী প্রতিষ্ঠান বিভাগের সদস্য;
- (ঝ) কৃষি মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ঞ) স্থানীয় সরকার বিভাগের সিনিয়র সচিব বা সচিব;
- (ট) লেজিসলেটিভ ও সংসদ বিষয়ক বিভাগের সিনিয়র সচিব বা সচিব;
- (ঠ) পানি সম্পদ মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ড) মৎস্য ও প্রাণি সম্পদ মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ঢ) পরিবেশ ও বন মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ণ) ভূমি মন্ত্রণালয়ের সিনিয়র সচিব বা সচিব;
- (ত) পরিবেশ অধিদপ্তরের মহাপরিচালক;
- (থ) বাংলাদেশ পানি উন্নয়ন বোর্ডের মহাপরিচালক;
- (দ) স্থানীয় সরকার প্রকৌশল অধিদপ্তরের প্রধান প্রকৌশলী;

- (ধ) জনস্বাস্থ্য প্রকৌশল অধিদপ্তরের প্রধান প্রকৌশলী;
- (ন) যৌথ নদী কমিশনের সদস্য;
- (প) সরকার কর্তৃক মনোনীত ২ (দুই) জন পানি বিশেষজ্ঞ;
- (ফ) সরকার কর্তৃক মনোনীত বেসরকারি সেচ্ছাসেবী সংস্থার (এনজিও) ১ (এক) জন প্রতিনিধি; এবং
- (ব) পানি সম্পদ পরিকল্পনা সংস্থার মহাপরিচালক, যিনি উহার সদস্য-সচিবও হইবেন।
- ১০। নির্বাহী কমিটির দায়িত্ব ও কর্তব্য।— নির্বাহী কমিটির দায়িত্ব ও কর্তব্য হইবে নিম্নরূপ, যথা:—
- (ক) পানি সম্পদ বিষয়ে পরিষদ কর্তৃক প্রদত্ত নির্দেশনা, সুপারিশ, ইত্যাদি প্রকাশ, প্রচার, পরিবীক্ষণ ও মূল্যায়ন;
- (খ) জাতীয় পানি নীতি ও জাতীয় পানি সম্পদ পরিকল্পনা প্রচার, পরিবীক্ষণ ও মূল্যায়ন;
- (গ) জাতীয় পানি নীতি ও জাতীয় পানি সম্পদ পরিকল্পনা, ব্যবস্থাপনা ও আন্মুখ্য:খাত সমন্বয় সংক্রান্ত সকল বিষয়ে কার্যক্রম গ্রহণ;
- (ঘ) পানি সম্পদ ব্যবস্থাপনা সংক্রান্ত বিষয়ের উপর পর্যাবৃত্তে পরিষদকে অবহিতকরণ ও পরামর্শ প্রদান;
- (ঙ) উপযুক্ত কর্তৃপক্ষের মধ্যে সমন্বয় সাধন ও আন্মুখ্য:সংস্থা বিরোধ নিষ্পত্তি সংক্রান্ত নীতি নির্ধারণ ও প্রয়োজনীয় নির্দেশনা প্রদান এবং প্রয়োজনে উহা নিষ্পত্তিকরণ; এবং
- (চ) পরিষদ কর্তৃক অর্পিত অন্য যে কোন কার্যাবলি সম্পাদন।

১১। নির্বাহী কমিটির সভা।—

- (১) এই আইনের বিধানাবলি সাপেক্ষে, নির্বাহী কমিটি উহার সবার কার্যপদ্ধতি নির্ধারণ করিতে পারিবে।
- (২) নির্বাহী কমিটি সকল সভা, সরকারের সম্মতিক্রমে, উহার সদস্য-সচিব কর্তৃক আহূত হইবে এবং সভাপতি কর্তৃক নির্দিষ্টকৃত স্থান ও সময়ে উক্ত সভা অনুষ্ঠিত হইবে।
- (৩) নির্বাহী কমিটির সভায় উহার সভাপতি সভাপতিত্ব করিবেন।
- (৪) নির্বাহী কমিটির কোন সদস্যপদ শূন্য থাকিবার অথবা নির্বাহী কমিটি গঠনে কোন ভ্রমটি থাকিবার কারণে নির্বাহী কমিটির কোন কার্য বা কার্যধারা অবৈধ হইবে না বা তৎসম্পর্কে কোন প্রশ্ন উত্থাপন করা যাইবে না।

১২। প্রতিপালন আদেশ (compliance order) ইস্যু করিবার ক্ষমতা।—

- (১) যথাযথ অনুসন্ধান, পরীক্ষা-নিরীক্ষা বা জরিপের ফলাফলের ভিত্তিতে যদি নির্বাহী কমিটি কোন ভ্রমটি থাকিবার কারণে নির্বাহী কমিটির নিকট প্রতীয়মান হয় যে, কোন ব্যক্তি বা উপযুক্ত কর্তৃপক্ষ ধারা ১৮, ১৯, ২০, ২১, ২২, ২৪ ও ২৬ এর কোন বিধান বা ছাড়পত্রের কোন শর্ত বা সুরক্ষা আদেশের কোন বিধি নিষেধ বা শর্ত প্রতিপালন বা পরিপালন করিতেছে না বা লংঘন বা লংঘনের চেষ্টা করিতেছে তাহা হইলে আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছু থাকুক না কেন নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কোন কর্মকর্তা, উক্ত ব্যক্তি বা উপযুক্ত কর্তৃপক্ষকে আদেশে উল্লিখিত নির্দিষ্ট সময়ের মধ্যে এই আইন বা সুরক্ষা আদেশের কোন বিধি-নিষেধ বা শর্ত প্রতিপালন করিবার জন্য প্রতিপালন আদেশ ইস্যু করিতে পারিবে।
- (২) নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কর্মকর্তা উপ-ধারা (১) এ উল্লিখিত প্রতিপালন আদেশ, ধারা ৪২ এর বিধান সাপেক্ষে বিধি দ্বারা নির্ধারিত পদ্ধতিতে জারি করিবে।
- (৩) প্রতিপালন আদেশের মর্মানুযায়ী কোন উপযুক্ত কর্তৃপক্ষ (ব্যক্তি ব্যতীত) এই আইন বা সুরক্ষা আদেশের কোন বিধি-নিষেধ বা শর্ত বা ছাড়পত্রের শর্ত প্রতিপালন না করে, তাহা হইলে নির্বাহী কমিটি, উক্ত কর্তৃপক্ষকে ধারা ২৯ এর

অধীন বিচার বিভাগীয় কার্যধারা গ্রহন বা জরিমানা আরোপ না করিয়া উহার প্রধানকে উক্তরূপ বিধি-বিধান বা শর্ত প্রতিপালন না করিবার কারণ ব্যাখ্যা করিবার জন্য, এই আইনের অন্যান্য বিধানে ভিন্নতর যাহা কিছুই থাকুক না কেন, কমিটির সভায় তলব করিতে পারিবে এবং উক্ত কারণ সন্তোষজনক না হইলে দায়ী ব্যক্তিকে চিহ্নিত করিয়া তাহার বিরুদ্ধে প্রয়োজনীয় ব্যবস্থা গ্রহনের জন্য পরিষদের নিকট সুপারিশ প্রদান করিতে পারিবে।

(৪) প্রতিপালন আদেশে অন্যান্য বিষয়ের সহিত নিম্নবর্ণিত বিষয়াদিও উল্লেখ থাকিবে, যথা:-

(ক) বিধি-নিষেধ বা লংঘনকারীর নাম ও ঠিকানাসহ পূর্ণাঙ্গ বিবরণ;

(খ) লংঘিত বিধি-বিধান বা শর্তাবলির বিবরণ;

(গ) প্রতিপালনের সময়সীমা;

(ঘ) নির্বাহী কমিটি কর্তৃক নির্দিষ্টকৃত অন্য কোন প্রয়োজনীয় বিষয়।

(৫) প্রতিপালন আদেশে আরও উল্লেখ থাকিবে যে, উপযুক্ত কারণ ব্যতীত উক্ত আদেশ প্রতিপালন না করা জরিমানাযোগ্য এবং দণ্ডনীয় একটি অপরাধ।

(৬) প্রতিপালন আদেশ ইস্যুর পূর্বে নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কোন কর্মকর্তা বিধি দ্বারা নির্ধারিত পদ্ধতিতে সংশ্লিষ্ট ব্যক্তি বা কর্তৃপক্ষকে শুনানির যুক্তিসঙ্গত সুযোগ প্রদান করিবে এবং সিদ্ধান্ত গ্রহনের ক্ষেত্রে তৎকর্তৃক উপস্থাপিত বক্তব্য বিবেচনা করিবে।

(৭) প্রতিপালন আদেশ জারির বিষয়টি, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, প্রিন্ট ও ইলেকট্রনিক মাধ্যমে গণবিজ্ঞপ্তি দ্বারা বহুল প্রকাশ ও সাধারণে প্রচারের ব্যবস্থা করা যাইবে।

১৩। অপসারণ আদেশ (removal order) ইস্যু করিবার ক্ষমতা।—

(১) এই আইন বা সুরক্ষা আদেশের কোন বিধি-নিষেধ বা ছাড়পত্রের কোন শর্ত লংঘন করিয়া যদি কোন ব্যক্তি বা উপযুক্ত কর্তৃপক্ষ পানি সম্পদের উপর এমন কোন স্থাপনা নির্মাণ বা ভরাট কার্যক্রম গ্রহন করেন যাহা জলস্রোতের স্বাভাবিক প্রবাহে বাধা সৃষ্টি বা উহার গতিপথ পরিবর্তন করে তাহা হইলে আপাততঃ বলবৎ অণ্য কোন আইনে যাহা কিছু থাকুক না কেন, নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কোন কর্মকর্তা উক্ত জলস্রোতের স্বাভাবিক প্রবাহ নিশ্চিতকল্পে আদেশে উল্লিখিত নির্দিষ্ট সময়ের মধ্যে উক্ত স্থাপনা অপসারণ বা ভরাট কার্যক্রমে ব্যবহৃত উপকরণ বা উপাদান অপসারণ করিবার জন্য উক্ত ব্যক্তি বা উপযুক্ত কর্তৃপক্ষের উপর অপসারণ আদেশ ইস্যু করিতে পারিবে।

(২) নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কর্মকর্তা উপ-ধারা (১) এ উল্লিখিত প্রতিপালন আদেশ, ধারা ৪২ এর বিধান সাপেক্ষে বিধি দ্বারা নির্ধারিত পদ্ধতিতে জারি করিবে।

(৩) অপসারণ আদেশ ইস্যুর পূর্বে নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কোন কর্মকর্তা বিধি দ্বারা নির্ধারিত পদ্ধতিতে সংশ্লিষ্ট ব্যক্তি বা কর্তৃপক্ষকে শুনানির যুক্তিসঙ্গত সুযোগ প্রদান করিবে এবং সিদ্ধান্ত গ্রহনের ক্ষেত্রে তৎকর্তৃক উপস্থাপিত বক্তব্য বিবেচনা করিবে।

(৪) অপসারণ আদেশে উল্লিখিত নির্দিষ্ট সময়ের মধ্যে কোন উপযুক্ত কারণ ব্যতীত স্থাপনা অপসারণ বা ভরাট কার্যক্রম বন্ধ করা না হইলে আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, নির্বাহী কমিটি, জলস্রোতের স্বাভাবিক প্রবাহ নিশ্চিতকল্পে, বিধি দ্বারা নির্ধারিত পদ্ধতিতে নোটিশ প্রদান করিয়া উক্তরূপ স্থাপনা অপসারণ বা ভরাট কার্যক্রমের প্রকৃত খরচ উক্ত ব্যক্তির নিকট হইতে ধারা ৪৩ এর বিধান সাপেক্ষে বিধি দ্বারা নির্ধারিত পদ্ধতিতে আদায় করিতে পারিবে।

(৫) অপসারণ আদেশে অন্যান্য বিষয়ের সহিত নিম্নবর্ণিত বিষয়াদিও উল্লেখ থাকিবে, যথা:—

(ক) স্থাপনা নির্মাণকারীর বা ভরাট কার্যক্রম গ্রহনকারীর নাম ও ঠিকানাসহ পূর্ণাঙ্গ বিবরণ;

(খ) অবৈধ স্থাপনা বা ভরাট কার্যক্রমের বিবরণ;

(গ) অপসারণের সময়সীমা;

(ঘ) নির্বাহী কমিটি কর্তৃক নির্দিষ্টকৃত অন্য কোন বিষয়।

(৬) স্থাপনা অপসারণ বা ভরাট কার্যক্রমে ব্যবহৃত উপকরণ বা উপাদান অপসারণের প্রকৃত খরচ অপসারণ কার্যক্রম গ্রহণের পূর্বে সংশ্লিষ্ট ব্যক্তির বক্তব্য বিবেচনা করিয়া নির্ধারণ করিতে হইবে।

(৭) অপসারণ আদেশ জারির বিষয়টি, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, প্রিন্ট ও ইলেকট্রনিক মাধ্যমে গণবিজ্ঞপ্তি দ্বারা বহুল প্রকাশ ও সাধারণে প্রচারের ব্যবস্থা করা যাইবে।

১৪। মহাপরিচালক কর্তৃক সাচিবিক সহায়তা পদান ও পরিদর্শকের ক্ষমতা অর্পণ।—

(১) মহাপরিচালক নির্বাহী কমিটির কার্যাবলি সুষ্ঠুভাবে সম্পাদনের লক্ষ্যে উহাকে সকল প্রকার প্রশাসনিক ও সাচিবিক সহায়তা প্রদান করিবে।

(২) এই আইনের উদ্দেশ্য পূরণকল্পে, মহাপরিচালকের দায়িত্ব হইবে নিম্নরূপ, যথা:—

(ক) পরিষদ ও নির্বাহী কমিটি কর্তৃক গৃহীত নীতি ও কর্মপন্থা বাস্তবায়ন ও প্রয়োগ করা;

(খ) পরিষদ ও নির্বাহী কমিটি নির্দেশনার আলোকে উহার সভায় উপস্থাপনের নিমিত্ত সকল প্রকার প্রস্তুতি;

(গ) যে কোন স্থান বা প্রকল্প এলাকা প্রদর্শন করা;

(ঘ) এই আইন সম্পর্কিত বিষয়ে জনসচেতনতা সৃষ্টির লক্ষ্যে প্রয়োজনীয় পদক্ষেপ গ্রহণ করা;

(ঙ) পরিষদ ও নির্বাহী কমিটি কর্তৃক, সময় সময়, অর্পিত অন্যান্য দায়িত্ব পালন করা।

(৩) মহাপরিচালক, পানি সম্পদ পরিকল্পনা সংস্থা বা অন্য কোন সংস্থার কোন কর্মকর্তা বা কর্মচারীকে এই আইনের উদ্দেশ্য পূরণকল্পে তাহার উপর উপ-ধারা (২) এর দফা (গ) এ বর্ণিত দায়িত্ব অর্পণ করিতে পারিবেন এবং উক্তরূপ দায়িত্বপ্রাপ্ত কর্মকর্তা বা কর্মচারী এই আইনের উদ্দেশ্য পূরণকল্পে পরিদর্শক নামে অভিহিত হইবে।

(৪) পরিদর্শক উপ-ধারা (৩) এর অধীন প্রদর্শনকালে পরিলক্ষিত যে কোন অনিয়ম বা ত্রুটি বা আদেশ লংঘন সম্পর্কে মহাপরিচালক বা তৎকর্তৃক নির্ধারিত কোন কর্মকর্তার নিকট প্রতিবেদন পেশ করিবেন।

চতুর্থ অধ্যায়

পানি সম্পদের উন্নয়ন ও ব্যবস্থাপনা কর্মকান্ড নিয়ন্ত্রণ

১৫। জাতীয় পানি সম্পদ পরিকল্পনা অনুমোদন।—

(১) এই আইন কার্যকর হইবার পর পানি সম্পদ পরিকল্পনা সংস্থা, যথাশীঘ্র সম্ভব, পানি সম্পদ পরিকল্পনা আইন, ১৯৯২ (১৯৯২ সনের ১২ নং আইন) এর অধীন তদকর্তৃক প্রণীতব্য জাতীয় পানি সম্পদ পরিকল্পনা অনুমোদনের জন্য নির্বাহী কমিটির মাধ্যমে পরিষদের নিকট উপস্থাপন করিবে।

(২) পানি সম্পদ পরিকল্পনা আইন, ১৯৯২ (১৯৯২ সনের ১২ নং আইন) এ উল্লিখিত বিষয়াদিসহ উক্ত পরিকল্পনায় নিম্নবর্ণিত বিষয়ও অঙ্গভুক্ত থাকিবে, যথা:—

(ক) পানি সম্পদের বর্তমান ভৌগোলিক অবস্থান ও মৌজা ম্যাপসহ উহার বিবরণ;

(খ) পানি সম্পদের অর্থনৈতিক, প্রাকৃতিক, সামাজিক, রাজনৈতিক, পরিবেশ ও পরিবেশগত এবং প্রাতিষ্ঠানিক উপাদান, বৈশিষ্ট্য ও প্রভাব বিশ্লেষণ;

(গ) পানি সম্পদের সকল তথ্য ও উপাত্তের বিজ্ঞানভিত্তিক বিশ্লেষণ;

- (ঘ) পানি সম্পদের আহরণ, বিতরণ, ব্যবহার, সুরক্ষা ও সংরক্ষণ সংক্রান্ত সার্বিক পরিকল্পনা, কাঠামো প্রণয়ন ও এতদসংশ্লিষ্ট বিষয়ে স্বল্প, মধ্য ও দীর্ঘ/মেয়াদি দিক নির্দেশনা;
- (ঙ) পানি সম্পদের ব্যবস্থাপনা সংক্রান্ত বিষয়ে মন্ত্রণালয়, বিভাগ ও সংস্থাসমূহের মধ্যে সমন্বয়;
- (চ) পানি সম্পদের বর্তমান ও ভবিষ্যত ব্যবহার;
- (ছ) বৃষ্টির পানির সর্বাঙ্গিক ব্যবহারসহ ভূপরিষ্ক এবং ভূগর্ভস্থ পানির সমন্বিত ব্যবহার;
- (জ) পানির লভ্যতা নিরূপণ;
- (ঝ) পানির গুণগত মান নির্ধারণ;
- (ঞ) অববাহিকাভিত্তিক উন্নয়ন পরিকল্পনা; এবং
- (ট) পানি ব্যবহারের অধাধিকার নিরূপণ।
- (৩) জাতীয় পানি সম্পদ পরিকল্পনা, উপ-ধারা (১) এর অধীন, পরিষদের নিকট অনুমোদনের জন্য উপস্থাপনের পূর্বে নির্বাহী কমিটি আন্তঃমন্ত্রণালয় আলোচনা বা মতবিনিময়ের মাধ্যমে নিশ্চিত করিবে যে, উহা এই আইন ও জাতীয় পানি নীতির সহিত সামঞ্জস্যপূর্ণ এবং যথার্থ।
- (৪) উপ-ধারা (৩) এর অধীন প্রয়োজনীয় ব্যবস্থা গ্রহণের পর নির্বাহী কমিটি উক্ত পরিকল্পনার একটি খসড়া সর্বসাধারণের অভিমত গ্রহণের জন্য সরকারি গেজেটে প্রাক-প্রকাশ করিবে এবং ডিজিটাল, ইলেকট্রনিক বা প্রিন্ট মিডিয়ায় উহার বহুল প্রচারের প্রয়োজনীয় ব্যবস্থা গ্রহণ করিবে।
- (৫) জাতীয় পানি সম্পদ পরিকল্পনার কোন বিষয়ে কোন ব্যক্তির কোন মন্তব্য বা সুপারিশ থাকিলে উপ-ধারা (৪) এর অধীন গেজেট প্রকাশের তারিখ হইতে ৯০ (নব্বই) দিনের মধ্যে নির্বাহী কমিটি বা তৎকর্তৃক নির্দিষ্টকৃত কর্মকর্তা বা কার্যালয়ের নিকট উক্ত মন্তব্য বা সুপারিশ ডিজিটাল, লিখিতভাবে বা অন্য কোন উপায়ে দাখিল বা প্রেরণ করিতে পারিবে।
- (৬) উপ-ধারা (৫) এর অধীন প্রাপ্ত মন্তব্য বা সুপারিশ যদি থাকে, বিশ্লেষণপূর্বক উহা বিবেচনায় লইয়া নির্বাহী কমিটি জাতীয় পানি সম্পদ পরিকল্পনাটি পুনঃপ্রস্তুত করিবে এবং উহা পরিষদের অনুমোদনের জন্য উপস্থাপন করিবে।
- (৭) পরিষদ উহার সভায় জাতীয় পানি সম্পদ পরিকল্পনার উপর যথাযথ আলোচনা করিয়া উহার যথার্থতার বিষয়ে নিশ্চিত হইয়া উহা অনুমোদন করিতে পারিবে বা উহাতে প্রয়োজনীয় সংশোধন আনয়ন করিতে পারিবে বা প্রয়োজনীয় সংশোধন করিবার জন্য নির্বাহী কমিটিকে নির্দেশ প্রদান করিতে পারিবে।
- (৮) পরিষদ কর্তৃক অনুমোদনের পর নির্বাহী কমিটি জাতীয় পানি সম্পদ পরিকল্পনাটি সরকারি গেজেটে প্রকাশ করিবে এবং পানি সম্পদ মন্ত্রণালয়ের ওয়েবসাইটে প্রচার করিবে।
- (৯) উপ-ধারা (৭) এর অধীন জাতীয় পানি সম্পদ পরিকল্পনা চূড়ান্ত না হওয়া পর্যন্ত, এই আইন কার্যকর হইবার অব্যবহিত পূর্বে পানি সম্পদ পরিকল্পনা সংস্থা কর্তৃক প্রণীত National Water Management Plan এই আইন ও জাতীয় পানি নীতির বিধানাবলির সহিত সামঞ্জস্যপূর্ণ হওয়া সাপেক্ষে, প্রয়োজনীয় অভিযোজনসহ বলবৎ থাকিবে।
- (১০) নির্বাহী কমিটি চূড়ান্তকৃত জাতীয় পানি সম্পদ পরিকল্পনার একটি কপি পানি সম্পদ উন্নয়ন প্রকল্প গ্রহণকারী বা প্রণয়নকারী বা বাস্তুবায়নকারী সকল সংস্থা বা উপযুক্ত কর্তৃপক্ষ বা স্থানীয় সরকার প্রতিষ্ঠানের নিকট প্রেরণ আইন ও জাতীয় পানি নীতির বিধানাবলি অনুসরণ এবং জাতীয় পানি সম্পদ পরিকল্পনা মধ্যে থাকিয়া পানি সম্পদ উন্নয়ন প্রকল্প গ্রহণ ও বাস্তুবায়নের জন্য অনুরোধ করিবে।

(১১) উপ-ধারা (১০) এর অধীন প্রদত্ত অনুরোধ পত্রে অন্যান্য বিষয়ের সহিত আরও উল্লেখ থাকিবে যে, এই আইন বা ছাড়পত্রে কোন শর্ত বা সুরক্ষা আদেশের কোন বিধি-নিষেধ বা শর্ত প্রতিপালন করা বাধ্যতামূলক এবং উপযুক্ত কারণ ব্যতীত উহা প্রতিপালন না করা জরিমানাযোগ্য এবং একটি দণ্ডনীয় অপরাধ।

(১২) এই আইনের অধীন জাতীয় পানি সম্পদ পরিকল্পনা চূড়ান্ত হইবার পর পানি সম্পদ উন্নয়ন প্রকল্প গ্রহনকারী বা প্রণয়নকারী বা বাস্তুবায়নকারী প্রত্যেক সংস্থা বা উপযুক্ত কর্তৃপক্ষ বা স্থানীয় সরকার প্রতিষ্ঠান জাতীয় পানি সম্পদ পরিকল্পনার সহিত সামঞ্জস্য রাখিয়া উক্ত প্রকল্প গ্রহন বা প্রণয়ন বা বাস্তুবায়ন করিতে বাধ্য থাকিবে।

ব্যাখ্যাঃ এই ধারায় “অববাহিকা” অর্থ বৃষ্টি, বরফ, তুষারপাত, ইত্যাদি হইতে সৃষ্ট প্রবাহ যে অঞ্চল বা অঞ্চলসমূহের উপর দিয়ে প্রবাহিত হইয়া জলাধারে পতিত হয়।

১৬। পানি সম্পদ উন্নয়ন প্রকল্পের ছাড়পত্র ইস্যুকরণ।—

১. আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, পানি সম্পদ উন্নয়ন প্রকল্প জাতীয় পানি সম্পদ পরিকল্পনার সহিত সামঞ্জস্য রাখিয়া উক্ত প্রকল্প গ্রহনকারী, প্রণয়নকারী বা বাস্তুবায়নকারী সংস্থা, উপযুক্ত কর্তৃপক্ষ, স্থানীয় সরকার প্রতিষ্ঠান প্রকল্পের কার্যক্রম শুরু করিবার পূর্বেই, বিধি দ্বারা নির্ধারিত পদ্ধতি বা শর্তে, নির্বাহী কমিটির নিকট আবেদন করিবে।

২. উপ-ধারা (১) এর অধীন আবেদন প্রাপ্তির পর নির্বাহী কমিটি উক্ত আবেদন এবং সংশ্লিষ্ট প্রকল্পের কাগজাদি পর্যালোচনাস্থ জাতীয় পানি সম্পদ পরিকল্পনার সহিত আবেদনকৃত প্রকল্পটি সামঞ্জস্যপূর্ণ কিনা উহা নিশ্চিত করিবে এবং বিধি দ্বারা নির্ধারিত পদ্ধতি ও শর্তে উক্ত আবেদন মঞ্জুর করিয়া ছাড়পত্র ইস্যু করিবে অথবা নামঞ্জুর করিয়া কারণ অবহিত করিবে।

৩. যদি কোন পানি সম্পদ উন্নয়ন প্রকল্প গ্রহনকারী, প্রণয়নকারী বা বাস্তুবায়নকারী কোন সংস্থা, উপযুক্ত কর্তৃপক্ষ বা স্থানীয় সরকার প্রতিষ্ঠান ছাড়পত্রের কোন শর্ত লংঘন করে বা এই আইনের কোন বিধানাবলি লংঘন করে, তাহা হইলে, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, প্রয়োজনীয় অনুসন্ধান করিয়া নির্বাহী কমিটি নিশ্চিত হইয়া উক্ত সংস্থা, কর্তৃপক্ষ বা প্রতিষ্ঠানকে বিধি দ্বারা নির্ধারিত পদ্ধতিতে শুনানির যুক্তিসঙ্গত সুযোগ প্রদান করিয়া উক্ত প্রকল্পের অনুকূলে প্রদত্ত ছাড়পত্র প্রত্যাহার করিতে পারিবে এবং উক্তরূপ প্রত্যাহারের বিষয়টি প্রিন্ট ও ইলেকট্রনিক মাধ্যমে বহুল প্রকাশ ও প্রচার করিতে পারিবে।

পঞ্চম অধ্যায়

পানি ব্যহার নিয়ন্ত্রণ এবং পানি সম্পদের সুরক্ষা ও সংরক্ষণ

১৭। পানি সংকটাপন্ন এলাকা ঘোষণা ও উহার ব্যবস্থাপনা।—

(১) সরকার নির্বাহী কমিটির সুপারিশের ভিত্তিতে জলাধার বা পানিধারক স্তরের সুরক্ষার জন্য, যথাযথ অনুসন্ধান, পরীক্ষা নিরীক্ষা বা জরিপের ফলাফলের ভিত্তিতে, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, যেকোন এলাকা বা উহার অংশবিশেষ বা পানি সম্পদ সংশ্লিষ্ট যেকোন ভূমিকে নির্দিষ্ট সময়ের জন্য পানি সংকটাপন্ন এলাকা হিসাবে ঘোষণা দিতে পারিবে।

(২) উপ-ধারা (১) এর অধীন জারিকৃত প্রজ্ঞাপনে মৌজা ম্যাপ ও দাগ নম্বর উল্লেখ করিয়া পানি সংকটাপন্ন এলাকার সীমানা নির্দিষ্ট করিতে হইবে।

(৩) নির্বাহী কমিটি পানি সংকটাপন্ন এলাকার সুষ্ঠু ব্যবস্থাপনা নিশ্চিত করিবার লক্ষ্যে, এই আইনের বিধানাবলি সাপেক্ষে, সুরক্ষা আদেশ দ্বারা যেকোন বিধি-নিষেধ আরোপ করিতে পারিবে।

১৮। পানি সংকটাপন্ন এলাকায় পানি সম্পদের অগ্রাধিকার ভিত্তিক ব্যহার ও অব্যাহতি।—

(৪) আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, জাতীয় ও স্থানীয় জনগোষ্ঠীর স্বার্থে, পানি সংকটাপন এলাকার পানির প্রাপ্যতা সাপেক্ষে, নিম্ন ক্রমানুযায়ী পানির আহরণ বা ব্যবহার করিতে হইবে, যথা:-

- (ক) খাবার পানি;
- (খ) গৃহস্থালী পানি;
- (গ) কৃষি কাজ;
- (ঘ) মৎস্য চাষ;
- (ঙ) পরিবেশের ভারসাম্য;
- (চ) বন্য প্রণী;
- (ছ) নদীতে পানি প্রবাহ অক্ষুন্ন রাখা;
- (জ) শিল্প খাত;
- (ঝ) লবনাক্ততা নিয়ন্ত্রণ;
- (ঞ) বিদ্যুৎ উৎপাদন;
- (ট) বিনোদন; এবং
- (ঠ) অন্যান্য।

(৫) নির্বাহী কমিটি, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, সংশ্লিষ্ট এলাকার আর্থ-সামাজিক অবস্থা ও জনগণের মতামতের ভিত্তিতে উপ-ধারা (১) উল্লিখিত ক্রম পরিবর্তন করিতে পারিবে।

(৬) এই ধারার উদ্দেশ্য পূরণকল্পে কোন পানি সংকটাপন এলাকার পানির প্রাপ্যতার বিষয়ে, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, ডিজিটাল, ইলেকট্রনিক বা প্রিন্ট মিডিয়ায় গণবিজ্ঞপ্তি দ্বারা বহুল প্রকাশ ও সাধারণে প্রচার করিতে হইবে।

১৯। ভূগর্ভস্থ পানিধারক স্তরের সর্বনিম্ন সীমা নির্ধারণ ও ভূগর্ভস্থ পানি আহরণে বিধি-নিষেধ।—

(১) আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, নির্বাহী কমিটি, যথাযথ অনুসন্ধান, পরীক্ষা-নিরীক্ষা বা জরিপের ফলাফলের ভিত্তিতে, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, যেকোন এলাকার ভূগর্ভস্থ পানিধারক স্তরের সর্বনিম্ন নিরাপদ আহরণ সীমা (safe yield) নির্ধারণ করিতে পারিবে।

(২) ভূগর্ভস্থ পানিধারক স্তরের সর্বনিম্ন নিরাপদ আহরণ সীমা যে এলাকার জন্য প্রযোজ্য হইবে সেই এলাকার মৌজা ম্যাপ ও দাগ নম্বর উল্লেখ করিয়া উহার সীমানা উপ-ধারা (১) এর অধীন জারিকৃত প্রজ্ঞাপনে নির্দিষ্ট করিতে হইবে।

(৩) কোন ব্যক্তি বা উপযুক্ত কর্তৃপক্ষ ভূগর্ভস্থ পানিধারক স্তরের সর্বনিম্ন নিরাপদ আহরণ সীমা ও বিদ্যমান অন্যান্য আইনের বিধানাবলি সাপেক্ষে, ভূগর্ভস্থ পানি আহরণের জন্য বিধি দ্বারা নির্ধারিত পদ্ধতিতে, গভীর বা অগভীর নলকূপ স্থাপন করিতে পারিবে।

(৪) ভূগর্ভস্থ পানিধারক স্তরের সর্বনিম্ন নিরাপদ আহরণ নিশ্চিত করিবার লক্ষ্যে নির্বাহী কমিটি, এই আইনের বিধানাবলি সাপেক্ষে, সুরক্ষা আদেশ দ্বারা যেকোন বিধি-নিষেধ আরোপ করিতে পারিবে।

ব্যাখ্যাঃ এই ধারায় “নিরাপদ আহরণ সীমা” অর্থ পানিধারক স্তর হইতে এমন কোন পরিমাণ উত্তোলন যাহার ফলে পানিধারক স্তর নিরাপদ ও সুরক্ষিত থাকে।

২০। জলস্রোতের স্বাভাবিক প্রবাহ নিশ্চিতকরণ।—

(১) উপযুক্ত কর্তৃপক্ষের অনুমতি ব্যতীত কোন ব্যক্তি বা সংস্থা, জলাধারে, তীরবর্তী হটক বা না হটক, স্থাপনা নির্মাণ করিয়া বা জলাধার ভরাট করিয়া বা জলাধার হইতে মাটি বা বালি উত্তোলন করিয়া জলস্রোতের স্বাভাবিক প্রবাহ বন্ধ বা উহার প্রবাহে বাধা সৃষ্টি বা উহার গতিপথ পরিবর্তন বা পরিবর্তনের চেষ্টা করিতে পারিবে না:

তবে শর্ত থাকে যে, জলাধারের উন্নয়নের স্বার্থে বা উহার তীরের ভাঙ্গন রোধকল্পে যথাযথ সমীক্ষার ভিত্তিতে এবং উপযুক্ত কর্তৃপক্ষের অনুমোদনক্রমে, জলাধারে যেকোন স্থাপনা নির্মাণ বা জলাধারসম্পূর্ণ বা উহার অংশবিশেষ ভরাট করা যাইবে:

আরও তবে শর্ত থাকে যে, প্রাকৃতিক বন্যার কবল হইতে জনসাধারণ ও তাহাদের সম্পদ রক্ষার্থে উপযুক্ত কর্তৃপক্ষের অনুমোদনক্রমে, ধারা (২) এর সামগ্রিকতাকে ক্ষুণ্ণ না করিয়া জলাধারে বন্যা নিয়ন্ত্রণ বাঁধ নির্মাণ করা যাইবে।

(২) জলস্রোতের স্বাভাবিক প্রবাহ নিশ্চিত করিবার লক্ষ্যে নির্বাহী কমিটি, এই আইনের বিধানাবলি সাপেক্ষে, সুরক্ষা আদেশ দ্বারা যেকোন বিধি-নিষেধ আরোপ করিতে পারিবে।

২১। বন্যা নিয়ন্ত্রণ বাঁধের সুরক্ষা।—

(১) বন্যা নিয়ন্ত্রণ বাঁধের স্থায়িত্ব রক্ষার স্বার্থে উহার উপর বা উহার পার্শ্বঢালে কোন ব্যক্তি কর্তৃপক্ষের অনুমোদন ব্যতীত, কোন প্রকার ঘরবাড়ি, স্থাপনা বা অবকাঠামো নির্মাণ করিতে পারিবে না।

(২) উপ-ধারা (১) এ যাহা কিছুই থাকুক না কেন, বাঁধ মজবুতকরণ এবং সরকারের বনায়ন কর্মসূচি বাস্তবায়নের জন্য, প্রচলিত নীতিমালা অনুসরণপূর্বক বাঁধের পার্শ্বে সুসংগঠিত ও পরিকল্পিত উপায়ে উপযুক্ত বৃক্ষ রোপণ করা যাইবে।

(৩) উপ-ধারা (১) এ যাহা কিছুই থাকুক না কেন, বাঁধের সুরক্ষার জন্য ব্যবহৃত ভূমির সর্বোত্তম ব্যবহার নিশ্চিতকরণ কল্পে বন্যা নিয়ন্ত্রণ বাঁধ, উপযুক্ত কর্তৃপক্ষের অনুমোদনক্রমে সড়ক বা রাস্তা হিসাবে ব্যবহার করা যাইবে।

(৪) যদি কোন ব্যক্তি, উপযুক্ত কর্তৃপক্ষের অনুমতি ব্যতীত, উপ-ধারা (১) এর বিধান লংঘন করিয়া বন্যা নিয়ন্ত্রণ বাঁধের উপর ঘরবাড়ি, স্থাপনা বা অবকাঠামো নির্মাণ করেন, তাহা হইলে নির্বাহী কমিটি বিদ্যমান অন্যান্য আইনে যাহা কিছুই থাকুক না কেন, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, অপসারণ আদেশ প্রদান করিতে পারিবে।

(৫) বন্যা নিয়ন্ত্রণ বাঁধের স্থায়িত্ব নিশ্চিত করিবার জন্য নির্বাহী কমিটি, এই আইনের বিধানাবলি সাপেক্ষে, সুরক্ষা আদেশ দ্বারা যেকোন বিধি-নিষেধ আরোপ করিতে পারিবে।

২২। জলাধার সংরক্ষণ ও ব্যবস্থাপনা।—

(১) আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, যথাযথ অনুসন্ধান, পরীক্ষা-নিরীক্ষা বা জরিপের ফলাফলের ভিত্তিতে, নির্বাহী কমিটির নিকট যদি এই মর্মে প্রতীয়মান হয় যে,—

(ক) কোন প্রাকৃতিক বা অন্য কোন কারণে সুপেয় পানির তীব্র সংকট থাকায় সুপেয় পানির উৎস হিসাবে কোন দীঘি, পুকুর বা অনুরূপ কোন জলাধার সংরক্ষণ করা আশু প্রয়োজন; বা

(খ) অতিথি পাখির নিরাপদ অবস্থান, অবাধ বিচরণ এবং অভয়াশ্রম নিশ্চিত করিবার জন্য কোন হাওড়, বাঁওড় বা অনুরূপ কোন জলাধার সংরক্ষণ করা আশু প্রয়োজন—

তাহা হইলে নির্বাহী কমিটি, সীমানা নিধারণ করিয়া সুপেয় পানির উৎস হিসাবে সংশ্লিষ্ট জলাধার সংরক্ষণের জন্য উহার মালিক বা উপযুক্ত কর্তৃপক্ষকে সুরক্ষা আদেশ প্রদান করিতে পারিবে।

(২) উপ-ধারা (১) এর অধীন প্রদত্ত আদেশ জলাধারের মৌজা ম্যাপ ও দাগ নম্বর উল্লেখ করিয়া উহার সীমানা নির্দিষ্ট করিতে হইবে।

(৩) জলাধারের সুষ্ঠু ব্যবস্থাপনা নিশ্চিত করিবার লক্ষ্যে নির্বাহী কমিটি, এই আইনের বিধানাবলি সাপেক্ষে, সুরক্ষা আদেশ দ্বারা যেকোন বিধি-নিষেধ আরোপ করিতে পারিবে।

২৩। পানি অঞ্চলে বিভক্তিকরণ ও উহার ব্যবস্থাপনা।—

(১) পানি কার্যকর এবং সুষ্ঠু ব্যবহারের উদ্দেশ্যে সংশ্লিষ্ট অন্যান্য মন্ত্রণালয়, বিভাগ বা সংস্থার সহিত আলোচনা ও সমন্বয়পূর্বক নির্বাহী কমিটি, যথাযথ অনুসন্ধানের ভিত্তিতে সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, যেকোন এলাকাকে নিম্নরূপ অঞ্চলে বিভক্ত করিতে পারিবে, যথা:—

- (ক) শিল্প পানি অঞ্চল;
- (খ) কৃষি পানি অঞ্চল;
- (গ) ঈষৎ লোনা পানিতে মৎস্য চাষ (ব্রাকিশ একুয়াকালচার) পানি অঞ্চল;
- (ঘ) হ্যাচারি পানি অঞ্চল।

(২) উপ-ধারা (১) এ উল্লিখিত পানি অঞ্চলের সুষ্ঠু ব্যবস্থাপনা নিশ্চিত করিবার লক্ষ্যে নির্বাহী কমিটি, এই আইনের বিধানাবলি সাপেক্ষে, সুরক্ষা আদেশ দ্বারা যেকোন বিধি-নিষেধ আরোপ করিতে পারিবে।

২৪। পানি মজুতকরণে বিধি-নিষেধ।—

(১) উপযুক্ত কর্তৃপক্ষের অনুমতি এবং এই আইন অনুসরণ ব্যতিরেকে কোন ব্যক্তি কোন জলস্রোতের পানি প্রাকৃতিক বা কৃত্রিম ধারাকে মজুদ করিতে পারিবে না।

(২) পানি মজুতকরণ কর্মকান্ড নিয়ন্ত্রণ করিবার জন্য নির্বাহী কমিটি, এই আইনের বিধানাবলি সাপেক্ষে, সুরক্ষা আদেশ দ্বারা যেকোন বিধি-নিষেধ আরোপ করিতে পারিবে।

২৫। বন্যা নিয়ন্ত্রণ অঞ্চল ঘোষণা ও উহার ব্যবস্থাপনা।—

(১) বন্যার জলস্রোতের প্রবাহ নির্বিঘ্ন করিবার লক্ষ্যে যথাযথ অনুসন্ধান ও জরিপের ফলাফলের ভিত্তিতে নির্বাহী কমিটি, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, যেকোন জলাভূমিকে, জাতীয় প্রয়োজনীয় জনগোষ্ঠীর স্বার্থে, বন্যা নিয়ন্ত্রণ অঞ্চল হিসাবে ঘোষণা করিতে পারিবে।

(২) উপ-ধারা (১) এর অধীন জারিকৃত প্রজ্ঞাপনে বন্যা নিয়ন্ত্রণ অঞ্চলের মৌজা ম্যাপ ও দাগ নম্বর উল্লেখ করা উহার সীমানা নির্দিষ্ট করিতে হইবে।

(৩) উপ-ধারা (১) এর অধীন ঘোষিত বন্যা নিয়ন্ত্রণ অঞ্চলের সুরক্ষার জন্য নির্বাহী কমিটি, সাধারণ ক্ষেত্রে বিধি দ্বারা এবং বিশেষ ক্ষেত্রে আদেশ দ্বারা, উক্ত অঞ্চলের মধ্য দিয়া বন্যার পানির প্রবাহে বাঁধা বা জলাধারের পানির প্রবাহ পরিবর্তনকারী যেকোন কর্মকান্ড নিষিদ্ধকরণ বা উহার উপর শর্তারোপ করিতে পারিবে।

২৬। জলাধারের সমগ্র পানি আহরণের বিধি-নিষেধ।—(১) আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, জলাধারের সমগ্র পানি আহরণ করিয়া সম্পূর্ণ নিঃশেষ করা যাইবে নাঃ

তবে শর্ত থাকে যে, এই আইনের বিধানাবলি সাপেক্ষে, ব্যক্তিমালিকানাধীন জলাধারের পানি আহরণের ক্ষেত্রে এই ধারার বিধানাবলি প্রযোজ্য হইবে না।

২৭। সুরক্ষা আদেশ ইস্যু ও উহার দ্বারা বিধি-নিষেধ বা শর্তারোপের ক্ষমতা।—

(১) আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, নির্বাহী কমিটি, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, ধারা ৪২ এর বিধান সাপেক্ষে, সুরক্ষা আদেশ ইস্যু করিতে পারিবে ও জারি করিবে।

(২) সুরক্ষা আদেশ প্রদানের পূর্বে, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, সংশ্লিষ্ট এলাকার জনগণকে শুনানির সুযোগ প্রদান করিয়া তাহাদের বক্তব্য বিবেচনা করিতে হইবে।

(৩) সুরক্ষা আদেশে অন্যান্য বিষয়ের সহিত আরও উল্লেখ থাকিবে যে, উপযুক্ত কারণ ব্যতীত উক্ত আদেশ প্রতিপালন করা বাধ্যতামূলক এবং উহা প্রতিপালন না করা জরিমানাযোগ্য এবং একটি দণ্ডনীয় অপরাধ।

(৪) এই ধারার উদ্দেশ্য পূরণকল্পে সুরক্ষা আদেশ জারির বিষয়টি, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, ডিজিটাল, ইলেকট্রনিক ও প্রিন্ট মিডিয়ায় গণবিজ্ঞপ্তি দ্বারা বহুল প্রকাশ ও সাধারণে প্রচার করিতে হইবে।

২৮। পানি দূষণ নিয়ন্ত্রণ।— পানি দূষণ নিয়ন্ত্রণের ক্ষেত্রে বাংলাদেশ পরিবেশ সংরক্ষণ আইন, ১৯৯৫ (১৯৯৫ সনের ১ নং আইন) এর বিধানাবলি প্রযোজ্য হইবে।

ব্যাখ্যাঃ “পানি দূষণ” অর্থ প্রত্যক্ষ বা পরোক্ষভাবে পানির ভৌত, রাসায়নিক বা জৈব গুণাবলির ক্ষতিকর কোন পরিবর্তন।

ষষ্ঠ অধ্যায় অপরাধ, দণ্ড ও বিচার

২৯। প্রতিপালন বা সুরক্ষা আদেশ লংঘন করিবার দণ্ড, অর্থদণ্ড ও জরিমানা।—

(১) যদি কোন ব্যক্তি ইচ্ছাকৃতভাবে এই আইনের অধীন জারিকৃত কোন প্রতিপালন বা সুরক্ষা আদেশ লংঘন করেন বা অবজ্ঞা করেন, তাহা হইলে তিনি, উপ-ধারা (২) এর বিধান সাপেক্ষে, অনধিক ৫(পাঁচ) বৎসর কারাদণ্ড অথবা অনধিক ১০(দশ) হাজার টাকা অর্থদণ্ড বা উভয় দণ্ডে দণ্ডিত হইবেন।

(২) যদি কোন ব্যক্তি ইচ্ছাকৃতভাবে এই আইনের অধীন জারিকৃত কোন প্রতিপালন বা সুরক্ষা আদেশ লংঘন করেন বা অবজ্ঞা করেন, তাহা হইলে উপ-ধারা (১) এ যাহা কিছুই থাকুক না কেন, নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কোন কর্মকর্তা বিধি দ্বারা নির্ধারিত ক্ষেত্র, পদ্ধতি ও সীমা অনুযায়ী জরিমানা আরোপ করিয়া প্রথমবার অপরাধের দায় অবলোপন করিতে পারিবে এবং দ্বিতীয়বার বা তৎপরবর্তীতে উক্ত আদেশ ভংগ বা অবজ্ঞার ক্ষেত্রে উহা উপ-ধারা (১) এর অধীন অপরাধ হিসাবে গণ্য হইবে।

(৩) নির্বাহী কমিটি বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কোন কর্মকর্তা উপ-ধারা (২) এর অধীন জরিমানা আরোপের পূর্বে, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, সংশ্লিষ্ট ব্যক্তিকে নোটিশের মাধ্যমে শুনানির যুক্তিসংগত সুযোগ প্রদান করিবেন।

ব্যাখ্যাঃ এই ধারায়, “জরিমানা” অর্থে আদালত কর্তৃক অর্থদণ্ড অস্বাভূক্ত হইবে না।

৩০। বাধা প্রদানের দণ্ড।—

(১) যদি কোন ব্যক্তি এই আইনের অধীন দায়িত্ব পালনরত কোন কর্মকর্তা বা কর্মচারীকে তাহার দায়িত্ব বা কর্তব্য পালনে ইচ্ছাকৃতভাবে বাধা প্রদান করে অথবা উক্তরূপ কোন ব্যক্তিকে কোন প্রতিষ্ঠান, ভূমি বা প্রকল্প এলাকা পরিদর্শন করিবার জন্য যুক্তিসংগত সুযোগ প্রদান করিতে ইচ্ছাকৃতভাবে অস্বীকার করেন বা অবহেলা করেন, তাহা হইলে তিনি অনধিক ৫(পাঁচ) বৎসর কারাদণ্ড অথবা অনধিক ১০(দশ) হাজার টাকা অর্থদণ্ড বা উভয় দণ্ডে দণ্ডিত হইবেন।

(২) কোন ব্যক্তি উপ-ধারা (১) এ উল্লিখিত দায়িত্ব পালনরত কোন কর্মকর্তার তলব অনুযায়ী তাহার সম্মুখে কোন রেজিস্টার, নথি বা দলিল দস্তাবেজ উপস্থাপন করিতে ইচ্ছাকৃতভাবে অস্বীকার করিলে বা ব্যর্থ হইলে অথবা উক্তরূপ দায়িত্ব পালনরত কোন কর্মকর্তার সম্মুখে কোন ব্যক্তিকে হাজির হইতে বা তাহার জবানবন্দী গ্রহণ করিতে ইচ্ছাকৃতভাবে বাধা প্রদান করিলে বা বাধা প্রদানের চেষ্টা করিলে, তিনি অনধিক ৩(তিন) মাস কারাদণ্ড অথবা অনধিক ২(দুই) হাজার টাকা অর্থদণ্ড বা উভয় দণ্ডে দণ্ডিত হইবেন।

ব্যাখ্যাঃ এই ধারায়, “বাধা” অর্থে আদালত হুমকি অস্বাভূক্ত হইবে।

৩১। মিথ্যা প্রদানের দণ্ড।—যদি কোন ব্যক্তি উদ্দেশ্য প্রণোদিতভাবে বা জ্ঞাতসারে কোন মিথ্যা বা বিকৃত তথ্য প্রদান বা তথ্য গোপন করেন, তাহা হইলে তিনি অনধিক ১ (এক) বৎসর কারাদণ্ড অথবা অনধিক ৩ (তিন) হাজার টাকা অর্থদণ্ড বা উভয় দণ্ডে দণ্ডিত হইবেন।

৩২। অপরাধের বিচার, আমলযোগ্যতা, ইত্যাদি।

(১) আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, এই আইনের অধীন সংঘটিত অপরাধসমূহ প্রথম শ্রেণীর জুডিশিয়াল ম্যাজিস্ট্রেট বা মেট্রোপলিটন ম্যাজিস্ট্রেট কর্তৃক বিচার্য হইবে।

(২) এই আইনের অধীন সংঘটিত অপরাধসমূহ জামিনযোগ্য (bailable) ও অ-আমলযোগ্য (non-cognizable) হইবে।

(৩) এই আইনের অধীন সংঘটিত কোন অপরাধের বিচার সংক্ষিপ্ত পদ্ধতিতে অনুষ্ঠিত হইবে।

৩৩। ফৌজদারী কার্যবিধির প্রয়োগ।— এই আইনের বিধানাবলি সাপেক্ষে, এই আইনে বর্ণিত যেকোন অপরাধের তদন্ত, বিচার, আপিল এবং আনুষঙ্গিক সকল বিষয়ে ফৌজদারী কার্যবিধি প্রযোজ্য হইবে।

৩৪। কোম্পানী বা প্রতিষ্ঠান কর্তৃক অপরাধ সংঘটন।—কোন কোম্পানী বা প্রতিষ্ঠান কর্তৃক এই আইনের অধীন কোন অপরাধ সংঘটিত হইলে বা কোন বিধান লঙ্ঘিত হইলে উক্ত অপরাধ বা লঙ্ঘনের সহিত প্রত্যক্ষ সংশ্লিষ্টতা রহিয়াছে উক্ত কোম্পানী বা প্রতিষ্ঠানের এইরূপ প্রত্যেক পরিচালক, নির্বাহী, ম্যানেজার, সচিব বা অন্য কোন কর্মকর্তা বা কর্মচারী বা প্রতিনিধি উক্ত অপরাধ বা লঙ্ঘন করিয়াছেন বলিয়া গণ্য হইবে, যদি না তিনি প্রমাণ করিতে পারেন যে, উক্ত অপরাধ বা লঙ্ঘন তাহার অজ্ঞাতসারে সংঘটিত হইয়াছে অথবা উক্ত অপরাধ বা লঙ্ঘন রোধ করিবার জন্য তিনি যথাসাধ্য চেষ্টা করিয়া অকৃতকার্য হইয়াছেন।

ব্যাখ্যা: এই ধারায়:-

(ক) “কোম্পানী” বা “প্রতিষ্ঠান” অর্থে নির্গমিত বা নিবন্ধিত হউক বা না হউক, যেকোন কোম্পানী, সংস্থা, প্রতিষ্ঠান অংশীদারী কারবার, সমিতি বা একাধিক ব্যক্তি সমন্বয়ে গঠিত সংগঠন বা সংস্থা অন্তর্ভুক্ত হইবে; এবং

(খ) “পরিচালক” অর্থে অংশীদার বা পরিচালনা বোর্ডের সদস্য অন্তর্ভুক্ত হইবে।

৩৫। অপরাধের সহায়তাকারী।—যদি কোন ব্যক্তি কোন অপরাধ সংঘটনে সহায়তা বা সহযোগিতা করেন বা প্ররোচিত বা প্রলুব্ধ করেন তাহা হইলে তিনি অপরাধ সংঘটনকারীর ন্যায় একইভাবে দায়ী হইবেন।

৩৬। অপরাধ বিচারার্থে গ্রহণ।—মহাপরিচালক বা তৎকর্তৃক ক্ষমতাপ্রাপ্ত কোন কর্মকর্তার লিখিত অভিযোগ ব্যতীত কোন আদালত এই আইনের অধীন কোন মামলা বিচারার্থে গ্রহণ করিবে না।

সপ্তম অধ্যায় বিবিধ

৩৭। পানির মূল্য অব্যাহতির ক্ষমতা।— আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, সরকার, উপযুক্ত কর্তৃপক্ষের সহিত পরামর্শক্রমে, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, জাতীয় বা স্থানীয় স্বার্থে পানি সেবাস্বার্থে যে কোন ব্যক্তি শ্রেণীকে কোন নির্দিষ্ট সময় বা এলাকার ক্ষেত্রে গৃহস্থালী ও সাধারণ কৃষি কাজে ব্যবহৃত পানির মূল্য প্রদানের দায় হইতে বৈষম্য ব্যতিরেকে অব্যাহতি প্রদান করিতে পারিবে।

৩৮। তথ্য প্রযুক্তির ব্যবহার।—এই আইনের অধীন কোন কার্য সম্পাদন, ক্ষমতা প্রয়োগ ও দায়িত্ব পালনের ক্ষেত্রে, এই আইনে বিধৃত পদ্ধতির অতিরিক্ত তথ্য ও যোগাযোগ প্রযুক্তি আইন, ২০০৬ (২০০৬ সনের ৩৯ নং আইন) এর বিধান সাপেক্ষে এবং উক্ত আইনে সংজ্ঞায়িত অর্থে তথ্য প্রযুক্তি ব্যবহার করা যাইবে।

৩৯। ক্ষমতা অর্পণ।—পরিষদ, সাধারণ বা বিশেষ আদেশ দ্বারা, এই আইনের অধীন উহার যেকোন ক্ষমতা বা কার্যাবলি প্রয়োজনবোধে এবং তৎনির্দিষ্টকৃত শর্ত সাপেক্ষে, নির্বাহী কমিটি, নির্বাহী কমিটির সভাপতি, মহাপরিচালক, পরিদর্শক বা অন্য কোন কর্মকর্তাকে অর্পণ করিতে পারিবে।

৪০। প্রবেশ, রেকর্ডপত্র যাচনা, জিজ্ঞাসাবাদ, ইত্যাদি ক্ষমতা।—এই আইনের উদ্দেশ্য পূরণকল্পে, পরিষদ বা নির্বাহী কমিটি বা এতদুদ্দেশ্যে সাধারণ বা বিশেষভাবে ক্ষমতাপ্রাপ্ত প্রত্যেক কর্মকর্তা বা পরিদর্শক নিম্ন বর্ণিত ক্ষমতা প্রয়োগ করিতে পারিবে, যথা:—

(ক) যেকোন সরকারি বা বেসরকারি ভূমিতে বা প্রকল্প এলাকায় প্রবেশ এবং যেকোন ব্যক্তিকে জিজ্ঞাসাবাদ বা রেকর্ডপত্র বা তথ্য উপাত্ত যাচনা ও পর্যালোচনা করা;

(খ) উক্ত ভূমি বা এলাকা বা উহাতে অবস্থিত কোন কিছু পরিদর্শন করা; এবং

(গ) উক্ত ভূমি বা এলাকায় যেকোন অনুসন্ধান বা নমুনা সংগ্রহ বা জরিপ পরিচালনা করা।

৪১। পানি সম্পদ পরিকল্পনা সংস্থাকে সহায়তার ক্ষেত্রে বাধ্যবাধকতা।—এই আইনের অধীন ক্ষমতা প্রয়োগ বা কার্যসম্পাদনের উদ্দেশ্যে পানি সম্পদ পরিকল্পনা সংস্থা বা উহার নিকট হইতে ক্ষমতাপ্রাপ্ত ব্যক্তি যেকোন সরকারি-বেসরকারি সংবিধিবদ্ধ কর্তৃপক্ষকে, বা উহাদের কর্মকর্তা ও কর্মচারীকে, প্রয়োজনীয় সহায়তা প্রদানের জন্য অনুরোধ করিতে পারিবে এবং এইরূপে অনুরোধ করা হইলে, উক্ত কর্মকর্তা ও কর্মচারী, কর্তৃপক্ষ বা সংস্থা উক্তরূপ সহায়তা প্রদান করিবে।

৪২। আদেশ জারি।—এই আইনের অধীন ইস্যুকৃত কোন নোটিশ বা আদেশ, কোন ব্যক্তির উপর জারি করা প্রয়োজন হইলে, উহা উক্ত ব্যক্তির উপরে যথাযথভাবে জারি করা হইয়াছে বলিয়া গণ্য হইবে, যদি উহা—

(ক) উক্ত ব্যক্তি বা তাহার প্রতিনিধি কর্তৃক ব্যক্তিভাবে গ্রহণ করা হয়;

(খ) উক্ত ব্যক্তির সর্বশেষ জ্ঞাত বাংলাদেশের বাসস্থানে বা ব্যবসায়ের স্থানে রেজিস্ট্রিকৃত ডাকযোগে প্রেরণ করা হয়;

(গ) ইলেকট্রনিক পদ্ধতিতে প্রেরণ বা প্রচার করা হয়; বা

(ঘ) বহুল প্রকাশিত জাতীয় দৈনিক পত্রিকায় প্রকাশ ও প্রচার করা হয়।

৪৩। অর্থ আদায়ের পদ্ধতি।—

(১) এই আইনের অধীন কোন ব্যক্তির নিকট জরিমানার টাকা বা পাওনা অনাদায়ী থাকিলে নির্বাহী কমিটি উপ-ধারা

(২) এর বিধান সাপেক্ষে, বিধি দ্বারা নির্ধারিত পদ্ধতিতে, উহা আদায় করিতে

(২) কোন ব্যক্তির নিকট হইতে এই আইনের অধীন কোন পাওনা আদায়ের উদ্দেশ্যে, নির্বাহী কমিটি আপাততঃ বলবৎ অন্য কোন আইনে ভিন্নতর যাহা কিছুই থাকুক না কেন, উক্ত ব্যক্তির ব্যাংক এ্যাকাউন্ট ফ্রিজ করিবার জন্য যেকোন ব্যাংক কর্তৃপক্ষকে অনুরোধ করিতে পারিবে।

৪৪। তথ্য প্রাপ্তি অধিকার।—প্রত্যেক ব্যক্তি তথ্য অধিকার আইন, ২০০৯ (২০০৯ সনের ২০ নং আইন) এ সজ্জায়িত অর্থে এবং উক্ত আইনের বিধানাবলি সাপেক্ষে, পরিষদ বা নির্বাহী কমিটি বা এই আইনের অধীন ক্ষমতাপ্রাপ্ত যেকোন কর্মকর্তা কর্তৃক সম্পাদিত কার্য, প্রয়োগকৃত ক্ষমতা, পালনকৃত দায়িত্ব, গৃহীত ব্যবস্থা বা প্রদত্ত আদেশ সম্পর্কে তথ্য প্রাপ্তির অধিকারী হইবেন।

৪৫। বিধি প্রণয়নের ক্ষমতা।—এই আইনের উদ্দেশ্য পূরণকল্পে এবং উহার বিধানাবলি সাপেক্ষে, সরকার, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা বিধি প্রণয়ন করিতে পারিবে।

৪৬। ইংরেজিতে অনূদিত পাঠ প্রকাশ।—

(১) এই আইন কার্যকর হইবার পর সরকার, সরকারি গেজেটে প্রজ্ঞাপন দ্বারা, এই আইনের বাংলা পাঠের ইংরেজিতে অনূদিত একটি নির্ভরযোগ্য পাঠ (Authentic English Text) প্রকাশ করিতে পারিবে।

(২) বাংলা পাঠ ও ইংরেজি পাঠের মধ্যে বিরোধের ক্ষেত্রে বাংলা পাঠ প্রধান্য পাইবে।

৪৭। রহিতকরণ ও হেফাজত।—(১) ধারা ৪ এবং ধারা ৯ এর অধীন যথাক্রমে জাতীয় পানি সম্পদ পরিষদ এবং নির্বাহী কমিটি গঠিত হইবার সংগে সংগে জাতীয় পানি সম্পদ পরিষদ এবং নির্বাহী কমিটি গঠিত সংক্রান্ত ইতোপূর্বে জারীকৃত সকল প্রজ্ঞাপন রহিত হইবে এবং উক্ত প্রজ্ঞাপনসমূহের দ্বারা গঠিত জাতীয় পানি সম্পদ পরিষদ এবং নির্বাহী কমিটি বিলুপ্ত হইবে।

(২) উপ-ধারা (১) এর অধীন বিলুপ্ত হওয়া সত্ত্বেও, বিলুপ্ত জাতীয় পানি সম্পদ পরিষদ, ক্ষেত্রমত, নির্বাহী কমিটি কর্তৃক কৃত কার্যক্রম বা গৃহীত ব্যবস্থা এই আইনের অধীন কৃত বা গৃহীত হইয়াছে বলিয়া গণ্য হইবে এবং এই আইনের সহিত সামঞ্জস্যপূর্ণ হওয়া সাপেক্ষে অব্যাহত থাকিবে।^{৬৬}

The Act drafted in 2012 and passed for enforcement as a law in 2013 named Bangladesh Water Act 2013. The goal of this act is to provide legal provisions for effectiveness of Bangladesh Water Policy, 1999 for facilitating and ensuring the integrated, equitable, and sustainable management, development, and utilization of water resources and its conservation.

Sub-section 1 of section 24 stated that no one can make water reservoir using normal water flow of rivers without the permission of legal authority.

Sub-section 2 of section 25 stated that concern executive committee, with the aim for ensuring flow of flood water, can declare any wetlands as flood controled area for the sake of national and public interest based on the results of necessary survey and investigation. It does not clarify what will be the national and public interest and it does not also consider about the adverse impact on surrounding environment especially aquatic resource such as fresh water fish and fish species. Becuase this provision does not ensure to include relevant personel of required department/agencies where adverse impact may create.

However, it would be said that Bangladesh Water Act, 2013 is a comprehensive act for water resource development and conservation though there are some weak points. For instance, it does not have any provisions about creation and conservation of water reservoir, wetlands and waterbodies. As we know Bangladesh is enriched with fresh water fishes and wetlands and different waterbodies are the shelters of the fresh water fishes. Only water resource development and conservation does not ensure the development and conservation of wetlands and different aquatic resources specially fish which is

⁶⁶ *Bangladesh water Act, 2013, (Draft), Ministry of water resources, Government of the Peoples Republic of Bangladesh.*

the available sources of protein for rural as well as urban population. On the other hand, this water act has options to fill up or stop the water channels of rivers for recovery of land with due permission of the proper authority, which shows lack of this act, because stopping or closing any natural watercourse or channel will create hazards of aquatic biodiversity, land degradation and siltation of waterbodies. So aquatic flora and fauna will be degraded if any channel or river or any other watercourse divert or close, in this case fresh water fish will be highly affected in that areas. The description of this law is detailed in the draft but now it is concised. Many issues like this are not properly addressed. This law mentioned about penalties about violeting law is sufficient. However, the concern authority must implement this act efficiently as required in present needs and stakeholder's compliance is needed for the protection and conservation of wetlands ecosystems and biodiversity for sustainable development processes.

Bangladesh water Act, 2013 and Environment Policy and Environmental Action Plan 1992

It is observed that Bangladesh Water Act, 2013 has some provisions which would be the cause of fish and fish habitat degradation such as permission of fill up river, divert of river flow, build flood control embankment, and resident building on the river bank.

Moreover, Environment Policy 1992 and Environmental Action Plan 1992 do not allow build any structure, which pollute fresh water and degrade fish and fish habitat.⁶⁷

It is said that Bangladesh Water Act 2013 has some provisions, which is not coordinate with the Environment Policy 1992 and Environmental Action Plan 1992. So, government should amendment this provision for sound environment especially aquatic environment.

2.3 Conclusion

It can be said from the above discussion that fish and fish species are associated with the fill up of protein for human being, economic development and play vital role to reduce poverty from the society specially in developing country like Bangladesh. In the past, Bangladesh has no deficit of fish. Because, Bangladesh was blessed with vast water resources like rivers, canals, haors, beels, ponds, and lakes as the growing places of fish. In terms of

⁶⁷ *The Environment Policy, 1992, and the Environmental Action Plan, 1992*, Ministry of Environment & Forest, Government of the Peoples Republic of Bangladesh.

fisheries laws and policies, it is observed that most of the laws are enacted in British colonial era and the punishment sets in different laws is also insignificant which is contrarily encouraging to violate these laws.

After independence of Bangladesh, the fisheries sector has developed with the help of donor agencies providing projects for conservation and development of fisheries resources. In the meantime, the major fish acts such as Protection and Conservation of Fish Act 1950 which is assumed as the milestone law regarding fisheries, has been brought about with two amendments in the year of 1985 and 2002. Later on, the Government formulated and passed the Environment policy in 1992 including fishery, and the Fisheries Extension Policy in 1998. Later on, in the aspect of development of fisheries laws, we see that the sectorial fisheries laws are gradually developed. But the fisheries laws are associated with some other laws such as the Canals Act 1864, the Irrigation Act 1876, the Agricultural and Sanitary Improvement Act 1920, the Private Fisheries Protection Act 1889, the Tanks Improvement Act 1939, the Embankment and Drainage Act 1952, the Government Fisheries (protection) Ordinance 1959, the Agricultural Development Corporation Ordinance 1961, the Agricultural Pesticides Ordinance 1971, the Bangladesh Fisheries Development Corporation Act 1973, the Fisheries Research Institute Ordinance 1984, Environment Policy 1992, Environment Conservation Act 1995, Jalmaal Management Policy 2009, Bangladesh Water Act 2013 etc.

However, from the above discussion it is hardly found integrations among these laws and policies for conserving aquatic resources specially fish and fish habitats due to lack of appropriate provisions. However, some relevant sections of the substantive laws such as penal code and also the constitutional obligations may be amounted for the conservation and development of the fish and fish species in Bangladesh. But it is regrettable that these substantive laws bear insignificant provisions for the conservation and development of the fish, and fish species, fish habitats, aquatic biodiversities, and ecosystems etc. Different ministries and agencies developing, planning and implementing development works in their respective ministries or agencies, for sustainable development there should have an integration processes for coordinations and sharing each other so that any activities does not create any adverse impact on other sectors. Laws and policy development did not take place in such manner, consequently, there are many incidents occurred in Bangladesh during implementation of development works that creates adverse impacts on other sector, Bhabodaha Beel areas is the live instance in Bangladesh as the impact

of embankment construction for flood control by Water Development Board where water created permanent logging and till people are suffering from that water logging. Concern Authority did not consider about adverse impact due to this development works during planning and implementing. Scholars and policy makers called it as policy conflict where authority tries to develop its own sector without considering any hazard may create with this on other sector. This is occurring due insufficient and inappropriate provisions in present legal systems. So there is need legal initiatives to develop a strong integration and coordination among the ministries and development agencies in Bangladesh to evade the development destruction of environment in Bangladesh.

Chapter-3

Inconsistencies in Environmental Action Plan 1992 regarding Aquatic Biodiversity Conservation

The aim of this chapter is to analyse the Environmental Action Plan 1992 and to find out the insufficiencies and appropriateness regarding protection and development of aquatic biodiversity specially the fresh water fisheries. Action Plan 1992 includes different sectors such as: Agriculture, Industries, Fuel and Energy, Water Development, Flood Control and Irrigation, Land, Forest, Wildlife and Biodiversity, Fish and Livestock Resources, Food, Coastal and Marine Environment, Communication and Transport, Housing and Urban development, Population, Education and Mass awareness, Science, Technology and Research, Legal Framework, and Organizational Structure. The National Environmental Action Plan, 1992 recommended sector specific action plans to achieve the objectives of the National Environment Policy 1992.

3.1 Introduction

Environment conservation is a crying need for existence and progress of life on earth. In recent years, ongoing degradation and pollution of environment has posed a serious threat to the existence of all living beings and to the progress of human civilization. In view of various adverse impacts on environment, the Government of Bangladesh has given special importance for protection and improvement of environment and its resources.

Environmental degradations and depletion of natural resources such as primary signs of desertification in the northern districts, intrusion of salinity in the rivers, land erosion, fast depletion of forest resources, terrestrial and aquatic biodiversity degradation, depletion of ecology are often observed in Bangladesh due to poverty, over-population and lack of awareness on the subject. It is manifested by deforestation, destruction of wetlands, depletion of soil nutrients, etc. Natural calamities like floods, cyclones and tidal-bores also result in severe socio-economic and environmental damage. Against this drawback, the government has established the ministry of Environment and Forest and upgraded the Department of Environment in order to coordinate and supervise the activities concerning protection and improvement of the environment.

Several socio-economic maladies like poverty, population density, illiteracy, excessive use of natural resources, lack of public awareness etc., have emerged as serious impediments to the protection and improvement of environment and it is necessary to address these problems adequately simultaneously with issues concerning development of environment in an integrated manner. Therefore, government adopted Environmental Policy 1992 to implement it's commitment to environment and mitigate other environment related problems. With the adoption of the Environmental Policy, 1992 and the Environmental Action Plan, 1992 the concept of environmental protection through national efforts was first recognized and declared. The importance of policies in beefing up the environmental regime is recognized in a number of international instruments including the World Conservation Strategy in 1980 and the Brundtland Commission Report, 1987. Paragraph 14 of Chapter 8 of Agenda 21 underscored the necessity of formulation of national policies as well as laws for environmental protection and sustainable development. The major objectives of Environmental Policy are to:

- i) maintain ecological balance and overall development through protection and improvement of the environment;
- ii) protect country against natural disaster;
- iii) identify and regulate activities, which pollute and degrade the environment;
- iv) ensure environmentally sound development in all sectors; and
- v) ensure sustainable, long term and environmentally sound base of natural resources; and
- vi) actively remain associate with all international environmental initiatives to the maximum possible extent.

The National Environment Policy has made some sectorial environment policies such as Fisheries, Agriculture, Animal husbandry, Forestry, Industry, Health and Sanitary, Land, Water development, Flood control and Irrigation, Population, Housing and, Urbanization etc.⁶⁸

Accordingly government has drawn an Environmental Action Plan in the same year 1992 to achieve the objectives and implement the policy recommendations of the National Environmental Policy 1992. However, sector wise plans of the Action Plan 1992 are discussed and analysed here to find out

⁶⁸ Mohiuddin Frooque, S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996), pp. 729-737.

the inconsistencies regarding aquatic biodiversity especially fresh water fisheries and conservation of fish habitats.

3.2 Sectors in Environmental Action Plan

3.2.1 Agriculture

According to the Environment Action Plan 1992-

1. A field based national level survey will be undertaken in agriculture with the objectives of replenishing and or enhancing the organic components and conserving the nutrients in the soil, and extension of the practices of a sustainable agriculture. Effective steps will be taken for mitigation of relevant problems on the basis of results of such a survey.
2. The use of chemical insecticides and pesticides has to be regulated. Production, import and use of those chemical insecticides and pesticides which have a long term residue and keep accumulating in the environment such as DDT, compounds rich in chlorinated hydro-carbon have to be phased out gradually and prohibited as soon as possible considering the realities. Use of quickly degradable chemicals may be allowed under controlled conditions. Organic methods of pest control will be expanded and integrated pest management which will be introduced.
3. Proper and regulated use of chemical fertilizers will be ensured. Use of organic fertilizers will be increasingly emphasized.
4. Imported seeds, seedlings and plants will be properly quarantined to exercise necessary caution against probable adverse environmental impact.
5. Natural methods of pest control will be encouraged through of ensuring protection, safety and multiplication under natural environment of frogs, fishes, lizards, snakes, turtles and other wild animals.
6. Steps should be taken to establish an agricultural system based on local ecosystem, rate of population growth and demands of the national economy. For agricultural crops and products under pressure, alternatives will be introduced.
7. The use of synthetic fibers will be reduced. Besides, the use of natural fibers such as jute and jute goods will be increased.⁶⁹

⁶⁹ Ibid. p. 738.

Section 1 of Agriculture sector in Action Plan recognizes that there is a need of a field based survey in agriculture with the objectives of enhancing the organic components and conserving the nutrients in the soil and introducing sustainable agriculture practices. For enhancing agriculture activities and production appropriate measures must be taken on the basis of survey result. However, agriculture sector of Environmental action Plan does not consider to assess the impacts of agricultural activities on surrounding environment because as we know agricultural activities are the largest environment activity in world, so that it would create some adverse impacts on other environmental components that must be taken into consideration for sustainable agriculture as well as our environment. Therefore, it assumes that there exists conflicts between Environmental Policy and Action Plan 1992 and also there are conflicting issues with the section 5(1) of Environmental Conservation Act 1995 as well.

Section 2 of Agriculture sector under Action Plan permits use of chemical insecticide and pesticide in agriculture field for pest control for more production but there is no option for assessment of environmental impact and human health effect. It is also polluting environment especially the surrounding wetlands and waterbodies which has adverse effect on fresh water fishes and fish breeding as well. For other reasons, it is also playing a role for degrading aquatic biodiversity day by day and depleting ecology. So it seems the violation of Environmental Conservation Act 1995, Environmental rules 1997, the Protection and Conservation of Fish Act 1950, and Jalmaal Management Policy 2009. Therefore, government should take initiative for amendment of this section in order to protect surrounding environment and conserve fresh water fish as well as other aquatic biodiversity.

3.2.2 Industries

According to the Environment Action Plan 1992-

1. Industries identified by the department of environment will take pollution control measures as soon as possible.
2. Existing industries that are potential polluters will make provisions to introduce pollution control measures.
3. All new industries either Government or Private will conduct Environmental Impact assessment and incorporate pollution control measures.
4. Steps will be taken to shift the industries located in residential areas to appropriate locations and planned industrial zones will be delineated.

5. Approval of new industries for production of environmentally hazardous and non-biodegradable wastes as goods will be prohibited gradually.
6. New industries proposing to use hazardous and or poisonous wastes will be prohibited.
7. Industries using heavy metals such as mercury, chromium lead etc., will be initially discouraged and finally prohibited.
8. Pollutant Industries will install their own pollution monitoring devices.
9. "Waste permit order" system will be established in the industrial sector, so that waste disposal and waste refinement will be facilitated.
10. Recycling will be encouraged to reduce waste.
11. Appropriate steps will be taken to ensure protection of health of industrial workers.⁷⁰

Sections 1, 2 and 3 of industry sector under the Action Plan describes about industrial pollution control. In case of noncompliance of these sections by any industry or such polluters that pollutes surrounding environment, wetlands and waterbodies whether it is closed or open, there is no option how the industries will take appropriate measures to mitigate such pollution and to what extent punishment would be so that owners of the industries are bound to comply with the laws and action plan. The department of Environment has also limited power to punish such industries. Therefore it could be assumed that polluting industry may not feel guilty for pollution activities. Thus, it degrades aquatic environment and depletion of fresh water fish and fish species and other aquatic resources through polluting the waterbodies. In this regard it is found that there are no integration and coordination among these sections of action plan and the Environmental Conservation Act 1995, Environmental Conservation Rules 1997, Jalmaal Management Policy 2009, and Bangladesh Water Act 2013.

Section 5 of Industry sector will gradually prohibit production of environmentally hazardous and non-biodegradable wastes as goods. However, there is no time limit of gradual prohibition as well as there is consideration about its impact resulted from such environmentally hazardous and non-biodegradable products on surrounding environment such as soil, water and waterbodies, biodiversity and ecology. On the other hand, Environmental Conservation Act 1995 does not permit such production as goods rather prohibits any such industrial production which causes and seems to be caused

⁷⁰ Ibid. pp. 739-742.

the degradation or pollution of environment. It is a policy conflict among these laws, policies and action plan. Therefore, the concerned authority should change and modify this section for the interest of environment.

3.2.3 Health and Sanitation

According to the Environment Action Plan 1992-

1. Supply of clean water in rural and urban areas will be ensured. Low cost sanitary latrines will be installed instead of unsanitary latrines.
2. Waste discharge in rivers, canals and all other waterbodies from industries, municipalities and agricultural or other sources will be stringently regulated through enactment and implementation of appropriate laws.
3. Open trucks will not be allowed to collect transport or dump garbage during the day in urban areas.
4. Necessary steps will be taken to protect the environment and public health from the adverse impact of all radioactive substances, radioactive equipments including X-rays, atomic research installations and atomic furnaces etc.⁷¹

Section 2 of Health and Sanitation sector of Environmental Action Plan says that wastes produced by industries, municipalities and agricultural or other sources that are thrown to rivers, canals, and all other waterbodies will be stringently regulated through enactment and implement of appropriate laws. However, it is found out that appropriate laws and policies are not enacted yet. Therefore, there are no sufficient and appropriate laws to punish the offenders. As a result, waterbodies or wetland polluting by such wastes is a common phenomenon in present days of Bangladesh which are creating adverse impacts on surrounding environment and aquatic biodiversity especially fresh water fish and fish habitats. So, wastes discharge in rivers, canals and other waterbodies from industries and municipalities will be entirely stopped to protect our biotic and abiotic environment especially aquatic biodiversity and ecology for existence of human being. This section of action plan 1992 might create conflicts with the Protection and Conservation of Fish Act 1950, Environmental Conservation Act 1995 and Environmental Conservation rules 1997 because laws aiming at similar activities must have a strong integration and coordination so that any conflicting issues would not be created and stakeholders do not get any chance to avoid these laws. So, it needs to amend for ensuring pollution free sustainable environment.

⁷¹ Ibid. p. 742.

3.2.4 Fuel and Energy

According to the Environment Action Plan 1992-

1. Large scale projects will be implemented for introduction and expansion of improved stoves to ensure fuel conservation and protection of the environment.
2. In the rural areas the use of gas, coal, kerosene and petrol as fuel will be expanded, so that fuel wood, agricultural residues and cowdung is conserved. This will help use of agricultural residues and cowdung etc. as biomanure.
3. Energy will be supplement in the rural areas with bio-gas, solar energy, minihydro-electric units, and wind mills.
4. Fuel contaminants and additives such as sulfur in diesel and lead in petrol will be reduced, along with other pollutants in various types of fuels.
5. Research will be encouraged to discover alternative sources of fuel.
6. Careful observation will ensure that there is no adverse impact on the environment due to the primary or industrial consumption of fuel.
7. Appropriate measures will be taken to ensure that extraction, distribution and use of natural resources such as oil, gas, coal, peat etc. do not adversely affect the air, water, land, the hydrological balance and the ecosystem.
8. The feasibility of the use of lead free petroleum will be studied.
9. To control smoke emission of vehicles, careful consideration will be given before allowing fitness certificates. Along with it, conducting mobile courts will ensure proper legal enforcement.⁷²

Section 7 of Fuel and Energy sector reveals that there is no option to take any action against concerned ministry in case of adverse effect on the air, water, land, hydrological balance, biodiversity and ecosystem through extraction and distribution of minerals and other natural resources such as oil, gas, coal, peat etc. Moreover, if any incident occurs during extraction and distribution of such natural resources and that degrades surrounding environment and biodiversity, there is no option to take any action against those agencies or ministries. On the other hand, Environmental Conservation Act 1995 permits the punishment of such offences, but the Protection and Conservation of Fish Act 1950 and National Fisheries Policy 1999 does not

⁷² Ibid. pp. 743-744.

have any policy options about the degradation of wetland and fresh water fisheries results from the extraction of minerals and natural resources. Also there are no sufficient integration and cooperation options among the National Water Policy 1999, Jalmahal Management Policy 2009 and Bangladesh Water Act 2013 with the Environmental Action Plan 1992 rather in some cases there are conflicting issues among these laws and action plan.

Section 9 of Fuel and Energy sector is about controlling smoke emission of vehicles, which says that careful consideration will be given before allowing fitness certificates. Along with it, conducting mobile courts will ensure proper legal enforcement. But in reality, those types of vehicles are running on the roads and high ways that reveal the weak enforcement of this law. Moreover, Environmental Conservation Act 1995, section 6, sub-section 1, says that no vehicle will drive in the roads and high ways that emit black smoke which creates adverse impact on the surrounding environment. So, there must be a strong basis of laws as well as coordination and integration means for effective enforcement.

3.2.5 Water Development, Flood Control, and Irrigation

According to the Environment Action Plan 1992-

1. Environmental audit on an emergency basis will be conducted for water resources development, flood control and irrigation projects. Steps to mitigate the adverse impact on the environment identified in the audit will be taken through appropriate modification of these projects.
2. Environmental Impact assessment will be incorporated in all new projects and adverse impact will be prevented through proper steps and adequate investments.
3. Treatment of domestic and industrial waste before discharging in rivers, wetlands or other water bodies will be strictly enforced.
4. Rivers, canals and other water bodies will be dredged to increase their water holding capacity and navigability.
5. Regional and International cooperation will be integrated to strengthen national efforts to control floods, desertification, and salinity.
6. Steps will be taken to ensure that development projects on irrigation, roads and highways, embankments etc. do not impede drainage and sewerage or obstruct the flow and velocity of water. Special projects will be taken to mitigate such problems including other environmental issues.

7. Special projects will attempt to recharge aquifers that have low water table. Attempt will be made to rectify the existing projects so the water table does not go down any further.
8. Water will be identified as the most important and valuable natural resource. The organizations dealing with water resources development will activate themselves as national resources management agencies.
9. Operation and maintenance will be ensured subsequent to execution of projects related to water resources development and management. Regular monitoring will be conducted to evaluate the impact of all projects.
10. All organizations involved with water resources management will form their own environment cells.
11. Regular surveys, research, and monitoring will be conducted on changing courses and conditions of rivers, wetlands and other water bodies.⁷³

In section 1 under water development, flood control and irrigation sector of Environmental Action 1992, there are options for control flood measures and for environmental impact assessment before implementing any flood control projects and to mitigate the impact of flood control measures. Flood control measures such as embankment, dam, sluiceway, cross dam etc., create obstacles to natural water flow of river into the adjacent beel, haor, baor, canal and others closed or open waterbodies from rivers. Due to obstacle create from the flood control measure land becomes infertile, increase land erosion, wetlands dry up in the dry season and consequently it results degradation of biodiversity and ecology. It has also adverse impact on whole environmental system as observing the country at present. Accordingly, aquatic biodiversity and ecology is depleting in alarmingly. In addition, it is creating conflicts with the Environmental Conservation Act 1995 and Environmental Conservation Rules 1997 since this law and rules does not permit to construct any flood control measures which creates adverse impact on aquatic environment and biodiversity.

Section 6 under water development, flood control and irrigation sector of Environmental Action 1992 permits to construct embankment, road and irrigation project implement in any places seems to be appropriate and necessary steps will be taken to ensure that development projects on irrigation, roads and highways, embankments etc. do not impede drainage and sewerage and obstruct the flow and velocity of natural water systems. But it is hardly observed that any projects implemented in such manner, contrarily we

⁷³ Ibid. pp. 744-746.

observed adverse impact of flood control measures on environment specially on wetland, aquatic biodiversity and ecology. In addition, Environment Conservation Act 1995 and Environment Conservation Rules 1997 prohibit such kind of flood control and irrigation projects which creates or might be created adverse impact on surrounding environment. As we know due to flood control interventions, fish cannot migrate from one place to another during breeding period. Moreover, it creates hindrance of natural water flow. There is no direction about what amount of water to use irrigation in agriculture production from different surface water sources such as beel, river, canal or any other wetland. So, it is a great threat for our environment especially aquatic biodiversity and indigenous fish. It also conflicts with the Protection and Conservation of Fish Act 1950, National Fisheries Policy 1999, National Water Policy 1999 and Bangladesh Water Act 2013.

Therefore, it seems Ministry of Agriculture, Fisheries and Livestock and Land Ministry should be included with Ministry of Water Development Board as the implementing agencies for water development, flood control and irrigation since they are the main stakeholders of Water Development, Flood Control and Irrigation so that any project, from planning to implementation, achieve in a sustainable way.

3.2.6 Land

According to the Environment Action Plan 1992-

1. A national land use plan will be drawn up and implemented on a priority basis. It will be based on land capability and land suitability classification after considering socio-economic reality and comparative needs related to agriculture, afforestation, industrialization, urbanization and housing etc.
2. Special integrated land conservation projects will be implemented to prevent desertification in the northern part of the country.
3. Appropriate steps will be taken to address issues on soil erosion, fertility conservation, land reclamation and protection and development of land in coastal areas.
4. Excavation and leveling of hilly areas, removing soil, and rocks, destroying the natural landscape and the ecological balance will not be allowed. Watershed management will be given priority.
5. Land use legislation and effective enforcement will be introduced to ensure planned land use.

6. People will be duly compensated for acquisition and requisition of land by Government and for consequential degradation or damage of their land.
7. Regular monitoring survey and research will be conducted on desertification in the north, land reclamation, diverse land use, conservation of coastal areas, watershed management and soil erosion and degradation.⁷⁴

Aims of land sector of action plan are to develop and conserve land resource in Bangladesh. However, it seems this sector of action plan treats wetlands and waterbodies as simply land but not as full of aquatic resources because wetlands and waterbodies are the major natural fresh water fish habitats and the safe shelter of other aquatic flora and fauna. So this section does not emphasise on the development of wetland and waterbodies which is the main source of fresh water fishes in Bangladesh. Because it is said that land, water and natural fish habitat are interrelated and interdependent. For this reason, it is observed that there are several conflicting issues among the land, water resources and fisheries and livestock ministries as well as with the Environmental Conservation Act 1995.

3.2.7 Forest, Wildlife, and Biodiversity

According to the Environment Action Plan 1992-

1. Steps will be taken to protect present forest resources, prevent deforestation and effect extensive afforestation.
2. Enrichment plantation of reserve forest will be accelerated.
3. Growing more trees and enriching forest resources in the rural area will be given priority through extensive implementation of social forestry and homestead forestry.
4. Agro-forestry will be encourages to promoting multiple use of land, economic and environmental development.
5. Forest industries will actively attempt to explore alternative source of raw material. They will also make efforts to grow and procure their own raw materials either directly or indirectly.
6. Development projects in all sectors will incorporate and implement the Government decision of afforestation.
7. Effective measures will be taken to ensure direct participation of women in afforestation programs in thanas and villages.

⁷⁴ Ibid. pp. 746-747.

8. Priority will be given to the protection of wildlife, wetlands birds and animals. Research and development projects will ensure protection of nearly extinct species.
9. The present prohibition on hunting and export of wildlife and wildlife hides will continue. Prevention of wildlife habitats, establishment of wildlife sanctuaries will be encouraged.
10. Research on biodiversity, exchange of knowledge and experience will be strengthened. For this purpose, research and information centres will be established and surveys will be conducted to assess latest status of wildlife and biodiversity.
11. Alternative building materials and fuel sources instead of wood and import of wood will be encouraged.
12. Regular surveys and research will be conducted to assess the state of deforestation, forest expansion, and afforestation.⁷⁵

Government adopts a specific Action Plan to achieve the objectives of the National Environmental Policy 1992. Forest, Wildlife and Biodiversity sector is one of them. There is no doubt that it is an outstanding step to protect forest, wildlife and biodiversity and ecology. But success depends on of any action plan that means how it will implement complying with existing laws and policies and to what extent. Moreover, there are no guidelines and supplementary laws and policies to enforce and implement this action plan. Thus questions have been arisen that how it is possible to protect forest, biodiversity, ecology and environment though such weak and non-responsive laws and policies for implementing Action Plan. So, it would not be possible to protect and develop forest and forest resources, wildlife and biodiversity without efficient legal and policy supports. And there is also lack of integration and coordination with the Protection and Conservation of Fish Act 1950 and Environmental Conservation Act 1995 because wetlands and fishery is a major resource among the forest resources. There must have sufficient legal and policy options to implement the action plan and existing conflicting issues should be mitigate.

3.2.8 Fish and Livestock Resources

According to the Environment Action Plan 1992-

1. Steps will be taken to rehabilitate wetlands such as haors, baors, and beels and declared them as protected areas for pisciculture. Wetland areas will not be encroached upon.

⁷⁵ Ibid. pp. 748-749.

2. Pisciculture will be encouraged in all ponds and tanks. Over extraction of fish from ponds and wetlands will be prohibited. Similar prohibition will be effected for shrimp fry and other fish resources.
3. Ministry of Environment and Forest will advise on the environmental aspects of protection and augmentation of shrimp cultivation. The Government will delineate appropriate coastal area for shrimp cultivation.
4. Necessary researches and programs for prevention of fish disease and epidemics will be strengthened.
5. Proper slaughter houses will be established by local administration to prevent indiscriminate slaughtering of animals. Necessary steps will be taken for public awareness regarding proper disposal of carcasses and waste from slaughterhouses
6. Protection of pasture in rural areas and establishing a minimum area for pasture in all villages will be considered on a priority basis.
7. Regular monitoring and research will be conducted on the state of wetlands like haors, baors and beels etc.⁷⁶

In section 1, 2, 3 and 7 under fish and livestock sector of Action Plan, haors, baors, beels, tanks, ponds will be considered as wetland except river. It is not a right concept because river is the most important wetland as riverine country like Bangladesh. River is not only the safe home of fresh water fishes but also the cheapest waterways which is playing important role in socioeconomic development of Bangladesh. However, it is observed that river is being occupied by the miscreants and local elite and in some case making temporal cross dam for fishing which is completely violation of law and it is contradictory with Environment Conservation Act 1995 and Environment Conservation Rules 1997. Thus it is assumed that there is no plan to develop it in accordance of these sections of Action Plan. It also conflicts with the Protection and Conservation of Fish Rules 1985. So, it is not possible to protect aquatic biodiversity especially fresh water fish without amending the laws.

Ministry of Water Resources and Agriculture should be included in implementing agencies to avoid inter department conflicts for efficient implementation to develop and conserve fish and fishery resources in different wetlands including rivers.

⁷⁶ Ibid. pp. 749-750.

3.2.9 Food

According to the Environment Action Plan 1992-

1. Adulteration of food will be considered as a serious offense, which will be strictly controlled by amending the existing laws.
2. Natural methods of preserving food will be encouraged instead of artificial preservatives.
3. All imported foodstuff including baby foods will be checked for quality, radiation and other environmental impact.
4. Non agricultural use of agricultural land and production of other crops on land meant for food crops will be regulated.
5. The use of toxic pesticides to preserve fruit, vegetables, and pulses from insects and rodents will be strictly regulated.⁷⁷

Food items included in food section of Action Plan does not include dry fish as processed food. As we know dry fish is one kind of processed food which is very popular in Bangladesh but unfortunately people are very much concerned with the adulteration. Producers usually use different kind of pesticides during drying process of fishes and sometimes they use prohibited pesticides including DDT. Therefore, dry fish should include in Action Plan as process food to regulate to adulteration. Dry fish is also an important sector for employment generation in Bangladesh and if adulteration can be regulated and controlled it might be a vital sector of export items.

3.2.10 Coastal and Marine Environment

According to the Environment Action Plan 1992-

1. The Ministry of environment and forest will establish a special cell to integrate protect, develop, and monitor the development programs for the coastal and marine environment.
2. Newly accreted land in coastal areas will be handed over to the department of forest on a priority basis for stabilization of land.
3. The navy will take precaution to prevent pollution of territorial waters. The department of Shipping will monitor such activities.
4. Local and National contingency plans will be drawn and funds made available to cope with accidental spillage of pollutants in the sea. Such programs will be coordinated at the regional level.

⁷⁷ Ibid. p. 751.

5. Appropriate measures will be taken on an emergency basis to remove and properly dispose garbage and waste oil and oil products from ships at Chittagong and Mongla Ports.
6. The Ministry of Shipping will form a special cell to assess the characteristic and composition of waste before approving its disposal in the sea.
7. The Ministry of Shipping will establish a coast guard system on a priority basis to safeguard coastal resources and assist in coastal management.
8. Appropriate programs will ensure protection of territorial waters from pollution, conservation of the coastal and marine environment, conservation of newly accreted land in the coastal areas and proper utilization of coastal resources.⁷⁸

Inclusion of Coastal and Marine environment sector under Action Plan is a remarkable initiative to protect and conserve coastal environment. However, some sections of this sector are contradictory with the needs to develop and conserve the coastal environment. Because according to section 5, there is no process mentioned how to remove garbage, oil wastes and oil products from ship at Chittagong and Mongla ports. For this reason, most of the ship's garbage, oil wastes are thrown into the sea freely. On the other hand, section 6 permits to put ship wastes disposal in the sea. Consequently, marine environment is polluting gradually and this pollution will create adverse impact on marine resources. In the long term it will also create adverse impact on the surrounding marine environment as well as inside territory of the country. As a result, aquatic biodiversity will degrad in coastal areas and inside territory of the country as well.

For appropriate and sustainable implementation of this sector Ministry of Agriculture, Ministry of Environment and Forest, Ministry of Fishery and Livestock, Ministry of Commerce and Ministry of land must be included as implementing agencies. In addition, this sector of Action Plan conflicts with Environment Conservation Act 1995 and Environment Conservation Rules 1997.

3.2.11 Communication and Transport

According to the Environment Action Plan 1992-

1. Caution will be exercised to ensure that land transport system is environmentally sound and that roads and railways do not impede drainage of water.

⁷⁸ Ibid. pp. 751-752.

2. Necessary measures will be taken to ensure that people and vehicles using the railways and road transport do not pollute the environment by discarding pollutants, hazardous waste, or human excreta.
3. Necessary steps will ensure regulation of smoke emission from vehicles, noise control, and proper maintenance of vehicles. Local transport industry will arrange necessary inspection to ensure compliance.
4. Public awareness will be created and caution will be taken to ensure that internal water transport system do not cause water pollution.
5. Steps will be taken to ensure pollution control of internal ports and dockyards.
6. Careful observation will ensure that construction of airports do not create environmental problems.
7. Caution will be observed to reduce air and noise pollution by airplanes.
8. Transport systems such as railways that cause less pollution will be encouraged.
9. A forestation will be done along roadside and railways lines.⁷⁹

Concerned authority for Communication and Transport sector will develop the details workplan in such a way that all means of transportation will run without creating any hazards or impact on surrounding environment complying with the objectives of National Environmental policy. However, in reality, as we observed that communication and transport departments are creating air and water pollution. According to section 1, caution will be given onto the constructions of roads and railways so that it does not impede natural water flow of rivers and other wetlands. As we know and observe at present days that many natural water flow were closed or caused to create impediment of water flows and mentionable number of wetlands were abolished during construction of roads, railways, bridge, culvert etc. It seems the concern authorities either did not take into consideration about these environmental effects or do not know the obligations of this section of Action Plan. Moreover, there is hardly seen any migrations about those environmental effects. However, obstacles or closing of natural water flows create adverse effects such as wetland degradation, fish migration, and loss of fish breeding center. It is a great threat to our indigenous fish and fish species. So it could be said that there are conflict among Action Plan, Environment Conservation Act, 1995, Environment Conservation Rules 1997, Protection and Conservation of Fish Act 1950 and Protection and Conservation of Fish Rules 1985.

⁷⁹ Ibid. pp. 753-754.

Section 4 and 5 are to control water pollutions creating from internal water transport systems, internal ports and dockyards. As we observe that fuels and lubricants use in different vehicles in waterways usually are thrown into the water resulting serious water pollution in navigable watercourses. Any sort of water pollution is not suitable for aquatic environment and resources. In addition, Environment Conservation Act, 1995, Environment Conservation Rules 1997, Protection and Conservation of Fish Act 1950 and Protection and Conservation of Fish Rules 1985 prohibit such water pollution creating from different vehicles running on inland waterways. But to ensure aquatic environment for fresh water fish water pollution in rivers and other wetlands must be stopped. It should also include environment ministry, water resources ministry and fisheries ministry to implement properly the objectives of Environmental Action Plan in implementing process.

3.2.12 Housing and Urban development

According to the Environment Action Plan 1992-

1. Environmental Impact assessment will be conducted before preparing national and regional programs and master plans regarding housing and urban development.
2. Planned rehabilitation of people living in slums in cities will include environmentally sound arrangements.
3. To reduce population pressure and improve the environment in major cities, satellite towns will be developed.
4. To improve the environment, intensive afforestation and other development programs will be taken in Dhaka, Chittagong, Rajshahi and Khulna.
5. Intensive and integrated environmental development projects will be taken in the major densely populated cities within the country.
6. Steps will be taken for zoning of residential, commercial, and industrial areas.
7. Programs related to housing and urban development will be regularly monitored and surveyed.

Housing and Urban Development section of action plan has some limitations that create adverse impact on urban environment. Under section 3, to construct satellite towns reduce population pressure in major cities and improve the environment of it. But there is no clause to develop urban wetland which is the major concern to develop urban environment. In addition, there is lack of options to protect canal or river flowing through any urban areas. So, it is not environment friendly.

In section 4, afforestation programs will be taken to improve the environment of Dhaka, Rajshahi, Chittagong, and Khulna. But, wetland is the most important element to develop environment inside the cities. Moreover, there is no option to develop it. So, it is not possible to develop cities environment without wetland.

On the other hand, land ministry, agriculture ministry and fisheries ministry are including implementing agency and mention implementing process to implement this sector properly.

3.2.13 Population

According to the Environment Action Plan 1992-

1. A survey will be conducted to relate the impact of present population, high growth rate and population growth until the year 2000 with the resources development process and the environment for environmental up gradation. Necessary action will be taken on the basis of the survey.
2. A plan for human resources development will be formulated to ensure planned, integrated, and coordinated utilization of manpower.
3. Women's participation and their role in environmental protection and development will be emphasized and ensured.
4. Population explosion will be identified as the most serious problem. Necessary steps will be taken to control and stabilize population growth.
5. The poorest of the people are the most vulnerable environmental degradation. Therefore, necessary steps will be taken to protect their health and save them from other problems related to deterioration of the environment.⁸⁰

Total population of Bangladesh is about 16 million. It is huge number compared to the total area of Bangladesh. So, population is the main problem of our country. Our environment is degraded for the cause of huge population. Therefore, concerned authority implements this sector of action plan to achieve the objectives of national environmental policy 1992. But there is no clause of this sector to control high growth rate of population and how to control it. On the other hand, there is no clause what's the bad impact on environment of huge population. Not only that there is no mention of implementing process. So, it would not possible to achieve the objectives of national environmental policy 1992 by this sector and protect sound environment.

⁸⁰ Ibid. p. 755.

3.2.14 Education and Mass awareness

According to the Environment Action Plan 1992-

1. A five year integrated plan for mass awareness on environment will be taken and implemented by the Ministry of Environment and Forest. The Ministries of Information and Education will provide support and assistance in this regard.
2. Environment related curriculum will be included in all levels of education and training program.
3. To create awareness, participation of imams, teachers, leaders of all religious, social, and voluntary organizations will be ensured.⁸¹

In section 1, 2 under education and mass awareness sector of Action Plan, a five year integrated plan for mass awareness on environment will be taken and implemented by the Ministry of Environment and Forest. For effective education and mass awareness Ministry of water resources and Ministry of fisheries would be included to implement this plan. Because water is the basic elements of environment and all living beings depend on it for their living. But ministry of environment and forest does not have any direct programs for developing water resource and aquatic resources. So, it is significant to include these two ministries for creating mass awareness about environment and to introduce necessary curriculum in all levels of education.

3.2.15 Science, Technology and Research

According to the Environment Action Plan 1992-

1. Counselling will be made available on management and control of environmental pollution keeping in view environmentally sound and sustainable technology.
2. Research and technology innovation on environmental protection, development, and proper utilization of resources will be strengthened.
3. Environmental considerations should be integrated in all priority areas highlighted in the National Policy on science and Technology 1986.
4. All research and development institution will specifically consider programs and revise them if needed.⁸²

Modern age is the age of science and technology. So, there is no way to deny that science and technology is essential for environmental development. But environment is formed with various components. Therefore, if we develop

⁸¹ Ibid. p. 756.

⁸² Ibid. p. 756.

every component properly, environment would be developed. But there is no clause of science and technology sector that determines what type of technology should be used to develop environment and no mention how it is implemented. So, it is a partial idea.

3.2.16 Legal Framework

According to the Environment Action Plan 1992-

1. An inter-ministerial committee will review the present laws dealing with the environment and make necessary amendments.
2. This committee will identify and recommend other areas where new legislation needs to be enacted.
3. From now on concerned ministries will ensure that proposed legislations are environmentally compatible.

Legal framework is most important to protect environment because it compiles necessary law and policy about environment. Section, 1, 2, 3 of this sector, an inter-ministerial committee will review the present laws and rules about environment and make necessary amendments. And also this committee identifies the environmental problem, recommends new legislation need to be enacted and ensure sound environment to implement it. Moreover, there are many laws and policies made by government authority after action plan 1992 about environment to conserve it. But it is conflicted with the environmental law and policy such as: environmental conservation act 1995, environmental conservation rules 1997, national water policy 1999, Jalmahal management policy 2009, Bangladesh water act 2013 etc.

3.2.17 Organizational Structure

According to the Environment Action Plan 1992-

1. Above mentioned ministries, divisions and Government organizations will take necessary steps to implement relevant development programs within their own jurisdiction in an environmentally sound manner.
2. Nongovernment sectors and organizations will be encouraged to participate in implementing environmental conservation and development programs.
3. The Ministry of Environment and Forest will coordinate implementation of environmental programs.
4. A national environmental committee will be formed under the chairpersonship of the head of the Government. This committee will provide

guidelines for implementation of environmental action plan. Ministers of concerned ministries will be member of this committee. The Secretary of the ministry of Environment and Forest will be the member secretary. The committee will meet at least once a year.

5. In the context of the need to assess the environmental impact of development projects, the manpower and technical capability of the Ministry of Environment and Forest and department of Environment will be expanded. Environmental training will be provided to officers concerned with planning. Project concept papers and project proposals will mention environmental impact in detail.

6. The Ministry of Environment and Forest will formulate, publish and circulate a state of the environment report” every five years.

7. The Ministry of Environment and Forest will modify and reformulate the environment policy and action plan as and when necessary in future.⁸³

There is no alternative of organizational structure to implement action plan properly but some disturbing sections of all sectors of action plan, are not suitable to the environment. Similarly there are some problems in organizational structures of different ministries, departments, and agencies. According to section Section 1 of Organizational Structure, concerned authority will take necessary steps to implement relevant development programs maintaining sound environment but there is no guidelines how they will maintain sound environment. Section 2 says nongovernment sectors and organizations will be encouraged to participate in implementing environmental conservation and development programs but the non-government and private organizations are not bound to do these because there are no legal provisions in Environment Conservat Act 1995 and Environment Conservation Rules 1997. Section 6 states that the ministry of environment and forest will publish and circulate environment report in every five years. It is not an appropriate plan, it should be annual report due to our gradual declining of environment and its resources. According to section 17, ministry of environment and forest will modify and reformulate the environmental policy and action plan, but according to present day needs water resources ministry, agriculture ministry, fisheries ministry, land ministry would be included to modify and reformulate the environmental law, policy, and action plan properly.

⁸³ Ibid. pp. 757-758.

3.3 Conclusion

Environment is a comprehensive phenomenon. It consists of various components. The ministry of environment and forest are responsible to manage, develop, and conserve of all environmental components. On the other hand, different ministry and departments have been established to protect different components of environment that none can destroy whole or a part of environmental component. Every ministry makes law and policy from their own view to protect their respective part of environment. For this reason, there is no integration and coordination among their laws and policies which leads towards policy conflicts among ministries and implementing agencies. Government should take initiatives for modifying and amend these with a team work including concern ministries and agencies to eliminate these policy conflicts to protect and conserve environment in a sustainable manner.

Government formulated Environment Policy 1992 and to achieve the objectives of the Environment Policy government also formulated the Environment Action Plan in 1992 for ensuring the environmental development and conservation. It is divided into 17 sectors. Main aims of each sector are to protect environment and its resources in a sustainable manner. But, it is found in the analysis of Action Plan in respect of Environment Conservation Act, 1995, Environment Conservation Rules 1997, Protection and Conservation of Fish Act 1950 and Protection and Conservation of Fish Rules 1985 and Fish Policy 1998 that there is no legal and policy options about integration and coordination among implementing agencies and in some cases there are some policy conflicts because each agency is implementing their own programs without considering any adverse effect on other environmental component and in that case there is no policy option for taking responsibility regarding these adverse effects. As a result in present form of Action Plan and other relevant laws and policies could not play essential role in protecting and conserving aquatic biodiversity and ecology.

Chapter-4

Evaluation of Projects and Programs regarding Aquatic Biodiversity Development and Conservation

Aims of the present chapter are to discuss and evaluate various projects and programs countrywide implemented by the Department of Fishery regarding aquaculture and fresh water fishery development and conservation and to find out the consequences as the outcomes of these projects and programs for aquatic biodiversity conservation especially of our indigenous fisheries. The projects include: 1. Aquaculture and Fisheries Management in Bhabodaha Area, Jessore (July 2009-June 2014), 2. Greater Faridpur Fisheries development project (July 2009-June 2014), 3. Fisheries Habitat Restoration Project in Inland Open Waterbodies (July 2010-June 2015), 4. Hura Sagar Aquaculture and Fisheries Development Project (July 2010-June 2013), 5. Greater Pabna (Pabna-Sirajganj) Fisheries Development Project (July 2008-June 2013), 6. Chalan Beel Fisheries Development Project (July 2010-June 2015), 7. Re-Excavation of connection River, Development of Irrigation Facilities and Fish Culture Project of Gazner Beel Area under Sujanagar Upazila in Pabna District (January 2010-June 2013), 8. Aquaculture and Fisheries Management Project in Haor Area (January 2009-December 2013). However, project organization and management, objectives of the project, activities, project rationale, targets and outcomes, and adverse effects and mitigation measures in implementation process of these implemented projects are used as the sources of data for the present chapter.

4.1 Introduction

Bangladesh is a riverine and deltaic country in the world. Most of the areas of Bangladesh lie within the broad delta formed by the Ganges, Brahmaputra and Meghna rivers. Lands are exceedingly flat, low-lying, and subject to annual flooding. Much fertile, alluvial soil is deposited by the floodwaters. The only significant area of hilly terrain, constituting less than one-tenth of the nation's territory, is the Chittagong Hill Tracts in the narrow southeastern panhandle of the country. There, on the border with Burma, is Mowdok Mual (1003 m/3292 ft), the country's highest peak. Small, scattered hills lie along or near the eastern and northern borders with India. The eroded remnants of two old alluvial terraces- the Madhupur Tract, in the north central part of the country, and the Barind, straddling the northwestern boundary with India- attain

elevations of about 30 m (about 100 ft). The soil here is much less fertile than the annually replenished alluvium of the surrounding floodplain.

However, with blessing of the rivers and tropical monsoon-type climate, Bangladesh is enriched with fertile soil, favourable environment for rich and diversified flora and fauna. Due to its location in the confluence of many rivers, Bangladesh's climate, and environment are suitable for various natural resources and human lives. But gradually it is degrading of environment. Rich and diversified flora and fauna is also degrading day by day due to human interventions as well as natural phenomenon.

As riverine country, Bangladesh floodplains are one of the world's most important wetlands and support about 70 million rural households, including the very poorest. They are a critical source of income and nutrition derived through agriculture, fisheries, and collection of other aquatic resources, maintain the health of the local aquifer, reduce flood severity, and improve water quality.⁸⁴

Natural resource of Bangladesh is a crying need for our everyday life and development activities. Among them fresh water fish is the very important natural resources because environment of riverine Bangladesh is very suitable for fish and fish species. Scattered but suitable living place of fishes is everywhere in Bangladesh. Whereas fish stay safely and breeding, but its environment is being degraded day by day.

From another perception, fish is also the most important natural resources because it alone contribute about 60% of animal protein consumed by Bangladesh's people and also plays a very important role in the national economy having a share in GDP of about 5 percent and about 13 million people are engaged in this section on full time and part time basis. In recent years, aquatic environment, aquatic biodiversity and fresh water fish resources in our country are under threat due to environmental degradation.⁸⁵

However, due to different causes wetlands and its resources are degraded and results the loss of crops, human beings, livestock, natural resources, infrastructure and aquatic resources especially fresh water fishes. As a mitigation measure, the government of Bangladesh has been taking some integrated environmental laws, policies, action plan and projects to protect the

⁸⁴ Thompson, P. and Colavito, L. 2007. Economic value of Bangladesh wetlands and their restoration. Technical Paper 6. Management of Aquatic Ecosystems through Community Husbandry, Winrock International, Dhaka

⁸⁵ Greater Pabna (Pabna-Sirajganj) Fisheries Development Project, July, 2008-June, 2013, Department of Fisheries, Government of the Peoples Republic of Bangladesh.

environment, biodiversity, ecology and other resources but unfortunately degradation of environment is not stopped yet.⁸⁶

However, in this chapter it is tried to find out legal and policy insufficiencies, conflicting issues, and inappropriateness in some selected implemented projects regarding fresh water fishery development and conservation. Moreover, contradictory issues in planning and activities of those development projects were indentified, which has adverse impact on aquatic environment, especially fresh water fish biodiversity and fish habitats. Documentary study method has been used for explaining these projects.

4.2 Review of Fishery Development Projects

4.2.1 Project title: Aquaculture and Fisheries Management in Bhabodaha Area, Jessore

a) Sponsoring Ministry/Division: Ministry of Fisheries & Livestock

b) Executing Agency : Department of Fisheries (DOF)

Location of the project

Division	District	Upazila
Khulna	Jessore	Jessore Sadar, Avoy Nagar, Monirampur and Keshobpur

Project implementation period: i) Date of commencement: July, 2009

ii) Date of completion : June, 2014

Project Organization and Management

Department of Fisheries (DoF) will be responsible for the execution of the project. One officer (Grade-5) from DoF will be deputed as Project Director (PD). He will responsible for the implementation of the project and will liable to the Director General, DoF. He will be supported by one Assistant Director (AD), one Extension Officer (EO), one Sub Assistant Engineer (SAE), one Accounts officer and one Clerk cum Cashier. All of them will be deputed from DoF. Furthermore, one computer operator will be recruited for the project as per Government rule. In addition to that, one Driver and one MLSS will be recruited for the project through out sourcing. The officers and staffs of the DoF in the project commanding area will also work for the smooth implementation of the project.

The project will be managed under the overall guidance of the PD. He will coordinate and liaise with the other related departments and agencies. The

⁸⁶ Mahfuz Ullah, *Environmental Politics in Bangladesh* (Dhaka: Centre for Sustainable Development), pp.16-22.

project people and the DoF people within the project command area will support the PD for smooth implementation of the project. The PD will consult with the local DoF officials and beneficiaries to select the water bodies. PD will also set the criteria of Demonstration farms/plots.

Project Steering Committee

A Project Steering Committee will be formed under the chairmanship of the Secretary, MoFL. The committee will include DG, DoF; Joint Secretary (Fish), MoFL; Joint Chief, MoFL; DG, BFRI; one representative from Planning commission, IMED, Bangladesh Water development Board as member. Members may be co-opted from other organizations if necessary. The Project Director will act as Member-Secretary of this committee. This committee will meet as and when necessary but at least once in a year. After completion of the project, the project activities will be continued by the local beneficiaries from their own fund.

General objective of the project

Socio-economic development of the fisher community through community based increased aquaculture and other income generating activities.

Specific Objective of the project

- 1) Increase aquaculture production of 11 Beels covering about 12000 ha of Bhabodaha area up to a level of 1000kg/ha and enhance income of the fishers living in poverty.
- 2) Establish, motivate, and strengthen rural fisher community organizations to ensure their access to the water resources for their livelihood security.
- 3) Improve the status of women by involving them in pond aquaculture and providing support for other income generating activities.
- 4) Improve community infrastructure and aquaculture infrastructure so as to promote easy access of the community to the common property resources and better marketing.
- 5) Facilitate habitat restoration and conservation of small indigenous species in Bhabodaha area.

Project Rationale

The rural community people in general and the project area in particular are found extremely poor, having low family income, uncertain food security even in the year of satisfactory production and favorable weather. The fishing is the core activity for the livelihood of most rural communities. It is found that half of the average households income is typically derived from sharecropping and

labor selling. However, fish is the principal source of dietary protein in the project area. At present, the scope of alternative income generation and production of food grains is very much limited.

The oxbow lakes small scale fisherman project and aquaculture Development Project have introduced some limited groups of fisherman, organized through “community mobilization” activities of NGO established their rights of tenure for Baors fishing and use of common water resources. However, in the proposed project area, most of the fisherman communities are not well organized, extremity poor and do not have financial ability to contest for use of common resources. This situation in the project area made them vulnerable to the whims of powerful persons. Therefore, a strong need for community development and support is essential, to organize the rural poor men and women.

In order to address the deficiencies of rural poor of the project area, it is considered highly desirable to improve the infrastructure and services in their villages through their own endeavors and assisted by the project. Groups of pond and large water bodies (LWBs) are not only to provide an opportunity for sustainable fish production but also focus peripheral income generating activity like vegetable production, livestock production, small trading handicrafts etc. These activities are highly depended on the skills of the people and movement of produces for marketing in time, to promote socio economic growth. For this reason, development of rural infrastructure is essential within communities and between communities, is a crucial component of the project. Development of community infrastructure will play the role of catalyst for sustainable community development and that will continue under its own momentum after expiry of the project.

Activities of the Project

Carp Polyculture demonstration: During the project period, twelve polyculture demonstration farms will be established in four upazilas (three in each upazila) of the project command area. The area of each demonstration plot will be 0.5 ha.

Shrimp culture demonstration: The project has the plan to establish twelve shrimp culture demonstration farms in four upazilas (three in each upazila) of the project command area. The area of each demonstration plot will be 0.5 ha.

Establishment of sanctuaries: The project has the plan to establish twelve sanctuaries in four upazilas (three in each upazila) of the project command area. The area of each sanctuary will be 0.5 ha.

Establishment of Integrated fish farm: During the project period, sixteen integrated aquaculture farms will be established in four upazilas (four in each upazila) of the project command area. The area of each demonstration plot will be 0.5 ha.

Establishment of Carp Nursery: The project has the plan to establish twelve carp nursery plots in four upazilas (three in each upazila) of the project command area. The area of each demonstration plot will be 0.5 ha.

Stocking of Fish fingerlings: During the project period, about 300.00 MT fish fingerlings will be stocked in 12000 *ha* waterbodies of the project area.

Training: The project has the plan to provide basic training for 1750 people including small scale fish farmers, fishers etc. The training course will be for two days. The subject of the training would be carp poly culture management/carp prawn culture management/integrated aquaculture/carp nursery management/Open water fisheries management/baor management etc. Finally the project will provide one day follow up training for (1750*5 yr. 8750 small scale fish farmers and fishers. All the training courses will be conducted in a suitable place in the field level.

Re-excavation of beel/baor/canal/nursery pond etc.: During the project period, about 4.00 ha area of beel/baor/canal/nursery pond will be re-excavated to bring them under aquaculture and fisheries activities.

Outcomes of the Project

From the project,

- 1750 nos. trained farmers will be developed.
- 1310 Community based organizations (CBOs) would be formed.
- 6.00 ha carp poly culture demonstration farms will be established.
- 6.00 ha prawn culture demonstration farm will be established.
- 6.00 ha centuries will be established.
- 8.00 ha integrated aquaculture farm would be established.
- 6.00 ha carp nursery demonstration will be established.
- 300000.00 kg fish fingerlings will be stocked.
- 4 nos. fish landing centres will be established.
- 4.00 ha beel/baor/canal will be re-excavated.

Adverse effects and mitigation measures

(i) Other projects/existing installations:

The project activities will not have any adverse effect on other projects or installations. However, it would be rather complementary to other projects or installations

(ii) Environment like land, water, air bio-diversity etc

Ponds and Baor under the project area will be developed for augmenting fish production. As a result aquatic environment will be enhanced for a friendly coexistence. For better baor fish production as well as for the conservation of

indigenous fishes, sanctuary will be development within the selected Baors. This will promote biodiversity conservation and habitat restoration. Under the Project, bridges and culverts will be designed and constructed in such a way that they will not create any water logging or obstacle to the natural flow of water. No materials will be used under the project that may cause pollution and environmental hazards. On the other hand improvement of rural infrastructure including roads and markets will improve overall environmental condition.⁸⁷

4.2.2 Project Title: Greater Faridpur Fisheries Development Project

Sponsoring Ministry/Division: Ministry of Fisheries and Livestock

Executing Agency : Department of Fisheries

Location of the Project

Division	District	Upazila
1	2	3
Dhaka	Faridpur	Faridpur Sadar
		Boalmari
		Nagarkanda
		Bhanga
		Sadarpur
		Madhukhali
		Charvadratri
		Alfadanga
	Gopalganj	Gopalganj-Sadar,
		Tongipara
		Kotalipara
		Moksudpur
		Kasiani
	Rajbari	Rajbari Sadar
		Pangsha
		Baliakandi
		Goalanda
	Madaripur	Madaripur Sadar
		Rajoir
		Kalkini
		Shibchar
	Sariatpur	Sariatpur Sadar
		Jagira
		Damudda
Goshaerhat		
Vadarganj		
Naria		

⁸⁷ *Aquaculture and Fisheries Management in Bhabodaha Area, Jessore, July 2009-June 2014*, Department of Fisheries, Government of the Peoples Republic of Bangladesh. This is a fishery development project.

Project organization and management

Department of Fisheries (DoF) will be responsible for the execution of the project. One officer (Grade-4) from DoF will be deputed as Project Director (PD). He will be responsible for the implementation of the project and will be liable to the Director General, DoF (DG/DoF). He will be supported by one Assistant Director (AD), five Extension Officer (EO), one Assistant Engineer (AE) and one Sub-Assistant Engineer (SAE), one Computer Operator, one Driver, and two MLSS. One Assistant Director, one Asstt. Engineer and one Sub-Asstt. Engineer will be deputed from DoF. 5 (five) Extension Officer either will be deputed or given additional charge to the equivalent officers from DoF. However, rest of the manpower (1 Computer Operator, 1 Driver and 2 MLSS) will be directly recruited as per DoF recruitment rule/ out sourcing. The officers and staffs of the DoF in the project commanding area will also work for the smooth implementation of the project. They will get all kinds of logistic support (TA/DA, fuel & maintenance of the vehicle etc.) from the project. Presently in each Upazila Fisheries Office there are at least 2 motor cycles of which most of them are out of order need major repair as well as the jeep at the DFO office are also very old and need major repair works. The Project Implementation Unit (PIU) will be established at DFO office, Gopalganj. But a liaison office will be set up at Matsha Bhavan, Dhaka to make liaison with different ministries and departments. One Jeep will be procured under the project for supervision and monitoring of the project activities. The project will procure five motor cycles for the smooth implementation of the project.

The project will be managed under the overall guidance of the PD. He will co-ordinate and liaise with the other related departments and agencies. The project people and the DoF people within the project command area will support the PD for smooth implementation of the project. Upazila level Officers and staffs will be involved for community mobilization & formation of groups/fishing communities, training and other fisheries support activities.

All earth works under the project will be undertaken through Landless Contracting Society (Poor men and women) under Taka for Works (KABITA)/Open tendering system (where LCS is not possible). The developed govt. water bodies will be managed by the beneficiaries groups adjacent to the water bodies.

The pens to be established in the private land will be managed jointly by the land owners and landless peoples of the respective areas.

The cages to be established in the rivers/ canals/ beels/ baors will be managed by the landless poor (beneficiaries groups) adjacent to the respective water bodies.

Sanctuary will be managed by the Beel Management Committee (BMC). Beel Management Committee (BMC) will be formed by men and women from fisherman/landless households and marginal farmers adjacent to the water bodies, mainly who catches the fish from that water body.

The Beel Nursery will be established both in private (if govt. water bodies are not available) and public water bodies. The private water bodies, mainly the fellow ponds in the floodplain paddy lands will be managed/ used free of cost by motivating the owners and/or on short lease basis. Beel nurseries will be managed by the Beel Management Committee/Fishers groups voluntarily.

The beneficiaries will get the user right of the developed public water bodies on lease basis from the respective department and infrastructures built through the project will also undertake proper maintenance from their own fund.

Detailed Organogram/Management setup of the project can be seen at Annexure-II (a).

Project Steering Committee:

A Project Steering Committee will be formed at national level under the chairmanship of the Secretary, Ministry of Fisheries & Livestock. The committee may sit as and when necessary but at least once in a year. The composition of the committee will be as follows:

1	Secretary, Ministry of Fisheries & Livestock	Chairman
2	Director General, DoF	Member
3	Joint Secretary ,MOFL	Member
4	Joint Chief, MOFL	Member
5	DG, BFRI	Member
6	Representative, IMED	Member
7	Representative, Planning Commission	Member
8	Project Director	Member- Secretary

Local Management Committee

For selection and approval of water bodies and the management of fish culture and implementation of Fish Act, in the selected water bodies a “Local Management committee (LMC)” will be constituted comprising the following officials/local bodies:

I)	Upazila Chairman	Chairman
II)	Upazila Agriculture Officer	Member
III)	Upazila Livestock Officer	Member
IV)	Assistant Commissioner (Land)	Member
V)	Upazila Co-operative Officer	Member
VI)	Upazila Youth Development Officer	Member
VII)	Chairman of respective Union Parishad	Member
VIII)	Representative of BMC	Member
IX)	Senior/Upazila Fisheries Officer	Member- Secretary

The committee will select and recommend water bodies to be developed, approve beneficiary groups, arrange leasing out of water bodies, select site, number and type of sanctuary, implement fish conservation Act, monitoring and supervise field activities in achieving the project objectives, take up necessary action to tackle any unwanted situation create in the project implementation.

Objective of the Project

- a) To increase fish production both from culture and capture fisheries of Faridpur region.
- b) To creates employment opportunities by various fish culture activities for the poor and landless one member in each family.
- c) To protects fish bio-diversity through establishing fish sanctuary, stocking endangered fish fingerlings and creating awareness.
- d) To improve fish habitat through development of water bodies and minor infrastructure development.
- e) To ensure livelihood security of the poor people of Faridpur region.
- f) To makes better life for the poor through alternate income generating activities (AIGAs) by providing AIGAs support.

Project Rational

As a large number of rivers flow through the five districts, every year most of the agricultural lands remain inundated due to flood. To protect the agricultural crops, last three decades several FCDI projects have been implemented in these areas. A 760.00 kilometer long flood control dam to protect greater Faridpur district from these rivers were established. Earlier these areas were very rich for huge water bodies and extensive flood plains. These flood plains and water bodies were the main habitat and breeding grounds for traditional fish species. However, unplanned construction of embankment and water use

by pump has resulted loss of flood plains, siltation of the water bodies and most of the aquatic habitats. Owing such various man-made interferences and natural processes the vast water bodies of these areas have been losing their productivity.

The lack of improvement of government khas Jalmahal, the revenue oriented management system rather than its biological management, lack of investment in fish production activities, disregards or ignorance about fish cultivation, lack of training of aquaculture and water resources management, silting up of natural water bodies, destroying fish habitat, indiscriminate killing of brood fish, fingerlings, excessive fishing pressure, drying out of perennial water bodies, destroying parental stock, unplanned construction of dams and roads, over use of insecticides for crop production, destruction of fish habitats, application of excess amount of fertilizer for crop production etc. hampered the growth of open water fisheries seriously. The environment of these areas also degraded due to unplanned and unco-ordinated engineering activities for boosting up agriculture production, particularly paddy ignoring the development of fisheries. If no comprehensive measures are taken to conserve and protect the fish of these areas, fisheries sector of these areas may be completely destroyed in near future. Excessive withdrawal of water from water bodies to irrigate the paddy field has also almost destroyed the aquatic environments where fish no longer live and perpetuate its reproduction.

At present, about 14,997.00 ha of government and private perennial water bodies, 1,81,388.00 ha of seasonal water retention area (both government and private beels), 1,81,388.00 ha of flood plain, about 3250.00 ha of boro- pit, 1580.00 ha of dead rivers, 5400 ha canals, 11950.00 ha of rivers, 1575.00 ha of baors etc. are available in greater Faridpur district. Annually 7270.66 MT of fish are harvested from these areas however, it is possible to increase the production up to 18,176.64 MT. annually if the water bodies are properly managed. The possibilities to enhance protein supply through fish production, employment generation, to build-up skilled fish farmer and fishermen, earning foreign money, socio-economic development of fishing communities and landless people of greater Faridpur district through fish production by proper management of water bodies.

If the proposed project be implemented in these areas properly, it will boost up fish production, generate income and employment, ensure sound management of water resources, preserve fish bio-diversity, restore fish habitat and contribute to favorable productive ecology.

Activities

Development of boro-pits and Khas/private ponds

Fish culture in FCDI and road side boro-pits getting popularity day by day and pond aquaculture is probably the most popular aquaculture in the country at the moment. According to the present experiences, up to 7.00 tons of fish per hector could easily be produced in ponds and boro pits. In greater Faridpur area there are about 1750.00 hector FCDI boro pit, 1500.00 hector road side boro pit, 1290 ha canals, 2500 ha baors, 181388.00 ha flood plains, 11950 ha rivers. The proposed project intends to bring 244.37 hector boro pits, 50.00 ha cage culture, 2101.00 ha baor/dead rivers, 39337.00 ha beel nursery, 1291.00 ha pen/social fish culture, 395.83 ha canals development, 167.25 ha sanctuary development for farming after developing these water bodies under the project. Attempts will also be taken to culture galda shrimp in these water bodies. The developed water bodies will be leased out to the poor beneficiaries group adjacent to the respective water bodies and costs of all inputs will be borne by the group members from the second year and the benefits will be shared by them. Inputs for fish culture will be supplied from the project in first year. Five to twelve people will be selected for each hector of water body in which at least 50% will be female.

The ownership of the developed water bodies will remain in the hand of the land owner and the respective organization will lease out the developed water bodies to the beneficiaries group on approval of the District Lease Committee of water bodies followed by the recommendation of the Upazila/Local Committee. The both District and Upazilla/Local Committee formation are mentioned in MoU signed between M/O Fisheries & Livestock and the respective Ministries. Normally the lease period is 3 to 5 years with provision of renewal years to years and the lease value depends departments to departments as well as different areas and it varies tk. 10.00 to 30.00 per decimal. The lease value, i.e. Book value is determined by the District Committee according to the respective Department's circular/ guidelines.

Pen culture

With the price hike of fish feed aquaculture becoming more expensive day by day. In these circumstances farmers are in very delicate position thinking future fish culture practices. But there is a bright and easy scope of aquaculture without feed only by stocking fingerlings in a fencing area in flood plains called 'Pen' culture. The greater Faridpur region is endowed with vast area (1,81,388.00 ha) of flood plains where 1.5m to 3.0m depth water stands for 4 to

6 months. Most of the agricultural land of this region are one cropped and after harvest of the crop the land remain unused during the monsoon with growing heavy submersed aquatic vegetation, the feed of some herbivorous fishes and this vast area can effectively be utilized for fish culture. Here the only task is the erection of bamboo made 'Bana' or net fencing and stocking of herbivore fish fingerlings. The proposed project intends to set 5 to 10 'pen' in each Upazila to demonstrate the people the benefit of fish culture without feed in flood plains so that they can follow it later on and to make employment for 50 to 100 poor people in each pen. All the inputs including bana/net will be supplied from the project to the beneficiaries group in first year on some terms and conditions and after that the group will continue the practice by their own cost. The pen will jointly managed by the land owners and the poor people (who have no land in the pen). The area of each 'Pen' will be 5 to 10 hectare and the number of beneficiaries will be 100 of which 50% will be female member. Some portion of income (say, 30%) of 1st year shall be kept reserved by the group to continue fish culture for the next years and the rest money will be distributed to the beneficiaries. The details of activities of this component will be followed by "Guidelines" formulated by the PMU later on.

Cage culture

"Where is water there is fish"- can be materialized in the water bodies which is not closed and controlled by rearing fish in cage. There are so many open water bodies like, rivers, baors, artificial canals, dead rivers in the greater Faridpur region which are not under aquaculture and can easily be utilized these water bodies through setting cages in them. Here the only task is the setting of cages made of tyre cord net fixed into a bamboo/G.I pipe frame and kept floating with the help of drums/tyro-foam and then stocking of suitable fish fingerlings. The proposed project intends to set 20 to 30 'cage' in each district to demonstrate the people the utilization of open water and benefit of fish culture in open water so that they can follow it later on and to make employment for one poor family in each cage providing the family a handsome money on monthly basis. All the inputs including cage will be supplied from the project to the beneficiaries group in first year on some terms and conditions and after that they will continue the practice by their own cost. The cage will be guarded and managed by the individual family. For convenience and better guarding 10 to 20 cages may be set in one place and this will reduce the setting cost. Here the beneficiaries may be female all. The activities of this component will be followed by "Guidelines" formulated by the PMU later on.

Development Canal

In the project area, a large number of canals are available and they are in derelict condition throughout the years, due to natural and man-made causes, affects the aquatic bio-diversity especially species. Once upon a time the productivity of these water bodies to a large extent depended on the availability of a wide range of aquatic habitats for reproduction, migration, feeding and growth. But over diversity of fish and other aquatic organisms in the beels have been declining sharply. The causes of this bio-diversity loss are several such as FCDI impact, recruitment failure, over exploitation of brood stocks, water pollution, excessive selective fishing mortality, sedimentation, watershed, deforestation etc. It is much essential to undertake necessary attempts for conserving and enhancing aquatic bio-diversity. The proposed project will address these causes through establishment of beel nurseries, re-excavation of bottom of beel and canal, stocking of threatening species, construction of different structures, afforestation etc. If these water bodies are re-excavated properly, fish can be cultured by the poor and landless men and women of the project area. Besides, the re-excavated canals will be the water sources for irrigation as well as communication facilities are developed on the dykes of the canals. Considering the potentiality of these water bodies, the project will support the activities of re-excavation/rehabilitation of canals of 395.83 hectares to develop water retention capacity. Earthwork will be done through Landless Contracting Society (LCS) following LGED's methodology or Open tendering method.

A co-lateral agreement would be signed between Ministry of Land and Ministry of Fisheries & Livestock to develop water bodies for aquaculture. After development, the water body will be leased out to the groups and agreement will be signed with the Revenue Officer. The developed water body will be managed by the beneficiaries group who will be selected from the neighbors of water body. Five to twelve people will be selected for each hectare of water body in which at least 50% will be female.

Harvesting would be done in December to February when the water body starts to dry up. Fish should have reached at a marketable size and earn an average weight of 500 to 700 gm per fish. By establishing the nursery activities in these canals local group will be able to collect good quality fingerling with very low price and without any carrying cost. Their fish production will be high and they will be more benefited than past.

Establishment of sanctuaries

Establishment of fish sanctuary is one of the effective tools for conserving fish stock, preserving bio-diversity, creating fish spawning facilities for natural fish species and increasing fish production. Sanctuaries may be perennial/permanent that help to protect breeding and nursery ground to produce brood fish and other fish and enhance bio-diversity. For protection of fish, watershed, wildlife and plants, the project will establish seasonal and permanent sanctuaries or specific conservation related easement in the beel, river or protected area of river with branches of trees, bamboo, concrete pole, pipes etc. by declaring reserve area at the first time. Later on community groups with the cooperation of Local Management Committee and DoF officials will establish/replace and carry out regular maintenance and management of these sanctuaries. These may be achieved by establishing conservation easement through long-term lease of important wetlands, riparian corridors or associated watersheds. After the feasibility survey, the Local Management Committee with local community groups will select the suitable water bodies for establishing sanctuaries. Through the proposed project, 33 permanent sanctuaries will be established. Each sanctuary will comprise one to ten hectares area on an average.

Establishment/re-excavation of Beel Nursery pond

In greater Faridpur region very limited number of beel is available in true sense and flood inundated paddy lands are called as 'beel' locally and all are private owned. In these beels huge numbers of small to medium private ponds are available which are used by the land owners as natural fish reservoirs for their own are harvested within January each year. These beel ponds can be used as beel nursery pond free of cost or paying soft lease money. Most of the beel ponds of this region become dried up from December/January and remain dry until May, thus scoping their use for nursery purposes for at least two months and forcing the selection of a fast growing fish, herbivorous fish like silver carp. Besides, road side canals in which water is available in dry season can also be used as beel nursery pond making dykes on one side of the canals. Under this project 213.50 hector nursery ponds will be established/re-excavated at the center/adjacent of each selected beel to accommodate the hatchling needed to achieve a fry density of 10,000 per hector in the month of July. The unit size of pond would be one hector each (in case of private beel pond 3 to 5 ponds can be one 1 ha unit) and hatchling stocking density will be of 50 per meter square. A low height submergible embankment will be constructed around each of nursery pond so that the floodwater would overtop the embankment during July-August to disperse two-months-old fry into the main water body or beels. The

embankment will be medium compacted with a slope of 4:1. The beel nursery will be selected by the Senior/Upazila Fisheries Officer in consultation with the local fishers group/ Local Management Committee. The beel nursery be guarded and managed by the local fishers' beneficiaries groups. In each nursery one lakh 10-14 cm long fry will be raised and go automatically to flood plain/beel.

Re-excavation of Baors and Dead River

There are 20 baors and 15 dead rivers in greater Faridpur district. Of them, 'Borni' baor and 'Madhumati' baor of Gopalganj are quite big (592 ha) and most important in fisheries aspect. But due to siltation most parts of these baors become dry up in the month of December. Once upon a time the productivity of these baors to a large extent depended on the availability of a wide range of aquatic habitats for reproduction, migration, feeding, and growth. But over diversity of fish and other aquatic organisms in these baors have been declining sharply. The causes of this bio-diversity loss are several such as FCDI impact, recruitment failure, over exploitation of brood stocks, water pollution, excessive selective fishing mortality, sedimentation, etc. It is much essential to undertake necessary attempts for conserving and enhancing aquatic bio-diversity. The proposed project will address these causes through re-excavation of siltated areas, stocking of threatening species, construction of different structures, afforestation etc. If these water bodies are re-excavated properly, fish can be cultured by the poor and landless men and women of the project area and act as reservoirs of natural fishes.

Construction of earthen dyke

About 150 kilometer earthen dyke will be constructed around the selected canal, flood plain to conserve the fish and irrigation facilities. For longevity of dyke, provision would be kept for palisade by bamboo fencing, sand bag or other suitable materials where necessary. In the project area, many semi-close water bodies such as small beels, flood plains and canals have been created by the development of embankment through Bangladesh Water Development Board to protect Agricultural production. These selected semi-closed water bodies will be closed by constructing earthen dyke and the water body would be suitable for fish culture. The management of the developed area/floodplain will be done by the community people following the Daudkandi's model and technique. Carp culture system will be adopted in the closed/semi-closed area of floodplain with rotation cropping system of paddy cultivation in the dry season and aquaculture in the monsoon season. The environment friendly and community based flood plain aquaculture system of Daudkandi model will be extended to suitable floodplain in the project area.

Construction of box/Pipe-culvert

Total 175 Box/pipe-culvert and water control structures will be constructed in some situation to maintain permanent water or reconnect floodwater to beel areas or reduce pollution and sedimentation in degraded wetlands. No structures will be constructed that will impede monsoon flows or cause flooding and will substantially damage the existing environmental situation. In the proposed project 84 boro pits, 27 baors/dead rivers and 38 canals will be developed and 149 pipe/ box culverts will have to be constructed if one culverts counts for one water body. But many water bodies may need no culverts and some may need more than one. Besides, there is a 13 km long canal which will need 23 box culverts and one sluice gate for rainy season's water drain out and water exchange. Details are shown in appendix-16, 17.

Construction of sluice gate

Two medium sluice gate and water control structures will be constructed in 12.7 km long artificial canal and at the mouth of the Madhumati baor to maintain permanent water or reconnect floodwater to beel/ river areas or reduce pollution and sedimentation in degraded wetlands. No structures will be constructed that will impede monsoon flows or cause flooding and will substantially damage the existing environmental situation. Upon construction of these sluice gates two big water bodies having about 320 hectors can be brought under fish culture.

Stocking of indigenous fish & carp fingerlings

Under this project, 5,000 kilogram indigenous endangered wild brood will be released to the protected sanctuary areas and other suitable selected water bodies in order to re-establish fish population in the wild habitat. The brood fish will be collected from the different sources of water bodies of Bangladesh or from government/non-governmental farms. Active protection measures as well as public awareness campaign will be implementing to allow the stocked population for sufficient opportunity to build up self-sustaining levels. 50,000 kilogram carp fingerlings will be released in the beel, floodplain, canal and such water bodies where carp fish nursery activities cannot be possible for fingerling production.

Alternative income generating activities through livestock

To create the income generating activities, 2700 numbers of goats, 5400 numbers of hens and 8100 numbers of ducks will be distributed among the poor women, landless women of the project area. These animals and birds will be distributed through Local Management Committee to selected poor women. 7.35 million taka

will be expected earnings through this animal rehabilitation program per year. It will also help the fishermen to survive at the interim period when the fish harvesting from certain water bodies will be banned for certain period of time.

Dyke plantation & afforestation

Re-vegetation and a forestation of degraded wetland, watersheds and riparian zones with flood resistant trees and plants will be undertaken by the project. The site selection for re-vegetation will be done with the help of local groups and Local Management Committee. Suitable native species of plants such as Higo, Sewra, Neem, Kadam, Bat, Babla, Dhunicha, Epil-epil and other aquatic vegetation will be planted to ensure bio-diversity to re-establish lost swamp, forest habitats. Local people of project area would be motivated/encouraged to change the cropping pattern to cultivate deep-water rice after harvesting boro rice. They will also be encouraged to cultivate high valued crops like onion, garlic and other vegetables in the winter. After harvesting these crops, they will be encouraged to sow dhaincha. In any way, the farmers will be motivated through various communication programs not to keep their land free in the winter season. Some suitable species of wood trees, fruit trees will be planted at the roadside and pond dykes. All the plantation and vegetation program of the project will be helpful to create a desirable environment for this region.

Human resource development and capacity building through training

The project will provide training for institutional strengthening within local community people of various levels and the officer and staffs engaged to implement and management of the project activities. Comprehensive training for aquaculture, motivational training for fish act implementation, and other income generating for the different categories will be provided to the men and women of project area. The training activities will be performed with the view to develop community to empower fishing communities including women, to become co-managers of these fisheries and to ensure a more equitable distribution of benefits from fishing and sustainable fisheries management. In addition, the group members will be trained on group management, leadership and investment in diversified income generating activities. Periodic refresher training for the beneficiaries and project personnel will also be organized time to time. Expertise of the district and Upazila Fisheries Officials will be utilized for this purpose. Various workshops and training sessions will also be conducted at district and Upazila levels to enhance the skills of the target group and project personnel and this will also help to exchange views and ideas among different groups and organizations.

Adverse effects and mitigation measures

Other projects/existing installations

This particular project will not affect the activities of any other ongoing or completed projects or will not create any problem or threats to other installations.

Environment like land, water, air, bio-diversity etc

No such activities will be undertaken under this project which may cause negative impact on environment or any environmental pollution. Nevertheless, environmental impact of all activities will be assessed by using guidelines prepared under the completed project of Department of Fisheries. On the other hand, plantation at the pond dyke will be conducive to ecological balance. In the project area, the derelict water bodies would be brought under fish culture phase by phase through re-excavation. All the developmental activities would boost up fish production and will affect positive impact over environment.

Women and Children

Poor and distressed women will be employed for earthwork as well as work related to aquaculture works and fish production. They will be involved some income generating program such as meat and egg production, duck-hen rearing, growing vegetables at the dyke. Increased income will also increase their decision making role in the families and thus empowering them both in the family and the society.

Employment, poverty alleviation etc

All the earth works and construction works will be implemented through landless and poor people. Scope of employment will be created through milk and egg production and other income generation activities of the project. Opportunities would be create for the educated unemployed young peoples and fish farmers through fish culture as they will be trained and skilled enough by the project. By the project activities income of all level people will be increased due to various activities of project area and increased fish production.

Outcomes of the project

The project has targeted to develop 43654.44 hectores of canal, beel, baor, boro-pit, pen, cage, flood plains water bodies. At the end of the project, approximately 18302.50 metric tons of fish will be produced per year from the developed area and 1065.22 million taka will be earned from that fish & 19.70 million taka AIGA production. The project will provide training for 24657 nos. fish farmers, fishermen, landless people and other related beneficiaries to

develop their skills so that they can alleviate their poverty through improved fish culture. In addition, 2700 pieces of Goats and 8100 pieces of ducks, 5400 pieces of hen will be supplied to the poor and landless farmers and fishermen as a result meat and eggs will be produced worth Taka 19.70 million. Besides these, the project will create full/part time employment opportunity for 39,290 people. 50% of the benefited people will be women. Moreover it will benefit directly to 2,36,149 persons and indirectly 50,000 persons from different activities of the project.

4.2.3 Project Title: Fisheries Habitat Restoration Project in Inland Open Waterbodies

(a) Sponsoring Ministry/Division: Ministry of Fisheries and Livestock.

(b) Executing Agency : Department of Fisheries

Location of the Project: Activities of the project are limited within 200 water bodies in 54 districts.

Project Implementation Period : : i) Date of Commencement : July 2010
: ii) Date of Completion : June 2015

Project organization and management

The project will be implemented by Department of Fisheries (DoF) under the administrative control of the Ministry of Fisheries and Livestock (MoFL) in 05 years period. DoF will provide administrative and technical support for implementing the proposed project. A Project Implementation Unit (PIU) with necessary support staffs will implement the project activities headed by a Project Director (PD) deputed from DoF (not below the grade of Grade-4/5). The PD will be responsible for overall implementation, monitoring and supervision of the project. To assist the PD for smooth implementation of the project activities one Assistant Director (Grade- 6), two Deputy Assistant Director (Grade- 9), one Assistant Engineer (Grade- 9) and one Sub-Assistant Engineer (Grade- 10) will be deputed from DoF. Other supporting staffs such as one Computer Operator (Grade- 13), one Accountant cum Cashier (Grade- 14), one Driver (Grade- 16) and two MLSS (Grade- 20) will be directly recruited as per government rules for carrying out the official activities. Moreover 200 Local Community Worker (LCW) for nearly 200 water-bodies will also be recruited to motivate the community people as voluntary basis.

The PIU will be at Matshya Bhaban, Ramna, Dhaka and project personnel will be accommodated at PIU for implementing the project activities. One 4-wheel jeep for PIU will be procured under the project for the smooth

execution, coordination and monitoring of the project activities, as DoF vehicles at present becomes 10 to 15 years older and in some cases it is un-repairable for smooth operation. Provision has been kept in the project for all day-to-day logistic support both for PIU and field offices. For ensuring smooth execution of the project activities at the field level, 300 bicycles for upazila staff and Local Community Worker (LCW) need to be procured.

Site for civil works viz. re-excavation of water bodies, construction of culvert, establishment of fish pen & sanctuary, fencing/netting and other structures of the project will be selected through participatory approach of the beneficiaries to sustain the project. For sustainability of the project, minor repairs and maintenance of the project will be borne by the beneficiaries. To assist poor people as well as fisherman, at least 20% earthworks should be done by local Landless Contracting Society (LCS). LCS would be formed as per existing guide line of DoF. From the beneficiaries of the project, LCS may be formed subject to follow the rules of LCS guide line prepared by DoF. Remaining earth work may be done through direct tendering method. Provision has also been kept in the project to accelerate alternative income generation activities. Necessary training for beneficiaries/fishers, LCS, LCW and others will be performed mainly at Upazila level. A fund will be generated by the groups through which aquaculture activities would be undertaken in the subsequent years after completion of the Project. The fund will be created by regular monthly savings of the beneficiaries.

Project Steering Committee

A Project Steering Committee (PSC) will be established to monitor project planning and implementation, review of progress, approve the annual work-plan & budget, and provide effective guidance towards achieving the outputs envisaged in the project. For this the committee will conduct meeting as and when require but at least two times per year. The PSC will be chaired by the Secretary, MoFL and will be comprised of 9 members as follows:

i	Secretary, MoFL	Chairman
ii	Director General, DoF	Member
iii	Joint Secretary (Fisheries), MoFL	Member
iv	Joint Chief (Planning), MoFL	Member
v	Representative of IMED	Member
vi	Representative of Planning Commission	Member
vii	Representative of Ministry of Water Resources	Member
viii	Representative of Ministry of Land	Member
ix	Project Director	Member Secretary

Project Evaluation Committee

A Project Evaluation Committee (PEC) will be established to evaluate the activities of the project as per approved work plan and provide necessary guidelines. For this the committee will visit the field activities as well as conduct meeting as and when require but at least two times per year. The PEC will be comprised of 5 members, where PEC will be chaired by the Joint Chief, MoFL and the other members' are- two from DoF, one from IMED and one from Planning Commission.

Local level management committees

Two local level management committees will be formed for the proper implementation of the project activities-one is Local Jalmahal Management Committee (LJMC) formed by beneficiaries group and the other is Upazila Jalmahal Management Committee (UJMC). The LJMC groups will be formed by organizing poor, landless and marginal farmers, unemployed men/women and distress women living around the selected water bodies. The approval of the LJMC will be made by UJMC. LJMC will be responsible for sustainable fish production and management of the water bodies.

Objective of the project

- a) Re-excavation and development of derelict and mostly silted Haor-baor, beel etc. for fisheries habitat restoration.
- b) To improve fisheries management through sustainable technology and to establish fishers right in fish culture management program through partnership development.
- c) To establish Fish sanctuary for the protection, conservation and natural breeding of fishes.
- d) To create alternate income generating activities for the poor fisherman
- e) Impart training to the fish farmers and involve poor, landless and women in the project for their employment and socio-economic development

Project Rationale

In Bangladesh, fisherman used to catch fish from the open water. As the water retention capacity of the water bodies decreases due to various man-made obstructions and natural reasons, fish production has been decreasing in open water. To increase the Fish production in open water, different attempt has been taken sporadically such as fry stocking by the govt. But it is difficult to get success from the program without people's participation. As per Vision 2021 of

Department of Fisheries, fisheries sector designed and developed inland open water-bodies as priority basis. This project would be the positive initiatives from for fish culture management and to convert the traditional fisherman, keep up with the culture based fisheries management instead of capture. To perform the aforesaid activities, the present Development Project Proposal (DPP) has been designed with an estimated cost of 5779.00 lakh Tk. and to be implemented over a period of 5 (five) years from July 2010 to June 2015.

Activities of the Project (Physical objective):

i.	To develop nearly 200 public owned open water-bodies to increase fish production.
ii.	To develop the capacity of targeted fisher-folk community/fisher groups in production and harvesting of fish providing training, extension services and credit facilities.
iii.	To support fisher-folk communities/fisher groups in order to alleviate their poverty through creation of employment opportunities.
iv.	Re-excavation of 100 ha silted water-bodies, cage culture in 100 water-bodies, development of 50 ha nursery pond.
v.	Construction of 100 nos. pipe culvert/ box culvert/ masonry culverts.
vi.	300 sqm Iron mesh netting/Bamboo fencing
vii.	Construction of 50 ha fish pen for demonstration.
viii.	Creation of employment opportunities and uplift the living standard of rural poor beneficiaries.
ix.	Production of 1500 MT. additional fish.
x.	Establishment of 175 nos. (350 ha) sanctuaries.

Waterbodies development & Habitat restoration

The listed water bodies would be re-excavated partially (where necessary) to make a good habitat for fish. Construction/repair of dyke will undertake so that the stocked fish fingerlings could not escape retarding of water. Nursery ponds will be constructed within the water bodies where suitable lands are available. The nursery will be 1.5 m to 2.5 m (depend on ground water table) in depth for better management of spawn of major carps. The area of nursery pond will be as per biological requirement. If govt. khas land is not available, nursery can be constructed on private land subject to land lease agreement with the land owner and local Jalmahal management committee. The lease agreement should be done through the first class magistrate/Notary public. Re-excavation and construction of dyke/approach dyke/protection dyke/nursery pond will be undertaken. The professional fishers, unemployed youth and others residing surrounding water bodies will be organized and given the responsibilities for

maintenance of dyke, pond, sanctuary and other structures facilitated through the project. Improved open water fisheries management activities would be initiated by direct participation and ownership concept of the stakeholders. As a result, the sustainability of the project would be ensured after the project period. Part time employment opportunities will generate during re-excavation, nursery operation etc. The cost of spawn, feed, fertilizer and other inputs will be beard by beneficiaries themselves for nursery pond.

Construction of Pipe/Box Culvert

To and fro motion of water is the nature of closed/semi-closed water bodies during rainy season. It is necessary to permit the free flow of water. To facilitate this, construction of 30 nos. pipe/box culvert will be undertaken where it is obligatory for raising fish from the water bodies. Proper meshed iron net will be placed in the mouth of the pipe/box culvert so that stocked fish could not escape.

Iron mesh Netting/Bamboo Fencing

Proper Netting/Fencing with iron is necessary in water bodies which will allow free flow of water but not the fish. The beneficiaries will be organized and engaged for maintenance of this.

Establishment of Fish Sanctuaries

To facilitate natural recruitment, improvement of bio-diversity and increase natural production, 350 ha fish sanctuaries will be established in 175 open water bodies selected by the beneficiaries. The beneficiaries will look after the sanctuary. There will be a provision for one standard size country boat for suitable permanent sanctuary. Cost of extension supports for each sanctuary management such as bill board, sign board, katta etc., will be meet up by sanctuary purpose allocation.

Establishment of Pen and Cage culture facilities

Pen culture is a very suitable technology in open water bodies. Through this project, 25 Jalmahal would bring under aquaculture management. Pen culture technology will be demonstrated through this project with the active participation of the beneficiaries. As because temporary/permanent sanctuaries will be established there where fisher's could not catch fish in a particular period of the year (in some cases throughout the year). For alternative livelihood of the distressed fishers and to make themselves reliance, pen/cage culture program would be undertaken the suitable place of Jalmahal's covering at least 0.50 ha. area. These activities will be managed by the active

participation of the local Jalmahal Management Committee's selected members. The project would bear the infrastructure development costs and other making charge of pen/cage. The beneficiaries themselves will bear the recurring cost from their own income/saving etc. that will be treated as beneficiaries share.

Outcomes of the Project

The project has targeted to trained 24500 rural poor beneficiaries. The beneficiaries will be developed as skilled workforce through training and by adopting modern fish culture and fisheries management technology. Listed water bodies will be developed as a productive unit and friendly to the environment. Increased production of fish would also help to increase the income thereby ensuring better living standard of the beneficiaries. As a result skill development employment opportunity will also be generated.

Adverse effects and mitigation measures

i) Other projects/existing installations:

The project will not affect or hamper the activities of other projects or any other installations.

ii) Environment like land, water, air, bio –diversity etc.

No environmental pollution will be evolved as a result of implementation of the project. No materials and inputs will be used that may cause pollution and hazards to environment under the project and natural resources will not be affected.

iii) Women and Children.

No activity would be under taken which would affect Woman and Children. Moreover distressed women will be selected as beneficiaries. They will get training and will be an active and trained work force for the nation.

iv) Employment, Poverty alleviation, etc.

Alleviation of poverty is the prime theme of all development activities. The project has been formulated with a view to alleviation poverty of the fisher-folk and unemployed youths who reside around the listed water bodies through involving them in improved aquaculture activities and providing aquaculture inputs, training and extension services. This project would create employment for unemployed youths, distressed, land less, fishers, marginal farmers etc. and reduce their poverty and uplift their socio economic condition.

v) Institutional, productivity.

The project has targeted to develop 8620.28 ha. of water bodies and 24,000 rural poor beneficiaries. The beneficiaries will be developed as skilled workforce through training and by adopting modern fish culture and fisheries management technology. The project has targeted to produce 1500 MT additional fish production and also help to increase the income thereby ensuring better living standard of the beneficiaries.

Regional disparity

The project will be implemented in 200 upazila under 54 districts. As a result, the proposed project activities will create an opportunity to make the regional homogeneity for the poor fish farmers/fishers in the project command area. So, there is no minimum chance to create any regional disparity.⁸⁸

4.2.4 Project Title: Hura Sagar Aquaculture and Fisheries Development Project

a) Sponsoring Ministry/Division: Ministry of Fisheries and Livestock

b) Executing Agency: Department of Fisheries

Location of the Project: Hura Sagar in Belkuchi, Kamarkhanda and Sadar Upazila of Sirajgonj District.

Project implementation period: i) Date of commencement : July, 2010

ii) Date of completion : June, 2013

Project Organization and Management

The Department of Fisheries (DoF) will be responsible for implementing the project in 5 years of period. DoF will provide all sorts of administrative and technical support to implement the activities of the project. The DFO Sirajgonj will work as Project Director (PD, Grade 5) deputation or in addition to his/her role of District Fisheries Officer. As PD he/she will be responsible for overall implementation, administration, supervision and monitoring of the project. One Assistant Director (Grade-6) worked as deputation, one Fisheries Extension Officer (Deputation/Additional Charge); one Sub-assistant Engineer (deputation) will be deputed/additional charge from DoF to assist the Project Director for implementing the Project activities. As new 1 Computer Operator (grade-13), 1 Accountant (Grade-16), 1 Driver (Grade 16) and 1 MLSS (Grade-20) will be recruited for office management. All the new staffs will be recruited as per Government recruitment procedure.

⁸⁸ Ibid.

In addition to the newly recruited and staff, the PD cum DFO will seek necessary assistance from the Senior/Upazila Fisheries Officers of Belkuchi, Kamarkhanda and Sirajgonj Sadar and their field staffs for implementation of the activities of the project. From the Divisional Deputy Director Office Rajshahi, the Assistant Engineer will do necessary supervision of the works of the Sub-Assistant Engineers deputed into the project. The Divisional Director of Fisheries, Rajshahi will have overall responsibility for supervision of the project for its smooth implementation.

The Project will provide all necessary logistic support to the DoF personnel working in the project within the project areas. One pick up (Double cabin) will be purchased for the project use. There is a provision to purchase 3 motorbikes (3 motor bikes for the officers of three Upazilas Belkuchi, Sadar and Kamarkhanda to run the project activities smoothly. However, for the purchase of project works for vehicles of DoF the project will provide support for fuel and maintenance.

Project Steering Committee

A Project steering committee will be formulated for better co-ordination, monitoring and supervision of the project. Secretary MoFL will be the Chairman of the committee and Project Director will act as the Member Secretary. Director General, DoF, Joint secretary (Fisheries).

MOFL, Joint Chief (MoFL), Representative from Ministry of Land, Representative of Ministry of Water Resources, Director General, BFRI, representatives from Planning Commission, Implementation Monitoring and Evaluation Dept. (IMED), Bangladesh Water Development Board will be the members of the committee. The committee will sit at least once a year.

After completion of the project, the project activities will be continued by the local beneficiaries from their own fund. During the project period, 10 Community Based Organizations (CBOs) will be developed as a result there might develop a management institution among the beneficiaries, local government, local people and the DoF. So, it is expected that the project activities will be continued with the full support and cooperation from all concern. However, local DoF officials will keep close touch with the project activities and will provide all sorts of technical support to run the activities after completion of the project.

Objectives of the Project

1. To improve the fish habitat by deepening specific locations of the river bed without hampering the dry season rice production.

2. To improve production of non-stocked indigenous fish and biodiversity by establishing sanctuaries, stocking fingerlings of endangered species and application of other conservation measures.
3. To increase fish production by stocking fingerling for grow-out for 4-5 months during monsoon in the whole river (>30km) and year round in deeper parts through construction of a water control structure.
4. To produce fish fingerling in the river by developing pond nurseries in the river bed and setting up cages in deeper parts of the river.
5. To establish community based organization (CBO) approach in implementation of the activities.

Project rationale

The people in project area in particular are found extremely poor, having very low level of land holding, little income earning opportunities and almost completely depends on the seasonal rice production. For majority of the households there is uncertainty in terms of food security with lots of problems linked to flooding and vulnerability. Especially for the fishers community such uncertainties are of more intense because they were largely by born dependent on fishing as part of their livelihoods and with reduction in the scope to get good fish harvest and income their livelihood situation become more vulnerable day by day. Further the dryness in the area with limited source of water makes it more difficult in this area. However, fish is the principal source of dietary protein in the project area. At present, the scope of alternative income generation and production of food grains is very much limited.

The implementation of several aquaculture and fisheries project in recent years in different parts of Bangladesh. It shows with the recent development of technologies on aquaculture and fisheries especially from such resources (dead river) people can carryout seasonal fish culture with success. The innovation of technologies such as cage culture and pond nurseries development together with the conservation measures able to increase the level of fish production tremendously. Further the introduction of cages in the water bodies are now considered important and viable options to get higher level of fish production from community water bodies and of high potential for poor to get rid from income and nutritional poverty through production of fish fingerlings or table fish production in cages.

Major activities

The major activities of the project to be implemented in order to get the production from aquaculture and fisheries are as follows:

(a) Earthworks to develop fish habitat and arrangements for fish culture in cages throughout the year: During the project period 60 ha khas land silted areas in the river bed will be deepened up to 1.6 m and these together with the existing deeper parts will be effectively used as fish habitat for natural fish and also to use as resources to culture cages based fingerling or food fish production by poor households throughout the year for their income earnings. It is noted that paddy field will not be affected or converted to ponds during the excavation or re-excavation work.

(b) Establishment of Fish Sanctuaries: At least 20 fish sanctuaries will be established (each one with 0.5 ha area) by 10 CBOs in the deeper part of the river after the earthworks completed to use this as a source of the parents fish to shelter and later on breed to increase the natural fish production in the system.

(c) Development pond nurseries: As part of the earthworks in the river bed at least 20 pond nurseries will be constructed and arrangement to it for fry rearing will be set up by the CBOs to get production of fingerling to use as sources of fingerlings in the systems for grow-out.

(d) Development of a water control structure: A water control structure will be constructed at suitable location of the river (at the end part of the river in the area of Belkuchi near the Lakshmi Bazar where the Hura Sagar is connected with Kortoa river) so that a total of 225 hac (around 30 km long) river with around 75 m length area will be under the system of water control during monsoon period for 4-5 months to hold water sufficient to do fish culture by stocking of large size fingerlings. This will be done with the participation of the CBOs (10 CBOs to be established for the purpose by around 5000 beneficiaries in the area).

(e) Stocking of fingerlings: A total of 9000 kg of large size fingerlings (40kg/ha in an area of 225ha of around 2 lakhs) will be stocked in the river during monsoon to carryout fish culture to get higher level of fish production by the beneficiaries.

(f) Establishment of systems of cages culture: A total of 2000 households (200 from each CBOs) especially from poor categories will be involved in cage based fingerling production or foodfish production by setting small size 1m³ net cages in the deeper part of the river to get extra income from the system. They

can able to produce at least 20-30 tons of fingerlings/foodfish from the system if it is successfully established. This can be used as a demonstration to upscale the technology in other areas as well.

(g) Establishment of CBOs and training cum community centers: A total of 10 CBOs will be established to carry out the activities by the beneficiaries in a systematic manner. A total of 3 training community centres in three Upazilas (in the campus of Upazila Parishad) will be constructed for CBO to use it as a centre for their capacity building and also to use it as a local institutional development centre to carry out the aquaculture and fisheries activities effectively. An apex body will also be developed for the 10 CBOs lead by local elites and local governments to increase the effectiveness of the CBOs. For effective functioning and establishment of the CBOs the norms and regulations will be included based on the experience from other Community Based Project (e.g. CBFM project implemented by DoF and the World Fish Center).

(h) Training, workshops and rallies: The capacity building of the beneficiaries on the fisheries conservation, implications of aquaculture technologies and use of new technologies like the cage fingerling production or foodfish production will be the major activities of the project. This will be further augmented through arrangement of workshops and rallies where there will be greater scope to share the outcomes and experiences for improvement or for scaling up in other potential areas.

(i) Monitoring Evaluation and Communication: In order to implement the activities effectively by knowing about the constraints (context specific) there will be activities on monitoring and evaluation. This will give an opportunity to know about the constraints of importance to take step for improvement during the project period. Further the activities on documentations and communications will be there of importance to share these to the other potential stakeholder for benefits to a broader level.

Outcomes

- From the project 5000 households will be directly benefited by getting capacity building support and other input support related to fish culture and fish conservation to get increased level of fish production and income.
- The seasonal fish culture in the 225 ha can able to produce fish of at least 450 MT of fish within 4-5 months and later on more amount of fish from the deeper parts of the river. It is estimated that an individual households can get an extra earnings of Taka 7200 per annum from fish production.

- 2000 poor households with 2000 cages involved in fingerling/foodfish production in cages will get an extra income of Taka 3000/households selling of fingerlings.
- Total 10 community based organizations will be developed with the beneficiaries living by the side of the river to manage it for improved level of aquaculture and fisheries production.
- A total of 60 ha khas lands within the river bed will be excavated to make deeper of importance to have good fish habitat to crate 20 fish sanctuaries, to hold water throughout the year useful to set up cages and thus make the overall increase in the level of fish production. This will provide a large numbers of employments through involvement in renovation.
- In the river bed 20 pond nurseries will be developed to produce at 2-3 tons of fingerlings of use for grow-out fish in the system
- At least 10 km roads by the bank of the river will be developed of importance to use for communication of the people in the areas.
- The development of at least 150 ha deep area of the river can be also use as good source of water to use for household purpose as well as for the supplementary irrigation through intervention of this project.

Adverse effects and mitigation measures

(i) Other projects/existing installations

The project activities will not have any adverse affect on other projects or installations. However, it would be rather complementary to other projects or installations

(ii) Environment like land, water, air bio-diversity etc.

This project will be useful to establish the systems of importance to increase the environmental suitability as it will help to increase the production of natural fish, improve the aquatic biodiversity through establishment of sanctuaries and improvement in the fish habitat. Further as fish culture will take place during monsoon people can get extra production and income and also the fertility of the soil of the river bed will be improved.

(iii) Women and children

The project activities will be destined and implemented in such a way that at least 50% women including children of the households will be benefited through increase income and household nutrition. One of the important technologies which is suitable for the women to involve especially from poor households are

the cage based fingerling production and growing of vegetables in the side of the river. The women in the households will be trained under the community based systems in on the technologies together with their male counterpart. In the CBOs in the management level women will be involved together with the men to take part in decision making and other management works of CBOs as leaders which of importance for their empowerment.

(iv) Employment, Poverty alleviation, etc.

About 5000 households and a total of 20,000 people (5 members in each household) will be directly benefited from the intervention and they will get income earnings from the fish production from the river. All the people by the side of the river will be benefited by use of the water for their necessary purposes. The 2000 households involved directly in cage based fish fingerling production or foodfish production in the deeper parts of the river will be significantly benefited to get rid from income poverty as well as nutritional poverty. The fishers will get longer employment opportunities and income earnings and certainly in the backward and forward linkages development and lots of subsidiary employment will be generated through this project in the areas. The fish fingerlings produced from cages in the systems will help in the development of aquaculture in the areas in the pond and other systems as well.

(v) Institutional, productivity

A total of 10 CBOs will be developed under this project on average and they manage a total of 22.5 ha of water bodies. This is of sufficient enough for them to get quite a significant amount of fish production during the monsoon through aquaculture and fisheries conservation. An apex body of the CBOs will be developed to monitor the activities and the problems to make the institutions (CBOs) successful to carry out these activities even beyond the project period. It is expected that during through fish culture for 4-5 months in a total of around 225 ha water there and with a level of production of 2 ton/ha the fish production during this period will be a total of 450 MT of fish. Other than this from un-stocked fish and from cages there will be at least another 100 tons of fish production from the systems. This production is around 200% more than the existing fish production from the water body.

(vi) Regional disparity

The project is located in the flood prone areas where most of the people are poor with very low level of agricultural land holding. The successful implementation of the project will be of great help for them to get production of

fish, employments. The project is very important to reduce the disparity for these areas compared to other areas of the country with lots of development and higher proportion of people with better well-being. The project will be implemented in three Upazilas (Sirajgonj Sadar, Belkuchi and Kamarkhanda) and according to the areas coverage in the river the benefits will be distributed.

Adverse effects and mitigation measures

Any other important details, technical or otherwise (e.g., sustainability, governance, Steering Committee, Project Implementation Committee etc.): After completion of the project, the project activities will be continued by the local beneficiaries from their own fund they save from the activities of the project during the project period. During the project period, 10 Community Based Organizations (CBOs) will be developed, as a result there might develop a management institution among the beneficiaries, local government, local people and the DoF. So, it is expected that the project activities will be continued with the full support and cooperation from all concern. However, local DoF officials will keep close touch with the project activities and will provide all sorts of technical support to run the activities after completion of the project.

A Project steering committee will be formulated for better co-ordination, monitoring and supervision of the project. Secretary MoFL will be the Chairman of the committee and Project Director will act as the Member Secretary. Director General, DoF, Joint secretary (Fisheries) MoFL, Joint Chief (MoFL), representative from Ministry of Land, representative of Ministry of Water Resources, Director General, BFRI, representatives from Planning Commission, Implementation Monitoring & Evaluation Dept. (IMED), Bangladesh Water Development Board will be the members of the committee. Members may be co-opting from other organizations if necessary. The Project Director will act as Member-Secretary of this committee. This committee will meet as and when necessary but at least once in a year.

Hura Sagar Aquaculture and Fisheries Development project is implemented in three upazila under Sirajgonj district. In project objective to improve fish habitat by deepening specific locations of the riverbed, establishing sanctuaries, stocking endangered species in that area are implement in this project. It started July 2010 and completed in June 2013. It is a good project for conserving our indigenous fish species. But there are some conflict issues in this project, which degrade aquatic environment.

In project objective to improve fish habitat by deepening specific locations of the riverbed, establishing sanctuaries, stocking endangered species in that area are implemented in this project. Moreover, there is no option to control of pollution aquatic environment by pesticides, which are used in crops field in the bank of the river. Therefore it is a contradiction with the protection and conservation of fish act 1950, the protection and conservation of fish rules 1985, national fisheries Policy 1998 and national water policy 1999.

One member is included in project steering committee from Agriculture Ministry, otherwise problem arise specially in dry season between the department of fisheries and agriculture for irrigation. And also one member is included from local Government to manage local farmers.⁸⁹

4.2.5 Project Title: Greater Pabna (Pabna-Sirajganj) Fisheries Development Project

a) Sponsoring Ministry/Division: Ministry of Fisheries and Livestock

b) Executing Agency: Department of Fisheries

Location of the Project

Pabna Sadar, Ishwardi, Faridpur, Sujanagar, Bera, Vangura, Chatmohor, Sathia and Atgharia. Sirajgonj-Sadar, Ullapara, Belkuchi, Tarash, Chowhali, Raigonj, Shahajadpur, Kazipur and Kamarkhond.

Project implementation period	a)Date of commencement	: July 2008.
	b) Date of completion	: June 2013.

Project organization and management

The project will be implemented by Department of Fisheries under the administrative control of Ministry of Fisheries and Livestock. DoF will implement the project through the Project Management Office (PMO) headed by a Project Director, which will be established in District Fisheries Office, Pabna. Project Director will act as the chief of the Project Management Office. District Fisheries Officer of Pabna District will be appointed as Project Director. He will assist by full-time existing officers and staffs of regular (revenue) setup. They will be posted on deputation/assigned additional charge. Two Extension Officer, two Data Entry Operator, 18 Field Assistant and two MLSS/Messenger will be created new on consolidated pay to implement the project smoothly. In addition, one Assistant Director will be posted at the Project Management

⁸⁹ Ibid.

Office, Pabna from the reserve post of the head quarter, Dhaka. The PMO will be responsible for overall implementation of the project in collaboration with the experienced departmental officers and staffs of Pabna and Sirajgonj districts. Base line study will be conducted through Fisheries Resource Survey (FRSS) personnel posted at different level of the project area. The assigned engineer of Department of Fisheries will assist Project Director for implementation, supervision and monitoring of the project work. Concerned District Fisheries Officers, Upazila Fisheries Officers, Fisheries Extension Officers, Assistant Fisheries Officers and Field Assistants will remain responsible for implementation, operation and management of the project at the field level. The District Fisheries Officer will monitor and supervise project activities and keep liaison with the project management Office. Upazila will represent the District Fisheries Officer in revenue collection and will visit villages on specified dates for collection of revenue along with Beel Management Committee (BMC) representatives.

Upazila level Officers and staffs will be involved for community mobilization and formation of groups/fishing communities, training, education, fisheries support activities (boat, net, fish processing, marketing facilities etc.) and other socio-economic activities undertaken by them in project sites, resource management plans and actions taken by the communities and other relevant information.

All earth works under the project will be implemented through landless Contracting Society (Poor men and women) under Taka for Works (KABITA). The water bodies will be managed by the beneficiaries groups. Pond, dighis, ditches, borrow pit, canal etc. will be managed by Pond Management Group (PMG) while beel and sanctuary will be managed by the Beel Management Committee (BMC). Beel Management Committee (BMC) will be formed taking men and women from each fishermen/landless households and marginal farmers of adjacent/within the sub project area. The beneficiaries would get the use right of the developed water bodies and infrastructures built through the project and they would also take proper maintenance.

Project Steering Committee

A Project Steering Committee will be formed at national level under the chairmanship of the Secretary, Ministry of Fisheries & Livestock. The composition of the committee will be as follows:

I)	:Secretary, Ministry of Fisheries & Livestock	: Chairman
II)	:Joint Secretary, MOFL	: Member
III)	:Joint Chief, MOFL	: Member
IV)	:Director General	: Member
V)	:Director General	: Member
VI)	:Representative, Ministry of Land	: Member
VII)	:Representative. Ministry of Agriculture	: Member
VIII)	:Representative, Ministry of Water Resources	: Member
IX)	:Representative, Finance Division	: Member
X)	:Representative, IMED	: Member
XI)	:Representative , Planning Commission	: Member
XII)	:Representative, Water Development Board	: Member
XIII)	:Project Director	: Member Director

The committee will review the progress of project implementation and provide policy decisions regarding smooth implementation, approval of the annual budget and work plan of the project. This committee will meet at least once in a year or when necessary.

Local Management Committee

For maintenance and management of fish culture and conservation of Fish Act, in the selected water bodies a “Local Management committee (LMC)” will be constituted comprising the following officials/local bodies:

- | | | |
|----|--------------------------------------|--------------------|
| a) | Upazila Nirbahi Officer | : Chairman |
| b) | Upazila Agriculture Officer | : Member |
| c) | Upazila Livestock Officer | : Member |
| d) | Assistant Commissioner (Land) | : Member |
| e) | Representative of BWDB | : Member |
| f) | Upazila Co-operative Officer | : Member |
| g) | Upazila Youth Development Officer | : Member |
| h) | Chairman of Concerned Union Parishad | : Member |
| i) | Representative of Local BMC | : Member |
| j) | Senior/Upazila Fisheries Officer | : Member Secretary |

The committee will select water bodies, approve beneficiary groups, arrange leasing out of water bodies, select site, number and type of sanctuary, implement fish conservation Act, motoring and supervise field activities in

achieving the project objectives, take up necessary action to tackle any unwanted situation that create in the project implementation.

After completion of the project, the water bodies and institutional arrangement and infrastructure development under the project will be handed over to the beneficiary groups for fish operation and maintenance management and related activities. The responsibilities of operation and maintenance of project will be taken by the beneficiary groups. So all sorts of operating/recurring costs will be borne by the beneficiary group and not from government sources. But the monitoring of all the activities of group will be done by the officers and staffs of Department of Fisheries at the District and Upazila level as a part of their regular program.

Objectives of the Project

The overall goal of the project is to ensure livelihood security of the poor and neglected people of Pabna region and to protect the government properties. Supporting the Government's poverty reduction effort through the sustainable aquaculture and management techniques.

The specific objectives of the project

- i) To increase fish production of Pabna region to meet up food and nutritional requirement of the people through aquaculture using the total fish cultivable water bodies.
- ii) To protect fish bio-diversity establishing fish sanctuary and awareness of the fishermen.
- iii) To improve fish habitat through minor infrastructure programs to ensure proper fish culture in all water bodies.
- iv) To improve employment situation through fish culture activities and socio-economic development of the landless, poor and marginal farmers.
- v) To create trained and skilled fish farmer to enhance fish production.
- vi) To aware fishermen, fish farmer and all kind of people to protect open water fisheries to increase natural fish production.

Project Rationale

As a large number of rivers flows through the two districts, every year most of the agricultural lands remain inundated due to flood. To protect the agricultural crops, last three decades several FCD projects have been implemented in these areas. A 158-kilometer length flood control dam to protect Pabna district

from the Padma River and 144-kilometer length flood control dam to protect Sirajgonj district from the Jamuna River were established. Earlier these areas were very rich for huge water bodies and extensive flood plains. These flood plains and water bodies were the main habitat and breeding grounds for traditional fish species. But unplanned construction of embankment and water use by pump has resulted loss of flood plains, siltation of the water bodies and most of the aquatic habitats. Owing to such various man-made interferences and natural processes the vast water bodies of these areas are losing their productivity.

The lack of improvement of government khas Jalmahal, the revenue oriented management system rather than its biological management, lack of investment in fish production activities, disregards or ignorance about fish cultivation, lack of training of aquaculture and water resources management, silting up of natural water bodies destroying fish habitat, indiscriminate killing of brood fish, fingerlings, excessive fishing pressure, drying out of perennial water bodies, destroying parental stock, unplanned construction of dams and roads without measures, over use of insecticides for crop production, destruction of fish habitats, application of excess amount of fertilizer for crop production etc. hampered the growth of open water fisheries seriously. The environment of these areas also degraded due to unplanned and uncoordinated engineering activities for boosting up agricultural production, particularly paddy ignoring the development of fisheries. If no comprehensive measures are taken to conserve and protect the fish of these areas, fisheries sector of these areas may be completely destroyed nearby. Excessive withdrawal of water from water bodies to irrigate the paddy field has also almost destroyed the aquatic environments where fish no longer live and perpetuate its reproduction and race.

At present, 11,057.54 ha of government and private perennial water bodies, 47,043.86 ha of seasonal water retention area (both government and private beels), 48,000 ha of flood plain, 927.21 ha of borrow peat, 1269.48 ha of dead rivers/canals, 32,418 ha of rivers are available in greater Pabna district. Annually 71,842.18 MT of fish are harvested in these areas but it is possible to increase the production up to 92000 MT annually if the water bodies are properly managed. It is possible to enhance protein supply through fish production, employment generation, to build-up skilled fish farmer and fishermen, earning foreign money, socio-economic development of fishing communities and landless people of greater Pabna district through fish production by proper management of water bodies.

If this project is implemented in these areas properly it would result multiplication of fish production, generate income and employment, ensure sound management of water resources, preserve fish bio-diversity, restore fish habitat and contribute to favorable productive ecology.

Major Activities of the Project

Development of Beel/Canal/Dead river/Khas ponds and other water bodies

In the project area, a large number of beel, canal, dead river, khas ponds, Govt. FSMF ponds borrow pit including road side dishes are available and they are derelict in condition. Once the productivity of these water bodies to a large extent depended on the availability of a wide range of aquatic habitats for reproduction, migration, feeding and growth. But over the years, due to natural and man-made causes, aquatic bio-diversity especially species diversity of fish and other aquatic organisms in the beels have been declining sharply. The causes of this bio-diversity loss are several such as FCDI impact, recruit failure, over exploitation of brood stocks, water pollution, excessive selective fishing mortality, sedimentation, and water shed deforestation etc. It is much essential to undertake necessary attempts for conserving and enhancing aquatic bio-diversity. The proposed project will address these causes through establishment of beel nurseries, fish sanctuaries, re-excavation of bottom of beel and canal, stocking of threatening species, construction of different structures, afforestation etc. If these water bodies are re-excavated properly, fish can be cultured by the poor and landless men and women of the project area. Considering the potentiality of these water bodies, the project will support the activities of re-excavation/rehabilitation of khas ponds, beels, canals, dead rivers, borrow pits of 150 hectares to develop water retention capacity. Earthwork will be done through PIC/Landless Contracting Society (LCS) following LGED's methodology.

A co-lateral agreement was signed between Ministry of Land and Ministry of Fisheries and Livestock to develop water bodies for aquaculture. Another co-lateral agreement was signed between Ministry of Water Resources and Ministry of Fisheries and Livestock for the development of borrow pit, canal and dead part of the river for fish culture during implementation of the Rural Development Project. Water body will be selected and developed under this MOU. After development, the water body will be leased out to the groups and agreement will be signed with the Revenue Officer (Appendix-IX). The developed water body will be managed by the beneficiaries group who will be

selected from the neighbors of water body. Five to twelve people will be selected for each hector of water body in which at least 30% will be female.

Establishment of sanctuaries

Establishment of fish sanctuary is one of the effective tools for conserving fish stock, preserving bio-diversity, creating fish spawning facilities for natural fish species and increasing fish production. Sanctuaries may be perennial/permanent that helps protect breeding and nursery ground to produce brood fish and other fish and enhance bio-diversity. For protection of fish, watershed, wildlife and plants, the project will establish seasonal and permanent sanctuaries or specific conservation related easement in the beel, river or protected area of river with branches of trees, bamboo and concrete pole. Pipes etc. or open by declaring reserve area at the first time. Later on community groups with the cooperation of Local Management Committee and DoF officials will establish/replace and carry out regular maintenance. These may be achieved by establishing conservation easement through purchase or long-term lease of important wetlands, riparian corridors or associated watersheds. After the feasibility survey of Local Management Committee with local community group, site, location and area will be selected. Under this project, 26 permanent sanctuaries will be established or re-excavated for fish conservation.

Nursery pond re-excavation

Most of the beel or ponds of the project area are dried up from December/January until May, thus limited their use of fish production for seven to eight months and forcing the selection of a fast growing fish, herbivorous fish like silver carp. Under this project nine hectares nursery ponds will be re-excavated at the centre of each selected beel to accommodate the hatchling needed to achieve a fry density of 10,000 per hector in the month of July. The size of pond would be based on a hatchling stocking density of 50 per meter square. A low height submergible embankment will be constructed around each of nursery pond so that the floodwater would overtop the embankment during August to disperse one-month-old fry into the main water body or beels. The embankment will be medium compacted with a slope of 4:1. Harvesting would be done in December to February when the water body starts to dry up. Fish should have reached at a marketable size and earn an average weight of 500 to 700 gm per fish. By establishing the nursery activities, local group will be able to collect good quality fingerling with very low price and without any carrying cost. Their fish production will be high and they will be more benefited than past.

Construction of earthen dyke

Ten-kilometer earthen dyke will be constructed around the selected beel, flood plain or other water bodies to protect the fish from their escapement. In project area, many semi-close water bodies such as small beels, flood plains and borrow have been created by the development of embankment through Bangladesh Water Development Board to protect Agricultural production. These selected semi-closed water bodies will be closed by constructing earthen dyke and the water body would be suitable for fish culture. The management of the developed area/floodplain will be done by the community people following the Daudkandi's model and technique. Carp culture system will be adopted in the closed/semi-closed area of floodplain with rotation cropping system of paddy cultivation in the dry season and aquaculture in the monsoon season. The environment friendly and community based flood plain aquaculture system of Daudkandi model will be extended to suitable floodplain in the project area.

Construction of fish pen

As those water bodies cannot be protected through constructing dyke or the construction cost is very high, fish pen can be constructed in that type of water bodies. Considering feasibility of fish culture, some water bodies can be selected as pen for fish culture constructing some facilities to form a temporary closed area in the beel, river, canal or floodplain. Under this project eighteen fish pen of eighteen hectares will be constructed within the project period. The pen will be selected and leased to the poor and landless fishermen groups through Local Management Committee. Fingerling of different species will be released in the pen and the pen will be managed by the groups with the technical help of DoF officials. 3000 kg/ha table fish can be produced from the pen and a total 54 metric tons of fish can be produced from fish pen activities.

Construction of box-culvert & landing center

Box-culvert and water control structures will be constructed in some situation to maintain permanent water or reconnect floodwater to beel areas or reduce pollution and sedimentation in degraded wetlands. No structures will be constructed that will impede monsoon flows or cause flooding and will substantially damage the existing environmental situation. Guard shed cum Community cum Landing Centre with Training Facilities will be constructed in suitable place to create training facilities and organizing capacity of the poor and marginal farmers. It will improve marketing facility to the fishermen.

Stocking of indigenous fish & carp fingerlings

Under this project, 3000-kilogram endangered wild indigenous fish will be produced and released to the protected sanctuary areas and other suitable selected water bodies in order to re-establish fish population in the wild habitat. The brood fish will be collected from the different sources of water bodies of Bangladesh or from government/nongovernmental farms. Active protection measures as well as public awareness campaign will be implemented to allow the stocked population for sufficient opportunity to build up self-sustaining levels. 3.2 million Carp fingerlings will be released in the beel, floodplain, borrow pit, canal and such water bodies where carp fish nursery activities cannot be possible for fingerling production.

Income generating activities through livestock

To create the income generating activities, 350 numbers of cows and 4500 numbers of ducks will be distributed among the poor, landless people of the project area. These animals and birds will be distributed through Local Management Committee to selected poor fishermen. 21.04 million taka will be expected earnings through these animal rehabilitation programs. It will also help the fishermen to survive at the interim period when the fish harvesting from certain water bodies will be banned for some period of time.

Dyke plantation & afforestation

Re-vegetation and afforestation of degraded wetland, watersheds and riparian zones with flood resistant trees and plants will be undertaken by the project. The site selection for re-vegetation will be done with the help of local groups and Local Management Committee. Suitable native species of plants such as Hugal, Sewra, Neem, Kadam, Bat, Babla, Dhunicha, Epil-epil and other aquatic vegetation will be planted to ensure bio-diversity to re-establish lost swamp, forest habitats. Local people of project area will be motivated/encouraged to change the cropping pattern to cultivate deep-water rice after harvesting boro rice. They can also be encouraged to cultivate high valued crops like onion, garlic and other vegetables in the winter. After harvesting these crops, they will be encouraged to sow dhaincha. In any way, the farmers will be motivated through various communication programs not to keep their land free in the winter season. Some suitable species of wood trees and fruit trees will be planted at the roadside and pond dykes. All the plantation and vegetation program of the project will be helpful to create a desirable environment for this region.

Humane resource development and capacity building through training

The project will provide training for institutional strengthening within local community people of various levels, and the officer and staffs engaged to implement and management of the project activities. Comprehensive training for aquaculture, motivational training for fish act implementation and other income generating for the different categories will be provided to the men and women of project area. Duration of the training will be determined according to the needs of the beneficiaries. The training activities will be performed with the view to develop community to empower fishing communities to become co-managers of these fisheries and to ensure a more equitable distribution of benefits from fishing and sustainable fisheries management.

The targeted beneficiaries will provide with necessary training by the implementing department on fish culture, fish resource conservation, social awareness development and their management including marketing etc. In addition, the group members will be trained on group management, leadership, and investment in diversified income generating activities. Periodic refresher training for the beneficiaries and project personnel will also be organized time to time. Expertise of the district and Upazila Fisheries Officials will be utilized for this purpose. Various workshops and training sessions will also be conducted at district and Upazila levels to enhance the skills of the target group and project personnel and this will also help to exchange views and ideas among different groups and organizations.

Outcomes of the project

The project has targeted to develop 2700 hectars of derelict/unused ponds, beels, borrowpits, flood plains, sanctuaries, and water bodies. At the end of the project, approximately 2075 metric tons of fish will be produced per year from the developed area and 108.75 million taka will be earned from that fish production. From the training program of the project, 8820 pond owners, fishermen, landless people and other related beneficiaries will be trained to develop skilled manpower for their food security and poverty alleviation through improved fish culture and natural fish production. In addition, 450 pieces of cows and 4500 pieces of ducks will be supplied to the poor and landless farmers and fishermen to produce milk and eggs to earn 21.04 million taka. The plantation and vegetation program of the project will help the poor people to earn 2.00 million taka more. Besides these, the project will create full/part-time employment opportunity for 8820 people. Moreover it will create an employment opportunity for the daily labour of 15000 days from construction and re-excavation works of the project.

Adverse effects and mitigation measures

Environment like land, water, air, bio-diversity etc

No such activities will be undertaken under this project which may cause negative impact on environment or any environmental pollution. Nevertheless, environmental impact of all activities will be assessed by using guidelines prepared under the completed project of Department of Fisheries. On the other hand, plantation at the pond dyke will be conducive to ecological balance. In the project area, the derelict water bodies would be brought under fish culture phase by phase through re-excavation. All the developmental activities would boost up fish production and will affect positive impact over environment.

Women and Children

Poor and distressed women will be employed for earthwork as well as work related to aquaculture works and fish production. They will be involved some income generating program such as milk and egg production, duck rearing, growing vegetables at the dyke. Increased income will also increase their decision making role in the families and thus empowering them both in the family and the society.

Employment and poverty alleviation etc

All the earth works and construction works will be implemented through landless and poor people. Scope of employment will be created through milk and egg production and other income generation activities of the project. Lot of opportunities for the learned young people and fish farmers through fish culture as they will be trained and skilled enough by the project. By the project activities income of all level people will be increased due to various activities of project area and increased fish production.

Institutional

Department of Fisheries will implement the project. Through the implementation of the project, the personnel of Department of Fisheries will develop their expertise and experience on planning, implementation and operation of fisheries resources development activities. Along with this, local government institutions will also strengthen their capacity on integrating poor people in the development initiative of the country.

Productivity

The activities of the project will enhance the fish production and indirectly contribute to enhance production in non-fisheries sectors. The project area is ultimately expected to have 2700 hectare of water bodies capable of fish

culture and able enough to produce 2075 metric tons of fish yearly. Besides, production of cow milk, duck eggs and vegetables and plants will give 23 million taka earning for the beneficiaries. All earthwork and construction work of the project will be implemented through landless poor men and women. Department of Fisheries will implement and supervise all the project work properly with the help of the experienced project personnel of the department.⁹⁰

4.2.6 Project Title: Chalan Beel Fisheries Development Project

a) Sponsoring Ministry/Division: **Ministry of Fisheries and Livestock**

b) Executing Agency: **Department of Fisheries**

Location of the Project

	District	Upazila
A	Natore (4)	Sadar, Singra, Gurudaspur & Baraigram
B	Pabna (5)	Sadar, Chatmohar, Bhangura, Faridpur & Atghoria
C	Sirajgong (5)	Sadar, Tarash, Ullahpara, Sahajadpur & Raigonj
D	Chapai Nawabganj (5)	Sadar, Shibganj, Natchole, Bholahat & Gomostapur
E	Naogaon (4)	Sadar, Atrai, Raninagor & Manda
F	Rajshahi (7)	Paba, Bagmara, Durgapur, Puthia, Mohanpur, Tanore & Godagari

Project implementation period	a) Date of commencement	: July 2010
	b) Date of completion	: June 2015

Project Organization and Management

The project will be implemented by the Department of Fisheries (DoF) under the administrative control of the Ministry of Fisheries and Livestock (MoFL) in five years period. DoF will provide administrative and technical support for smooth implementation of the project activities. A Project Implementation Unit (PIU) with necessary support staffs will implement the project activities headed by a Project Director (PD) deputed from DoF (not below the grade of Grade-4). The PD will be responsible for overall implementation, monitoring and supervision of the project. To assist the PD for smooth implementation of the project activities, one Assistant Project Director (Grade-6), one Assistant Engineer (Grade-9) will be deputed from DoF. one Anthropologist/Sociologist (Grade-9), six Extension Officers (Grade-9), one Training Officer (Grade-9),

⁹⁰ The Protection and Conservation of Fish Act 1950, the Protection and Conservation of Fish Rules 1985 and National Fisheries Policy 1998, Ministry of Fisheries and Livestock, Government of the Peoples Republic of Bangladesh.

one Hatchery Officer (Grade-9), three Sub-Assistant Engineers (Grade-10), one Assistant Hatchery Officer (Grade-10), will be recruited directly as per government rules for carrying out the project activities.

Other supporting staffs such as- seven Data Entry Operators (Grade-13), one Accountant- (Grade-14), 10 Field Assistants (Grade-16), will be directly recruited by as per government rules , three Driver (Grade-16), one MLSS (Grade-20), two Dormitory Attendant (Grade-20), two Cook (Grade-20), two Night Guard (Grade-20) and two Sweeper (Grade-20) will be recruited by out sourcing as per government rules for carrying out the official activities. After successful completion of the project, the directly recruited officers and staffs (except PIU deputed staffs) could be transferred to the revenue budget for smooth operation of the field level activities.

The PIU will be at Rajshahi and project personnel will be accommodated at PIU as well as at field level for implementing the project activities. One 4-wheel jeep for PIU, Rajshahi and one pick-up (double cabin) for FSMF, Karbala, Natore and one pick-up (double cabin) for Sader FSMF, Rajshahi will be procured under the project for the smooth execution, coordination and monitoring of the project activities. As DoF existing vehicles at present becomes 10 to 15 years old and in some cases it is un-repairable for smooth operation. Provision has been kept in the project for all day-to-day logistic support. During the implementation period, there is also provision in the project for hiring of PIU office for smooth execution of the project activities.

Project Steering Committee

A Project Steering Committee (PSC) will be formed that will conduct meeting as and when require but at least once a year and provide effective guidance towards achieving the outputs envisaged in the project. The PSC will be chaired by the Secretary, MoFL and will be comprised of nine members as follows:

I	Secretary, MoFL	Chairman
li	Director General, DoF	Member
lii	Joint Secretary (Fisheries), MoFL	Member
Iv	Joint Chief, MoFL	Member
V	Director General, BFRI	Member
Vi	Representative, Ministry of Land	Member
Vii	Representative, IMED	Member
Viii	Representative, Planning Commission	Member
Ix	Project Director	Member Secretary

Project Evaluation Committee

Project Evaluation Committee (PEC) will be established to evaluate the activities of the project as per approved work plan and provide necessary guidelines. For this the committee will visit the field activities as well as conduct meeting as and when require but at least two times per year. The PEC will be chaired by the Joint Chief, MoFL. The PEC will be comprised of five members, and the others member will be from DoF, IMED and Planning Commission.

District Jalmahal/Beel Management Committee

I)	Deputy Commissioner	Chairman
li)	Superintendent of Police	Member
lii)	Deputy Director Of Agriculture Extension	Member
Iv)	District Livestock Officer	Member
V)	Deputy Director, BRDB	Member
Vi)	President, Upazila Jalmahal Management Committee	Member
Vii)	Senior/Upazila Fisheries Officer	Member
Viii)	District Fisheries Officer	Member Secretary

Upazila Jalmahal\Beel Management Committee

For better management and maintenance of fish culture and conservation of fish act in the selected water bodies an “Upazila Jalmahal\Beel Management Committee” UJ/BMC) at Upazila level will be constituted comprising the following official/local bodies. Public Representative-MP and Upazila Chairman will act as the Chief Advisor and Advisor respectively of the UJ/BMC.

I	Upazila Nirbahi Officer	Chairman
li	Assistant Commissioner (Land)	Member
lii	Upazila Agriculture Officer	Member
Iv	Upazila Livestock Officer	Member
V	Upazila Cooperative Officer	Member
Vi	Representative of BWDB	Member
Vii	Chairman of Union Parishad	Member
Viii	JMC President\Secretary	Member
Ix	Senior /Upazila Fisheries Officer	Member Secretary

Local Jalmahal Management Committee (JMC)

For proper management of the selected water-bodies, JMC will be constituted at local level with 11 members as follows. Only real fishermen will be included in this committee.

I	Chairman	1
ii	Vice-Chairmen	1
iii	Member –Secretary	1
iv	Cashier	1
V	Joint-Secretary	1
Vi	Organizing –Secretary	1
Vii	LEAF	1
Viii	Executive Member	4
Ix	Member Secretary	1

Coordination

Monthly coordination meeting will be held at PIU Office, Rajshahi. The PD will preside over the meeting. DFO will present the monthly progress report in the meeting. The PD will submit monthly progress report to Director General, DoF.

Objectives of the Project (Please specify)

The overall goal of the project is to ensure livelihood security of the wetland people and support the government's poverty reduction effort through the sustainable aquaculture and management.

The project's objectives are to:

- a. Increase fish production to meet up nutritional requirement through development of aquaculture and management in the Chalan Beel area.
- b. Preserve fish bio-diversity and restore fish habitat.
- c. Improve employment and socio-economic conditions of fishers' communities, landless and fish farmer.
- d. Involve the target groups in participatory approach for the water body management and aquaculture activities and establish their use right in the developed water bodies.

Project Rationale

Over the last three decades several FCD projects such as Chalan Beel Polders A.B.C and D, the Bernai Project and the Baral Project lie on the right bank, the Naogaon Polder and Bogra Polder-1 & 2 lie on the left bank of the Atrai River have been implemented with the objectives of providing flood protection and drainage facilities to agricultural lands in the Chalan Beel area. Confinement effect due to the construction of a series of embankments along both banks of the Atrai River has resulted in rapid rise and significant increase of water level during floods

compared to the time when the FCD projects were not in place. Thus, the FCD projects on both banks of the Atrai River failed to achieve the objectives for which they have been conceived.

The area was also once characterized by huge water bodies and extensive flood plains. These water bodies and flood plains were the main habitat and breeding grounds for indigenous fish species. Construction of embankment and water use by pump has resulted loss of flood plains, siltation of the water bodies and damage aquatic habitats.

At present farmers of the area mainly depend upon HYV Boro for their food security and consider the Aman to be a supplementary crop. Rapid drawdown of the ground water tables may pose a major impact of irrigation water supply for HYV Boro in the area in the long term. Moreover, drinking water supply from ground water may also be threatened.

The environment has been degraded and the aquatic habitats of the past have been changed due to unplanned and uncoordinated engineering activities for boosting up agricultural production, particularly paddy, ignoring the development of fisheries. Excessive withdrawal of water from the water bodies to irrigate the paddy fields along with indiscriminate use of pesticides/insecticides/fertilizers, have almost destroyed our aquatic environments where fish could no longer live and perpetuate its reproduction and race.

Following are the major factors responsible for such deterioration:

- i) Siltation of beels and rivers.
- ii) General reduction of the area of floodplains and beels.
- iii) Unplanned construction of regulators, box/pipe culverts, etc. that prevent fish migration.
- iv) Embankments that cut off canals connecting beels to rivers, thus preventing replenishment of beels with fish.
- v) Indiscriminate use of agro-chemicals and fertilizers in agricultural land.
- vi) Excessive removal of surface water for irrigation
- vii) Excessive extraction of ground water for irrigation
- viii) Over fishing by use of illegal fishing gears (nets).
- ix) Over fishing due to involvement of more into the open water fisheries.
- x) Fish disease and water pollution.
- xi) Changes in cropping pattern.

At present nearly 20 thousand ha of government and private permanent (perennial) water area, 50 thousand ha of seasonal water retention area and 3 thousand ha of derelict pond/borrow pit are available in the Chalan Beel. The water-bodies are mostly derelict or unused in the recent years. During the implementation of the first phase of this project total 168 ha of beels, pond/borrow pit, shallow water-bodies, canal, dead rivers, etc. are developed. Nearly 58 numbers of fish sanctuaries are also established. As a result fish production increased nearly 33% in pond/dighi, 80% in beel and 50% in river/canal in the chalan beel area. Fish harvesting increases nearly 15% and the endangered species regenerate about 14%. The annual income of the fishers increased about 150% and fish intake increases 8%. Employment opportunity increases 50%. But the potentially of the chalan beel area is still unexplored due to insufficient development activities. There are great possibilities to enhance protein supply, employment generation, foreign exchange earnings, upliftment of socio-economic status of fishing communities and land less people of Chalan Beel project area through fish production by proper management of water bodies. To recognizing the huge potentiality of the chalan beel area, the present Development Project Proposal (DPP) on Chalan Beel Fisheries Development Project (2nd Phase) has been designed for the implementation over a period of 5 (Five) years. After the implementation of the project activities more fish production, generate income and employment opportunity; ensure sustainable management of the chalan beel area fisheries resources; preserve fish bio-diversity; restore fish habitat and contribute to favorable productive ecosystem; increased water retention capacity; ecological sustainability; etc. will be ensured.

Activities of the Project

The project objectives will be achieved by the following activities

Beel development

There are series of seasonal and perennial beels in the Chalan Beel area which are inside the flood protection embankment (polders) and get interconnected during the monsoon. Once the productivity of this beels was very high. There was having wide range of aquatic habitats for reproduction, migration, feeding and growth. But over the years, due to natural and man-made causes, aquatic bio-diversity especially for fish and other aquatic fauna and flora in the beels, have been declining sharply. The causes of this bio-diversity loss are several such as FCDI impacts, recruit failure, overexploitation of brood stocks, water pollution, excessive selective fishing mortality, sedimentation, watershed deforestation etc. It is very much essential to undertake necessary attempts for conserving and enhancing aquatic bio-diversity. The proposed project will address these causes through establishment of beel nurseries, fish sanctuaries,

re-excavation of Doha/doba inside the beel and canal, stocking of threatened species, construction of structure of degraded wetlands, watershed and riparian zones. The activities will be as follows:

Construction of nursery facilities

Stocking large fingerlings procured from outside require much more investment. Thus nursery facilities help beneficiary groups to grow fingerlings locally with reasonably low cost. Seasonal beels in the project area are dry from December/January until May, thus limiting their use for fish production to 7-8 months and forcing the selection of a fast growing herbivorous fish like silver carp/bighead . Nursery ponds would be constructed at suitable place of each selected beel (khas/private) to accommodate and rear the hatchling needed to achieve a fry density of 10,000/ha. in the month of July. The size of pond would be based on a hatchling stocking density of 50/m². Around each nursery pond, a low height (60 cm high) submersible embankment would be constructed so that the floodwater would overtop it during August to disperse 1-month-old fry into the main beel. The embankment would be medium compacted, with a slope of 4:1. Harvesting would be done in December when the beel starts to dry up. Fish should have reached an average weight of 0.5-0.7 Kg.

Establishment of Sanctuaries

Establishment of fish sanctuary is one of the effective tools for conserving fish stock, preserving bio-diversity and increasing fish production. Sanctuaries may be of perennial/permanent that helps to protect breeding and nursery ground and help to produce brood fish and other fish and enhance bio-diversity. For the protection of fish, watersheds, wildlife and plants, the project will establish seasonal or permanent sanctuaries or specific conservation related easement in the beel or doha or protected area of river with location specific suitable design using dal, khata, bamboo, RCC pipe, hexapod etc. or open by declaring reserve area at the 1st time. Later on community groups with the cooperation of local Management Committee and DOF officials will establish/replace and carry out regular maintenance. These may be achieved by establishing conservation easements through purchase or long-term lease of important wetlands, riparian corridors or associated watersheds. After feasibility survey UJ/BMC in consultation with community/beneficiary groups, will select sites, location, area and type of sanctuaries.

Re-excavation of beel (doha) and canal

Re-excavation of beel (doha or doba) will be undertaken to re-establish dry season refuges for fish and other aquatic species and to establish sanctuaries

(if suitable). Canal re-excavation will also be undertaken to facilitate aquatic animal movement and allow water flow into and outside the wetlands.

Construction peripheral embankment/ approach road

Culverts, water control structure, sluices will be constructed in some situation to maintain permanent water or reconnect flood waters to beel areas or reduce pollution and sedimentation in degraded wetlands. No structure will be constructed that will impede monsoon flows or cause flooding and will substantially damage the existing environmental situation. Necessary peripheral embankment/approach road will also be constructed for better management of the water-bodies.

Fish Landing Centre

Fish Landing Centre is very important and useful infrastructure where fishers' gather harvested fish and sale to Aratdars. Aratdar mainly use landing centre for washing, sorting, grading, packaging of fishes and send it to another market and/or sale it to local retailers. To keep up fish quality better and longer, fish landing centres will be constructed at suitable places depending on fish abundance, marketing potentials, communication and sustainability of the proposed centres. With these facilities DoF will establish effective linkage with the fish aratdars and retailers that help for improving quality of fishes.

Preservation and Stocking of endangered fish species

This component would carry out nursing and preserving of threatened indigenous species (SIS) in Govt. Fish seed Multiplication Farm, Karbala, Natore and private farms in the project area. The Karbala FSMF's existing pond and hatchery facilities would be redesigned to make suitable for wild fish brood bank and for nursing and rearing of SIS. Especially the training facility would give extra advantage for SIS preservation and protection campaign. The fingerlings and brood of wild fish would be stocked in the protected sanctuary areas in order to re-establish populations in the wild. Active protection measures as well as public awareness campaign will implement to allow stocked populations sufficient opportunity to build up self-sustaining levels.

Pond, canal, borrow pit etc. development:

In the project area, the total area of ponds, canals and borrow pits including road side ditches are about 3000 ha. Out of which a large number of ponds, ditches are derelict either due to lack of water retention capacity or due to siltation and some for multi ownership problems. Most of these derelict water bodies are occupied by the private people. These water bodies can be converted to ideal

pond after reexcavation and used for fish production. With farmers training and use of modern technology fish production level may be raised from 3.00 to 5.00 MT/ha. per year. Considering the potentiality the project will support the activities of re-excavation/ rehabilitation of ponds/ditches/borrow pits to increase water retention capacity. Earth work will also be done through labour Contracting Society (LCS) following LGED's methodology.

A co-lateral agreement was signed between Land Ministry and MOFL to develop water body for aquaculture. Another co-lateral agreement was signed between Water Resources Ministry and MOFL for the development of borrow pit, canal and dead part of the river for fish culture during implementation of the Rural Development project. Water body will be selected and developed under this MOU. After development, the water body will be leased out to the groups and agreement will be signed with the Revenue Officer. The developed water body will be managed by the beneficiaries group who will be selected from the neighborhood of water body and. 7 to 10 person will be selected for each hectare of water body in which at least 30% will be female.

The low-lying crop land/Flood plain (small beels) development

In addition to ponds, some other semi closed water bodies such as small beels/flood plains have been created by the BWDB's Embankment project in the project area. These are located in between embankment and highways or by the side of embankment/village/highways which are suitable for fish culture. During the implementation of the project, these areas should be identified and appropriate developmental activities such construction/re- construction of the dyke with monk, culverts and screen, nursery pond will be undertaken to make the low lying crop lands/flood plain in suitable segments/compartments.

Community based fisheries management will be done by the community people and Carp polyculture system will be adopted in the extensive area of semi closed flood plain with the rotation cropping system of paddy cultivation in the dry season and aquaculture in the monsoon. The environment friendly and community based flood plain aquaculture system will be developed in project area.

Development of water-bodies

Based on UJ/BMC's selection of groups and water-bodies, concerned District Fisheries Office will prepare detailed scheme proposals. After formation of beneficiary group and preparation of proposal for development of water-bodies, it will be sent to the Project Director. A proposal screening committee will be formed by the PD, to scrutinize and recommend for approval on the basis of feasibility of the

scheme. Then PD will approve the scheme and with duly informed to DG, DOF. To assist poor people as well as fisherman, a portion of earthworks will be done through Labour Contracting Society (LCS), following the Food for Works/Taka for Works policy as per PPR 2008, where it is stated that “When for technical reasons the goods, works or services can be supplied or provided only by one tenderer and/or for project alleviation objectives where direct contracting with the community is prescribed in the project document”. As it is a poverty alleviation project, LCS policy will be encouraged in this project. All civil works including most of the earthworks will be executed by tendering system/quotation/LCS method and the procurement procedure will be depends on the nature of work, the location of the water- bodies, distance from the localities (beneficiaries), communication, etc. After getting allotment from MOFL, PD will reallocate necessary funds to the District Fisheries Officer and Senior/Upazila Fisheries Officer in favour of approved scheme. The project has also the provision to withdrawn money in advance from concerned treasury office to meet-up the necessary funds for water-body development (earth works), de-watering, deseeding and on-going training activities would be duly re-adjusted after implementation of the activities. Accordingly DFO will pay LCS/tenderer through cheque/bill as per followed methodology. PD will delegate the financial power to local officials by following the government rules.

Alternate income generating activities (AIG) support for the fishers

Fishers are generally poor, illiterate, unemployed and mostly live on hand to mouth. The livelihood of the fishers became more insecure during the fishing ban period (almost 3 to 4 months). For the sake of sustainable fisheries management and to achieve the targeted production from the open water bodies, it is necessary to support the AIG activities to the vulnerable fishers. Total 3000 fishers/households (10 fishers/union), around 10% of the total beneficiary, will be covered under this program. The primary selection of the fishers for AIG activities will be done by JMC and the final selection will be done by UJ/BMC. The selected fishers for AIG grant might be involved with the guarding/watching the water-bodies and fish sanctuaries. AIG activities normally include i.e., net making, poultry/duck rearing, vegetable gardening, goat rearing, small business, cage fish culture etc. with the support services from the project. The selected fishers will be trained adequately on different need based trades and will get Tk. 7500 (Seven thousand five hundred) per household as grants money from the project.

Outcomes of the project

The project has targeted to develop 565 ha. derelict/unused water bodies and a programed to train 47400 nos. rural poor beneficiaries along with distressed

women with provision of food security and poverty alleviation. Approximately 3500 M. Tons (MTs) of additional fish will be produced per year. In addition poultry, livestock and vegetable will also be cultivated. Besides this, the project would generate full/part-time employment for 30000 people. Moreover, it will create employment opportunities about 40000 daily labours for re-excavation and construction works of the project.

Adverse effects and mitigation measures

IV) Other projects/existing installations: This particular project will not affect the activities of any other ongoing or completed projects or will not create any problem or threats to other installations.

V) Other projects/existing installations: This particular project will not affect the activities of any other ongoing or completed projects or will not create any problem or threats to other installations.

VI) Environment like land, water, air, bio-diversity etc.: No such activities will be undertaken under this project which may cause negative impact on environment or any environmental pollution. Nevertheless, environmental impact of all activities will be assessed by using guidelines prepared under the completed project of Department of Fisheries. On the other hand, plantation at the pond dyke will be conducive to ecological balance. In the project area, the derelict water bodies would be brought under fish culture phase by phase through re-excavation. All the developmental activities would boost up fish production and will affect positive impact over environment.

VII) Women and Children: Poor and distressed women will be employed for earthwork as well as work related to aquaculture works and fish production. They will be involved some income generating program such as meat and egg production, duck-hen rearing, growing vegetables at the dyke. Increased income will also increase their decision making role in the families and thus empowering them both in the family and the society.

VIII) Employment, poverty alleviation, etc: Some of the earth works and construction works will be implemented through landless and poor people. Scope of employment will be created through milk and egg production and other income generation activities of the project. Opportunities would be created for the educated unemployed young peoples and fish farmers through fish culture as they will be trained and skilled enough by the project. By the project activities income of all level people will be increased due to various activities of project area and increased fish production.

IX) Institutional, productivity: Department of Fisheries will implement the project. Through the implementation of the project, the personnel of Department of Fisheries will develop their expertise and experience on planning, implementation and operation of fisheries resources development activities. Along with local government institutions will also strengthen their capacity on integrating poor people in the development initiative of the country. The activities of the project will enhance the fish production and indirectly contribute to enhance production in non-fisheries sectors such as irrigation.

X) Regional disparity this particular project will not create any regional disparity in the Northwest region of Bangladesh. The project has the target to assist only the fishers and small scale fish farmers.⁹¹

4.2.7 Project Title: Re-Excavation of Connection River, Development of Irrigation Facilities and Fish Culture Project of Gazner Beel Area Under Sujanagar Upazila in Pabna District

a) Sponsoring Ministry/Division: Ministry of Fisheries and Livestock & Ministry of Water Resources.

b) Executing Agency: Department of Fisheries (Fisheries Component).

Location of the Project:

Division	District	Upazila
Rajshahi	Pabna	Sujanagar

Project implementation period :	i) Date of commencement-January-2010
	ii) Date of completion-June-2013

Project organization and management

Department of Fisheries (DoF) will be responsible for the execution of the project component. District Fisheries officer of Pabna will act as component coordinator. He will be responsible for the implementation of the project component and will be liable to the Director General of DoF (DG/DoF) and Water Development Board. He will be supported by one Assistant Director (AD) Grade-6 and one Assistant Engineer (AE) Grade-9. They will be deputed from DoF. The officers and staffs of the DoF in the project commanding area will also work for the smooth implementation of the project. They will get all kinds of logistic support (TA/DA, Fuel & maintenance of the vehicle etc.) from the project. The Component Implementation Unit (CIU) will be established at DFO office Pabna. The project will procure two Motor cycles for the smooth implementation of the project component.

⁹¹ Ibid.

The project component will be managed under the overall guidance of DFO Pabna/component coordinator. He will co-ordinate and liaise with BWDB and other related departments and agencies. The project people and the DoF people within the project command area will support the coordinator for smooth implementation of the component. Upazila Fisheries officer Sujanagar and staffs will be involved for community mobilization and formation of groups/fishing communities, training and other fisheries support activities.

For smooth running of the project one extension officer grade-9, one sub-assistant engineer grade-10, one Computer operator grade-14, one filed assistant grade-13, two MLSS grade-20 will be recruited for the project period only on contract basis and as per Government rule.

All earth works under the project will be undertaken through open tendering system. The water bodies will be managed by the beneficiaries groups. Beel and sanctuary will be managed by the Beel Management Committee (BMC). Beel Management Committee (BMC) will be formed by men and women from fisherman/land less households and marginal farmers adjacent to the water bodies. The beneficiaries will get the user right of the developed water bodies and infrastructures built through the project and they will also undertake proper maintenance from their own fund.

Project Steering Committee

The project is a multidepartment co-ordinated project. The leading department BWDB has already proposed a steering committee in their DPP. The proposed project steering committee monitors component activities and provide guideline for implementation of this component. No separate steering committee will be needed.

Local Management Committee

For the management of fish culture and implementation of Fish Act in the selected water bodies a 'Local Management Committee (LMC)' will be constituted comprising the following officials/local bodies:

i)	Upazila Nirbahi Officer	Sujanagar	Chairman
ii)	Upazila Agriculture Officer	Sujanagar	Member
iii)	Upazila Livestock Officer	Sujanagar	Member
iv)	Assistant Commissioner (Land)	Sujanagar	Member
v)	Upazila Co-operative Officer	Sujanagar	Member
vi)	Upazila Youth Development Officer	Sujanagar	Member
vii)	Chairman of Concerned Union Parishad	Sujanagar	Member
viii)	Representative of BMC	Sujanagar	Member
ix)	Upazila Fisheries Officer	Sujanagar	Member Secretary

The committee will select interventions suitable for particular area, approve beneficiary groups, arrange leasing out of water bodies, select site for sanctuary, cage fish culture, community based fish culture, implement fish conservation Act, monitor and supervise field activities in achieving the project objectives, take up necessary action to tackle any unwanted situation created in the project implementation.

Objectives of the Project

1. To increase fish production both from culture and fisheries in Gazner Beel Area under Sujanagar Upazila in Pabna District.
2. To protect fish bio-diversity through establishing fish sanctuary, stocking endangered fish fingerlings and creating awareness.
3. To motivate fishermen community lives surrounding the beel by stocking of carp finger lings though establishing Beel Nursery.
4. To improve fish habitat through Re-excavation of Badai river (To be implemented by WDB)
5. To ensure livelihood security of the poor people through community based fish culture and cage fish culture in the developed water bodies.

Project Rationale

As a large number of beels and rivers flow through the upazila, every year most of the agricultural lands remain inundated due to flood. To protect the agricultural crops, last three decades several FCD projects have been implemented in this area. A 45-kilometer length flood control dam to protect Sujanagar upazila from the Padma River was established. Earlier these areas were very rich for huge water bodies and extensive flood plains. These flood plains and water bodies were the main habitat and breeding grounds for traditional fish species. However, unplanned construction of embankment and water use by pump has resulted loss of flood plains, siltation of the water bodies and most of the aquatic habitats. Owing to such various man-made interferences and natural processes the vast water bodies of this area losing productivity.

The lack of improvement of government khas Jalmahal, the revenue oriented management system rather than its biological management, lack of investment in fish production activities, disregards or ignorance about fish cultivation, lack of training of aquaculture and water resources management, silting up of natural water bodies destroying fish habitat, indiscriminate killing of brood fish, fingerlings, excessive fishing pressure, drying out of perennial water

bodies, destroying parental stock, unplanned construction of dams and roads over use of insecticides for crop production, destruction of fish habitats, application of excess amount of fertilizer for crop production etc. hampered the growth of open water fisheries seriously. The environment of this area also degraded due to unplanned and uncoordinated engineering activities for boosting up agricultural production, particularly paddy ignoring the development of fisheries. If no comprehensive measures are taken to conserve and protect the fish of this area, fisheries sector of this area may be completely destroyed near future. Excessive withdrawal of water from water bodies to irrigate the paddy field has also almost destroyed the aquatic environments where fish no longer live and perpetuate its reproduction.

At present, 1,000.00 ha of government and private marshy/low lying area are available at Gazner Beel area of Sujanagar upazila. Annually 500.00 MT of fish are harvested in this area. However it is possible to increase the production up to 1100.00 MT annually if the water bodies are properly re-excavated. The possibilities to enhance protein supply through fish production, employment generation, to build-up skilled fish farmers and fishermen, socio-economic development of fishing communities and landless people of Sujanagar upazila through fish production by proper management of water bodies.

If the proposed project is implemented in this area properly it will boost up fish production, generate income and employment, ensure sound management of water resources, preserve fish bio-diversity, restore fish habitat and contribute to favorable productive ecology.

Major activities of the Project

The project objectives will be achieved by the following components:

Establishment of sanctuaries

Establishment of fish sanctuary is one of the effective tools for conserving fish stock, preserving bio-diversity, creating fish spawning facilities for natural fish species and increasing fish production. Sanctuaries may be perennial/permanent that helps to protect breeding and nursery ground to produce brood fish and other fish and enhance bio-diversity. For protection of fish, watershed, wildlife and plants, the project will establish 5 permanent sanctuaries in the developed water body with branches of trees, bamboo, and concrete pole, pipes etc. or open by declaring reserve area at the first time. Later on community groups with the cooperation of Local Management Committee and DoF officials will establish/replace and carry out regular maintenance. These

may be achieved by establishing conservation easement through purchase or long-term lease. After the feasibility survey of Local Management Committee with local community group, site, location and area will be selected. Under this project, 5 permanent sanctuaries will be established or re-excavated for fish conservation.

Nursery pond re-excavation

Most of the beel or ponds of the project area are dried up from December/January until May, thus limited their use of fish production for seven to eight months and forcing the selection of a fast growing fish, herbivorous fish like silver carp. Under this project 4.00 hectares nursery ponds will be re-excavated at the suitable places of the beel to accommodate the hatchling needed to achieve a fry density of 10,000 per hectare in the month of July. The size of pond would be based on a hatchling stocking density of 50 per meter square. A low height submersible embankment will be constructed around each of nursery pond so that the floodwater would overtop the embankment during August to disperse one-month-old fry into the main water body or beels. The embankment will be medium compacted with a slope of 4:1. Harvesting would be done in December to February when the water body starts to dry up. Fish should have reached at a marketable size and earn an average weight of 500 to 700 gm per fish. By establishing the nursery activities, local group will be able to collect good quality fingerling with very low price and without any carrying cost. Their fish production will be high and they will be more benefited than past.

Stocking of indigenous fish & carp fingerlings

Under this project, 1800-kilogram endangered wild indigenous fish will be released to the protected sanctuary areas and other suitable selected water bodies in order to re-establish fish population in the wild habitat. The brood fish will be collected from the different sources of water bodies of Bangladesh or from government/nongovernmental farms. Active protection measures as well as public awareness campaign will be implemented to allow the stocked population for maximum natural recruitment and create opportunity to build up self-sustaining levels.

Human resource development and capacity building through training

The project will provide training for institutional strengthening within local community people of various levels of the project activities. Comprehensive training for aquaculture, motivational training for fish act implementation for the different categories will be provided to the men and women of project area. Duration of the training will be determined according to the needs of the

beneficiaries. The training activities will be performed with the view to develop community to empower fishing communities to become co-managers of these fisheries and to ensure a more equitable distribution of benefits from fishing community based and cage fish culture and sustainable fisheries management.

The targeted beneficiaries will be provided with necessary training by the implementing department on fish culture, fish resource conservation, social awareness development and their management including marketing etc. In addition, the group members will be trained on group management, leadership and investment in diversified income generating activities. Periodic refresher training for the beneficiaries and project personnel will also be organized time to time. Expertise of the district and Upazila Fisheries Officials will be utilized for this purpose. Two workshops experience exchange visit and training sessions will also be conducted at district and Upazila level to enhance the skills of the target group and project personnel and this will also help to exchange views and ideas among different groups and organizations.

Outcomes of the project

The project has targeted to 135.00 hac. of Badai river, establish 5 sanctuaries, Beel nurseries 4 nos. At the end of the project, approximately 1100.00 metric tons of fish will be produced per year from the developed area and 50.40 million taka will be earned from that fish production. The project will provide training for 2000 nos pond owners, fishermen, landless people and other related beneficiaries to develop their skills so that they can alleviate their poverty through cage culture and community based fish culture. Beside this the project will create full/part-time employment opportunity for four thousand people. Moreover it will create an employment opportunity for the daily labours of 15000 man days from construction and re-excavation works of the project.

Project beneficiaries and group formation

The target population will be fishermen and their communities for management of beel and sanctuary. In the project area, the educational status of the fishermen is not satisfactory. It is about 20% fishers are literate and only about 15% fishers have functional literacy. The fishers are very poor, hygienic knowledge is very swallow and they are disorganized people in the community. About 50% fishers invest their capital from 1000 to 2000 taka from loan or their own. The daily income of fishermen is about 76 to 120 taka. The living status of fishermen is very poor. Many of fishermen now have to work as day labour in agricultural sector during lean season, whereas previously they lived on fishing only throughout the year. The poor fishermen are deprived of beneficial effect

and services offered by the cooperative society. They are usually unskilled, untrained, and illiterate, and have limited scope to acquire employment outside of the occasional work; they get opportunity in the agricultural sector, their primary source of subsistence.

The fishers living around the Gazner Beel area will be organized in groups as Beel Management Committee (BMC) for beel sanctuary management and protection of fish conservation act. Financial and technical assistance on organization, management option and initial inputs will be provided by the project. The group will create fund by themselves through regular savings so that they can be self-sufficient if their outside financial assistance withdrawn gradually. The groups are expected to use this fund for the management of their water bodies and related enterprises. Group leaders and the members of water body management committee will be trained to maintain accounts from their activities. Beyond these, target group and beel based activities, the project will encourage non-target members of the local communities to cooperate in fisheries protection and support project efforts in group-based fisheries management.

The fishermen including landless, poor unemployed youth and destitute women who live within the proximity of the beel under the project will be organized for community based and cage fish culture and other related activities. The groups will be formed by Upazila Fisheries Officer Sujanagar and the groups will be approved by the Local Management Committee.

Adverse effects and mitigation measurement

a) Environment like land, water, air, bio-diversity etc.

No such activities will be undertaken under this project which may cause negative impact on environment or any environmental pollution. Nevertheless, environmental impact of all activities will be assessed by using guidelines prepared under the completed project of Department of Fisheries. It is thought that the component activities will be conducive to ecological balance. All the developmental activities would boost up fish production and will create positive impact on environment.

b) Women and Children

Poor and distressed women will be employed for earthwork as well as work related to aquaculture works and fish production. They will be trained also in other generating program such as milk and egg production, duck rearing, growing vegetables. Increased income will also increase their decision making role in the families and thus empowering them both in the family and in the society.

C. Employment, poverty alleviation etc.

Scope of employment will be created through fish culture and other income generation activities. Lot of opportunities for the learned young people and fish farmers through fish culture as they will be trained and skilled enough by the project. By the project activities income of all level people will be increased due to various activities of project area and increased fish production.

a) Institutional

Department of Fisheries will implement these components. Through the implementation of the component the personnel of Department of Fisheries will develop their expertise and experience on planning, implementation and operation of fisheries resources development activities. Along with this, local government institutions will also strengthen their capacity on integrating poor people in the development initiative of the country.

b) Productivity

The activities of the project will enhance the fish production and indirectly contribute to enhance production in non-fisheries sectors. After implementation of the component it is expected to produce 1000.00 metric tons of fish yearly.

Only construction works will be implemented through contract and other works of the project will be implemented through landless poor men and women. Department of Fisheries will implement and supervise all the project work properly with the help of the experienced project personnel of the department.⁹²

4.2.8 Project title: Aquaculture and Fisheries Management Project in Haor Area

a) Sponsoring Ministry/Division: Ministry of Fisheries and Livestock.

b) Executing Agency: Department of Fisheries.

Location of the project

Division	District	Upazila
Dhaka, Chittagong and Sylhet	Kishoregonj, Netrakona, Sylhet, Sunamgonj, Moulavi Bazar, Habigonj and Brahman Baria.	

Project implementation period: i) Date of commencement- January 2009
ii) Date of completion- December 2013

⁹² Re-Excavation of Connection River, Development of Irrigation Facilities and Fish Culture Project of Gazner Beel Area Under Sujaganar Upazila in Pabna District, Department of Fisheries, Government of the Peoples Republic of Bangladesh.

Project organization and management

Department of Fisheries will implement the project through project management unit (PMU) which will be set up at Dhaka in a rental house. However, costs of furniture and fixtures, along with all the amenities and utilities are to be supported from the project fund. It is proposed that all the relevant divisional, district and upazila level officials of DoF, under the proposed project command area, are to be involved in the project implementation in support of the PMU. A Project Director (Grade -5) is to be nominated on deputation from DoF. He/she will be based at the PMU at Dhaka along with his/her support staffs. He/She will be supported by 2 (two) Assistant Directors grade-6), 1 (one) Evaluation Officer (grade-IX), and 2(two) Sub-Assistant Engineer. All the above mentioned officers will be placed on deputation from the DoF.

Furthermore, some project support staff will be hired on consolidated salary and contact basis to support the regular employees placed in the project on deputation. These support staff are: Computer operator (1), Accountant-cum-Cashier (1) and MLSS (2). One Jeep with Driver from DoF will be placed in the Project for the smooth implementation of the project.

Local management committee One local management committee will be formed headed by concern Union Parisad (UP) Chairman. Other members of the committee will be the concern member of the UP, all lease holders of the beel of that particular haor, representatives from the fisherman community and local elites. The committee can co-opt any member(s) as and when required.

Haor management committee One haor management committee will be formed at Upazila level headed by Upazila Chairman. Other members of the committee will be the Upazila Nirbahi Officer, Upazila Agriculture officer, Upazila Livestock officer, Assistant Commissioner (Land), Upazila Cooperative officer, Concerned UP Chairman. Upazila Fisheries Officer will be the member secretary of the committee.

Project Steering Committee

A project steering will be formed under the chairmanship of the secretary, MoFL. The committee will include DG, DoF; Joint Secretary, MoFL; Joint Chief, MoFL; DG, BFRI; representative of Planning Commission and IMED, Representative from the ministry of land and representative from the BWDB. Members may be co-opted from other organizations if necessary. The Project Director will be the member Secretary of this committee. This Committee will meet as and when necessary but at least once in a year.

The proposed project will be implemented with the involvement of the local community, local DoF personnel and local administration. After completion of the project; local people especially CBOs, local upazila parisad with the assistance of DoF and other stakeholders will run the activities with their own initiatives. Thus the project activities will be sustained.

Objectives of the project

1. Increase production and protect natural biodiversity in the selected water bodies/fisheries through establishment of beel nurseries, fish sanctuaries, and artificial stocking, and improving the natural habitat.
2. Poverty reduction of fisheries and fish farmers through technology dissemination and employment generation.
3. Development of knowledge and skills of department of fisheries, selected NGO employees and CBO members involved in the project.
4. Development of a sustainable community-based improved management framework for the selected water bodies/fisheries.

Project Rationale

Open water fisheries of greater Sylhet and greater Mymensingh area has had been known as the mother fishery of the country due its past reputation of open water fish population diversity and fisheries production. On the one hand, natural warp (e.g., siltation, loss of natural breeding grounds) and man-made problems (e.g., catching of mother fish and undersize fishes, unplanned use of insecticides and pesticides, construction of bridge, embankments, dam, culverts on the natural water resources that disturb aquatic ecosystem) have negatively affected the breeding, growth and development of natural fish population of the area, which has resulted in depleted fish population, dispersal and unemployment of fishers and reduced animal protein supply especially for the poorer section of the community. Moreover, intensive fishing, vast agriculturilazation resulted the reduction of habitats of fish day by day. Thus fishes of open water bodies are facing continuous stress and in the threat of decline.

It is relevant here to mention that there has been no development project in implementation currently by DoF, particularly focusing on the nature and geography in the greater Mymensingh and Sylhet area. It is also to be particularly mentioned here that the growth in aquaculture in Sylhet is lesser in comparison to other parts of the country because of prolonged winter season. National aquaculture contribution for the country as a whole is about 43%, whereas, in Sylhet, contribution from aquaculture is only 29%.

The above-mentioned reasons, are some of the important milieu, pinpoints the demand for undertaking an area focused/need-based project for the greater Sylhet and Mymensingh area for boosting aquaculture (fisheries) production, increasing open water fish production and maintaining biodiversity and for generation of additional employment and income for the poor fishers community.

Major activities of the project

Seven haors from the seven districts are selected for their comprehensive development. The selection was done in consultation with the local DoF officials. The selected haors are- Dingaputa Haor of Netrakona district (Mohanganj upazila), Chardewghar-Kalikapur Haor of Kishoregonj district (Ashtagram upazila), Pather Chawli Haor of Sylhet district (Kompaniganj upazila), Hakaluki haor of Moulovibazar district (Kolaora and Baralekha upazila), Bolakandi Goakar-Begunai Haor of Habigonj district (Lakhai upazila), Dekhar Haor of Sunamgonj district (Sunamganj Sadar, Chatak and Doarabazar Upazila) and Titas basin Haor of Brahmanbaria district (Akhaora, Brahmanbaria Sadar and Nabinagar). These developed haor would be the model for others haor development. The following are the proposed activities in each of the selected haor.

a) Establishment of fish sanctuaries

Each of the haor consists of several beels. For establishing sanctuaries one suitable beel from each haor will be selected. Each sanctuary will cover the whole area of that beel. The sanctuary will establish with bamboo, branches of trees, hexapods etc. As a result fish can take shelter there at the same time indigenous fish species as well as endangered species can breed there. On the other hand, sanctuary will be established in the river which is connected with the respective haor by a canal. Thus the brood fishes can take shelter there and at the same time during breeding season can migrate towards the beel of the haor.

b) Restoration of habitats

Due to siltation, haors of Bangladesh has been loosing their status as well as water areas. As a result it is difficult for fishes and other aquatic plants and animals to find suitable habitats. However, fish production from these mother fisheries have been declining day by day due to squeezing water areas. Provision has been kept in the proposed project to restore that degraded habitat for protection and conservation of natural fisheries and other aquatic stocks, restore bio-diversity, increased productivity and facilitating breeding. This will include re-excavation of suitable areas of selected haors during selection of beels/depressions. Moreover, the connectivity of selective beels/haors with the main river stream/canal will be established through re-excavation for facilitating early breeding of natural fish stocks.

c) Beel nursery management

For spontaneous release of rearing fingerlings, 50 hectares of beel nurseries will be developed in the suitable areas of the each selected haor. Total area of the nursery would be 350.00 (7x50) ha. and estimated production of fingerlings would be 125.00 lakh per year. There would have a provision to link government Fish Hatcheries (Kurshi, Shantigonj and Kotiadi) with the proposed project so that quality fish seed might be produced in those hatcheries and reared in the beel nursery.

d) Stocking of fingerlings in the selected haors

Along with beel nurseries provision will also be accommodated for releasing 4-5" size carp fingerlings raised in govt. FSMFs, Govt. hatcheries and from reputed private farms raising fingerlings from quality spawns. Similarly, fries and brood of endangered fish species will also be stocked in the selected haors.

e) Community-based management of the selected fisheries

The experiences learned from CBFM and other relevant projects implemented by DoF will be replicated in the proposed project. With the help of concern stakeholders, organizational set-up will be established for sustainable management of beels and haors through community approach. Coordinated approach will be followed involving other allied agencies/service providers for inclusion and implementation of diversified and user friendly trades for income generation by the fishers.

Outcomes of the project

It is expected that about 90,000 metric tones of additional fish would be directly produced annually at the end of the project, which the estimated value is about Tk. 4242 lakh. Moreover, additional 250,000 metric tones fish will be coming per year through dispersal benefit of sanctuary establishment that would value around Tk. 11,042 lakh. About 88,500 fishers and 20,000 farmers will be directly benefited through employment and training. Furthermore, 98 lakh fingerlings, 22 lakh juveniles of galda would be produced each year from the project. Fish habitat and environment will be improved, which would enable proper breeding of indigenous fishes.

Adverse effects and mitigation measures

i) other projects/existing installation: This particular project will not have any adverse impact on any other existing projects or installations. However, the proposed project will supplement the ongoing activities related to natural water bodies.

ii) environment like land, water, air, biodiversity, etc.: It is expected that the project would not use any pesticide or chemical that can be hazardous to the biotic and abiotic environment and bio-diversity. It is also expected that establishment of the fish sanctuaries and restoration of the natural habitat would support the natural breeding, preserve and enhance biological diversity and hence, positively enrich the natural environment.

iii) women and children: This project will create environment for the women member of the community to participate in homestead aquaculture and management and thus help support their empowerment both in family and community

iv) employment, poverty alleviation, etc.: It is anticipated that about 88,500 fishers and 20,000 farmers will be directly benefited through employment and training. Due to the project activities, fish production in the haor area will be increased. As a result fishers and local people will get job and poverty will be alleviated.

v) institutional, productivity: It is proposed through this project that a network of community organizations would be established at the end of the project, which would play the role of a supportive institution with the DoF in managing the selected water bodies on a sustainable basis. Because of the introduction of the biological management, instead of revenue-based management, overall productivity would be enhanced in the open waters. Establishment of fish sanctuaries and restoration of the selected habitats, through the project, would definitely improve the natural productivity of the selected water bodies.

vi) regional disparity: During preparation of this project, wide discussions were made with the officers working in the haor areas. On the basis of their needs and suggestions, this project has been designed. Similarly all seven districts having haor areas are included in this project. As a result no regional disparity will arise.⁹³

Findings from the Review of the Projects

There are eight projects mentioned above those are implemented from 2009 to 2015. Objectives of these projects are very similar though there are few different objectives in some projects. Activities implemented as shown in these project also very similar except very few distinction. Activities set as found in the project proposal seems according to the objectives of each project. However, these selected projects were reviewed in accordance of objectives, activities and outcomes of each projects whether it is environment friendly especially aquatic environment friendly or not. Emphasis was given on to aquatic resources especially fresh water fisheries during reviewing the project.

⁹³ *Aquaculture and Fisheries Management Project in Haor Area*, Department of Fisheries, Government of the Peoples Republic of Bangladesh.

It is found during survey of these fishery development projects proposal that major objectives of all projects are to increase the fish production through aqua culture in different wetlands and water bodies all over the country, to establish sanctuary, to facilitate habitat restoration and conservation of indigenous fish species, to improve the livelihood of fisher community through increasing of culture and capture fisheries, re-excavation of wetlands and water bodies, construction of dams and sluice gate, dyke on the flood plain wetlands including dead and flowing small river, etc. Other activities are to develop boropit, to introduce pen and cage culture, to construct box/pipe culvert, to stock indigenous fish and carp fingerlings, dyke plantation and afforestation, to introduce livestock rearing on surrounding wetlands as alternative income generating, to provide training and motivation as human resources development programs etc. However, activity wise discussion is presented here though reviewing the projects and tried to find out the suitabilities and inconsistencies of these fishery development project.

In steering committee for implementing these projects there is no agriculturist included as member that should have to include from ministry of agriculture or department agriculture extension because land areas used in implementing project activities are almost agriculture land where till agricultural works are going on all over the year. So, if there is no agriculturist in steering committee, agriculturists go on their activities according to their plan and they use huge water for irrigation, chemical fertilizer and pesticides in the crops field to grow more crops. It may create water shortage in waterbodies due to irrigation and can pollute waterbodies due to chemical fertilizer and pesticides use which creates adverse impacts on natural fish as well as aquaculture under project areas. However, there is needed strong integration among concern departments and agencies in implementing such fishery development projects. Without that it will be the violation of Environment Conservation Act, 1995 and other relevant rules and consequently it would create conflicts among concern departments and agencies of the government such as department of fishery, Agriculture, water Development Board, LGED, etc.

On the other hand, there are no guidelines about what will be the role of water development board in the project command areas as member of steering committee. So, conflict is ascertained between water development board and fishery department. Because, water development board construct embankment, dam and sluice gate everywhere without assessment of any environmental impact to control flood and in the name of water resource development. It is a wrong policy of concern authorities. For this reason whole environmental

system will be degraded as usually seen at present. Consequently, it degrades our fresh water fish and fish species.

It is found after reviewing the projects that activities set in different projects to achieve objectives were effective. However, planned activities of these projects, in some extent, were not appropriate and unsustainable for fishery environment and indigenous fish species. One of the major objectives of these projects was to increase fish production for socioeconomic development of fishermen in the project command areas as project beneficiaries. For this, cultivation of carp fishes, which is fast growing and high yield variety of culture fish, is emphasized and encouraged than other indigenous fish species such as Boal, shol, Punthi, Mola, to name a few though varieties of indigenous species from small size to big are very popular and that enriched our aquatic resources and biodiversity. As it is observed that in Bhabodaha Beel and other projects command areas many of indigenous fish species are either decreased or in some cases it is vulnerable and/or going to extinct. Though there is an activity to develop of sanctuaries for conserving fish species, but in reality it observed in field level that environment of these sanctuaries are not suitable for small indigenous fish species and there is no objective and activity to conserve and develop other biodiversity such as aquatic mammals, reptiles, and varieties of aquatic plants including from weeds to trees. In this regards, there is contradiction between project activities and Environment Conservation Act 1995, Environment Conservation Rules 1997, Environment Action Plan 1992, the Protection and Conservation of Fish Act, 1950 and rules 1985. According to these laws and policies, any development project regarding fisheries must be implemented in such a way that would not destroy any fish species whether it is small or big and must ensure the environmental sustainability so that other aquatic biodiversity do not degrade by the the activities of the such development project.

One of the major objectives of these projects is to increase socioeconomic status of fishermen in project command areas through increasing fish production. However, with this aim the projects should have to maintain sustainable aquatic environment so that aquatic flora and fauna could sustain for balanced environment in those wetlands and waterbodies. However, objectives and activities reveals that activities they completed do not ensure the aquatic biodiversity conservation and development and restoring ecological resilience. There is no objective and activity for developing environment quality in project areas. It seems project emphasized only on increasing fish production but not on to develop and conserve overall aquatic environment.

For conserving indigenous fish species in projects areas by implementing these projects activities must be given much more emphasis on development and conservation of indigenous fish and fish habitats rather than only encourage on shrimp and carp culture and establishing nursery for it. So, there is no similarity between objectives and activities in projects planing and implementing activities. It is a great threat for our indigenous fish species. So, it is a violation of the Protection and Conservation of Fish Act, 1950 and rules 1985.

However, findings of the activities are described here as found from the review of projects. Explanation of findings described in accordance of each activity as below.

Establishment of sanctuaries

Establishment of fish sanctuary is the most important activities of these fishery development projects. Inevitably it is one of the effective tools for conserving indigenous fish stock, preserving bio-diversity, creating fish spawning facilities for natural fish species and increasing fish production. However, sanctuaries may be perennial that help to protect breeding and nursery ground to produce brood fish and other fish and enhance bio-diversity. For protection of fish, watershed, aquatic wildlife and plants, the projects established seasonal and permanent sanctuaries in the beel, river, or protected areas of rivers with branches of trees, bamboo, concrete pole, pipes etc. by declaring reserve area at the first time. This activity has long term impact on increasing fresh water fish development and conservation. However, they did not consider pollution of wetlands and water bodies from chemical fertilizer and pesticides residues that occuring in present days. This pollution creates impediment of fish breeding and growing in dry season when less water remain in wetlands and water bodies. Therefore, pollution from agro-chemicals should take into consideration to establish fish sanctuaries otherwise we do not get optimal results from such activity. In addition, it must be declared as fish protected areas and totally prohibits fishing in those areas. In this regards projects personel do comply with the Environment Conservation Act 1995, Protection and Conservation of Fish Act, 1950 and rules 1985. So this conflicting issues must be resolve for fish biodiversity and ecology conservation in Bangladeh otherwise there would create conflicts.

Stocking of indigenous fish & carp fingerlings or Pen Culture

Almost all projects conducted the pen culture and cage culture in their respective areas. It is good practice for culture fish especially for big fish

cultivation where small and fish fingerlings will be the feed for big fish. With the price hike of fish feed aquaculture is becoming more expensive day by day. In these circumstances farmers are in very delicate position thinking future fish culture practices. But there is a bright and easy scope of aquaculture without feed only by stocking fingerlings in a fencing area in flood plains which is called 'Pen' culture. However, this pen culture does not ensure the conservation of indigenous fish and fish biodiversity rather it will, in some extent, destroy the indigenous small fish stock in open waterbodies in Bangladesh which is strictly prohibits by the Environment Conservation Act 1995, Protection and Conservation of Fish Act, 1950 and rules 1985 as well as Environment Action Plan and Environment Policy 1992. So there are conflicting issues in project that these project did not comply the laws and policies. In addition, pen culture does not work in rainy season because in rainy season total wetlands are becoming inundated and if that time any sort of fencing install in waterboding natural fish migration will be hamper which results less fish breeding.

Cage culture

Cage culture is also a great initiative with the concept that "where is water there is fish". It can be materialized in the water bodies which is not closed and controlled by rearing fish in cage. There are so many open water bodies like, rivers, baors, artificial canals, dead rivers in Bangladesh which are not under aquaculture and can easily be utilized these water bodies through setting cages in them. Certainly it could be said that this is appreciated activities implemented by almost all the projects. It does not have any environmental adverse effect and people surrounding the river and wetlands can do without any environmental hazards because cage culture is controlled by the cultivator in his adjucent water bodies wether it river or other wetlands.

Re-excavation of Wetlands and Waterbodies

Re-excavation of dead rivers, canals, Baors and other water bodies seems a great endeavor conducted by maximum projects in their respective areas. As low lying delta island Bangladesh has a large number of rivers, canals, Haors, Baors, canals etc. and they are in derelict condition throughout the years due to natural and man-made causes, affects the aquatic biodiversity especially fresh water fish species. Once upon a time the productivity of these waterbodies to a large extent depended on the availability of a wide range of aquatic habitats for reproduction, migration, feeding and growth. But fish diversity and other aquatic organisms in these wetlands and waterbodies have been declining sharply. The causes of this biodiversity loss are several such as impacts of Flood Control,

Drainage and Irrigation Projects (FCDI), staffing failure, over exploitation of brood stocks, water pollution, excessive selective fishing mortality, siltation and sedimentation, watershed degradation and deforestation etc. So it was much essential to undertake necessary attempts for conserving and enhancing aquatic bio-diversity through re-excavation of wetlands. In this regards, the Environment Conservation Act 1995, Protection and Conservation of Fish Act, 1950 and rules 1985 as well as Environment Action Plan and Environment Policy 1992 also encourage to re-excavation of wetlands and waterbodies for sound aquatic environment in Bangladesh. It will be possible to increase stocking of threatening species through re-excavation of such wetlands and water bodies which would be the ultimate goals of aquatic biodiversity development and conservation. If these waterbodies are re-excavated properly, fish can be cultured by the poor and landless men and women of the project area as we heard from our ancestors. Besides, the re-excavated canals can be the water sources for irrigation as well as communication facilities can be developed on the dykes of the canals. Therefore, it seems is a good activity which does not create any conflict with others laws and policies and government departments or agencies.

Construction of earthen dyke and box or pipe culvert

Construction of earthen dyke and box or pipe culvert is one of the common activities of the selected projects. Goals of the earthen dyke and and box or pipe culvert is to conserve the fish and irrigation facilities and to maintain permanent water or reconnect floodwater to beel areas or reduce pollution and sedimentation in degraded wetlands. For longevity of earthen dyke they used palisade by bamboo fencing, sand bag, and other suitable materials where necessary and box or pipe culvert was concreted. As they described many semi-close water bodies such as small beels, flood plains and canals in the project areas have been created by the development of embankment etc. through Bangladesh Water Development Board to protect Agricultural production. These selected semi-closed water bodies were closed by constructing earthen dyke so that the waterbody would be suitable for fish culture. In this regards it would be said that different embankments and dams construction by Bangladesh Water Development Board has already been created adverse impacts on surround environment especially aquatic environment and recognized above. In addition, earthen dyke and box or pipe culvert would create further water logging in those areas as well as create impediment of natural water flow in rainy season. Impediment of natural water flow creates obstacles for fish migration and fish breeding which does not

permit by the Environment Conservation Act 1995, Protection and Conservation of Fish Act, 1950 and rules 1985 as well as Environment Action Plan and Environment Policy 1992. Therefore, it could be said that this activity implemented by those selected projects did not comply with other relevant laws and policies such as the Environment Conservation Act 1995, Protection and Conservation of Fish Act, 1950 and rules 1985 as well as Environment Action Plan and Environment Policy 1992.

Development of boro-pits and private Ponds

Development of boro-pits and Khas/private ponds is also a common activity of the implemented projects. Fish culture in small ditches created from Flood Control, Drainage and Irrigation Project (FCDI) and road side getting popularity day by day and pond aquaculture is probably the most popular aquaculture in the country at the moment. As we know many small ditches were created during construction of roads and highways and Flood Control, Drainage and Irrigation Project (FCDI). In these small ditches or ponds fish, culture can be excellent endeavor to meet up the increasing demand of fish supply. According to the present experiences, up to 7.00 tons of fish per hectore could easily be produced in ponds and boro pits. However, through this activity only fish culture can be enhanced in their respective areas but not the natural fish in the open wetlands and water bodies. In this regards, there would be a potential hazard if these high yield varieties of alien fish go in open water bodies during rainy season, because in rainy season road sides and constructions side ditches are usually inundated. These fast growing alien fish species are not friendly to our indigenous fish species and food habits of these alien fishes are also creating danger for local fishes. Therefore, it could be said that this activity implemented by those selected projects in some extent did not comply with other relevant laws and policies such as the Environment Conservation Act 1995, Protection and Conservation of Fish Act, 1950 and rules 1985 as well as Environment Action Plan and Environment Policy 1992 because these laws and policies do permit such alien fish culture in our open water bodies and rivers.

Construction of Sluice Gate

Among the activities construction of sluice gate is also an important activity implmented by 6 projects out of 8 projects aiming at to maintain permanent water or reconnect floodwater to beel/ river areas or reduce pollution and sedimentation in degraded wetlands. According to the selected projects no structures will be constructed that will impede monsoon flows or cause flooding and will substantially damage the existing environmental situation. Aim of

construction of sluice gate brings more water bodies under fish culture. If the wetlands and open water bodies bring under fish culture, it will be hazardous for indigenous fish species, because as we experienced usually alien fast growing fish species release in open water bodies and though that it will grow naturally with our indigenous fishes. But according to the Environment Conservation Act 1995, Protection and Conservation of Fish Act, 1950 and rules 1985 as well as Environment Action Plan and Environment Policy 1992 prohibits any alien fish species for culture in open water bodies. Because these fast growing alien fish species are not friendly to our indigenous fish species and food habits of these alien fishes also create danger for local fishes.

Re-vegetation and afforestation

Re-vegetation and afforestation of degraded wetland, watersheds and riparian zones with flood resistant trees and plants is one of the common activity of all projects in their respective areas. Before implementation, site selection for re-vegetation was done with the help of local groups and Local Management Committee. According to the activity plan, it is found that suitable native species of plants such as Hugal, Sewra, Neem, Kadam, Bat, Babla, Dhunicha, Epil-epil and other aquatic vegetation were planted to ensure bio-diversity to re-establish lost swamp, forest habitats and it would said that this initiative was very significant because name of indigenous plants mentioned are already in endangered situation. Therefore, these sorts of endangered indigenous would be conserved through this activity which will lead towards a sustainable environmental development. The Environment Conservation Act 1995, Environment Policy 1992 and Environmental Action Plan 1992 has also encouraged to implement any development projects in a sustainable manner.

4.3 Conclusion

From the above discussion, it is said that the department of fishery is trying to increase production of fish, develop and conserve indigenous fish species, fish habitat and aquatic environment by implementing these projects. After completion of these project aquatic environment would be developed in the whole country and ensured sustainable development in fisheries that is the expectation of fisheries department. But it is observed that this project is not suitable for sustaining of fish especially indigenous fish species. Because, most of these projects are suitable for fast growing fish and it degrades total environment system. So, these projects conflict with the Protection and Conservation of Fish Act, 1950, National Fisheries Policy, 1998, and Environmental Conservation Act 1995.

Chapter-5

Ethical Issues in Developing and Implementing Laws and Policies regarding Aquatic Biodiversity Conservation

Aim this chapter is to analysis the ethical issues in developing and implementing laws and policies regarding aquatic biodiversity in Bangladesh.

Nature was created by one single creator. In this universe every single organism had its own identity, none other organism was in the situation to take place of another organism. Man has been interested in nature since time immemorial, but today he thinks himself to be the master of nature. On the other hand, nature tries to comprise with man and absorbs human onslaught in the form of waste material discharge, deforestation, intensive agriculture, desertification, urbanization etc. In the name of progress, forests are demanded that resulted deforestation, wetlands and waterbodies poisoned and polluted with pesticides, chemical fertilizers, industrial effluents and air fouled with noxious gases. Our earliest ancestors lived in a rich and competitive world closely tied to environment. They knew the sources of water and use of plants and animals for food and indicial purposes. But the hunters and gatherers exploited the environment to fulfill their requirements, by cutting down trees resulting into great changes in grass and shrubs with the use of fire. However, they could not cause excessive damage to environment due to their low population, nomadic way of life and primitive technology. The domestication of plants and animals gave impetus to agricultural technology. Human population started increasing beyond the limits previously fixed by natural food supply.

The development in machinery, technology, bio and genetic technology, fertilizers, pesticides, and high yielding varieties of different crops and vegetables caused unprecedented increase in agricultural productivity. Overgrazing, widespread destruction of forests and intensive agricultural practices demanded the land and converted productive regions to barren areas. It is thus, quite amazing to recall the change from hunter gathered economy to that of agriculture and industry that marked by the changed natural habitat. The shifting role of man in the environment placed heavy demand on air, water and natural resources. As man was trying to gain control over

environment, the link between him and nature got weakened. It therefore became necessary to regulate human behavior and social transactions with new and appropriate laws, designed to suit the changing conditions and values. In order to manage and face the myriad challenges of ever changing environment, the environmental laws emerged. But these laws are of no if it is not implemented or accepted by the society properly. Though government of Bangladesh introduced over abundance of legislations in the field of environmental law to develop and conserve environment and which directly or indirectly deals with environmental issues. Besides, there is bulk of legislations but this didn't have any impact on the condition of environment rather it is deteriorating day by day. Therefore one would always think there is plethora of legislations but why there is no improvement in the condition of environment. As these laws had some inherent defects in it and lacked of proper implementation guidelines and methods as well as absent of code of conduct in implementing process. As a result environment and environmental resources are degrading in every sphere of environmental systems.

Environmental Ethics and Old Traditions

Our age old traditions teach us to live in peace and harmony with nature and to develop and conserve it, as we all are creatures of one creator and we don't have any right to harm any of the living being in any manner as they are also one of the creations made by the almighty. This is taught to us since the very beginning of our civilization but as the civilization progressed we forgot everything and started thinking that we are the master of nature and everything in this world is made for us and we can utilize it, at any cost, as and when require, this is against our ethics and moral values.

Since ancient period the main motto of social life was "to live in harmony with nature". Sages, saints, and great teachers of different areas in the world were lived in forests, mediated, and expressed themselves in the form of nature. Thus we can imply that all the divine thoughts and literature which served as ideal for living life and taught guidelines how to live life came up when these saints and great thinkers were in touch with the nature. This literature of olden times preached in one form or the other a worshipful attitude towards plants, trees, earth, sky (akash), air (vayu), water and animals and to keep benevolent attitude towards them. It was regarded a sacred of every person to protect them. Different religion enshrines a respect for nature, environmental harmony, and conservation. It instructed man to show reverence of divinity in nature. Therefore trees, animals, hills, mountains, rivers etc. are

deeply loved and respected by men as symbol of reverence to these representative samples of nature. Religious scriptures reveal the principles of using resources, developing and conserving the environmental resources in such a ways so that future generation can also use these resources as they used at present such as

1. To respect nature and protect it,
2. One should be non-violent towards environment, biodiversity and ecosystems,
3. Use resources as really needs and conserve it for future generation as you are consuming at present,
4. One should think that he is also an inseparable and continual part of environment, so degradation or destruction of environment will also be the destruction of oneself.

Purity of thought and expression and cleanliness of the environment around us should be observed. All lives, human and non-human including trees are of equal value and all have same right to existence. It shows that the principle of sanctity of life is clearly ingrained in different religion scriptures. As different religions teach us from where we can derive inference that it would have developed slowly and slowly in due course of time as man progressed. Man since the time immemorial knew the importance of nature, the things which helped him in progressing and he knew if we want to progress further we would require these things. People used to harvest and collected resources as they required living in.

In Current scenario people have forgotten their age old traditions of living in harmony with nature and conserving natural environment and natural resources. In the mad rush for industrialization and industrial development we are forgetting the importance of environment. Earlier man coexisted with nature like other creatures but slowly he started thinking that whole universe is meant for man and he is the master of whole universe. Previously he cared for the environment in which he lives in because he had place in his heart for everything and he was sensitive towards other organism because they thought they are inseparable part of environment but as civilization progressed the sensitive attitude of man towards nature started deteriorating and he had totally forgotten the importance of nature and he thought he is well aware of the fact that Industrialization brings with it problems of environmental pollution but doesn't at all wants to understand this simple fact.

Bangladesh has also age old tradition of tolerance, non-violence, equity, and compassion for animate objects. In olden times people were part of daily life and synthesized with religion. Religious teachings, social and political norms and economic policies treated as a part of nature not as molder or superior. All the living beings are creatures of one superior power God. The philosophical orientation of peaceful coexistence with nature is mentioned in the constitution of Bangladesh. State shall endeavor to protect and improve environment and to safeguard forest and wildlife of the country but without peoples' awareness and participation it is impossible for state to conserve the environment. It is the duty of every citizen of Bangladesh to protect and improve natural environment including forest, lake, rivers, different wetlands and water bodies, and wildlife and to have compassion for living creatures.

In Bangladesh there are a number of legislations for conservation of environment, biodiversity, and maintaining ecological balance. But these laws have some lacking and limitations as well as insufficient guidelines for appropriate implementation in respective areas. Also there is hardly seen the appropriate implementation of these laws. There are many laws and policies directly or indirectly regulating the environment in Bangladesh. The present research is conducting legal and ethical issues regarding aquatic biodiversity conservation and there several laws relating directly or indirectly to aquatic biodiversity conservation. However, laws regarding aquatic biodiversity conservation are The Canals Act 1864, The Irrigation Act 1876, The Private Fisheries Protection Act 1889, The Agricultural and Sanitary Improvement Act 1920, The Tanks Improvement Act 1939, The Protection and Conservation of Fish Act 1950, The Embankment and Drainage Act 1952, The Government Fisheries (Protection) Ordinance 1959, The Agricultural Development Corporation Ordinance 1961, The Agricultural Pesticides Ordinance 1971, The Bangladesh Fisheries Development Corporation Act 1973, Bangladesh Irrigation Water Rate Ordinance 1983, The Fisheries Research Institute Ordinance 1984, The Protection and Conservation of Fish Rules 1985, Fisheries in Environmental Policy 1992, Environmental Conservation Act 1995, Jalmahal Management Policy 2009, Bangladesh Water Act 2013.

At present Bangladesh employs a range of regulatory instruments to develop and protect its natural resources. As a system of doing so, laws should be implemented properly. The legislature was quick enough to enact laws regulating most aspects of environment and its resources, but government is very cautious to sanction enforcement budgets or require effective implementation across the country. Government agencies wield vast power to

discipline violators of environmental degradation. But environmental degradation and pollution are happening in everywhere and in some case it is observed that these laws and policies are seems useless. These are happening due lack of planning of appropriate development projects and implementation. In addition, there is no code of conduct or mentioning ethical issues concerning to make laws and to develop and implement development projects.

As we know the dismal state of world fisheries including today's Bangladesh reflects humanity's moral failure to maintain the natural environment and its productivity while benefiting from nature's goods and services. Accelerating depletion of fishery resources jeopardizes not only ecological integrity, but also ecological ethics, risking human food security, resilience of fishing communities, and livelihood options for current and future generations. To analyze the approach, implementation, and evaluation of the ethical dimensions of fisheries, we review the law making process, implementing process of these laws and policies concerning aquatic resources especially fresh water fishery. We conclude that ethical issues in fishery development and conservation in Bangladesh originated from the law making and implementation processes.

From 1980s, government of Bangladesh realized the environmental problems and to protect and develop the deteriorating environmental situation government passed some new laws and policies and brought into enforcement these new laws with some earlier enacted legislation. In addition, government formed new enforcement agencies and strengthened the old ones. Some special bodies were made to perform specialized task like Environment Impact Assessment (EIA) Regulation in 1995. In 2000 government has established Environmental Court after enacted the Environmental Court Act 2000.

Despite these initiatives, threat to environment especially aquatic environment and biodiversity is increasing and the quality of environment continues to decline. Accordingly the threats to freshwater biodiversity and ecology in Bangladesh can be grouped under five interacting categories such as overexploitation; water pollution; water flow alteration/modification; destruction or degradation of habitat; and invasion by exotic fish species⁹⁴. Environmental changes occurring in Bangladesh with the change of global scale, such as nitrogen deposition, warming, and shifts in precipitation and

⁹⁴ Allan, J. D. & Flecker, A. S. (1993). Biodiversity conservation in running waters. *BioScience* 43, 1993, 32–43.

runoff patterns are superimposed upon all of these threat categories.⁹⁵ Overexploitation primarily affects vertebrates, mainly fishes, reptiles and some amphibians; whereas the other four threat categories have consequences for all freshwater aquatic biodiversity from microbes to mega fauna. Pollution problems are pandemic, and although some industrialized countries have made considerable progress in reducing water pollution from domestic and industrial point sources but in case of Bangladesh it is getting more severe, threats from excessive nutrient enrichment and other chemicals such as endocrine-disrupters are growing.⁹⁶ Habitat degradation is brought about by an array of interacting factors. It may involve direct effects on the aquatic environment such as excavation of river sand or indirect impacts that result from changes within the drainage basin. For example, forest clearance is usually associated with changes in surface runoff and increased river sediment loads that can lead to fish habitat alterations such as shoreline erosion, smothering of littoral habitats, clogging of river bottoms or floodplain alleviation.

Flow modifications are ever-present in running waters. They vary in severity and type, but tend to be most aggressive in regions with highly variable flow regimes. This is because humans in these places have the greatest need for flood protection or water storage. That existing dams retain approximately 10 000 km³ of water, the equivalent of five times the volume of all the world's rivers, illustrates the global extent of human alteration of river flow.⁹⁷

Widespread invasion and deliberate introduction of exotic species adds to the physical and chemical impacts of humans on fresh waters and aquatic resources, in part because exotics are most likely to successfully invade fresh waters already modified or degraded by humans.⁹⁸ There are many examples of large-scale and dramatic effects of exotics on indigenous species in different wetlands of Bangladesh and in wetlands of other countries as well even in Southern Hemisphere lakes and streams and impacts are projected to increase further.⁹⁹

⁹⁵ Poff, N. L., Allan, J. D., Palmer, M. A., Hart, D. D., Richter, B. D., Arthington, A. H., Rogers, K. H., Meyer, J. L. & Stanford, J. A. River flows and water wars: emerging science for environmental decision-making. *Frontiers in Ecology and the Environment* 1, 2003, 298–306.

⁹⁶ Smith, V. H. Eutrophication of freshwater and coastal marine ecosystems—a global problem. *Environmental Science and Pollution Research* 10, 2003, 126–139.

⁹⁷ Nilsson, C. & Berggren, K. Alterations of riparian ecosystems caused by river regulation. *BioScience* 50, 2000, 783–792.

⁹⁸ Bunn, S. E. & Arthington, A. H. Basic principles and ecological consequences of altered flow regimes for aquatic biodiversity. *Environmental Management* 30, 2002, 492–507

⁹⁹ Sala, O. E., Chapin, F. S., Armesto, J. J., Berlow, R., Bloomfield, J., Dirzo, R., Huber-Sanwald, E., Huenneke, L. F., Jackson, R. B., Kinzig, A., Leemans, R., Lodge, D., Mooney, H. A., Oesterheld, M., Poff, N. L., Sykes, M. T., Walker, B. H., Walker, M. & Wall, D. H. Global biodiversity scenarios for the year 2100. *Science* 287, 2000, 1770–1774

The particular vulnerability of freshwater biodiversity also reflects the fact that fresh water is a resource for humans that may be extracted, diverted, contained, or contaminated in ways that compromise its value as a habitat for organisms. In some instances, impacts have been sustained over centuries and, in the case of many of the major rivers of Bangladesh they have persisted for more than 4000 years.¹⁰⁰ Indeed, some authors now believe it unlikely that there remain a substantial number of water bodies that have not been irreversibly altered from their original state by human activities.¹⁰¹ The extent of most freshwater systems is not confined to the wetted perimeter, but includes the catchment from which water and material are drawn. Their position in the landscape makes wetlands, waterbodies and rivers 'receivers' of wastes, sediments and pollutants in runoff. This is also true of seas and oceans, but inland water bodies typically lack the volume of open marine waters, limiting their capacity to dilute contaminants or mitigate other impacts.

Ethical Issues in Law Making Process

Law Making Process in Bangladesh

Legislation is the basic function of Bangladesh Jatiyo Shangshad. The Constitution of the People's Republic of Bangladesh has vested exclusively all the legislative powers of the Republic to Parliament. As per constitutional provision, article 80 and 82 of the constitution encompasses the basic provision of law making process. Besides article 26 of the constitution added that all existing law inconsistent with the provision of the fundamental rights guaranteed by the constitution, to the extent of such inconsistency, become void on the commencement of this constitution. Moreover the state will not make any law inconsistent with any provision of the constitution concerning fundamental rights. If any law is made which is inconsistent with the constitution shall be void. Article 7 of the constitution pronounces the supremacy of the constitution clearly stating that the constitution is, as the solemn expression of the will of the people, the supreme law of the republic, and if any other law inconstant with the constitution, that law shall, to the extent of the inconsistency, be void. The law making process of Bangladesh parliament is initiated primarily by the Member of Parliaments (MPs) submitting a notice to parliament secretary for seeking permission to raise a bill. Subsequently, crossing various stages, it passes by the parliament as a law and ends with the ascent of the President. After following

¹⁰⁰ FAO. The State of World Fisheries and Aquaculture–2000. Fisheries Department, Food & Agriculture Organization (FAO) of the United Nations, Rome, Italy, 2000.

¹⁰¹ Lévêque, C., Hougard, J. M., Resh, V., Statzner, B. & Yaméogo, L. Freshwater ecology and biodiversity in the tropics: what did we learn from 30 years of onchocerciasis control and the associated biomonitoring of West African rivers? *Hydrobiologia* 500, 2003, 23–49

various stages and long procedure, the bill turn into law and publishes officially as a Gazette. This article is intended to explain the procedural aspect of law making in Bangladesh.

How Derives the Idea of a new Law

Law is a system of rules and guidelines which are enforced through social institutions to govern the behavior of its citizen.¹⁰² The law shapes politics, economics and society in countless ways and serves as a social mediator of relations between people. It is prepared by government and passed by its parliament following the constitution (written or unwritten) and the rights encoded therein. The need for making a new law is realized in respect of various existing social and political realities. There are a number of guiding values and benchmarks for the best practices of parliamentary law making. In many legislative systems, the body of a bill is preceded by a statement that explains the purpose and scope of the proposed legislation, which is generally called a "Statement of Purpose/Explanatory Note" or a "White Paper".¹⁰³ The purpose of the note is to inform the public on the reasons for the new law, the problems addressed by the bill and its connection to existing laws. When the government is presenting a white paper on an important issue, various concerned groups, individuals and interest groups can publicly debate the issue, and contribute further on the conditions of the bill. Then, taking the various opinions and their own political concerns into consideration, the government can revise the white paper, and based upon this, formulate and present a new bill to the parliament. In case of Bangladesh, however, there is no precedence of white paper. In the law making process of Bangladesh, the idea of a new law can derives from a variety of sources: an election manifesto promise, from a government department after an election has been won, the influence of experts within their field, the direction of judiciary and public demand on a certain situation, mass media, civil society etc.

Types of Bill

The constitution of Bangladesh has clearly mentioned about the procedure of how legislation can be enacted in parliament. As per the article 80 of the constitution, every proposal introducing in the house for making legislation shall be in a form of Bill, and when a Bill is passed by the parliament it shall be presented to the president for his/her assent. When the president has

¹⁰² Hampstead, L. L. Introduction to Jurisprudence. London: Stevens & Sons, 1972, 45-67.

¹⁰³ Jahan, R and Amundsen, I. The Parliament of Bangladesh: Representation and Accountability, Dhaka and Bergen: Centre for Policy Dialogue (CPD) and Chr. Michelsen Institute (CMI), 2012.

assented, or is deemed to have assented to a Bill passed by the parliament it shall become law and shall be called an act of parliament. The procedure for passing a Bill depends on its classification. In British Parliament, there are several types of bills such as: Public Bills, Private Bills, Private Members Bills, Hybrid Bills, Money Bills.¹⁰⁴ A Public Bill is one which has general application to all members of society. Public Bills embody government policy and a Minister introduces them. The bulk of Parliament's time is taken up with these types of bills. A Private Bill confers powers or benefits on particular persons or bodies in excess of or in conflict with the general law. It is promoted by outside bodies such as local authorities, charities, companies or occasionally individuals (Griffith and Ryle, 1990).¹⁰⁵ A private Member's Bill is one promoted by an Individual Member of Parliament (MP) from any political party, as opposed to the government or, alternatively a matter which the government has been unable to fit into its legislative program but will subsequently adopt and provide time and support for the passage of the Bill. These rarely have any chance of becoming law as too much of Parliament's time is taken up with Government Bills and the time available for their consideration is restricted what Paul Silk mentioned "Government's chief weapon is time".¹⁰⁶ As a result of this, Parliament gets little chance to discuss Private Members Bills, let alone vote on them. Private Member's Bills follow the same legislative process as government Bills. Hybrid Bills in House of Common are very rare. The government or backbenchers introduce them. It's a mixture of private and public Bills and come about if someone or some people are going to be treated differently to others. A money Bill is one which is certified by the speaker as such, and contains other than financial measures.

In Bangladesh, there are three main classification of legislation: Ordinary Bills, Money Bills and Finance Bills.¹⁰⁷ Ordinary Bill is one which has no relation with the financial matters and may pass with general majority vote of the MP's in parliament. It can be further subdivided into Public Bills and Private Bills. If notice for introduction of the Bill has been given by a minister, it is known as government Bill, and if a non-minister MP introduces it, it is known as Private

¹⁰⁴ Barnett, H. Constitutional and Administrative Law. USA and Canada: Routledge-Cavendish, 2006. Constitution of the People's Republic of Bangladesh. Dhaka: Government of the People's Republic of Bangladesh, 2011.

¹⁰⁵ J.A.G Griffith and Michael Ryle. Parliament:Function, Practice and Procedures. London: Sweet and Maxwell, 1990.

¹⁰⁶ Silk, Paul. How Parliament works, Longman, London, 1993, 87.

¹⁰⁷ Murphy, G. How Legislation is Drafted and Enacted in Bangladesh. Statute Law Review, 27(3), 2006, 133–149.

Member's Bill.¹⁰⁸ It does not require the prior recommendation of the president for introduction into Parliament. But both the "Money Bills" and "Financial Bills" require the prior recommendation of President before placing in the house. To take prior recommendation from the titular head of the state is a common style of the Westminster Model to place Money Bill in the House.¹⁰⁹ Similar recommendation is also mandatory in Canada before introducing spending bills, and likewise, motion is required before the introduction of bills to raise revenues through taxation. Law Making Process various functions of legislature, law making is a lengthy and to some extent complex process. Ceremoniously it is initiated as a form of Bill by the executive or individual member (for Private Bill) in the house as it mentioned earlier. Before submitting a Bill in the parliament, it follows some pre legislative procedure like; drafting, policy development and cabinet approval. These all pre legislative activities are involved in Pre Legislative Phase. In the house, a Bill passes through three distinct stages which are known as Legislative Phase. In parliamentary parlance these three stages usually known as first reading (the title of the bill is announced), second reading (discussion on the principles of the bills takes place) and third reading (motion is moved to pass the bill) respectively. A new stage in the legislative phase, called the committee stage, is also now frequently referred to in many parliaments. This stage came into existence in Bangladesh when the seventh parliament set up a special committee, composed of members belonging to both ruling and opposition parties, to review all bills referred to the JS.¹¹⁰ There is a another phase named Post Legislative Phase which involve the ascent of President and the publication of gazette notification. Considering the above mentioned procedures it is seen that the law making process of Bangladesh devised into three broad phases: Pre Legislative Phase, Legislative Phase, and Post Legislative Phase.

Pre Legislative Phase

In the pre legislative phase, concerned ministry or line agency on behalf of executive submitted a proposal to cabinet for its approval to make a new law on a casual basis .Through cabinet approval, the law making process is initiated primarily from the sponsoring ministry. Usually, the Cabinet approves this primary proposal for making law on an individual basis as there is no central

¹⁰⁸ Jahan, R and Amundsen, I. *The Parliament of Bangladesh: Representation and Accountability*, Dhaka and Bergen: Centre for Policy Dialogue (CPD) and Chr. Michelsen Institute (CMI), 2012, p. 209.

¹⁰⁹ Taylor. E. *The House of Commons at Work*, Penguin Books, London, 1951.

¹¹⁰ Ahmed, N. *The Parliament of Bangladesh*. Aldershot, UK: Ashgate, 2002, p. 15.

planning for legislative proposal in Bangladesh. As a result, the overall primacies of law remained indeterminate. But in Canada and the United Kingdom, where the planning of the government's legislative agenda begins well in advance of the opening session of Parliament in which legislative proposals are to be tabled and it makes easy to determine overall priorities. After cabinet approval, the concern ministry (for public Bill) begins to make a draft copy of Bill by its internal mechanism following the Rules of Business and Secretariat Instructions. As per article 55(6) of the Constitution, the President shall make rules for the allocation and transaction of the business of the government. According to the constitutional provision, currently these include the Rules of Business, 1996 (revised up to January 2009), and the Allocation of Business among the Different Ministries and Divisions (Schedule I to the Rules of Business, 1996). Besides, the Secretariat Instructions of 1976 is also confirm the consistency and efficiency in the observance of administrative practices and procedures. It is considered as a supplemental of booth the Rules of Business and the Allocation of Business among the different Ministries and Divisions. It is mandatory that all business of the government have to be directed in accordance with both the Rules of Business and the Secretariat Instructions. According to the Secretariat Instructions, every ministry or division is in charge for the formulation of policies of the government within its jurisdiction and also for the execution and review of those policies. Moreover, the Rules of Business and Secretariat Instructions also involve that any legislative proposal shall be started from the administrative ministry to which the law or a subject matter is assigned. Following the above mentioned Rules of Business and Secretariat Instructions, administrative ministry initiated drafting and policy making process for a possible law. Among senior officials in the rank of joint secretary of the concerned ministry, those who have expertise on the relevant issue, or in some cases, outside lawyers usually draft a preliminary Bill. After completion of making an initial draft Bill, the inter-ministerial consultation meetings are called for scrutiny where the professional legislative drafters from the Ministry of Law, Justice, and Parliamentary Affairs are also attended to provide comments and suggestions on the various aspects of the draft Bill. Thus, the policy for making a new law is formulated from an early stage by the concern ministry.¹¹¹ Subsequently, following the Rules of Business, the administrative ministry initiates the legislative process by submitting a summary of draft Bill before cabinet for its approval. As it denoted in Rule 4(ii) of the Rules of Business, 1996, "No important policy decision shall

¹¹¹ TIB. Anatomy of Parliament: How it Works, Transparency International Bangladesh, 2000.

be taken except with the approval of the Cabinet” and the Rule 16 (1) also mentioned, “Cases involving legislation, including the promulgation of Ordinance are to be brought before Cabinet”. Besides, Rule 19 of the Rules of Business, 1996, prescribes the format of the summary. According to the format, the secretary of the ministry concerned conveys a brief and clear memorandum along with the draft Bill to the Cabinet Secretary which provides the contextual and pertinent facts, the points for discussion and the recommendations of the Minister-in-charge. The summary shall be self-contained as far as possible, and shall include as appendices such relevant papers as may be necessary for proper appreciation of the case. The number of copies of the summary to be supplied for Cabinet consideration will be specified by the Cabinet Division. In cases of proposals involving expenditure or abatement of revenue, the views of the Finance Division must also be obtained and recorded in the summary. Where a matter concerns more than one Ministry or Division, the summary shall, contain the recommendations of the Ministries if agreement is reached amongst them, or shall state the points of differences and the recommendations of each Ministry or Division concerned if no agreement is reached (Rules of Business, Rule:10). It is usually needed at least four clear days in advance of the Cabinet meeting for placing a summary on the agenda. After Cabinet meeting, the Cabinet secretary or Joint secretary prepares a brief record of the discussions and decision taken. This file is then placed to the prime minister for his approval, and once the approval is given, it is then disseminated to Cabinet Ministers. Relevant extracts of the decisions are also provided to the sponsoring minister and ministerial secretary for necessary action (Rules of Business, Rule: 21). As soon as the Cabinet agrees on an initial legislative proposal, the sponsoring ministry will send the file to the Ministry of Law, Justice and Parliamentary Affairs for preparation of a draft bill or for vetting of the preliminary draft bill already prepared and approved in principle by Cabinet (Rules of Business, Rule: 14). It is worth mentioning here that the Ministry of Law, Justice and Parliamentary Affairs has a Legislative Drafting Wing (the Drafting Wing) for that purpose. Then the Drafting Wing will scrutinize the draft Bill to certify that it encloses no measures that are ultra vires of the constitution or inconsistent with the fundamental principles of state policy. If no inconsistencies are identified, the Drafting Wing will recommend the sponsoring ministry accordingly. If there is found any anomaly, the Drafting Wing will return it to the ministry or division concerned and provide advice and recommendations for necessary modifications. Once amendments are made on the proposal, the matter is then returned to the Drafting Wing for redrafting (Secretariat instruction: 241). The drafting officials of the Ministry of Law,

Justice and Parliamentary Affairs convert the legislative proposal into a standard draft bill through the application of legislative language. In regards of their action, the drafters may often hold consultations with officials from the sponsoring ministry or with outside experts and professionals who are well known in the subject matter of the Bill. They also may ask to Attorney General's office to provide legal advice on certain issues if it deemed any doubt on constitutional or legal ground. Even they may call upon the Law Commission of Bangladesh to assist in drafting on specific Bills, such as those relating to manifold and noteworthy issues. After confirmed the draft Bill from the Drafting Wing, it is promoted to the Secretary, Ministry of Law, Justice and Parliamentary Affairs for his approval. Once approval is obtained, the draft Bill is referred to both the Law Minister and State Minister of law for initial political support. Subsequently, the draft Bill is sent back to the sponsoring ministry, the ministry-in-charge of the Bill. The ministry again scans the Bill to satisfy itself that the bill properly reveals both the intentions of the ministry and the guidelines from Cabinet, and then the minister of concern ministry approves the bill as it is drafted. When an acceptable form of the bill is achieved, it is again forwarded to Cabinet for final approval as an official bill of the government. As soon as Cabinet approves the bill for its endorsement, the sponsoring ministry carries it to the Parliament Secretariat to initiate the legislative phase.

Legislative Phase

Legislative phase begins through submitting a notice to the parliament Secretary for seeking permission to introduce a bill in the house.¹¹² It has three distinct stages which are usually known in parliamentary parlance as first reading, second reading and third reading respectively.¹¹³ Subject to the provision of the Rules of Procedure (ROP), the member-in-charge (Minister/MP) who shall desiring to move for leave to introduce a bill, must submit a written notice before seven days (for Government Bill) and fifteen days (for Private Member Bill) to parliament secretary. But in respect of Government Bill, Speaker for sufficient reasons may suspend this rule and allows the motion at a shorter notice (RoP:75). The notice is accompanied by two and three copies of bill for Government Bill and Private Member Bill respectively along with an explanatory statement of objectives and reasons. If the Bill is one that under the Constitution requires the previous recommendation of the President for its introduction, the notice has to contain a certificate by the minister that the Bill has been recommended by the President for introduction. Like the British House of

¹¹² TIB, 2000,

¹¹³ Jahan and Amundsen, 2012, p.213.

Commons, the motion to introduce Government Bills and Private Member Bills in Bangladesh Parliament is also made following the order of days in a week which are known in parliamentary jargon as Government Business Day and Private Members Business Day (RoP:74,75). Thursday is reserved only for Private Members Business and Government Business can be done every day except Private Business day. When a Bill is introduced in the House, any member can oppose it. As soon as a motion for leave to introduce a Bill is opposed, the Speaker may allow a brief explanatory statement by the Member opposing the leave for introduction and the Member-in-charge moving for leave. Then after, the Speaker may without further debate put the question to the vote of the House to settle the matter. If permission is granted by the Speaker, the member in-charge, when called, formally moves a motion introducing the bill, and on the motion being made, the bill stands introduced. This process constitutes the first reading stage of a Bill. When the bill is introduced in the house, it is published in the Official Gazette. The secretary of the Parliament normally arranges for the bill's publication as early as possible, together with the statement of objects and reasons and, if applicable, a financial memorandum. The second reading stage of a Bill begins after a Bill has been introduced. The member-in-charge of the Bill may propose that it may be taken up for consideration, or referred to a standing committee or a select committee, or be circulated for eliciting public opinion. However, any member may make a counter-motion calling against the given proposal of member-in-charge, for example; if the member-in-charge moves that his Bill be taken into consideration, any member may move as an amendment that the Bill be referred to a Select Committee, or to a Standing Committee, or be circulated for the purpose of eliciting public opinion. Following any of the above mentioned motions, the lengthy, and to some extent complex, stage of the second reading commences. In the first phase of this stage, no amendment to the Bill may be moved. Only the principles or the general provisions of the bill are permitted to be discussed. Details of the Bill are not discussed beyond what is necessary to explain its principles. Considering the motion and counter motion calling, the Speaker then provides the issue on vote to decide where the Bill would forward for its next course of action. If the Bill is decided for consideration, then the speaker fixed a day for its clause by clause discussion and amendment. In this part, every decision regarding its amendment is taken through vote. When the bill is not accepted for consideration and decided to send it on Select Committee or to a Standing Committee for closer assessment, the committee returns the bill to the House with a report, which may or may not contain proposed amendments. The member-in-charge may then move that the bill as reported upon be taken up for consideration. At this stage, debate on the motion

is limited to consideration of the committee report or any alternatives consistent with the principles of the bill. Furthermore, any member may propose additional amendments to the bill. Copies of the committee report are made available to the members of the House. When a motion that the bill be taken into consideration has been carried, the speaker submits the bill, either clause-by-clause or as a whole, to the House for a vote. These all procedures are incorporated in the second reading stage of the Bill. The third reading stage is generally short. The member-in-charge makes a motion that the bill be passed as presented, and the speaker usually puts the motion to a vote without allowing any further debate. A bill is passed by a majority of the member's present and voting, subject to a quorum of the session.

Post Legislative Phase

Post legislative involved the assent of President and the publication of Bill as an Official Gazette. The assent of President to an Ordinary Bill or a Finance Bill is governed by Article 80 of the Constitution. The president must assent to a bill passed by Parliament within 15 days of presentation, or the bill is deemed to be automatically assented to after expiration of that period. Once a Bill receives assent, or is deemed to be assented to, it becomes law and is called an Act of Parliament. Alternatively, the president may return the bill to Parliament (provided it is not a money bill) with a message requesting reconsideration of amendments as may be specified in the message. Parliament will then reconsider the Bill and may pass it again with or without amendments. The reconsidered Bill will then be presented once again to the president. This time, however, assent shall be given within seven days, otherwise the Bill is deemed to have received assent.¹¹⁴ A Money Bill passed by Parliament and presented to the President for assent requires a certificate under the hand of the Speaker confirming that it is a Money Bill. This procedure probably acts as a reminder to the President that a Money Bill cannot be returned to Parliament for reconsideration, unlike an ordinary Bill. After assent by the President, the Secretary of the Parliament publishes the Bill as an Act of Parliament in the Official Gazette. One original signed copy of the Bill is preserved for verification and record purposes and shall not be allowed to pass out of the custody of the House without the permission of the Speaker.

Executive-Legislature Relations

Though the parliament can make the statutory law exclusively, but there is a functional integration among the branches like Legislature and Executive in

¹¹⁴ TIB, 2000.

Bangladesh. According to the above law making process, it is seen, the demand to make a law is first realized and raised by the executive branch which is articulated from the political system and, it took primary initiative by its concern department or line agency to prepare and process the laws then it put forward to the legislature as a Bill. Subsequently the legislature started its formal procedure independently to pass the draft Bill by means of its various mechanisms on the basis of cabinet's proposal. Among the three branches of the government, legislature and executive may have a very close relation with each other for achieving their common ends. In a parliamentary form of government like Bangladesh, Cabinet is exercised the real executive power and it is also considered as an integral part of legislature. Because cabinet is formed with the member of parliaments except in very few instances and they all are collectively responsible to the parliament. The inseparable relationship of both legislature and cabinet thus makes a fusion of power in the parliament of Bangladesh. This fusion of power is not working in a balance way but it tilted towards executive. As a result it has been observed an increasing trend to decrease the power of legislature and it resultant the ascendancy of the executive. Considering the executive-legislature relations in Bangladesh, one noted scholar mentioned that the executive is dominant and the legislature is dormant (Khan, 2006). In context of the increasing power of British cabinet H.J. Laski said, "The house of commons is only formally a legislative assembly; its real business is to act as the cabinets organ of registration" and Ramsay Muir termed it "Dictatorship of Cabinet". There are so many reasons for the dominant position of the executive in Bangladesh context like: "executive control of the legislative agenda, the extremely powerful position of the Prime minister, use of ordinance making power by the president, inadequate debate on policy and legislation in the legislature, regular quorum crisis and ineffectiveness of legislative committees".¹¹⁵ Besides article 70 of the constitution restrict the rights of the MP's to such an extent that they do not have any option other than approving whatever measures their parties propose.¹¹⁶ As a result there are very few instances that an executive initiative for making a law has been in veined in the parliament.

Ethical Issues in Law Making Process

It is found from the above discussion about law making process that in law making process there is no code of conduct or ethical review committee in

¹¹⁵ Khan, M. M. *Dominant Executive and Dormant Legislature: Executive-Legislature Relations in Bangladesh*. India: South Asian Publishers Pvt Ltd., 2006, p. 123.

¹¹⁶ Hasanuzzaman, A. M. "Role of Parliamentary Committees in Bangladesh", in Ahmed, N. and Obaidullah A.T.M (eds), *The working of Parliamentary Committees in Westminster Systems: Lessons for Bangladesh*, Dhaka: The University Press Limited, 2007.

Bangladesh. Even there is no review committee for reviewing conflicting issues might arise among the relevant laws and for suggesting to avoid these conflicting issues in implementing these laws. Generally in many developed countries, there is an ethical review committee in the law-making process. This ethical committee reviews the potential conflicting issues with other relevant laws if any and suggests mitigation measures. In addition, the review committee also reviews the potential threat of the new law to other sectors adjoining with the new law as well as to create a threat in its own sector where the new law may be implemented. For example, the Protection and Conservation of Fish Rules 1985 and National Fisheries Policy, 1998 were passed as supplementary regulations for achieving the objectives of the Protection and Conservation of Fish Act, 1950 so that the development and conservation of fishery resources can be done in a sustainable manner, however in reality it is found that there are conflicting issues among the laws and policies, such as the Protection and Conservation of Fish Act, 1950 does not permit to cultivate any alien fish species in open waterbodies but the Protection and Conservation of Fish Rules 1985 and National Fisheries Policy, 1998 permits it. It is found from review of different fishery development projects as discussed earlier. On the other hand, the Protection and Conservation of Fish Act, 1950 was enacted only for fresh water fish development and conservation. But there are many other flora and fauna in our river systems, flood plain wetland and water bodies those are very important of our aquatic biodiversity and ecosystems. It might be happening due to inappropriate law making process where a code of conduct is needed in law making process to mitigate these conflicting issues as well as to avoid the destructive provisions of laws.

Ethical Issues in Implementing Process

Planning of any development project of a specific department or agency needs to comply with laws regulating the activities of that department or ministry. In this regard it is found that there are many conflicting issues in fishery development projects as implemented across the country. For example, there were some activities for achieving the objectives of these fishery development projects which are self-contradictory and in some cases inter-departmental and intra-departmental contradictory. It is assumed that in developing any fishery development project which is an environment sensitive issue needs a guideline and code of conduct which must be followed during planning and implementing to ensure sustainable environmental development. Because a code of conduct usually provides supplementary guidelines to avoid the inter and intra-departmental conflicting issues as well as destructive issues in implementation tenure.

In conclusion it is said that environmental ethics is one of the most important modern environmental conservation and sustainable development tools and involves in the early history of human civilizations. It has already been a global issue due to its implications in the development discoursed. But most of the people in the underdeveloped and developed countries people are not aware about its importance. Considering the environmental ethics, it is very easy for all to carry out their duties and responsibilities properly that may lead to the sustainable development which we could not hope for; a peaceful and happy environment for our generations on this earth. It is in fact a human virtue supported by the religions on this earth. It is interlinked with the sustainable environment and development. It teaches us to be healthy and friendly to the global environment and development. This virtue is basically based on the international humanitarian law, international human rights, and of course the international environmental law under the public international law. The modern societies including the United Nations Organization (UNO) and its specialized agencies, International Union for Conservation of Nature (IUCN) and other national and regional organizations, etc; have been playing critical role in the process of implementing on the need for the environmental ethics for our society in order to attain the sustainable development. The compliance with the existing laws and policies along with the environmental ethics are also crucial for our existence on this earth, our home. It deals with the environmental rights, moral education, traditional knowledge and the environmental conservation issues, etc; which are very important for our sustainable development on this earth.

Chapter-6

Opinion of Experts about Environmental Issues Emphasizing on Aquatic Biodiversity

The aim of this chapter is to discuss, in accordance with the comments of some selected environmental specialists as the Key Informant, about present state of environment, causes and consequences of environmental degradation, river degradation and other wetland degradation, adverse effects of massive water use from wetland for irrigation in agriculture on environment and aquatic environment, effects of the use of pesticides, chemical fertilizer in agriculture on aquatic environment and human health. It also illuminates the conflict of laws and policies, problems of enforcement laws and policies, loophole of law and inefficiency of policy maker, causes of conflict among the inter-ministry and different departments in implementation of development projects.

6.1 Introduction

Environment means the surrounding atmosphere/condition for existence. Literally, everything of physical and biological surroundings of a living organism that affects its life and livelihood is collectively known as its environment. In other words, environment is the total of water, air and land; interrelationship among themselves and also with the human being, other living organisms and property. It includes all the physical and biological surroundings and their interactions. Environmental studies provide an approach towards understanding the environment of our planet and the impact of human activities upon the environment. Human beings and other living organisms are born in nature and within a unique environmental setting and grow up within it. Therefore, it is said that human life and other living organisms and environment are closely related and inter-dependent on each other.¹¹⁷

Therefore, the existence and progress of life on earth depend on nature and environment. However, recently gradual degradation of nature and environment has posed a serious threat to the existence of all living beings and to the progress of human civilization. For the cause of environmental degradation, the earth is becoming vulnerable for beings to live as well as

¹¹⁷ Mahfuz Ullah, *Environmental Politics in Bangladesh* (Dhaka: Centre for Sustainable Development, October, 2002) pp 1-19.

various essential environmental elements are disappearing from the earth. So, in view of various adverse impacts on environment, like other countries, the Government of Bangladesh, environmental activist groups, non-government organizations, and environmental specialists of Bangladesh have taken different programs and measures emphasizing to protect and improve the environment.¹¹⁸

However, in this research, we tried to collect opinion from environmental experts consist of academicians, members of civil society and environmental activist groups, non-government organizations who are engaged in research on environmental issues, environmental development and conservation etc.

Environmental experts are playing important role for developing and conserving environment and environmental resources in Bangladesh through research, advocacy, dissemination about the environmental degradation and its consequences. They are also trying to make understand the policy makers, planners, executives about the degree of gravity of environmental development and conservation for sustainable development in Bangladesh because Bangladesh is highly dense populated country with limited land and other environmental resources. Therefore, any kind of development activities must be accomplished in sustainable manner so that our environment and its resources do not degrade and deplete any more. Here it is tried to accumulate the opinion of some experts about state of environmental degradation and its consequences and how we can develop and conserve our environment and its resources in sustainable way. In this regard emphasis is given on to develop and protect environment especially to conserve and develop aquatic biodiversity in Bangladesh¹¹⁹.

6.2 Opinion of Selected Environmental Experts

Environment degradation is a critical issue till today and it is getting worse day by day for various reasons. We could observe environment in different ways. In fact it is inextricably inter-related with each other. If any element of environment is destroyed then there might be destruction of other element of environment related with it such as if any river is destroyed in some places in our country then inevitably fresh water fish must be declined in adjoining areas, if we destroy forest then less rain fall and temperature rising will occur, as a result

¹¹⁸ Mohiuddin Frooque, S. Rizwana Hasan, *Laws Regulating Environment in Bangladesh* (Dhaka: Bangladesh Environmental Lawyers Association, 1996).p.729.

¹¹⁹ Nazrul Islam, "Protecting Bangladesh's Environment: *The role of the civil society*" Dhaka: December 1999,p-3.

drought appears in nature and river, ponds other wetlands dry up for that reason resulting degradation of aquatic biodiversity. Unlawful occupation or destruction of river, wetland etc., creates a great threat to aquatic life. We use chemical fertilizer and pesticides in agriculture field to produce more crops. This chemical fertilizer and pesticides pollute nearby wetlands and waterbodies which result depletion of aquatic biodiversity and ecosystem especially fresh water fisheries. We tried to collect opinion about these issues from selected environmental experts through key-informant interview. For this an interview checklist was used as the discussion issues.

Issue 1: Which sector of environment in Bangladesh are worst hit and its causes

1. Comments of Dr. Ainun Nishat, presently working as the vice chancellor, BRAC University Dhaka and a member of IUCN, Bangladesh.

Environmental components are closely interrelated with each other. Main components are 1. Physico-chemical, and 2. Biodiversity & Ecosystem. Physico-chemical environment is in regrettable condition in different places of our country. At present the state of river systems is gradually worsening all over the country. Dimension of air and sound pollution is crossing the threshold limits in Dhaka and other cities. The fertility and quality of land is worsening day by day and consequently productivity of agriculture is decreasing as well as production cost is increasing due to increasing input materials such as more chemical fertilizer and pesticides. We exert to keep fertility of land by using more chemical fertilizer to produce more production. Unlawful occupation of the rivers, common water bodies, wetlands are making the changes or alteration of natural system, deforestation is alarmingly increased due to increasing demand of cultivable land, excessive use of forest resource, unplanned land use etc. Water pollution is also a great issue in Bangladesh especially in urban and adjacent areas of Dhaka, Rajshahi, Khulna, Sylhet and Barisal. There is also noticeable decreasing trend of water quality all over the country mainly due to overuse of synthetic fertilizers and pesticides, insufficiency of water in wetlands, decreasing ground water table etc. As a result, adverse impact is exerting on biotic and abiotic environment especially significantly adversely affecting wetland and aquatic ecosystems and biodiversity. For enhancing agriculture production excessive use of water from wetlands for irrigation is also damaging the wetlands. In the dry season rice is cultivated even in the middle of beel which was the reservoir of water and safe shelter of aquatic biodiversity and ecosystems which people used to throw branches and twigs which are reservoir of aquatic biodiversity. But now a day it has been damaged for

pollution from chemical fertilizer and pesticides and scanty water in the natural reservoir. This is not an exceptional case, it is common scenarios in Bangladesh that environment is degraded always and aquatic biodiversity is the worst hit.

2. Comments of Dr. Mohd. Abdul Matin, General Secretary, Bangladesh paribesh Andolon

At present environmental degradation has been observed in every sector of Bangladesh. Though, in the perspective of Bangladesh it is assumed that Bangladesh is blessed with different river systems and has become a riverine country. River systems of this country carry huge quantity of sediments that makes this land fertile and enrich with rich biodiversity. For this reason, people can easily grow crops, fruits etc. As a tropical country Bangladesh is rich in diversified flora and fauna. Not only our culture in this areas greatly induced by our river systems but evolution of civilization also. Thus, river is the most important for our existence. Rivers are born naturally and die in the same way. However, many rivers are died or going to die or become narrower and loss the natural water flows due to human interventions and natural disaster such as flood control measurements, unlawful occupation, cross dam construction on upstream by neighboring country, earth quake, natural water course changes etc. However, river degradation rate in our country is very high. For example, before 1000 years about 1500 rivers were flowed in this land, during the Pakistan era near about 800 rivers were in east Bengal but at present only 230 rivers are flowing in Bangladesh. Therefore, if we could not protect our rivers which are the vital force of Bangladesh without that no lives would survive and flourish.

3. Comments of Professor Haran-or-Rashid, Editor and Publisher, Dharitte Bangladesh, Dhaka

Physiographical features are formed in natural ways and have been changing in natural system. It changes naturally and partly repleted by natural systems. Some flora and fauna might be disappeared from an area but again it appears naturally in favorable situation. However, after industrial revolution and different anthropogenic interventions physiographical features are changed/degraded rapidly, thus scholars assumed that it will never come back in former state.

4. Comments of Professor Dr. M. Shamsul Alam, Department of Geography, University of Rajshahi

Environment means not only natural environment, it includes social, political and economical. It is a comprehensive term at present. Social and political environmental situation are the most sustaining than natural environment. In fact,

natural environment is conducive for all living organism, if we conserve it appropriately with the favorable social and political environment. We cannot cope with natural environment without favorable social and political environment. For the gradual decay of morality and polluted social and political environment and for petty personal interest we are destroying our environment. Consequently, we are unwisely endangering our existence. In this situation we must come out from these through avoiding self destructing activities and ensuring rule of law. In this regard, participation of everybody, realization of the necessity of environment and obeying the rule of law strictly are must to ensure sound environment.

5. Comments of Syeda Rizwana Hasan, Chief Executive, Bangladesh Environmental Lawyers Association

Environment has been degraded to a noticeable extent in our country in every sector. So, it is difficult to identify which sector of environment is suffering most. It depends on how human beings act on their surrounding environment and relation among environmental components. Usually those who live in Dhaka city cannot realize the adverse effect of environmental destructive activities in rural areas or forest. I think forest, river, and wetland are degrading rapidly.

6. Comments of Mahabub Siddiqui, Police Inspector Retd. & Chairman Heritage Rajshahi, Bangladesh

In the past our people were not much conscious about environment and its importance. We usually use the nature for our survival but not conserve it. But now people realize with the increasing demand for growing population that it is impossible to survive without conserving and developing environment. There are many causes of environmental devastation such as: 1. population boom, 2. lack of planning, 3. unplanned urbanization and development project, 4. unilateral water withdrawal by the neighboring country. Consequently, forest and wetland are mostly devastated.

Issue 2: Causes of environmental degradation in Bangladesh

1. Comments of Dr. Ainun Nishat

Over the years, Bangladesh has undergone a process of environmental degradation, which is a matter of great concern. Like other third world countries, Bangladesh is facing a number of different environmental crises such as deforestation, desertification, soil erosion, land quality degradation, wetland degradation, offsetting biodiversity and ecosystem, water, air and soil pollution, inland salinity intrusion, unplanned urbanization etc. Furthermore, natural disasters like floods, cyclones, tidal surges, and tornadoes have resulted in severe socio-economic and environmental damage.

In this case, scholars, academicians, environmentalists, different civil societies identified diverse causes of present environmental degradation, such as : 1. Over population, 2. Unplanned urbanization and industrialization, 3. Overuse of resources, 4. Lack of judicious policies and planning, 5. Inappropriate programs for environmental development and conservation, etc. However, huge population is the main cause of environmental degradation.

2. Comments of Dr. Mohd. Abdul Matin

At present, river is the worst hit of environmental degradation in Bangladesh which is unfortunate. However, there are two causes of river damage, 1.Natural, and 2. Human interventions. Natural cause means siltation of rivers though sedimentation and river bank erosions during rainy season which are beyond of human being to protect. Human interventions include construction of embankment, dam, barrage, other flood control measures, and unlawfully occupying of rivers to build up houses, industries, shopping malls and others structures on it. So, it is assumed that human interventions are the main causes of river as well as other wetland destruction. Therefore, it would be said that human interventions are mainly responsible for degradation of other sectors of our environment.

3. Comments of Professor Harun-or- Rashid

There are many causes of environmental degradation, among them 1.Corruption and 2. Population growths are the main causes. I can't find any natural causes that degrade environment. Environmental resources degradation has been occurring due to meet up the growing demand of increasing population. Because, Bangladesh has ability to bear around 30-40 million populations but at present about 160 million people live in where environmental resources are limited and overexploited. I think this huge population is a burden for Bangladesh and its environment. In that case over population is creating pressure on the resources resulting the degradation of environment. So, concerned authority would control population for development and protection of environment.

4. Comments of Prof. Dr. M. Shamsul Alam

Our policy makers are not efficient and interested to formulate proper and effective laws and policies and they do not take advice from specialists and stakeholders. As a result such kind of law and policies destroy the main elements of environment.

5. Comments of Syeda Rizwana Hasan

Lack of good governance is the main cause of environmental degradation. Because, environment does not remain the main agenda of Government policy, still now it is footnote of it.

6. Comments of Mahabub Siddiqui

Four causes are responsible for degrading our environment. These are: 1. over population, 2. Lack of planning, 3. unplanned project, 4. Unilateral water withdrawal by neighboring country.

Issue 3: Natural causes are more responsible than human created causes of environmental degradation

1. Comments of Professor Ainun Nishat

Mainly two causes are important which degrade environment. These are 1. Natural causes, 2. Human interventions. Environmental formation process is natural, so it is degraded naturally and transformed naturally. This is the law of the nature. But in some cases human activities might be perilous to environment and sometimes human activities make devastating situation to environment specially our biodiversity and ecology.

2. Comments of Dr. Mohd. Abdul Matin

I do not find any natural cause that degrades environment. All causes are created by human being, which are resulting degradation of environment and that is high rate of population increase.

3. Comments of Professor Harun-or-Rashid

Mostly anthropogenic interventions are responsible for our environmental degradation". I think anthropogenic interventions are more responsible for environmental degradation than natural cause.

4. Comments of Professor Dr. M. Shamsul Alam

We gradually lose our moralities for our petty interest and make worse of our social and political environment. As a result, it has adverse effects on natural environment. From the above discussion, it can be said that human interfere is the main cause of environmental degradation. Therefore, it is said that policy conflict is liable to degrade environment, which human created in the name of protection of environment.

5. Comments of Syeda Rizwana Hasan

We are degrading our environment for our petty interest and make worse of our social and political environment. It has negative impacts on natural

environment to a noticeable extent. In view of above, we can said that human interfere is the main cause of environmental degradation.

6. Comments of Mahabub Siddiqui

Two causes are important 1.natural and 2.anthropogenic. There is no balance in our development planning. So, wrong policies are degrading the whole environmental system of our country. So, we can say it is environmental politics it is more important in environmental degradation.

Issue 4: Conflicting issues in existing laws and policies

1. Comments of Professor Ainun Nishat

Environmental degradation is occurring due to confliction between the law and policy, which are formulated by policy makers. Thereafter, it is not corrected and the same conflict exists in newly enacted laws and policies. For example,

1. The Canals Act, 1864, section 3, empowered the authority that they can clear and deepen watercourses, can remove the obstructions and even stop the watercourse if they deem it necessary for constructing dams or embankments in the river, khal, nala or waterway whether naturally water accumulates. However, there is no provision in this Act that how it will face the problems after constructing dams or embankment to stop watercourse which will create water logging in the upper part and water scarcity in the lower part.
2. The Irrigation Act, 1876, section 4, of this Act permits the Government to build or maintain any embankment for irrigation works and protection of lands from flood
3. The Agricultural Pesticides Ordinance 1971, Section 3, the purpose of this ordinance is to use pesticides in agriculture sectors for development of agriculture and its production. However, this ordinance does not take into consideration the adverse impacts on environment especially aquatic biodiversity because pesticides pollute the surrounding water bodies that are the habitats of fish. So, ultimately it destroys fish and fish habitats.
4. Jalmohal Management Policy 2009, section 22, permits to unlimited use of water from wetlands for irrigation. But the adverse effect of aquatic biodiversity is not considered in this policy.
5. Water Act 2013, Section, 24 divert normal flow of river to establish any obstacle or filling up by the permission of legal authority. Consequently, it degrades fish habitat and breeding centre Section, 25 permits to fill up more than one branches of river in order to develop the river flow or protection river from disintegration. It is not a logical decision for sound environment. Because, environment will be hazardous if any branches of river are filled up or closed due to any causes in that area.

We have to know the opinion of the civil society about this conflict, there is no conflict in environmental law and policy. But, conflict has surfaced in case of law and policy enforcement for the cause of politicians. Law and policy can't be properly applied for their illegal interferences. It is called politics. So, environmental politics is entirely liable to environmental degradation. I think law and policy is sufficient to protect environment.

2. Comments of Dr. Mohd. Abdul Matin

Government approach is not ecology friendly. So, policy makers formulate laws and policies for the protection of environment but environmental degradation is created. These laws and policies conflict may be called environmental politics and it has degraded the whole environmental system.

3. Comments of Professor Harun-Or-Rashid

Policy makers frame laws and policies for the protection of environment but that is very weak and there exists conflict and ambiguities. Therefore, it is liable for destroying the environment. Conflict exists between the laws and policies because there is no combination in inter ministry activities. To give an opportunity and to get opportunity concerned officials' authority compiles such kind of conflicting laws and policies. It is one kind of deception. So, this type of conflict is liable for the environmental degradation.

4. Comments of Professor Dr. M. Shamsul Alam

Our policy makers are not efficient to formulate effective and proper laws and policies and they could not take advice from the specialists and the stakeholders. Consequently, they are making such kind of conflicting laws and policies. It is called policy conflict and ethical problem.

5. Comments of Syeda Rizwana Hasan

"Most of the laws and policies in our country are out of date and these are not the reflection of expectation of the mass people. At the same time government should be cautious of compiling new law and policy that protect mass people interest and the environment. So, conflict is not the fact, main problem is enforcement of the laws and policies.

The canals act, 1864, the irrigation act, 1876, the drainage and embankment act, 1952 and the agricultural pesticides ordinance, 1971 are out of date and present expectation is not reflected in these laws and policies. So, there is a gap among the laws and policies.

Every new Government compiles laws and policies for Jalmahal management system but no policy sustains. If any Government makes sustainable structure of law and interest of fisherman is reserved they can avoid all conflict. Pesticides and chemical fertilizers are used in agriculture for more production but could not measurement the implication son aquatic biodiversity and human body. On the other hand there is available organic manure in the market that is able to produce huge food-grains and it is sustainable and environment friendly. But Government laws and policies emphasise the use of chemical fertilizer for more production in agriculture sector. In that case, two causes exist behind this fact such as 1. mental problem of Government in our country and 2. ability to control the policies of our country of Agro chemical company. It is said that there is no balance in our development planning. It is called politics and also food politics because multinational agrochemical company has absolute control over production system in our country by their policy. Consequently, it degrades whole environmental system of our country. So, you can say it is environmental politics. But all politics share the same character.

6. Comments of Mahabub Siddiqui

There is conflict between the environmental protection law and policy and still it exist in newly compiled law and policy. It is a suicidal decision. It is not suitable for the age. I think there is no combination of the ministries. It is said that inter-ministry conflict is called politics. Because bureaucracy and politicians of our country do not want amicable solution of these conflicts for their own interest. Perhaps they left realism and have lack of environmental knowledge.

Issue 5: Integration among laws and policies about environmental conservation

1. Comments of Professor Ainun Nishat

Environmental conservation Act 1995, sub-section 5, of section 6 ,says that any wetland filling or changes its size in any way for National interest under the certificate of environment department. It is a great threat to the environment especially aquatic biodiversity. Because, if fill up wetland in the name of National interest it damage the fish habitat. In that case the employee of Department of Environment gives environmental certificate dishonestly. Regarding this issue civil society says, "Wetland is linked to the rivers, beels, haors, baors, jheels, and khals. So, Government or concerned authority would fill up wetland, which totally close fish migrate, breeding, and harvest. Consequently, it degrades aquatic biodiversity especially fresh water fish.

2. Comments of Dr. Mohd. Abdul Matin

In case of fill up wetland or changes its size for the national interest that will destroy adjacent lands, beels, plants, herbs and abolition of aquatic biodiversity especially fresh water fishes. Consequently, "it ruins environmental system.

3. Comments of Professor Harun-or-Rashid

In case of fill up wetland or changes its size for the national interest that will ultimately abolish aquatic biodiversity especially fresh water fishes and in the long run human being also. Because, nature is most important for human existence that ensures wetland. But Government destroys it in name of the national interest. It is one kind of fraud to the nation and to the country. So, Government would change this type of laws and policies.

4. Comments of Dr. M. Shamsul Alam

Environmental conservation act 1995 section 6 sub-sections 5, to fill up any wetland and changes its size for unavoidable national interest only. In that case they can demolish aquatic biodiversity especially fresh water fish and surrounding environment.

5. Comments of Syeda Rizwana Hasan

"Surface water source would be damaged and ground water levels are decreasing day by day and fisherman who are living on fishing in these wetlands suffer more. So, we would lose natural water sources and also lose aquatic biodiversity especially fresh water fishes to fill up wetlands for any national interest by the concerned authority. In that case Government should change policy to protect wetland and aquatic environment".

6. Comments of Mahabub Siddiqui

"According to environmental conservation act 1995, concerned authority can fill up wetlands for national interest; it is unlawful law and left realism. There are 4500 hundred ponds in Rajshahi city and the Padma River was full of discharge during the 4th and 5th decades. At that time the temperature of Rajshahi was normal and the Padma River and other wetlands were full of indigenous fish. But at present there are 140 ponds in Rajshahi city and the Padma has dried up. For this reason, temperature of this city is increasing day by day and devastation of aquatic biodiversity has occurred and ground water level is going lower and scarcity of water is taking place in Rajshahi".

Issue 6: Consequence of section 6, clause 5 of Environmental Conservation Act 1995

1. Comments of Professor Ainun Nishat

Section 18 of the Environmental Conservation Act 1995 says that no legal proceedings shall lie against the Government, Director General, or employee of this Department, whatever they do for. This provision may create anarchy in developing and conserving environment. Thus it would encourage malpractice, corruption during implementation of environment related projects and activities would not ensure accountability and transparency among executives which may lead to damage of environment especially fresh water fisheries and fish habitats. Because, the Director General or employee of Department of Environment may intend to issue environmental clearance certificate to any other departments, agencies or even any private sector industries or entrepreneurs to implement development projects or infrastructure construction without any prior environmental impact assessment that may cause severe environmental degradation. For example, we have already witnessed some development projects such as different flood control measures implemented by the government agencies that caused of severe wetlands and aquatic resources depletion all over the country especially aquatic biodiversity and ecology. On one hand, through this provision, they can give permission to fill up any fish habitat, which is very important for indigenous fish breeding, on their good faith. On the other hand, this provision may make some employees dishonest. Many scholars say that they must be punished at first because they are responsible for supervision of development projects concerning environment and its resource degradation. Therefore it would be said that this section of the Environmental Conservation Act 1995 is not suitable for and should take initiative for amendment.

2. Comments of Dr. Mohd. Abdul Matin

This indemnity is completely against environment. They use this indemnity to keep their corruption and unethical approach out of view.

3. Comments of Professor Harun-or-Rashid

My opinion about this section of Environmental Conservation Act 1995 is that concern authority must immediately take initiative to change this section for the sake of preserving sustainable environment. There must not be any compromise, clemency regarding environment. So, I think such kind of ambiguities prevailing in any laws and policies regarding environment must change for sustainable environment.

4. Comments of Dr. M. Shamsul Alam

This is very unfortunate; the government should take initiatives to change such kind of laws for maintaining sound environment.

5. Comments of Syeda Rizwana Hasan

This indemnity is completely against to our environment. They avail the loopholes in these laws to keep their accountability, transparency, corruption, and unethical approach out of view.

6. Comments of Mahabub Siddiqui

They take this indemnity to protect themselves from corruption and accountability. So, I want to say it is a ridiculous law and harmful to protect environment.

Issue 7: The Causes of Degradation of Water bodies

1. Comments of Professor Ainun Nishat

Bangladesh holds indeed colossal wetland areas during the rainy season; about half of the country could be classified as wetland. It is estimated that about 50% or more of the land surface of Bangladesh is wetland consist of about 700 rivers, creeks, streams and other waterbodies known locally as river, haor, baor, beel and khal. About 6.7 percent land of Bangladesh is always under water, 21 percent is deeply flooded and 35 percent experiences shallow inundation. The average discharge of water in Bangladesh delta in the rainy season is more than five million cusec. The wetlands in Bangladesh encompass a wide verity of dynamic ecosystems enriched with different types of wetlands ranging from natural lakes, man-made reservoir, freshwater marshes, and oxbow lakes, locally known as baors, freshwater depressions like beels, fish ponds, and tanks, estuaries to seasonal inundated of extensive floodplains.

Under the Ramsar international wetland conservation treaty, wetlands are defined as areas of marsh, fen, peat land or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres.

Wetlands are playing enormous role in rural livelihoods and environment. Wetlands serve a wide range of functions, including ecosystem balance, flood control, water purification, protection from natural disasters, sources of livelihood, regular flow of water, and habitat for wildlife, fish, aquatic plants and animals. Paddy cultivation and lowland agriculture are the main rural

livelihood options in the rural areas of Bangladesh. The fisheries and other food and non-food resources are traditionally regarded as common property in Bangladesh. All of the aquatic resources in the common waterbodies are common property regardless of their need and special care for its proper management deserves.

The Asian Wetland Symposium of 1992 concluded that wetlands are being lost and degraded rapidly in Asia as well as in other regions and many people are paying the cost, some with increased cost of living and some with their lives. In Bangladesh, there are many waterbodies that support livelihoods of many people. This area is now a smoldering example and known as a lost biodiversity unit due to establishment of many irrigation and rural development projects and also establishment of embankments for flood control by Bangladesh Water Development Board in different places across the country. Flood-control dykes, sluice gates and pump houses have been established with a view to protect flood water, as well as supplying the river water into the cropping area in a controlled and systematic way. After the green revolution, farmers are still using chemical fertilizers, pesticides, herbicides and other toxic substances to improve crop production to meet the growing needs of our country. As a result, biodiversity has been misplaced and beneficial insects, birds and aquatic animals, useful for biodiversity conservation are going to extinct from our country. Fishermen are becoming more vulnerable losing their occupation and have been compelled to change their occupation. Conflict among fishermen, private leases and government over water access was common throughout the period and was the subject of a number of court cases.¹²⁰

Civil society plays an important role to identify the cause of wetland degradation and protection of it. "We know two-third of the country may be termed as wetland. We shall follow common person's understanding of a wetland. In general, we talk about natural waterbodies as wetlands. Such as: beels, haors, baors, jheels, rivers, khals, floodplains adjoining rivers, coastal floodplains. Man-made waterbodies, such as: lakes, ponds and reservoirs, irrigation canals. Wetland ecosystems are rich in biodiversity and species variation. Important flora and fauna include deep water variety of Aman rice, jute, fish-paddy culture, fish, amphibians and reptiles, wetland forests and avifauna.

But at present wetlands and its ecosystem and biodiversity are under threat. Because, 1. Bangladesh is land hungry country 2. Conversion of

¹²⁰ Shafiqul Islam, "Present status of wetland Biodiversity- A study in Sujanagar Upazila, Pabna, Bangladesh" *Journal of Pharmacy and Biological Sciences*, Set-oct-2012, pp 06-13.

wetland into cropland is usual practice 3. Embankments and polders of flood control projects have caused serious harm to wetland ecosystems, such as: a) connectivity is lost and fish migration routes are blocked, b) Cultivation of rice encouraged in robi season, c) land filling and land grabbing by local elites, d) biodiversity is also deteriorating very fast, e) deposition of sedimentation. 4) impact of climate changes low rainfall in peak of monsoon period results in unfilled wetland depression. Therefore it is said that various causes are making wetland degradation such as: 1) increase of population and expansion of human habitats and rapid urbanization, 2) expansion of agriculture and conversion of wetlands through drainage of water bodies and their conversion into rice field, 3) flood control and irrigation projects for enhancement of agricultural productivity impacting integrity of wetlands, 4) ill-planned national, local and rural infrastructures like roads, narrow culverts etc, 5) over-felling of wetland trees, 6) introduction of alien invasive species of fish in wetlands, 7) over-fishing and associate disturbances, 8) siltation due to degradation of the watershed areas, 9) pollution from industrial and urban waste, agro-fertilizers and insecticides flowing into wetlands.

Consequently it has adverse impacts on environment, ecosystem and aquatic biodiversity such as: 1) reduction of fish habitat, fish population and diversity, 2) possibility of extinction of good number of species of flora and fauna, 3) indigenous varieties of rice are disappearing, 4) increase in the recurrence of flashfloods as storage capacity of wetlands are getting reduced, 5) loss of natural water reservoirs and their resultant benefits, 6) degeneration of wetland-based ecosystem, 7) loss of natural soil nutrients, 8) closed aquaculture in open water bodies, 9) diminishing local aquatic species, 10) over-exploitation of aquatic resources, 11) deteriorating living conditions of local people as livelihoods, socio-economic institutions and cultural values are affected.

2. Comments of Dr. Mohd. Abdul Matin

I think conflicts among laws and policies are partially responsible for degrading wetlands. There are many laws and policies for protection of wetlands and aquatic biodiversity but it is hardly seen to implement appropriately. In addition, policy options are also not suitable to protect rivers, open water bodies like beels etc. So it is assumed that policy options are lawful to protect wetland environment in Bangladesh. There is insufficient integrations and coordination among legal and policy options that ensure wetland and aquatic biodiversity protection. So, it is impossible to protect aquatic biodiversity especially fresh water fishes in present situation.

3. Comments of Professor Harun-or-Rashid

Wetlands are decreasing day by day for unplanned development activities and pressure of huge population. Moreover, concern authority would not take any initiative to control huge population and environmentalism degradation. Consequently, wetland and aquatic biodiversity are facing great threat day by day. I think there is no effective laws and policies to protect wetlands and no combination between laws and policies.

4. Comments of Dr. M. Shamsul Alam

Wetlands are invaluable components of the environment, ecology, resource potential, and biodiversity in Bangladesh. They are integral part of the local ecosystem based cultures. But at present these wetlands are degraded due to natural and anthropogenic causes, such as: 1. Siltation, 2. Flood control embankments, 3. Indiscriminate use of pesticides and chemical fertilizers in agriculture, 4. Excessive removal of surface water and ground water for irrigation, 5. Large scale and systematic reclamation of land, 6. Drying out of water bodies, 7. Construction of railway, elevated cross roads and highways in the beel areas, 8. Closures of fish passages by inadequate culverts in the highways. Various causes are responsible for endangering aquatic biodiversity include siltation, embankment indiscriminate use of pesticides and chemical fertilizers, drying up of water bodies and inadequate culverts in the highways. So, concerned authority should take initiative to protect aquatic biodiversity. There are sufficient laws and policies to conserve aquatic biodiversity in our country but we have a problem to enforce the law for the causes of political pressure, hypocrisy, and unethical conduct of concern authority. As a result it degrades indigenous fish species and surrounding environment.

5. Comments of Syeda Rizwana Hasan

Wetlands are degraded due to various causes such as, 1. Lack of planning, 2. Lack of land joining, 3. Virtually no action against those people who occupy the wetland and degrade it. I think law and policy is not sufficient to protect wetland.

6. Comments of Mahabub Siddiqui

There are many causes of wetland degradation, important ones are 1. Insufficient law and policy, 2. No way to reserve sufficient water in rainy season for use in dry season, 3. Large water withdrawal unilaterally by neighboring country, 4. Unplanned brickfields establishments in everywhere. As a result, destroying of aquatic biodiversity is taking place.

Issues 8: Impacts of Embankment on Environment and Aquatic Biodiversity

1. Comments of Professor Ainun Nishat

The concern authorities build embankments to protect crops field from flood, storage water for irrigation in dry season, to change water courses, reduce land erosion, flood control according to canals Act 1864, irrigation Act 1876, the Tanks Improvement Act 1939, Embankment, and Drainage Act 1952 without assessment of environmental impact. Moreover, to construct any planning at first should consider the environmental impact according to Environmental Conservation Act 1995. Civil society of Bangladesh is not agreed with this matter. They think it should be changed. "This is conflicting issue among the laws. For this reason, environment will degrade. So, concerned authority should have removed this conflict for environmental development.

2. Comments of Dr. Mohd. Abdul Matin

Flood control concept is a wrong policy. No need to control flood because it is natural system and it should be done. In course of flood land become fertile and more crops grow in agriculture field and protect aquatic biodiversity. Not only would that it protect whole environmental system. There is no country in the world which controls flood and for this reason build embankment. So, construction of embankment should be stopped for the protection environment.

3. Comments of Professor Harun-or-Rashid

Unplanned and unwise embankment building should be totally stopped on the bank of river systems and inside the beel areas because it separates adjacent lands from natural waterflows of the river and beel. For this reason sufficient water cannot enter into the nearest beels and wetlands in the rainy season. As a result land lose its fertility and grow little crops, wetland becomes dry up and loses aquatic biodiversity, forest lose trees and degrades nature and last of all the whole environmental system degrade. So, concern departments of the Government would make proper plan about this so that no adverse impact is created on environment especially aquatic biodiversity.

4. Comments of Dr. M. Shamsul Alam

We should come out from embankment culture at this moment for good environment because embankment is the main obstacle to protect sound environment and conserve aquatic biodiversity. So, there is no option to build embankment either for flood control or agriculture development for sustainable environmental. In that case if necessary any embankment can be demolished to protect its surrounding environment.

5. Comments of Syeda Rizwana Hasan

There is no utility to build embankment for developing environmental condition and conserve aquatic biodiversity because fish faces hindrances to migrate from one place to another at the time of breeding due to such kind of embankment because embankment creates obstacles to natural waterflows. This reason disturbs fish breeding. So, concern authority must discuss the usefulness and detrimental side of building embankment with the root level people and environmental experts.

6. Comments of Mahabub Siddiqui

Our country is normally affected by major flood after every ten years, for this reason we lose many of environmental resources including human casualties and domestic assets. Sedimentation from flood increase fertility of land which play vital role to produce more food grain. At present is proved that due to construction of such kind embankment sedimentation decreases and we use chemical fertilizer and insecticides for growing more crops. As a result it degrades land fertility as well as pollutes nearby water bodies which causes degradation of aquatic biodiversity. So, temporary we get some benefit from embankment but after some days it become totally useless and creates major problems. It is neither scientific nor environment friendly.

Issue 9: Loopholes and Impacts of Agriculture Laws and Policies

1. Comments of Professor Ainun Nishat

The Agricultural Development Corporation ordinance 1961, section 13(1) says that the Corporation transport, procure, store, and distribute to agriculturists of essential supplies such as seed, fertilizers, pesticides, and agricultural machineries and implement sustainable developments in agricultural sector. Under section 16, the Corporation will construct embankment, channel, drainage, dam etc. in any area for the purposes of agricultural development.

But in this ordinance there is no guidelines for environment impact assessment and environmental consequence due to construction of embankment, dam etc. So, Agricultural Development Corporation Ordinance is only appropriate for agriculture development but it has adverse impacts on others elements of environment.

The Agricultural Pesticides Ordinance 1971, section 3(h) says that purpose of this ordinance is to use pesticides in agriculture sectors for development of agriculture and its production. However, this ordinance does not take into consideration its adverse impacts on environment especially aquatic biodiversity because pesticides pollute the surrounding water bodies that are the habitats of fish. So, ultimately it destroys fish and fish habitats.

So, how is it possible to reduce the use of chemical fertilizer, pesticides in agriculture sector and save our environment and aquatic biodiversity especially fresh water fishes and fish habitats? The civil society can delivered only good speech. DDT use should be totally prohibited in agriculture sector. As a result it degrades aquatic biodiversity. So, concern authority should be alert and enforce law properly. On the other hand, chemical fertilizer and pesticides are used in agriculture field especially for rice cultivation without assessment of environmental impact. These chemical fertilizers and pesticides are flow into the rivers, beels, haors, and baors water. As a result it degrades aquatic environment and abolishes fresh water fish species. So, agriculture department or concern authority would plan and compile environmentalism laws and policies and use pesticides by controlling process.

2. Comments of Dr. Mohd. Abdul Matin

Abundant pesticides and chemical fertilizer are used in crop fields for increasing agriculture production and it goes and mix with river, canal, beel, pond, and wetland water. It is anti-environmental activities but Government has no law and policy to control and should encourage compost use in crops field. Consequently, it will degrade aquatic biodiversity and demolish fresh water fish day by day. For this reason, last of all it will degrade total environmental system. So, it is a great threat to human existence. It has occurred for the cause of policy conflict of Government.

3. Comments of Professor Harun-or-Rashid

Agriculture department uses abundantly chemical fertilizer and pesticides in crops field to kill prejudicial worms and insects for increasing agriculture production. But it kills other useful worms and insects such as frog, fly, mosquito and degrades aquatic biodiversity. As a result we got about 40% foods from wetland, rivers, and beels at one time but now it reduces to about 0% at this moment. So, agriculture department will run their development works by planning that not hazards on environment.

4. Comments of Dr. M. Shamsul Alam

Indiscriminate use of insecticide and pesticides are not at all for good environment and aquatic biodiversity and even for agriculture. It is not possible to save our environment using chemical fertilizer, pesticides in the present level in agriculture sector. So, it is very important to amend the existing laws and policies to save our environment and aquatic biodiversity especially fresh water fish and fish habitat

5. Comments of Syeda Rizwana Hasan

Agriculture laws and policies are noticeably responsible for degrading aquatic biodiversity. There are many loopholes that degrade total environmental system. So, for the sake of our own existence and prosperous future, we need appropriate measures in this regard.

6. Comments of Mahabub Siddiqui

There are no proper guidelines for environment impact assessment in the present laws and as a consequence environmental degradation and loss of aquatic biodiversity etc. are occurring. So, concerned policies are to be changed immediately.

Issue 10: Impact of Jalmahal Management Policy 2009 on Aquatic Biodiversity

1. Comments of Professor Ainun Nishat

Jalmahal Management policy 2009, section 22 says that wetlands such as, river, haor, khal etc. are for irrigation the land that does not obstruct during the irrigation season. It permits unlimited use of wetlands water for irrigation. But it does not consider adverse impact on aquatic biodiversity especially fresh water fish. According to Civil society of Bangladesh it is not a suitable decision because it destroys surrounding environment. Use of huge amount of water from Jalmahal to produce more agriculture production in dry season is also harmful to environment. It dries up wetlands and destroys aquatic biodiversity especially fresh water fishes. So, concerned authority should control population.

2. Comments of Dr. Mohd. Abdul Matin

According to Jalmahal Management policy 2009, agriculture department can use huge water from any Jalmahal for irrigation in agriculture field. It is a wrong policy of Government. Because, Jalmahal is a main source of fresh water fishes in our country. So, in case of huge water use for irrigation in agriculture field, Jalmahal will be certainly degraded and in that situation it is impossible to protect aquatic biodiversity and surrounding environment.

3. Comments of Professor Harun-or-Rashid

Use of water from wetland in agriculture field by planning is necessary and would protect wetland for good environment and aquatic biodiversity. We cannot avoid technology but development activities would be implemented according to accurate plan that it does not exert pressure on river.

4. Comments of Dr. M. Shamsul Alam

Wetland water would be used in agriculture sector for irrigation but in a planned way that it does not destroy aquatic environment.

5. Comments of Syeda Rizwana Hasan

In this regard, I think government should compile such kind of laws and policies that manke balance of wetland water use for irrigation and fish cultivation. In case of necessary help in this regard government would take advice from experts to solve this problem.

6. Comments of Mahabub Siddiqui

Wetland would be protected for aquatic biodiversity conservtion especially fresh water fish habitats and concern authority would change law and policy if necessary.

Issue 11: Impact of Bangladesh Water Act 2013 on Environment

1. Comments of Professor Ainun Nishat

Section 24 of Bangladesh water Act 2013 permits to divert normal flow of river through establishing dam or embankment or filling up water courses with due permission from concern authority can degrade fish habitats and breeding centers. River is a natural safe habitat for fish. Section 25 of this Act permits to fill up or close more than one branch of river in order to enhance water flow of main rivers or disintegration from Environment Conservation Act 1995. So the Act is inappropriate and insufficient to conserve and develop wetlands and aquatic biodiversity because environment will be hazardous if any branches of river is filled up or closed for any purposes in that area. Sub-section (1) of section 27 permits to construct flood control embankments in anywhere on the bank of rivers without Environment impact assessment during construction of embankment. Sub-section, 2(a) of section 27 allows building any residential areas, houses and other structures on the flood control embankment which also may causes to pollute river water due to household wastes of the inhabitant of that embankment. Consequently it will result degradation of fresh water fishes and fish habitats and other aquatic resources. People from different strata including scholars and civil societies in Bangladesh are very much concerned about this sort of laws and policies, and sometimes they bring out their opinion very clearly and their opinion is “there is no option to close or filled up any branch of river and we should not build any embankment in the bank of the river for flood control because it has already been proved that flood control concept is wrong. No need to control flood because it is a natural

phenomena. So, we should not destroy wetlands and waterbodies for the sake of fresh water fishes and other valuable aquatic resources in the name flood control.

2. Comments of Dr. Mohd. Abdul Matin

River is the heart of Bangladesh. Human being, different flora and fauna depend on river systems and other water bodies and as we know river systems and other water bodies maintain sound environment for all living beings. So it is said that no option to close any branch of river and make bind in the river way. We should not construct embankments on the bank of the river for flood control which has already created adverse impacts on natural environmental systems especially aquatic ecosystem depletion and biodiversity degradation. Therefore, concern authority must change Bangladesh Water Act 2013 in such a manner that does not create threat to our environment and aquatic biodiversity.

3. Comments of Professor Harun-or-Rashid

Bangladesh Water Act 2013 permits to divert normal flow of river through establishing dam or embankment taking permission from proper authority that degrade fish habitats and breeding centers. River is a safe natural habitat for fish and section 25 of this Act permits to fill up or close branches of rivers to increase water flow of main rivers. So this act is not appropriate to conserve and develop wetlands and aquatic biodiversity because environment is dependent on branches of rivers. Sub-section (1) of section 27 permits to construct flood control embankment in anywhere even on the bank of river that is not conducive for environment.

4. Comments of Dr. M. Shamsul Alam

Concern authority can close any branch of rivers or changes its water courses according to the Water Act 2013; this is not an efficient decision because rivers born naturally and flow naturally and keep environment sound. So if we control river in that way, it is a wrong policy that is destroying natural environmental systems. Therefore, everybody should have knowledge about environment so that they can raise voice against such policies and activities.

5. Comments of Syeda Rizwana Hasan

There is no country in the world created obstruction in the river flows or filled up or change river flows or closed any branches of river or build embankment on the bank of the river to control flood. Absolutely it will go against our natural environmental systems. So, concerned authority must amend this Act.

6. Comments of Mahabub Siddiqui

River banks erode naturally in rainy season and another bank accretes naturally. So, no need to close any branch of river or construct any embankment to control Watercourse of river or for flood control. In that case government should take appropriate measures so that any human settlements do not make on riverbank or in flood zone area.

Issue 12: Activities of Water Development Board

1. Comments of Professor Ainun Nishat

Water development board is the main enemy of water bodies wetlands and river systems in our country because it constructs embankments, sluice gates, rubber dams etc. in river, wetland, beel, haor etc. to control water flow for protecting human being and animal, land erosion from flood. For this reason water cannot access adjacent lands and wetlands of river during the rainy season. As a result agricultural land loss fertility and face sufficient water scarcity and also increases agriculture production cost. On the other hand, fish could not migrate in the period of breeding for such kind of embankments, sluice gates and rubber dams. Scholars, academicians, civil societies of Bangladesh are raising voices for elimination of such anti-environmental activities. Their opinion is "Water development board is completely responsible for destroying river systems, wetlands and water bodies of our country because they failed to formulate proper and environment friendly plan, implemented projects without considering the environmental damages, did not properly monitor their work whether it create adverse impact on environment etc., thus aquatic resources specially fresh water fish biodiversity is degraded.

2. Comments of Dr. Mohd. Abdul Matin

Main function of Water Development Board is to maintain and develop water systems countrywide. For this reason, it would construct sluice gates and embankments on the rivers which is entirely anti-environment activity. For example water development board created sluice gates on the Boral river at Chorghat Upazila of Rajshahi district to control and increase water level in the Padma for supply of water in Ganga Kopatakh irrigation project but in reality we observed this Ganga Kopatakh irrigation project failed to meet up target as planned. Contrarily, this sluice gate has made Boral as dead river and surrounding environment has degraded. On the other hand, it became permanent water logged area in Bhabodaha beel under Jessore and Sathkhira districts. Thus it is said that this is a live example of construction of unplanned embankment by water development board where people live there with distress

and poverty. For construction of embankment on the river bank for flood control which disintegrates adjacent wetlands, agricultural lands, beels and other water bodies with river systems which is inappropriate and unsustainable policy. Consequently, it would decrease land fertility, degrades wetlands, abolish environment and especially indigenous fish species. So, Government should change these laws and policies of water development board for the interest of environmental development.

3. Comments of Professor Harun-or-Rashid

Water Development Board implements their projects without proper planning considering environmental hazards and does not conduct prior Environmental impact assessment to measure adverse impacts on environment in future. Corruptions in Water Development Board are another issue for environmental degradation. Sometimes it is observed conflicting issues in the policies planning of Water Development Board. So, laws and policies regarding Water Development Board should be changed.

4. Comments of Dr. M. Shamsul Alam

Water development board is directly destroying environment by building embankments and sluice gates on the river in the name of controlling flood. Land height increases by sediment due to flooding in every year if there is no embankment in our country. Consequently, our agricultural land would be fertile by sediment for flood and it is impeded by embankment. Not only that, fish come to shallow water for breeding but they could not come for such kind of embankment. For this reason our indigenous fish species reduce gradually and we dependent on alien fish species.

5. Comments of Syeda Rizwana Hasan

Our fresh water fishes and fish habitats are destroyed for activities of water development board for long time and still it is going on. So, to stop it file cases against water development board officials right now.

6. Comments of Mahabub Siddiqui

Water development board destroys many natural fish- breeding centers of our country to build embankment in the bank of the river and sluice gates in the middle or river mouths. For example, we can cite Boral river, Atrai river and Nagor river. Because, fishes could not migrate from the rivers to natural for breeding centers of the adjacent areas for such kind of sluice gates and embankments on the river. For this reason, degradation our aquatic resources especially fresh water fish are taking place.

Issue 13: Activities of Roads and Highway Department

1. Comments of Professor Ainun Nishat

To construct roads, bridges and culverts on the river or through the beel, Roads and High ways department must discuss with the fisheries department that it does not create any disturbances to aquatic biodiversity. In fact, there is no combination in inter-departmental works in our country. For this reason, it creates hazard in surrounding environment. Civil societies of Bangladesh disseminate very intelligible opinion about this matter. "Roads and High Ways department should discuss to the fisheries department and specialists and took advice from environmental specialist to construct roads, culverts and bridges for development of communication on the river or through the beel. But, Local Government and Engineering division could not discuss with the concern departments and could not maintain sufficient space for migration of fishes from one place to another at the time of construct roads, culverts and bridges in local area. Because, Local Government and Engineering Division constructs roads, culverts and bridges in rural areas in the middle of the beel as per desire of local political leaders. As a result, it destroys wetlands and aquatic biodiversity especially fresh water fishes.

2. Comments of Dr. Mohd. Abdul Matin

Roads and High ways department construct roads, culverts and bridges for communication development in countrywide. In that case they implement projects by government plan and took advice from environmental and fisheries specialist. But Local Government and Engineering Division is a dangerous department for environment and aquatic biodiversity. It constructs roads, culverts and bridges in rural areas inside the bill, river and engineers of this department would not follow environmental law and policy. Consequently, it has adverse impact on river, beel, aquatic biodiversity and total environment system and it might collapse in the future. So, it is liable for Government law and policy conflict.

3. Comments of Professor Harun-or Rashid

"To construct roads, bridges, culverts and any other structures on the river or through the beel Roads and High Ways Department should discuss it with the fisheries department to the interest of aquatic environment.

4. Comments of Dr. M. Shamsul Alam

Roads and High ways department destroy environment by building unplanned roads for communication development inside the beels, rivers because no

assessment of environmental impact at the time of construction is done. Not only could that fish not migrate from one place to another for such kind of roads. As a result, our indigenous fishes reduce day by day.

5. Comments of Syeda Rizwana Hasan

Roads and high ways department should discuss to the fisheries department to construct roads, culverts and bridges. For fish's migration conserve aquatic biodiversity and control such kind of construction.

6. Comments of Mahabub Siddiqui

Roads and High ways department should implement their development works discussing with the fisheries department to avoid threats inflicted to aquatic biodiversity and wetland. But, it does not follow this and destroy wetland freely.

Issue 14: Impacts of Fisheries Departments' Alien Development Projects

1. Comments of Professor Ainun Nishat

Department Fisheries under Ministry of Fisheries & Livestock implemented many projects country wide to enhance indigenous fish production, development and conservation. For example, 1. 'Chalan Beel Fisheries Development Project', 2. Greater Pabna (Pabna-Sirajgonj) Fisheries Development Project, 3. Greater Faridpur Fisheries Development Project etc. Although, it is assumed that there were much potential to conserve and develop the aquatic biodiversity and to achieve the aims of those projects but they failed to develop indigenous fishes through implementing those projects due to improper planning and implementation. Activities of these projects were not suitable for indigenous fish rather it was favorable to fast growing alien fish species that is a great threat to our fresh water fish species. Through these projects concerned authority encouraged to culture high yield varieties of alien fish species for more production instead of local fresh water fish species. Consequently there was little opportunity to culture and conserve indigenous fish species under these projects and in addition those alien fish species are harmful to local fishes. In this regards, scholars, different civil societies are playing important role against such project which emphasise only to enhance production not on the development and conservation of our fresh water fish species. So government should amend the existing laws and policies towards fresh water fish friendly.

2. Comments of Dr. Mohd. Abdul Matin

Fisheries department implement some projects for protection of indigenous fish species in different parts of the country but they cultivated high yield varieties of alien fishes such as, silver carp, grass carp etc. Department of Fisheries has

implemented those projects to earn illegal money by corruption because it has option to import alien fish spawn from abroad. It has occurred due to policy conflict among the laws and policies related to fishery development and lack of good governance, lack of accountability, lack of transparency and environmental especially lack of awareness about aquatic environment.

3. Comments of Professor Harun-or-Rashid

Department of Fisheries is aiming at to enhance fish production and to develop and conserve indigenous fish species. As we know Department of Fisheries has implemented about 12 projects countrywide for increasing fish production though their main objective of those projects is to protect and conserve indigenous fish species but instead of this they introduce fast growing high yield varieties of alien fish species for more production. It is to be said that this is one kind of fraud to the nation and country.

4. Comments of Dr. M. Shamsul Alam

Department of Fisheries implemented many projects across the country to enhance production of indigenous fish. For example, 1. 'Chalan Beel Fisheries Development Project', 2. Greater Pabna (Pabna-Sirajgonj) Fisheries Development Project, 3. Greater Faridpur Fisheries Development Project etc. But, all these projects have failed to develop indigenous fishes due to improper planning and implementation. Activities of these projects were not suitable for indigenous fish. Through these projects concerned authority encouraged to culture high yield varieties of alien fish species for more production instead of local fresh water fish species.

5. Comments of Syeda Rizwana Hasan

Implementation of such projects for fishery development by Department of Fisheries seems most abominable affair.

6. Comments of Mahabub Siddiqui

Fisheries department implement some projects for protection of indigenous fish species in different parts of the country but they cultivate high yield varieties of alien fish such as, silver carp, grass carp etc. It is not fair and unethical.

From above discussion we realize that there exist some conflict among inter ministries for developing work and it should be removed as soon as possible for the interest of nation and country. In cause of development activities there exists some inter-ministry conflict. It is a bad culture in our country. It has two causes i. e. 1. Lack of knowledge and 2. Rigidity. Therefore we overcome these problems

that acquire sufficient knowledge. This conflict may be called politics. Code of conduct must be followed to remove this conflict. To implement any development activities inter ministry are being conflicted for the cause of Government law and policy conflict. It should be removed for good governance. Policy makers should follow code of conduct to remove policy conflict. "In cause of development activities inter-ministry have some conflict. Because there is no combination in inter ministry activities and they are not hearty each other. Code of conduct must be needed to remove such kind of conflict from ministry. To remove inter ministry conflict at first amendment our law and policy and then coordination attitude show every ministry each other. In that case ethical guideline or code of conduct may be solution of this problem. To mutual inter ministry conflict for developing work to protect fisherman rights; aquatic biodiversity and conserve environment ethical guideline or code of conduct must be followed. Ethical guideline must be need to mutual inter ministry conflict.

6.3 Conclusion

In recent years environment of Bangladesh has undergone serious deterioration. In many respect the situation has reached in crisis proportions of several factors which make Bangladesh particularly vulnerable to environment damage. However, environmental degrade is not inevitable. The experience of several developing countries has shown that it is possible to achieve economic growth without destroying the environment. There are many encouraging signs several civic, voluntary organizations have emerged and are working to protect of environment as the goal. There have been specific environmental issue based movements too. These initiatives and movements have already produced some positive results. It is now necessary to build on these successes enlist new forces and build up a strong social movement for protecting Bangladesh's environment. So, environmental issues need to be dealt with the participation of all concerned with the government and citizens at the relevant levels. Moreover, unfortunately, it is almost absent in Bangladesh. However, the civil societies of Bangladesh most often are pressing the government to adopt unsustainable policy, law and policy conflict that may call environmental politics, which causes serious degradation to the environment in Bangladesh. The Government of Bangladesh has taken some policies to protect environment but most of which are not favorable to environmental development, rather cause deterioration in the environment.

Chapter-7

Summary of Findings, Suggestions and Conclusions

7.1 Summary of Findings

1. There are so many necessary things associated with irrigation and agricultural development but some important issues such as environmental protection, water reservoir, aquatic biodiversity conservation, pollution control of etc., were not included in the Canal Act 1864, the Irrigation Act 1876, the Agricultural and Sanitary Improvement Act 1920, the Tanks Improvement Act 1939, the Embankment and Drainage Act 1952, Bangladesh Irrigation Water Rate Ordinance 1983.
2. The Private Fisheries Protection Act 1889, the Protection and Conservation of Fish Act 1950, the Government Fisheries (Protection) Ordinance 1959, the Bangladesh Fisheries Development Corporation Act 1973, the Fisheries Research Institute Ordinance 1984, the Protection and Conservation of Fish Rules 1985 are very important laws and polices to develop, conserve and production of fish and fishery resources in our country but there are no reguratory or policy options to maintain aquatic environment, conservation of aquatic biodiversity and ecology appropriately as deem to be sustainable.
3. The Agricultural Development Corporation Ordinance 1961, the Agricultural Pesticides Ordinance 1971 enacted only for developing agriculture and its production that permits to use pesticides and chemical fertilizers without assessment of any environmental impact specially on fresh water fisheries and fish habitats.
4. There are no sufficient and appropriate provisions in fisheriy sector of Environment Policy and Environmental Action Plan 1992 and Environmental Conservation Act 1995 to control the pollution of wetlands and waterbodies from pesticides and chemical fertilizers use in agricutural activities and that also degrade the wetlands and wetland ecosystems and biodiversity.
5. It is found that Jalmahal Management Policy 2009 permits to culture the high yield variety of alien fish species in open waterbodies which is assumed as one of the main causes of decreasing fresh water fish production and also the great threat to the indigenou fish species.

6. It is observed in Bangladesh Water Act 2013 that some provisions of this Act would be the cause of fish and fish habitat degradation because this Act permits to fill up river, divert of river flow, construction of flood control embankments, dams, and human settlement on filled up river bank, embankments and dams.

7. Some important provisions of Environmental Action Plan 1992, such as Agriculture, Industries, Health and Sanitation, Fuel and Energy, Water Resource Development, Flood control and Irrigation, Land, Forest, Wild life and Biodiversity, Fish and Livestock Resources, Food, Communication and Transport, Housing and Urban Development, Population, Coastal and Marine Environment, Educational and Mass Awareness, etc., show the guidelines about development of these respective sectors, however, it is pre-requisite to conduct Environmental Impact Assessment before implementing any development project and activities in that development project regarding biodiversity conservation and development whether it is terrestrial or aquatic, regrettably there is no provision of EIA in the Environmental Action Plan 1992. Though later on government introduce EIA but it is not obligatory to all sectors mentioned in the Environmental Action Plan 1992. For this reason, biodiversity and ecology may degrade in any areas where development project will implement.

8. Government has taken some fishery development project in different parts of the country to develop fresh water fishery. Among them 8 projects are examined and analyzed in this study to find out the hindrance faced during implementing the projects and tried to find out the contradictory and inconsistency issues of project activities concerning indigenous fishery, fish habitats, and aquatic biodiversity and ecology. It is found from reviewing the projects that these projects did not consider the conservation of indigenous fresh water fishes because project encouraged to culture alien fish instead of indigenous fish in the wetland and open waterbodies of project command areas which seems not friendly to local fish species. Moreover, it is found from the objectives and activities of the implented projects that environment developed for fishery development in various wetland and open waterbodies are not suitable for indigenous fish species rather it is for alien fast growing carp species, there are no objectives and activities for developing and conserving aquatic environment, aquatic plants, fish habitat, pollution control from agriculture production activities, control of pesticides in agriculture field, mitigation measure on impact of embankment and water dam, irrigation etc.

9. Environment of Bangladesh has degraded in every sector due to water pollution, air pollution, sound pollution, pesticides use in agriculture field; destroy forest, huge population, unplanned project implementation, ground water dependency. For this reason it has adverse impact on ecosystem and biodiversity. Wetland and waterbody is the most important element to protect environment and biodiversity. But at present the state of wetlands and waterbodies is the most regrettable condition for human interferences. In this regards Government of Bangladesh passed different laws and policies which are seems to be insufficient and inappropriate. On the other hand, environment especially aquatic environment is degraded due to such inefficient and inappropriate laws and policies and there are policy conflicts among these laws and policies as well. So at present ecosystem and biodiversity of wetlands as well as the wetlands are under threat. In this study it is also observed that concern authority build embankments, dams and sluice gate as flood control measurements and water resources development which has already proved the unsustainability.

In other perception, it is said that law and policy conflicts and inter-ministry conflicts is the most important factor of degrading environment. So, we should take initiatives to resolve these conflicts creating from laws and policies and inter-ministry conflicts for sound environment and biodiversity. In this case policy makers should follow code of conduct.

7.2 Suggestions

1. There are some laws and policies about environmental protection in our country in which some laws and policies are backdated and insufficient that should be amended for maintaining sustainable environment.
2. In this study we analyze some agriculture and water related laws and policies which are not appropriate to the environment and aquatic biodiversity and those should be amended immediately.
3. We discuss laws and policies regarding fisheries which are not sufficient to protect aquatic environment and biodiversity especially fresh water fishery. So, Government should take initiatives to change these laws and policies for conserving aquatic biodiversity.
4. The act drafted in 2012 and come into enforcement as a Law in 2013. The goal of this act is to give effect to Bangladesh Water Policy, 1999 for facilitating and ensuring integrated, equitable, and sustainable management, development, and conservation of aquatic flora and fauna especially fresh

water fishery. It is observed that Bangladesh Water Act, 2013 has some provisions which would be the cause of fish and fish habitats degradation because Water Act 2013 permits to fill up wetlands even in some cases river divert of river flow, construction of flood control embankment and resident building on the river bank etc. So, Government should take necessary steps to amend this act for conserving fresh water fish habitat.

5. Agriculture sector of Action Plan 1992 shows that pesticides and fertilizer can be used to grow more crops but it does not provide any option about impacts of pesticides and fertilizer on wetlands and waterbodies which results fish degradation in nearby wetlands. So, concern authority should take necessary steps to amend this sector immediately for ensuring sound environment.

6. In this study, it is seen that the industry sector of Action Plan 1992 is harmful for our environment and aquatic biodiversity. So, concern authority should take initiatives to amend this sector to protect aquatic environment.

7. According to fish sector of Environmental Action Plan 1992, river does not treat as wetland. It is a wrong concept. So, Government should take necessary steps to amend this section.

8. According to communication and Transport sector of Action Plan 1992 that concern authority build roads and high ways everywhere in the country without assessment of environmental impact on surrounding areas. So, concern authority should follow the environmental laws and policies properly during the implementation of their projects.

9. Government has taken some fishery development projects in different parts of the country to increase fish production and protect indigenous fish. But it is observed that those projects have some drawbacks which have adverse impact on aquatic biodiversity and fresh water fish habitats. Government should be careful about further implementing of such kind fishery development projects regarding degradation of aquatic environment and fresh water fishery.

10. Conflicts arise from laws and policies are one of the main causes of environmental degradation. So, government should take necessary steps to eliminate such type of conflicts.

11. Some laws and policies permit use huge amount of water for irrigation in agriculture field from wetlands and waterbodies. As a result it degrades our fresh water fish and fish habitats. So, Government should change such type of laws and policies.

12. Law and policy makers are not efficient in our country. So, they have to earn huge knowledge about laws and policies making techniques so that it does not create any conflicts.

13. Laws and policies makers should follow code of conduct during the making of laws and policies.

7.3 Suggestions for Further Research

The term 'Research' means search repeatedly and step by step. It is very tough to find out any new facts through single research. From this perspective, there are some suggestions for further research regarding this issue. We attained this topic and completed the research work in specific view point. But there are some other view points to conduct in different research work in future regarding development and conservation of aquatic flora and fauna emphasizing fresh water fisheries in Bangladesh.

7.4 Conclusion

In conclusion it is observed that environment has been degraded in every sector of our country. Various causes are liable for environmental degradation such as: 1. Population, 2. Urbanization, 3. Industrialization, 4. Corruption, 5. Lack of planning. There are no natural causes that degrade environment. All causes are created by human being, which are the causes of environmental degradation. Because, human beings destroy rivers, ponds, khals, beels, lakes etc. and all kinds of wetlands with different intentions and purposes which has adverse impact on environment especially aquatic biodiversity and ecology. There are insufficient and inappropriate laws and policies and there exists conflicts among these relevant laws and policies through which the environment could not be developed and protected. So, Government should take initiatives to resolve these conflicts among the laws and policies and inter-ministrial /inter-departmental as well. In this regard, Government should take advice from environmental specialists to formulate appropriate laws and policies for sustainable environmental development especially aquatic environment and biodiversity. Strong role by Government and non-government organization to protect aquatic biodiversity are also needed.

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Appendix

Questionnaire for the proposed research

Environmental Policies and Ethical Issues in Aquatic Biodiversity Conservation in Bangladesh Questionnaire for the Proposed Research

Questionnaire for the proposed research

(আলোচ্য প্রশ্নমালা)

- ১) বাংলাদেশের পরিবেশের কোন ক্ষেত্রটি সবচেয়ে বেশী ক্ষতিগ্রস্ত হচ্ছে এবং কেন হচ্ছে, এ সম্পর্কে আপনার অভিমত বিস্তারিত বলুন।
- ২) কি কি কারণে বাংলাদেশের পরিবেশ ক্ষতিগ্রস্ত হয়েছে এবং এখনও হচ্ছে, এ সম্পর্কে বিস্তারিত বলুন।
- ৩) বিভিন্ন কারণগুলির মধ্যে প্রাকৃতিক কারণসমূহ বেশী দায়ী নাকি মানব সৃষ্ট কারণসমূহ বেশী দায়ী, বুঝিয়ে বলুন।
- ৪) মানব সৃষ্ট কারণসমূহ যদি বেশী দায়ী হয়, তাহলে এর জন্য কি পরিবেশ রক্ষার জন্য মানব সৃষ্ট যে আইন ও নীতিমালা বিদ্যমান সেগুলোর মধ্যকার পারস্পরিক দ্বন্দকে দায়ী করা যায় কি? বিস্তারিত বলুন।
- ৫) নীতি নির্ধারকগণ পরিবেশ রক্ষার জন্য যে আইন ও নীতি প্রণয়ন করেন সেগুলোর মধ্যে যে দ্বন্দ বিদ্যমান, যার দরুন পরিবেশ ক্ষতিগ্রস্ত হচ্ছে, তারপরও সেগুলো সংশোধন করা হয়নি এবং নতুন যে আইন প্রণয়ন করা হচ্ছে সেখানেও একই রকম দ্বন্দ লক্ষ্য করা যায়, যেমন: ১. The Canals Act, 1864, এর ৩নং অনুচ্ছেদ অনুযায়ী কর্তৃপক্ষ সেচ কাজের জন্য বাঁধ নির্মাণের উদ্দেশ্যে পানি প্রবাহ বন্ধ করে দিতে পারবে, এখানে পরিবেশের ক্ষতিকর দিকটি বিবেচনা করা হয়নি। ২. The Irrigation Act, 1876 এর (১) অনুচ্ছেদ অনুযায়ী কর্তৃপক্ষ সেচ ও বন্যা নিয়ন্ত্রণের জন্য যে কোন জায়গায় বাঁধ নির্মাণ করতে পারবে, যা পরিবেশ সম্মত নয়। ৩. The Agricultural Pesticides Ordinance, 1971, এর অনুচ্ছেদ ৩ অনুযায়ী কৃষিক্ষেত্রে পর্যাপ্ত পরিমাণ কীটনাশক ব্যবহারের অনুমতি প্রদান করা হয়েছে, কিন্তু পরিবেশের ওপর কীটনাশক এর ক্ষতিকর প্রভাব সম্পর্কে কোন দিকনির্দেশনা দেয়া হয়নি। ৪. Jalmahal Management Policy, 2009 এর ২২নং অনুচ্ছেদ অনুযায়ী জলমহলের পানি সেচ কাজে ব্যবহার করা যাবে সীমাহীনভাবে, কিন্তু জলমহলের অন্যান্য প্রাণী বিশেষ করে জলজ প্রাণীর ওপর ক্ষতিকর প্রভাব সম্পর্কে তেমন কিছু বলা হয়নি। এই সমস্ত আইন ও নীতির মধ্যে যে দ্বন্দ, এ বিষয়ে বিস্তারিত বলুন।
- ৬) পরিবেশ অবক্ষয়ের জন্য এই সমস্ত পরিবেশ রাজনীতি কতটুকু দায়ী।
- ৭) পরিবেশ অবক্ষয় রোধ করার জন্য যে আইন ও নীতি বিদ্যমান তা কি যথেষ্ট?
- ৮) পরিবেশ অবক্ষয় রোধ করার জন্য যতগুলো আইন ও নীতি বিদ্যমান সেগুলোর মধ্যে সমন্বয় আছে কি?
- ৯) পরিবেশ সংরক্ষণ আইন-১৯৯৫ এর ধারা ৬ এর উপধারা ৫ অনুযায়ী জাতীয় স্বার্থে যে কোন জলধারা ভরাট করা যাবে বা এর আকার পরিবর্তন করা যাবে এ ক্ষেত্রে পরিবেশের কোন উপাদানটি বিলুপ্ত হওয়ার সম্ভাবনা রয়েছে এ সম্পর্কে আপনার অভিমত কি ?
- ১০) পরিবেশ সংরক্ষণ আইন-১৯৯৫ এর ধারা ১৮ অনুযায়ী সরকার, অধিদপ্তরের মহাপরিচালক এবং কোন কর্মচারীর বিরুদ্ধে পরিবেশ অবক্ষয় বিষয়ে কোন আইনগত ব্যবস্থা গ্রহণ করা যাবেনা এ ব্যাপারে আপনার অভিমত কি ?
- ১১) বাংলাদেশের জলাভূমির অবক্ষয় হওয়ার জন্য কি কি কারণ দায়ী?

- ১২) জলজ জীববৈচিত্র হ্রমকির মুখে পড়ার জন্য কি কি কারণ দায়ী?
- ১৩) আপনি কি মনে করেন জলাভূমি ও জলজ প্রাণীর জীববৈচিত্র সংরক্ষণে পর্যাপ্ত আইন ও নীতিমালা আছে?
- ১৪) জলাভূমি ও জলজ প্রাণীর জীববৈচিত্র সংরক্ষণে প্রণীত আইন ও নীতিমালার মধ্যে সমন্বয় কতটুকু এবং এগুলোর দ্বন্দ্ব কেমন এবং ফলাফল কি হচ্ছে?
- ১৫) কৃষি বিভাগ ও সম্পর্কিত অন্যান্য বিভাগসমূহের উন্নয়ন কাজ নিজেরাই করে, ফলে কৃষির উন্নয়ন হলেও মৎস্য সম্পদের ক্ষতি হচ্ছে এ ব্যাপারে আপনার অভিমত কি?
- ১৬) বাংলাদেশের কৃষি আইন যেমন, The Canals Act, 1864, এর ৩নং অনুচ্ছেদ অনুযায়ী কর্তৃপক্ষ নদী, খাল, নালা যেখানে পাকৃতিকভাবে পানি জমা থাকে সেখানে বাঁধ নির্মাণ করার সময় প্রয়োজনবোধে পানি প্রবাহ বন্ধ করার কথা বলা হয়েছে, যদি পানি প্রবাহ বন্ধ করা হয় তাহলে জলজ প্রাণী বিশেষ করে মাছের অবস্থাটা কি হবে?
- ১৭) শুকনো মৌসুমে সেচ কাজে ভূগর্ভস্থ পানি পর্যাপ্ত পরিমাণ ব্যবহার করা হয় যার দরুন ভূ-উপরিস্থ পানি হাস পায় যার ফলে মাছ বিলুপ্ত হচ্ছে এ ব্যাপারে আপনার অভিমত কি?
- ১৮) The Irrigation Act, 1876 এর (১) অনুচ্ছেদ ৪ অনুযায়ী সরকার সেচ কাজ ও বন্যা নিয়ন্ত্রণের জন্য বাঁধ নির্মাণের অনুমতি প্রদান করবে, কিন্তু এখানে পারিপাশ্বিক অবস্থা এখানে বিবেচনা করা হয়নি এব্যাপারে আপনার অভিমত কি? (২) অনুচ্ছেদ ৬ এবং ৭ অনুযায়ী কর্তৃপক্ষ সেচ কাজের প্রয়োজনে যে কোন পানি প্রবাহ বন্ধ করে দিতে পারবে, তাহলে কি জলজ প্রাণীর বেঁচে থাকার জন্য যে পরিবেশ দরকার তা রক্ষা করা সম্ভব হবে?
- ১৯) The Tanks Improvement Act, 1939 এর অনুচ্ছেদ ৭(২) অনুযায়ী সরকার Tanks বা পুকুর সমূহের উন্নয়ন সাধন করে সেখানে পানি সংরক্ষণের ব্যবস্থা করবে শুধু সেচ কাজে ব্যবহার করার জন্য, অর্থাৎ পুকুর সমূহ মাছ চাষে ব্যবহার করা যাবেনা এ বিষয়ে আপনার অভিমত কি?
- ২০) The Embankment and Drainage Act, 1952 এর অনুচ্ছেদ ৪(১) ও(২) এবং ৩৭ ও ৩৮ অনুযায়ী পানি সংরক্ষণ, পানির প্রবাহ পরিবর্তন, বন্য নিয়ন্ত্রণ ও ভূমি ক্ষয় রোধ করার জন্য বাঁধ নির্মাণের সময় এবং পরে পরিবেশের ওপর কি ক্ষতিকর প্রভাব পড়বে সে বিষয়ে কোন দিক নির্দেশনা নেই অথচ পরিবেশ সংরক্ষণ আইন ১৯৯৫ অনুযায়ী যে কোন স্থাপনা নির্মাণের সময় পরিবেশের ক্ষতিকর দিক বিবেচনা করে সে বিষয়ে আগে উদ্যোগ নিতে হবে, এই দুই আইনের যে দ্বন্দ্ব বিদ্যমান সে বিষয়ে আপনার অভিমত কি এবং এর জন্য জলজ প্রাণী বিশেষ করে মাছের ওপর কি ক্ষতিকর প্রভাব পড়বে?
- ২১) The Agricultural Development Corporation Ordinance, 1961 এর অনুচ্ছেদ ১৩ ও ১৬ অনুযায়ী কৃষি উন্নয়ন কর্পোরেশন কৃষির উন্নতির জন্য প্রয়োজনীয় রাসায়নিক সার, কীটনাশক সরবরাহ করবে এবং যে কোন জায়গায় বাঁধ নির্মাণ করতে পারবে, কিন্তু এখানে পরিবেশের ওপর ক্ষতিকর কি প্রভাব পড়বে তা বিবেচনা করা হয়নি এবং জলজ প্রাণী কি পরিমাণ ক্ষতিগ্রস্ত হবে তা বিবেচনা করা হয়নি এ বিষয়ে আপনার অভিমত কি?
- ২২) The Agricultural Pesticides Ordinance, 1971, এর অনুচ্ছেদ ৩ অনুযায়ী কৃষিক্ষেত্রে পর্যাপ্ত পরিমাণ কীটনাশক ব্যবহারের অনুমতি প্রদান করা হয়েছে, কিন্তু পরিবেশের ওপর বিশেষ করে জলজ পরিবেশ যার অন্যতম উপাদান মাছের ওপর কীটনাশক এর ক্ষতিকর প্রভাব সম্পর্কে কোন দিকনির্দেশনা দেয়া হয়নি, এব্যাপারে আপনার অভিমত কি?
- ২৩) Jalmahal Management Policy, 2009 এর ২২নং অনুচ্ছেদ অনুযায়ী জলমহলের পানি সেচ কাজে ব্যবহার করা যাবে সীমাহীনভাবে, কিন্তু জলমহলের জলজ প্রাণী বিশেষ করে মাছের ওপর এর ক্ষতিকর প্রভাব সম্পর্কে কোন নির্দেশনা নেই এ ব্যাপারে আপনার অভিমত কি?

২৪) Bangladesh Water Act, 2012 (Draft) এর (ক) ২৪ নং অনচ্ছেদ এর ১.কর্তৃপক্ষের অনুমোদন সাপেক্ষে নদীর স্বাভাবিক গতি প্রবাহে বাধা সৃষ্টি করা বা নদী ভরাট বা নদীর গতিপথ পরিবর্তন করা যাবে এ ব্যাপারে আপনার প্রতিক্রিয়া কি? (খ) ২৫নং অনচ্ছেদ এর ২. নদীর প্রবাহ উন্নয়নের স্বার্থে/ভূমি পুনরুদ্ধারের জন্য কর্তৃপক্ষের অনুমোদন সাপেক্ষে নদ-নদীর এক বা একাধিক শাখা বন্ধ করা যাবে, এ ব্যাপারে আপনার অভিমত কি? (গ) অনচ্ছেদ ২৭ অনুযায়ী বন্যার কবল হতে জনসাধারণ কে রক্ষার জন্য নদীর তীরবর্তী যে কোন জায়গায় বাঁধ নির্মাণ করা যাবে এবং বাঁধের স্থায়িত্ব রক্ষাকল্পে বাঁধের ওপর বসতি স্থাপন করার অনুমতি প্রদান করা যাবে এ ব্যাপারে আপনার অভিমত কি?

২৫) পানি উন্নয়ন বোর্ড পানি সংরক্ষণ/নিয়ন্ত্রণ বিশেষ করে বন্যা নিয়ন্ত্রণের উদ্দেশ্যে যে কোন জায়গায় বাঁধ নির্মাণ করতে পারে, ফলশ্রুতিতে মাছ তার বংশ বিস্মারে বাঁধার সম্মুখিন হচ্ছে এবং বিলুপ্ত হচ্ছে, এ ব্যাপারে আপনার অভিমত কি?

২৬) সড়ক ও জনপথ বিভাগ যোগাযোগ ব্যবস্থার উন্নয়ন সাধন করার জন্য তাদের পরিকল্পনা অনুযায়ী রাস্তা নির্মাণ করে, এক্ষেত্রে মৎস্য বিভাগের সাথে সড়ক বিভাগের কোন রকম আলোচনার প্রয়োজন আছে কি?

২৭) বাংলাদেশে বর্তমানে মাছের উৎপাদন বৃদ্ধির জন্য অনেক প্রকল্প বাস্তবায়ন করা হচ্ছে, কিন্তু দেশীয় মাছ সংরক্ষণের জন্য প্রকল্পগুলোতে তেমন কোন নির্দেশনা নেই এ ব্যাপারে আপনার অভিমত কি?

২৮) এপর্যন্ত আলোচনার মাধ্যমে আমরা বুঝতে পারছি যে দেশের উন্নয়ন কর্মকাণ্ডকে কেন্দ্র করে আন্স মন্ত্রনালয়/আন্সবিভাগসমূহের মধ্যে একধরনের দ্বন্দ্ব বিদ্যমান যার নিরসন দরকার- আপনার মতামত বলুন।

২৯) আন্সমন্ত্রনালয়/আন্সবিভাগসমূহের মধ্যে এধরনের দ্বন্দ্বের কারণ কি কি?

৩০) আন্সমন্ত্রনালয়/আন্সবিভাগসমূহের মধ্যে এধরনের দ্বন্দ্ব নিরসনের জন্য Ethical guidelines/ Code of conduct দরকার কি না- বিস্মারিত বলুন।