EFFICACY OF LEGAL INSTITUTIONS IN PROTECTING ASSAM'S RAMSAR SITE: ASSESSING WASTE POLLUTION IN DEEPOR BEEL THROUGH THE LEGAL LENS

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Abstract

Wetlands are highly productive ecosystem and the most biologically diverse habitats on earth. In addition to this, wetlands are of critical importance for sustenance and survival of humans too, as their functionality range from climate control to flood attenuation etc. It is due to these reasons that wetlands are accredited international importance under international environmental concerns and are a relevant subject matter of serious research and analytical study. However, it happens to be a matter of grave concern that wetlands around the world are disappearing and almost on the verge of global non-existence. Same is the situation with the internationally significant Ramsar Site of Assam, the Deepor Beel, which is gasping for breath due to human interventions, rampant pollution and flouting of crucially sensitive environmental norms. The irretrievable damage in the form of pollution of the water body has endangered biodiversity, broken ecological chains and also affected local livelihood. The striking paradox however is that even after being backed by an international convention, a concrete national legal framework has not been shaped up to specifically deal with Ramsar sites. Also, the umbrella parent national and State laws, rules and regulations have not been able to address the concerns of rampant and unabated environmental pollution. This study therefore is intended to identify at the first place, the

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environmental threats pertaining to pollution the Ramsar site of Deepor Beel and then revolve around scrutinizing the efficacy of laws, institutions and practices in adhering to Ramsar Convention norms.

Key Words: Wetland, Ramsar Convention, Pollution, Deepor Beel, Protection

Introduction:

The ecosystem valuation of wetland is very important as wetlands have various functions and roles when it comes to containing environmental pollution. The multitude of functions include ground water recharge, flood control, temperature maintenance, carbon sequestration, abatement of pollution and overall climate change control.[1] As such pollution control and maintenance of ecological characteristics of wetlands should be a primary part of wetland conservation policies.[2]

The Deepor Beel in Assam, which is the lone Ramsar Site[3] in Assam, is reeling under the threat of extinction, leading to degrading ecosystem and deteriorating habitat since 2004. The dimensions of unlimited anthropogenic activities are multiple. However, one of the most prominent among them is municipal waste dumping and effluent channelling in the bed of this internationally important Wetland.

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[1] David Farrier and Linda Tucker, Wise use of wetlands under the Ramsar Convention: A challenge for meaningful implementation of international law, JOURNAL OF ENVIRONMENTAL LAW, 12(1), OXFORD UNIVERSITY PRESS, (2000).

[2] Nitin Bassia, M. Dinesh Kumarb, Anuradha Sharmac, P. Pardha-Saradhia, *Status of wetlands in India: A review of extent, ecosystem benefits, threats and management strategies*, JOURNAL OF HYDROLOGY: REGIONAL STUDIES, Volume 2, (Aug 13, 2014), https://www.sciencedirect.com/science/article/pii/S221458181400010X.

[3] The Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Feb2,1971, T.I.A.S. No.1084,996 UNTS 245.

Interactions with local inhabitants has revealed that water contamination in the Beel has reached unprecedented levels due to various reasons including draining of filth and effluents from Mora Bharalu, Bahini and Basistha through Pamohi channel, leaching of toxic water from garbage dumping yard in Boragaon and accumulation of huge chunks of thermocol and plastic waste from Beharbari fish market. As a matter of fact, Guwahati city alone produces 550 tonnes per day of solid waste per day and all of these are dumped at the Boragaon waste dumping site on a daily basis. What is more alarming is the fact that this waste is dumped without segregation at the source, as a result of which plastic waste is not separated from municipal waste. This is turn has rendered the concept of the sewage treatment plant futile, as sewage cannot be treated if not segregated at source. The end result is the Greater Adjutant Storks and rag-pickers sharing foraging spaces in the heaps of unsegregated and untreated solid waste with noxious stink infusing into the air and toxic content permeating into the water body. This scale of water pollution, along with reduction of water spread area, and blocking of water entrants and release gates of the Beel has adding more dimensions to the problem. To add on unplugged encroachment has added more dimensions to the problem of waste pollution.

In India, Wetland protection has received very less targeted attention in the national legal and administrative action grid. Lack of political will and administrative lethargy may be attributed to be the primary reasons. However legal research gap in the subject matter is also an important cause behind the void in catering to a stringent and punitive legislative framework to contain waste dumping and effluent channeling in wetlands.

Municipal Solid Waste: A Determinant factor for Wetland Pollution

Wetlands are a combination of aquatic and terrestrial ecosystem and therefore are they are susceptible to variations which occur both in the hydrological surface and terrestrial texture or composition. The wetland ecosystem can be affected by physical

conditions like soil compaction, surface hardening, change in vegetation status and other changes in the land biome, like introduction of non-native alien species stressors. Apart from these physical influences, the wetland ecology may also get drastically influenced by changes in chemical compositions, toxins, nutrients and alien nutrients and other organic accumulations. To add on, human interruption may also have drastic impact on tempering with the physio-chemical parameters of water and soil. These human induced changes may aggravate the deterioration quotient of the wetland to a point where it surpasses the tolerance level of the wetland species.

The purity quotient of the Wetland ecosystem is interrupted by a lot of interventions from point sources as a well as non-point sources. The potential contributors in terms of point sources which are more localised and established may be domestic and industrial effluents and the potential pollutant donor in terms of non-point sources may include run-offs and sewage from intensively cultivated catchment areas and urban centres.

There is a diverse range of broad factors, interferences and negative interventions that generally determine the health of a wetland system from pollution perspective. 'Municipal Solid Waste Dumping' is one major factor which can impact the pollution quotient of the wetland to a point of 'no return'. This is so because, municipal solid waste is an unsegregated mixture of wet biological waste combined with hazardous wastes like plastic waste, electronic waste, medical waste, sanitary waste, industrial waste etc. The dimension of toxicity generated from this unsegregated mixture of biological and hazardous waste dump sites and the consequential contamination to the water, land and air ecosystem in the vicinity is of unprecedented level.

Various physiochemical quotient of the wetland like water pH value, alkalinity, turbidity, electrical conductivity, water temperature, dissolved solids, dissolved micro-plastics, composition of cations and anions, saturation of sodium, potassium, nitrate, bio-carbonate, phosphates and chlorides

etc. get tempered and effected by the presence of an unscientific waste dumping site without a bio membrane.

Scientific studies in case of Deepor Beel, have revealed that areas of the Beel which were in close vicinity of the municipal garbage dumping site had abnormally high values of the chemical parameters and constituents.[4] The contents in terms of sediments, nutrients, metals, micro-plastic fibres, and consequent macro-phytes were found to be much more than the other areas of the water body which were not in close vicinity of the garbage dumping site.

Impact of Municipal Solid Waste Pollutants on Wetlands

At this junction, it is important to note that before delving into the details of the current status of Deepor Beel, it is pertinent to first understand at length, the impact of sewage, effluent and waste dumping on wetlands.

Various studies in India have revealed about irreparable loss to wetlands as a result of rampant dumping of pollutants at large scale in the vicinity of wetlands. Environmental experts have pointed out that water quality is directly proportionate to human populace and anthropogenic activities. Acknowledging the fact that India has a landscape with clusters of inhabitants on riparian banks, the impact of human intervention on waterbody in India is grave. It has been specifically pointed out in various studies that in India, more than fifty thousand (50,000) water bodies are poisoned to the extent of being considered 'dead', and the major contaminating factors being municipal waste, sewage, industrial pollution and highly cosmetic agricultural runoff.[5]

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4 Kapil, Nibedita , Water Quality Of The Urban Wetland System A Case Study With Deepor Beel, Department Of Chemistry ,GU, https://shodhganga.inflibnet.ac.in/bitstream/10603/114344/9/09_chapter%201.pdf.

5 S.N. Prasad, T.V. Ramachandra, N. Ahalya, T. Sengupta1, Alok Kumar, A.K.Tiwari,V.S. Vijayan1 & Lalitha Vijayan, *Conservation of wetlands of India – a review*, 1,Tropical Ecology, (2002),

When it comes to unscientifically established municipal solid waste dumping facility, leachate permeating from the landfill is the most evident pollutant of major concern. Landfill leachate is a liquid with high pollutant concentration formed from decomposition and leaching of waste carried by water permeating through the soil profile. This leachate is the primary carriers of toxic compounds from landfills into the wetlands and water bodies in vicinity. This leachate has major concentrations of heavy metals, alien nutrients, ammonia, and carbon which eventually seep out into the water body and dissolve with the hydrology of the wetland. This is turn converts the water into poisonous toxic interface for the aquatic bio-diversity of the wetland.

The leachate from landfills is composed mainly of very high concentration of organic matter, inorganic pollutants (chemicals) and heavy metals, COD (chemical oxygen demand) and BOD (biological oxygen demand) and compounds such as polychlorinated biphenyls which is a xenobiotic compound. Also, the waste chromium compounds dumped by the tanneries, dense blue-grey streams of metallic compounds are of major and particular concern.

A more concrete and distinct description of the chemical composition of the landfill leachate depends on the landfill design, waste composition rate, the waste segregation status, the climatic conditions, the temperature, the soil quality, and the age of the waste and time duration of the landfill.[6] One of the major issue of concern is that these leachate have high concentration of ammonia and organic nitrogen and therefore highly toxic both for the soil and the water.

Apart from these, micro-plastic fibres, bio-medical waste, hazardous sewage, electronic waste and industrial effluent

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https://www.academia.edu/3991557/Conservation_of_wetlands_of_India_-_a_review.

[6] Alexandros Stefanakis, Vassilios A. Tsihrintzis, *Treatment of Special Wastewaters in Vertical Flow Constructed Wetlands*, SCIENCE DIRECT (2014),https://www.sciencedirect.com/topics/earth-and-planetary-sciences/landfill-leachate.

contribute towards irreparable and fatal damage to the ecosystem and the human health. Among its significant impact, contamination of the water, eutrophication of aquatic systems, toxic effect on flora and fauna, decrease in fertility of the catchment areas are the main. Introduction of invasive species, depletion of biotic communities, breaking of ecological chain, changes in hydrology, remote changes to land use and geography, changes in temperature, and also depletion in ozone layer and other variations in climate change control quotients are also evident. Once the food chain is broken due to loss of aquatic flora, fauna and other migratory species, the entire ecosystem breaks down.

An extensive study of the impact of pollutants on the aquatic health of the Bhoj wetlands revealed a plethora of problems relating to wetland ecology as an immediate consequence of municipal, industrial and agricultural pollution. The study divulged that penetration of toxic substances and chemical laden water spills into the wetland water body leads to nutrient enrichment of the water body. This is turn leads to various consequent adverse manifestations like water quality degradation, loss of water spread area because of siltation, excessive algal blooms and excessive growth of macro-phytes and introduction of invasive plants due to alien nutrient load in the water body.[7] Similar facts were revealed in the study of the *Kabartal* wetland.[8]

In Kashmir, *the Hokersar* and *the Wular wetlands* which are declared as Ramsar Sites are reported to be reeling under the

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[7] EPCO Case Study: Conservation and management of Bhoj Wetlands, India, #329http://www.epco.in/epco_projects_international.phphttps://www.gwp.org/globalassets/global/toolbox/case-studies/asia-and caucasus/India_Conservation_and_management_of_Bhoj_Wetlands_329.pdf

[8] Kalpana Ambastha, ,Syed Ainul Hussain ,Ruchi Badola, Social and Economic considerations in conserving wetlands of Indo-Gangetic plains, a case study of Kabartal wetland India, 27 ENVIRONMENTALIST ,261 (2007) https://doi.org/10.1007/s10669-007-9003-1.

pressure of municipal solid waste dumping.[9] As described by an environmental RTI activist, the National Green Tribunal has pointed out solid and liquid waste management in these areas as issues of grave concern, apart from encroachment. A petition before the NGT highlighted that the catchment areas of the Wular wetland was used by the Bandipora Municipal Council as waste dumping site for the last 15 years and the Municipal Council of Hajin executes unscientific dumping of solid waste near the Gandbal area on the southern shore of the Wular wetland.

Solid waste dumping in the lakes and wetlands of Kashmir is a constant lingering problem and several instances of Judicial environmental activism has been instrumental in whistleblowing this practice of serious environmental concern. In affirmative decisions taken by the Jammu and Kashmir High Court, municipal waste dumping at one of the wetlands executed by the Municipal Council of Sopore was stopped.

These cognitions by the Judiciary are however discouraged by administrative and political lethargy. To cite an example, even though the funds under Swachh Bharat Mission Gramin for rural waste management can be used for wetland restoration and pollution control, neither these funds are requisitioned to be used in the aforesaid purpose nor any detailed reports are prepared for the same.[10]

Similarly in Gujrat, the Vadgam wetlands, located in the estuary region of the Sabarmati river, was used as a dumping ground for hazardous waste. This wetland which was earlier a potential

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[9] Raja Muzaffar Bhat, Why are kashmir wetlands drowning in waste? , THE LEAFLET(April 3, 2021), https://www.theleaflet.in/why-are-kashmir-wetlands-drowning-in-waste/

[10] DR RAJA MUZAFFAR BHAT, *MUNICIPAL WASTE IN WULLAR LAKE*, DAILY EXCELSIOR 20/02/2019, https://www.dailyexcelsior.com/municipal-waste-in-wullar-lake/.

body for prawn cultivation has now been converted to a body of toxic liquid and hazardous substance.[11]

In an incident reported in Bengaluru, chunks of dead fish were washed ashore in the banks of the Ulsoor Lake, depicting the toxic state of the water of the lake. Reportedly in Karnataka, the city lakes are drowned in the piles of waste and toxic liquid and experts have confirmed that oxygen levels in the lakes in Bengaluru have depleted because of leachate and sewage seeping into the lake water contaminating the water to a level which is absolutely poisonous to the aquatic ecology of the water bodies. In Bengaluru, more than half the percentage of waste water generated in the city gets into the water bodies in the vicinity.[12]

Pollution and poisoning of water in the coastal mangroves and lagoons and the famous Dal lake of Kashmir have resulted into the water becoming unsuitable for agriculture, fishing or even bathing. The local administration has taken cognizance of the fact that very sophisticated, intricate and expensive measures like dredging, laying of sewer pipe, artificial aeration (for organic pollution) and water diversion needs to be undertaken until organic pollution is reduced.

The Status of the Deepor Beel

The lone Ramsar site of Assam, the Deepor Beel, is reeling in the quagmire of irreversible pollution due to over-loaded dumping of waste and channeling of effluents.

The West Boragaon dumping site lies in the fringe areas of the internationally accredited Ramsar Site, Deepor Beel. Unfortunately, this municipal waste dumping site is neither

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[11] *INDIA'S WETLANDS 2016: ENCROACHED AND POLLUTED,* FEBRUARY 2, 2017SANDRP, https://sandrp.in/2017/02/02/indias-wetlands-2016-encroached-and-polluted/

[12] *Id.*

scientifically designed nor it is technically separated from the main water body

There are a plethora of environmental problems emanating from the positioning of this dumping site.[13]

Location and Physical Characteristics of West Boragaon Dumping Ground

The 24-hectare Boragaon dumping site is located in the bed of the Deepor Beel and therefore the piles of legacy waste dumped from 2004 have been spreading from the peripheral areas to the midsection of the Beel. It is an open dumping facility, which is in strict contradiction to the norms specified in Schedule (I, II, III, IV) of the Municipal Solid Waste Management Rules 2000.[14]

The site also doesn't have a scientifically designed geo-membrane lining/separation or a rubber belt separation to stop the leachate oozing out of the waste percolating into the water of the Beel. It also doesn't have a leachate collection facility. The Planning Commission of India in its report on Deepor Beel back in 2008 has pointed out that since the dumping facility is abutting the margin of the water body, the potentiality of the leachate percolating from the water heap reaching the core areas of the water body is very high.[15] Also, as mentioned in the CAG report 2016, the dumping site at Boragaon did not comply with the stipulated parameters as set by the Central Public

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[13] Priyanka Gogoi, *Saving Deepor Beel, Assam's Lone Ramsar Site*,1 JOURNAL FOR ENVIRONMENTAL LAW, RESEARCH AND ADVOCACY (2016).

[14] *Municipal Waste (Management and Handling) Rules, 2000*, INDIA KANOON, https://indiankanoon.org/doc/10681868/.

[15] Report on Visit to Deepor Beel in Assam – a wetland included under National Wetland Conservation and Management Programme of the Ministry of Environment & Forests, PLANNING COMMISSION, GOVERNMENT OF INDIA, 13-14 (August 2008), https://niti.gov.in/planningcommission.gov.in/docs/reports/E-F/DeeporBeel.pdf.

Health and Environmental Engineering Organization (CPHEEO)[16].

Waste Profile of Deepor Beel and Leachate Characteristic

As the leachate characteristic is assessed on the basis of the kind of waste, it is very important to first study the kind of waste dumped in the Boragaon west dumping site. The variety of waste material dumped in the Boragaon include solid and wet bio-waste of households, heaps of plastic waste, industrial waste, e-waste, medical waste including syringe, heavy metals, Aluminum cans etc. Currently, another issue of major threat potent is COVID waste including masks, PPE kits and other forms of COVID medical waste being dumped in the open.

The waste profile of Deepor Beel also include filth and effluents from Mora Bharalu, Bahini and Basistha through the Pamohi channel, construction waste from encroachments and constructions in the catchment areas and accumulation of thermocol and plastic waste from Beharbari fish market.[17]

From the study of the waste profile and several scientific studies conducted has been summarized that the leachate concentration contains high values of BOD, COD, heavy metals, organic and inorganic pollutants, medical pollutants, micro-plastic leachate etc. The pH value of the water is also more acidic towards the near end of the dump site.

A rigorous study and monitoring of the various parameters of the water and the sediment of the wetland has exposed the truth

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[16] *Municipal Solid Waste Management Manual*, CENTRAL PUBLIC HEALTH AND ENVIRONMENT ENGINEERING ORGANIZATION, MINISTRY OF URBAN DEVELOPMENT, GOVERNMENT OF INDIA, chromeextension://efaidnbmnnnibpcajpcglclefindmkaj/http://cpheeo.gov.in/upload/uploadfiles/files/Part2.pdf.

[17] P.P Baruah, Impact of developmental Interventions in Algal diversity in Deepor Beel-a Ramsar Site, Submitted to UNIVERSITY GRANTS COMMISSION. (JUNE 2011).

that the Municipal Waste Dumping facility at Boragaon happens to be the primary point source of pollution to the water body.[18]

Impact of Pollutants on Deepor Beel

It has been pointed out in various scientific studies that, physio-chemical characteristics and heavy metal concentration showed that water quality of the Wetland is in deteriorating state and the minimum permissible limits of the concentrations as per WHO standards has been exceeded.[19]

Recent study on water pollution has also revealed the fact that in the Deepor Beel water, the carcinogenic values have increased to unprecedented levels. This has happened substantially due to industrial waste, mainly batteries.[20]

The Institute of Advanced Study in Science and Technology, under Union Department of Science and Technology has cautioned against rampant and irretrievable pollution of water connected to the Deepor Beel, because of toxic water percolating from landfills. The study voiced concerns about the municipal solid waste facility being positioned close to human habitation which could not only pollute water bodies or the ground water but also air and also create health hazards for residents nearby. The Institute feared that the area could become a potential breeding ground for cockroaches, mosquitoes and other pests transmitting fatal diseases like dengue, malaria, encephalitis

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[18] Sonali Borpatra Gohain & Sabitry Bordoloi, *Impact of municipal solid waste disposal on the surface water and sediment of adjoining wetland Deepor Beel in Guwahati, Assam, India, Environmental Monitoring and Assessment,* SPRINGERLINK,(Apr 16, 2021), ink.springer.com/article/10.1007/s10661-021-09040-y.

[19] *Id.*

[20] Hiranya Barman, *GMC Dumping ground, A threat to Deepor Beel,* GPLUS, (Oct 20,2018), https://www.guwahatiplus.com/guwahati/gmc-dumping-ground-a-threat-to-deepor-beel#:~:text=GUWAHATI%3A%20Deepor%20Beel%20is%20home,birds%20and%20water%20body%20species.&text=%E2%80%9CThe%20dumping%20ground%20is%20causing,%2C%20plastics%2C%20aluminum%20cans%20etc.

etc. Accordingly a three member committee was formed by the High Court and the GMC was ordered to ensure spraying of pesticides in the area. In 2008, the State Government of Assam passed the Guwahati Water Bodies (Preservation and Conservation) Bill.

Legal Provisions to address 'Pollution of Wetlands' in India

The Ramsar Convention, 1971[21]:

The first modern legal instrument of international importance that purported to specifically protect wetlands and create national responsibilities at a global scale was the Ramsar Convention on Wetlands of International Importance Especially as Waterfowl Habitat, 1971. It was a remarkable treaty where 18 nations around the world put their signatures and undertook responsibility and accountability to preserve their respective wetlands. The Ramsar Convention is a worldwide treaty that restraints nations joining it from undertaking rampant and irresponsible exploitation of their wetlands and also binds nations to undertake policies at national level to identify, protect and conserve wetlands of national and international significance.[22]

India has also ratified the Ramsar Convention of 1971 and therefore undertakes responsibilities to protect and conserve its wetlands. Article 51 (c) of the Constitution of India stipulates that the State should make endeavours to foster respect for international law and treaty obligations. The provisions under Article 51(c) makes allegiance and obligation to international treaties, a part of the 'Directive Principles' under the Constitution of India. As such, these obligations are not

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[21] The Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat, Feb2,1971,T.I.A.S. No.1084,996 UNTS 245.

[22] GVT Matthews, *The Ramsar Convention on Wetlands, Its History and Development*, Ramsar Convention Bureau, Glands, Swithzerland (1993), https://www.ramsar.org/sites/default/files/documents/pdf/lib/Matthews-history.pdf.

enforceable unless they are made a part of the national laws of the nation through legislative Acts. Under Article 253[23] of the 'Constitution Of India', the Parliament has been given absolute powers to make domestic laws for implantation of International treaties, even if such implementation is a prerogative included in the State list.

India has identified 42 nos. of Ramsar sites and has adopted the domestic Wetlands (Conservation and Management) Rules, 2017 which pegs for management, conservation and sustainable wise use of its Ramsar sites.

The Wetland (Conservation and Management), 2017 prohibits conversion of wetlands for non-wetlands uses which includes solid waste dumping, channeling of sewage and effluents and use of wetlands in a way that will pollute the wetland to an irreversible extent.

Provisions under 'The Constitution of India'

The Constitution of India stipulates various provisions as a part of the 'basic structure' of the Constitution, which embarks upon the need to protect and conserve the Environment.

The Constitution of India was amended in 1976 by The Constitution (42nd Amendment) Act, 1976, inserting Article 48A in the Directive Principles of State Policy. Article 48A lays an obligation on the State Government to protect and safeguard the environment and wildlife. In *Sachidanand Pandey*[24] case it was held by the Supreme Court of India that Article 48A must be kept in mind in matters relating to maintenance of ecology.

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[23] Article 253 :"Notwithstanding anything in the foregoing provisions of this Chapter, Parliament has power to make any law for the whole or any part of the territory of India for implementing any treaty, agreement or convention with any other country or countries or any decision made at any international conference, association or other body."

[24] Pandey & Ors. v. The State of West Bengal & Ors. A.I.R 1987 S.C.R 223 (India).

Commitment to environment protection has also been mandated in the form of "Fundamental Duties" in the Constitution of India. Article 51-A (g) specifies that it shall be the duty of every citizen to protect and improve the natural environment. Therefore, while the 'Directive Principles of State Policy' imposes an obligation upon the government to protect the environment, the fundamental duties mandate the citizens to strive towards improvement and conservation of the environment and wildlife. In broader sense these Articles provide a spinal legal infrastructure for ecosystem conservation and also includes wetland conservation and protection in its ambit.

In a landmark decision in the case of State of *Gujarat* v. *Mirzapur Moti Kureshi Jamat & Others*[25], the Supreme Court observed and held that while enacting the provisions of Art 51(c), the Parliament has to ensure that the spirit of Article 48 and Article 48(A) are to be honoured.[26]

Provisions under the Environment (Protection) Act, 1986[27]

The Environment (Protection) Act, 1986 is a parent legislation or an umbrella legislation meant for protection of the Environment. As such, the subject matter of Wetland Protection was also construed to be part of the broader objective of Environment protection, because the definition of 'Environment" as stipulated under Sec. 2 of the Act included Air, Water, Land and also the inter-relationship that exist in the entire ecosystem.

The Environment (Protection) Act ,1986 was therefore used as a base legislation for providing protection to wetlands and several rules, regulations and notifications were issued under the aegis

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[25] State of Gujarat v. Mirzapur Moti Kureshi Jamat & Others , A.I.R 2006 S.C. 212 (India)

[26] Priyanka Gogoi, *Saving Deepor Beel, Assam's Lone Ramsar Site*,1 JOURNAL FOR ENVIRONMENTAL LAW, RESEARCH AND ADVOCACY (2016).

[27] The Environment (Protection) Act, 1986, No.29 Acts of Parliamnet ,1986 (India).

of the said Act for protection to wetlands and Ramsar sites of international importance.

Sec.3 of the Act [28] confers power upon the Central government, the power to take steps as it considers necessary for the protection and conservation of the environment, improving the quality of the ingredients of the environment and prevention, control and abatement of environmental pollution.

Sec 3(v) specifies areas in which certain operations, processes or functioning of industries shall not be carried out.

Sec 25 of the Act empowers the Central Government to make regulations for marking the standards, in excess of which environmental pollutants shall not be discharged. Such rules also cover compliance and handling of hazardous substances.

The provisions of this parent legislation have been useful in formulating a number of derivative rules and legislations. This Act also formed the edifice of several judicial decisions in terms of protection and conservation of Wetlands. The prohibition of aqua-culture that mushroomed in coastal areas, protection of the Dahanu Wetlands[29] in Maharashtra from industrial pollution etc. are just to cite a few examples.

Provisions under 'The Wetlands (Conservation and Management) Rules, 2017'[30]

India is a party to the Ramsar Convention**.** However, India did not have a formal and specific set of rules for protection and conservation of wetlands or the internationally accredited Ramsar Sites. It was this void in terms of a formal arrangement

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[28] *Id*

[29] Dahanu Taluka Environmental Welfare Association v. Union of India

[30] The Wetland (Conservation and Management) Rules, 2017, https://www.forests.tn.gov.in/tnforest/app/webroot/img/document/legislations/02.%20WETLANDS-RULES-2017.pdf.

of wetland regulation that the need for a specific set of regulations surfaced.

The 'Constitution of India' empowers the Indian Government to make laws for implementation of international treaties. Therefore, in execution of its commitments under the Ramsar Convention, and based on the directions under the National Environment Policy ,2006 and the recommendations of the National Forest Commission, the Parliament of India notified the Wetlands (Conservation and Management)Rules, 2017, under Section. 25 read with Sec. 3 of the Environment (Protection) Act ,1986[31].

The Wetlands (Conservation and Management) Rules, 2017, are meant for regulating identification of Wetlands and furthering technical and financial assistance to the States for the conservation of these Wetlands. The objectives of these set of rules are aimed towards ensuring institutional conservation of wetlands and containing their degradation.

The Wetlands (Conservation and Management) Rules, 2017, have specific provisions to check wetland pollution and activities that contribute towards the same, including dumping of municipal solid waste and channelling of sewage and effluents towards the wetlands.

Sec.4 of the Wetlands (Conservation and Management) Rules, 2017 imposes strict restrictions on certain activities within protected wetlands. These activities are prohibited in tune with the environmental pollution perspective as a part of the ecological approaches of wetland protection.

Sec.4 (iii) prohibits any kind of storage, disposal, manufacture or handling of substances which are hazardous in nature and

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[31] Nitin Bassia, M. Dinesh Kumarb, Anuradha Sharmac, P. Pardha-Saradhia, *Status of wetlands in India: A review of extent, ecosystem benefits, threats and management strategies*, Journal of Hydrology: Regional Studies, (Aug13,2014),https://www.sciencedirect.com/science/article/pii/S2214581814000010X

are covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989.

Sec.4 (iv) specifically prohibits dumping of municipal solid waste in the Wetland vicinity.

Sec.4 (v) of the aforementioned Rules[32], imposes strict restrictions on dumping and discharge of untreated waste and effluents from households, cities, and industries.

Municipal Waste (Management and Handling) Rules, 2000

The Municipal Waste (Management and Handling) Rules, 2000[33] specifically deals with management of municipal solid waste and specifications for landfill site.

Sec 7(2) stipulates that the waste processing and disposal facility should comply with the standards as mentioned in Schedule III and IV of the Rules.

Schedule III of the Rules deals with 'Specification of landfill sites' and states that the selection of the landfill sites should be based on proper study and examination of environmental issues and risks (Rule 2). The clearance for landfill sites should be assessed only after proper environment impact assessment of the proposed site and the department of Urban Development shall assist and coordinate with the concerned departments and organizations for procuring required clearances and approvals.

Specifications for Landfill Sites

Rule 8 of Schedule III clearly specifies that the landfill site should be placed away from environmentally sensitive areas such as wetlands, forest areas, water bodies, National parks, and also habitation clusters.

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[32] *Supra* Note 30.

[33] *Supra* Note 14.

Rule 6 of Schedule III stipulates that Bio-medical wastes shall be disposed off in accordance with the Bio-medical Wastes (Management and Handling) Rules, 1998 and hazardous wastes shall be managed in accordance with the Hazardous Wastes (Management and Handling) Rules, 1989, as amended from time to time.

Rule 18 to 21 of Schedule III deals with 'Specifications of Landfilling'. It states that, in landfills sites waste should be covered with minimum 10 cm of soil/debris/construction material after each working day to contain air pollution. It also states that prior to monsoon season an intermediate cover of 40-65 cm thickness of soil shall be placed along with proper grading and compaction, to prevent seepage and infiltration during the rains. Also the landfill should be facilitated with scientific design to minimize infiltration and erosion.[34]

Again Schedule IV of the Rules deals with standards for composting, treated leachate and incineration. It stipulates that in order to check pollution from composting remnants the waste storage area should be in a covered state. It further provides that even if such composting is done in an open area it should be provided with impermeable membrane at the base with facility for collection and disposal of run off and leachate. The run off from landfill should not be entering any stream, pond, lake or any other water body.

Other Legal Provisions

Apart from these legislations, rules and regulatory frameworks, there are a host of other legislations which remotely cover the matters of Wetland protection from pollution.

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[34] The final cover shall meet the following specifications, namely: -- a. The final cover shall have a barrier soil layer comprising of 60 cm of clay or amended soil with permeability coefficient less than 1 x 10-7 cm/sec. b. On top of the barrier soil layer there shall be a drainage layer of 15 cm. On top of the drainage layer there shall be a vegetative layer of 45 cm to support natural plant growth and to minimize erosion.

Legislations like 'the Indian Fisheries Act, 1897'[35] penalises destruction of fish by poisoning of waters. The legislation speaks about poisoning of waters by release of toxic, noxious or poisonous materials into the water, causing death of fish.

Legislations like 'the Water (Prevention and Control of Pollution) Act, 1974'[36] and 'the Water (Prevention and Control of Pollution) Rules, 1975' are umbrella legislations covering the issue pertaining to water pollution and discharge of sewage and pollutants into water bodies. Under Sec 25 of the Act[37] , sewage or pollutants cannot be released, channelized or discharged in a way that it enters the water body and it is the duty of the State Pollution Control Body to deals such matters with utmost responsibility and if required to intervene and stop such activity.

Besides these legal provisions, other legislations can also be used for the protection of wetlands in the country. Some of them are as the Wildlife (Protection) Act, 1972[38], the Forest Conservation Act, 1980[39], the Air (Prevention and Control of Pollution) Act, 1981[40], the Biological Diversity Act, 2002[41] etc.

The Guwahati Water Bodies (Preservation and Conservation) Act, 2008 [42]

This Act was constituted for protection, preservation and conservation and regulation of water bodies and to convert water-bodies into reservoirs and eco-tourism park and protect water bodies from encroachers and damages. Sec 4 of this Act

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[35] The Indian Fisheries Act, 1897, No. 4, (India)

[36] The Water (Prevention and Control of Pollution) Act, 1974, No. 6, Acts of the Parliament ,1974 (India).

[37] *Id*

[38] The Wildlife (Protection) Act, 1972, No.53, Acts of the Parliament ,1972 (India).

[39] The Forest Conservation Act, 1980, No.69, Acts of the Parliament ,1980 (India).

[40] The Air (Prevention and Control of Pollution) Act, 1981, No. 14, Acts of the Parliament, 1981 (India).

[41] The Biological Diversity Act, 2002, No.18 Acts of the Parliament,2003 (India).

[42] The Guwahati Water Bodies (Preservation and Conservation) Act,2008, Assam Act No XX of 2008.

specifically lays down that the land area specified under Schedule I, II, III and IV of this Act should not be used for waste dumping. The problem however, with this legislation is that it doesn't cover all the areas surrounding Deepor Beel including the West Boragaon dumping site.

State Specific Laws

To facilitate the site-specific problems of specific wetlands, several States in Indian have their own set of laws concerning wetlands. For example the Kerala Conservation of Paddy Land and Wetland Act, 2008[43], the Andhra Pradesh Water, Land and Trees Act, 2002[44], the Jammu and Kashmir Wildlife (Protection) (Amendment) Act, 2002 etc. the West Bengal Wetlands and Water Bodies Conservation Policy (2012)[45] recommends that no wetlands and water bodies can be filled up, degraded, drained, converted or subjected to any kind of activity that is incompatible with the ecological integrity of the wetlands[46].

Judicial Interventions

The Indian Judiciary has time and again made several interventions in the form of both judicial decisions and suo-moto cognizance of cases (Judicial Activism) to uphold the principles of the Indian Constitution in terms of environmental protection and adherence to international treaties and conventions of environmental importance.

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[43] The Kerala Conservation of Paddy Land and Wetland Act, 2008, No. 28, 2008 (India).

[44] The Andhra Pradesh Water, Land and Trees Act, 2002,No. 10, 2002 (India).

[45] *West Bengal wetlands and water bodies conservation policy 2012*, INDIA ENVIRONMENTAL PORTAL, (July 19, 2012),http://www.indiaenvironmentportal.org.in/content/360933/west-bengal-wetlands-and-water-bodies-conservation-policy 2012/#:~:text=West%20Bengal%20wetlands%20and%20water%20bodies%20conservation%20policy%202012.

[46] *Id.*

Polluter Pays Principle

The 'Polluter Pays Principle' which was first introduced by the OCED[47] to regulate the economic aspects of environmental policies was also subsequently enshrined in Principle 16 of the 'Rio Declaration on Environment and Development'[48] imposing liability on the person who pollutes the environment, the principle establishes and introduces the elements of both 'responsibility' and 'accountability'. According to the principle, a person who pollutes the environment should bear the cost of pollution and also compensate for the damage inflicted upon the environment while making endeavours to restore the environment to its original state.

The India Judiciary has in several landmark judgements incorporated and applied the principle of 'Polluter pays' as a core principle of environmental jurisprudence in its legal regime.

In *Vellore Citizen's* case[49] the Court interpreted the 'Polluter Pay Principle' as an absolute liability, where the responsibility for harm or damage caused to the environment extends not only to the point of compensating the victims of pollution but also to the extent of paying the cost of restoring the environment from the state of degradation.

In India *Council for Enviro-Legal Action* case[50] the Court held that once the person carries on an activity that is inherently hazardous or dangerous, he is liable to make good the loss, even if he undertook reasonable care and caution while carrying on the activity.

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[47] Organization for Economic Cooperation and Development.

[48] Principle 16: National authorities should endeavour to promote the internalization of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

[49] Vellore Citizen's Welfare Forum v. Union of India ,1996(5) S.C.C 647 (India).

[50] Indian Council for Enviro-Legal Action v. Union of India, 1996(3) S.C.C 212 (India).

Again, in the *Oleum Gas Leak* case[51], the Court held that if an enterprise engaged in a hazardous or inherently dangerous industry which poses threat to health and safety of persons residing in surrounding areas, it is absolutely liable for any damage caused. Similarly in *M.C Mehta* v. *Kamal Nath & Ors*[52], the Court held that the act of causing pollution should be construed as a civil wrong and also as a tort committed against the community as a whole.

Even in matters specific to solid wasting dumping, sewage and effluent channelling and release of toxic and hazardous substances to the waterbodies of the wetlands, there are several instances where the National Green Tribunal can be seen directing the administration and even taking a activist stance on the same.

In *Subhas Datta V. State of West Bengal & Others*[53], the NGT has enforced the provisions under the East Kolkata Wetlands (Conservation and Management) Act, 2006 and has directed the State Government to stop all prohibitory activities in the vicinity of the East Kolkata Wetland Area[54]. Among the activities that the NGT prohibited, it also asked the State government to take immediate steps to relocate the waste dumping site from the Mollar Bheri area which is close to the wetland water body. It also directed the government to work towards the restoration of degraded land and recuperate the land to its original character. The tribunal specifically mandated against plastic, leather, and rubber pollution and tannery waste processing unit in the vicinity of the wetland.

The authorities has been directed to come up with an 'Integrated Waste Management Plan, and also to make an assessment of the damage compensation that may have been inflicted upon

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[51] The Oleum Gas Leak case (M.C. Mehta vs. Union of India), A.I.R 1987 S.C 1086 (India).

[52] M. C. Mehta vs Kamal Nath & Ors**,** (1997)1S.C.C 388 (India).

[53] Subhas Datta V. State of West Bengal & Ors , O.A No. 33/2014/EZ (India).

[54] *Id.*

the ecosystem and environment of East Kolkata Wetlands by effluents and solid waste.

Demonstrating highest order of judicial responsibility towards matters of serious environmental concern, the National Green Tribunal on its own *Motion* v. *State of Kerala* took cognizance of Municipal solid waste pollution in the water bodies around the Bangalore city.[55] The tribunal considered remedial action for restoration of the Varthur, Agara and Bellandur lakes and preventing solid waste and dumping and discharge of effluents in the lakes. The tribunal also considered removing of encroachment from the catchment areas as human settlements on the banks of the lake lead to pollution and open defecation in the lakes.

The issue of irresponsible and unscientific dumping of waste in the vicinity of wetlands also came up for consideration in the matter of *Raja Muzaffar Bhat* v. *State of Jammu and Kashmir*[56]. The tribunal ordered prevention of municipal solid waste dumping, sewage channeling and encroachment of the Wular Lake, the Hokersar Wetlands and the Kreento-Chandhara wetland in Jammu & Kashmir.

In another order dated 8/7/2020 the dumping of solid waste around Ningli Tarzoo in the Wullar Lake was questioned. The Wular Lake being a Ramsar Site and an eco-sensitive zone is an environmentally sensitive area. The NGT directed a factual reporting of action taken by the State Wetland Authority.[57]

In 2016, the matter of municipal solid waste dumping in Anchar wetland of Jammu & Kashmir, serious concerns were raised when the local commissioner informed detection of bio-medical waste in the heads of solid waste dumped on the bank of the wetland. The National Green Tribunal, via its earlier orders

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[55] The National Green Tribunal in the matter of Court on its own Motion v. State of Karnataka, O.A. No. 125 of 2017,(India).

[56] Raja Muzzaffar Bhat v. U.T. of Jammu & Kashmir, O.A No. 351/2019, (India).

[57] *Id.*

dated 13/01/2015, had directed commissioning of Municipal Solid Waste Treatment Plant to protect the Anchar Lake wetland from solid waste dumping. The Court also directed the State of Jammu & Kashmir to report facts regarding the findings in terms of Bio-waste disposal in the wetland. The status regarding Bio-Medical Waste treatment plants in the major cities of the State was also asked for. The NGT however noted with disappointed that no steps were taken by the concerned departments of the State government in terms of either bio-medical waste treatment plants or waste-to-energy plants.[58]

In Mulund-Thane belt, The Bombay High Court has directed for a halt to the unscientific and rampant practice of municipal solid waste dumping on the mangrove plots and wetland beds in the area. While responding to a PIL filed by an environmental organization named 'Vanashakti' the Court took cognizance of the environmental pollution in an area which was embarked for being declared as special economic zone. In the aforesaid order, the division bench comprising of Chief Justice Mohit Shah and Justice Roshan Dalvi, directed the Ministry of Environment and Forest of the State government to respond to the allegations of severe environmental pollution due to waste dumping in the area. The PIL filed by 'Vanashakti' alleged that the Ministry of Environment and Forest had granted clearance for declaring the environmentally sensitive belt as 'Special Economic Zone' without introspection into the environmental impact of the same.[59]

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[58] Dr. Irfan Ahmad & Ors. v. Mr. Nawang Rigzin Jora & Ors, O.A No. 277 of 2013 (India).

[59]Staff Reporter, *Halt dumping of waste on Thane mangrove plot: HC, Times Of India*, TIMES OF INDIA (Jan 6, 2012) , https://timesofindia.indiatimes.com/city/mumbai/Halt-dumping-of-waste-on-Thane-mangrove-plot-HC/articleshow/11382244.cms.to

NGT Orders and Responses: Deepor Beel Waste Dumping Cases

Several PILs pertaining to unscientific municipal waste dumping and encroachment in the Deepor Beel area have been raised to draw the attention of the judiciary in terms of abrogation of environmental rights. In 2007, the residents and locals of Deepor Beel area filed a PIL to check rampant dumping of untreated waste by the Guwahati Municipal Corporation since 2006.

During the hearing of a petition filed by RTI activist Rohit Choudhury on Deepor Beel, the National Green Tribunal, while making a crucial remark stated that, "the earth is not for humans alone and that all creatures, including wildlife, have a right over it".

RTI activist Rohit Choudhury has been constantly fighting against several issues concerning the environmental aspects of the Deepor Beel, which are as follow:

a. In 2014, Rohit Choudhury petitioned the National Green Tribunal for halting solid waste dumping in the Deepor Beel area (Original Application No: 19/ 2014).[60] The NGT admitted the application which relates with contravention of the provisions of the Wetland (Conservation and Management) Rules,2010[61] and the Municipal Solid Waste (Management and Handling) Rules, 2000[62] in the Deepor Beel wetland. Mr Choudhury also raised concerns about the contamination of the Beel water and its impact upon the elephant herds and other species of birds and aquatic fish that feed on the water of the Beel. Mr. Choudhury pleaded the NGT to look into the matters of

[60] Rohit Choudhury v. Union of India & Ors., O.A. No. 19/2014/EZ (India).

[61] Wetland (Conservation and Management) Rules,2010, https://www.forests.tn.gov.in/tnforest/app/webroot/img/document/legislations/02.%20WETLANDS-RULES-2010.pdf

[62] *Supra* note.33

unregulated and illegal dumping of sewage and municipal effluents in the core areas of the Beel and issue direction so as to check rampant abrogation of environmental and human rights norms.

b. In response, the NGT had directed the Chief Secretary of the State to file response with respect to the matter of solid waste dumping and environmental pollution in the Deepor Beel[63]. The NGT also directed the State Government to identify an alternative site for garbage dumping and immediately stop dumping of garbage in the wetland site.
c. In May 2016, the NGT further directed that the State Government should consider the Solid Waste Management Plant as a matter of top priority. Earlier in 2015, the NGT had imposed fine upon the Chief Secretary, Govt. of Assam and the Additional Chief Secretary, Revenue Department for non-filling of affidavits and non-compliance of the orders of the NGT on several occasions.[64] However, on the part of the government it was contended that an alternative site for garbage dumping was already identified by the authorities and such details have been handed over to the concerned department for manufacture of the infrastructure of the dumping site.

In 2018, the NGT had ordered the local administration to remove the municipal solid waste dumping site form Deepor Beel area by 31st Dec, 2019.

In later stages, the State government filed affidavit stating that alternative sites for garbage dumping were identified in Chandrapur and Sonapur and that a compost plant was also

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[63] Sushanta Talukdar, *"NGT notice to Assam on garbage dumping on wetland*", THE HINDU (Oct 24, 2014), http://www.thehindu.com/news/national/other-states/ngt-notice-to-assam-on-garbage-dumping-on-wetland/article6529069.ece.

[64] Staff Reporter, "*NGT slaps penalty on top State bureaucrats*", THE ASSAM TRIBUNE (June 2, 2015), http://www.assamtribune.com/scripts/detailsnew.asp?id=jun0215/at052 .

been constructed in Boragaon. The affidavits also stated that the target date for removal of legacy waste from Boragaon is April 2020 and that a study in this regard will be conducted by the State Bio-Diversity Board.

Recent Development and Challenges

After multiple hearings on the issue of rampant pollution of the Deepor Beel, The National Green Tribunal directed the Guwahati Municipal Corporation to halt dumping of solid waste in West Boragaon dumping site close to Deepor Beel. This came as a fresh leash of hope for the activists and locals of Deepor Beel who have been fighting for the cause since 2014. Two years after the order was issued on 29th of April, 2019, the Guwahati Municipal Corporation finally ordered for halting of the process of channeling and dumping the municipal solid waste of Guwahati in West Boragaon on June 28, 2021.

The next prominent task for this decision to sustain and show results was shifting of the dumping site to another appropriate site with scientific approach. This is where the campaign to save the Deepor Beel received another jolt.

The National Green Tribunal ordered the state government to identify another site for sustainable solid waste dumping. Accordingly, five months after the order, on September 21, 2019, the Guwahati Municipal Corporation signed a Memorandum of Agreement with Assam Power Generation Corporation Limited. As per the agreement, APGCL has given its no-objection consent to GMC to dump municipal waste and setting up scientific Solid Waste Management Facility in its campus in Chandrapur. The agreement also stipulated that GMC will take all due care to ensure scientific handling, segregation and storage of waste. In return APGCL (Assam Power Generation Corporation Limited) proposed to plan and construct Waste-to-Energy treatment plant near the site.

However, the entire process of planning and execution met with heavy protest from the locals of Chandrapur due to several crucial reasons. At the foremost, the locals have contended that

GMC has started dumping waste in open and environmentally sensitive spaces in Chandrapur with a solid waste management facility in place. They also allege that the dumping of waste was neither carried out in scientific manner nor there was proper segregation, handling and storage of the heaps of toxic municipal waste.

In the light of such irresponsible execution, the locals fear that the conversion of Chandrapur into an open dumping ground will pollute the tributaries like Digaru, Kolong and Kopili in Chandrapur. Having said that, in the light of such protest and blockade in the public domain, the shifting of the dumping ground might meet severe constraints and might also succumb to judicial activism, media cognizance of public outrage. If such eventualities occur, then the entire gamut of developments may succumb back to square one and the West Boragaon dump site which is already overloaded may have to bear additional burdens for another couple of years. In fact, it has been reported that hearing to a PIL filed by Mr. Pradip Baruah, the Gauhati High Court has already asked for discontinuation of the said dumping site at Chandrapur for two weeks. Also, as far as the Deepor Beel is concerned, it is already overburdened with the legacy waste and the water has been contaminated to unprecedented levels. Therefore, just shifting of the garbage dump might not severe the entire process and a judicious scientific execution of treatment of the legacy waste and purifying the waterbody through technological methodology is the need of the hour.

Concluding Observations

A close understanding of the subject matter brings into surface a plethora of legal and administrative lacunae that needs to be addressed. From the void in terms of a precise, specific and targeted, scientifically framed, strong legal outline, to the induction of real-time punitive and deterrent measures in the legal instruments, to addressing and minimizing the conflicts of overlapping laws and departments, to the introduction of

inclusive approach for continuous and consistent protection and conservation exercise etc., the gap areas are diverse.

The need for a customized site -specific laws to address the needs of a specific wetland, depending on its geographic, hydrological and other distinct specifications is another area of concern. This diverse array of issue needs to be introspected upon under different heads.

Lack of targeted approach

In India legislative, political, administrative and institutional aspects of Wetland protection have received very little and remote attention. Loosely framed words in umbrella legislations have been able to touch 'Wetlands' only from a broad and remote perspectives. Pollution of wetlands also have never received targeted and special attention as it is broadly covered under water, air and soil pollution. Moreover the lack of strict penal and punitive sanctions have made the available rules and regulation less effective and efficient and flouting of rules have become an open practice. To cite an example, dumping of municipal solid waste in wetlands have been prohibited both under the Wetlands (Conservation and Management) Rules 2010 and The Municipal Waste (Management and Handling) Rules, 2000. However, most of the Indian waterbodies and wetlands today are used for solid waste dumping and effluent discharge.[65]

In the light of the following facts. it is crucial that the national wetland strategy should encompass both prevention of loss and restoration[66] . In this regard it is also important to note that 'Sustainable Management' is an indispensable part of wetland policy formulation. This is so because unlike other

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[65]S.N. Prasad, T.V. Ramachandra, N. Ahalya, T. Sengupta1, Alok Kumar, A.K.Tiwari,V.S. Vijayan1 & Lalitha Vijayan, *Conservation of wetlands of India – a review*, 1TROPICAL ECOLOGY (2002), https://www.academia.edu/3991557/Conservation_of_wetlands_of_India_-_a_review.

[66] *Id.*

environmental entities, some amount of anthropogenic intervention is a must for wetlands for maintenance of its ecological balances. Therefore, wetlands need a separate targeted set of rules, scientifically framed to fit the specifications of wetland conservation requirements.

Addressing Multiple Sources of Pollution

Various interactions with locals and activists, revealed and administrative officers of the concerned department have revealed that water contamination of the Deepor Beel has reached to a level which has become fatal for the migratory birds, fish and other aquatic animals of the water body. It has also been reported that even agricultural produce like the indigenous '*Bao Dhan*' couldn't sustain the toxicity of the water. This has happened not just because of the municipal dumping and leachate from the landfills but also due to various other reasons including draining of filth and effluents from Mora Bharalu, Bahini and Basistha through Pamohi channel, and accumulation of huge chunks of thermocol and plastic waste from Beharbari fish market. Also, as per reports a channel containing industrial effluents from Guwahati Oil Refinery connects through the Bharalu River and enters the Deepor Beel.[67] Therefore, it is very important to acknowledge the fact that pollution from various point and non-point sources have exacerbated the pollution quotient to an irretrievable angle and therefore the problem needs to be addressed from various angles.

It is now for the administrative to undertake the uphill task of checking inlets into the Beel and diverting those channels in a way that it doesn't enter the Water body of the Beel.

Effective Sluice Gate Management

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[67] Mobaraque Hussain, *Detailed study of Deepor Beel mooted, The Assam Tribune*, (Sep 15, 2010), https://assamtribune.com/detailed-study-of-deepor-beel-mooted

The inlet and outlet characteristics of the *Khanajan* Channel is very crucial for the aquatic health and overall survival of the Deepor Beel as it is a point through which running water from the Brahmaputra enter the Beel diluting and flushing out pollutants from the wetland waterbody. Closing of sluice gates for maximum time of the year leads to increase of pollution concentration in the stagnant wetland bed. This phenomenon proves to be fatal.

In various instances, death of fish varieties have been reported in Deepor Beel, the primary reason being lack of oxygen due to decomposition of grass in stagnant toxic waters[68]**.**The closing of the sluice gates of Khanajan during most of the time of the year lead to blockage of flow of water to the wetland (which is an intrinsic need of an wetland), decrease in water content and increase in mud-filling,[69]increase in turbidity and increase in toxic content in stagnant water.

Opening and closing of sluice gates should therefore be regulated by the concerned authority or the 'State Wetland Authority' in sync with other departments in the best interest of the health of the wetland. It is therefore very important to have strict rules and regulations on the part of the administration to ensure operation of sluice gates in a way to maximize the flow of water into the wetlands without jeopardising flood control management. Even during monsoon season sluice gates should be opened at frequent intervals to flush out toxic run-offs from agricultural fields.

Ineffectiveness of Penal Provisions

The essence of 'intergenerational equity' and 'sustainable development' as mentioned in Principle 3 of 'Rio Declaration on

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[68] *Id.*

[69] Vijay Singh, *Greens win battle as sluice gates open to save wetlands*, THE TIMES OF INDIA,(Oct 12, 2018), https://timesofindia.indiatimes.com/city/navi-mumbai/greens-win-battle-as-sluice-gates-open-to-save-wetlands/articleshow/66172002.cms

Environment and Development 1992'[70] is also followed by facilitating doctrines like the 'Precautionary Principle' and 'Polluter Pays Principle'.

One cannot deny the penal sanction and the retributive impact that the 'Polluter Pays Principle' have had to reduce polluting tendencies. However according to legal theorist this principle is only replete with loopholes making it only mildly effective in practical terms.

To begin with, when it comes to executing the Polluter Pays Principle, it is ambiguous as to identify who the actual polluter is. This is because, in the lengthy economic cycle, the polluter generally is a part of a 'production chain' and therefore it is difficult to concretely identify the exact polluter and the extent of their contribution in the damage caused. Moreover, the 'Polluter Pays Principle' doesn't apply to 'historical waste'. Also, the penalty under this principle seems to be effective only in penalizing industries and companies. In case of poor households, informal sector firms and subsistence farmers, they cannot bear any additional charges slapped on them for waste disposal. This renders the entire provision futile.

Also, the principle has not been implemented properly appropriately and adequately. For example in Vellore Citizen's case[71], an amount of only Rs. 10,000/- was slapped on the tanneries for spreading pollution in the nearby areas. Also, in Kamal Nath's case[72] Rs. 10 lakh is too small an amount to be considered as exemplary damage for a big corporate house like Span Motels. As such it is very important to ensure that the punishment imposed or the penalty slapped is proportionate to the damage caused, so that it deters polluters from polluting.[73]

Therefore, it can be concluded that even though the Polluter Pays Principle has been able to whistle blow the polluters and

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[70] Principle 3:The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

[71] *Supra* note 44.

[72] *Supra* note 47.

[73] Himangshu Chaudhury, *Interpretation of 'Poluter Pay Principle'(PPP) in India, Legal Service India*, http://www.legalserviceindia.com/article/l54-Interpretation-of-Polluter-Pays-Principle.html.

make them accountable for damage caused, in practice the provisions remain inadequate.

Recommendation of targeted Legislation by Assam Wetland Authority

The Assam Wetland Authority which is a high-level authority to decide on policy formulation should shoulder the responsibility to recommend and assist the Government in framing of targeted legislation for the Wetlands of the state. This is so because different wetlands have different site-specific characteristics. For example, the problems of coastal wetlands are different from urban-wetlands. Site-specific legal regimes can therefore provide tailored provisions for each type of wetlands.

Moreover, the umbrella legislations covering wetland protection are sometime contradictory to the demands of the specific wetland. To site an example, the National Wildlife laws ban 'grazing' within all National Parks which are protected areas. However, grazing in a controlled way is essential to control aquatic macrophytes colonizing the wetland and altering its ecology. Therefore, wetlands flourish with grazing while the umbrella laws covering wetlands mandate the contradictory. Hence some amount of controlled human intervention is important to ecological integrity of wetlands.

To add on, it is a matter of concern that while the Ramsar Convention of 1971 provides for wetland compensation in a limited way(Article 4.2), it does-not provide for wetland restoration. This is where a specific targeted legislation should fill the gap. The legal provision should provide for issuance of restoration orders by competent authority,

Also, provisions should be inserted so as to ensure that breach of these restoration orders constitute criminal offence and be subject to financial or other punitive penalties. The Spanish

Water Act of 1985 and Uganda's National Environment Statute of 1995 is an example in this regard[74].

'Green Police' and Inclusive Approach

In addition to formulation of specific and targeted legislation for protecting the wetlands of the state the Assam Wetland Authority may also explore avenues for coming up with a contingent of personnel in the form of 'Green Police' specially trained to monitor and police environmental pollution. This contingent of personnel may be selected from the locals, NGOs and environmental activists working on these wetlands. This approach may prove to be very inclusive as it will increase participation from the common man, increase monitoring and surveillance at ground level and make the locals and the activists 'Stakeholders' themselves and hence more connected to the cause.

Sustainable Alternative

As legacy waste is a huge lingering problem, scientific studies to be conducted to devise out ways in which the pollutants can be used in an affirmative way. In this regard, the Calcutta wetland sewage system has set a very good precedent by introducing fish varieties in the sewage pool filled with organic pollutants. The sediments of the organic ponds are removed at regular intervals and used as fertilizers for nearby vegetable farms. The rich soils and humid tropical growing conditions allow farmers to produce approximately 30% of the vegetables supplied to Calcutta.

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[74] Clare Shine And Cyrille De Klemm , Wetlands, Water And The Law ,Using Law To Advance Wetland Conservation And Wise Use 259, (Iucn 1999).